

HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN

*TOGETHER WITH THOSE OF BANGLADESH
NEPAL, BHUTAN AND CEYLON*

SÁLIM ALI
AND
S. DILLON RIPLEY

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(RE) = race extralimital

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F. P. BENNETT, Jr.

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F. P. BENNETT, Jr.

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- 3 *Ducula aenea*, Green Imperial Pigeon (506)
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- 6 *Treron bicincta*, Orangebreasted Green Pigeon (501)
- 7 *Chalcophaps indica*, Emerald Dove (542)
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DONALD WATSON

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DONALD WATSON

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J. P. IRANI

- 1 *Pterocles senegallus*, Spotted Sandgrouse (488)
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- 4 *Pterocles coronatus atratus*, Coronetted Sandgrouse (490)
- 5 *Pterocles orientalis orientalis*, Imperial Sandgrouse (489)

- 6 *Pterocles exustus erlangeri*, Indian Sandgrouse (487)
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D. V. COWEN

- 1 *Charadrius dubius curonicus*, Little Ringed Plover (379)
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- 3 *Perdica erythrorhyncha erythrorhyncha*, Painted Bush Quail (262)
- 4 *Columba elphinstonii*, Nilgiri Wood Pigeon (521)
- 5 *Arenaria interpres interpres*, Turnstone (402)
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C. J. F. COOMBS

- 1 *Treron sphenura sphenura*, Wedgetailed Green Pigeon (494)
- 2 *Ducula bicolor*, Pied Imperial Pigeon (509)
- 3 *Columba eversmanni*, Eastern Stock Pigeon (518)
- 4 *Columba rupestris turkestanica*, Hill Pigeon (515)
- 5 *Columba torringtoni*, Ceylon Wood Pigeon (522)
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- 7 *Streptopelia turtur arenicola*, Turtle-Dove (529)
- 8 *Streptopelia chinensis suratensis*, Spotted Dove (537)
- 9 *Streptopelia senegalensis cambayensis*, Little Brown Dove (541)

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PAUL BARRUEL

- 1 *Psittacula alexandri fasciata*, Indian Redbreasted Parakeet (551)
- 2 *Psittacula himalayana*, Himalayan Slatyheaded Parakeet (562)
- 3 *Chalcites maculatus*, Emerald Cuckoo (586)
- 4 *Harpactes erythrocephalus hodgsonii*, Redheaded Trogon (713)
- 5 *Batrachostomus hodgsoni hodgsoni*, Hodgson's Frogmouth (667)
- 6 *Treron apicauda apicauda*, Pintailed Green Pigeon (493)
- 7 *Columba hodgsonii*, Speckled Wood Pigeon (520)
- 8 *Columba leuconota leuconota*, Snow Pigeon (513)
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F. P. BENNETT, Jr.

- 1 *Psittacula cyanocephala*, Blossomheaded Parakeet (557)
- 2 *Psittacula roseata*, Assam Blossomheaded Parakeet (559)
- 3 *Psittacula eupatria*, Large Parakeet (545)
- 4 *Loriculus vernalis*, Indian Lorikeet (566)
- 5 *Psittacula alexandri*, Redbreasted Parakeet (551)
- 6 *Psittacula finschii*, Slatyheaded Parakeet (563)
- 7 *Coracias bengalensis*, Roller (755)
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F. P. BENNETT, Jr.

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- 2 *Megalaima lineata*, Lineata Barbet (784)
- 3 *Clamator coromandus*, Redwinged Crested Cuckoo (569)
- 4 *Megalaima asiatica*, Bluethroated Barbet (788)
- 5 *Megalaima haemacephala*, Crimsonbreasted Barbet (792)
- 6 *Cuculus micropterus*, Indian Cuckoo (576)

- 7 *Cacomantis passerinus*, Plaintive Cuckoo (584)
- 8 *Rhopodytis tristis*, Large Greenbilled Malkoha (593)
- 9 *Eudynamis scolopacea*, Koel (590)
- 10 *Centropus sinensis*, Crow-Pheasant (601)

Plate 42, facing page 288

J. P. IRANI

- 1 *Phaenicophaeus pyrrhocephalus*, Redfaced Malkoha (599)
- 2 *Taccocua leschenaultii leschenaultii*, Sirkeer Cuckoo (598)
- 3 *Cuculus varius varius*, Hawk-Cuckoo (573)
- 4 *Psittacula cyanocephala cyanocephala*, Blossomheaded Parakeet (558)
- 5 *Psittacula calthorpae*, Layard's Parakeet (565)
- 6 *Loriculus beryllinus*, Ceylon Lorikeet (568)
- 7 *Chalcites xanthorhynchus xanthorhynchus*, Violet Cuckoo (587)
- 8 *Cacomantis sonneratii sonneratii*, Baybanded Cuckoo (582)
- 9 *Cuculus poliocephalus poliocephalus*, Small Cuckoo (581)
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Plate 43, facing page 304

DONALD WATSON

- 1 *Otus brucei*, Striated Scops Owl (614)
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- 3 *Asio flammeus flammeus*, Shorteared Owl (664)
- 4 *Otus scops sunia*, Scops Owl (616)
- 5 *Strix aluco nivicola*, Himalayan Wood Owl (662)
- 6 *Strix ocellata ocellata*, Mottled Wood Owl (657)
- 7 *Strix leptogrammica indraee*, Brown Wood Owl (659)
- 8 *Bubo coromandus coromandus*, Dusky Horned Owl (630)
- 9 *Bubo bubo bengalensis*, Eagle-Owl (627)

CHANGES IN TERRITORIAL NAMES

The *Handbook* relies on observations made during the last hundred years, during which period many areas have changed their names and boundaries. The authors have striven to keep up with changes which have taken place during the writing and publication of the ten volumes, and hope the following notes will be helpful in interpretation. They should be supplemented by reference to atlases.

ANDHRA PRADESH. Until 1953 the northern half of Madras State, including the deltas of the Krishna and Godavari rivers and the arid hills of the Eastern Ghats, and the former Hyderabad State.

ARUNACHAL PRADESH. 'The Province of the Dawn.' The Himalayas east of Bhutan, including the Daffa, Abor, Miri and Mishmi hills. Before 1972 this area was the North-East Frontier Agency (NEFA), comprising the Kameng, Subansiri, Siang and Luhit frontier divisions.

ASSAM. Before 1947 this province included Arunachal Pradesh, Meghalaya, Mizoram and Nagaland (qq.v.). In 1972 it was restricted to the Brahmaputra Valley.

BANGLADESH. Constituted in 1971, formerly East Pakistan. Besides the Brahmaputra plains it includes the Chittagong Hill Tracts in the south.

BENGAL. Prior to 1947 the Ganges-Brahmaputra delta area, later divided into Bangladesh (q.v.) and West Bengal.

HARYANA. The fertile plains area north and west of Delhi, formerly part of the Punjab (q.v.).

HIMACHAL PRADESH. 'The Snowy Province.' The Himalayan hill States were united under this name in 1948, and in 1966 the area was enlarged by the hill regions of the Punjab.

KARNATAKA. The official name of Mysore since 1973.

LAKSHADWEEP. The official name of the Laccadive Islands group since 1973.

MEGHALAYA. 'Cloud-land.' The Garo, Jaintia, Khasi and Cachar hill districts, constituted a separate State in 1972.

MIZORAM. The Lushai or Mizo Hills area, constituted a separate State in 1972.

NAGALAND. The Naga Hills area, constituted a separate State in 1962.

NEFA. Now Arunachal Pradesh, q.v.

ODDH (= Awadh). The eastern Gangetic plains, now part of Uttar Pradesh ('Northern Province'), the name given in 1950 to the United Provinces (of Agra and Oudh).

PAKISTAN. Before 1972 West Pakistan, including Sind, Baluchistan, Punjab (q.v.), the North-West Frontier Province and Bahawalpur.

PUNJAB. Prior to 1947 the whole of the northern plains area watered by the Indus, and its five tributaries namely Jhelum, Chenab, Ravi, Beas and Sutlej. Divided in 1947 into West Punjab (Pakistan) and East Punjab (India). In 1966 East Punjab was further divided into Punjab, Haryana and Himachal Pradesh (qq.v.).

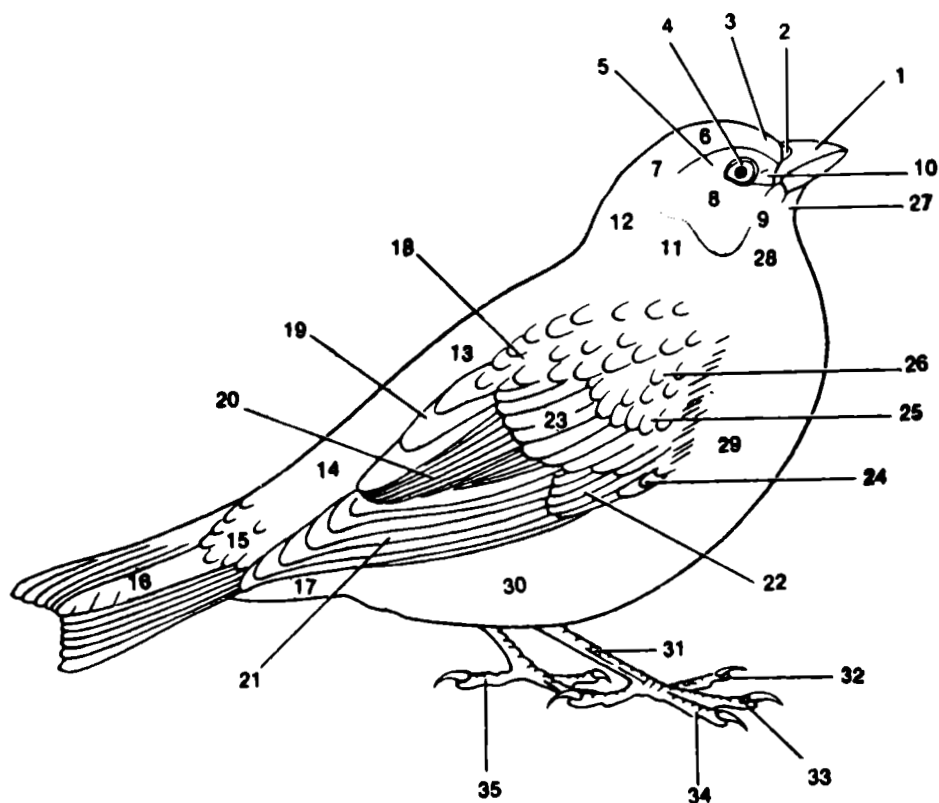
SAURASHTRA The union of States was merged with Bombay in 1956 and since 1960 has been part of Gujarat.

SRI LANKA. The official name of Ceylon since 1972.

TAMIL NADU. The name given to Madras State in 1969.

Terms used in the description of a bird's plumage and parts

Topography of a sparrow



- | | |
|---|-------------------------|
| 1 Culmen | 18 Scapulars |
| 2 Nostril | 19 Tertials |
| 3 Forehead | 20 Secondaries |
| 4 Iris | 21 Primaries |
| 5 Supercilium | 22 Primary coverts |
| 6 Crown | 23 Greater coverts |
| 7 Nape | 24 Bastard wing (alula) |
| 8 Ear-coverts | 25 Median coverts |
| 9 Malar region (malar stripe,
moustache) | 26 Lesser coverts |
| 10 Lores | 27 Chin |
| 11 Side of neck | 28 Throat |
| 12 Hindneck | 29 Breast |
| 13 Back | 30 Belly (abdomen) |
| 14 Rump | 31 Tarsus |
| 15 Upper tail-coverts | 32 Inner toe |
| 16 Tail (rectrices) | 33 Middle toe |
| 17 Under tail-coverts | 34 Outer toe |
| | 35 Hind toe (hallux) |

ABBREVIATIONS

Bull. BOC	<i>Bulletin of the British Ornithologists' Club</i>
CBCN	<i>Ceylon Bird Club Newsletter</i>
FBI	Fauna of British India, Birds
INB	<i>Newsletter for Birdwatchers, India</i>
J. Orn.	<i>Journal für Ornithologie, Berlin</i>
JBNHS	<i>Journal of the Bombay Natural History Society</i>
PZS	<i>Proceedings of the Zoological Society, London</i>
SF	<i>Stray Feathers</i>
SZ	<i>Spolia Zeylanica</i>

Abbreviated references to persons frequently quoted

Abdulali or HA	Humayun Abdulali
Alexander	W. B. Alexander
Amadon	Dean Amadon
Baker	E. C. Stuart Baker
Biswas or BB	Biswamoy Biswas
Delacour	Jean Delacour
Donald	C. H. Donald
Gibson-Hill	C. A. Gibson-Hill
Hartert	Ernst Hartert
Hume	A. O. Hume
Inglis	C. M. Inglis
Jerdon	T. C. Jerdon
Jones	A. E. Jones
Legge	Col. W. Vincent Legge
Ludlow	Frank Ludlow
Magrath	Major H. A. F. Magrath
Marshall	Cols. C. H. T. & G. F. L. Marshall
Mayr	Ernst Mayr
Meinertzhagen	Col. R. Meinertzhagen
Murphy	R. C. Murphy
Osmaston or BBO	B. B. Osmaston
Peters	J. L. Peters
Phillips	W. W. A. Phillips
Ripley or SDR	S. Dillon Ripley
Sálim Ali or SA	Sálim Ali
Scully	John Scully
Stevens	Herbert Stevens
Stresemann	Erwin Stresemann
Ticehurst or CBT	Claud B. Ticehurst
Whistler or HW	Hugh Whistler
Whitehead	Lt C. H. T. Whitehead

Order CHARADRIIFORMES (cont.)¹

Family BURHINIDAE: Stone Curlews, Thick-knees

For morphology and other details see Stresemann, E., 1927-34, *Aves*: 775; Baker, E. C. S., 1929, FBI 6: 76 (Oedicnemidae); Van Tyne, J., & Berger, A. J., 1959: 445; Pitman, C. R. S., 1964, Article 'Thickknee' in Thomson, A. L. (ed.), *New Dict. Birds*, London and New York.

Key to the Genera

	Page
Bill much longer than head and compressed laterally.....	<i>Esacus</i> 4
Bill not longer than head and not compressed.....	<i>Burhinus</i> 1

Genus BURHINUS Illiger

Burhinus Illiger, 1811, Prodrumus: 250. Type, by monotypy, *Charadrius magnirostris* Latham

Bill shorter than head, stout, straight, broader at base than high. Nostrils elongate, placed in a shallow groove. Forehead high; eyes very large. Wing long and pointed: 2nd primary (as.) longest. Tail of 12 slightly graduated feathers. No hind toe; nail of middle toe broad and dilated on the inner side.

BURHINUS OEDICNEMUS (Linnaeus)

Key to the Subspecies

Larger, wing c. 228 - 244 mm.; paler and less buff.....	<i>B. o. harterti</i>
Smaller, wing c. 203 - 222 mm.; darker and more buff.....	<i>B. o. indicus</i>

435. **Persian Stone Curlew.** *Burhinus oedicnemus harterti* Vaurie

Burhinus oedicnemus harterti Vaurie, 1963, Amer. Mus. Novit., No. 2131:2

(Kafir Kala, northern Khorasan, eastern Iran)

Cf. Abdulali, H., 1970, JBNHS 67: 288

Baker, FBI No. 2048, Vol. 6: 79

LOCAL NAMES. *Kārwānāk*, *Bārsiri* (Hindi).

SIZE. Grey Partridge +; length c. 41 cm. (16 in.).

FIELD CHARACTERS. As in the Indian race (436), q.v.

STATUS, DISTRIBUTION and HABITAT. Resident, with some local movements: West Pakistan (Baluchistan, Sind, W. Punjab) and NW. India south through Rajasthan and N. Gujarat to Kutch, the population there intergrading with 436. Affects open semi-desert and stony scrub country, dry river- and tank beds with babool groves and tamarisk jungle, etc.

Extralimital. Northern Africa from Morocco to Egypt, south to the Tademmat Plateau, Tuareg Mts and Faiyum; Crete, Cyprus; southern Palestine south to Sinai; desert of Kara Kum, and Afghanistan southward to the Persian Gulf, Baluchistan, and the Indian Desert (after Peters).

¹ *Synopsis*, 2nd edition, following recent revisions in this Order (Charadriiformes) by Jehl, J. R., 1968, *Mem. San Diego Soc. Nat. Hist.* 3: 1-53, places the families Burhinidae and Glareolidae along with Rostratulidae, Ibisorhynchidae and Dromadidae before Charadriidae.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian race (436).

BREEDING. Season, nest, and eggs as in the Indian race. Eggs have been taken round Karachi and elsewhere in Sind, and near Dera Ismail Khan in the former N.W.F. Province (W. Pakistan). Average size of 15 eggs 48.7×36.6 mm. (Baker).

MUSEUM DIAGNOSIS. The race *harlerti* is paler and, on an average, larger than *indicus* of peninsular India and Ceylon (Vaurie, loc. cit.). Birds from our arid north-western portions (Sind, Rajasthan, N. Gujarat, Kutch) are intermediate, but closer to *indicus* in all respects.

MEASUREMENTS. Five examples from Gujarat measure:

Wing	Bill (from skull)	Tarsus	Tail
4 ♂♂ 223-227	44-46	82-88	115-116 mm.
1 ♀ 217	46	81	107 mm.
			(SA)

COLOURS OF BARE PARTS. As in 436.

436. Indian Stone Curlew. *Burhinus oedicnemus indicus* (Salvadori)

Oedicnemus indicus Salvadori, 1865, Atti Soc. Ital. Sci. Nat. Milano 8: 381 (India)

Burhinus oedicnemus mayri Koelz, 1939, Proc. Biol. Soc. Wash. 52: 82 (Londa, Bombay)

Baker, FBI No. 2047, Vol. 6: 77

Plate 32, fig. 1, facing p. 16

LOCAL NAMES. *Kārwānāk*, *Bārsiri* (Hindi); *Lambi* (falconers); *Kharma*, *Chhōtā shilabātān* (Bengal); *Kalleydu* (Telugu); *Kānāl mosāl* (= jungle hare), *Kannādi āl katti* (Tamil); *Vāyālkānnān* (Malayalam); *Gōlu kiraluwā*, *Gōlu kiralā* (Sinhala); *Musāl kinandi* (Tamil, Ceylon).

SIZE. Grey Partridge + ; length c. 41 cm. (16 in.).

FIELD CHARACTERS. A dark-streaked sandy brown plover-like cursorial bird with thick head, long bare yellowish 'thick-kneed' legs, and huge yellow 'goggle' eyes. At rest a broad buffy bar on the closed wings, and in flight two narrow white bars and a conspicuous white patch in the dark wings are suggestive pointers. Sexes alike.

Young (immature). Paler than adult, more marked with buff and with the streaks on the underparts narrower. White wing markings less distinct.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, with some local movements. All India (including Assam and Manipur), both Pakistans, Nepal, Ceylon — plains and up to c. 1000 m. in the Himalayas and peninsular hills; low-country Dry zone in Ceylon. Restricted to deciduous biotope. Affects stony hillsides and hummocks with sparse dhāk (*Butea*) and thorn scrub, light forest, dry riverain tracts and tank beds with babool and tamarisk jungle, mango topes and orchards, and groves of trees around villages

— even rambling jungly gardens in urban areas, e.g. New Delhi. In Madhya Pradesh often found in the same facies as Painted Spurfowl (*Galloperdix lunulata*).

Extralimital. Burma, south-west and central Thailand, and Cambodia.

GENERAL HABITS. Terrestrial, cursorial, largely crepuscular and nocturnal. Usually seen in pairs or small parties of 5 or 6; in winter sometimes loose gatherings, or flocks, of up to 50 or more. Sedentary and parochial, inhabiting the same grove or patch of scrub jungle day after day, but subject to erratic local movements in winter. Sluggish during daytime, spending the hot hours under a shady grove or in shrubbery, lying low and flushed only by a dog or beaters, or when almost trodden on. The birds then fly a short distance low over the ground, running to hide themselves upon alighting. When suspicious or alarmed they scuttle off with quick pattering steps, slinking furtively — neck retracted, head ducked — occasionally squatting and ‘freezing’ with neck pressed flat on the ground, the large unblinking eye surreptitiously following the intruder’s movements. In this posture the bird’s plumage gives it perfect camouflage even at close range, magically transforming it into a pat of desiccated cowdung! Flight strong, with action reminiscent of both plover and bustard. Emerges into open clearings at dusk to feed, and is partial to roads through forest. Runs ahead of an approaching car, taking short flights in the beam of the headlights and momentarily re-alighting to be instantly disturbed again. In the darkness the peculiar flickering or vibrating wing-tips and the white markings on the wings proclaim its identity.

FOOD. Insects, worms, slugs, small reptiles, mice (?), along with which is usually swallowed a quantity of grit; occasionally some seeds. Among stomach contents the following insects have been identified: *Chrotogonus* sp., *Himatismus* sp., carabid and tenebrionid beetles, *Camponotus compressus* ants, and the mole-cricket *Gryllotalpa africana* (Mason & Lefroy, 1912).

VOICE and CALLS. A series of sharp, clear, quick-repeated whistling screams *pick-pick-pick-pick-pick*, often ending up with *pick-wick*, *pick-wick*, *pick-wick*, etc. somewhat slower in tempo with accent on second syllable. Timbre of call reminiscent of curlew. Mostly heard at dusk and dawn; frequently throughout moonlit nights. The birds are particularly noisy during the breeding season, often engaging in uneven duets or trios from different quarters. Also a single whistling scream, slowly repeated.

BREEDING. *Season*, February to August, chiefly March and April. In Ceylon April to September, chiefly June and July. *Nest*, a shallow unlined scrape on stony ground at the base of a bush, grass-tussock, clod of earth, or stone, in a dry shingly river bed, mango orchard or waste land. *Eggs*, normally 2 — exceptionally 3 — pale stone-colour or buff, blotched and smudged with blackish brown, sometimes strongly tinged with purplish or reddish, and with secondary grey markings. Variations occur. The shape varies from broad to long oval, generally quite obtuse at the smaller end, rarely rather pointed. Average size of 68 eggs 47.6×34.7 mm. (Baker). Incubation by both sexes but chiefly by female. When one bird is sitting, the other usually keeps guard in the proximity of the nest. Downy chicks as cryptically coloured as the eggs, less active than in most other plovers during the first few days; squatting doggo on approach of an intruder and

vanishing miraculously into the background. Brooded and tended by both parents.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. The race *indicus* is darker and, on an average, smaller than *harterti* of the arid portions of NW. India and W. Pakistan.

Chick (in down). Forehead, crown, back and wings sandy grey speckled with black; centre of crown with two longitudinal black lines; a broad black band from behind eye round the nape; cheeks, chin, sides of head and underparts buffy white, more buff on breast and with a black patch on its upper portion; two broad black lines along each side of ridge of back; two lateral black bars from base of wings to tail-tuft. 'Iris brown; bill and legs dusky pink' (Ingli).

MEASUREMENTS. Specimens from peninsular India and Ceylon give

	Wing	Bill (from skull)	Tarsus	Tail
5 ♂♂	205-220	41-46	81-85	105-108 mm.
6 ♀♀	197-217	43-46	76-85	91-108 mm.
				(SA, HW)

COLOURS OF BARE PARTS. Iris yellow; eyelid yellow. Bill: base yellow, remainder black. Legs and feet greenish yellow.

MISCELLANEOUS. An observation recorded by a competent naturalist (Macdonald, A. St. J., 1950, JBNHS 49: 556) suggests that not only does the Stone Curlew lose its scent during the breeding season, like many other ground-nesting birds, as a protection against predators that follow their nose, but on the other hand may actually develop an obnoxious scent or taste to deter its enemies further. This observer ate a breeding Stone Curlew — excellent fare in other seasons — which his trained dog had failed to nose out and retrieve, and found it to taste 'like a pigeon boiled in quinine'! This poses an interesting problem for experimentation.

The aboriginal Murias of Bastar district (M.P.) have discovered that a Stone Curlew will not cross a mound or ridge of wood ashes though it will readily cross one of earth. They snare the bird by throwing a low ridge of ashes across the bird's accustomed path and thus diverting it along to a gap in which a horse-hair noose has been set (Kirkpatrick, K. M., 1954, JBNHS 52: 299).

Genus *ESACUS* Lesson

Esacus Lesson, 1831, *Traité d'Orn.*, livr. 7: 547. Type, by monotypy, *Oedictes recurvirostris* Cuvier

Orthorhamphus Salvadori, 1874, Ucc. Borneo, in *Ann. Mus. Civ. Genova* 5: 312.

Type, by monotypy, *Oedictes magnirostris* Vieillot

Distinguished from *Burhinus* by its much more massive bill, which is compressed and nearly twice the length of the middle toe without claw.

ESACUS MAGNIROSTRIS (Vieillot)

Key to the Subspecies

- Culmen curving strongly upwards.....*E. m. recurvirostris*
 Culmen straight or almost so.....*E. m. magnirostris*

437. **Great Stone Plover.** *Esacus magnirostris recurvirostris* (Cuvier)*Oedicnemus recurvirostris* Cuvier, 1829, Règne Anim., ed. 2, 1: 500, note 2(No locality = Nepal, *fide* Baker)

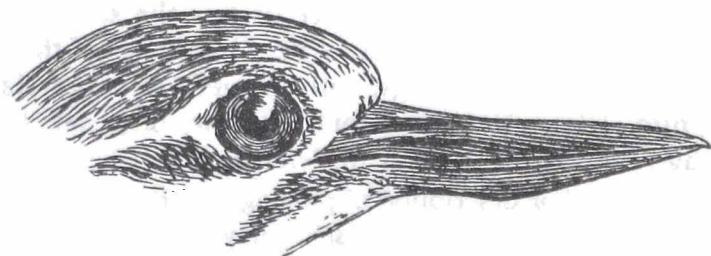
Baker, FBI No. 2049, Vol. 6: 80

Plate 32, fig. 2, facing p. 16

LOCAL NAMES. *Bādā kārwanāk* (Hindi); *Abi* (falconers); *Gānga titāi* = Ganges lapwing, *Bādā shilabātān* (Bengal); *Baligura* (Miris of plains, Assam).

SIZE. Domestic hen; length *c.* 51 cm. (20 in.).

FIELD CHARACTERS. A leggy thick-headed, massive-billed plover — a larger edition of the Stone Curlew but more or less uniform greyish sandy above, white below. The distinctly upturned-looking black and yellow bill, enormous yellowish 'goggle' eyes, with white spectacle-marking



× *c.* $\frac{1}{2}$

around them and two blackish bands above and below, are leading pointers, as is also a blackish lateral band near shoulder of closed wing. Sexes alike. In flight the peculiar arched profile of the back and a round white patch flashing on the black wing-quills are additional clues. Distant flight silhouette strikingly duck-like.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Mainly resident but with some local migratory (?) movements — all India (including Assam and Manipur), both Pakistans, Nepal, Ceylon (low-country Dry zone). Essentially riverain, affecting rocky beds of the larger rivers and their barren environs in deciduous biotope; occasionally sea beaches, tidal estuaries and salt-pans.

Extralimital. Burma, central Vietnam (Annam), and Hainan Island.

LOCAL MIGRATION? Regular seasonal appearances and disappearances as reported from certain areas unexplained and needing study. In Manipur appears regularly every year in August (earliest 29 July) and only stays until September, frequenting only particular grazing grounds and not others seemingly equally suitable. Never observed on 'return migration' (Higgins, 1934, JBNHS 37: 83). On Rameswaram Island (South India) present and fairly common except in certain months, with a marked influx during October to December (Biddulph, 1938, JBNHS 40: 250).

GENERAL HABITS. Like the Stone Curlew, also largely crepuscular and nocturnal, but distinctly not so shade-loving. Spends the day drowsing in the full glare of the sun on some baking hot sheet rock on a river bank or islet. Usually keeps in pairs or small parties of 4 to 5; occasionally loose flocks of up to 20 or so. Actions and behaviour very like 436. It is a fast

runner and can swim creditably on occasion, riding the water high like a duck.

FOOD. Mainly crabs, the heavy bill being well adapted for prising up stones to procure them from underneath. Doubtless also eats frogs, molluscs, insects and other small animals lurking in such places. Has been observed to rob the nest of a Kentish Plover, swallowing the eggs entire (Dharmakumarsinhji, 1949, JBNHS 48: 809).

VOICE and CALLS. 'A loud harsh single note; a low hiss when angry or frightened' (Baker). 'A loud creaking note not at all like the "curlew" call of the common Stone Plover' (Betts). 'Wild wailing cries *kree-kree-kree kre-kre-kre-kre-kre*' (Phillips).

BREEDING. *Season*, February to June, chiefly to mid April; in Ceylon January to August, chiefly during April to July. *Nest*, a shallow scrape on an exposed sandbank in a river bed, unsheltered by bush or clod. Eggs frequently laid on bare sheet rock. More or less the same site is occupied year after year if undisturbed. *Eggs*, 2 — very like those of the Stone Curlew in shape, coloration and markings, only larger. Average size of 60 eggs 54.4×41.0 mm. (Baker). As in Stone Curlew, both sexes incubate and tend the young. Incubation period undetermined.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.

Chick (in down). 'Covered with close "furry" down. Narrow frontal band and line to eye, under eye and thence to occiput black; broken black lines on each side of spine, meeting at level of thighs and sending transverse bar to base of wings, black; short black line over thighs; rest of upperparts "pepper and salt" colour, finely dotted with black. Underparts white' (Ticehurst). For a more detailed description see Whistler, H., 1912, JBNHS 21: 1074.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus
♂ ♀	252-273	74-87	c. 80-84 mm. (Baker)

Tail c. 112 mm. (SA). 'Average weight 1 lb. 12 oz.' (= c. 790 gm.) — Hume.

COLOURS OF BARE PARTS. Iris lemon yellow. Bill: sides at base including gape and base of lower mandible bright chrome yellow; entire culmen and rest of bill black. Legs and feet greenish grey; claws black.

438. Australian Stone Plover. *Esacus magnirostris magnirostris* (Vieillot)
Oedicnemus magnirostris Vieillot, 'Geoffroy St. Hilaire' = Vieillot, 1818, Nouv. Dict. Hist. Nat. 23: 231. (No locality = Australia, 1819, *ex pl.* G 39, f. 1, 28)
 Baker, FBI No. 2050, Vol. 6: 81

LOCAL NAMES. None recorded.

SIZE. Domestic hen; length c. 57 cm. ($22\frac{1}{2}$ in.).

FIELD CHARACTERS. Larger than 437; readily distinguished from it by the comparatively enormous straighter bill and much more contrasty black and white markings on the head. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Andaman Islands: recorded on almost every island — Little Cocos, North Bolton, Niell, Sir Hugh Rose,

Cinque, North Button, Little Button, etc. Not recorded in the Nicobars. Affects muddy and sandy seashores.

Extralimital. 'The greater part of the Indo-Australasian region from the Andaman Is. and the coasts of the Malay Peninsula, Philippines, Borneo and Sumatra, east to the Bismarck Archipelago, New Guinea, Solomon Is., New Caledonia and Australia' (Peters).

GENERAL HABITS. Very little recorded in our limits. Evidently similar to the Indian race *recurvirostris* except that it is exclusively maritime. Keeps to reefs and sandy beaches in pairs or small parties, sometimes in association with Crab Plovers (*Dromas ardeola*).

FOOD. Crabs and shellfish.

VOICE and CALLS. 'An eerie double syllable, unique and unmistakable' (Cairns). 'A mournful *wee-loo* harsh in tone' (Condon & McGill).

BREEDING. *Season* in the Andamans (Little Cocos, near Port Blair, Cinque I.), March and April — so far as known. *Nest*, a hollow scratched on the seashore just above high-water mark either in shingle or sand or among flotsam washed up by the tides. *Eggs*, 1 or 2, creamy white irregularly streaked, spotted and blotched with black or brownish black, with secondary markings of inky grey. Average size of 15 eggs 63.7×45.0 mm. (Baker). Share of the sexes and incubation period not recorded.

MUSEUM DIAGNOSIS. Bill differs from 437 in being much broader and deeper with the culmen almost straight instead of strongly upcurved. For description of plumage see Baker, loc. cit.; for fuller details Hume, 1874, SF 2: 291-2.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus
♂ ♀	266-277	76-82	80-84 mm. (Baker)

'Average weight 2 lb. 4 oz.' (c. 1025 gm.) — Hume.

COLOURS OF BARE PARTS. Iris and orbital skin chrome yellow. Bill black, yellowish at extreme base. Legs and feet yellow, greenish yellow or greyish yellow; claws black.

Family GLAREOLIDAE: Coursers (Courier Plovers), Pratincoles.

For morphology and other details see Stresemann, E., 1927-34, *Aves*: 776; Baker, E. C. S., 1929, FBI 6: 84; Van Tyne, J., & Berger, A. J., 1959: 446; Pitman, C. R. S., 1964, Article 'Pratincole' in Thomson, A. L. (ed.), *New Dict. Birds*, London and New York.

Key to the Genera

	Page
Hind toe absent; tarsus equal to about one-third of wing or more	<i>Cursorius</i> 7
A small hind toe present; tarsus equal to about one-fifth of wing	<i>Glareola</i> 12

Genus CURSORIUS Latham

Cursorius Latham, 1790, Index Orn. 2: 751. Type, by subsequent designation,

Charadrius europaeus Latham = *Charadrius cursor* Latham

Macrotarsius 'Jerdon' = Blyth, 1848, Jour. As. Soc. Bengal 17: 254. Type, by monotypy, *Macrotarsius bitorquatus* 'Jerdon' = Blyth. Not *Macrotarsus* Lacépède,

1799, 1800, 1801, or *Macrotarsus* Link, 1795. See also *Macrotarsus bitorquatus* Blyth, 1849, Jour. As. Soc. Bengal 18: 260.

Rhinoptilus Strickland, 1852 (1850), Proc. Zool. Soc. London: 220. New name for *Macrotarsus* (sic) of Blyth, preoccupied by *Macrotarsus* Lacépède, in errore (Blyth, tom. cit. supra, spelt his name *Macrotarsius*). Type, by subsequent designation, *Cursorius chalcopterus*. (Sharpe, 1896, Cat. Bds. Brit. Mus. 24: 43, errore, an invalid designation under Art. 30, Rule (f), International Rules of Zoological Nomenclature.)

Bill rather long, slender, and slightly arched. Tarsus and bare tibia slender, shielded in front and behind. No hind toe; anterior toes short, middle toe longer than the lateral ones with its claw expanded internally or slightly pectinated. Wings long and pointed. Tail short and almost even.

Key to the Species

		Page
A	Bill straight; breast with two transverse bands	<i>C. bitorquatus</i> 11
B	Bill rather long, narrow and slightly curved downward; no pectoral bands	1
1	Crown rufous in front, grey behind (adult); or, if lacking, breast cream coloured (imm.)	<i>C. cursor</i> 8
	Crown chestnut throughout with small black nuchal spot (adult); or, if lacking, breast dull rufous (imm.)	<i>C. coromandelicus</i> 9

439. Creamcoloured or Desert Courser. *Cursorius cursor cursor* (Latham)

Charadrius Cursor Latham, 1787, Gen. Syn. Bds., Suppl. 1: 293 (Kent)

Baker, FBI No. 2051, Vol. 6: 85

Vol. 2, plate 31

LOCAL NAMES. *Askalo* (Brahui, Baluchistan); *Chhēna bori* (Kutch).

SIZE. Grey Partridge —; length c. 23 cm. (9 in.).

FIELD CHARACTERS. A sandy buff lapwing-like cursorial bird of semi-desert country with longish bare white legs and slender, slightly arching black bill. The rufous and ashy grey crown with a broad black and white stripe from behind eye to nape, and black edging to the closed wings (primaries) are leading pointers. Sexes alike.

On the ground, colour scheme and general effect remarkably like an enlarged edition of the Desert Lark (*Alaemon alaudipes*) which shares its barren habitat. In flight, the black lining of the narrow pointed wings is a striking feature.

Young (immature). Paler duller sandy with the upperparts wavily barred with blackish brown. No rufous or grey in the crown.

STATUS, DISTRIBUTION and HABITAT. Winter visitor (August to April) to the arid portions of W. Pakistan (Baluchistan, Sind, Punjab), and NW. India — Rajasthan (SE. to about Ajmer) and Gujarat (Banāskāntha, Kutch, Saurashtra). Affects semi-desert and desert country — sunbaked *pāts* with sparse *Salsola* and *Sueda* bushes, or dotted with *Capparis* and hummocks of wind-blown sand. Also sandy fallow fields on the desert edge.

Extralimal. 'Breeds in N. Africa from Morocco to the Red Sea, Palestine eastward through Mesopotamia (Iraq) to S. and W. Persia, perhaps farther. In winter occurring as far S. as Lake Chad and Somaliland and extending to NW. India. Occasional in Europe north to the British Isles and Germany' (Peters).

MIGRATION. No ringing or other precise data.

GENERAL HABITS. Similar to Indian Courser (440), q.v., with which it sometimes associates where their habitats overlap. Keeps in loose scattered parties of 6 to 10 birds, occasionally up to 30 or more. Flight and wing action closely resembles pratincoles'.

FOOD. Chiefly insects — caterpillars, beetles, ants, locusts, etc.

VOICE and CALLS. Very silent. Occasionally a low clucking note on the wing somewhat like that of the Common Sandgrouse.

BREEDING. Extralimal, but some suggestive circumstantial evidence of nesting, sporadically (?) in Bahawalpur and Kutch.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.

MEASUREMENTS

Wing	Bill (from skull)	Tarsus	Tail
4 ♂♂ 160-171	30-32	52-60	63-68 mm.
4 ♀♀ 162-166	29-33	55-57	64-66 mm.
			(SA)

Hartert (Vög. Pal. Fauna 2: 1524) gives as follows:

♂♀ 155-166	30-32.5	56-60	61-64 mm.
(mostly 158-164)			

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet creamy white or fleshy white.

440. **Indian Courser.** *Cursorius coromandelicus* (Gmelin)

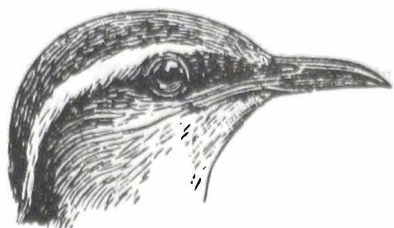
Charadrius coromandelicus Gmelin, 1789, Syst. Nat., 1 (2): 692 (Coromandel Coast)
Baker, FBI No. 2052, Vol. 6: 86

Vol. 2, plate 31

LOCAL NAMES. *Nükri* (Hindi); *Thōnth* (Mirshikars, Bihar); *Yerrā chitāwā* (Telugu); *Weli kiralā* (Sinhala); *Āl kātti* (Tamil, Ceylon); *Vēli ālāppān* (Malayalam).

SIZE. Grey Partridge — ; length c. 26 cm. (10 in.).

FIELD CHARACTERS. A sandy brown lapwing-like cursorial bird with chestnut and black underparts, slender slightly arching black bill, and long bare china-white legs. The rich rufous crown with a conspicuous double black and white stripe through and above eye to nape are diagnostic. Sexes alike. In flight reminiscent of pratincole, the dark undersides of the narrow pointed wings heightening the resemblance.



× c. 2/3

Young (immature). *Above*, dull buff irregularly barred with blackish brown. A small pale supercilium but no black stripe

below it. *Below*, chin and abdomen white; breast dull rufous, more or less barred with blackish.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Common but rather patchily distributed everywhere; also partly nomadic and/or locally migratory (?) — W. Pakistan (Baluchistan, Sind, Punjab), all India (excepting Assam and Manipur), E. Pakistan, Nepal terai. In Ceylon resident in the low-country Dry zone, chiefly around Jaffna Peninsula. Affects dry stony plains and Deccan plateau country — waste and fallow land with scattered scrub, ploughed fields, and village grazing grounds. Avoids areas of heavy rainfall as well as pure desert, but associates with Creamcoloured Courser (439) at the seam of its desert habitat.

LOCAL MOVEMENTS. No ringing or other precise data.

GENERAL HABITS. Terrestrial and cursorial. Keeps in pairs or scattered parties and small flocks in open country, where its coloration is astonishingly obliterative as long as the bird remains still. Runs about swiftly in short spurts dipping forward obliquely every now and again in characteristic plover style to pick some insect. When alarmed or suspicious the bird spurts forward a few metres, halting abruptly every little while to pull itself erect for a good look at the intruder before making the next spurt, and so on, quickly increasing the distance between itself and the object of its suspicion. If further pressed, rises with a peculiar note and flies fairly low along the ground for maybe fifty or a hundred metres, resuming its spurts immediately upon touching down. When thoroughly disturbed, rises higher in the air with deliberate rapid wing-strokes, then showing a considerable turn of speed. The narrow pointed dark-lined wings and flight silhouette are distinctly like a pratincole's.

FOOD. Chiefly insects — beetles and their larvae, grasshoppers, crickets, etc.

VOICE and CALLS. Very silent. A low clucking note on flushing.

BREEDING. *Season* overall March to August, the most favoured months varying locally; in Ceylon mainly May. *Nest*, a shallow unlined scrape on the bare soil on arid fallow or waste land. *Eggs*, 2 or 3, pale yellowish stone-colour to rich yellow-buff, thickly spotted and blotched with black; with minor variations. They are smooth-surfaced, broad blunt ovals. Incubation and tending of chicks largely by female, but male also assists. Period of incubation undetermined. Unlike lapwings, the parents do not demonstrate when nest approached or chicks handled. Both eggs and downy chicks remarkably camouflaged, merging perfectly into their surroundings and becoming completely lost even at a couple of metres' distance the instant the observer takes his eyes off them.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.

Chick (in down). 'Whole head, wings and upperparts mottled ginger, creamy white and black with no definite pattern. Underparts creamy white, pectoral region ginger; legs greyish' (Ticehurst).

MEASUREMENTS

Wing	Bill (from skull)	Tarsus	Tail
♂ ♀ 143-163	23-30	49-57	45-64 mm. (SA, HW)

No size difference between the sexes, but birds from Ceylon clinally somewhat smaller than from peninsular India.

COLOURS OF BARE PARTS. Iris dark brown or hazel. Bill black. Legs and feet china-white or ivory white.

441. **Jerdon's or Doublebanded Courser.** *Cursorius bitorquatus* (Blyth)

Macrotarsius bitorquatus 'Jerdon' = Blyth, 1848, Jour. As. Soc. Bengal 17: 254

(Eastern Ghats of the peninsula of India)

Baker, FBI No. 2053, Vol. 6: 88

Vol. 2, plate 31

LOCAL NAMES. *Ādāvi ūtha-titti* = 'Jungle empty-purse' (Telugu) recorded by Jerdon, enigmatical and not locally current or understood !

SIZE. More or less same as Indian Courser (440); length *c.* 27 cm. (10½ in.).

FIELD CHARACTERS. An obvious close relation of the Indian Courser. *Above:* Crown and hindneck dark brown with broad whitish supercilia from lores looping round nape; rest of upper plumage pinkish sandy brown. *Below:* chin and throat whitish; foreneck rufous, separated from brown breast by a white band; a second white band across lower breast; rest of underparts whitish. Tail white and black. A white wing-bar prominent in flight. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Present status unknown; ostensibly extinct. Believed by Jerdon (*c.* 1864) to be a permanent resident apparently with an extremely limited range. Recorded rarely since first described in 1848 and only from the Penner and Godavari valleys in Andhra — Nellore, Cuddapah, Sironcha, Bhadrachalam, and Anantapur neighbourhoods. Last authentic record in 1900, since when thorough search by competent ornithologists has failed to rediscover it in the same localities or elsewhere. Unlike Indian Courser was found on rocky undulating ground with thin forest and scrub jungle, not in open waste land.

GENERAL HABITS, FOOD, VOICE and CALLS. Was 'found in small parties, not very noisy, but occasionally uttering a plaintive cry' (Jerdon). Blanford met pairs twice and three birds together once (1867 and 1871) and describes the flight as more rapid than Indian Courser's.

BREEDING. A clutch of 2 eggs claimed to have been taken by an anonymous writer in the defunct *Asian* newspaper in 1895. They were described as bright yellow-stone, the ground colour almost obliterated by black scrawly blotches and spots; laid on the ground in thin scrub jungle. No authentic information available. Two males collected by Blanford on 5 and 8 March (1871) near Bhadrachalam showed no gonadal development.

MUSEUM DIAGNOSIS. Wing rather less pointed than in Indian Courser: 2nd and 3rd primaries (as.) longest and subequal. Bill smaller, straight and rather broader at base than in 440. For description of plumage see Baker, loc. cit.

MEASUREMENTS

Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀ 161-168	18-19	68	64-65 mm. (Baker)

COLOURS OF BARE PARTS. Iris umber brown. Bill blackish at tip of both mandibles, pale yellow at gape and base as far as nostrils. Legs and feet pale yellowish white with a fleshy tinge; soles flesh-coloured; claws horny (Blanford).

Genus *GLAREOLA* Brisson

Glareola Brisson, 1760, Orn. 1: 48; 5: 141. Type, by tautonymy, *Glareola* Brisson
= *Hirundo pratincola* Linnaeus

Bill short, wide and rather high at base; culmen curved; gape very large. Wing long and narrow: first primary (as.) longest; closed wings reaching to tip of or beyond tail. Tarsus short, scutellated in front and behind; hind toe well developed and raised above the anterior toes at base; lateral toes short; outer and middle toes united by a small web. Claws long, that of middle toe pectinated on inner margin.

Key to the Species

	Page
Tail deeply forked; wing exceeding 170 mm.....	<i>G. pratincola</i> 12
Tail nearly even; wing under 170 mm.....	<i>G. lactea</i> 15

GLAREOLA PRATINCOLA (Linnaeus)

Key to the Subspecies

Outer tail-feathers exceeding central tail-feathers by about 50 mm.....	<i>G. p. pratincola</i>
Outer tail-feathers exceeding central tail-feathers by 25 mm. or less	<i>G. p. maldivarum</i> ¹

442. Collared Pratincole or Swallow-Plover. *Glareola pratincola pratincola* (Linnaeus)

Hirundo Pratincola Linnaeus, 1766, Syst. Nat., ed. 12, 1: 345 (Shores of southern Europe and in Austria; restricted type locality, Austria, BOU Committee)
Baker, FBI No. 2054, Vol. 6: 89

LOCAL NAMES. None recorded.

SIZE. Myna $\pm$; slimmer. Length c. 23 cm. (9 in.).

FIELD CHARACTERS. A short-legged plover, shaped like a tern, with long narrow, pointed wings extending when closed to tip of deeply forked tail. *Above*, head and back olive-brown; lores black continued under eye as a narrow black band or gorget looping round throat patch. Upper tail-coverts white; tail black with white base. *Below*, chin and throat pale rufous-buff bounded by the black loop (reminiscent of Grey Partridge). Upper breast brown, passing downwards into rufous and then to white on abdomen and under tail-coverts. Narrow pointed wings, chestnut underwing lining, and black wing-quills conspicuous in flight. Sexes alike.

Y o u n g (immature). *Above* olive-brown stippled with fulvous and black. *Below*, no black gorget; breast mottled brown and rufous-white.

STATUS, DISTRIBUTION and HABITAT. Breeds sparingly in W. Pakistan; straggles into India and Ceylon in winter. Specimens taken at Allahabad

¹ Vaurie (1965) treats *G. pratincola* and *G. maldivarum* as full species.

in the east, Ahmedabad, Ratnagiri, and Coimbatore in the south, and in Hambantota district (Southern Province), Ceylon. Possibly more common and regular than the records indicate, but undifferentiated from the resident *maldivarum* (443). Affects barren sun-scorched flood plains by rivers and tidal creeks, and grazing land bordering jheels, etc.

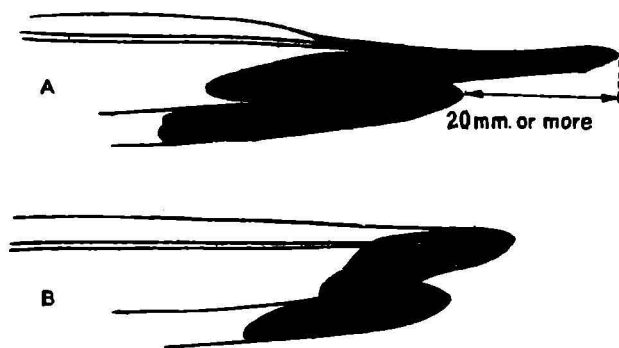
Extralimital. 'Breeds in the countries adjacent to and islands in the Mediterranean and Black Seas, eastward through Mesopotamia (Iraq) and S. Persia to NW. India; also from the Caspian Sea to Turkestan. Partly resident, but birds from the northern part of the breeding range winter in Africa north of the Sahara' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian race (443), q.v.

BREEDING. Breeds colonially in West Pakistan, in Baluchistan and Sind (Sonmiani in Las Bela, and Jungshahi, both within 100 km. of Karachi). *Season*, March, April, May. Nest and eggs as in 443. Average size of 40 eggs taken in W. Pakistan 30.5×23.4 mm. (Baker). Both sexes share incubation; period recorded elsewhere as about 18 days. When young are hatched, adult birds remarkably demonstrative, flying round very close to the intruder, constantly uttering their tern-like cry *chitti, chitti*, then settling at a few paces to do the well-known 'wounded' antics — lying with wings outspread and falling over on their sides (Ticehurst). C. R. S. Pitman describes the curious effect produced by one such colony of fluttering birds in mass distraction display as 'of a snake coiling about or a big lizard moving along'.

Downy chicks fed by regurgitation. They run very swiftly and are adept at hiding in hoof-prints, etc. and vanishing from sight.

MUSEUM DIAGNOSIS. Differs from *maldivarum* by shape and colour pattern of tail (see sketch): in *pratincola* outermost tail-feather *over* 20 mm. longer than the next; in *maldivarum* *under* 15 mm. See also Key to the Subspecies. Tips of secondaries



generally white; throat and lower breast less strongly suffused with rufous. For description of plumage see Baker, loc. cit.

Chick (in down). 'Head, wings and back grizzled dark brown and pale buff with median dark line down crown; underparts pale buff' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail	
				central	outer
♂ ♀	176-200	15-16	30-32	54-58	102-119 mm.
				(Baker)	

COLOURS OF BARE PARTS. As in 443.

443. Large Indian Pratincole or Swallow-Plover. *Glareola pratincola maldivarum* J. R. Forster

Glareola (Pratincola) Maldivarum J. R. Forster, 1795, Faunula Indica, ed. 2: 11 (Open sea in the latitude of the Maldive Islands, *ex* Latham, Gen. Syn. 5: 224, vr. B)
Baker, FBI No. 2055, Vol. 6: 90

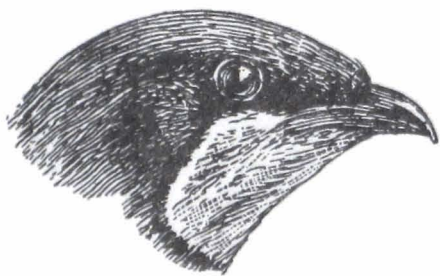
Vol. 2, plate 31

LOCAL NAMES. *Bādā bābuibātān* (Bengal); *Abulargē* (Maldive Is.).

SIZE. Myna $\pm$; slimmer. Length *c.* 24 cm. ($9\frac{1}{2}$ in.).

FIELD CHARACTERS. As for 442 but tail less deeply forked. Difference imperceptible except in the hand. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Not clear: variously resident, summer visitor, nomadic and/or locally (?) migratory. Known to breed in W. Pakistan (Sind), Madhya Pradesh, near Delhi (JBNHS 65: 780), W. Bengal (near Calcutta—Biswas), Assam, E. Pakistan, and Ceylon, straggling erratically chiefly in winter more or less throughout India, E. Pakistan, Nepal, Ceylon, Andaman, Nicobar, Cocos and Maldive Is. Breeds in company with nominate *pratincola* at the seam or meeting ground of their breeding ranges in Sind, both forms being summer visitors



$\times c. \frac{1}{2}$

to the district from east and west respectively. 'The former (*pratincola*) does not breed eastwards of this district, nor the latter (*maldivarum*) west of it' (Ticehurst). Affects dried-up flood plains by large rivers, tidal mudflats and marshes, paddy stubbles in coastal areas, ploughed and fallow fields, open grazing grounds, etc.

Extralimital. 'Breeds from the upper Argun River in Transbaikalia. N.E. Mongolia and S. Manchuria, south to India, Ceylon, Burma, Siam, Indochina, and Hainan. On migration or in winter through the Malay Archipelago to Australia' (Peters).

GENERAL HABITS. Gregarious, and inclined to be somewhat crepuscular. Keeps in flocks of 30 or 40 — sometimes very large ones of several hundred. Most active in the mornings and evenings — also in cloudy overcast weather — flying about high up in the air like swallows, wheeling and twisting and in swift zigzags, hawking insects with their capacious gapes — occasionally descending to treetop height or even skimming over cultivated fields and grassland. To a lesser extent also feeds on the ground, running about like a courser. The birds are sluggish during daytime, spending the hot hours squatting or standing about in the scorching sun on some open sandbank in a river or on pasture land.

FOOD. Flying insects, principally moths (Heterocera), beetles (Coleoptera), bugs (Hemiptera) and winged termites (Termitidae). Also 'Water-boatmen' (Corixidae and Notonectidae) which must evidently fly high in sunshine. Baker noted 'a curious habit of scratching in the soil rather like a small game bird, both when feeding and when dusting'.

VOICE and CALLS. Constantly utters a characteristic *kirri-kirri* in flight (Deignan). Cf. 442 under 'Breeding'.

BREEDING. In addition to the known breeding localities (see Status) also said to breed in the Andamans (where normally a summer immigrant), but not yet proven. *Season*, overall April through June. *Nests*, colonial: a shallow scrape, or not even that, on hard sunbaked grassland or stubble fields preferably where recently burnt, where the eggs become remarkably invisible. Eggs sometimes laid in deepish hoof-prints of cattle. The same sites often used year after year. *Eggs*, 2 or 3, pale yellowish stone to rich yellow buff, densely spotted and blotched with black and with grey secondary markings. In coloration and shape very similar to eggs of Indian Courser (440) with the same range of variations. Average size of 60 eggs 30.8×23.9 mm. (Baker). Behaviour at nest, etc. not different from 442, q.v.

MUSEUM DIAGNOSIS. For distinguishing from 442 see Key to the Subspecies and remarks under that form.

Young (immature). For description, not in FBI, see Lapersonne, JBNHS 35: 686.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail	
				central	outer
♂ ♀	173-191	13-15	30-33	52-62	71-85 mm. (Baker)

COLOURS OF BARE PARTS. Iris dark brown, bill black, reddish at gape brighter in breeding season. Legs and feet dusky black.

444. **Small Indian Pratincole** or **Swallow-Plover.** *Glareola lactea* Temminck

Glareola lactea Temminck, 1820, Man. d'Orn., ed. 2, 2: 503 (Bengal)

Baker, FBI No. 2056, Vol. 6: 92

Plate 32, fig. 3, facing p. 16

LOCAL NAMES. *Utteran* (Sind); *Chhōtā bābuiātān* (Bengal).

SIZE. Sparrow+; length *c.* 17 cm. ($6\frac{1}{2}$ in.).

FIELD CHARACTERS. A sandy grey fluviatile bird with pointed, swallow-like wings and slightly forked tail.

In overhead flight the whitish underparts, black wing lining (axillaries and coverts) contrasting with white bases of the quills, and black-tipped squarish white tail, are suggestive clues. In fading twilight, silhouette and actions in the air strongly reminiscent of pipistrelle bat.

Adult. *Above* pale sandy grey. Forehead brown; a band from eye to bill black. Tail-coverts and base of tail white, blackish towards end. *Below*, sooty brown tinged with rufous, becoming white from lower breast downwards. Sexes alike.

Young (immature). Feathers of upperparts obsoletely edged paler sandy or buff, producing a somewhat scaled effect. Throat and foreneck spotted with blackish.

STATUS, DISTRIBUTION and HABITAT. Resident, nomadic (?), and local migrant. West Pakistan (westward limit Indus river), all India (including Kashmir and Assam), Nepal (terai and up to *c.* 750 m.), E. Pakistan, and

Ceylon (low-country Dry zone). Affects large placid streams with sandbars, following the northern ones into the Himalayas up to c. 1800 metres. Also large jheels and coastal swamps (e.g. the Sunderbans, where reported to be extraordinarily common and abundant).

LOCAL MOVEMENTS. No ringing or other precise data. Found in many breeding localities only between April and August, disappearing thereafter.

GENERAL HABITS. Gregarious. More partial to water than its larger relatives. Keeps in flocks in the neighbourhood of large tanks and rivers — sometimes immense and of almost swarm proportions. Rather crepuscular, hawking into the dusk till almost quite dark. Winged insects captured high up in the air or scooped up from near the ground or water surface. After a bout of dashing and zigzagging to and fro the birds descend to settle on a sandbank in a scattered crowd, individuals darting about in spurts to feed in the characteristic plover manner. From time to time the flock rises simultaneously as to a given signal, to resume hawking. Flight rather 'angular', very reminiscent of a pipistrelle's, with the same agile turning, twisting, abrupt stopping short and doubling in pursuit of prey. In the gloaming when pratincoles, swifts and the small insectivorous bats are all flying around together high up in the air as is common, indeed any one of them may casually be mistaken for the other.

FOOD. Insects, chiefly flying beetles (Coleoptera), bugs (Hemiptera) and termites (Neuroptera).

VOICE and CALLS. Some notes reminiscent of the *tuck-tuck-tuck* calls of the House Gecko (*Hemidactylus*). 'Others [notes] made me feel I was listening to a greenfinch' (Lowther, from photographing hide). When disturbed at nest colony and flying about agitatedly overhead, *tiririt*, *tiririt*, *tiririt*, etc.

BREEDING. *Season*, in India overall February through April; in Ceylon March, April. Second layings later, even up till June if first clutches washed away by floods due to melting snows or unseasonable rain. *Nests* colonial, often several scores close to one another — shallow scrapes or none at all on exposed sandbanks in placid rivers, often down to the water's edge; frequently in company with terns and skimmers. *Eggs*, normal clutch 2 exceptionally 3. In eastern India *vide* Baker, 3 most usual, 2 exceptional; in Assam clutches of 4 normal. Ground colour of eggs mostly pale sandy buff or sandy grey with small spots and blotches of light grey-brown or reddish brown and secondary blotches of lavender or neutral tint. Minor variations common. Shape broad oval, very little compressed at smaller end. Average size of 200 eggs 25.9×20.5 mm. (Baker). Both sexes take part in incubation; period unrecorded. The eggs as well as downy chicks are admirably camouflaged and merge into their sandy environment in an astonishing way. Nesting birds, flying around and agitatedly diving at

PLATE 32

1 *Burhinus oedicnemus*, Stone Curlew (436). 2 *Esacus magnirostris*, Great Stone Plover (437). 3 *Glareola lactea*, Small Pratincole (444). 4 *Larus brunnicephalus*, Brownheaded Gull (454). 5 *Sterna acuticauda*, Blackbellied Tern (470). 6 *Sterna albifrons*, Whiteshafted Ternlet (477). 7 *Chlidonias hybridus*, Whiskered Tern (458). 8 *Sterna aurantia*, River Tern (463). 9 *Rynchops albicollis*, Indian Skimmer (484).



intruder, have a curious habit of alighting, singly or several at a time, squatting in front of him, opening wings and shuffling as if settling on eggs or chicks. When further approached they scuttle away dragging one wing or beating it on the sand as if broken, again shuffling and making as if to settle on eggs a little further on, and repeating the broken-wing tactics when further approached, finally taking to the air at the water's edge and joining their companions overhead.

MUSEUM DIAGNOSIS. See Key to the Species; for description of plumage Baker, loc. cit.

Chick (in down). 'Whole of upperparts finely mottled greyish white, dusky, and pale buff; narrow black line behind eyes; underparts white' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	142-160	9-10	20-21	50-57 mm. (Baker)

Weight 2 ♂ 37, 38 gm. (SA). 2 ♂ 40, 44 gm. (BB).

COLOURS OF BARE PARTS. Iris dark brown. Bill black, red at base and more yellow on gape. Legs and feet dark brown or plumbeous to black.

Family STERCORARIIDAE: Skuas, Jaegers

For morphology and other details see Stresemann, E., 1927-34, *Aves*: 777 (Subfamily Stercorariinae of Lariidae); Baker, E. C. S., 1929, FBI 6: 96; Van Tyne, J., & Berger, A. J., 1959: 449; Wynne-Edwards, V. C., 1964, Article 'Skua' in Thomson, A. L. (ed.), *New Dict. Birds*, London and New York.

Key to the Genera

	Page
Larger: culmen, 46-58 mm.; tarsus 64-79 mm.....	<i>Catharacta</i> 17
Smaller: culmen, 28-44 mm.; tarsus 39-55 mm.....	<i>Stercorarius</i> 20

Genus CATHARACTA Brünnich

Catharacta Brünnich, 1764, Orn. Boreal.: 32. Type, by subsequent designation, *Catharacta skua* Brünnich

Cf. Witherby, *Handbook of British Birds*, 1947, 5: 122; Ibis, 1956, 98: 161.

Contains large pelagic gull-like birds with webbed feet, of brown or squamated plumage, paler or darker in shade, resembling the immature plumage of certain gulls, and also some shearwaters (Procellariidae). Bill differs from gulls' in being broader at base with culmen greatly curved at tip which is bent over the lower mandible. Cere extends more than half culmen, the anterior lower portion overhanging the nostril (cf. shearwaters which have tubular nostrils). Lower mandible nearly straight, the angle being near the tip. Tarsi long and strong, scutellated in front reticulated behind; anterior toes long and fully webbed; hind toe small; claws small but curved and sharp. Wing long and pointed: 1st primary (as.) longest. Tail rounded with middle rectrices slightly elongated and projecting beyond the others.

Skuas are predatory on the eggs and chicks of terns, penguins, and other colonial-nesting sea birds. But they also live largely by piracy, attacking and chasing gulls and other birds savagely and with determination, forcing them to surrender their lawful prize and then deftly retrieving the spoils in mid-air. The birds breed in the

Arctic and Antarctic zones and wander into temperate and tropical seas. (For seasonal movements see Allan Brooks, 1939, ' Migrations of the Skua Family ', *Ibis* : 324-8.)

Found in Indian coastal waters merely as accidental waifs storm-tossed during heavy monsoon gales. Individual specimens are difficult to identify racially even in the museum, except with considerable experience and adequate comparative material. The following have occurred:

CATHARACTA SKUA Brünnich

Key to the Subspecies

		Page
A	Smaller: wing <i>c.</i> 366-398; culmen 46-51; tarsus 64-70 mm..... <i>C. s. antarctica</i>	18
B	Larger: wing <i>c.</i> 397-416; culmen 53-58; tarsus 70-79 mm..... <i>C. s. lonnbergi</i>	19
C	Medium-sized: wing <i>c.</i> 390-410; culmen 47-52; tarsus 62-66 mm. <i>C. s. maccormicki</i>	19

445. **Antarctic or Falkland Skua.** *Catharacta skua antarctica* (Lesson)
Lestris antarcticus Lesson, 1831, *Traité d'Orn.*, livr. 8: 616 (Falkland Islands and New Zealand; restricted to the former by Mathews, 1912, *Nov. Zool.* 18: 212)
Not in Baker, FBI

SIZE. Domestic duck $\pm$; length *c.* 53-61 cm. (21-24 in.).
FIELD CHARACTERS. A brown gull-like sea bird. (See under Family, above.)
STATUS. Five specimens taken in Ceylon, September-October, between 1875 and 1949. For particulars see Whistler, H., 1944, *SZ* 23 (3 & 4): 266; Phillips, W. W. A., 1953, ' A (1952) revised checklist of the birds of Ceylon ': 46. Sight record, Maldivé Is. — ' almost certainly Antarctic Skua ' (Phillips, 1963, *JBNHS* 60: 576).
DISTRIBUTION. ' Breeds on the Falkland Is., on Gough and Inaccessible Is., and on Tristan da Cunha. Ranges to the coasts of southern Argentine and S. Africa ' (Peters).
MUSEUM DIAGNOSIS. ' The smallest of the skuas, of highly variable plumage but most closely resembling the Brown Skuas (*C. s. lonnbergi*) of the pan-antarctic islands.'

MEASUREMENTS of breeding birds from the Falkland Is.:

	Wing	Bill (from feathers)	Tarsus	Mid toe with claw	Tail
'10 ♂♂	366-387 (av. 376.4)	46.5-50.3 (48.7)	64.3-70 (66.9)	72.2	139.6-154.5 mm. (145.8)
6 ♀♀	378-398 (av. 384.6)	47-50.8 (48.9)	64.7-69.6 (68.2)	73.9	140-156.7 mm. (151.7)

COLOURS OF BARE PARTS. Iris brown; bill, legs and feet black or blackish.'
(Murphy, 1936: 1020)

446. **Brown or Great Skua.** *Catharacta skua lonnbergi* Mathews

Catharacta antarctica lonnbergi Mathews, 1912, Nov. Zool. 18: 212 (New Zealand Seas)
Not in Baker, FBI

SIZE and FIELD CHARACTERS. As of 445.

STATUS. One specimen taken in Kerala, September 1933, and another further up the west coast in Ratnagiri district, June 1957 (JBNHS 39: 577; 55: 356).

DISTRIBUTION. 'Breeds on west coast of South Island, New Zealand (Otago district), Stewart I., Chatham Is., thence south on the subantarctic islands to Macquarie I. Ranges to the seas off southern Australia' (Peters).

MUSEUM DIAGNOSIS. 'Largest of the skuas, the size character showing in every dimension, but particularly in the length and bulk of bill and tarsus. Prevailingly "brown" in plumage, i.e. with a minimum of "chamois-colour" and of cinnamon, but subject to wide variation. Some specimens, even in fresh plumage, are very whitish both on mantle and ventral surface.'

MEASUREMENTS

Breeding adults from S. Georgia:

	Wing	Bill (from feathers)	Tarsus	Tail
6 ♂♂	401-416 (407)	54.3-58.2 (56.5)	70.8-79.3 (75)	153.5-162.4 mm. (156.9)
8 ♀♀	397-416 (407)	53.5-56.7 (55.5)	72.8-79 (75.3)	143.4-157 mm. (150.5)
11 ♂♀	Middle toe with claw 76.8-84 (78.7) mm.'			

(Murphy, 1936: 1024)

The Kerala specimen (BNHS No. 20108) measures: Wing 397; bill from cere, 32; tarsus 76; tail 134+ mm. (G. E. Watson).

COLOURS OF BARE PARTS. As in 445.

446a. **South Polar Skua.** *Catharacta skua maccormicki* (Saunders)

Stercorarius maccormicki Saunders, 1893, Bull. Brit. Orn. Cl. 3: 12 (Possession Island Victoria Land, lat. 71°14'S., long. 171°15'W.)

Catharacta maccormicki wilsoni Mathews, 1913, Bds. Austr. 2: 495 (Weddell Sea.

Type from lat. 74°S., long. 22°W., off Coats' Land, *vide* Lowe & Kinnear, antea p. 123)

? *Catharacta matsudairae* Taka-Tsukasa, 1922, Tori 3 (12 & 13, unpagged)
(Japanese Seas)

Not in Baker, FBI

SIZE and FIELD CHARACTERS. As of 445.

STATUS. One specimen taken in Ceylon (Trincomalee) during the NE. monsoon between 1877 and 1885 (Whistler, H., 1944, SZ 23 (3, 4): 266); one on the west coast of India, 7 August 1964 near Udipi (c. 13°23' N., 74°45' E.), Mysore state. The latter, of the dark phase, is of particular interest as it bore a band on its leg revealing its provenance. The bird was ringed on 5 March 1961 on the Antarctic Peninsula at c. 64°49'S., 62°51'W. by the U.S. Antarctic Research Programme Bird Banding Project.

DISTRIBUTION. ‘Breeds on the shores of Ross Sea and Weddell Sea. Ranging to the South Shetlands and north to the Japanese coast (?)’ (Peters).

MUSEUM DIAGNOSIS. ‘A medium-sized skua averaging slightly larger in most dimensions than *C. s. antarctica*, but with a relatively short tarsus. Notably smaller, except in wing-length, than *C. s. lonnbergi*. Generally much paler than other forms of the southern-hemisphere skuas in fresh plumage, and without cinnamon-red suffusion in the plumage. Ventral surface usually pale buffy brown; neck conspicuously streaked with yellow or “golden” hackles; white area at base of primary quills larger than in other forms.

MEASUREMENTS				
	Wing	Bill (from feathers)	Tarsus	Tail
9 ♂ ♀	390–410 (397.5)	47–51.8 (49.3)	62.4–65.5 (64.1)	140–152 mm. (147.4) ’
(Murphy, 1936: 1011)				

The ringed specimen (sex?) measures: Wing 372+; bill from skull 57.5, from feathers 49; cere 28; tarsus 62; tail 143 mm. (G. E. Watson).

COLOURS OF BARE PARTS. As in 445.

Genus STERCORARIUS Brisson

Stercorarius Brisson, 1760, Orn. 1: 56; 6: 149. Type, by tautonymy,
Stercorarius Brisson = *Larus parasiticus* Linnaeus

Differs from *Catharacta* mainly in the possession of more elongated central rectrices. Other characters and ecology as in that genus. Keeping the two genera discrete seems of doubtful utility, and is controversial.

Key to the Species

Bill higher than wide at base; wing usually more than 350 mm.;
in adults, the middle pair of rectrices broad throughout, twisted
.....*S. pomarinus*
Bill not higher than wide at base; wing less than 345 mm.; in
adults, the middle pair of rectrices straight.....*S. parasiticus*

447. **Pomatorhine Skua** or **Jaeger**. *Stercorarius pomarinus* (Temminck)
Lestris pomarinus Temminck, 1815 (1814), Man. d’Orn.: 514 (Arctic regions of Europe)
Baker, FBI No. 2059, Vol. 6: 98

LOCAL NAMES. None recorded.
SIZE. Domestic duck — ; length c. 53 cm. (21 in.).

FIELD CHARACTERS. A large pelagic gull-like bird almost wholly dark-brown (*dark phase*), or brown above including top of head and face, yellowish white below with greyish brown under tail-coverts and usually a squamated greyish brown pectoral collar (*pale phase*). Sexes alike. Elongated, projecting, broad, blunt and peculiarly twisted central rectrices, and somewhat larger size, distinguish it from Parasitic Skua (448).

Young (immature). From almost uniform sooty- or blackish brown (*dark phase*) to variously mottled and barred rusty buff and dark brown on whitish underparts (*pale phase*). Central rectrices only slightly projecting.

STATUS. Accidental vagrant. A single specimen taken at Colombo in 1912 (Wait, W. E., 1931, *Manual of the Birds of Ceylon*: 395) is the only record for Indian waters. Two adults sighted, Bombay (Sinclair, J. C., 1976, JBNHS 73: 530).

DISTRIBUTION. Breeds on the Arctic coast and islands of Siberia, NW. Alaska, the Arctic Archipelago, etc. Winters (offshore) to western Africa, Mediterranean and Black Seas, Indian Ocean (rarely), Australia (rarely). For details see Peters, 1934, 2: 311.)

MUSEUM DIAGNOSIS. See Key.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Mid toe without claw	Tail
10 ♂♂	349-374 (361.9)	38-43.5 (40.4)	48-54 (52)	42-47 (44.6)	172-243 mm. (207.9)
9 ♀♀	351-370 (359.7)	38-44 (40.2)	50-55 (52.1)	42-48 (46.1)	128-205.5 mm. (181.2)

‘COLOURS OF BARE PARTS. Iris dark brown. Legs and feet blackish, the upper portion of tarsus pale bluish (in life).’

(Murphy, 1936: 1036)

448. Parasitic or Richardson's Skua or Jaeger. *Stercorarius parasiticus* (Linnaeus)

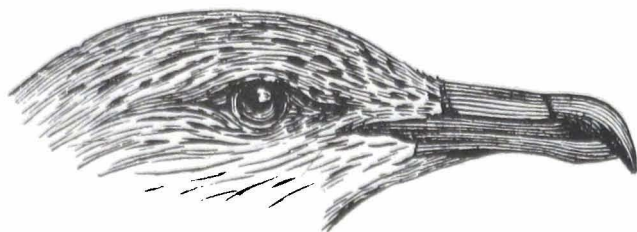
Larus parasiticus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 136 (Within the Tropic of Cancer of Europe, America, and Asia = coast of Sweden)

Baker, FBI No. 2058, Vol. 6: 96

LOCAL NAMES. None recorded.

SIZE. Domestic duck — ; length *c.* 48 cm. (19 in.).

FIELD CHARACTERS. A pelagic gull-like bird, similar to 447 in both dark and pale phases but somewhat smaller. Distinguished from it by straight



Immature, $\times c. \frac{1}{4}$

and pointed projecting central rectrices *contra* broad, blunt and twisted. Sexes alike.

Young (immature). Very like 447.

STATUS. Not very uncommon along the Makran coast (W. Pakistan) where Hume met with it at sea off Ormara, Gwadar, Pasni, etc. from middle to end February. Butler saw about a dozen between Pasni and Gwadar 13–17 May, and W. W. A. Phillips observed one — *presumably* this species — in the Arabian Sea at *c.* 24°47'N., 66°32'E. as late as early July (1946, JBNHS 46: 612). Five examples sighted, Bombay (Sinclair, J. C., 1976, JBNHS 73: 530).

Dr C. B. Ticehurst quotes an interesting observation on the parasitic habits of what was probably this skua recorded by a Portuguese mariner, one Pedro Taxeira, early in the year 1604 off the coast of Oman. He writes that he ‘saw certain birds chasing others from natural enmity. The weaker soar upward to escape from the stronger, and in terror void the contents of their stomachs. The bird below hunting the others to this end or from natural spite as fast as this happens, opens his beak, catches the same droppings and eats them. I have it from natives that on this matter he subsists.’

DISTRIBUTION. Breeds on the Arctic coasts and islands of the Holarctic Region. (For details see Peters, 1934, 2: 311.)

MUSEUM DIAGNOSIS. See Key.

MEASUREMENTS

	‘Wing	Bill (from feathers)	Tarsus	Mid toe without claw	Tail
16 ♂♂	301–340 (320)	28–35 (31·2)	39·5–45·5 (41·9)	33–37 (34·8)	164·5–235 mm. (188·9)
14 ♀♀	317–341 (323·7)	29–34·5 (31·8)	39–45 (42·1)	32–38 (35·9)	176–226 mm. (199·7)

‘COLOURS OF BARE PARTS. Iris brown. Bill light horn colour, the terminal portion dusky or blackish. Legs and feet black.’
(Murphy, 1936: 1037)

Family LARIDAE: Gulls, Terns

For morphology and other details see Stresemann, E., 1927–34, *Aves*: 777 (Sub-families Larinae and Sterninae of Laridae); Witherby *et al.*, 1941, 5: 1; Van Tyne, J. and Berger, A. J., 1959: 450; Thomson, A. L., 1964, *New Dict. Birds*, London and New York (Articles ‘Gull’ and ‘Tern’).

Family LARIDAE

Key to the Genera

	Page
A Both mandibles greatly compressed, the lower much longer than the upper..... <i>Rynchops</i>	74
B Bill stout, compressed, and with the upper mandible longer than the lower, curved and bent down over the tip..... <i>Larus</i>	23
C Bill straight or nearly so, generally slender and with pointed tip.... I	
1 Outermost tail-feather short..... <i>Anous</i>	71
Outermost tail-feather long..... a	
a Tail short, generally equal to less than half length of wing..... I	
Tail long, generally equal to more than half length of wing..... II	
I Webs between toes deeply emarginate..... <i>Chlidonias</i>	38
Webs between toes strongly developed..... <i>Hydroprogne</i>	45

		Page
II	Bill stout to moderate, culmen somewhat curved	<i>Gelochelidon</i> 42
	Bill slender, culmen straight or nearly so	a ¹
a ¹	Entire plumage white	<i>Gygis</i> 73
	Entire plumage not white	<i>Sterna</i> 47

Genus *LARUS* Linnaeus

Larus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 136. Type, by subsequent designation

Larus marinus Linnaeus

Cf. Stegmann, B., 1934, Jour. f. Orn., 82: 340-80.

Bill stout, compressed, and of moderate length; upper mandible longer than lower, curved and bent down over the tip. Nostrils oblong, placed some distance from the base. Wings long, exceeding the tail when closed. Tarsus moderate or rather short, scutellated in front. Hind toe small; anterior toes long and fully webbed.

Key to the Species

A	Size small, wing below 230 mm.	<i>L. minutus</i>	37
B	Size medium, wing between 270 and 355 mm.	1	
C	Size large, wing above 390 mm.	2	
1	Tail wholly white (adult, summer and winter)	a	
	Tail not wholly white (subadult)	b	
a	Three outer primaries wholly black	<i>L. hemprichii</i>	24
	Three outer primaries not wholly black	I	
I	Outer primaries white basally, black apically, mirrors usually present	<i>L. brunnicephalus</i>	31
	Outer primaries white edged with black, no mirrors	a ¹	
a ¹	Head white	<i>L. genei</i>	35
	Head completely hooded brown (summer) or with half hood on occiput (winter)	<i>L. ridibundus</i>	33
b	Primaries wholly black	<i>L. hemprichii</i>	24
	Primaries not wholly black	II	
II	Outer primaries white basally, black apically, no mirrors	<i>L. brunnicephalus</i>	31
	Outer primaries white edged with black, no mirrors	b ¹	
b ¹	Head white	<i>L. genei</i>	35
	Head white with dusky band across occiput or with brown hood mottled with white	<i>L. ridibundus</i>	33
2	Tail wholly white (adult, summer and winter)	c	
	Tail not wholly white (subadult)	d	
c	Bill banded with black	<i>L. ichthyaetus</i>	29
	Bill not banded with black	III	
III	Primaries black broadly tipped white, conspicuous grey or white tongues, a mirror on the outer, frequently on the next inner primary	<i>L. argentatus</i>	26
	Primaries black with white apical spots, tongues absent or diminished, a mirror on the outer, rarely on the next inner primary	<i>L. fuscus</i>	28
d	Tail white with distinct black band	<i>L. ichthyaetus</i>	29
	Tail blotched, smudged, or with partial band	IV	

	Page
IV Tail markings deep brownish black, white areas conspicuous	28
Tail markings clove-brown, white areas diminished ...	26

449. **Sooty Gull.** *Larus hemprichii* Bruch

Larus (*Adelarus*) *Hemprichii* 'Bp.' = Bruch, 1853, Jour. f. Orn. 1: 106 (Red Sea)

New name for *Larus crassirostris* Vigors, not of Vieillot

Baker, FBI No. 2063, Vol. 6: 104

Plate 34, fig. 1, facing p. 64

LOCAL NAMES. None recorded.

SIZE. Domestic duck — ; length c. 48 cm. (19 in.).

FIELD CHARACTERS. A medium-sized sea gull with brown head and breast, white collar, and greyish brown mantle. Sexes alike.

Adult (summer). Head, nape, and throat (the 'hood') sooty brown with a short white eyebrow. Separated from greyish brown mantle and grey breast by a prominent white collar. Wing-quills blackish brown, the inner ones tipped with white. Abdomen, tail-coverts and tail white.

In winter the white collar disappears and the head and foreneck are paler brown, much mottled and streaked with white.

Young (immature). Upperparts paler and squamated with whitish; tail brownish mottled with white, with a broad brown subterminal bar.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Winter visitor to Makran and Sind coasts of West Pakistan. Common and abundant in Karachi Harbour and seaboard, withdrawing towards breeding ground in early June. Strangely enough never recorded from the Gujarat coast, but a single straggler observed at Bombay by Hume, January 1875 (1876, SF 4: 414).

Extralimital. 'Breeds on islands in the southern part of the Red Sea, on the coasts of the Gulf of Aden, and on Astola I. off coast of Persian Baluchistan [W. Pakistan]; ranges north in the Red Sea to about lat. 22°N., south on the coast of E. Africa to Zanzibar, along the Makran coast and east to Sind' (Peters).

GENERAL HABITS. Gregarious and exclusively maritime, never (?) found away from the sea coast; largely a scavenger. Frequents harbours, flying around ships at anchor for scraps and garbage, but chiefly attends on off-shore fishing boats to scavenge the fish offal cast overboard. Unlike Herring Gull does not frequent villages for this purpose. Picks up scraps floating on the water from the air or alights alongside to deal with them, riding buoyantly like a duck and taking off again effortlessly.

FOOD. Chiefly dead fish and offal. An important predator of terns' eggs and chicks in nesting colonies; also pirating on the birds in the manner of a skua.

VOICE and CALLS. On breeding ground utters 'a peculiar mournful cry which is kept up throughout the breeding season' (E. A. Butler, 1877, SF 5: 296). For other calls see Fogden, op. cit. infra.

BREEDING. Colonial; sometimes individual. Only known locality within our area Astola or Astalu Island off the Makran coast (West Pakistan)

c. 40 km. ESE. of Pasni. *Season*, end June to end August. *Nest*, 'a slight depression with a few bents of grass and *Salsola* scrub situated at the *side* of and *sheltered* by a tuft of *Salsola*' (C. B. Ticehurst quoting Sir Percy Cox). *Eggs*, full clutch of 2 or 3: dull pale yellowish stone to pale purply grey or pale brown, blotched and spotted with various shades of brown, grey, or inky purple. Average size of 24 eggs 56.8×40.9 mm. (Baker). Incubation period 'at least 25 days'. (For full details see M. P. L. Fogden, 1964, 'The Reproductive Behaviour and Taxonomy of Hemprich's Gull, *Larus hemprichii*.' *Ibis* 106: 299-320.)

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.

Chick (in down). Pale greyish fawn, very slightly mottled darker on upperparts and with a dull pink bill tipped with black — Fogden.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	320-348	43-48	50-58	139-159 mm. (Baker)
8 ♂♂	340-363	48-52 mm.		
3 ♀♀	330-337	43.5-48 mm.		
				(Ticehurst)

COLOURS OF BARE PARTS. *Adult*. Iris brown. 'Eye rim red. Bill yellow-green, black at angle, red band, yellow tip. [Gape bright red — Fogden.] Legs and feet olive-green. *Immature*. Eye rim black. Bill greeny-grey, black at angle, reddish tip. Legs and feet grey' (Ticehurst).

LARUS ARGENTATUS — LARUS FUSCUS

There is some difference of opinion among authorities on the taxonomic status of the large Herring and Blackbacked gulls of the *argentatus-fuscus* complex. These are two very closely related 'species' differing mainly in the coloration of the mantle, which ranges from pale blue-grey in *Larus argentatus* to almost slaty black in *L. fuscus*. The differences between adjacent populations of the two are no more than would normally pass for geographical races of a single species were not the position complicated by the fact that their breeding ranges overlap in northwestern Europe. By some authorities they are nevertheless treated as races of a single species, the anomaly of sympatry being explained away by the putative status of the two as terminal links of a circumpolar chain of races ('species ring') that have come together again after prolonged isolation from each other during which they have developed reproductive isolation and now behave like true species. The apparent absence of interbreeding between the two species is shown by Paludan, 1951, to be untrue and not due to any genetic isolation but merely to a difference in the timing of their respective physiological readiness. On certain Danish islands where both the species breed — *argentatus* usually starting a fortnight earlier than *fuscus* — Paludan¹ found a few mixed pairs of *argentatus* with *fuscus* freely interbreeding where the timing had been synchronous. However, in view of the fluidity of opinion among ornithologists these gulls are being treated here as two polymorphic species. Racial identification of individual Indian examples, especially immature, is difficult even

¹ Paludan, Knud, 1951, 'Contributions to the breeding biology of *Larus argentatus* and *Larus fuscus*'. Copenhagen (Ejnar Munksgaard).

in the museum, and impossible in the field. Published sight records in India are vitiated by ambiguity; therefore no more than the general status of the wintering forms is attempted here.

LARUS ARGENTATUS Pontoppidan

Key to the Subspecies

Mantle dark slaty grey, legs and feet yellow *L. a. heuglini*

Mantle paler, legs and feet pale fleshy pink or bluish *L. a. mongolicus*

450. **Yellowlegged Herring Gull.** *Larus argentatus heuglini* Bree

Larus Heuglini Bree, 1876, Bds. Eur., ed. 2, 5: 58 and pl. (New name for *Larus cachinnans* Pallas, not of Pallas, Heuglin, 1873, Orn. Nord-Ost. Afr. 2, Abth. 2, no. 892, part; type from Zeyla, Somaliland)

Larus affinis taimyrensis Buturlin, 1911, Orn. Mitt. 2: 149

(Western shores of the Gulf of Yennesei)

Baker, FBI No. 2065, Vol. 6: 107

Plate 34, fig. 5, facing p. 64

LOCAL NAMES. Unrecorded.

SIZE. Domestic duck $\pm$; length *c.* 60 cm. (23 in.).

FIELD CHARACTERS. A large, heavy gull. Adult (summer). Entire head, neck, underparts and tail snow white. Mantle slaty grey. In flight leading and trailing edges of wings white. Wing-quills chiefly black with small white 'mirror' near tip of wing. Legs and feet yellow; a bright red patch near tip of lower mandible.

In winter head and hindneck streaked with brown. Sexes alike.

Young (immature). *Above*, dark brown flecked with whitish; more buffy on the wings. *Below*, white mottled and streaked with pale brown. Tail brown, tipped with white. Legs and feet dull fleshy yellow.

STATUS, DISTRIBUTION and HABITAT. Winters along the northern Indian Ocean coasts east to the Makran coast and south along the coast of West Pakistan and western India to Bombay, rarely to Kerala and Ceylon (SDR).¹ A pair (subspecies?) observed in Kathmandu Valley, Nepal, in November 1962 and one collected (Fleming, R. L., 1963, *Pavo* 1(2): 127). Doubtless on passage.

Affects the sea coast and harbours; inland lakes in Sind (and elsewhere?) 'only where there is a fishing industry' (Ticehurst).

Extralimital. 'Breeds in northern Siberia in the wooded and perhaps subalpine portions of the lower Yenisey, Taimyr Peninsula, and the Khantanga; non-breeders occur on the adjacent portions of the Arctic coast. Relict breeding colonies on the Baraba and Kirghiz Steppes. Winters in the southern part of the Red Sea, the north Somali coast, and in the Persian Gulf' (Peters). For fuller details see Vaurie, 1965, 2: 468-9.

GENERAL HABITS. Gregarious and largely maritime. A scavenger at seaports, harbours and fishing centres. Picks up scraps cast overboard from ships and fishing boats, and fish offal around coastal villages. Settles freely both on water and on the ground, swimming buoyantly or walking about with a

¹ But see Note, p. 25.

horizontal carriage of body. Flocks roost at night on sheltered sandbars or rocks, the birds often flying considerable distances back and forth between their feeding and roosting places around dusk and dawn. Flight strong and buoyant with leisurely wing-beats interspersed with long periods of graceful, effortless sailing, gliding and soaring — up, down, or in circles — taking full advantage of air currents and eddies.

FOOD. Fish offal, and miscellaneous refuse; molluscs, crabs, insects. Robs eggs and chicks of terns and other colonial-nesting sea birds, and to some extent also lives by piracy like skuas.

VOICE and CALLS. One of the commonest calls a loud raucous *kee-ow*, *kee-ow*, *kee-ow*, etc. reminiscent of the Fishing Eagle *Haliaeetus leucoryphus*, resembling the creaking of the block tackle of a fishing boat lowering its sails, or of the uncoiled wooden water-lifting pulley of a village well.

BREEDING. Extralimital. Colonial; on sea-cliffs and coastal sand dunes.

MUSEUM DIAGNOSIS. One of the darkest forms of the Herring Gull. For description of plumage see Baker, loc. cit.; for details of plumage phases, bionomics, characters, etc. of the paler-mantled and pinkish-legged but otherwise very similar nominate race, Witherby, 1941, 5: 85-95.

For an exhaustive review of the forms of the larger gulls, including *Larus argentatus* and *L. fuscus*, Stegmann, B., 1934, Jour. f. Orn. 82 (3): 340-80.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	415-450	49-63	62-77	158-180 mm.

COLOURS OF BARE PARTS. Adult. Iris white to yellow; orbital ring bright vermillion. Bill bright yellow with a vermillion patch near tip of lower mandible. Legs and feet bright yellow (Baker).

MISCELLANEOUS. Two birds (of the nominate race) ringed as flying juveniles in 1909 and 1910 were recovered when almost 25 and 26 years old (*Der Vogelzug*, July 1935, p. 135). Since then a herring gull has been recovered 31 years 11 months after ringing as chick (*The Ring* 3: 147-52, 1962).

451. Pinklegged Herring Gull. *Larus argentatus mongolicus* Sushkin

Larus argentatus mongolicus Sushkin, 1925, Bds. Russian Altai etc.: 63

(Lake Uriugnoor [= Ureg Nor], NW. Mongolia)

Baker, FBI No. 2066? (part), Vol. 6: 109

SIZE. Same as 450 = domestic duck $\pm$; length c. 60 cm. (23 in.).

FIELD CHARACTERS. Not satisfactorily distinguishable from 450; mantle slightly paler grey; legs and feet usually pinkish.

Young (immature). As 450.

STATUS, DISTRIBUTION and HABITAT. An eastern form 'wintering as far west as the coast of Bombay and West Pakistan (Sind). In passage may occur inland on large lakes. Birds previously referred to as *cachinnans* in Indian lists probably belong to this race' (SDR).

Extralimal. 'Breeds on the lakes of central Asia from southeastern Russian Altai and Dzungaria across NW. Mongolia to Lake Baikal. In winter on the coasts of China and Indochina' (Peters). See also Vaurie, 1965, 2: 472.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 450.

BREEDING. *Extralimal.*

MUSEUM DIAGNOSIS. Unsatisfactory without adequate comparative material. See Key; also description Stegmann, B., 1934, Jour. f. Orn. 82 (3): 376-7.

MEASUREMENTS. 46 ♂ ♀ (27 ad., 19 imm.) Wing 435-480 mm. (av. 462); tarsus 63-75 mm. (Stegmann).

COLOURS OF BARE PARTS. As in 450 except legs and feet which are chiefly pale flesh colour or bluish, but sometimes yellow !

452. **Lesser Blackbacked Gull.** *Larus fuscus fuscus* Linnaeus

Larus fuscus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 136

(Europa, restricted type locality Sweden)

Baker, FBI No. 2065, Vol. 6: 107

Plate 34, fig. 4, facing p. 64

LOCAL NAMES. Unrecorded.

SIZE. Same as 450 = domestic duck $\pm$; length c. 60 cm. (23 in.).

FIELD CHARACTERS. Adult (summer). Head, neck, underparts, and tail pure white; mantle dark slaty grey, almost blackish. In flight the strongly contrasting narrow white leading and trailing edges of the dark wings, and white tips to the black primaries conspicuous. When seen together with *argentatus* difference in the mantle of the two species quite obvious. Legs yellow as in 450, but usually more orangy. Sexes alike.

In winter head more heavily streaked with brown than in *argentatus*.

Young (immature). Mottled brown, indistinguishable with certainty from 450, q.v.

STATUS, DISTRIBUTION and HABITAT. Winter visitor (August-September to April-May) to the coast of West Pakistan (Makran, Sind) and western India south to Kerala; possibly also Ceylon and up the Coromandel coast whence reported. Records of large wintering gulls of the *argentatus-fuscus* group in India badly mixed up and ambiguous as to species. Position needs clearing up by careful collection of specimens. There are inland records (of either or both species?; on passage or wintering?) from Chitral, N. Baluchistan, Delhi, Cachar, Manipur, Madhya Pradesh, Orissa.

Extralimal. 'Breeds from N. Scandinavia eastward to the Murman coast and south to the Gulf of Bothnia, Gulf of Finland, Lake Ladoga and Lake Onega. Winters from the eastern Mediterranean, Red Sea and the Persian Gulf, south to Sierra Leone and the E. African lake region' (Peters). [India.]

GENERAL HABITS. Gregarious. Chiefly a scavenger in seaports, fishing centres and coastal villages, competing with kites and other gulls for scraps and garbage floating on the water, scooping them off the surface in flight or alighting on the water beside them. Often also wades into the surf at the tide's edge to seize a crab or pick up miscellaneous jetsam. Occasionally piratical like skua.

FOOD. Dead fish and offal, scraps and garbage, crabs, marine molluscs and worms, etc. On its breeding grounds highly destructive to eggs and chicks of the smaller gulls and terns and other colonial-nesting sea birds.

VOICE and CALLS. Very similar to the raucous *kee-ow*, *kee-ow* of the Herring Gull, but deeper and louder. Rather rarely heard in its winter quarters.

BREEDING. Extralimital. For a very good account see Paludan, Knud, 1951, 'Contributions to the breeding biology of *Larus argentatus* and *L. fuscus*'. Copenhagen (Ejnar Munksgaard).

MUSEUM DIAGNOSIS. See Key. For description of plumage see Baker, loc. cit.; Witherby, 1941, 5: 97.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	420-450	50-55	59-66	145-160 mm.
♀♀	405-420	46-49	—	—
				(Witherby)
		(from skull)		
2 ♀♀	423-433	58-59	61	158-165 mm.
	(Gujarat coast)			(SA)

COLOURS OF BARE PARTS. 'Iris white to pale straw. Bill yellow with a bright red patch (at the angle) near the tip of the lower mandible; gape and eyelids orange to orange-vermilion. Legs and feet pale yellow to orange-yellow' (Baker).

452a. **Great Blackbacked Gull.** *Larus marinus* Linnaeus See Appendix, p. 319

453. **Great Blackheaded Gull.** *Larus ichthyaetus* Pallas

Larus Ichthyaetus Pallas, 1773, Reise Russ. Reichs 2: 713 (Caspian Sea)
Baker, FBI No. 2060, Vol. 6: 101

Plate 34, fig. 3, facing p. 64

LOCAL NAMES. For all gulls *Dhomra* (Hindi); *Kheir* (Mirshikars, Bihar).

SIZE. Domestic duck+; c. 66-72 cm. (26-28 in.).

FIELD CHARACTERS. Our largest gull, readily recognized by enormous size and usually solitary habit.

Adult (summer). Head and neck black with two small but prominent crescentic white patches one above one below eye. Mantle pearl grey with a slaty tinge; rest of plumage pure white. Primaries mainly white, the outer ones with subterminal black bands and white tips, the inner ones and secondaries grey with broad white tips. Stout yellow bill with bright red patch at angle. Sexes alike.

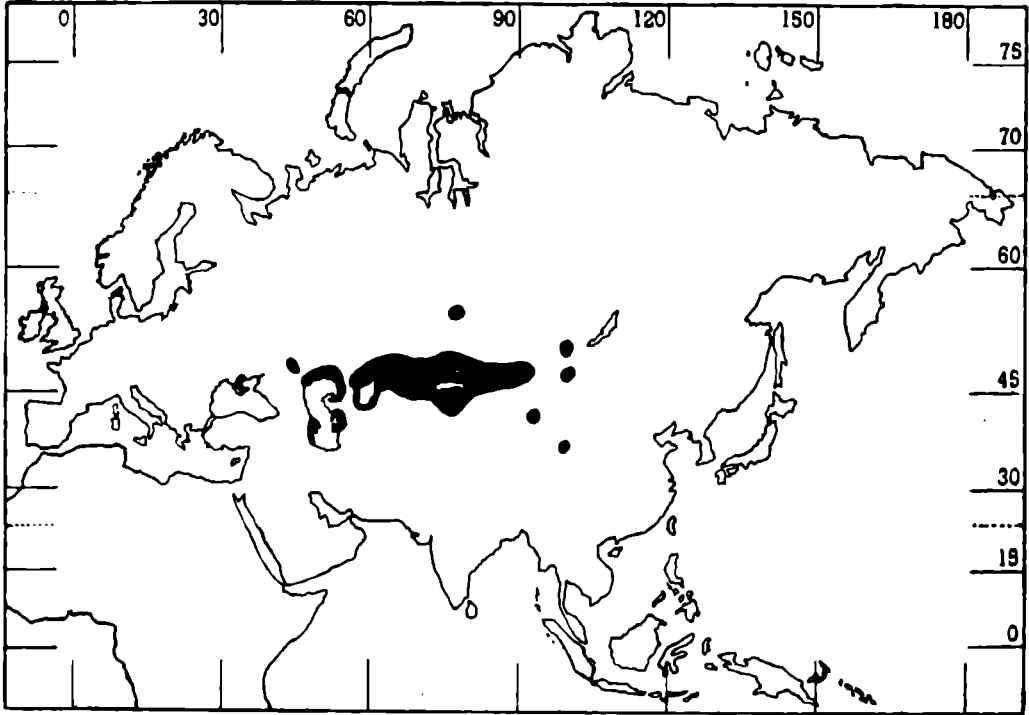
In winter head white, more or less mixed and streaked with brownish black. The black head is assumed about February.

Young (immature). Mottled pale brown with almost white head. Wing quills largely brown. Tail with broad terminal blackish band.

STATUS, DISTRIBUTION and HABITAT. Winter visitor to the coasts of India and both Pakistans; occasionally (irregularly) to Ceylon in the Jaffna

Peninsula and Northern Province. Not recorded from the Andaman or Maldiv Islands. Occasional inland on large rivers and lakes as winter visitor or passage migrant: recorded thus in northern Baluchistan (Saranan), Sind (Manchar Lake), Punjab Salt Range (Khabakki Lake), Rajasthan (Bharatpur), Delhi (Jumna R.), Nepal (terai), Bihar (Darbhanga dist.), Uttar Pradesh (Corbett Park), Upper Assam (Ranganadi).

Larus ichthyæetus



■ Breeding range

Extralimital. Breeds in S. Russia from the Crimea, Sea of Azov and the Sarpa Steppes eastward (including Caspian and Aral Seas) to NW. Mongolia and the Irtysh. Winters south to the eastern Mediterranean, Red Sea, Persian Gulf, and the coasts of India and Burma (Peters). Breeding on Tibetan lakes conjectural but highly probable (Ludlow, *Ibis* 1950: 42).

GENERAL HABITS. Usually solitary; occasionally small loose flocks. Once a gathering of 50 + in association with Caspian Terns (Vembanad backwaters, Kerala). Often follows fishing-boats returning to port with the catch for sprats thrown overboard, but seldom enters harbours to scavenge among the shipping like its congeners. Hume noted its predilection for swimming about at sea rather than sitting on the shore as other gulls do when resting, but this is largely because of its far ranging habits in search of food and depends on how far from land the bird is at the time.

FOOD. Chiefly fish and crustaceans. Bills and gullets of specimens taken in Kerala were crammed exclusively with sword-fishes (*Hemirhamphus xanthopterus* C.V.) 19–20 cm. long. Like other large gulls also indulges in piracy.

VOICE and CALLS. A loud raucous *kraa-a*, rather like the Raven's. Seldom heard in its winter quarters.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; Witherby, 1941, 5: 78–9.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	475-510	60-69	75-84	170-190 mm.
♀♀	435-480	49-61	—	— mm.

(Witherby)

COLOURS OF BARE PARTS. Adult. Iris hazel brown; fine circumorbital ring coral-red. Bill, basal two-thirds bright yellow followed by a bright reddish orange patch and then by a subterminal blackish-brown band; tips paler yellow; gape and mouth bright orange. Legs and feet bright yellow; claws horny brown. Immature. Circumorbital ring blackish brown. Bill, basal two-thirds greenish yellow or sulphur-yellow, tip reddish orange. Legs and feet greenish yellow or sulphur-yellow. Rest as in adult (SA).

454. **Brownheaded Gull.** *Larus brunnicephalus* Jerdon*Larus brunnicephalus* Jerdon, 1840, Madras Jour. Lit. & Sci. 12: 225

(West coast of Indian peninsula)

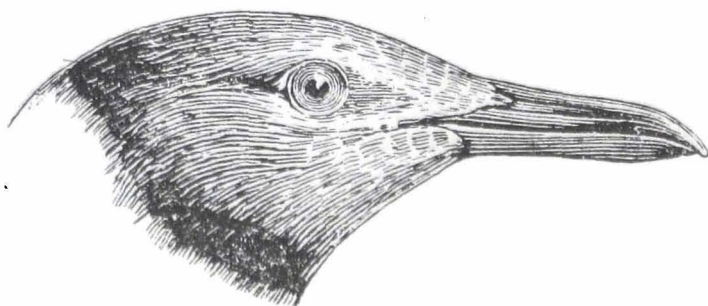
Baker, FBI No. 2062, Vol. 6: 103

Plate 32, fig. 4, facing p. 16

LOCAL NAMES. For all gulls: *Dhomra* (Hindi); *Kādālpāṭṭa* (Malayalam); *Kādāl kākkāi* (Tamil); *Muhudu kaputā* (Sinhala).

SIZE. Jungle Crow $\pm$; length *c.* 46 cm. (18 in.).

FIELD CHARACTERS. A medium-sized gull, grey above white below with a dark coffee-brown head (the 'hood') in summer. Distinguished from the similar looking Blackheaded Gull (455), with which often seen together,

 $\times c. \frac{2}{3}$

by somewhat bigger size and presence of a large white patch, or 'mirror', near the tips of the black primaries.

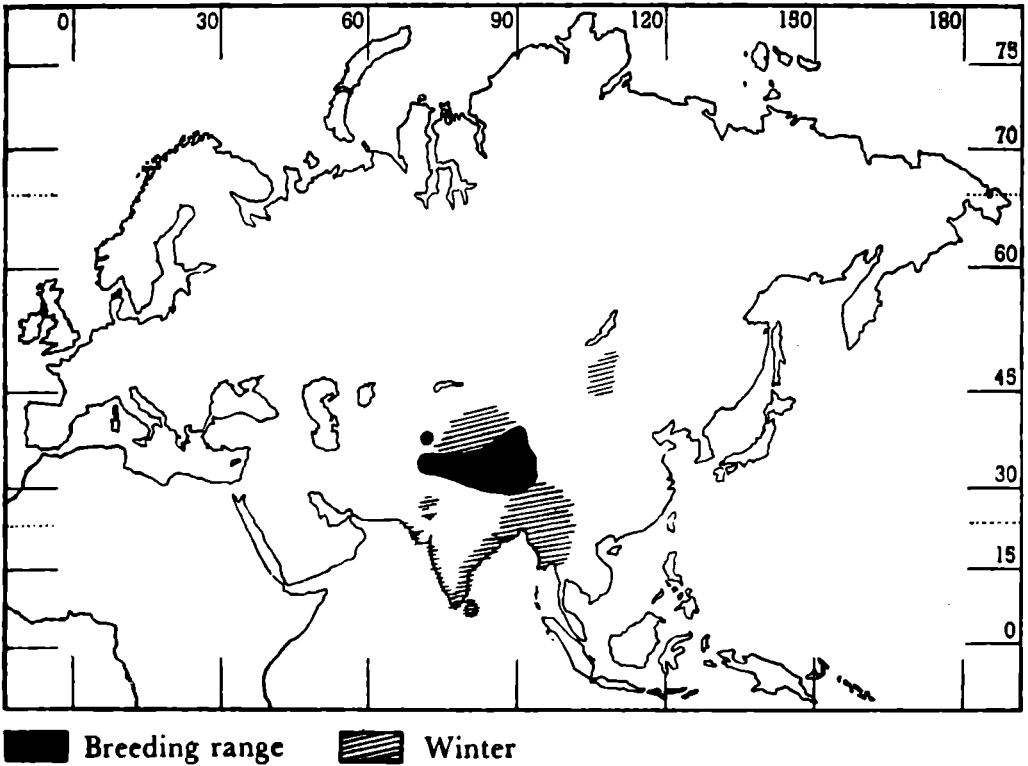
In winter head greyish white with a vertical black crescent mark behind the ear. Sexes alike. Distinguished from very similar Blackheaded Gull in winter plumage by the prominent wing mirror. Brown head assumed by end March, before emigration.

Young (immature). Brownish mottled with pale grey above. Tail white with a broad blackish subterminal band. Various intermediate phases occur, between this and adult plumage, but wing mirror usually distinguishes it from the confusingly similar Blackheaded Gull.

STATUS, DISTRIBUTION and HABITAT. Breeds in Ladakh. Common winter visitor (August/September to March/April) to the sea coasts throughout both Pakistans, India, and Ceylon. Nepal (vagrant?). Not recorded from the Andaman, Nicobar, Maldives or Laccadive islands, therefore apparently

does not venture far offshore. Also found in varying numbers inland at most large rivers and lakes, chiefly on passage. Abundant on Sambhar Lake

Larus brunnicephalus



(Rajasthan) throughout winter; in smaller numbers also around the 'Salt Lakes' near Calcutta. On a moderate-sized jheel in Manipur 'a flock of at least ten thousand individuals in March' (Hume, 1888, SF 11: 349). Affects coastal lagoons and backwaters, tidal creeks and estuaries, and the neighbourhood of fishing villages and harbours.

Extralimital. 'Breeds on the inland lakes of the high plateaus of central Asia from Chinese Turkestan to S. Mongolia and south to Ladakh and the eastern Himalayas [?]. Winters on the coasts of southern Asia from the Gulf of Aden to Tenasserim and in the Gulf of Siam' (Peters).

GENERAL HABITS. Gregarious—not different from other gulls. Commonly associates with Pariah and Brahminy kites and other gulls, particularly the Blackheaded (455), in harbours to scavenge kitchen refuse and garbage thrown overboard from ships at anchor. Escorts outgoing and incoming ships and fishing-boats, gliding and circling effortlessly around them for long periods, now ahead now astern, swooping from time to time to pick discarded scraps and offal from the water. Sometimes settles momentarily

PLATE 33

- 1 *Streptopelia tranquebarica*, Red Turtle-Dove (535). 2 *Streptopelia decaocto*, Ring Dove (534). 3 *Ducula aenea*, Green Imperial Pigeon (506). 4 *Streptopelia chinensis*, Spotted Dove (539). 5 *Streptopelia orientalis*, Rufous Turtle-Dove (532). 6 *Treron bicincta*, Orangebreasted Green Pigeon (501). 7 *Chalcophaps indica*, Emerald Dove (542). 8 *Columba punicea*, Purple Wood Pigeon (524). 9 *Treron pompadora*, Greyfronted Green Pigeon (496). 10 *Caloenas nicobarica*, Nicobar Pigeon (544b).



F.P. BENNETT

in the wake to gobble down a morsel before catching up with the ship again by seemingly leisurely wing-beats, occasionally alighting on the rigging.

MIGRATION. A flock on high-elevation lake in Nepal, *c.* 5000m., March 1978?, apparently on aberrant spring passage (Fleming)—CBCN, March 1978: 13.

FOOD. Fish, prawns, and offal. On occasion — in inland localities — insects, grubs, slugs, and earthworms, and shoots of various crops. Has been observed hawking winged termites, and eating floating human ordure from municipal sewage outflows.

VOICE and CALLS. One call commonly heard, a loud raucous *kreeāk* very like the Jungle Crow's or Raven's. Much more noisy on its breeding ground than in winter quarters.

BREEDING. On the high plateau lakes in Ladakh at *c.* 3000-4500 m. — Tsokr, Tso Morari, possibly Pangong and others. *Season* mainly June-July. *Nest* a mound of grass etc. raised above water level on boggy waterlogged ground on the edge of a lake or on semi-floating spongy grass hummocks or islets. Nests colonial, from almost touching to a few metres from one another, as the situation dictates. *Eggs*, normally 3 frequently 2, variable bluish-, greenish- or creamy white, or buff, boldly blotched and spotted with blackish- or reddish brown, with a few hieroglyphic scrawls. Average size of 100 eggs 61.3×42.6 mm. (Baker). Both sexes share incubation. Period undetermined.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	330-348	37-45	49-55	139-159 mm.
		(from skull)		
3 ♂ ♂	345-360	48-56	50-51.5	130-142.5 mm.
1 ♀	344	54.5	52	134 mm.
				(HW, SA)

COLOURS OF BARE PARTS. Adult. Iris red-brown or yellow-brown (biscuit colour); eyelids deep blood-red. Bill and mouth orange-red to deep blood-red. Legs and feet deep blood-red. Immature. Iris 'almost white' (Baker). Legs and bill more yellow or orange-red, the latter tipped with dusky.

455. **Blackheaded Gull.** *Larus ridibundus ridibundus* Linnaeus

Larus ridibundus Linnaeus, 1766, Syst. Nat., ed. 12, 1: 225 (European seas = England)

Baker, FBI No. 2061, Vol. 6: 102

LOCAL NAMES. For all gulls: *Dhomra* (Hindi).

SIZE. House Crow $\pm$; length *c.* 43 cm. (17 in.).

FIELD CHARACTERS. A grey and white medium-sized gull with blackish brown head (the 'hood') in summer. Very similar to Brownheaded Gull, q.v.; distinguished from it by somewhat smaller size and, in flight, in the leading edge of the wing being pure white with no white 'mirror' near tip of primaries.

In winter likewise without black head; then distinguishable from Brown-headed Gull chiefly by wing pattern. Sexes alike. The dark coffee-coloured ('black') head is largely assumed by end March prior to emigration.

Young (immature). As in 454, also with broad blackish subterminal bar to the white tail.

STATUS, DISTRIBUTION and HABITAT. Winter visitor (August-September to March-April) to the coasts of both Pakistans and India; more abundant on the Makran and Sind coasts and the western seaboard of the peninsula than on the eastern side. Common up the Hooghly R. from its mouth to Calcutta practically to the exclusion of the Brownheaded Gull (H. G. Alexander); regular but in small numbers (Biswas). Not recorded in Andaman or Nicobar Is. Vagrant to the Maldives; possibly the same in the Laccadives.

Larus ridibundus



■ Breeding range

A single sight record from Nilaveli, Sri Lanka (CBCN). Occurs inland in varying abundance and irregularly — perhaps largely on passage — on rivers and jheels. Recorded in Sind (Manchar Lake), Kashmir ('winter visitor'), Chitral (Drosh), N. Baluchistan (Quetta Valley), Delhi (Jumna R.), U.P. (Gorakhpur, Ghazipur), M.P. (Mhow), Punjab (Sutlej R. and lakes in Salt Range), Rajasthan (Sambhar Lake), Nepal (lowland rivers), Assam (N. Cachar), Bihar (Darbhanga district). Published sight records not free from ambiguity with the similar looking Brownheaded Gull. Affects seacoast, estuaries, shipping harbours, and municipal sewage outflows, etc.

Extralimital. 'Breeds in Europe and Asia from Iceland, the Faeroes, British Isles, S. Scandinavia, Finland, Arkhangelsk, lat. 66°40'N. on the Ob, 64° on the Lena, 68° on the Kolyma, and from Kamchatka, south to Sardinia, mouth of the Danube, Central Russia, Transcaspia, Tarbagatai, N. Mongolia, and Ussuriland. In winter south to the Azores, Gambia, southern shores of the Mediterranean, Nile Valley, Persian Gulf, India, Indochina, Japan and the Philippines' (Peters).

MIGRATION. No ringing or other precise data. 'A few pass up [through Chitral] from March to May' (Perreau).

GENERAL HABITS. Gregarious, and a scavenger like 454, frequently associated with it in winter.

FOOD. As in 454.

VOICE and CALLS. Loud and raucous; also similar to 454. Most commonly heard: a querulous scream *kree-ah* and a loud wailing *ka-yek, ka-yek*.

BREEDING. Extralimital. More or less as in 454.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for fuller details of plumage phases etc. Witherby, 1941, 5: 70-3.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	295-315 (one 320)	31-36	43-49	110-125 mm.
♀♀	285-302	29-33	—	— mm. (Witherby)

COLOURS OF BARE PARTS. Iris dark brown or crimson-brown. Bill, legs and feet deep bright red.

MISCELLANEOUS. Longevity: one ringed as nestling on 13 June 1910 in Cumberland, U.K. found dead in the home colony on 26 May 1930, therefore 20 years old (*British Birds* 24: 55, 1930).

456. Slenderbilled Gull. *Larus genei* Brème

Larus Genei Brème, 1839, Rev. Zool.: 321 (Sardinia)

Baker, FBI No. 2064, Vol. 6: 106

LOCAL NAMES. For all gulls: *Dhomra* (Hindi); *Kothar* (Makran).

SIZE. House Crow $\pm$; length c. 43 cm. (17 in.).

FIELD CHARACTERS. Adult (winter). Confusingly like Blackheaded Gull in size and wing pattern (in flight): head and body, above and below, pure white; mantle pale pearl grey. Differentiated from it, after some experience, both at rest and in flight, by noticeably small head and long neck and longer, bright red bill. Also by absence of brown spot on ear-coverts, and (usually) brighter red legs. Sexes alike.

In summer easily distinguished since head remains glistening white, whilst rest of plumage acquires a delicate rosy flush.

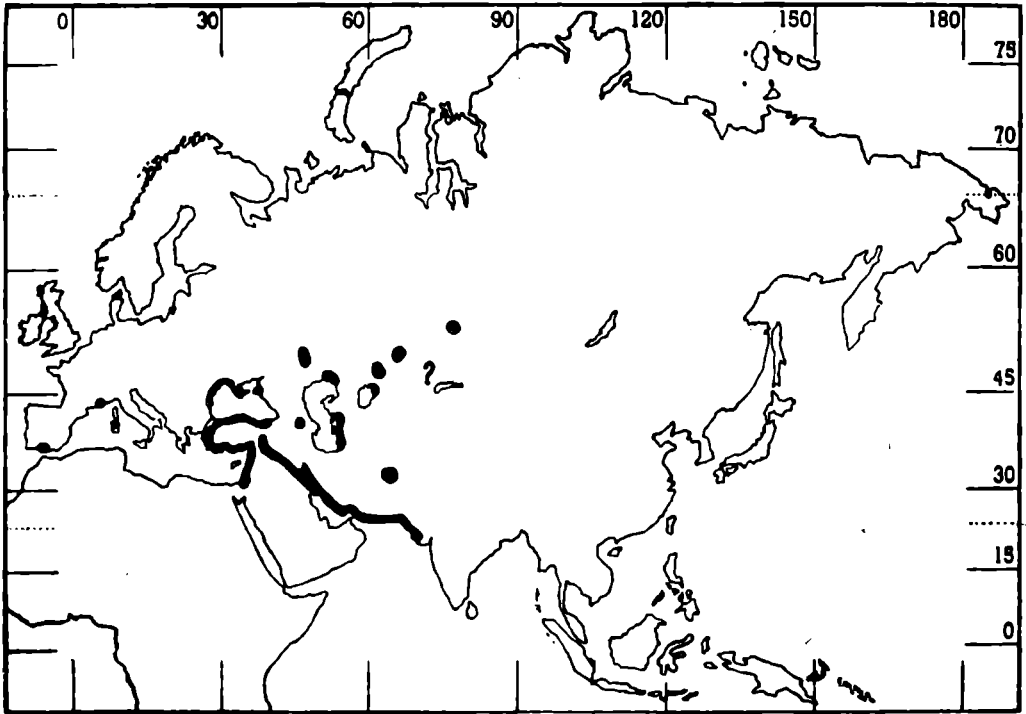
Young (immature) more or less as winter adult, but with some brown on the wing-coverts, and a blackish terminal band on tail. There is a faint pale grey patch on the ear-coverts, and the bill and legs are yellowish red. Adult plumage is acquired in second autumn, *vide* Ticehurst.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and breeding within our limits only in West Pakistan (Makran, Las Bela), numbers there largely augmented in winter by immigrants. Winter visitor to Sind where also 'excessively common along the coast and sometimes up the tidal creeks' (Ticehurst). A specimen taken at Bhavnagar on 5 December (Dharmakumarsinhji). Possibly occurs more commonly on the Kutch-Saurashtra

coasts than this only positive record indicates, but overlooked among Black-headed Gulls. Since then, in recent years, several specimens have also been collected and observed offshore Greater Bombay (Navarro, 1967, JBNHS 65: 218) and the species may actually be a regular winter visitor to this coast. Nepal (Kosi R.) Feb. 1974 — S. C. Madge, *in epist.*

Larus genei



■ Breeding range

Extralimital. 'Breeds on the Black and Caspian Seas, Sea of Azov, Persian Gulf, Makran coast and Sind; S. Spain (?). Ranges throughout the Mediterranean, coast of NW. Africa and the Red Sea' (Peters).

GENERAL HABITS. Not a scavenger like the Black- and Brownheaded gulls, therefore absent in shipping harbours and about coastal villages. But 'huge flocks may be met with not far out at sea feeding on fry as they break the surface; the hindmost birds constantly take the place of the foremost, and they move along, as the fish-shoal moves, with constant screaming and squabbling; when satiated they retire to the sands along the tide's edge, forming a pinkish white line' (Ticehurst).

FOOD. Mainly fish.

VOICE and CALLS. Not specifically recorded.

BREEDING. Breeds in large mixed colonies with Caspian and Gullbilled terns on the island in Sirunda jheel at Sonmiani (Las Bela, W. Pakistan). Also at other suitable places in Makran. *Season*, May–June. *Nest*, a compacted pad of grass and water-weeds, on the ground. *Eggs*, 2 or 3, variable in coloration and markings. Normally creamy or buffy white, blotched and spotted with blackish brown, with secondary blotches of shades of grey — the markings denser at the broad end. Average size of 200 eggs 55.75×38.65 mm. (Baker). Share of the sexes in the domestic chores, incubation period, and other details unrecorded in our area.

MUSEUM DIAGNOSIS. See Key; for description of plumage Baker, loc. cit.

Chick (in down). 'Head, sides of head, upperparts, wings and thighs evenly mottled with about equal areas of black and white alternating; underparts more white but black spots across lower throat and on sides of breast and flanks' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	280-316	38-46	47-55	119-144 mm. (Baker)

COLOURS OF BARE PARTS. Somewhat variable individually. Adult. Iris pale yellow; eyelids bright red. Bill deep crimson red. Legs and feet bright dark red.

457. **Little Gull.** *Larus minutus* Pallas

Larus minutus Pallas, 1776, Reise Russ. Reichs 3: 702

(Rivers of Siberia and in Russia = Berezovo, Tobolsk, Siberia)

Not in Baker, FBI

SIZE. Pigeon — ; length c. 25-30 cm. (10-12 in.).

FIELD CHARACTERS. A diminutive gull distinguished by its small size, absence of black in primaries, blackish underside of wings, and noticeably tern-like flight and movements, flicking food off water surface in its stride etc.

Adult (winter). *Above*, forehead, lores, and a line over eyes white; crown and nape leaden grey. Upperparts blue-grey; upper tail-coverts and tail white. Primaries blue-grey with white tips, broadly blackish on inner webs. *Below*, underparts and axillaries white; underwing blackish. Sexes alike.

In summer very like a miniature Blackheaded Gull when at rest, but entire head and upper neck (not only the hood) pure black. Rarely a pink tinge on breast.

STATUS, DISTRIBUTION and HABITAT. Accidental vagrant. A specimen collected in Ladakh by Walter Koelz.¹ A possible sight record in Bombay Harbour (Magrath, 1910, JBNHS 20: 224) and others in Rann of Kutch (SA, 1974, JBNHS 71: 609).

Extralimital. Breeds in northern Europe and Siberia from Holland and Denmark to the Sea of Okhotsk. Winters on coasts of W. Europe, Mediterranean and Black Seas, Sea of Okhotsk, Japan Sea, etc. (Alexander, 1955).

GENERAL HABITS. The Bombay sight record attributed to this species by the observer was noted as 'a very small gull flying about together with a number of Blackheads'.

FOOD, VOICE and CALLS. Not recorded in our area; presumably more or less as of 455.

MUSEUM DIAGNOSIS. See Key. For description of plumage and its various phases (also bionomics) see Witherby, 1941, 5: 60-4.

¹ No. FMNH 229168, ♀ juv., 21 Sept. 1936, Piting, Ladakh, Field Museum Nat. Hist. Chicago.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	215-230	21-23	25-29	84-94 mm.
♀♀	210-226	21-24	—	— mm. (Witherby)

The Ladakh specimen measures Wing 212, bill (from skull) 31, tarsus 25, tail 83 mm.—Traylor.

COLOURS OF BARE PARTS. Iris dark brown. Bill (ad. summer) red-brown, (winter and juv.) blackish ; inside mouth (ad.) orange. Legs and feet (ad. summer) vermilion, (ad. winter and juv.) red-brown to flesh (Witherby).

Terns

Terns differ from gulls in being much more lightly built, with longer narrower wings and different flight. In spite of their webbed feet they rarely settle on water (except *Anous*), resting and roosting on rocks or mudbanks on their ridiculously short legs. They capture their living prey—fishes, insects, crustacea, etc.—by scooping them up from the surface in flight, or by plunging vertically from the air and going under water momentarily.

Unlike gulls they have both mandibles of equal length instead of upper longer than lower. Bill straight, generally slender, with pointed tips; nostrils linear. Tail long and deeply forked in some species, with outer rectrices attenuated and greatly lengthened; only slightly forked (almost square) in others. Wings long: first primary (as.) longest. Legs and feet small.

Genus CHLIDONIAS Rafinesque

Chlidonias Rafinesque, 1822, Kentucky Gazette, n. s. 1(8), Feb. 21: 3, col. 5. Type, by monotypy, *Sterna melanops* Rafinesque = *Sterna surinamensis* Gmelin

Bill short and slightly compressed. Legs and feet small, the webs between the toes deeply emarginate making the feet appear only half webbed; claws long and curved. Wings long, exceeding tail when closed. Tail short and very slightly forked, almost square. All the species are largely dark grey or black on the underparts during the breeding season.

Key to the Species

Adult ♂ ♀. Breeding and Winter

- Rump slaty grey.....*C. niger*
- Rump ashy grey.....*C. hybridus*
- Rump white.....*C. leucopterus*

458. **Indian Whiskered Tern.** *Chlidonias hybridus indicus* (Stephens)

Viralva Indica Stephens, 1826, in Shaw's Gen. Zool. 13 (1): 169 (Cawnpore, India)

Hydrochelidon leucopareia leggei Mathews, 1912, Bds. Austr. 2: 320 (Ceylon)

Baker, FBI No. 2067, Vol. 6: 111

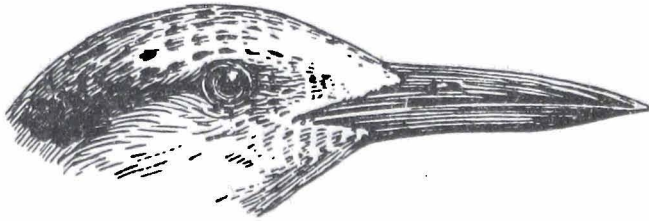
Plate 32, fig. 7, facing p. 16

Distribution map, p. 61

LOCAL NAMES. For all terns : *Tehāri*, *Gāngā cheel*, *Machh louka*, *Koorāri* (Hindi); *Krind*, *Kreu* (Kashmir); *Muhudu lihiniyā* (Sinhala); *Kādāl kūrūvi* (Tamil, Ceylon); *Rāmadāsu*, *Samūdraṇu kāki* (Telugu); *Kivi* (Gond); *Kādālkāka* (Malayalam).

SIZE. Pigeon — ; slimmer and longer winged. Length *c.* 25 cm. (10 in.).

FIELD CHARACTERS. A slender, graceful silvery grey and white bird with long narrow pointed wings and slightly forked (almost square) grey tail,



Winter, $\times c. 1$

usually seen in flight over water. Crown flecked with blackish in winter. Very short red legs and red bill, the latter looking blackish in winter. When at rest on the ground the closed wings project beyond the tail.

In summer the glossy jet black cap down to the eyes, with prominent contrasting snow white cheeks ('whiskers') below it, and the black belly and short squarish tail, are leading pointers to its identity. Sexes alike.

Young (immature) have the crown and mantle brown, the head darkest and mottled rufous. Underparts and hindneck white.

STATUS, DISTRIBUTION and HABITAT. Resident and/or breeding visitor in Kashmir and northern India (Gangetic Plain) east to Assam and East Pakistan, spreading out in winter over the entire Union, Nepal (lowlands), and Ceylon. Chiefly passage migrant and/or winter visitor in W. Pakistan (Baluchistan, Sind, Peshawar, Chitral); may breed locally but no definite evidence. Affects inland jheels, marshes and flooded paddyfields; also coastal lagoons, tidal mudflats, and estuaries.

Extralimital. Persian Baluchistan.

GENERAL HABITS. Gregarious. The normal method of feeding in this short-tailed group known as 'Marsh Terns' is for an individual or small flock to fly methodically back and forth on slowly beating wings at a height of 3 to 6 metres or so, bill and eye directed intently below for signs of life. When a gentle wind is blowing the birds work thus slowly and deliberately upwind to the end of their beat scanning the surface carefully, then shoot back downwind to the starting point to repeat the manoeuvre. From time to time one swoops down at a tangent to lightly flick off with the bill something from the surface of land or water, continuing its flight without interruption. Rarely they also plunge from the air in the manner typical of the sea terns. Occasionally the birds hawk flying insects over cultivation,

turning and twisting in the chase, or swoop to flick them off ground-crops such as gram (*Cicer*).

FOOD. Insects — dragonflies and their larvae, grasshoppers, water beetles — tadpoles, crabs, fish.

VOICE and CALLS. A sharp *kreak, kreak*, sounding in the distance like the harsh churring notes of the Rufous-backed Shrike (*Lanius schach*); reminiscent also of a louder version of the common Skipper frog's (*Rana cyanophlyctis*), especially when nesting birds are disturbed by an intruder and demonstrate agitatedly overhead.

BREEDING. Recorded localities are: Kashmir Valley (c. 1500 m.), Delhi, U.P. (Lucknow, Fyzabad, Etawah, Gonda), Bihar (Darbhanga, Dhanbad), Assam (N. Cachar), E. Pakistan (Khulna, Sylhet). *Season* overall June to August, varying locally, the first layings (e.g. in Kashmir) being frequently washed away by floods. *Nest*, a small and often flimsy pad of water-lily stems and decaying rushes placed on a floating mat of *singāra* (*Trapa*) plants and other aquatic vegetation, anchored to the substrate and bobbing up and down on the ripples. Built in colonies, sometimes up to a hundred nests or more, a few metres from one another. Pilfering of material from neighbouring nests by swoops from the air an almost universal practice, sometimes resulting in the ravaged nest getting overturned, tipping the contents into the water. *Eggs*, 2 or 3 large, moderate ovals sometimes pointed at the smaller end. They are variable in coloration and markings both as to clutches and individual eggs in the same clutch. A common type is some shade of sea-green, blotched and speckled with brown. Average size of 200 eggs 36.9×27.4 mm. (Baker). Both sexes incubate; period undetermined. Male feeds incubating female on fish or other titbit often brought over long distances, sometimes followed by copulation. Downy buff-speckled black chicks when alarmed instantly skedaddle from nest taking cover among and under the floating water-lily leaves, often lying fully submerged with closed eyes and only the bill showing above.

MUSEUM DIAGNOSIS. Differs from the European and SW. Asian nominate race in having a smaller wing. For description of plumage see Baker, loc. cit. Fresh summer dress is acquired between mid March and end May apparently by a complete moult. 'Young birds of the year at the end of August are already moulting their body feathers, though many of the dark-tipped feathers of the upperparts are yet to be cast. These dark markings vary very much in individuals; in [some] specimens they are so profuse as to make the upperparts appear almost black' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
7 ♂♂	221-229	32-37	20-23	76-81 mm.
5 ♀♀	213-219	32-36	20-23	77-80 mm.
				(HW, SA)

For the nominate race Witherby gives Wing ♂♂ 232-250, ♀♀ 230-242 mm.

COLOURS OF BARE PARTS. Iris dark greyish brown or brown. Bill dark reddish brown to red. Legs and feet dark coral brown to bright or dark red; soles brighter coral; claws black.

MISCELLANEOUS. Large quantities of eggs of this tern (and moorhens etc.) are collected for sale and local consumption by the boatmen in Kashmir. A diminution in the number of birds in certain areas is evident, calling

for early official restriction and regulation of the practice of commercial egg-gathering.

459. **Whitewinged Black Tern.** *Chlidonias leucopterus* (Temminck)

Sterna leucoptera Temminck, 1815, Man. d'Orn.: 483

(Coasts of the Mediterranean)

Baker, FBI No. 2070, Vol. 6: 114

Plate 34, fig. 2, facing p. 64 and Distribution map, p. 61

LOCAL NAMES. As under 458.

SIZE. Pigeon — ; slimmer. Length c. 23 cm. ($9\frac{1}{2}$ in.).

FIELD CHARACTERS. A short-tailed marsh tern, very similar to Whiskered in winter. Doubtfully distinguishable from it except perhaps by slightly smaller size and dull grey (v. silvery grey) mantle.

In partial summer dress, gradually assumed from about mid March, identity unmistakable in flight by the sharp contrasts of dark and white in the plumage. Forehead white, hind head mottled blackish. Underparts dark sooty grey. Under wing-coverts black or blackish contrasting with grey primaries. Tail pure white, nearly square.

In full summer plumage entire head and body velvety black except lower back which is blackish grey. Wing-quills largely silvery grey; tail pure white. Upper wing-coverts, seen as a broad white band in flight, contrasting strongly with black body and underwing lining. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Rare winter visitor to Assam (Cachar), East Pakistan (Sylhet), West Bengal (Calcutta), and Ceylon. Once taken in Madhya Pradesh (Raipur, D'Abreu, 1935, JBNHS 38: 112). Only thrice recorded on the western side of India: once in Bombay (26.iii.1950, Humayun Abdulali) and twice in Saurashtra (Jasdan, June 1949 and 12.v.1955, Y. S. Shivraj Kumar) — JBNHS 49: 310; 53: 130. Pakistan (Karachi dist.) May 1977 (T. J. Roberts, JBNHS 75: 216). A specimen has been taken and a flock sighted in the Andaman Is. (Hume, 1879, SF 8: 495) and more recently also in the Maldives where it is 'probably an infrequent winter visitor' (Phillips, 1963, JBNHS 60: 576). Possibly less vagrant than appears, as liable to be overlooked among the more numerous Whiskered terns with which it keeps in winter, and is impossible to distinguish from satisfactorily before it starts moulting into its distinctive summer dress. However, upper side of tail pure white in this species, grey in Whiskered.

Extralimital. 'Breeds in SE. Europe and C. Asia from Hungary and Galicia, C. Russia, Siberia (N. to lat. 55°), Transbaikalia and Amurland, south to Turkestan and N. Mongolia. Winters in tropical and southern Africa to the Orange R. Colony and Damaraland; Persian Gulf, India, Ceylon, Burma, S. China, and the Malay Archipelago to Australia' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As of Whiskered Tern (458), q.v.

BREEDING. Extralimital. More or less as in 458.

MUSEUM DIAGNOSIS. 'In winter and juvenile absence of dark brown patches on sides of breast, combined with pale rump and short bill distinguish it from other marsh terns' (Witherby). For description of plumage see Baker, loc. cit.; for plumage phases and other details Witherby, 1941, 5: 9-11.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail central	outer	Depth of fork
♂♂	200-218	23-24	19-22	58-67	67-75	5-11 mm.
♀♀	192-210	—	—			

COLOURS OF BARE PARTS. Iris dark brown. Bill (ad.) black tinged crimson, (juv. and 1st winter) black-brown tinged orange at gape. Legs and feet (ad.) bright vermillion, (juv. and 1st winter) red to red-brown (Witherby).

459a. **Black Tern.** *Chlidonias niger niger* (Linnaeus)

Sterna nigra Linnaeus, 1758, Syst. Nat., ed. 10: 137 (near Upsala, Sweden)
Not in Baker FBI

SIZE. Same as 459; length c. 23 cm. (9½ in.).
FIELD CHARACTERS. In winter differs from Whiskered Tern by *dull grey* v. silvery grey mantle; from Whitewinged Black chiefly by black of hind head continuing as a dark patch on either side of neck in front of base of wings.
Summer plumage unmistakable: dark slate-grey above, black below without the white wing-shoulder or white tail of 459.
STATUS. Sight recorded near Delhi, 11 October 1949, with adequate corroborative evidence by an experienced observer familiar with the species in Europe. (H. G. Alexander, JBNHS 49: 120-21). Confirmatory specimen desirable.

Genus GELOCHELIDON Brehm

Gelochelidon C. L. Brehm, 1830, Isis von Oken, 23, col. 994

Type, by monotypy, *Gelochelidon meridionalis* Brehm = *Sterna nilotica* Gmelin

Differs from *Sterna*, q.v., in its stouter bill. Feet fully webbed as in *Sterna*; tarsus longer than middle toe and claw. Tail comparatively shorter than in *Sterna* with the outer feathers less prolonged.

GELOCHELIDON NILOTICA (Gmelin)

Key to the Subspecies

- Larger, wing 300-333 mm.; culmen 35-41 mm. *G. n. nilotica*
Smaller, wing 272-292 mm.; culmen 32-35 mm. *G. n. affinis*

460. **Gullbilled Tern.** *Gelochelidon nilotica nilotica* (Gmelin)

Sterna nilotica Gmelin, 1789, Syst. Nat. 1(2): 606 (Egypt)
Baker, FBI No. 2072, Vol. 6: 117

LOCAL NAMES. As under 458. *Kirru*, *Dooni amma* (Maldives).
SIZE. House Crow —; length c. 38 cm. (15 in.).

FIELD CHARACTERS. A common pale pearl-grey and white tern, larger than the Whiskered, with deeper-forked white tail and stout *black* gull-like bill.

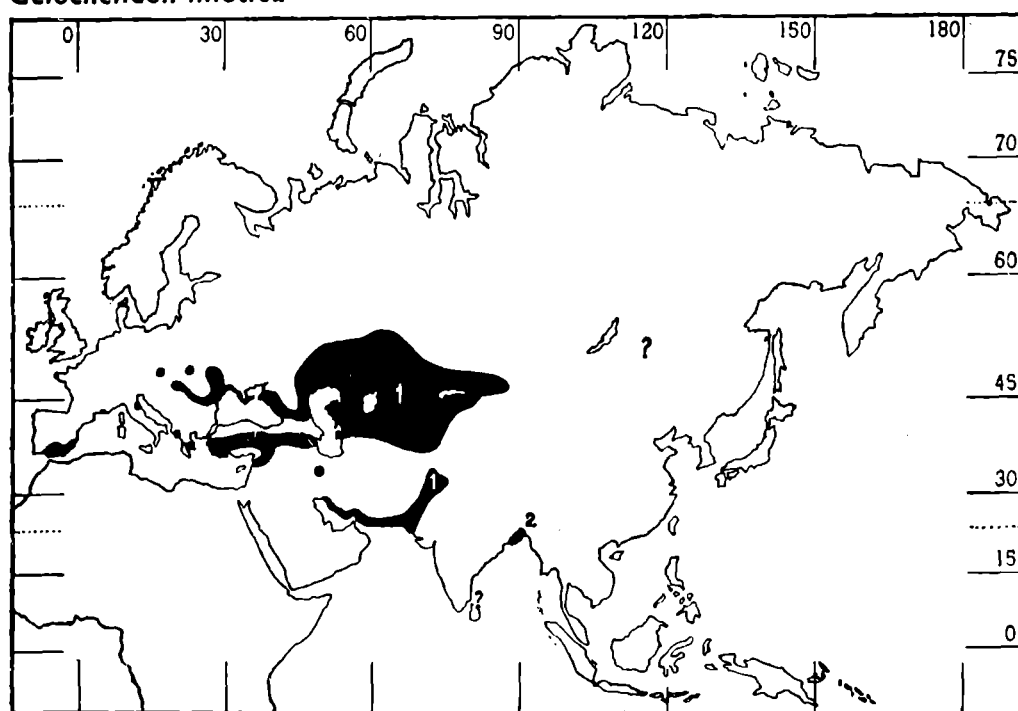
In winter, head white streaked with black and with a blackish patch round eye and above ear-coverts; in summer a jet-black cap down to eyes, covering forehead, crown, and nape. Sexes alike.

Young (immature). Crown grey or greyish white. Upperparts, especially scapulars, inner wing-coverts and inner secondaries pale brown with buffish edges. Primaries grey-brown, darker than in adult.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Breeding locally in West Pakistan and NW. India (Las Bela and Punjab; doubtless also elsewhere). In winter widespread and locally common, numbers largely augmented by extra limital immigrants. Practically the entire Indian Union (see also 461) from

Gelochelidon nilotica



■ Breeding range

1 *G. n. nilotica* (460). 2 *G. n. affinis* (?) (461).

Makran coast and Sind eastward across Rajasthan and the Gangetic Plain to Bihar, south through the Peninsula to Kanyakumari, and Ceylon. Presumptive breeding in Ceylon not yet confirmed. Specimens obtained in the Maldives (December) but status there uncertain. Affects coastal mudflats, backwaters, tidal creeks, salt pans, etc., and large inland jheels and rivers.

Extralimital. 'Breeds locally in Europe and the western three-quarters of Asia from Denmark, Baltic Sea, Middle Urals, Zaissan-nor and S. Mongolia (perhaps north to Transbaikalia) south to the Iberian Peninsula, NW. Africa, Asia Minor, Persia, India (east to the Ganges) and Ceylon [?]. Winters in northern and eastern tropical Africa, Persian Gulf and India; occasionally to the Sunda Is.' (Peters).

MIGRATION. No ringing data. Fair numbers on passage through Chitral 'during end April and May' (Perreau, 1910, JBNHS 19: 921) and through

Kohat 'from beginning of April till May — last seen 5th May' (Whitehead, 1911, *ibid.* 20: 975).

GENERAL HABITS. Gregarious, but frequently seen singly or in twos and threes or small scattered flocks, and in association with other river and marsh terns. Seldom met far offshore along the coast. Flies low over sand- and mudflats, swooping down at a tangent from time to time to pick up some titbit in its bill as it skims close to the surface. Sometimes hawks flying insects over cultivation and stubbles in company with Whiskered Terns, and dips in low flight to scoop up a caterpillar or grasshopper from off ground-crops like gram or groundnut. On the coast flocks together to rest with gulls and other terns at the edge of the tide waiting for the ebb to expose the feeding flats.

FOOD. Largely sand crabs (*Ocypoda*) on the sea coast. Also prawns and other crustacea, frogs, small fish, and insects. Floating ordure from municipal sewage outflow recorded in Cochin Harbour.

VOICE and CALLS. Not intelligibly described in India. 'Scolding cries of *wik*, *kuwikkeewik* or a high-pitched *hik* . . . *hikhikhikhikhik* while flying around one' (G. M. Henry, Ceylon).

BREEDING. Recorded on sandbanks in the Punjab rivers — Chenab, Beas, Sutlej — and on an island in Sirunda jheel, Las Bela. *Season* end April to end June, varying with local conditions. *Nest* a slight depression in the sand, according to Waite (1917, JBNHS 25: 300) characteristically with some small pieces of sticks or other debris which identifies it at once among the bare unlined depressions of River Terns and Skimmers nesting with it in mixed colonies. *Eggs*, 2 or 3, broad to moderately long ovals of variable coloration from pale yellowish- or greenish stone to buffy brown or brown, boldly blotched with purple-, red-, or blackish brown and with secondary markings of grey and lilac. Average size of 100 Indian eggs 47.9×34.2 mm. (Baker). Share of the sexes in incubation, period, and other details of breeding biology not recorded.

MUSEUM DIAGNOSIS. Differs from the eastern race *affinis* (461) in having a longer wing and somewhat longer bill. For description of plumage see Baker, *loc. cit.*; for details of plumage phases etc. (and bionomics), Witherby, 1941, 5: 12-14.

Chick (in down). 'Upperparts dirty grey-buff with black spots on crown, behind eyes and the dorsum where they tend to form stripes; carpus white, throat dusky to blackish, rest of underparts nearly white' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail		Depth of fork
				central	outer	
♂♂	315-332	34-41	33-37	80-98	120-138	30-48 mm.
♀♀	300-330	—	—	—	—	—

COLOURS OF BARE PARTS. Iris black-brown. Bill black. Legs and feet (ad.) black, (juv. and 1st winter) dark red-brown (Witherby).

461. **Javan Gullbilled Tern.** *Gelochelidon nilotica affinis* (Horsfield)

Sterna affinis Horsfield, 1821, Trans. Linn. Soc. London 13(1): 199 (Java)

Baker, FBI No. 2073, Vol. 6: 118

LOCAL NAMES. As under 458.

SIZE. As of 460; length *c.* 38 cm. (15 in.).

FIELD CHARACTERS. Same as the nominate race (460) *q.v.* Slightly smaller but otherwise indistinguishable. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Breeding locally (race presumed) in West Bengal and East Pakistan (Khulna Sunderbans). Found in winter east of Bihar — W. Bengal, Orissa, and through Assam and E. Pakistan. A specimen taken in the Andaman Is. in November; status there uncertain. In non-breeding season the ranges of the races overlap, making subspecific identification of individual specimens impossible. Extralimital range not yet properly worked out. Inhabits islands of the Malay Archipelago.

GENERAL HABITS, FOOD, VOICE and CALLS. Not different from 460.

BREEDING. A very large colony with eggs — many quite fresh — discovered on an island in the Khulna Sunderbans on 22 April 1922 (Stanford, 1937, JBNHS 39: 867). Skins of breeding birds needed to confirm the subspecies which is only presumed.

MUSEUM DIAGNOSIS. Differs from the western (nominate) race only in having a smaller wing (272–292 mm. *vide* Baker), and somewhat shorter bill (32–35 mm. from feathers).

COLOURS OF BARE PARTS. As in 460.

Genus HYDROPROGNE Kaup

Hydroprogne Kaup, 1829, Skizz. Entw.-Gesch. Eur. Thierw.: 91. Type, by subsequent designation, *Sterna caspia* Pallas = *Sterna tschegrava* Lepechin

Distinguished from *Gelochelidon* by greater size, comparatively short tarsi, shorter tail, and very large stout red bill. Only the nominate race occurs in our area.

462. Caspian Tern. *Hydroprogne caspia caspia* (Pallas)

Sterna caspia Pallas, 1770, Novi Comm. Acad. Sci. Petropol. 14(1): 582, pl. 22
(Caspian Sea)

Baker, FBI No. 2071, Vol. 6: 115

Plate 35, fig. 5, facing p. 80

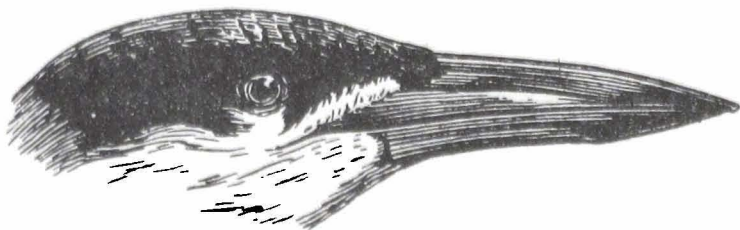
LOCAL NAMES. As for other terns (see under 458). *Kēkra* (Sind); *Māmuhudu lihiniyā* (Sinhala); *Periya kādāl kūrūvi* (Tamil, Ceylon).

SIZE. Jungle Crow +; length *c.* 51 cm. (20 in.).

FIELD CHARACTERS. The largest of our terns; recognizable by its size and very large, stout coral-red bill and black legs and feet.

Adult (winter): *Above*, pearl-grey with white head and neck (all round), streaked on the crown with black; *below*, pure white.

In summer, forehead and crown to below eyes glossy jet black. Sexes alike.



Summer, $\times c. \frac{1}{2}$

Young (immature). Head as in winter adult. Upperparts grey barred with brown, especially on scapulars and innermost secondaries. Tail-feathers and primaries darker than in adult.

For downy chick see Museum Diagnosis.

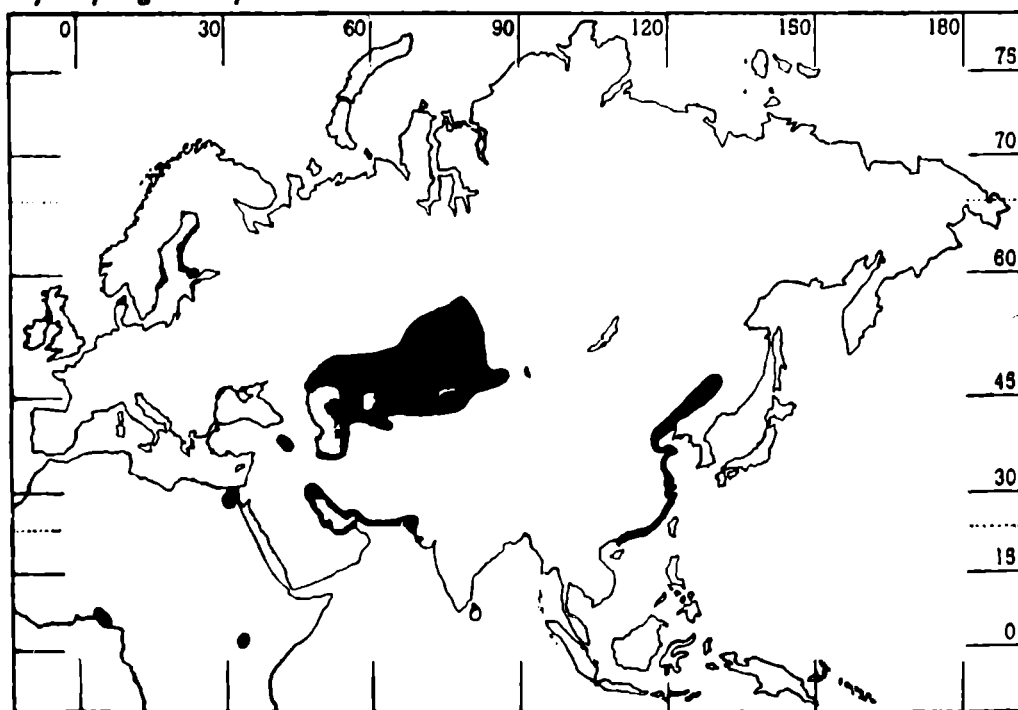
STATUS, DISTRIBUTION and HABITAT. Breeds locally in W. Pakistan and Ceylon. In winter spreads out sparingly more or less throughout the sub-continent, locally common, its numbers doubtless augmented by extralimital immigrants. Occurs sparingly also in the Maldive Is. (status?). Affects the sea coast, tidal mudflats, estuaries and backwaters (Kerala), and the larger lakes (e.g. Manchar, Chilka) inland.

Extralimital. Breeds very locally in Europe and Asia over a wide range of latitudes, between *c.* 10°N. (Ceylon) and 60°N. (Finland). Also breeds in Africa and N. America. In the Old World winters south to Africa, India and the Sunda Is.

MIGRATION. A party of 7 birds blown down in a storm at Thull (in the former N.W.F.P.) on 22 May 1898 (Rattray, 1899, JBNHS 12: 347) was evidently on passage. In Baluchistan 'visits such waters as Khushdil Khan and Saranan lakes on passage. Meinertzhagen noted them there from April 30 to May 17' (Ticehurst, 1927, *ibid.* 32: 86). An example ringed in the Dzhambul Region of Kazakhstan (*c.* 43°30'N., 70°40'E.) on 1.vii.1961 has been recovered on the Ganges R. in West Bengal (*c.* 25°20'N., 87°35'E.) on 3.xi.1964 (*ibid.* 61: 693).

GENERAL HABITS. In non-breeding season less gregarious than most other terns, usually seen singly or in twos and threes either by themselves or in

Hydroprogne caspia



■ Breeding range

association with other species. Hunts in the manner characteristic of the sea terns — hovering over a likely spot of water with bill pointing downwards

and plunging at the quarry, often submerging completely. Sometimes alights on water like a gull, but normally rests on the ground, on sandspits, etc.

FOOD. Mainly fish, prawns and swimming crabs. Seldom any terrestrial items or flotsam refuse.

VOICE and CALLS. A loud raucous *krake-kra* (whence its Sindhi name). G. M. Henry describes a loud squawk *kuwow*, *kuwow*, probably an alarm or scolding note, and 'a harsh cry *krewkiair* repeated several times by a bird flying along a lagoon shore'.

BREEDING. Recorded breeding localities within our limits: Sirunda jheel at Sonmiani, Las Bela, and Astola (or Astalu) Island off the Makran coast (W. Pakistan); sandbanks off the island of Mannar (Ceylon). Breeds in colonies mixed with Gullbilled and other terns. *Season*, May and June. *Nest*, a shallow scrape in the sand, *c.* half a metre or so away from its neighbours. *Eggs*, 2 or 3, broad to long ovals, varying in ground colour from pale yellowish or greyish stone to dull dark buff, occasionally with a pinkish tinge. Blotched with deep brown or blackish brown, with secondary blotches of grey. Average size of 30 Indian-taken eggs 64.8×46.0 mm. (Baker). Both sexes incubate. Period undetermined; elsewhere recorded as 20–22 days.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for details of plumage phases and structure etc. (also bionomics) Witherby, 1941, 5: 15–18.

Chick (in down). 'Like *nilotica* (460, q.v.), but much fewer spots on crown and dorsum, and none behind the eyes' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail central outer		Depth of fork
♂ ♂	398–425	64–72	45–47	98–110	135–150	30–45 mm.
♀ ♀	400–425	—	—	—	—	—

COLOURS OF BARE PARTS. Iris dark brown. Bill (ad.) rich coral-red, (juv.) paler, tipped dusky. Legs and feet black (Witherby).

Genus *STERNA* Linnaeus

Sterna Linnaeus, 1758, Syst. Nat., ed. 10, 1: 137. Type, by tautonymy, *Sterna hirundo*

Linnaeus (*Sterna* prebinomial specific name in synonymy)

Thalasseus Boie, 1822, Isis von Oken, Bd. 1, col. 563. Type, by subsequent designation,

'*Th. cantiacus*' = *Sterna cantiaica* Gmelin = *Sterna sandvicensis* Latham

Bill rather long, pointed, more or less compressed laterally, straight or slightly curved throughout. Tarsus shorter than middle toe with claw. Feet small; front toes completely webbed; a hind toe present. Wings long and pointed: first primary (as.) longest. Tail deeply forked, the outer tail-feathers much longer than the rest, narrowing into a 'streamer' towards tip.

Genus world-wide with 12 species and several races normally occurring in our area.

Key to the Species

	Page
A Bill longer (over 49 mm.), slightly curved throughout.....	1
B Bill shorter (under 49 mm.), slender, straight and more or less laterally compressed.....	2
1 Bill black, tipped yellow.....	<i>S. sandvicensis</i> 70

		Page
	Bill yellow..... a	
a	Wing under 300 mm..... <i>S. bengalensis</i>	69
	Wing over 300 mm..... <i>S. bergii</i>	67
2	Mantle dark brown or black b	
	Mantle grey c	
b	Wing under 275 mm. <i>S. anaethetus</i>	59
	Wing over 275 mm. <i>S. fuscata</i>	62
c	Wing under 200 mm. <i>S. albifrons</i>	64
	Wing over 200 mm. I	
	I Bill stout; 11–13 mm. in depth; yellow at all seasons <i>S. aurantia</i>	48
	Bill more slender; not always yellow..... a ¹	
a ¹	Black line running from lores, through eye, round the crown and the back of nape..... <i>S. sumatrana</i>	56
	Head markings not as above..... b ¹	
b ¹	Outer tail-feathers with both webs white.... <i>S. dougallii</i>	52
	Outer tail-feathers with inner webs grey or dusky <i>S. acuticauda</i>	57
	Outer tail-feathers with outer webs grey or dusky..... c ¹	
c ¹	Upper tail-coverts pale grey..... <i>S. repressa</i>	55
	Upper tail-coverts white..... d ¹	
d ¹	Tarsus 15–17 mm..... <i>S. macrura</i>	54
	Tarsus 19–21 mm..... <i>S. hirundo</i>	50

463. **Indian River Tern.** *Sterna aurantia* J. E. Gray

Sterna aurantia J. E. Gray, 1831, in Hardwicke's Ill. Ind. Zool. 1(5):
pl. 69, f.2 (India)

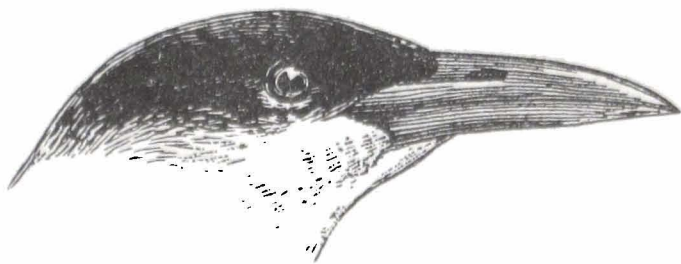
Baker, FBI No. 2080, Vol. 6: 125

Plate 32, fig. 8, facing p. 16

LOCAL NAMES. In general as under 458. *Kināi* (Sind).

SIZE. House Crow ±; slenderer. Length *c.* 38–46 cm. (15–18 in.).

FIELD CHARACTERS. A slender, graceful fluviatile bird, pale grey above white below, with long narrow pointed wings, deeply forked 'swallow' tail, very short red legs, and pointed deep yellow bill.



Summer, × *c.* ½

In winter, crown and nape flecked and streaked with black. In summer (breeding plumage) entire forehead, crown, and nape down to below eyes

glossy jet black. A horizontal crescentic white patch below eyes. Sexes alike.

Young (immature). Upperparts, including wing and tail-feathers edged with buffy white and subedged terminally with blackish. Forehead and a broad supercilium pure white.

STATUS, DISTRIBUTION and HABITAT. Resident and breeding widely on sandy islets in rivers chiefly in the plains practically throughout the Indian Union (including Kashmir Valley), both Pakistans (including the former N.W.F. Province and Punjab Salt Range) and Nepal (lowlands). Absent in Ceylon. Rare on the seaboard and less common in southern peninsular India. Affects the larger rivers, estuaries, and tanks.

Extralimital. Burma and Malay Peninsula east to the Mekong river.

GENERAL HABITS. Keeps singly or in twos and threes, or small scattered parties flying deliberately up and down placid stretches of rivers or large tanks, scanning the water below for prey. Normally hunts by plunging from a height with wings pulled in, often submerging completely, presently to reappear with a small fish held crosswise in the bill. As it resumes its flight, with a little shrug to shake off the water from its feathers, the victim is jerked into position and swallowed head foremost. When satiated the birds flock to rest — as they also roost at night — on sandbanks, the entire gathering with head to wind. When one bird is shot and drops to the ground, its companions in the air will almost instinctively dive down after him presumably meaning to share in his imaginary spoils. Numbers will soon gather at the spot, flying around in a disorderly rabble overhead to investigate.

FOOD. Chiefly fish; also crustaceans and aquatic insects.

VOICE and CALLS. Not specifically recorded. While swooping at intruder in nest colony, making as if to strike, a loud drawn-out note *ping* 'sounding like the scream of a bullet whistling past' (Lowther).

BREEDING. Colonial. *Season*, March to May. *Nest*, a shallow scrape or depression on the bare sand on sandspits and islets in large rivers, often in company with pratincoles, other tern species and skimmers. *Eggs*, normally 3, rarely 4, broad ovals only slightly smaller at one end than the other. Coloration very variable — from buffy stone to greenish grey, spotted, blotched, and streaked with brown and inky purple. Average size of 200 eggs 42.0×31.4 mm. (Baker). Both sexes incubate. Period recorded as 'about 18 to 19 days'. Frequently the first crop of eggs is washed out by untimely floods, necessitating a second or even third laying in quick succession.

MUSEUM DIAGNOSIS. See Key to the Species; for further details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (outer feathers)
♂ ♀	260–280	39–43	c. 20–22	178–228 mm. (Baker)

Depth of fork c. 50–80 mm. (SA).

COLOURS OF BARE PARTS. Iris brown. Bill (summer) bright deep yellow; (winter) less bright yellow with a darker tip. Legs and feet red.

STERNA HIRUNDO Linnaeus

Key to the Subspecies

- Purer grey above and below and distinctly paler below in breeding plumage.....*S. h. hirundo*
 Browner grey above and below and decidedly darker below in breeding plumage.....*S. h. tibetana*

464. **European Common Tern.** *Sterna hirundo hirundo* Linnaeus

Sterna Hirundo Linnaeus, 1758, Syst. Nat., ed. 10, 1: 137 (in Europa = Sweden)
 Baker, FBI No. 2083, Vol. 6: 129

LOCAL NAMES. In general as under 458.

SIZE. House Crow—; slimmer. Length *c.* 36 cm. (14 in.).

FIELD CHARACTERS. A grey-mantled tern with deeply forked white tail of which the longest outer feathers, or streamers (grey and white), do not project beyond the wing-tips when bird at rest.

Adult (winter). Upperparts ashy grey. Forehead white or mottled with white; crown streaked with black. *Below*, chin, throat, wing-lining and under tail-coverts white; breast and abdomen greyish white with a vinous tinge. First primary largely black, and blackish bill with red base are suggestive clues for differentiation from confusingly similar Roseate Tern (466) and Arctic Tern (466a) in winter.

In summer a black cap covers forehead, lores, and crown to lower edge of eye, and the bill becomes coral-red with black tip. Sexes alike.

Young (immature). Like adult in winter but mantle mottled with greyish brown; a dark band on upper wing-coverts; outer webs of tail-feathers dark grey. Bill brownish.

STATUS, DISTRIBUTION and HABITAT. Status anomalous in Sind and in Baluchistan where the birds definitely belong to the nominate race. Chiefly winter visitor but some non-breeding individuals staying on in Karachi Harbour and probably other suitable inlets throughout the hot weather. Probably a passage migrant in Lower Baluchistan—Makran etc. (Ticehurst). Reported by Meinertzhagen as plentiful (non-breeding) on Khushdil Khan lake near Quetta (N. Baluchistan) in May and early June. No definite records of the nominate race traceable in India. Affects tidal creeks, estuaries, and large inland waters.

Extralimital. Breeds in N. America, Europe and W. Asia—Norway, Finland, etc., in the valleys of the Ob and Yenisey, Black and Caspian Seas, Iran, Iraq, Tarbagatai, etc. In the Old World winters to west coast of Africa, and Makran coast. (For fuller details see Peters, 2: 332; Vaurie, 2: 494–5.)

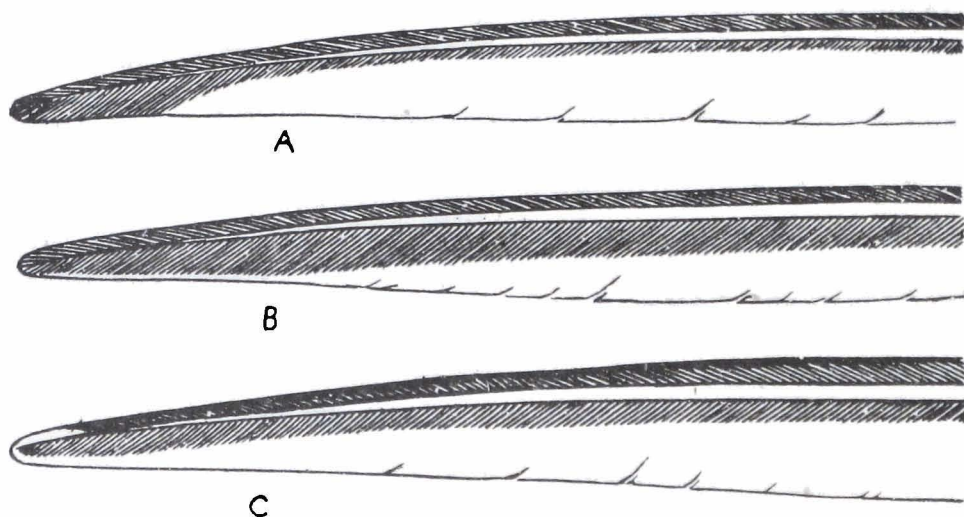
MIGRATION. No ringing data.

GENERAL HABITS. Similar to other terns. Hunts mainly by plunging

FOOD. Mainly fish. Also crustaceans, molluscs and insects.

VOICE and CALLS. Not recorded in Indian winter quarters.

BREEDING. *Extralimital.* More or less as in 463.



× c. $\frac{1}{2}$

Distal portions of outermost primaries of A. *S. macrura* (466a), B. *S. hirundo* (464), and C. *S. dougallii* (466).

N.B. There is considerable individual variation in the width of the black line on inner web in A and B. The white at tip in C is diagnostic.

MUSEUM DIAGNOSIS. For description of plumages, structure, etc. (also bionomics) see Witherby, 1941, 5: 28–35.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail		Depth of fork
				central	outer	
♂♂	255–288	33–39	19–21	68–87	135–175	65–95 mm.
♀♀	255–280	—	—	65–76	140–160	64–86 mm.

COLOURS OF BARE PARTS. Iris dark brown. Bill (ad. winter) mostly black, sometimes some crimson at base; (ad. summer) scarlet, tip black; (juv.) as winter but black portion browner and base more yellowish. Legs and feet (ad. winter) red to red-brown; (ad. summer) vermilion; (juv.) yellow-orange (Witherby).

465. Tibetan Common Tern. *Sterna hirundo tibetana* Saunders

Sterna tibetana Saunders, 1876, Proc. Zool. Soc. London: 649 (Tibet)

Baker, FBI No. 2084, Vol. 6: 130

LOCAL NAMES. In general as under 458.

SIZE. Same as 464; length c. 36 cm. (14 in.).

FIELD CHARACTERS. As for 464 but darker and slightly browner above, darker below. Difference less pronounced in winter, and the races then indistinguishable. Sight records unreliable.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Breeds in Ladakh. Winter visitor to the Indian Union and East Pakistan; fairly common in the Gangetic Plain, less common to scarce in the Peninsula. Irregular visitor to Ceylon, sometimes in considerable numbers. Overall status given by Baker as 'a very common visitor to the whole of western and central India' is palpably erroneous. Affects the larger rivers and jheels, and tidal creeks and estuaries.

Extralimal. 'Breeds on the inland waters of Turkestan, Ladakh and Tibet. Winters in central and eastern India and the Malay states' (Peters).

GENERAL HABITS and FOOD. Similar to 464.

VOICE and CALLS. Not intelligibly described.

BREEDING. Breeds commonly on the high-elevation lakes in Tibet, and evidently also Ladakh — Pangong, Tsokr, Tso Morari (?) etc. *c.* 3500 m. — though no recent investigator has actually found eggs there. *Season* in Tibet chiefly June–July. *Nest*, sometimes solitary, usually colonial, amongst a mass of dried weeds and grass — occasionally a mere scrape amongst pebbles on the bare shore of an islet in a lake, or on a small grassy hummock in the middle of a bog. *Eggs*, 2 or 3, varying from pale dull grey-green to yellowish stone-colour, blotched with dark brown, reddish brown or blackish, with secondary blotches of grey or lavender-grey. Average size of 50 eggs 41.9×30.5 mm. (Baker). The birds generally betray their nests by their loud cries and agitated behaviour. They are bold in attacking intruders, 'one bird stooped 20 or 30 times like a falcon while its nest was being photographed' (Ludlow).

MUSEUM DIAGNOSIS. See Key.

Chick (in down) indistinguishable from nominate race. *Above*, pale sandy or buff mottled on back with black; crown generally marked with two fairly well-defined lateral black bands and a less well-defined central one. *Below*, throat and foreneck purplish brown, paler on the chin; rest of underparts white.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (outer feathers)
♂ ♀	245–279	34–38	<i>c.</i> 19–22	145–156 mm.
Weight	5 oo? 102–110 gm. — BNHS.			(Baker)

COLOURS OF BARE PARTS. As in the nominate race.

466. **Roseate or Rosy Tern.** *Sterna dougallii korustes* (Hume)

Sternula korustes Hume, 1874, *Stray Feathers* 2: 318 (Andaman Islands)

Baker, FBI No. 2086, Vol. 6: 132

Plate 35, fig. 2, facing p. 80

LOCAL NAMES. In general as under 458.

SIZE. House Crow — ; slimmer. Length *c.* 38 cm. (15 in.).

FIELD CHARACTERS. A slender grey and white tern with deeply forked tail; practically indistinguishable from 464 and 465 in winter, but longer *pure white* outermost tail-feathers or streamers (*v.* grey and white) noticeable by those familiar with both species.

Adult (winter). Forehead and forecrown white freckled with black; crown and nape black. Underparts white with a very faint rosy flush. Bill black.

The bright red legs readily distinguish it from Blacknaped Tern — also with rosy tinged underparts — which has black legs.

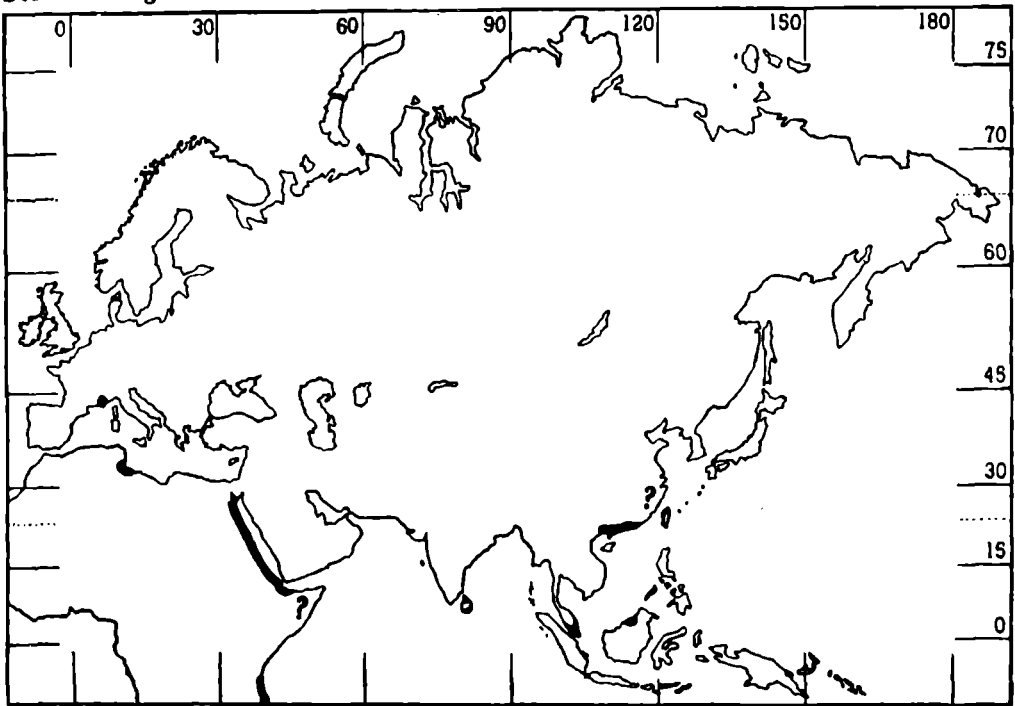
In summer (breeding) forehead, crown, and nape down to lower edge of eye black. White underparts suffused with rosy. Bill black with red base. Sexes alike.

Young (immature). *Above*, forehead spotted, and crown streaked with brown, black, and white. Upperparts white with double bars of brown rump and upper tail-coverts ashy grey, sometimes mottled with brown; *Below*, white.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Breeds in the Andamans (islets off Port Blair), off the southeastern and west coasts of India (Rameswaram I.,

Sterna dougallii



■ Breeding areas

Vengurla Rocks), Ceylon (west coast and east coast islets), and reportedly also the Maldives (Fujarde islet). Non-breeding range and movements imperfectly known. Affects sea coast and offshore islets.

Extralimital. *S. d. korustes* breeds also in the islands of the Mergui Archipelago, South Burma; other races as shown on map.

GENERAL HABITS. A sea tern confined to coastal waters and offshore islets.

FOOD, VOICE and CALLS. Nothing recorded as significantly different from other sea terns, e.g. the Crested (478, 479), q.v., with which it freely associates.

BREEDING. Breeds in mixed colonies, sometimes of considerable size, with Blacknaped and Crested terns. *Season* April–May–June, varying locally and also in different years. *Nest*, a scrape in the sand sometimes scantily lined with debris and small shells and pebbles, or amidst scraggy grass tufts on rocky islets. *Eggs*, 1 or 2 — very rarely 3. Similar to those of Tibetan Tern (465) but somewhat smaller. Variable in coloration, most commonly pale yellowish or greyish stone with numerous freckles and some large blotches of dark brown, reddish brown, purple-black or black, and secondary

markings of grey or lavender. Average size of 100 eggs 40.2×29.3 mm. (Baker). Incubation by both sexes; period undetermined.

MUSEUM DIAGNOSIS. For description of plumage phases and structure (also bionomics) of the nominate race see Witherby, 1941, 5: 24-7. The race *korustes* differs from it only by slightly darker plumage and slenderer bill.

Chick (in down). Upperparts, chin and throat grey tinged with buff or rich buff, the black bases of the down showing through. Rest of underparts white.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (outer feathers)
♂ ♀	210-226	31-38	c. 20-22	130-164 mm. (Baker)

COLOURS OF BARE PARTS. Iris dark brown. Bill (winter) black or (breeding) red with terminal third blackish. Legs and feet bright red.

466a. Arctic Tern. *Sterna macrura* Naumann

Sterna macrura Naumann, 1819, Isis: 1847 (Island Nordstrand and coast of West Schleswig)
Not in Baker

SIZE. As of Tibetan Common Tern (465). Length c. 36 cm. (14 in.).

FIELD CHARACTERS. Similar to 464 and 465 'but throat, breast and abdomen French-grey with no vinaceous tint; a white streak on the sides of the head below the black cap (in summer); outermost primaries with inner web narrowly grey next the shaft; secondaries broadly margined with white; outside tail-feathers very long with dark grey outer webs; bill blood red; feet coral red' (Alexander, 1955).

Extralimital. Breeds in the Holarctic Region chiefly between 60° and 75° N. lat. Winters in the Antarctic Ocean south to c. 75° S. lat. performing an annual return migration of over 35,000 km.

STATUS, DISTRIBUTION and HABITAT. The only record for our area is an adult male in full breeding plumage, presumably a lost vagrant, collected on 2 July (1928) in the Suru Valley, Kashmir, c. 4000 m. along with Tibetan terns (Whistler, 1936, *Ibis*: 600).

MUSEUM DIAGNOSIS. For description of plumages and structure see Witherby, 1941, 5: 38-40.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail central outer	Depth of fork
♂♂	265-282	30-33	15-17	70-80 170-200	90-138 mm.
♀♀	260-275	--	—	66-75 158-185	92-117 mm.

COLOURS OF BARE PARTS. Adult. Iris dark brown. Bill winter blackish, summer blood-red, occasionally with blackish tip. Legs and feet, winter blackish, summer coral-red (Witherby).

467. **Whitecheeked Tern.** *Sterna repressa* Hartert

Sterna repressa Hartert, 1916, Nov. Zool. 23: 298 (Fao, Persian Gulf). New name for *Sterna albigena* of authors, not Reichenbach

Baker, FBI No. 2082, Vol. 6: 128

LOCAL NAMES. In general as under 458.

SIZE. House Crow — ; length *c.* 35 cm. (13½ in.).

FIELD CHARACTERS. Confusingly similar to Tibetan and Arctic terns; difficult to differentiate with certainty unless in the hand. See Key and Museum Diagnosis.

Adult (summer). *Above*, black upperparts of head, including upper lores, not descending to lower edge of eye (giving a white-cheeked effect). Upperparts including tail-coverts, tail, and wings dark ashy grey. *Below*, chin white; rest of underparts ashy grey with a lilac tinge. Legs bright red. Sexes alike.

In winter head white, the feathers round the eye, nape, and upper hindneck more or less black or chocolate-brown; lower hindneck and underparts white.

STATUS, DISTRIBUTION and HABITAT. Breeds on Vengurla Rocks off Malvan on the west coast, *c.* 16°N., 73°30'E. Common on Makran and Sind coasts, March to May, but no evidence of breeding; probably only on passage to its breeding grounds in the Persian Gulf. Records on Tamil Nadu and Maharashtra coasts scanty, possibly due in part to difficulty in field identification of terns. A specimen, Bombay harbour, 12.vi.1973 (Prabhakara Menon, JBNHS 71: 610). Obtained in the Laccadive Is. by Hume; not recorded in Ceylon or the Andaman Is.

Extralimital. 'Southern parts of the Red Sea, coasts of Somaliland and Kenya Colony, Arabian Sea and Persian Gulf to the Malabar coast and the Laccadive Islands' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. A maritime tern, sometimes met many miles out from the coast, but avoiding inland waters. Hunts by plunging from the air; other behaviour also typical of the sea terns. Nothing specifically recorded.

BREEDING on the offshore islets south of Ratnagiri on the West Coast (Vengurla Rocks) where addled eggs and desiccated remains of the birds have been picked up after the breeding season during which the heavy monsoon seas make landing on the rocks impossible. The birds evidently nest here in mixed colonies together with Large Crested, Roseate, Sooty, and Brownwinged terns (Abdulali, JBNHS 1940, 41: 661; 1942, 43: 448). *Season*, the SW. monsoon — evidently May and June, perhaps into July. *Nest*, (description from islets off the Somali coast) a shallow depression on open sand flats or in sand accumulated by wind and wave action in hollows and roughnesses of sheet rock, sometimes lined — deliberately or fortuitously (?) — with bits of twig and grass stems. The nests placed close to one another. *Eggs*, 2 or 3, occasionally only 1. Coloration variable, from stone or whitish- to olivaceous buff, spotted and streaked with dark reddish brown, with secondary markings of lilac. Average size of 100 eggs 40.8 × 30.4 mm. (Baker).

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (outer feathers)
♂ ♀	227-254	36-38	c. 19-21	124-154 mm. (Baker)

COLOURS OF BARE PARTS. Iris brown. Bill dark blood-red at base, black on terminal half with a small pale tip. Legs and feet bright red.

STERNA SUMATRANA Raffles

Key to the Subspecies

Wing c. 217-239; culmen 34-35 mm.....*S. s. sumatrana*

Wing c. 199-221; culmen 37-41 mm.....*S. s. mathewsi*

468. Eastern Blacknaped Tern. *Sterna sumatrana sumatrana* Raffles

Sterna Sumatrana Raffles, 1822, Trans. Linn. Soc. London 13 (2): 329 (Sumatra)
Baker, FBI No. 2092, Vol. 6: 139

LOCAL NAMES. In general as under 458; *Sanna yena* (Car Nicobar).

SIZE. House Crow — ; length c. 35 cm. (13½ in.).

FIELD CHARACTERS. A pale pearly grey and white sea-tern, looking particularly white against the dark grey sea. Distinguished by a black band commencing in front of eye and encircling the sides of head and nape. Rest of head white. Tail deeply forked: central feathers grey, streamers white. Underparts white suffused with delicate rosy pink. Legs and bill black. Sexes alike.

In winter black nuchal band narrower and less prominent.

Young (immature) has the nape dark chocolate-brown, inner wing-coverts dark grey-brown, primaries dark grey.

In first-feather plumage (succeeding the down) crown brownish; feathers of upperparts with wavy brown bars.

STATUS, DISTRIBUTION and HABITAT. Common in the Andaman and Nicobar Islands, between May and October, mostly dispersing over the adjacent seas after breeding. May occur in Khulna Sunderbans of East Pakistan and West Bengal.

Extralimital. Breeds also on other small islets in the tropical Pacific and eastern Indian oceans south to the Sunda Is. and c. 20°S. lat.

GENERAL HABITS, FOOD, VOICE and CALLS. Exclusively maritime. Food chiefly fish caught by plunging.

BREEDING. Breeds on small rocky islets off the east coast of the Andamans (and Nicobars?) — more sheltered during the SW. monsoon. *Season*, May to July. *Nest*, a skimpy bed of a few small fragments of coral collected on the rock, or mere dimples in sand. In small scattered colonies each nest separated by several metres from its neighbour. *Eggs*, 2 or 3, sometimes only 1. Variable in coloration and very similar to eggs of *S. dougallii* — mostly greyish stone with numerous spots of dark or light brown; some much warmer coloured with reddish brown blotches; others yellowish brown or pale green in ground colour instead of grey. Average size of 200 eggs 39.6 × 28.6 mm. (Baker).

MUSEUM DIAGNOSIS. See Key. For fuller description of plumage, Baker loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (outer feathers)
♂ ♀	220-227	31-38	18-19	129-150 mm. (Baker)

Wing 3 ♂♂ (Andamans) 215, 216, 227; 6 ♀♀ 208-224 (av. 213) mm. (Abdulali).

COLOURS OF BARE PARTS. Iris brown. Bill black with a small yellowish tip (c. 15 mm.) to both mandibles, not always present. Legs and feet black.

469. **Western Blacknaped Tern.** *Sterna sumatrana mathewsi* Stresemann

Sterna sumatrana mathewsi Stresemann, 1914, Nov. Zool. 21: 60

(Aldabra Islands, type from Île Piquart)

Not in Baker, FBI

LOCAL NAMES. *Kirru dooni* (general for terns — Maldivian).

SIZE. House Crow — ; length c. 35 cm. (13½ in.).

FIELD CHARACTERS. As for 468; indistinguishable from it unless in the hand. See Key to the Subspecies.

STATUS, DISTRIBUTION and HABITAT. Breeds in the Maldiv Islands where it is the most abundant and widespread tern. Not recorded in Ceylon or along the western coast of the Peninsula.

Extralimital. 'Islands of the western Indian Ocean from the Seychelles, Amirante and Aldabra Islands east to the Chagos Islands' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 468. 'Voice less loud and harsh than in the majority of the family' (W. W. A. Phillips).

BREEDING in the Maldives (Addu Atoll etc.) on small islets and coral banks with scrub. *Season*, June-July. Clutches laid on bare coral shingle between small lumps of broken coral or in shallow, seemingly unintentional scrapes scattered several metres from one another. *Eggs*, 1 or 2, mostly light stone grey, spotted, speckled and blotched with sepia to light brown, with faint secondary blotches of purplish grey or lavender. Coloration extremely cryptic on background of weathered grey coral shingle and sand. Average size of 14 eggs 39.4 × 27.44 mm. (Phillips, JBNHS 55: 567-9).

MUSEUM DIAGNOSIS. Differs from eastern nominate race in having a smaller wing and larger bill. See Key to the Subspecies for measurements.

COLOURS OF BARE PARTS. As in 468.

470. **Blackbellied Tern.** *Sterna acuticauda* J. E. Gray

Sterna acuticauda J. E. Gray, 1831? (1830-1832), in Hardwicke's Ill. Ind. Zool. 1(6): pl. 70, f. 3 (Cawnpore, India)

Sterna melanogaster Temminck, 1827, Pl. col., livr. 72: pl. 434 (Islands of Ceylon and Java (error) and the coasts of India)

Cf. Deignan, H. G., 1945, Bull. U.S. Nat. Mus. No. 186: 133-4 (use of name).

Baker, FBI No. 2081, Vol. 6: 127

Plate 32, fig. 5, facing p. 16

LOCAL NAMES. In general as under 458.

SIZE. House Crow — ; length c. 33 cm. (13 in.).

FIELD CHARACTERS. A medium-sized, deeply fork-tailed fluviatile tern.

Adult (summer) ashy grey above, chiefly black below. Forehead, crown, nape, and crest glossy black; lores, cheeks, chin, and throat pure white. Readily distinguished from Whiskered Tern in black-bellied summer plumage by long, deeply forked tail (*v.* short and almost square). Sexes alike.

In winter upper part of head white streaked with black, and with a black patch behind eye. *Below*, white tinged with grey on foreneck and breast. Then distinguished from River Tern (463) only by smaller size and slenderer bill.

Young (immature). *Above*, buffy grey, the feathers edged paler buffy white and subedged blackish.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, practically throughout the Indian Union, Nepal, and both Pakistans, affecting large rivers and jheels in the plains. Less common in South India; absent in Ceylon. Occurrence west of Indus river (Las Bela, southern Baluchistan, etc.) needs confirmation. An essentially inland and freshwater tern, not found on the sea coast. Overall less common than River Tern.

Extralimital. Burma, Thailand, western Indochina.

GENERAL HABITS. Keeps in large or small flocks flying up and down placid stretches of rivers or resting on shoals and sandbanks in close-packed gatherings, all uniformly face to wind. The birds hunt methodically, flying a few metres above the surface, bill and eyes directed intently below — sometimes almost skimming the water — with slow wing-beats upwind taking advantage of the resistance for a deliberate scanning of the surface. At the end of its beat the bird turns round and shoots swiftly downwind back to the starting-point to repeat the process. The quarry is captured by plunging vertically from the air and submerging, or by lightly scooping it off the water or land.

FOOD. Mainly fish; also insects and crustaceans.

VOICE and CALLS. A shrill *krek, kre*k constantly uttered while flying about.

BREEDING. Colonial. *Season*, chiefly March and April, sometimes continuing into May — perhaps for second layings when first destroyed by floods; earlier, *c.* February, in S. India. *Nest*, a small shallow scrape, often merely a dimple, in the bare sand on sandspits and large sandy islets in rivers. Colonies, frequently of considerable size, and shared with River Terns, skimmers and pratincoles. *Eggs*, normally 3, sometimes 2, rarely 4, broad ovals very slightly compressed at the smaller end. Variable in ground colour from pale to dark sandy, occasionally with a greenish tinge; speckled or spotted all over with reddish or purplish brown and secondary markings of pale grey or pale purplish grey. As in all river-bed nesting birds, both the eggs and downy chicks become completely obliterated in their sandy background. Average size of 100 eggs 32.4×24.9 mm. (Baker). Both sexes incubate; period recorded as '15 or 16 days'. The parents shelter the eggs and chicks from the fierce sun by standing over them or sprinkling them with water carried from the river by dousing their belly feathers. To feed the incubating mate and chicks the birds (σ only?) have been repeatedly observed to fly unnecessarily long distances to collect fish at outlying tanks, even though plenty were available in the river closer at hand.

MUSEUM DIAGNOSIS. For a fuller description of plumage see Baker, loc. cit.

Chick (in down). 'Upperparts cream; broken line of black from base of bill on each side of crown and down dorsum; rest of upperparts spotted with black except wings; underparts cream coloured' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (outer feathers)
♂ ♀	221-240	32-40	c. 15-16	145-152 mm. (Baker)

COLOURS OF BARE PARTS. Iris dark brown. Bill and mouth (breeding) bright orange-red; (non-breeding) bill duller and tipped with dusky. Legs and feet bright orange-red; claws black.

471, 472, 473. **Brownwinged Tern.** *Sterna anaethetus anaethetus* Scopoli¹

Sterna Anaethetus Scopoli, 1786, Del. Flor. et Faun. Insubr., fasc. 2: 92 ('In Guinea'
= Panay, Philippine Islands, ex Sonnerat)

Sterna fuligula Lichtenstein, 1844, in Forster, Descr. Anim., ed. Licht.: 276, note
(Red Sea)

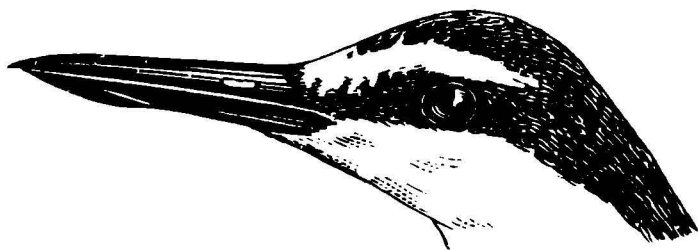
Sterna antarctica Lesson, 1831, Traité d'Orn., livr. 8: 621 (Mauritius and Calcutta)
Baker, FBI No. 2093, Vol. 6: 141

Plate 35, fig. 3, facing p. 80

LOCAL NAMES. In general as under 458.

SIZE. House Crow — ; length c. 37 cm. (14½ in.).

FIELD CHARACTERS. A medium-sized sea tern with dark greyish brown mantle, wings, and tail, and white underparts. Long outer feathers or streamers of the 'swallow' tail largely white. Forehead and superciliary



Summer, × c. ½

region conspicuously white; crown, nape, and a stripe from lores to behind eye black. Aptly known as Bridled Tern from its face markings. In flight contrastingly white leading edge of upper wing and white on tail-feathers very conspicuous. Sexes alike.

In winter crown brown, flecked with white.

Young (immature). *Above*, paler brown, the feathers broadly edged white. Crown brown with greyish edges to the feathers; nape almost all brown. Black band from lores replaced with white speckled with black.

¹ Synonymized, as by Vaurie (1965). The subspecies are inseparable from nominate *anaethetus*.

STATUS, DISTRIBUTION and HABITAT. A pelagic wide-ranging tern found sporadically far out at sea. Disperses after breeding over the Arabian Sea to the coasts of Pakistan, western India and Sri Lanka. Two records from Andaman Is. (Abdulali, JBNHS 68: 400), but probably occurs oftener than reported. Doubtless occurs off the Sind and Gujarat coasts whence specifically not yet recorded, though several once observed from ship between Karachi and Bombay, and many caught by the sailors while roosting on board.

Extralimital. Breeds on islands in the southern half of the Red Sea, northern Somali coast, Makran coast (?) and Persian Gulf. Ranges southward to Mozambique and east to western India. Also locally on islands in the China Sea from Taiwan to Malacca and eastward through the Sunda Is. to New Guinea and Australia. Ranges to Sri Lanka, Mergui Archipelago and Japan (Peters).

MIGRATION. Flocks totalling an estimated ' 50 to 100,000 ' recorded as purposefully flying N-S along the coast at Colombo, Sri Lanka, between c. 17 and 21 August, 1974, conjectured as migrating to winter feeding grounds in the southern Indian Ocean (T. W. Hoffmann, CBCN, August 1974: 132-3).

GENERAL HABITS. Gregarious and exclusively maritime. Usually found offshore, but also wanders considerable distances out to sea. Flocks follow shoals of fish, plummeting on them from a height, several birds at a time or in ones and twos, going completely under. The bird presently reappears with a silvery victim held crosswise in the bill. This is manoeuvred into position and bolted head foremost, as with a little shrug to shake off the water from its plumage, the bird wheels round to resume the slaughter, plunging again and again where the fishing is good. Flocks settle on floating buoys or rocks or ships' rigging to rest, and frequently roost at night up amongst the lifeboats.

FOOD. Mainly fish.

VOICE and CALLS. Described as ' a rather hoarse *krek* or harsh *quirk* '.

BREEDING. Breeds on islands off the Maharashtra coast, on Vengurla Rocks off Ratnagiri (c. 16°N., 73°30'E.), in Lakshadweep (Laccadives) on Balliapanni or Cherbaniani Atoll (c. 12°20'N., 71°50'E.), and reportedly on other atolls (Mathew & Ambedkar, JBNHS 61: 186), and the Maldiv islands. *Season*, SW. monsoon chiefly June-July straggling into September. *Nests* colonial; in mixed colonies with Large Crested (*Sterna bergii*) and other terns: a shallow scrape or dimple in the sand. *Eggs*, normally 1, exceptionally 2, cream or buffy pink in ground colour, profusely spotted and speckled with Indian red, with secondary markings of lilac, ' somewhat resembling eggs of the common Moorhen ' (Archer). Average size of Vengurla-collected eggs in Hume collection 43.2 × 30.1 mm. (Baker).

MUSEUM DIAGNOSIS. See Field Characters.

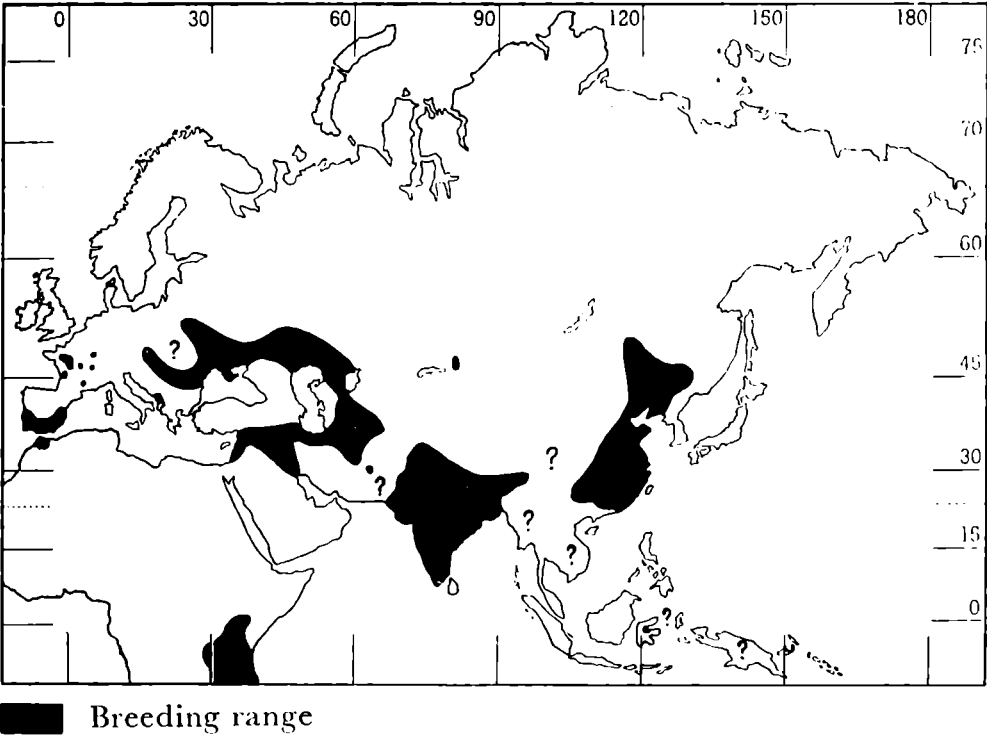
MEASUREMENTS

Wing		Bill	Tarsus	Tail
		(from feathers)		(outer feathers)
♂ ♀	c. 236-263	c. 41-48	c. 23	c. 156-184

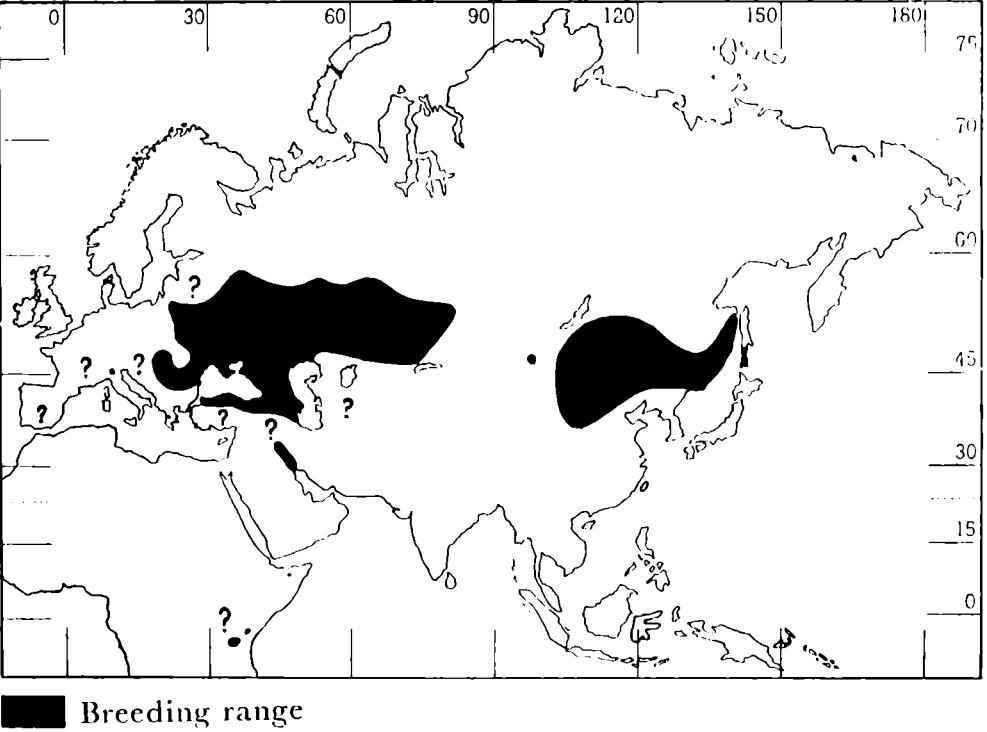
(Composite of subspecies from Baker)

COLOURS OF BARE PARTS. Iris dark brown. Bill, legs, feet and claws black.

Chlidonias hybridus



Chlidonias leucopterus



474. **Sooty Tern.** *Sterna fuscata nubilosa* Sparrman

Sterna nubilosa Sparrman, 1788, Mus. Carls., fasc. 3, no. 63 (Finland, *errore* = 'India Orientalis' according to Sundevall)

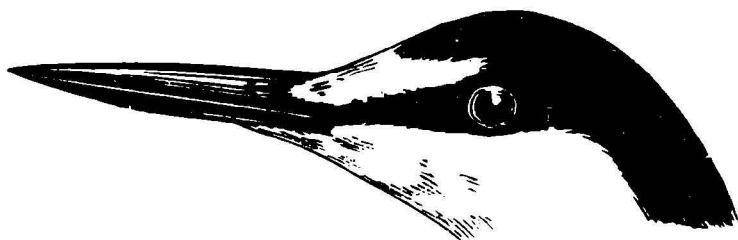
Sterna infuscata Lichtenstein, 1823, Verz. Doubl. Mus. Berl.: 81 (East Indies)
Baker, FBI No. 2096, Vol. 6: 144

LOCAL NAMES. As for 458 (all terns).

SIZE. House Crow; length *c.* 43 cm. (17 in.).

FIELD CHARACTERS. A medium sized black-and-white pelagic tern with conspicuously long pointed wings and deeply forked tail. Leading edge of upper wing contrastingly white; outermost elongated tail-feathers greyish white; bill and feet black.

Adult (summer). Very similar to Brownwinged Tern (471) but somewhat larger and much darker (sooty black) above. White frontal band broader but superciliary portion of it only extending to just above eye. Dark loreal stripe more oblique, reaching bill nearer to gape and extending above eye. *Below*, breast and throat white; abdomen and under tail-coverts greyish. Sexes alike.



Summer, $\times c. \frac{1}{4}$

In winter crown and lores speckled with white.

Young (immature). *Above*, sooty brown or dark grey spotted with buffy white on back and wings, broadest on scapulars and tertiaries. *Below*, somewhat paler sooty brown, whitish on lower abdomen and under tail-coverts.

STATUS, DISTRIBUTION and HABITAT. Breeds in vast numbers on the Laccadive Islands (Cherbaniani Reef). Also breeds on Vengurla Rocks off the western coast of the Peninsula (S. of Ratnagiri); reportedly in the Maldives, and probably the Andamans. Disperses over the ocean after breeding; non-breeding range insufficiently known. Vagrants (storm-blown?) have occurred far inland, e.g. Cachar (Assam), Darbhanga (Bihar), Tirunelveli (Tamil Nadu) and in the Hill zone of Ceylon. Once taken on the Konkan coast (Alibag); occasional winter visitor to coastal Ceylon. Large flocks observed at sea between Ceylon and N. Mahe Atoll (Maldives) in November; also in the vicinity of the islands at various times of the year (Phillips, 1963, JBNHS 60: 577).

Extralimital. 'Islands in the Indian Ocean (Mascarene, Seychelles), China Sea, Sulu Sea; Ryukyu Is.' (Peters).

GENERAL HABITS. A pelagic tern seldom coming to land except in the breeding season, and thought, according to M. W. Ridley (1957, JBNHS 54: 920-1), 'to feed, sleep, and even copulate in the air'! Usually seen in

flocks well out to sea 'never within 7 or 8 miles of land' (Hume, in the Laccadives). F. N. Betts saw one in these waters resting on the back of a sleeping sea turtle (1938, *ibid.* 40: 385). Very active and clamorous both in daytime and during night on its breeding grounds as well as flocks at sea when agitated or attracted in the dark as by a well-lit passing ship. This habit coupled with the distinctive cry have earned its popular name of 'Wideawake' or 'Wideawake Tern'.

FOOD. Fish and squids obtained by plunging from a height or scooping up from the surface; flying fish caught in the air. Clear evidence of nocturnal feeding provided by a case of six undigested (recently swallowed) deep-sea fishes, *Vinciguerria lucetia* (Garman), with photophores intact, regurgitated by an example which had landed on shipboard in the Pacific 3 hours after sunset. These bathypelagic fishes (fam. Gonostomatidae) only ascend to the surface from deep water in the darkness to feed (Mörzer Bruyns & Voous, 1965, *Ardea* 53 (1-2): 79).

BREEDING. *Season* in the Laccadives evidently much prolonged, *c.* December/January to May; on Vengurla Rocks apparently between *c.* April and August/September. The stormy seas just before and during the SW. monsoon (May to September) make landing on Vengurla Rocks for investigation impracticable. The length of this period suggests the possibility that unsuccessful parents may breed again at an interval of less than twelve months, as on some Pacific islands (Ashmole, 1965, *Proc. U.S. Acad. Sci.* 53 (2): 311-18). *Eggs* laid on the bare soil, or in a shallow depression in vast closely packed colonies ('about 3½ pairs to the square yard' in Seychelles — Ridley). Normally 1, occasionally (perhaps accidentally) 2; moderately elongated regular ovals. Coloration very variable: white to pinky white or 'yellowish pinkish stone colour' (Hume), speckled and blotched with violet or brown. Average size of 30 eggs 52.3 × 36.0 mm. (Baker). Both sexes incubate; period unrecorded.

MUSEUM DIAGNOSIS. For description of plumage see Baker, *loc. cit.*

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (outer feathers)
♂ ♀	278-297	35-42	<i>c.</i> 23-24	145-162 mm. (Baker)

COLOURS OF BARE PARTS. Iris brown. Bill, legs and feet black.

STERNA ALBIFRONS Pallas

Key to the Subspecies

	Page
A Black on top of head does not taper to a point but has straight edge across forehead; white of forehead does not reach eyes; legs and feet dusky yellowish olive; shafts of first three primaries black.....	
..... <i>S. a. saundersi</i>	65
B Black on top of head tapers to a point in front; white of forehead touches eyes; legs and feet orange-yellow to yellow.....1	
1 Shafts of first three primaries dark brown to brownish white.....	
..... <i>S. a. albifrons</i>	64
Shafts of first three primaries shining white..... <i>S. a. pusilla</i>	66

475. **Little Tern or Ternlet.** *Sterna albifrons albifrons* Pallas*Sterna albifrons* Pallas, 1764, in Vroeg's Cat., Adumbr.: 6 (Holland)*Sterna minuta innominata* Zarudny & Loudon, 1902, Orn. Monatsb. 10: 150

(Bampur and Esposafar, Persian Baluchistan)

Sterna albifrons praetermissa Baker, Bull. Brit. Orn. Cl. 49: 39

(Buna Island, Persian Gulf)

Baker, FBI, 2087, 2090, Vol. 6: 135, 138

LOCAL NAMES. None recorded.

SIZE. Myna $\pm$; length *c.* 23 cm. (9 in.).

FIELD CHARACTERS. Distinguished from all other grey and white terns by its diminutive size.

Adult (summer) with velvety black cap, white forehead, and orange-yellow bill and feet. Sexes alike.

In winter the black cap much mixed with white, bill blackish, feet dusky red.

Young (immature). Upperparts with dark wavy bars; forehead and crown white, speckled with brownish black; nape blackish finely stippled with white.

STATUS, DISTRIBUTION and HABITAT. The species overall occurs widely but rather locally in both Pakistans, northern India east to Assam, peninsular India south to Kerala and Rameswaram I., Nepal lowlands, Ceylon, Laccadive and Maldive Is. Ranges of the races uncertain and tentative, since besides being locally migratory the birds spread out extensively in the non-breeding season and mingle confusingly, making sight records insufficiently definitive. Affects tidal creeks, coastal lagoons and salt-pans, but chiefly rivers and freshwater jheels inland.

As presently understood *S. a. albifrons* breeds only in W. Pakistan (Makran, Las Bela) and NW. India (Gujarat — Bhavnagar), wandering down the west coast to about the latitude of Bombay.*Extralimital.* 'Breeds in Europe and western Asia from the British Isles, southern Sweden . . . south to the Mediterranean, Black and Caspian Seas and Tarbagatai. Winters south to the Somali coast of Africa and to NW. India' (Peters).GENERAL HABITS. Keeps singly or in small loose parties or flocks, working deliberately back and forth over water with quick wing-beats, bill and eyes directed below, scanning the surface for food; shooting back downwind to starting-point to repeat the manoeuvre. Often hovers over a promising spot like Pied Kingfisher (*Ceryle rudis*). Plummets with wings pulled in to seize prey below surface, or dips steeply at a tangent to pick it off the water with a backward flick of the bill as it momentarily skims over it. Observed 'dropping from a height of *c.* 20 feet into water only 2 inches deep' (Hingston, R.W.G., unpublished MS.). A number of birds plunging one after another, each emerging presently with a silvery fish in the bill is a fascinating sight. Flies with quicker wing-beats than the larger terns, reminiscent in silhouette of a hobby (*Falco subbuteo*).

FOOD. Chiefly small fish and crustaceans; also aquatic insects.

VOICE and CALLS. A sharp *creek*, *creek* or *cree-uk* of the same tone quality as the Pied Kingfisher's *chirruk* call. Other calls described in Witherby, loc. cit.

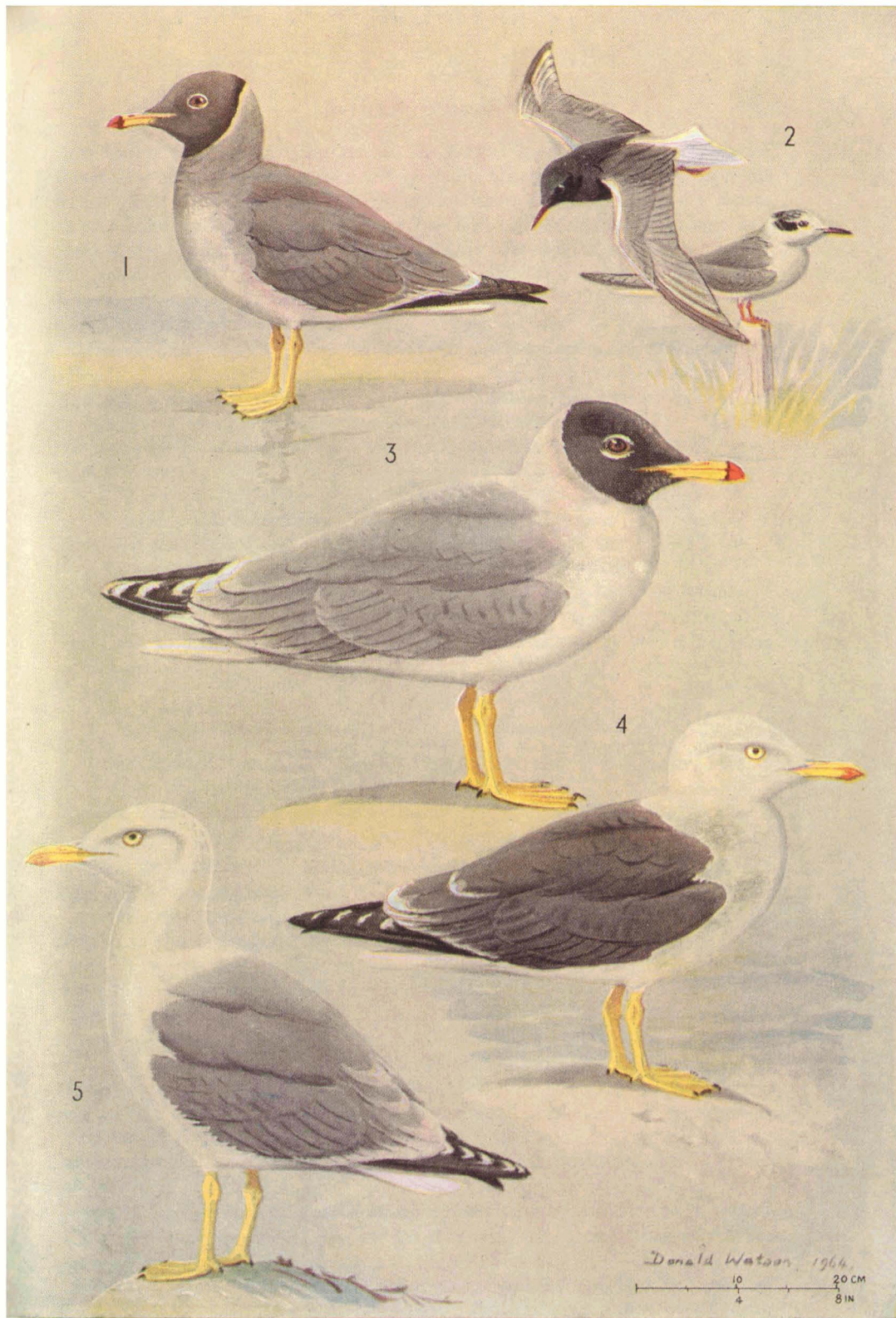


PLATE 34

1 *Larus hemprichii*, Sooty Gull (449). 2 *Chlidonias leucopterus*, Whitewinged Black Tern (459). 3 *Larus ichthyaetus*, Great Blackheaded Gull (453). 4 *Larus f. fuscus*, Lesser Blackbacked Gull (452). 5 *Larus a. heuglini*, Herring Gull (450).

BREEDING. In small colonies on sandbanks in rivers (Chenab, Sutlej, Punjab — Whistler) or sandy islets in jheels (Saranda, Las Bela 'in a different part to that occupied by Caspian terns etc.' — Ludlow). *Season*, chiefly May and June. *Eggs* — 2 or 3 — laid on bare sand or shingle in a shallow depression; sandy coloured, variously tinged with yellowish, greyish, or greenish, and blotched, spotted or speckled with some shade of dark brown or reddish brown. Average size about 32×24 mm. Both sexes incubate; period unrecorded.

MUSEUM DIAGNOSIS. See Key. In nominate *albifrons* upperparts darker than in 476 and 477. Shafts of first three primaries dark brown to brownish white. Black of crown tapering anteriorly; white of forehead touching eyes above. Legs and feet orange-yellow or yellow (Humayun Abdulali, 1964, JBNHS 61 (2): 441). For plumage phases and structure (also bionomics) see Witherby, 1941, 5: 40-3.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail central	outer	Depth of fork
♂♂	164-180	27-32	15-18	43-48	75-95 (one 66)	23-50 mm.
♀♀	164-180	—	—	42-48	74-85	28-41 mm. (Witherby)

COLOURS OF BARE PARTS. Adult. Iris brown. Bill yellow, tip brown. Legs and feet orange.

476. **Blackshafted Ternlet.** *Sterna saundersi* Hume¹

Sterna Saundersi Hume, 1877, Stray Feathers 5: 324, note 325 (Karachi, Sind)
Baker, FBI No. 2091, Vol. 6: 138

LOCAL NAMES. *Bondu*, *Bondu dooni* (Maldives).

SIZE. Same as 475; length c. 23 cm. (9 in.).

FIELD CHARACTERS. Indistinguishable in the field from 475 or 477. See Key and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Little definitely known. Breeds for certain in the immediate surroundings of Karachi City, the birds arriving there about the first week in April and disappearing by beginning of September. Probably also breeds in suitable places along the Sind and Makran coasts in W. Pakistan (Ticehurst, C. B., *Ibis* 1924: 143). Non-breeding whereabouts of this population unknown. Non-breeding specimens have been collected in Gujarat (Kandla, May; Pirotan Island, July), near Bombay (Dharamtar Creek, April) and Ceylon (Karativu Island); also at Madras and in the Laccadive (Hume) and Maldive islands. Very large numbers observed in Addu Atoll (Maldives) throughout the year; reported by the locals to breed there during April with other terns (Phillips, 1963, JBNHS 60: 577).

Affects tidal creeks and coastal lagoons; very seldom found on fresh water.

Extralimital. 'Southern coasts of the Red Sea, the Somali coast of Africa, southern coasts of the Persian Gulf to Sind' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing specifically recorded except that 'it is a salt-water bird entirely, its local migrations presumably

¹ Awarded specific rank on account of sympatry, and different colour pattern and ecology.

depending on food supply. The birds come up the creeks following the shoals of fry (which abound in the nesting season) and move off again after breeding to new and better feeding grounds amongst the innumerable sandbanks of the Sind coast — places practically inaccessible to the observer' (Ticehurst).

BREEDING. In small scattered colonies. *Season* (Karachi) April–May to July–August. *Nest*, an unlined hollow, occasionally lined with shell fragments and small pebbles — sometimes an animal's hoof-print — on salt mudflats above high-tide mark, preferably on a small mound of wind-blown sand collected round a *Sueda* plant or other obstruction. The nests widely scattered, each being 20 to 100 yards from the next. *Eggs*, almost invariably 2, pale to warm buff, with small spots and scrolls of dark brown all over, and secondary markings of violet-grey. 'Average size of 46 eggs 32.52×24.05 mm. Weight of clutches 15–17.5 grains (av. 16.4)' — Ticehurst. Both sexes share in incubation; period unrecorded.

MUSEUM DIAGNOSIS. Differs from *albifrons* (476) in being distinctly paler grey above. First three primaries (as.), including shafts, black and white, very contrasting. In *albifrons* usually first two primaries are black and white; occasionally the third also but in that case the black and white is not sharply contrasted. Legs yellowish brown *v.* lemon yellow or orange in *albifrons*. Black of crown not tapering anteriorly but truncated above white forehead; the latter does not reach top of eye.

MEASUREMENTS

		Wing	Bill (from feathers)
10	♂♂	166–174	29.5–31.5 mm.
6	♀♀	165–173	27.5–29 mm.

COLOURS OF BARE PARTS. Adult (breeding). Iris brown. 'Bill yellow, black at tip (7.5–13.5 mm.). Tarsi and toes anteriorly and webs yellowish brown, yellower at back of tarsi and soles' (Ticehurst).

477. **Whiteshanked Ternlet.** *Sterna albifrons pusilla* Temminck

Sterna pusilla Temminck, 1839 (1840), *Man. d'Orn.*, ed. 2, 4: 464

(Sunda Islands and the Moluccas to New Guinea = Java)

(Torres Straits, northern Australia)

Baker, FBI No. 2088, Vol. 6: 136

Plate 32, fig. 8, facing p. 16

LOCAL NAMES. *Muhudu lihiniya* (Sinhala); *Kādāl kūrūvi*—apparently general for all terns (Tamil).

SIZE. Slightly larger than 475; length *c.* 25 cm. (10 in.).

FIELD CHARACTERS. Indistinguishable in the field from 475 or 476. See Key and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Sight records not definitive. Breeds for certain in Ceylon (Whistler, 1944, SZ 23 (3 & 4): 270, and Phillips MS. notes), and on Uttan Washi, a small offshore islet in the Bombay neighbourhood (Sálím Ali and Humayun Abdulali, 1939, JBNHS 40: 635 — recorded as *albifrons*, later corrected). Also on Rameswaram I., Tamil Nadu (*c.* 9°18'N., 79°19'E.) (Biddulph, 1938, JBNHS 40: 251) evidently this race,

but not proved. A breeding visitor to these places; whereabouts in non-breeding season unknown. Collected on Sankosh River, northern W. Bengal, in April (SDR).

Extralimital. 'Korea and Japan south along the coast of eastern China and Indochina [Viet Nam, Cambodia, etc.] and eastward through the Philippines, Celebes and Lesser Sunda Is. to the Bismarck Archipelago and New Guinea' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 475 and 476.

BREEDING. *Season*, near Bombay chiefly May and June; in Tamil Nadu and Ceylon May to August. Small to fair-sized colonies ('over 100 nests on Uttan Washi islet near Bombay'). *Eggs*, 2 or 3 laid on bare rock or in a shallow scrape in shingly soil, unlined or with a flimsy bed of grass; the clutches close together (2 or 3 feet apart) where space restricted, or widely spaced as in *saundersi* where spacious. Shape typical of terns' eggs, broad ovals very little smaller at one end than the other. Coloration variable, mostly as in nominate *albifrons*, but some eggs stone colour or beige or bluish white with a few black blotches and spots. Average size about 32×24 mm. Both sexes incubate; period unrecorded. On exposed sandbanks and shingle-beds eggs and hatchlings protected from fierce heat of the sun by the parents flying out and dipping their belly feathers in water before relieving each other on nest. Both eggs and newly hatched chicks (covered with greyish creamy down with a disruptive pattern of black spots) blend perfectly with the coarse sand and gravel substrate and vanish from view in an astonishing way.

MUSEUM DIAGNOSIS. Differs from nominate *albifrons* in having shafts of all the primaries glistening white. For description of plumage see Blanford, FBI (1st ed.) 4: 320.

MEASUREMENTS

	Wing	Bill
		(from feathers)
♂ ♀	168-183	26-32 (av. 30) mm.
		(Baker)

Whistler (SZ 23 (3 & 4): 270) gives for 13 Ceylon birds

	Wing	Bill	Tarsus	Tail	
		(from feathers)		central	outer
8 ♂♂	174-188	30-30.5	16-18.5	43-49	74-106+ mm.
5 ♀♀	173-179	28.5-31.5	16-17.5	43-48	80-86+ mm.

COLOURS OF BARE PARTS. Iris brown. Bill (summer) yellow, broadly tipped with black; (winter) dark brown. Legs and feet (summer) orange-yellow; (winter) reddish brown.

478. Red Sea Large Crested Tern. *Sterna bergii velox* Cretzschmar

Sterna Velox Cretzschmar, 1827 (1826), in Rüppell's Atlas, Vögel: 21, pl. 13

(Red Sea coasts)

Baker, FBI No. 2075, Vol. 6: 120

Plate 35, fig. 6, facing p. 80

LOCAL NAMES. *Gardooni* (Maldives); *Muhudu lihiniya* (Sinhala); *Periya kondāi kādāl* *kūrūvi* (Tamil); *Tharathassi* (Lakshadweep).

SIZE. Pariah Kite—; length *c.* 53 cm. (21 in.).

FIELD CHARACTERS. A large sea tern with black crown and prominent nuchal crest, lemon yellow bill, and black legs.

Adult (summer). Lores and a band across forehead white. Crown down to eyes, nape, and a distinct nuchal crest velvety black. Neck (all round) and underparts white. Mantle grey with a lilac tinge. Tail greyish white; primaries blackish. Sexes alike.

In winter head white, lightly speckled with black on forecrown, boldly on hindcrown. Nuchal crest all-black.

Young (immature) has the upperparts dull brownish grey, with the wing-quills greyish brown.

STATUS, DISTRIBUTION and HABITAT. Resident. Breeding in West Pakistan (Astalu I. off Pasni on Makran coast; islands off the mouth of Kajhar Creek near the Sind-Kutch border), and E. Pakistan (Sunderbans). In India on the west coast (Vengurla Rocks south of Ratnagiri); and W. Bengal (Sunderbans). Also on Adam's Bridge and rocky islets off the SW. and east coasts of Ceylon (Kayankeni — Hoffmann, CBCN, July 1977: 22). The Laccadives (Pitti atoll), and Maldives (N. Malé atoll); probably other suitable islands in the area as well. Found at one time of the year or another along the entire western and eastern seaboard. Keeps chiefly to the open sea.

Extralimital. 'Coasts of northeastern Africa and southern Asia from the Red Sea to Tenasserim . . . and Mergui Archipelago' (Peters).

GENERAL HABITS. A typical sea tern usually seen in offshore waters and often considerable distances out at sea — hardly ever even on tidal creeks — single birds or small loose parties and flocks, often mixed with *S. bengalensis*, scouting for prey. The birds fly a few metres above the sea with steady wing-beats, bill pointing downward, scanning the water intently. Now and again one will stop abruptly and almost double upon itself, hovering momentarily like Pied Kingfisher to investigate more closely. Prey secured by plunging from the air rather obliquely than vertically, several birds dropping one after another or more or less simultaneously as occasion offers. The bird emerges with a fish in its bill and jerks it into position before swallowing and resuming the hunt. When satiated the birds settle to rest on buoys or fishing stakes, or cluster together with gulls and other terns on rocks and sandbanks.

FOOD. Mainly fish and prawns.

VOICE and CALLS. A characteristic *chirruk*, usually when hovering to plunge. Loud clamour of screaming and chattering as typical of all terns when a nesting colony is disturbed and milling around in a rabble overhead.

BREEDING. Colonial. *Season*, April to June. *Eggs*, 1 or 2 (rarely 3?) laid in shallow scrapes in sand or on bare rock or coral, the 'nests' almost touching one another. Exceedingly variable in coloration, the ground colour ranging from white to cream or salmon-pink and even heather-purple, the markings from deep blackish brown (sometimes deep chestnut or pale reddish brown) blotches and spots to twisted scrawls resembling Arabic characters. Average size about 60 × 40 mm. Incubation period 'apparently 3 weeks to 23 days' (Baker). Vast quantities of eggs are (at least were, *c.* 1880) collected for food by the inhabitants of Astalu Island (as many as 7000 fresh ones in early June mentioned!), besides which they are subject to serious ravages by Sooty Gulls (*Larus hemprichii*).

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit., but his line 5 on p. 121 should read 'outer tail-feathers with white bases [not "lores" (*sic*)] and dark grey tips . . . '.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	340-376	60-71	c. 34-35	165-205 mm. (Baker)
8 ad. ♂♂ from the Red Sea, Ceylon, and Kerala give				
		(from skull)		central outer
	340-358	70-74	31 (1 msd.)	83-102 152-191 mm. (HW, SA)

COLOURS OF BARE PARTS. Iris dark brown. Bill creamy to greenish lemon yellow. Legs and feet: a dult, brownish black; immature, greenish yellow irregularly blotched with black; claws horny brown.

479. **Indian Lesser Crested Tern.** *Sterna bengalensis bengalensis* Lesson

Sterna bengalensis Lesson, 1831, *Traité d'Orn.*, livr. 8: 621 (Coasts of India)

Baker, FBI No. 2079, Vol. 6: 124

LOCAL NAMES. *Iam mutie gardooni* (Maldives); *Muhūdu lihiniyā* (Sinhala); *Kondāi kādāl kūrūvi* (Tamil).

SIZE. House Crow $\pm$; length c. 43 cm. (16½ in.).

FIELD CHARACTERS. Very similar to Large Crested Tern (478), q.v., only smaller and with the crown and nuchal crest wholly black down to the eyes in summer, lacking the white lores and forehead. Sexes alike.

Distinguished from Gullbilled (460) by orange bill *v.* black.

Winter and immature plumages differ in the same way as in 478.

STATUS, DISTRIBUTION and HABITAT. Resident? According to Ticehurst the commonest tern of Karachi Harbour and coast-line. Occurs commonly along the western and eastern seaboard of India, Andaman and Nicobar Is., and in Ceylon waters practically throughout the year; more abundant between September and end April. Presumptively breeding on the Makran coast (W. Pakistan), Rameswaram Island, Laccadive and Maldivé Is. (N. Malé Atoll), but no direct evidence as yet. A typical sea tern like the last, keeping to offshore waters, seldom seen on the coast.

Extralimital. 'Coasts of southern Asia from the Persian Gulf to the Straits of Malacca; Sumatra, Java, Celebes' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. Very similar to those of the Large Crested Tern (478).

BREEDING. Nearest definitely known breeding localities, islands in the Persian Gulf, e.g. Al 'Arabiya, Buna, Warba, where *season*, May and June. *Eggs*, 1 or 2, smaller but with the same variability of coloration and markings as in 478.

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.

Chick (in down). 'Upperparts almost white with black spots on crown and ulna, and tending to run into lines on the back. Underparts pure white' (Ticehurst, Iraq).

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	271-295	50-57 (from feathers)	c. 27-29	130-139 mm. (Baker)

Specimens collected in Ceylon, Kerala and the Andamans give

4 ♂♂	280-304	59-64	25-28	121-140 mm.
3 ♀♀	280-304	52-60 (from skull)	23-25	110-138 mm. (HW, SA, Abdulali)

COLOURS OF BARE PARTS. Iris brown. Bill yellow to orange-yellow. Legs and feet black; soles yellowish.

480. **Sandwich Tern.** *Sterna sandvicensis sandvicensis* Latham

Sterna sandvicensis Latham, 1787, Gen. Syn., Suppl. 1: 296 (Sandwich, Kent, England, based on the Sandwich Tern, Gen. Syn. 5: 356)

Baker, FBI No. 2074, Vol. 6: 119

LOCAL NAMES. Unrecorded.

SIZE. House Crow $\pm$; length c. 44 cm. (17 in.).

FIELD CHARACTERS. Adult (summer). Similar to Gullbilled Tern (460) q.v., but somewhat larger. Black bill longer and slenderer, tipped with yellow. A more pronounced nuchal tuft than in Gullbilled. Sexes alike. Confusable also with Large Crested (478). (See Key.)

In winter crown white streaked with black. A black stripe from in front of eye continuing through and behind it into the black nuchal tuft.

Young (immature), like adult in winter but with a dark band on the lesser wing-coverts, and brown crescentic bars on tertiaries and tail-feathers. Primaries dark grey.

STATUS, DISTRIBUTION and HABITAT. Winter visitor in fair numbers to W. Pakistan (Makran and Sind coasts). In India sight recorded only in Saurashtra, Gujarat (Dharmakumarsinhji, 1958, JBNHS 55: 357) where possibly frequent in winter but overlooked amongst Gullbilled Terns. Essentially a maritime species like the Crested terns.

Extralimital. 'Breeds in the British Isles and on the North Sea, Atlantic and Mediterranean coasts of Europe; Black Sea; Caspian Sea. Winters on the coasts of northern Africa, western Africa to Cape of Good Hope; Red Sea, Persian Gulf...' (Peters).

MIGRATION. One ringed Astrakhan Reserve, Caspian Sea 27.vii.1977, recovered Kalpitiya, Sri Lanka 24.xii.1977 (CBCN, Sept.1978: 50).

GENERAL HABITS, FOOD, VOICE and CALLS. Similar to other sea terns, e.g. 478. Keeps to the sea coast in company with Lesser Crested and Gullbilled terns. Plunges for fish or picks up marine worms etc. from mudflats in oblique swoops.

BREEDING. Extralimital.

MUSEUM DIAGNOSIS. For description of plumages, structure, etc. (also bionomics) see Witherby, 1941, 5: 18-24.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail central outer	Depth of fork
♂♂	290-325	52-58	27-30	72-85 148-170	65-85 mm.
♀♀	285-308	—	—	—	—

COLOURS OF BARE PARTS. Iris dark brown. Bill black, tip horn-yellow. Legs and feet black; soles yellow (Witherby).

Genus *ANOUS* Stephens

Anous Stephens, 1826, in Shaw's Gen. Zool. 13 (1): 139. Type, by subsequent designation, *Anous niger* Stephens = *Sterna stolidus* Linnaeus

Differs from *Sterna* in having the third or fourth pair of tail-feathers longest *contra* the outermost. Bill long, slender, considerably curved towards the end of the culmen. Nostrils situated in a groove even further from the base than in *Sterna*. Tarsus very short, much shorter than middle toe without claw. Feet large; fully webbed. Wing long: first primary (as.) longest.

Genus represented throughout the tropical and subtropical seas; by two species within our area.

Key to the Species

Wing over 270 mm.; crown grey; fourth pair of tail-feathers longest
..... *A. stolidus*
Wing under 240 mm.; crown white; third pair of tail-feathers longest
..... *A. tenuirostris*

481. **Noddy Tern.** *Anous stolidus pileatus* (Scopoli)

Sterna pileata Scopoli, 1786, Del. Faun. et Flor. Insubr., fasc. 2: 92

(No locality = Philippines *ex* Sonnerat)

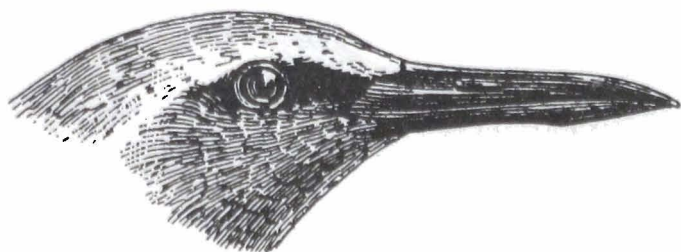
Baker, FBI No. 2097, Vol. 6: 145

Plate 35, fig. 4, facing p. 80

LOCAL NAMES. *Maranga* (Maldives); *Karifaid* (Lakshadweep).

SIZE. House Crow—; length *c.* 41 cm. (16 in.).

FIELD CHARACTERS. A smoky chocolate-brown tern with white forehead passing into grey on crown and to brownish grey on neck. Wings and tail



× *c.* $\frac{1}{2}$

blackish brown. Tail much less forked than in other terns and without the pointed 'streamers'. Sexes, and summer and winter plumages alike.

Young (immature) paler brown and without the grey cap.

STATUS, DISTRIBUTION and HABITAT. Breeds in the Laccadives, especially Pitti atoll; possibly also in the Maldives and other islets in our seas. Overall status in non-breeding season unclear. Occurs in the Andaman, Nicobar and Maldiv Islands as resident?; occasionally seen in the seas around Ceylon, and as a straggler on the west coast south of Colombo—presumably storm-tossed. Has been recorded along the Makran coast of

W. Pakistan between Jask and Pasni, and cyclone-driven examples taken at Ormara. Like the sea terns keeps out at sea and away from the coast except when nesting.

Extralimital. 'Breeds on tropical islands in the Indian and western Pacific Oceans from the Seychelles and Madagascar to the Hawaiian Islands and the Tuamotu Group, north to the Ryukyu and Bonin Islands, and south to N. Australia, Norfolk Island and the Tuamotu Group' (Peters).

GENERAL HABITS. Similar to the sea terns', but the birds evidently do not plunge for fish. They feed largely by following schools of small fish which are apparently being attacked by some submarine predator, picking them off as they scurry along or skip above the surface in the stampede to escape. The birds momentarily hover over the water and poise before darting downward to snatch the prey. Noddies congregate in groups at such feeding centres which break up and scatter again when the fish dive deeper. They also feed actively during bright moonlit nights. Commonly found resting on buoys, fishing stakes or bits of flotsam offshore and on the rigging of ships. Occasionally they settle on the sea, riding the water like gulls.

FOOD. Mainly small fish captured as above; flying fish caught in the air.

VOICE and CALLS. 'A low harsh croak *kar-r-rk* sometimes emitted in flight particularly at night' (Gibson-Hill, 1947).

BREEDING. *Season*, in the Laccadives (Cherbaniani Reef) February (Hume) but apparently much prolonged. Elsewhere (Seychelles, Christmas Island) April to September, mainly July–August. *Nest*, a small untidy layer of debris on a rock shelf, a shoddily put-together structure of sticks, straw, etc. up in the head of a coconut palm, or on a *Pandanus* or other bush; sometimes on bare shingly ground. Usually in close-packed colonies, but also individually. *Egg* almost invariably a singleton, roughly ovoid, slightly more pointed at one end, and with a fine matt surface. Warm off-white to very pale fawn in ground colour sparsely blotched with light grey and pale purplish grey, and with fine or coarse dark umber markings chiefly at the broad end. Average size of 10 eggs from North Keeling (Indian Ocean) 52.9×36.0 mm. (Gibson-Hill, 1947). Colour of yolk yellow *contra* orange in Sooty Tern (Ridley, 1957).

MUSEUM DIAGNOSIS. For detailed description of plumage see Hume, A. O. (1876, SF 4: 479); for ecology Gibson-Hill, 1947: 104–8.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	271–300	35–42	c. 25	152–176 mm. (Baker)

COLOURS OF BARE PARTS. Iris brown. Bill, legs, feet and claws black or blackish brown.

482. **Whitecapped Noddy.** *Anous tenuirostris worcesteri* (McGregor)

Micranous worcesteri McGregor, 1911, Phil. Jour. Sci. 6, sect. D: 183
(Cavilli Island, Sulu Sea)

Baker, FBI No. 2098, Vol. 6: 147

LOCAL NAME. *Maranga* (Maldives).

SIZE. Pigeon; length *c.* 33 cm. (13 in.).

FIELD CHARACTERS. Hardly distinguishable from 481 in the distance. A blackish brown tern with white forehead and crown, passing into ashy grey and then into dark brown on nape. Lores and chin jet black; sides of neck, throat and foreneck sooty black. Sexes alike.

Young (immature). Paler brown, but also with white cap and black lores.

STATUS, DISTRIBUTION and HABITAT. Rare straggler. Recorded as seen on occasion in the Bay of Bengal, but no recent report or specimen thence. There is a specimen from Calcutta in the British Museum (Baker). Specimens have been obtained in the Andamans (Port Blair), near the mouths of the Ganges, and at Minicoy Island in the Laccadive Group, *c.* 8°30'N., 73°0'E. Reported to breed (subsp.?) on the South Mahlosmadulu Atoll, Maldive Is. in November (Gadow & Gardiner, 1903). Possibly a breeding visitor there; not met with by Phillips between December 1956 and February 1957 (JBNHS 55: 212). Sri Lanka, sight record *c.* March (*Loris* xv(1), June 1979).

Extralimal. Other known breeding places Cavilli Island, Sulu Sea, Philippines, and Chagos Archipelago south of the Maldives (*Ibis* 1962, 104: 71). Subspecies in latter case undetermined.

GENERAL HABITS, FOOD, VOICE and CALLS. Not recorded in Indian waters.

BREEDING. Extralimal.

MUSEUM DIAGNOSIS

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	227-234	46-49	20-21	115-122 mm. (Baker)

COLOURS OF BARE PARTS. Iris brown. Bill black. Legs and feet brownish black.

Genus *Gygis* Wagler

Gygis Wagler, 1832, Isis von Oken, col. 1223. Type, by monotypy,
Sterna candida Gmelin

Leucanous Mathews, 1912, Bds. Austr. 2: 432. Type, by original designation,
Gygis microrhyncha Saunders

Plumage pure white. Wing long: first primary (as.) longest. Tail forked, of moderate length, less than half the wing. Bill stout and straight, longer than head. Nostril placed nearer the base than tip. Tarsus very short; toes long and the webs slightly indented.

483. Indian Ocean White or Fairy Tern. *Gygis alba monte* Mathews

Gygis alba monte Mathews, 1912, Bds. Austr. 2: 443 (Seychelles)

Baker, FBI No. 2099, Vol. 6: 148

Plate 35, fig. 1, facing p. 80

LOCAL NAMES. *Cundu*, *Wallu dooni* (Maldives).

SIZE. Pigeon — ; length *c.* 27-33 cm. (10½-13 in.).

FIELD CHARACTERS. An elegant, distinctive snow-white tern with long forked tail. Shafts of primaries and tail-feathers dusky. A narrow ring of black feathers round eye. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident and breeds on Addu Atoll in the Maldives (Phillips, 1963, JBNHS 60: 578). Also further south in the Chagos Archipelago (*Ibis*, 1962, 104: 71). A specimen collected over a hundred years ago in the Bay of Bengal (Hume, 1878, SF 7: 447); no other record from elsewhere within our limits. Keeps to the open sea but apparently never at any great distance from land.

GENERAL HABITS. Similar to the Noddies', qq. v.

FOOD. Small fish. To feed the young these 'are brought home [by the adults] in neatly arranged rows in the bill' (Ridley, 1957, JBNHS 54: 924).

VOICE and CALLS. 'Raucous notes, almost a parody of a human being's laughter' uttered both during day and night (Ridley).

BREEDING. *Season.* On Addu Atoll (Maldives) reported to breed intermittently throughout the year; in the Chagos Archipelago chiefly May to August. *Egg*, a singleton, greyish white to greyish pink or buff, blotched and spotted and with squiggly lines of black or reddish brown. Average size of 40 eggs 40.2×30.7 mm. (Baker). No nest built, the egg being balanced in some slight depression along a branch, sometimes quite high up. It may be on the horizontal portion of the mid-rib of a curving frond of a coconut palm, or as in the Maldives, in a similar position on a banana leaf. The incubating bird does not sit *on* but behind the egg, covering it by fluffing out its breast feathers. On disturbance, it does not spring up but rather falls away backwards to avoid dislodging the precariously balanced egg. Both sexes incubate; period 30–32 days. Chick on hatching equipped with sharp claws which enable it to hold on to swaying substrate and avoid being blown off in a gale. (For an excellent account of the breeding biology on Cocos-Keeling Island, Indian Ocean, see Gibson-Hill, 1947.)

MUSEUM DIAGNOSIS. Bill rather large, conical, slightly bent upwards, the angle of the gonys large and projecting. Tail graduated, approaching in shape that of *Anous*; forked in the middle (Hume).

MEASUREMENTS

	Wing	Bill (from feathers)	Tail
15 ad. ♂ ♀	225–241	39–44	102–120 mm
	(av. 236)	(40.5)	(108)
			(Gibson-Hill)

COLOURS OF BARE PARTS. Iris brown. Bill black, the basal half blue. Legs dusky with the webs yellow.

Genus RYNCHOPS Linnaeus

Rynchops Linnaeus, 1758, Syst. Nat., ed. 10, 1: 138. Type, by monotypy,

Rynchops nigra Linnaeus

Culmen curved; lower mandible knife-like, projecting beyond upper; flexible, truncated at the end and closely furrowed on the side with minute oblique ridges. Shorter upper mandible stouter and stronger. Nostrils elongate, near base of upper mandible and near commissure; opening in an irregular hollow. Wings very long, reaching far beyond tail at rest: first primary (as.) longest. Tail short, slightly forked. Tarsus longer than middle toe and claw; feet small, webs between the toes with concave edges.

The genus contains 3 species, one each in America, Africa and India.

484. **Indian Skimmer** or **Scissorbill**. *Rynchops albigollis* Swainson

Rynchops albigollis Swainson, 1837 (1838), Anim. in Menag.: 360 (India)

Baker, FBI No. 2100, Vol. 6: 150

Plate 32, fig. 9, facing p. 16

LOCAL NAME. *Pāñchīra* (Hindi).

SIZE. House Crow $\pm$; length *c.* 40 cm. ($16\frac{1}{2}$ in.).

FIELD CHARACTERS. A very long and pointed-winged tern-like bird chiefly blackish brown above, glistening white below. Easily identified by pied plumage, the peculiar compressed knife-like orange-yellow bill with the lower mandible projecting well beyond upper, and bright red legs. The broad white forehead and sides of face and neck (white collar) contrasting with black crown and nape, and a dark stripe down the middle of the white rump and tail (slightly forked) are further pointers. Sexes alike; female somewhat smaller.

Young (immature). Lighter brown above, scalloped with fulvous white. Forehead streaked with brown. Tail-feathers brown-tipped.

STATUS, DISTRIBUTION and HABITAT. Resident, nomadic, and also locally migratory depending upon water conditions. Fairly common in West Pakistan (Baluchistan?, Sind, Punjab, Indus system), northern India east to Assam (Ganges and Brahmaputra systems), and East Pakistan. Less common southward through Andhra Pradesh (Narbada, Tapti, Mahanadi, Godavari, Kistna rivers). Not recorded south of *c.* 16°N. in the Peninsula; absent in Ceylon. Confined to the larger rivers. Rare vagrant on inland tanks (once several on the lake at Mt Abu, Rajasthan — Butler, SF 5: 225) and even estuaries and inshore coastal waters (Bombay — once). Affects placid expansive reaches of rivers with sandbanks.

Extralimital. Burma and the Indochinese countries.

GENERAL HABITS. Rather tern-like. Hunts singly or in small loose parties, congregating later to rest on sandbanks in rivers in close-packed flocks, all birds sitting with face to wind. Hunts actively also during moonlit nights. Skims gracefully over placid water with quivering tips of wings held in line with body, the projecting tip of lower mandible immersed at an oblique angle, lightly ploughing the surface. The upper mandible, which is capable of much vertical movement, is raised clear as the bird beats methodically back and forth over a promising stretch of shallows along the edge of the main stream sometimes merely 3 cm. deep. On striking knife-blade edge of lower mandible, the prey slides up the tip with the momentum — rather as a tennis ball trundled along the ground runs up an inclined racket. The upper mandible is promptly snapped shut with the head jerked double under the body, the interlocking blades seizing the prey transversely in a vice-like grip. The fish is quickly flipped round through a right angle and swallowed head foremost; on dissection of bird's gizzard, small fish, all more or less same size, found 'lying neatly parallel like sardines in a tin' (Whistler).

FOOD. Mainly small fish. Stomachs frequently found to contain a small quantity of oily fluid only.

VOICE and CALLS. A nasal *kap, kap* (Whitehead). 'A yapping sound like young fox-hounds' (Mohammad Abdulla el-Husseini).

BREEDING. *Season*, chiefly mid February to mid April, with slight local variations. *Nest*, an unlined depression in the sand. In mixed colonies with

River and Little terns, on exposed sandbanks in the larger rivers. *Eggs* usually 3, less commonly 4. Ground colour variable ranging from pale pinky buff, pale *café-au-lait*, pale salmon or stone, to greyish or greenish white; blotched and streaked with rich umber, chocolate- or reddish brown, sometimes with underlying purplish markings. Average size about 41 × 30 mm. Incubation chiefly by female, though male said to assist. Period unrecorded. Parents constantly soak their undersides in the river and splash water over the eggs and young to keep them cool. Sitting female ‘ constantly leaves the nest to fly round with the male ’ (Stanford). When first hatched, bill of downy young like that of a young tern. On alarm chicks lie down stretched out full length perfectly motionless in indentations in the ‘ crusted ’ sand, as flat as pancakes, and are very difficult to distinguish in their surroundings. Sandstorms often bury the eggs and crouching young more or less completely (Lowther, 1949).

MUSEUM DIAGNOSIS. For description of plumage see Baker, loc. cit.; for mechanics of feeding and structure of bill, Schildmacher, H., 1931, *Orn. Monatsb.* 39 (2): 37–41; for feeding behaviour and anatomy Zusi, Richard L., 1962, Publ. No. 3, Nuttall Orn. Club, 101 pp.

MEASUREMENTS					
Wing		Bill		Tarsus	Tail
		(from feathers)			
		upper	lower		
		mandible	mandible		
♂ ♀	344–398	58–75	78–100	24–26	104–112 mm.
					(Baker)

COLOURS OF BARE PARTS. Adult. Iris brown. Bill orange-yellow, more scarlet at base, more yellow at tips. Legs and feet bright vermillion. In juvenile before bill assumes the ‘ scissors ’ shape, colour — also of feet — horny.

MISCELLANEOUS. Lowther observed from a photographing hide a downy River Tern chick run past a skimmer sitting on eggs. The skimmer left the nest and gave chase, attempting to pick it up in its feet. Succeeded at third attempt and carried it off, vigorously pursued by the parents. Eventually dropped the chick in the river while twisting and turning in the hurly-burly (Lowther, 1949).

Order COLUMBIFORMES

Family PTEROCLIDIDAE : Sandgrouse

For morphological and other details see Stresemann, E., 1927–34, *Aves*: 762–3; Witherby, 1940, 4: 147; Baker, 1928, FBI, 5: 260; Van Tyne, J., & Berger, A. J., 1959: 453; Meinertzhagen, R., 1964, Article ‘ Sandgrouse ’ in Thomson, A. L. (ed.) *New Dict. Birds*, London and New York.

Sandgrouse are terrestrial pigeon-like birds chiefly of sobre sandy brown coloration exquisitely patterned with disruptive black spots and vermiculations affording them perfect camouflage in their native semi-desert environment. They have an exceptionally powerful flight, and in spite of their short legs are also good walkers and runners.

Key to the Genera

	Page
A hind-toe present; tarsus feathered in front only; toes naked	<i>Pterocles</i> 79
No hind-toe; tarsus as well as toes feathered throughout	<i>Syrnhaptes</i> 77

Genus *SYRRHAPTES* Illiger

Syrrhaptes Illiger, 1811, *Prodromus*: 243. Type, by monotypy, *Tetrao paradoxus* 'Lin. Gmel.' = Pallas

Distinguished by absence of hallux or hind-toe and by having the very short squat toes feathered above to the tips as well as the entire tarsus. Central tail-feathers very long and pointed. Wing long: first primary (as.) much the longest.

485. **Tibetan Sandgrouse.** *Syrrhaptes tibetanus* Gould

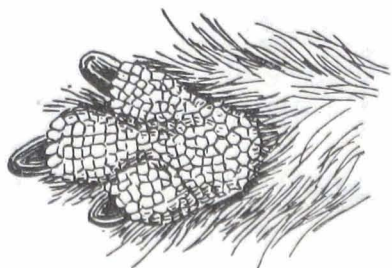
Syrrhaptes tibetanus Gould, 1850, *Bds. Asia*, pt. 2: pl. and text (= 6, pl. 61 of bound vol.) (Tsomoriri Lake, Ladakh, Tibet)

Baker, *FBI* No. 1896, Vol. 5: 277

Plate 36, fig. 3, facing p. 96

LOCAL NAMES. *Kūk*, *Kāling*, *Kākēling* or *Keeling* (Ladakh); *Kang-ga-ling*, *Kakali* (Tibet).

SIZE. House Crow +; c. 48 cm. (19 in.).



Sole of foot, $\times c. 1$

FIELD CHARACTERS. A sandy coloured pigeon-like but squat ground bird with a long, pin-pointed tail.

Adult (male). *Above*, forehead and over the crown to upper back white finely cross-barred with black. Mantle vinaceous sandy brown. Lower back and rump greyish white finely vermiculated with black. Tail rufous-chestnut with white tips; elongated central feathers greyish sandy. Face, sides of neck and throat orange-yellow. Wing-quills black. *Below*, foreneck and upper breast finely cross-barred with black. Rest of lower parts white.

Female overall similar but with mantle coarsely blotched and vermiculated (or barred) with black, and the barring below extending to lower breast.

Young (immature). Like female but with only faint traces of orange-yellow on sides of neck.

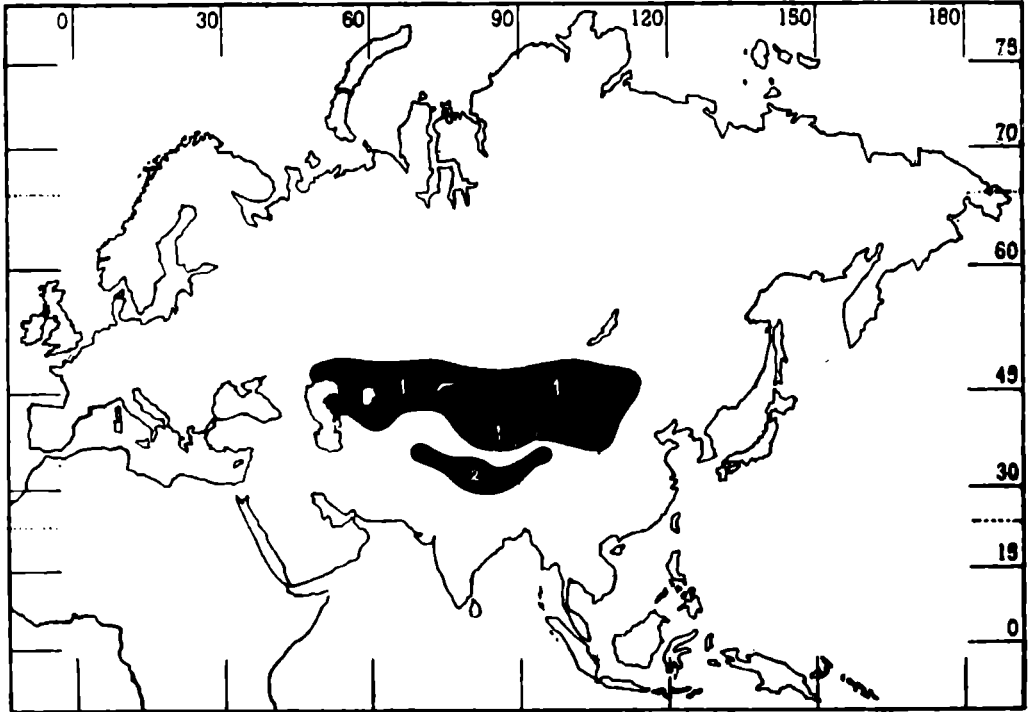
STATUS, DISTRIBUTION and HABITAT. Resident and (?) altitudinal migrant; apparently descending to lower elevations locally in winter. Ladakh (Rupshu, Tso Morari, Tsokri and Pangong Lake neighbourhoods) and Himachal Pradesh (Baralacha Pass). Just across the northern boundary of Sikkim but apparently not within. Affects barren, stony semi-desert steppes in Tibetan Plateau country between c. 4200 and 5400 metres.

Extralimital. 'Breeds in inner Asia at elevations ranging between 12,000 and 16,000 ft. from the Pamirs to Kokonor, south to Lahul and Sikkim [?]; in winter descending to somewhat lower altitudes' (Peters).

GENERAL HABITS. Terrestrial. Keeps in flocks of 10 to 30, sometimes even up to a hundred, irregularly dotted about, walking like pigeons and picking food on barren stony ground. The birds lie close and rise only when observer 50 paces or so away, settling again at a short distance. They are

usually tame to the point of stupidity permitting close approach even after being fired at once. They rise with the usual sandgrouse chuckle and are very noisy on the wing, constantly uttering a loud clanging double note. Like other sandgrouse they flight to water in the early morning and late dusk, though F. M. Bailey thought they had no special hour for drinking. Prefer fresh water, but will also drink brackish, as at Tsokr.

Syrrhaptes



■ Breeding range

1 *S. paradoxus* (SE)

2 *S. tibetanus*.

FOOD. Mostly seeds and shoots. Stomach of a specimen contained greens, seeds, elytra of beetle; very little grit (Meinertzhagen).

VOICE AND CALLS. Call in flight variously rendered as *guk-guk*, *yak-yak*, and *caga-caga*. 'Typical sandgrouse call but deeper and more musical — a pleasant *koonk-koonk* uttered by different birds in slightly varying keys reminiscent in this respect of a flock of Demoiselle Cranes' (Sálim Ali, 1946, JBNHS 46: 305).

BREEDING. No authentic eggs taken within our limits, but circumstantially breeds in Ladakh. *Season*, from second half of June, as just across the Sikkim frontier (Khamba Jong and Neru) and elsewhere in Tibet. *Eggs*, 3 laid in an unlined shallow depression on bare stony ground; oval, pale stone in ground colour covered fairly evenly with brown spots and blotches, with secondary lavender markings. Incubation (?) and tending of chicks by both parents. Incubation period unrecorded. Downy chicks fast runners. In one case attendant female did broken-wing trick, fluttering piteously along the ground for over 20 metres away from the chicks which meanwhile squatted flat and 'froze', vanishing magically from sight!

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	254-270			203-263 mm.
		16-20	c. 27-30	
♀♀	248-266			203-216 mm. (Baker)

COLOURS OF BARE PARTS. Iris brown. Bill and nails bluish horny.

485a. **Pallas's Sandgrouse.** *Syrrhaptes paradoxus* (Pallas)

Tetrao paradoxa Pallas, 1773, Reise Russ. Reichs 2: 712 ('deserto Tatarico australiore')

The only known occurrence within our limits of Pallas's Sandgrouse *Syrrhaptes paradoxus* (Pallas) is of a female shot at Gājnēr in Rajasthan on 31 December 1924 by the then Maharajkumar of Bikaner and identified by Stuart Baker (1926, JBNHS 31: 522). It is distinguished from Tibetan Sandgrouse by the presence of a black patch on the belly in both sexes, particularly noticeable in flight.

The species breeds in the steppe region of extreme SE. Russia and central Asia, winters irregularly in the plains of NE. China, and is well-known for its curious sporadic irruptions which occasionally carry it across as far as W. Europe and even the British Isles.

Genus **PTEROCLES** Temminck

Pterocles Temminck, 1815, Fig. et Gall. 3: 238, 712. Type, by subsequent designation, *Tetrao alchata* Linnaeus

Bill stout, small and arched above. Nostrils elongate, basal, covered by frontal plumes. Wings long and pointed: first primary (as.) longest. Tail moderate, the central rectrices sometimes lengthened to a pin-point. Tarsi feathered in front, reticulated behind. Toes short and naked; hallux present.

Genus represented throughout Africa, S. Europe, and SW. and C. Asia; six species within our limits.

Key to the Species

		Page
A	Two central tail-feathers greatly lengthened	1
B	Central tail-feathers not greatly lengthened	2
1	Abdomen white throughout in both sexes..... <i>P. alchata</i>	80
	Lower plumage marked with black..... a	
a	Middle of abdomen marked black and rufous..... <i>P. exustus</i> (♀)	82
	Middle of abdomen black..... I	
I	A black band across breast..... <i>P. exustus</i> (♂)	82
	No black band across breast..... <i>P. senegallus</i>	84
2	Abdomen all black..... <i>P. orientalis</i>	86
	Abdomen unspotted buff (♂); spotted buff (♀)..... <i>P. coronatus</i>	89
	Abdomen banded black and white..... b	
b	Two dark pectoral bands (♂); no dark pectoral band (♀)	
	 <i>P. indicus</i>	90

486. Large Pintail Sandgrouse. *Pterocles alchata caudacutus* (S. G. Gmelin)

Tetrao caudacutus S. G. Gmelin, 1774, Reise Russl. 3: 93, pl. 18 (Northern Persia)
Baker, FBI No. 1892, Vol. 5: 268

Plate 36, fig. 2, facing p. 96

LOCAL NAME. *Kātāu* (Baluchi).

SIZE. Pigeon +; length *c.* 38 cm. (15 in.) including tail *c.* 10–18 cm.

FIELD CHARACTERS. An overall sandy coloured terrestrial pigeon-like bird of open semi-desert country with a long pin-pointed tail. Abdomen white in both sexes. Readily distinguished on the wing from Imperial Sandgrouse (489) by general appearance, chiefly the white belly; from Spotted (488) by the single call-note *v.* a bisyllabic chuckle.

Male (adult). *Above*, head chiefly orange- or rufous-buff with a narrow black line running backward from eye. Rest of upperparts largely sandy olive-green, scantily mottled with yellow; lower back barred with black and buff. Shoulder of wing chocolate, the feathers conspicuously fringed with white. *Below*, chin and throat black; breast pale rufous bordered by a narrow black band above and below. Rest of underparts white.

In non-breeding plumage male resembles female but lacks the barring on the back.

Female (adult). Upperparts barred black and yellowish buff. *Below*, chin and middle of throat white. A band across throat dull ochraceous-buff followed by a broad black gorget and a narrow grey band. Breast pale rufous bordered by a narrow black bar above and below as in male. Rest of underparts white.

Young (immature). 'Crown, upperparts and breast yellow-buff with darker crescentic bars. Lower breast and abdomen white with a few black bars on abdomen; central tail-feathers definitely elongated but not to a pin-point' (Meinertzhagen).

STATUS, DISTRIBUTION and HABITAT. Abundant winter visitor and/or passage migrant in autumn and spring in West Pakistan (chiefly Baluchistan, trans-Indus Sind, and the northwestern frontier districts). Less common and in smaller numbers in Punjab and Sind east of Indus R. Apparently breeds in central Makran; also perhaps locally in Punjab (oviduct egg, 8 June 1900, Mardan, Bogle, 1901, JBNHS 13: 540). Has occurred as vagrant east to Ludhiana and Delhi, south to Bikaner and Jodhpur (Rajasthan), and Deesa (N. Gujarat, *c.* 24°15'N.). Affects barren sandy wastes, and fallow land in partly cultivated semi-desert biotope.

Extralimital. 'Resident in northern Africa from central Morocco to Cyrenaica and south to the Sahara; resident also from Asia Minor, the Caucasus, Transcaspia, Afghanistan and NW. India, south to Palestine, Mesopotamia and Baluchistan' (Peters).

GENERAL HABITS. Terrestrial. Often arrives in winter in vast flocks literally of thousands in suitable places in the northwest. According to Hume flocks of 'tens of thousands' first seen in the far distance like a thin cloud, 'positively darkening the air when passing over' and 8, 10 or 12 falling to a single shot (1873, SF 1: 117). Apparently the numbers vary considerably locally and from year to year. The birds usually extremely wary and difficult to approach. Flight very swift and powerful said to be more so than of

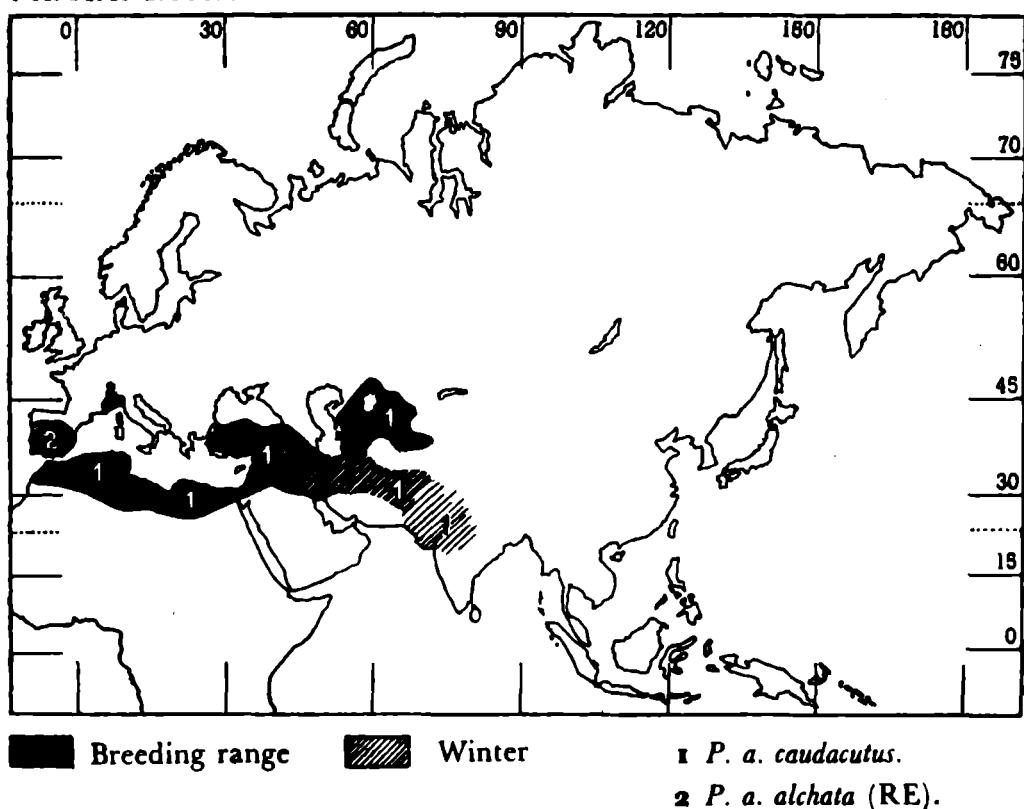


PLATE 35

1 *Gygis a. monte*, White Tern (483). 2 *Sterna d. korustes*, Roseate Tern (466). 3 *Sterna anaethetus antarctica*, Brownwinged Tern (473). 4 *Anous s. pileatus*, Noddy Tern (481). 5 *Hydroprogne c. caspia*, Caspian Tern (462). 6 *Sterna b. velox*, Large Crested Tern (478).

its congeners; accompanied continually by the noisy and peculiar call-notes. Like other sandgrouse regularly flights long distances to drink at water-holes, etc. in the early mornings and late afternoons (occasionally also recorded at midday) wading in at the edge and sometimes even alighting directly in the shallows. Has been observed settling on water in a river far from the shore, floating high like a gull, drinking leisurely, and rising off the surface without difficulty (Magrath, 1917, JBNHS 25: 149). Like most other birds sandgrouse drink in the manner of a hen, raising the bill for

Pterocles alchata



each gulp, and not continuously like a pigeon or horse as commonly believed. In breeding season carries water in soaked underplumage to cool the eggs or for the chicks, adults then regularly showing a mud stain on the underparts acquired while watering (Ticehurst, C. B., *Ibis* 1923: 471)¹. At drinking time flocks pack together at a short distance from the water before walking down to drink. They also rest in the heat of the day and during the night in similar packed assemblages.

FOOD. Green leaves — clover and others → small seeds, pulse, and grain of different kinds. Gizzard usually contains a quantity of grit.

VOICE and CALLS. Rather similar in character to those of Imperial yet distinct; uttered on the ground and in the air. Described variously as 'a ringing *catarr* or *guettar*' and 'a harsh penetrating *caa* followed by a softer *craa*'. Both sexes have an alarm-note *twoi, twoi, twoi* (Ticehurst, C. B. *et al.*, 1922, JBNHS 28: 952).

¹ For further corroboration of this habit see Tom J. Cade & Gordon L. Maclean, 1967, 'Transport of water by adult sandgrouse to their young' — *Condor* 69 (4): 323-43.

BREEDING. Circumstantially may breed in W. Pakistan (central Makran and Peshawar dist.). In the nearest authenticated breeding place, Iraq, season May to July. Eggs normally 3, sometimes 2, laid on dry open flat ground without any sort of nest; very variable: mostly pale creamy buff in ground colour with dark brown or red-brown primary and violet-grey secondary markings. Average size of 20 eggs 44.36×30.0 mm. (F. Ludlow). Incubation by both sexes; incubation period (in captivity) 21–23 days (Meade-Waldo, *Avicultural Magazine*, 1906: 219).

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Chick (in down). 'General colour above mottled very pale buffy white, pale ginger with black tips. No definite pattern, but supercilia and coronal streak whitish. The brown down here and there has long black hair-like tips, while on the thighs the whitish down has similar white hairs. Underparts whitish to buffish white. Iris brown; bare skin round eye blue-grey; toes yellowish' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	213–224	c. 13–15	c. 25–29	140–190 mm.
♀♀	194–231			

Weight ♂♂ 10–12 oz. (284–340 gm.); ♀♀ $8\frac{1}{4}$ – $11\frac{1}{4}$ oz. (c. 235–320 gm.) (Baker).

COLOURS OF BARE PARTS. Iris brown. Bill dusky green to dull brown or slate colour. Feet dirty yellow to dusky green.

487. Indian Sandgrouse. *Pterocles exustus erlangeri* (Neumann)

Pteroclorus exustus erlangeri Neumann, 1909, Orn. Monatsb. 17: 154

(El Hota, Lahej, southern Arabia)

Pterocles exustus hindustan Meinertzhagen, 1923, Bull. Brit. Orn. Cl. 43: 158

(Sambhar, Rajputana)

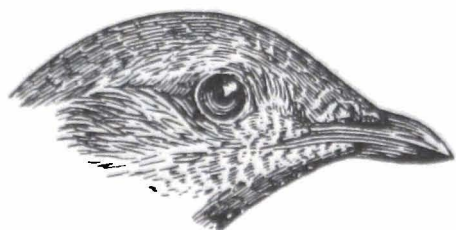
Baker, FBI No. 1893, Vol. 5: 271

Plate 36, fig. 6, facing p. 96

LOCAL NAMES. *Bhāt teetār*, *Kuhar* (Hindi); *Bātebār*, *Bātebān* (Sind); *Pokurdee*, *Pokundi* (Marathi); *Kāl gojāl hākki* (Kannada); *Jam polānki* (Telugu); *Kāl koudāri* (Tamil).

SIZE. Pigeon; length c. 28 cm. ($12\frac{1}{2}$ in.) including tail of c. 12 cm.

FIELD CHARACTERS. A yellowish sandy-grey pintailed pigeon-like ground bird of dry open plains country, with a narrow black band across breast in both sexes. In flight stout bullet-shaped body with tapering tail-end, pointed shortish sickle-like wings, and double-noted call *kut-ro* diagnostic.



× c. 1

Male (adult). Upperparts sandy grey and buff with dark narrow crescentic marks and coarse yellowish speckles. Cheeks, chin, and throat dull yellow; belly chocolate-black.

Female (adult). Upperparts dull buff streaked, spotted and barred with dark brown. *Below*, upper breast spotted with black; lower breast pale buff; abdomen and flanks rufous-buff closely barred with blackish.

Young (immature). Upperparts dull buff, finely vermiculated all over with thin wavy black lines. *Below*, chin, throat and breast buff, finely barred with blackish; abdomen and flanks dull black.

STATUS, DISTRIBUTION and HABITAT. Common resident — also nomadic and/or locally migratory — throughout West Pakistan (abundant in parts of Baluchistan and Sind), and peninsular India (decreasingly common eastward to Bengal, southward to Madurai and Tirunelveli districts, Madras). Recorded (once) in Jammu. Absent in Assam, East Pakistan, and Ceylon. Affects barren plains and plateaux: dry stubbles, sun-baked ploughed and fallow land, and sparsely scrubbed stony semi-desert. Avoids forest and coastal tracts.

Extralimital. SW. Arabia, Iraq (?), S. Palèstine, Syria. Allied races in N. and E. Africa.

GENERAL HABITS. Usually met in small scattered parties of 3 to 5 and flocks of 10 to 30 birds — exceptionally up to a couple of hundred. But where water is scarce, as in the Thar desert of W. Pakistan, vast concentrations of a thousand or more may collect to drink at a single waterhole. Shuffles along the ground on its short legs gleaning weed and grass seeds. Coloration of squatting bird remarkably obliterative in its native environment, even at a few yards' range. Has the common habit of the family of regularly flying to water in the morning a couple of hours after sunrise, often over considerable distances. At the appointed hour flock after flock will converge from all quarters on a favourite drinking place. The first flock alights some distance from the water, and after a few minutes of sitting around or pecking for food the birds shuffle down to the edge, sometimes wading in up to their bellies. After a few quick gulps they are off again, while relays of further flocks continue to follow. In very hot weather, and less regularly, the birds also drink in the early afternoon — not at dusk as Painted and Coronetted Sandgrouse do, qq. v.

Incidentally the birds provide excellent sport with the gun as they fly to and from their watering places. Their powerful flight with rapid, steady wing-beats, and dense plumage call for straight shooting and heavy shot to bring them down.

FOOD. Vegetarian: mostly weed- and grass seeds along with which a quantity of grit is swallowed. Seeds identified include *Cyamopsis psoralioides*, *Eleusine aristata*, *Pseudanthistertia hispida*, and species of *Tephrosia*, *Indigofera*, *Panicum*, *Phaseolus* and others. (For a detailed list of seasonal stomach contents see Faruqi, Bump, *et al.*, 1960, JBNHS 57: 360-61.) Hume also mentions mustard leaves. 'Their dry droppings are very distinctive — an oblong dark part with a mushroom-like white cap' (Ticehurst).

VOICE and CALLS. A penetrating double-note *Kut-ro* uttered in flight — not particularly loud but far-carrying — often clearly audible long before the birds come into view. 'A loud musical gutter, gutter in flight' (Meinertzhagen).

BREEDING. *Season* overall January to May, varying somewhat in different parts of the country. Chiefly March to May in northern India, January to

April in the Deccan; but sporadically also in other months. *Nest*, an unlined scrape or depression in the bare soil in open scrubby wasteland often interspersed with dry cultivation, usually unsheltered by clod or bush. *Eggs*, normally 3, sometimes 2, elliptical, equally rounded at both ends. Greyish to yellowish stone in ground colour with numerous spots and specks of brown scattered over the surface, and secondary markings of pale- or inky grey and lavender. Average size of 200 eggs 36.8×26.2 mm. (Baker). Incubation and tending of young by both sexes. Birds close sitters, often leaving nest only when intruder a metre or so away and, especially if eggs hard-set, giving the 'broken-wing' distraction display. Period of incubation reportedly 20 days.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for moult Ticehurst, C. B., *Bull. Brit. Orn. Cl.* 42: 9-11.

Chick (in down). 'General colour above golden brown with black tips, and creamy white. A more definite pattern than in *alchata*. A whitish line from base of bill passes over the head as a coronal streak (broken on forehead) to hindneck and then to the middle of the back where it divides, making the top of a "figure of eight". From base of bill another white streak passes in front of eyes, and is lost in the ear-coverts. Well-marked "figure of eight" on lower back outlined by black and enclosing brown down. Rest of crown pale ginger-brown dotted with black; underparts buffish white, darkest on the pectoral region. Bill and bare space round eyes lead-blue; iris hazel; feet dusky flesh, nails white' (Ticehurst).

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	177-185	17-20	c. 26-28	105-142 mm.
♀♀	171-177	16-19	c. 25	85-104 mm.
		(from skull)		(SA, HW)

Weight ♂♂ 8-10 oz. (c. 227-284 gm.); ♀♀ $7\frac{1}{2}$ to $8\frac{1}{2}$ oz. (c. 212-242 gm.) — Baker.

COLOURS OF BARE PARTS. Iris dark brown; eyelids and orbital skin greenish yellow. Bill horny plumbeous. Feet and claws greyish brown.

MISCELLANEOUS. In 1960-2 a substantial number of Indian and Imperial Sandgrouse were introduced into the states of Nevada and Hawaii (U.S.A.) in ecologically appropriate habitat types with a view to establish them as supplementary game birds. For a study and review of the species for the purpose of this trial introduction see Christensen, Bohl and Bump, 1964, Special Scientific Report — Wildlife No. 84 of U.S. Dept. of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife. Later reports show that the species has not 'taken on', and that by the end of 1965 all the birds had disappeared.

488. **Spotted Sandgrouse.** *Pterocles senegallus* (Linnaeus)

Tetrao senegallus Linnaeus, 1771, Mantissa: 526 (Senegal, *errore*, Algeria accepted as type locality by Hartert, 1924, Nov. Zool. 31: 7)

Pterocles senegallus remotus Neumann, 1934, Verh. Orn. Ges. Bayern 20: 471
(Kunaria, Kutch, NW. India)

Baker, FBI No. 1894, Vol. 5: 273

Plate 36, fig. 1, facing p. 96

LOCAL NAMES. *Nānho kātingo*, *Kara pat* (or *pēt?*) *gūtū*, *Gūtū* (Sind); *Wāku* (Kutch); *Likhirik* (Baluchi).

SIZE. Pigeon $\pm$; length c. 36 cm. (14 in.).

FIELD CHARACTERS. Like 487, also sandy coloured overall with elongated pin-pointed tail.

Male (adult). *Above*, pale sandy buff or sandy grey. A pale ashy band from forehead encircling crown and running back over eyes down sides of hindneck to meet in front below the orange throat-patch. Scapulars and wing-coverts with paler buff spots. Tail-pins black. *Below*, throat-patch (covering cheeks, chin, throat and sides of foreneck) deep orangy yellow. Abdomen to vent blackish brown; rest of underparts buff.

Female. *Above*, buff; crown and upper back spotted, lower back barred with black. *Below*, upper breast buff spotted with black. Orange throat-patch and rest of underparts as in male.

Young (immature). *Above*, sandy, the feathers with darker crescentic bars and almost vermiculated streaks; central tail-feathers barred to tips and shorter than in adult. *Below*, pale sandy with small horseshoe marks on breast and black ventral streak (Meinertzhagen).

STATUS, DISTRIBUTION and HABITAT. Mainly winter visitor to West Pakistan (Baluchistan, Sind, and NW. frontier districts), and NW. India (Punjab, W. Rajasthan, N. Gujarat [Kutch, N. Saurashtra]) sometimes arriving as early as August/September. Local occurrences and abundance, e.g. in Kutch, rather erratic and inexplicably variable from year to year and also periodically. Small numbers resident in parts of Baluchistan and Sind, and evidently breeding, but this not yet proven. Affects arid stony and sandy wastes, and salt-encrusted *pāls* in open semi-desert in preference to thinly scrubbed plains or arable land.

Extralimital. Resident in N. Africa from Algeria to Egypt south to Sudan and Somalia; Palestine, Iraq, Arabia, Iran and Afghanistan.

GENERAL HABITS. Typical of the family. More gregarious than Indian Sandgrouse (487), usually keeping in much larger flocks, maybe of 50 to several hundred birds, in the cold weather. Very numerous where it occurs, and in areas of water scarcity literally thousands of birds may congregate from distant points at the only available water-hole or inundated depression. Their drinking habits are marked by the same regularity and punctuality as their congeners' — flock after flock repairing to water a couple of hours after sunrise and then again in the early dusk.

FOOD. Evidently less pure vegetarian than e.g. Indian Sandgrouse. In addition to grass- and weed seeds also takes quantities of insects.

VOICE and CALLS. Distinctive and far-carrying. Various described, perhaps the closest rendering being *gūtū-gūtū* or *wāku-wāku*, from which the bird gets its Sindhi and Kutchhi names. In the distance, when uttered by an approaching flock in chorus, the sound is curiously reminiscent of a hookah or 'hubble-bubble' being smoked! 'A liquid *quiddle, quiddle*' (Ticehurst).

BREEDING. Oviduct eggs taken in Sind in February, March, May and August, and the birds must doubtless breed somewhere in that area. However, as yet no complete proof of nesting within our limits. *Season* in Iraq chiefly June and July, but much protracted. *Eggs*, 3, laid on bare hard ground, e.g. dried-up marsh, or in pure desert. Colour creamy *café au lait*, blotched and speckled with reddish brown and umber-brown with a few

secondary markings of pale grey-brown or lavender. Average size of 46 eggs 40.9×28.4 mm. (Baker). Incubation 29–31 days.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Chick (in down). 'General' colour above very pale sandy yellow much paler than in *exustus* or *alchata*, with black tips to the down tufts, which on the head are not well marked except above the eyes; area round eyes pale ginger-brown. Underparts very pale isabelline; down pattern less variegated than in *exustus* and *alchata* (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail (pins)
♂♂	190–208	c. 12–13	c. 23–26	127–167 mm.
♀♀	176–197	—	—	—

Weight ♂♂ up to 12 oz. (c. 340 gm.); ♀♀ up to 9 oz. (c. 255 gm.) — Baker.

COLOURS OF BARE PARTS. Iris brown; orbital skin yellow. Bill bluish white to bluish grey or pale plumbeous, darker at tip. Feet bluish white to pale plumbeous; claws blackish.

489. **Imperial or Blackbellied Sandgrouse.** *Pterocles orientalis orientalis* (Linnaeus)

Tetrao orientalis Linnaeus, 1758, Syst. Nat., ed. 10, 1: 161

('In Oriente' = Anatolia ex Hasselquist)

Pterocles orientalis enigmaticus Neumann, 1934, Bull. Brit. Orn. Cl. 55: 73

(Rann of Kutch, NW. India)

Baker, FBI No. 1888, Vol. 5: 262

Plate 36, fig. 5, facing p. 96

LOCAL NAMES. *Banchūr*, *Kurmōr* (Peshawar); *Bādā bhāttā* (Haryana); *Siāh seena*, *Lohrok* (Baluchistan); *Kātingo*, *Chūr* (Sind).

SIZE. Pigeon +; length c. 39 cm. (15 in.).

FIELD CHARACTERS. A typical sandgrouse (cf. 487) with pointed tail and uniformly black lower breast and abdomen in both sexes. In flight large size, partially fanned tail, black belly and contrasting white underside of wings diagnostic.

Male (adult). *Above*, sandy grey, mottled yellow and olive-blackish; upper wing-coverts ochre-yellow. *Below*, upper throat and sides of neck chestnut; lower throat black; breast grey, bounded below by a narrow black pectoral gorget followed by a broader brownish buff band and then by the black belly and flanks.

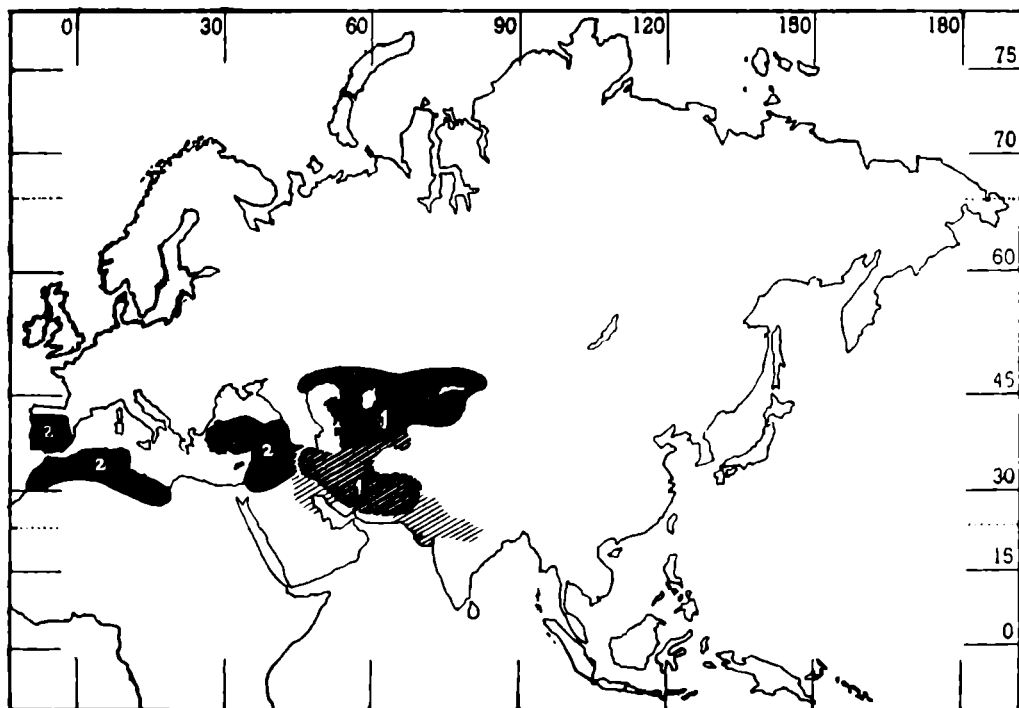
Female. Overall pinkish grey or pale fawn colour. *Above*, finely and irregularly cross-barred ('herring-boned') with black on back, and spotted with black (shaft-streaks) on head and neck. *Below*, chin and throat yellowish, bounded below by a thin black line. Foreneck ashy; upper breast spotted with black (shaft-streaks) and bounded below by a narrow black pectoral gorget. Underparts below this gorget as in male.

Young (immature) of both sexes very like adult female.

STATUS, DISTRIBUTION and HABITAT. Resident and breeding in parts of Baluchistan. Chiefly winter visitor and/or passage migrant in the rest of

West Pakistan (rare in lower Sind). Winter visitor (September/October to February/March) to NW. India — Punjab, Rajasthan (Thar Desert), N. Gujarat and Kutch (Little Rann environs) — locally in enormous numbers. Winter distribution somewhat nomadic, patchy and curiously erratic, both as to local occurrences and abundance from year to year, and sometimes the birds permanently forsake long-established winter habitats (e.g. in Kutch) after even a short run of aberrant seasons.

Pterocles orientalis



■ Breeding range

▨ Winter

1 *P. o. orientalis*.

2 *P. o. arenarius* (RE).

Outside the regular winter distribution, odd vagrants have strayed as far east as Lucknow, Allahabad, and Nepal, and south to Bhopal and Mysore. Affects sandy plains in arid semi-desert biotope, often at great distances from water; sometimes *pāts* or salt-encrusted waste land and fallows around canal-irrigated desert cultivation.

Extralimital. 'Resident in the eastern Canary Islands; Iberian Peninsula, NW. Africa; Cyprus, Asia Minor, Palestine' (Peters). Also S. Russia, Kazakhstan, Chinese and Russian Turkestan, Transcaspia, Iran, and Afghanistan.

GENERAL HABITS. Typical sandgrouse, cf. 487. Keeps in flocks usually of 15 to 30 birds or so, but not uncommonly in vast 'swarms' of several hundred strong. Always excessively wary and difficult to approach. Flies long distances to drink ('sometimes 10-15 miles') in the morning a couple of hours after sunrise, and again in the late afternoon, before sunset, though the latter less regularly and punctually. In areas of water scarcity enormous concentrations occur at only available water, flock after flock flying in from every quarter at the appointed time. The flocks fly round once or twice high over the drinking-place before alighting, as if to assure themselves

that the coast is clear, but where undisturbed the birds will often pitch directly at a steep angle. Much squabbling for positions occurs when two flocks arrive together, the birds often wading belly-deep and taking long sucks. They rise off the ground almost vertically with a peculiar rattling sound and have a very swift and powerful, pigeon-like flight with quick regular beats of the pointed wings. This combined with the bird's abundance in its accustomed habitats and the palatability of its flesh make it a coveted game bird, highly prized by sportsmen.

FOOD. Predominantly vegetarian, chiefly tiny grass- and weed seeds and shoots of desert plants. Among the seeds in stomachs and crops have been identified those of *Indigofera*, *Tephrosia*, *Heliotropium*, *Melilotus* and *Astragalus*. From a single crop an estimated 30,000 minute seeds of the last two species have been taken (Ticehurst, JBNHS 28: 949-50). Among cultivated grains species of *Phaseolus*, *Panicum*, *Cyamopsis* and *Gynandropsis* have been identified. A quantity of grit is invariably present in the gizzard.

VOICE and CALLS. Various described as 'a clucking call', 'a soft double chuck or chuckle', and 'like the word *catarr* repeated several times'. Uttered on the ground while feeding or drinking, as well as on the wing, and as in other sandgrouse very far-carrying.

BREEDING. Chiefly extralimital but very probably also in Baluchistan (Quetta neighbourhood, Mastung and Pishin Plains) whence however direct proof is as yet lacking. Elsewhere (e.g. Afghanistan) *season* principally May and June. *Eggs*, 2 or 3, laid on the bare ground or in a shallow scrape in the sand, in exposed desert situations. Ground colour variable: pale buff or greenish grey to warm buff stone-colour, sometimes with a greenish tinge, with indefinite smudges, blotches and spots of various shades of brown and secondary markings of pale lavender- or purplish grey. Average size of 78 eggs 47.5×32.3 mm. (Baker).

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	226-248	10-14	c. 24-28	101-128 mm.
		[from skull c. 20-21]		
♀♀	203-234			

Weight 1 lb.-1 lb. 7 oz. (c. 450-650 gm.) (Baker).

COLOURS OF BARE PARTS. Iris brown; edge of eyelids lemon yellow. Bill pale to darkish plumbeous, blacker at tip. Legs and feet brownish grey or plumbeous; claws darker.

MISCELLANEOUS. In winter occurs in particularly large numbers in the Thar Desert in Bikaner district, Rajasthan. Here 'prestige' shoots used to be regularly held by the rulers of the erstwhile State for the entertainment of British Viceroys, Governors, and miscellaneous notables. Gājñēr lake has earned special fame in this connexion, but there are also several other favourite drinking-places of the birds in the area. Bags of Imperial Sandgrouse in the big shoots often exceeded 2000 birds per day to a party of 10 or 15 guns, and on one memorable occasion (in 1919 or thereabouts) all previous records were broken by the slaughter of no less than 5963 birds in the course of two successive mornings! For some days prior to these

gargantuan holocausts all tanks for miles around were strictly controlled in order to keep the birds off the water and force them to concentrate only on the main source. One day before the great shoot even that was denied them, so that on the appointed morning thirst would drive them to recklessness and provide 'fine sport' to the concealed guns. Butts were strung out 50 metres or so apart along carefully determined strategic lines of the birds' flight to the water. Happily sport on this barbaric scale is no longer possible, for economic and other reasons, but reports suggest that the number of birds now visiting this area is noticeably dwindling nevertheless.

A fairly large-scale trial introduction of Imperial together with Indian Sandgrouse into the U.S.A. has recently been attempted with a view to establishing the species as supplementary game birds in appropriate habitats in the states of Nevada and Hawaii. For a good study and review of the ecology of both species made for this purpose see the Special Scientific Report (Wildlife No. 84) cited under *P. exustus* (487).

490. **Coronetted Sandgrouse.** *Pterocles coronatus atratus* Hartert

Pterocles coronatus atratus Hartert, 1902, Bull. Brit. Orn. Cl. 12: 48 (Eastern Persia)

Pterocles coronatus ladas Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 29
(Soneri Lake, Sind)

Baker, FBI No. 1891, Vol. 5: 267

Plate 36, fig. 4, facing p. 96

LOCAL NAME. *Kātūngā* (Baluchistan; for any small sandgrouse).

SIZE. Pigeon — ; length *c.* 28 cm. (*c.* 11 in.).

FIELD CHARACTERS. Rather like Spotted Sandgrouse (488) but smaller and lacking black belly and long pin-feathers in tail. In the air looks very white underneath; flight reminiscent of Golden Plover.

Male (adult). *Above*, crown pale vinous-buff encircled, except in front, by a band of bluish grey. Surrounding this band is another of ochreous yellow which expands in front to cover cheeks and throat. Chin, a streak on middle of throat, a narrow band round gape and lores, and a stripe running back on each side of forehead, velvety black. Middle of forehead and border to black on cheeks and chin, whitish. Rest of upperparts isabelline, spotted with buff and dusky. *Below*, pale buff; upper breast tinged with grey.

Female. *Above*, sandy buff with narrow crescentic black cross-bars; no black and white markings on face and throat. *Below*, paler buff finely cross-barred with black; throat yellowish speckled with black.

Young (immature). Throat whitish, otherwise much as adult female (Meinertzhagen).

STATUS, DISTRIBUTION and HABITAT. Resident and breeding in West Pakistan (NW. frontier districts, Baluchistan, trans-Indus Sind). Numbers augmented in winter by extralimital immigrants. 'Migrant through Quetta Valley' (Williams, 1929, JBNHS 33: 611); 'in central and coastal Makran commonest small sandgrouse' (Hotson quoted by Ticehurst, 1927, *ibid.* 32: 74-5). Locally common in Sind. The statement by Baker in FBI

and *Game Birds* (2: 269) that 3 specimens were obtained by Col. Swinhoe so far out of its normal range as the Mhow district in Dhar [Madhya Pradesh, c. 22°32'N., 75°49'E.] seems scarcely credible.¹ Affects barest desert with raggy grass, and stony wastes, e.g. in the immediate vicinity of the Kirthar foothills, Sind-Baluchistan boundary.

Extralimal. Arabia, Iraq, Iran, and Afghanistan.

GENERAL HABITS. Typical of the family, cf. 487. Flights to water in the early morning till a couple of hours after sunrise in twos and threes and small packs of 6 to 20. Alights 50 to 100 metres from the water, often forming a considerable congregation, the birds pecking and sitting about for some time before gradually working down to the edge. Gait rather like partridge, more upright and quicker than of other sandgrouse. Commonly wades belly-deep, and drinks like chicken—sucking and raising bill for each gulp. After watering the parties and packs, one by one, fly straight back in the direction from which they came. Unlike Imperial, usually tame and easily approached. Perhaps less noisy than its congeners but with a quite distinctive note. Rather crepuscular: like Painted Sandgrouse comes again to drink in the evening dusk often when almost too dark to see; the calls then serve to clinch its identity.

FOOD. Chiefly vegetarian—minute seeds and shoots of desert grasses and weeds.

VOICE and CALLS. Very different from other sandgrouse—rather soft *kla, kla, kla*, etc. uttered from the ground as well as in flight.

BREEDING. In Sind and Baluchistan *season* May and June. *Eggs*, normally 3, laid in an unlined depression in sand in barren windswept sand-dune tracts; broadly cylindrical, glossy, pale drab or yellowish stone (almost white) in ground colour, variably blotched with shades of reddish brown on underlying clouds of inky purple. Average size of 6 Baluchistan-collected eggs 43.7 × 30.0 mm. (C. H. Williams); elsewhere (e.g. Hartert quoting Dresser) the size given is closer to c. 40 × 27 mm.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	178–193	c. 13–14	c. 25	c. 120–132 mm.
♀♀	170–189	—	—	—
				(Baker)

COLOURS OF BARE PARTS. Iris brown. 'Bill lavender-grey; feet white' (Ticehurst).

PTEROCLES INDICUS (Gmelin)

Key to the Subspecies			Page
A	No bars across hindneck.....	<i>P. i. indicus</i> (♂)	92
B	Hindneck finely barred.....	<i>P. i. arabicus</i> (♂)	91
C	Chin unspotted, tarsus spotted or barred.....	<i>P. i. indicus</i> (♀)	92
D	Chin spotted, no spots or bars on tarsus.....	<i>P. i. arabicus</i> (♀)	91

¹ These specimens are in the British Museum (Nat. Hist.) and Mr Ian Galbraith, Keeper of the Bird Department, has since informed us that one of them bears an original label 'Maiwand, Feb. 1881', and they all have secondary labels 'Mhow, Feb. 1881. Swinhoe'. Thus it is evident that the birds were actually collected in Afghanistan (Maiwand near Kandahar).

491. **Closebarred Sandgrouse.** *Pterocles indicus arabicus* Neumann

Pterocles lichtensteini arabicus Neumann, 1909, Orn. Monatsb. 17: 152 (Lahej, Arabia)
Baker, FBI No. 1890, Vol. 5: 265

LOCAL NAME. *Gwadarg* (Baluchi).

SIZE. Pigeon — ; length c. 27 cm. (10½ in.).

FIELD CHARACTERS. A small sandgrouse without pin-feathers in the tail; superficially very similar to Painted Sandgrouse (492) q.v.

Male (adult). Overall sandy buff, closely black-barred above and below, with white forehead and distinctive black and white head markings; two bold blackish bands across sandy yellow breast.

Female, close-barred above and below like male but lacking the head markings and breast bands.

Young (immature) like female but even more closely barred above and below.

STATUS, DISTRIBUTION and HABITAT. Resident and breeding in West Pakistan (Baluchistan, NW. frontier district, trans-Indus Sind). Affects bare, stony sparsely scrubbed foothills country and dry rocky nullahs.

Extralimital. Southern Arabia to southern Afghanistan (Peters). Allied races (or same?) in north and east Africa.

GENERAL HABITS and FOOD. Mainly as in 492 q.v.; like it also crepuscular in drinking habits. Crops of specimens examined by Ticehurst in Sind contained seeds, chiefly of *kandi* (*Prosopis spicigera*), 'a seed other sandgrouse do not eat'.

VOICE and CALLS. Note (as the birds came to drink after dark) 'unlike that of other sandgrouse and reminded me rather of a sparrow's "chirrup"' (Ticehurst — Sind). Call, uttered while flying up and down a watercourse, to and from water, 'a peculiar *kweep, kweep*' (Blanford — Abyssinia). 'A whistle, *quitoo, quitoo*, very liquid and twice repeated' as flock after flock flights overhead to water an hour or so before dawn (Archer — Somaliland).

MUSEUM DIAGNOSIS. See Key; for details of plumage, Baker loc. cit.

Differs from the nominate race (492) as follows:

<i>P. i. arabicus</i>		<i>P. i. indicus</i>	
Both sexes closely barred above and below			
Tail-feathers 14		Tail-feathers 16	
		Male	
Lower throat closely barred		Lower throat plain ochraceous-buff	
Feathered front tarsus plain pale buff		Feathered front tarsus spotted and barred	
Black bar on white forecrown V-shaped		Black bar on white forecrown straight across	
		Female	
Chin spotted; no spots or bars on tarsus		Chin unspotted; tarsus spotted or barred	
MEASUREMENTS			
Wing		Tarsus	
Bill		Tail	
(from feathers)			
♂ ♀	166-186	c. 22-27	72-77 mm.
	c. 12-14		(Baker)

Wing ♂♂ 175-190; ♀♀ 172-187 mm. (Hartert).

COLOURS OF BARE PARTS. Iris brown; orbital skin yellow. Bill fleshy- to orange-brown. Feet orange-yellow; claws dusky.

492. **Painted Sandgrouse.** *Pterocles indicus indicus* (Gmelin)

Tetrao indicus J. F. Gmelin, 1789, Syst. Nat. 1 (2): 755 (Coromandel, India)

Baker, FBI No. 1889, Vol. 5: 264

Plate 36, fig. 7, facing p. 96

LOCAL NAMES. *Pāhāri bhāt teetār*, *Bhāt bān* (Hindi); *Chāpkā* (Sagar; same as for nightjar with which confused); *Gūtilā teetār* (Mirzapur); *Palki* (Belgaum); *Kāl gojāl hākki* (Mysore).

SIZE. Pigeon — ; length c. 28 cm. (11 in.).

FIELD CHARACTERS. Smaller than the common Indian Sandgrouse (487). Readily distinguished from it by finely close-barred plumage in both sexes and absence of pin-feathers in tail; also by stony scrub-jungle habitat (v. fallow cultivation).

Male (adult), with conspicuous head and breast markings: white forecrown cut across by a straight black band; broad tricoloured breast-band or gorget — chestnut, buff, and black. Chin, throat, foreneck and wing-shoulder unmarked yellowish buff.

Female buffy fawn overall, closely barred with black, lacking the prominent head markings and breast-band of male. Chin plain buff; throat and head finely spotted with black.

Young (immature) like adult female but even more closely barred above and below.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and locally nomadic. The greater part of cis-Indus West Pakistan, and peninsular India from Rajasthan (Aravali Hills, etc.) and Gujarat east to Bihar and Orissa, south to Mysore and Tamil Nadu. Rare to absent in the Gangetic Plain. Absent also in deltaic W. Bengal, Assam, East Pakistan, and Ceylon. Affects bare, stony sparsely-scrubbed foothills and plateau country; avoids coastal tracts. Recorded as occurring in Jammu (Ward, 1907, JBNHS 17: 944); a specimen in Hodgson's Nepal collection but not met there by recent investigators (Biswas, 1960, JBNHS 57: 528).

GENERAL HABITS. Usually met in twos and threes or small packs of 8-10 birds frequenting rocky ground in thinly scrubbed hummocky country, or firelines in deciduous forest; especially fond of open stony burnt grass jungle. Collects in considerable numbers in favourite localities towards the end of the rains. Exceptionally large flocks of 80 to two or three hundred have been reported [Phythian-Adams (Vidarbha), Nurse (Gujarat)]. Usually tame, permitting close approach, squatting motionless and trusting for safety to its remarkably obliterative coloration. Often flushing when only a couple of metres away with a noisy clatter of wings accompanied by a chuckling chirp, and pitching steeply again after a short flight of 40 or 50 metres. Runs strongly with a partridge-like gait. Flight less swift than of most other sandgrouse, attained by rapid wing-beats, the action producing a curious vibrating or '2-stroke' effect in fading light when bird going away directly

from observer — rather reminiscent of Grey Quail. Crepuscular in drinking habits, flying to water over long distances in the dim twilight well before dawn and then again in the gloaming till too dark for the birds to be seen unless momentarily silhouetted against the sky. Pack after pack will arrive at a tiny jungle pool till the air is thick with the traffic and the waterside a jostling mass of birds. Both when arriving and departing they keep well below the skyline, constantly uttering a distinctive *chirik-chirik* in the air and a low chuckle at the water's edge. Frequently the observer will find himself thickly surrounded by these calls and the flutter of innumerable wings without so much as catching a glimpse of a bird.

FOOD. Almost exclusively vegetarian, chiefly hard weed- and grass seeds; also some berries, and reportedly small insects like termites.

VOICE and CALLS. A clucking *yek-yek-yek* when flushing. A distinctive, constantly-repeated *chirik-chirik* when coming to or going away from water; a soft chuckle when drinking.

BREEDING. *Season* not well defined; practically all months of the year, varying with local conditions; perhaps most general between March and June. *Eggs*, 3, rarely only 2, laid in a scrape on stony ground under protection of a small bush or grass clump; ellipse-shaped, cream to salmon-buff in colour with primary blotches and specks of some shade of brownish red and secondary markings of inky grey or lavender. Average size of 88 eggs 35.8×25.0 mm. (Baker). Both sexes incubate; period undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for differentiation from the confusingly similar Closebarred Sandgrouse, under 491.

Chick (in down). 'Uniform earthy brown' (Baker).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	158–184	c. 13–15	c. 23–25	80–101 mm.
		[from skull 16–18]		

Weight 6–8 oz. (c. 170–227 gm.) — Baker.

[Wing 9 ♂♂ 166–180 (once 188, once 208); 8 ♀♀ 166–176 mm. — SA.]

COLOURS OF BARE PARTS. Iris brown; naked circumorbital skin pale yellowish green. Bill orange-brown. Tarsus (unfeathered hind portion) and feet dull yellow or greyish leaf-green; claws brownish orange to dark brown.

Family COLUMBIDAE: Pigeons, Doves

For morphological and other details see Stresemann, E., 1927–34, *Aves*: 760–2; Witherby, 1940, 4: 129–30; Baker, 1928, FBI 5: 178; Van Tyne, J., & Berger, A. J., 1959: 454; Goodwin, D., 1964, article 'Pigeon' in Thomson, A. L. (ed.), *New Dict. Birds*, London and New York.

Typified by the Blue Rock Pigeon which in its numerous domestic breeds is universally known.

Key to the Genera

	Page
A Hackles long and bronzy green, edged with blue-black..... <i>Caloenas</i>	161
B Plumage with much yellow-green above and below..... <i>Treron</i>	94
C Plumage vinaceous with metallic green in upperparts..... <i>Chalcophaps</i>	157
D Head entirely white or tail with fourteen feathers..... <i>Ducula</i>	110

	Page
E Tail with twelve feathers.....1	
1 Plumage of upperparts or underparts, or both, distinctly barred with black <i>Macropygia</i>	137
Plumage not as above.....a	
a Wing above 200 mm., or if 180–200 mm., outer tail-feathers blackish at tips <i>Columba</i>	119
Wing below 180 mm., or if 180-200 mm., outer tail-feathers white or grey at tips..... <i>Streptopelia</i>	140

Genus TRERON Vieillot

Treron Vieillot, 1816, Analyse: 49. Type, by monotypy, *Columba curvirostra* Gmelin.
Sphenurus Swainson, 1837, Classif. Bds. 2: 348. Type, by monotypy, *S. semitorquatus* (Pl. enl. 240) = *Columba oxyura* Temminck.

Dendrophassa Gloger, 1842, Hand- u. Hilfsb.: 359. Type, by original designation, *Columba aromatica* Gmelin.

Crocopus Bonaparte, 1854, Compt. Rend. Acad. Sci. Paris 39: 973. Type, by original designation, *Columba phoenicoptera* Latham.

Sphenocercus G. R. Gray, 1840, List Gen. Bds.: 57. Type, by original designation, *Columba oxyura* Temminck.

Distinguished by yellowish green plumage, often with patches of lilac or chestnut on the mantle and one or two bright yellow wing-bars. Wings long and pointed, the primaries variously notched or scalloped in the different species. Tail also various: partially rounded, wedge-shaped, or pin-pointed. Tarsus stout and very short, considerably shorter than middle toe without claw; feathered on upper portion; soles of feet expanded, fleshy and pad-like, much broader than the toes themselves — an adaptation for exclusively arboreal life.

Key to the Species

	Page
A Third primary expanded and not scalloped.....1	
B Third primary strongly scalloped.....2	
1 Tail grey and acuminate..... <i>T. apicauda</i>	94
Tail green and not acuminate..... <i>T. sphenura</i>	96
2 Rhamphotheca reaches forehead..... <i>T. curvirostra</i>	97
Rhamphotheca occupies terminal half of bill only.....a	
a Middle tail-feathers entirely green..... <i>T. pompadora</i>	99
Middle tail-feathers not entirely green.....I	
I Wing 170 mm. or below; legs red..... <i>T. bicincta</i>	104
Wing 175 mm. or above; legs yellow..... <i>T. phoenicoptera</i>	106

493. **Pintailed Green Pigeon.** *Treron apicauda apicauda* Blyth

Treron apicauda 'Hodgson' = Blyth, after May 1846 (1845), Jour. Asiat. Soc. Bengal 14 (2): 854 (Southeastern Himalayas and hill ranges of Assam — common at Darjeeling)

Baker, FBI No. 1840, Vol. 5: 199

Plate 39, fig. 6, facing p. 176

LOCAL NAMES. *Häriäl* (all green pigeons), *Kōkhālā* (Hindi, Bengal); *Bōr häithā* or *häithāk* (Assam); *Daorep galou* (Cachar); *Sang pong* (Lepcha).

SIZE. Pigeon $\pm$; length ♂ *c.* 42 cm. ($16\frac{1}{2}$ in.) including tail of *c.* 21 cm. (8 in.); in ♀ tail shorter, *c.* 18 cm. (7 in.).

FIELD CHARACTERS. Overall yellowish green with a long pin-pointed tail and two conspicuous yellow bars in the black wings.

Male (adult). *Above*, with a broad greyish olive-green collar on hindneck. *Below*, greenish yellow, the breast washed with orange-pink; under tail-coverts cinnamon, margined with whitish.

Female duller, with no greyish olive hind collar or orange wash on breast, and much shorter tail.

STATUS, DISTRIBUTION and HABITAT. Resident and locally nomadic depending upon food supply — fruiting of favourite forest trees; throughout the Himalayas from terai level to *c.* 1800 metres, Kumaon to easternmost NEFA including Nepal, Sikkim and Bhutan. Also hills of Assam south of Brahmaputra R. (Khasi, Cachar, Naga, Mizo, etc.); Manipur and East Pakistan. Not rare in the Assam plains in the Surma and Brahmaputra valleys. Affects tall tree forest.

Extralimital. Chin Hills, Burma south to Tenasserim. Other races in the Indochinese countries.

GENERAL HABITS. More or less as common to all green pigeons, cf. 503. Exclusively arboreal but sometimes descending to the ground to drink, and regularly at salt-licks to pick the earth. Keeps in flocks of 10 to 30 birds or so, well to the tops of lofty forest trees, clambering about and feeding amongst the fruit-laden twigs and foliage, a deceptive resemblance to parakeets then heightened by the long pointed tails. The birds are perfectly camouflaged amongst the green leaves and become completely obliterated from view while they 'freeze' on suspicion; the unexpected numbers that will tumble out of a tree on the report of a gun is often quite amazing, while others still continue to remain frozen within. Flight swift and direct accompanied by a metallic whirring sound. In common with other green pigeons, and hawks, has the habit of sitting with fluffed plumage on the topmost bare twigs of a towering forest tree on chilly mornings to catch the first rays of the sun before commencing the day's feeding. They are rather stupid birds and even after being fired at, a flock will return to the same tree again and again within a very short time.

FOOD. A variety of berries and drupes, some of astonishingly large size, swallowed entire.

VOICE and CALLS. A range of mellow, rather wandering musical whistles very similar to those of the Wedgetailed (494) roughly rendered as *ko-kla-oi-oi-oi-oilli-illio-kla*.

BREEDING. *Season*, chiefly April to June. *Nest*, a sketchy platform of twigs high up in a bush or bamboo clump — sometimes a leafy forest tree. *Eggs*, 2, white, typical of pigeons'. Average size of 100 eggs 31.7×23.8 mm. (Baker). Both sexes incubate; period undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. A character there omitted is the broad black band across the central tail-feathers in male.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	160–175	<i>c.</i> 15–16	<i>c.</i> 23–25	220–254 mm.
		[from skull <i>c.</i> 20–23]		

♀ ♀ have shorter tails, *c.* 150–175 mm.

Weight ♂♂ 6½–9 oz. (*c.* 185–255 gm.); ♀ ♀ up to 7 oz. (*c.* 200 gm.) — Baker.

COLOURS OF BARE PARTS. Iris lake red; bare ocular area blue. Bill cobalt-blue, distal half of upper mandible green. Legs and feet crimson.

494. **Kokla or Wedgetailed Green Pigeon.** *Treron sphenura sphenura* (Vigors)

Vinago sphenura Vigors, 1832 (1831), Proc. Zool. Soc. London: 173 (Himalayas)

Restricted to Simla–Almora area by Ticehurst (*Ibis* 1924: 472)

Baker, FBI No. 1841, Vol. 5: 200

Plate 38, fig. 1, facing p. 160

LOCAL NAMES. *Kōklā*, *Kōkilā* (Hindi); *Hāithā*, *Bōr hāithā* or *hāithāk* (Assam); *Kaku*, *Kuhu-pho* (Lepcha); *Daorep gadeba* (Cachar); *Kainal* (Simla).

SIZE. Pigeon; length *c.* 33 cm. (13 in.).

FIELD CHARACTERS. Overall yellowish green, similar to 493 but without central ‘pins’ to the long tapering (wedge-shaped) tail.

Male (adult). *Above*, crown tinged with orange-rufous. A variable amount of maroon on back and scapulars. *Below*, chin and throat yellow; breast pale orange-pink.

Female. Like male but lacking rufous on crown and maroon in upper-parts.

Young (immature) like female, but duller and darker.

For description of fledged nestling see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident — partly nomadic and altitudinal migrant depending upon local food supply. The entire lower Himalayas from Kashmir through Nepal, Sikkim, and Bhutan to extreme eastern NEFA, from plains level to *c.* 2500 metres. Also Assam hills south of Brahmaputra R. including the Nagas and those of E. Pakistan. Recorded as ‘never seen or heard of’ in Manipur (Higgins, 1934, JBNHS 37: 302) but probably occurs. Chiefly affects broad-leaved hill forest of oak, elm, alder, etc.

Reported from Pachmarhi, Madhya Pradesh as ‘a very rare visitor; seen and heard (April)’ by a competent and reliable observer — B. B. Osmaston (1922, JBNHS 28: 458). But this needs confirmation since there is no other record of its occurrence in India south of the given distribution.

Extralimital. Chin Hills, Burma south to Tenasserim. Other races in Malaya and the Indochinese countries.

GENERAL HABITS. Usually keeps in small flocks of 6 to 15 birds or so, to the higher trees; common and numerous in the more open forests. Common summer visitor to most Himalayan hill stations and upland valleys. Flocks, frequently found in association with Pintailed Green Pigeon, the remarkably beautiful whistling calls and general behaviour of the two species being almost identical. The birds clamber about among the leafy fruit-laden twigs of forest trees, hanging upside down or sideways to get at the berries and frequently swinging out for one out of reach with the agility of a trapeze acrobat. They commonly descend to the ground at salt-licks to pick pellets of the salty earth. Flight swift, noisy and rather undulating.



PLATE 36

- 1 *Pterocles senegallus*, Spotted Sandgrouse (488). 2 *Pterocles a. caudacutus*, Large Pintail Sandgrouse (486).
- 3 *Syrrhaptes tibetanus*, Tibetan Sandgrouse (485). 4 *Pterocles c. atratus*, Coronetted Sandgrouse (490).
- 5 *Pterocles o. orientalis*, Imperial Sandgrouse (489). 6 *Pterocles exustus erlongeri*, Indian Sandgrouse (487).
- 7 *Pterocles i. indicus*, Painted Sandgrouse (492).

FOOD. Exclusively frugivorous: drupes and berries of forest trees (e.g. *Ficus* and *Myrica* spp.), swallowed entire. Is very partial to mulberry (*Morus*) in hill orchards.

VOICE and CALLS. Almost indistinguishable from the Pintailed species (493) q.v., a series of rich mellow whistles 'of over 20 notes' (Osmaston). The birds can be easily decoyed by an imitation of their calls.

BREEDING. *Season*, April to June, sometimes prolonged into July/August. *Nest*, the characteristic flimsy twig structure of all pigeons built high up in a sapling or leafy forest tree; in the hills commonly in spruce firs c. 6 metres or so up, close to the trunk. *Eggs*, 2, also typical of pigeons — white, elliptical, fine-textured and smooth-surfaced. Average size of 200 eggs 31.5×23.1 mm. (Baker). Both sexes incubate; period given as '18 to 19 days' (Dodsworth) needs checking. Baker's statement that it has 'two or more broods per year in Assam and Bengal' also requires confirmation.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

'Nestling' [age?]. *Above*, dull green, slightly brighter on the head, upper tail-coverts, scapulars, lesser and median wing-coverts. Greater coverts dull green, edged on the extremities of the outer webs with pale yellow forming a wing-bar. Winglet, primary coverts, and primaries blackish, the majority of the last very faintly edged on the outer webs with pale yellow. Secondaries also blackish, edged on outer webs with pale yellow; tertiaries dull green. *Below*, throat, breast and upper part of abdomen pale grey, the feathers edged with greenish yellow; abdomen and vent fluffy yellowish white; thigh-coverts pale fluffy grey tipped with dark green; under tail-coverts dull green broadly edged with pale yellow.

Iris brown; orbital skin very dull blue. Bill light fleshy brown with a tinge of blue at base of lower mandible. Tarsi and feet fleshy brown, the former with a tinge of dull blue on their upper extremities. Soles of feet very pale fleshy brown; claws horny brown, darker at tips (Dodsworth, JBNHS, 22: 800-1).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	169-187	c. 17-19	c. 17-19	114-139 mm.
	(av. 176.5)			

(Baker, in part)

Weight (winter) 2 ♂♂ 212, 214 gm. (SA).

COLOURS OF BARE PARTS. Iris, outer ring buffy pink to bright crimson, inner ring pale ultramarine blue; orbital skin pale lavender or smalt blue. Bill pale dull smalt blue or greenish blue; cere and tip brighter and more blue. Legs and feet coral-red, cherry-red or deep crimson.

495. **Thickbilled Green Pigeon.** *Treron curvirostra nipalensis* (Hodgson)

Toria Nipalensis Hodgson, 1836, Asiat. Res. 19 (1): 164 (Nepal)

Baker, FBI No. 1838, Vol. 5: 196

LOCAL NAMES. *Daorep buku gajao* (Cachar); *Thoria* (Nepal).

SIZE. Pigeon —; length c. 27 cm. (10½ in.).

FIELD CHARACTERS. A small green pigeon with chestnut-maroon mantle, grey- and olive-green tail and a prominent yellow wing-bar. The thick bright red and greenish bill and vivid green bare orbital skin are leading clues for recognition.

May be confused with the similar-looking Ashyheaded Green Pigeon (499), but the bare patch round eye, and brilliant scarlet gape and cere are diagnostic.

Male (adult). *Above*, forehead ashy grey, forecrown darker grey; back, scapulars and lesser wing-coverts chestnut-maroon. Rest of upperparts including central tail-feathers above olive-green. Outer tail-feathers grey above with a black cross-band; black below with a very broad grey tip. *Below*, yellowish green; flanks darker green with white edges to the feathers; under tail-coverts pale cinnamon.

Female lacks chestnut on mantle and has whitish under tail-coverts with dark green broken bars.

Young (immature) like female, but whole plumage initially very grey and dull; male acquires a little maroon on the mantle at first moult. Iris pale grey-brown; orbital skin livid grey; basal portion of bill dull pink.

STATUS, DISTRIBUTION and HABITAT. Resident, subject to local movements governed by food supply: the Himalayas from western Nepal eastward through Nepal, Sikkim, northern Bengal (the duars) and Bhutan to extreme eastern NEFA, from plains level to at least 1500 metres. Also Assam hills south of Brahmaputra R. (Garó, Khasi, Cachar, Naga, Mizo, etc.); Manipur and E. Pakistan. Affects well-wooded country and forest.

Extralimital. Burma, Thailand, and Indochinese countries. Other races in Indonesia.

GENERAL HABITS. Goes about in flocks of 10 to 40 birds or so, often congregating in large numbers to feed on fruiting trees such as *Ficus* in season. Descends to the ground to drink; Stuart Baker frequently found it feeding on wild strawberries and berries of other ground plants. Flight and other behaviour not specifically different from other green pigeons, cf. 504. Roosts at night up in leafy trees or bamboo thickets, the birds sitting clumped in twos and threes or small groups along horizontal culms or bushy twigs.

FOOD. Exclusively fruits and berries, the numerous species of wild fig (*Ficus*) providing the staple.

VOICE and CALLS. In addition to a series of mellow whistles (not specifically described), has a hoarse note sounding like *goo-goo* constantly uttered by the birds while jostling for positions in the feeding tree.

BREEDING. *Season*, principally late April to early June. *Nest*, a flimsy pad of twigs in the forking leafy branch of a small tree or on a horizontal bamboo culm, at moderate heights; occasionally two or three nests within a few metres of each other. *Eggs*, 2, typically white and elliptical. Average size of 200 eggs 28.7×22.6 mm.; according to Baker Assam eggs average smaller. Both sexes take part in nest-building and incubation; incubation period c. 14 days (Baker).

MUSEUM DIAGNOSIS. Wing long: primaries slightly pointed; third primary (as.) deeply and widely notched or scalloped on inner web. Under tail-coverts long; tail very slightly rounded. For details of plumage see Baker, loc. cit.

General proportions and coloration confusingly like *Treron p. phayrei* (499); distinguished from it as follows: cere considerably reduced making corneous portion of bill (rhamphotheca) almost reach forehead; large bare circumorbital patch; absence of orange on breast; prominent scarlet gape and cere.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	124-146	c. 14-15	c. 18-19	84-95 mm. (Baker)

COLOURS OF BARE PARTS. Adult. Iris, outer ring golden yellow to orange-red, inner ring deep blue; orbital skin vivid verdigris-green. Bill pale yellowish, greenish, or leaden white darker and greener at tip, brilliant coral-red round base and gape. Legs and feet deep lake-pink to coral-red.

TRERON POMPADORA (Gmelin)

Key to the Subspecies

		Page
A	Forehead yellow..... <i>T. p. pompadora</i>	100
B	Forehead and crown grey..... 1	
l	Orange of breast faint or absent in males; grey of head merging into green of hindneck in females..... a	
	Breast strongly tinged with orange in males; grey of head contrasting sharply with green of hindneck in females..... b	
a	Lower tail-coverts cinnamon or whitish..... <i>T. p. affinis</i>	99
	Lower tail-coverts green tipped with pale yellow..... <i>T. p. chloroptera</i>	103
b	Underparts a paler, colder green..... <i>T. p. phayrei</i>	102
	Underparts a warmer, more yellow-green..... <i>T. p. conoveri</i>	101

496. **Greyfronted Green Pigeon.** *Treron pompadora affinis* (Jerdon)

Vinago affinis Jerdon, 1840, Madras Jour. Lit. Sci. 12: 13

(West coast of the Indian Peninsula)

Baker, FBI No. 1831, Vol. 5: 188

Plate 33, fig. 9, facing p. 32 and Plate 37, fig. 6, facing p. 112

LOCAL NAMES. *Podā pāchcha pāvurāmu* (Telugu); *Chārāvāriyān* (Malayalam).

SIZE. Pigeon — ; length c. 28 cm. (c. 11 in.).

FIELD CHARACTERS. A small green pigeon with red legs.

Male (adult). *Above*, forehead, crown and nape ashy grey; back and scapulars chestnut-maroon; rest of upperparts olive- or yellowish green. Shoulder of wing (median and greater coverts) black; a broad yellow wing-band. Middle pair of tail-feathers olive-green. *Below*, greenish yellow, the upper breast faintly tinged with orange or pink; under tail-coverts cinnamon.

Female olive-green, lacking the chestnut mantle and orange wash on breast; shoulder of wing less black and mixed with grey; under tail-coverts buffy white, more or less streaked with green. May be confused with ♀ Orangebreasted (501) but middle tail-feathers olive-green (*v. slaty*) diagnostic.

Young (immature) male like adult female but acquires a certain amount of maroon on the upperparts, more especially on the lesser wing-coverts, at the first autumn moult (Baker).

STATUS, DISTRIBUTION and HABITAT. Resident, subject to some local and altitudinal movement governed by food supply (fruiting seasons). Western and southwestern India — the Western Ghats complex (including the Nilgiris, Palnis, and associated hill ranges)—from about lat. 20°N. southward through western Mysore (Malnaad) and Kerala. Affects forest and well-wooded country in evergreen and wet deciduous biotope; lowlands and up to c. 1200 m. altitude.

GENERAL HABITS. Not significantly different from other green pigeons. Usually keeps in small flocks of up to a dozen or so; sometimes large congregations on fruiting trees. Flocks commonly seen at sunrise, and also in the late afternoon before retiring to roost, perched among the topmost branches of tall leafless trees on the edge of jungle, uttering their soft whistling calls. On coffee plantations in Mysore and Kerala this pigeon along with the Emerald Dove is often reported flying headlong into the whitewashed walls of shady bungalows and outhouses and getting killed.

FOOD. Fruits and berries, mainly figs of the various *Fici* and drupes of *bēr* (*Zizyphus* spp.); salt mud at licks.

VOICE and CALLS. A series of soft rich whistles up and down the scale very like that of the Southern Green Pigeon (504) but somewhat higher in key.

BREEDING. *Season*, mainly December to March. *Nest* as in other green pigeons — a flimsy platform of twigs in a moderate-sized tree; an exceptional one recorded as high as c. 13 m. *Eggs*, 2, elliptical, white. Average size of 24 eggs 28.1 × 22.0 mm. (Baker). Both sexes share nest-building and incubation; incubation period 12-14 days, but not accurately determined.

MUSEUM DIAGNOSIS. See Key; for further details of plumage Baker, loc. cit. Longer feathers of under tail-coverts cinnamon coloured; shorter lateral ones yellowish white with greenish ashy bases.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	140-154	c. 19-20	c. 20-24	84-88 mm. (SA)

Weight 1 ♂ 151 gm. (SA).

COLOURS OF BARE PARTS. Iris: outer ring bright pink, inner ring lapis blue. Bill: cere and lower mandible near gape yellowish green, rest of bill pale grey; mouth yellowish grey-pink. Legs and feet dull magenta or plum colour; claws horny grey; soles yellow.

497. **Pompadour or Ceylon Greyfronted Green Pigeon.**

Treron pompadora pompadora (Gmelin)

Columba Pompadora Gmelin, 1789, Syst. Nat. 1 (2): 775 (Ceylon)

Baker, FBI No. 1829, Vol. 5: 185

LOCAL NAMES. *Bata goya*, *Sipaduwā* (Sinhala); *Pāchchaipurā* (Tamil).

SIZE. Pigeon — ; length *c.* 28 cm. (*c.* 11 in.).

FIELD CHARACTERS. As for the South Indian race *affinis* (496) q.v., but differs in having the forehead and sides of head greenish yellow, the grey confined only as a patch on crown. Under tail-coverts buff (*v.* cinnamon).

Female may be confused with ♀ Orangebreasted Green Pigeon (502) but has the middle pair of tail-feathers olive-green above (*v.* slaty grey).

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. Common resident. Abundant in forest areas throughout the lowlands and ranging up into the hills to *c.* 1200 m.; subject to local migrations. Largely replaced by the orangebreasted species (502) on the sea coast.

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing specifically different from 496 and other green pigeons.

BREEDING. *Season*, December to June, and in September; chiefly April and May (Phillips). *Nest and eggs* as in 496. Average size of 22 eggs 28·7 × 22·6 mm. (Baker).

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Differs from the southwest Indian race *affinis* (496) in both sexes having the forehead yellow, the crown less pure (greenish) grey, and the under tail-coverts of a different colour. These are white with a faint creamy or yellowish tinge, and with a variable amount of greenish ashy speckling or barring on the feathers. (In *affinis* the longer under tail-coverts are cinnamon, the shorter lateral ones yellowish white with greenish ashy bases.) Bill slightly longer than in *affinis*.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	145–151	21–23	21–23	91–97 mm.
♀♀	141–152	21–23	21–24	88–95 mm.
				(HW)

COLOURS OF BARE PARTS. As in 496. 'Iris carmine-red with an inner ring of cobalt; eyelids glaucous green. Bill glaucous green, paling to bluish at the tip. Legs and feet purple-red' (Baker).

498. Nepal Greyfronted Green Pigeon. *Treron pompadora conoveri* Rand & Fleming

Treron pompadora conoveri Rand & Fleming, 1953, Fieldiana, Zool., Chicago, 34 (19):
201–2 (Butwal, Nepal)
Not in Baker, FBI

LOCAL NAMES. Not recorded.

SIZE. Same as 496. Pigeon — ; length *c.* 28 cm. (*c.* 11 in.).

FIELD CHARACTERS. As of the ashyheaded *phayrei* (499), q.v.; not distinguishable from it in the field. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Terai of west-central Nepal (range undefined), in heavy forest.

GENERAL HABITS, FOOD, VOICE and CALLS. Not specifically described; presumably as in other races.

BREEDING. See under 499.

MUSEUM DIAGNOSIS. Separated from *phayrei* (499) on character of brighter coloration with yellow of throat and orange of breast more intense. Green of hindneck, breast and abdomen duller and less greyish.

MEASUREMENTS

Wing 2 ♂♂ 156–157; 4 ♀♀ 153–164 mm. (Rand & Fleming).

COLOURS OF BARE PARTS. As in 499.

499. Ashyheaded Green Pigeon. *Treron pompadora phayrei* (Blyth)

Osmotreron Phayrei Blyth, 1862, Jour. Asiat. Soc. Bengal 31: 344 (Tounghoo, Burma)
Baker, FBI No. 1830, Vol. 5: 186

LOCAL NAMES. *Chhōta hāriāl* (Bengal and E. Pakistan); *Chhōta hāithā* (Assam); *Daorep* (Cachar); *Inruigum* (Naga); *Vohpolip* (Kuki).

SIZE. Pigeon — ; length *c.* 28 cm (*c.* 11 in.).

FIELD CHARACTERS. A small green pigeon with red legs, very like 496.

Male (adult). *Above*, crown and nape dark ashy grey; forehead paler. Sides of head greenish yellow, sharply demarcated from grey crown, as is also green hindneck from grey nape. Back and scapulars chestnut-maroon; rest of upperparts olive- or yellowish green. Wings black with a broad yellow band. Middle pair of tail-feathers olive-green. *Below*, chin, throat, and sides of neck greenish yellow; upper breast conspicuously orange; rest of underparts olive-green tipped with buff on lower flanks. Under tail-coverts cinnamon.

Female lacks the chestnut mantle and orange breast. Under tail-coverts buff broadly mottled with dark green. Differentiated from the very similar ♀ of the orangebreasted species (501) by the *green* middle tail-feathers (*v.* slaty).

Young (immature) male like adult female but acquires a certain amount of maroon on the upperparts, more especially on the lesser wing-coverts, at the first autumn moult (Baker).

STATUS, DISTRIBUTION and HABITAT. Resident, subject to some local and altitudinal movement governed by food supply (fruiting seasons). Common and locally abundant: West Bengal (recorded south to Calcutta), Assam north and south of Brahmaputra river, and eastward through NEFA; Manipur; East Pakistan — from plains level to *c.* 1500 m., normally below 1000 m. Affects forest and well-wooded country in evergreen and wet deciduous biotope. How far west this race extends towards Nepal (*conoveri*) remains to be determined.

Extralimital. Burma south to Tenasserim, Thailand and the Indochinese countries. Other races in Indonesia.

GENERAL HABITS, FOOD, VOICE and CALLS. Like other green pigeons, cf. 496, 504 — gregarious, sometimes in large flocks of over 200 birds; frugivorous and arboreal, occasionally descending to the ground to drink or visit salt-licks.

BREEDING. *Season*, March to early July, mainly April and May. *Nest* (twig platform) and *eggs* (2, white, elliptical) as typical of the family. Nests placed fairly low down in moderate-sized trees, bamboo clumps or cane brakes, often with no attempt at concealment. One recorded in Assam

c. 12 m. up in main fork of a leafless tree right out in the middle of a maidan with the sitting bird ludicrously conspicuous (Betts, 1947, JBNHS 46: 681). Average size of 200 eggs 27.5×21.8 mm. (Baker). Both sexes share in building the nest and incubation; period believed c. 14 days, but needs confirming.

MUSEUM DIAGNOSIS. See Key; for details of plumage Baker, loc. cit.

MEASUREMENTS

Wing ♂♂ 143–165; ♀♀ 145–160 mm. Weight 4–5 oz. (c. 115–140 gm.), sometimes up to 7 oz. (c. 200 gm.) — Baker.

♂♀ Bill (from skull) 17–20; tail 80–87 mm. (SA).

COLOURS OF BARE PARTS. Iris: outer ring pink, inner ring pale blue; orbital skin bluish. Bill French grey, somewhat darker at base. Legs and feet lake-red.

500. **Andaman Greyfronted Green Pigeon.** *Treron pompadora chloroptera* Blyth

Treron chloroptera Blyth, 1840, Jour. Asiat. Soc. Bengal 14: 852 (Nicobars)

Baker, FBI No. 1832, Vol. 5: 188

LOCAL NAMES. None recorded.

SIZE. Slightly larger than 499; Pigeon $\pm$. Length c. 30 cm. ($12\frac{1}{2}$ in.).

FIELD CHARACTERS. As of the ashyheaded *phayrei* (499). See Museum Diagnosis, but 'is large as the Indian Green Pigeon (503, 504) and looks very much like it in the field' (Abdulali, JBNHS 61: 523).

STATUS, DISTRIBUTION and HABITAT. Resident. Race peculiar to the Andaman and Nicobar islands. Common in South and Middle Andamans. Affects tall evergreen forest.

GENERAL HABITS. As of the other races. Often seen feeding in parties of 6–10 or larger flocks on fruiting trees in forest or clearings. Like other green pigeons they gorge themselves to such an extent that when a shot bird falls to the ground the turgid crop frequently bursts open with the impact, exposing and scattering the contents.

FOOD. Wild figs (*Ficus* spp.) and various drupes and berries swallowed entire, including some of very large size.

VOICE and CALLS. A series of mellow musical whistling notes described by W. Davison as 'very like but more powerful' than those of *Treron p. affinis* (496).

BREEDING. Season, from indirect evidence of gonads of collected specimens c. February to June; but probably not well-defined. Nest and eggs unknown.

MUSEUM DIAGNOSIS. Male differs from ♂ *T. p. phayrei* (499) as follows: Forehead pure grey; lesser wing-coverts green (v. chestnut), darker and less yellow than neck. Green of upperparts more yellow except on central pair of rectrices. Chestnut-maroon mantle as dark as in *T. p. affinis* (496). Under tail-coverts dark green, merely tipped with yellowish. Bill very large, equally long with that in the other insular race (of Ceylon), but much coarser than in the other races, or even in *T. c. nipalensis* (495).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
3 ♂♂	173-177	20-23	24-26	92-95 mm.
3 ♀♀	169-178	20-23	22-26	86-95 mm. (SA) ¹

Wing o? 171-183 mm. Weight 12 oz. (c. 340 gm.) — Davison.

COLOURS OF BARE PARTS. More or less as in 499.

TRERON BICINCTA (Jerdon)

Key to the Subspecies

Larger; wing over 150 mm.....*T. b. bicincta*

Smaller; wing usually under 150 mm.....*T. b. leggei*

501. **Indian Orangebreasted Green Pigeon.** *Treron bicincta bicincta*
(Jerdon)

Vinago bicincta Jerdon, 1840, Madras Jour. Lit. Sci. 12: 13

(Sea coast south of Tellicherry)

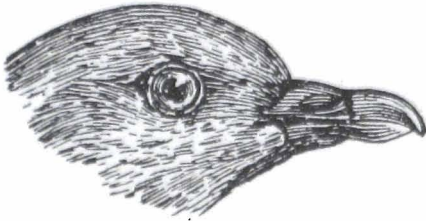
Treron bisincta [sic] *praetermissa* Robinson & Kloss, 1921, Jour. Fed. Malay States Mus. 10: 203 (Koh Lak, southwestern Siam)

Baker, FBI No. 1834, Vol. 5: 191

Plate 33, fig. 6, facing p. 32

LOCAL NAMES. Generally for all green pigeons *Hāriāl* (Hindi); *Hāitha* (Assam); *Pāsāpu pāchcha pāvurāmu* (Telugu); *Manjavāriyan* (Malayalam).

SIZE. Pigeon ±; length c. 29 cm. (11½ in.).



× c. 1

FIELD CHARACTERS. Overall olive-green, similar to Greyfronted (496) but

Male (adult) lacks grey on head and chestnut-maroon mantle. *Below*, underparts yellowish green with a band of lilac across upper breast followed by orange on lower breast. Under tail-coverts cinnamon edged with pale yellow on the outer and longest

feathers. Tail slaty grey above with a broad blackish subterminal band (except on central pair of rectrices), black below with a grey tip.

Female similarly olive-yellow above, yellowish green below but lacking the lilac-and-orange breast. Under tail-coverts pale dull cinnamon with greenish mottling. May be confused with females of *pompadora* species but tail pattern diagnostic: middle tail-feathers above slaty grey in *bicincta*, green in *pompadora*.

Young (immature) like female but duller and darker.

STATUS, DISTRIBUTION and HABITAT. Resident with the normal seasonal local movements. Widely distributed in the evergreen and moist deciduous biotopes. Not uncommon in the U.P. terai and bhabar and the lower

¹ These include 1 from Car Nicobar and 5 from S. Andamans, the latter identified by Abdulali (JBNHS 61: 523) as *andamanica* (Richmond), a controversial race.

Himalayas (to c. 1500 m.) eastward through Nepal, Bengal duars, and Assam north and south of Brahmaputra R.; Manipur and E. Pakistan. Records rather patchy, but doubtless occurs more generally. In the Peninsula, West Bengal, Chhota Nagpur and southward along the Eastern Ghats in the appropriate biotopes. Western Ghats and associated hill ranges (normally plains level and up to 1000 m. or so) from Kerala northward through Mysore to about the latitude of Belgaum (16°N.); possibly further north like the Greyfronted (496) but records lacking. Curiously enough once procured as a vagrant in Sind (Karachi) (Eates, K. R., 1938, JBNHS 40: 330). Affects forest and well-wooded country inland as well as in the coastal tracts.

Extralimital. Burma, Thailand, Malay Peninsula and South Vietnam. Other races in Ceylon, Java, and Hainan.

GENERAL HABITS. Gregarious, frugivorous, arboreal; not specifically different from other green pigeons, e.g. 496, 504, qq. v. Often associates with them while feeding in fruit-laden trees, which is chiefly in the morning and late afternoon.

FOOD. Drupes and berries. The figs of the numerous species of *Ficus* form the staple diet of fruit pigeons as of most other frugivorous birds.

VOICE and CALLS. The characteristic series of modulated mellow wandering whistles. 'A pleasing low subdued gurgling note' (H. Stevens—Assam). But described by another competent observer (J. Davidson—Kanara) as 'hoarse, not like the musical notes of *Treron phoenicoptera* or *T. p. affinis*'!

BREEDING. *Season* overall March to September, perhaps most general April to June. *Nest*, the characteristic pigeon structure—a flimsy platform of interlaced twigs, placed in a moderate-sized tree or cane-brake some 2-8 metres up. *Eggs* 2, white, elliptical, also typical of the family. Size c. 29 × 23 mm. Both sexes share in building the nest and incubation; period c. 12-14 days.

MUSEUM DIAGNOSIS. Differs from the race *leggei* of Ceylon, q.v., only in being larger. For details of plumage see Baker., loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	153-164 (once 170)	c. 12-13	c. 23-25	91-110 mm. (Baker)

COLOURS OF BARE PARTS. *Adult*: Iris outer ring pink to crimson, inner ring bright ultramarine to deep blue; eyelids and orbital skin bright lavender blue. Bill pale blue or pale green, the basal half darker and brighter. Legs and feet deep coral-red to deep crimson; soles paler; claws horny brown. In *y o u n g* (both sexes), as in other green pigeons, iris watery pale brown; eyelids and orbital skin livid. Legs and feet dull crimson.

According to Baker the double-coloured iris is acquired at the first autumn moult, but is much less vivid than in the adult.

502. **Ceylon Orangebreasted Green Pigeon.** *Treron bicincta leggei*
Hartert

Treron bicincta leggei Hartert, 1910, Nov. Zool. 17: 193 (Ceylon)
Baker, FBI No. 1835, Vol. 5: 192

LOCAL NAMES. *Bata goya*, *Sipaduwā* (Sinhala); *Pachchai purā* (Tamil).

SIZE. Pigeon $\pm$; length *c.* 29 cm. (11½ in.).

FIELD CHARACTERS. As of 501, q.v. An olive- and yellowish green pigeon with bright orange breast in male and no chestnut-maroon mantle.

Female may be confused with female of Greyfronted (497), but has slaty grey middle tail-feathers instead of green.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. Abundant but local throughout the forest areas of the low-country Wet and Dry zones, chiefly near the coasts. Subject to local migrations from district to district following fruit-ripening.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian race (501). According to Legge, it drinks regularly at about 7 in the morning and 4 in the afternoon, descending to the margin of a stream or water-hole for the purpose. Gait on ground rather clumsy with the tail held high.

BREEDING. *Season*, December to May, also July to September; but chiefly December. *Nest* and *eggs* as in 501, the latter measuring 'about 28 × 22.5 mm.' (G. M. Henry).

MUSEUM DIAGNOSIS. Differs from the nominate Indian race (501) only in being smaller; there is no appreciable difference in colour.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	145-155	17-21	<i>c.</i> 21-24	<i>c.</i> 87-89 mm. (HW)

'Wing 140-146, one 149 mm.' — Baker.

COLOURS OF BARE PARTS. As in 501.

TRERON PHOENICOPTERA (Latham)

Key to the Subspecies

		Page
A	Smaller; wing 170 mm. or below.....	<i>T. p. phillipsi</i> 109
B	Larger; wing above 170 mm.....	1
1	Breast yellow, abdomen grey.....	<i>T. p. phoenicoptera</i> 106
	Breast and abdomen both yellow.....	<i>T. p. chlorigaster</i> 108

503. **Bengal Green Pigeon.** *Treron phoenicoptera phoenicoptera* (Latham)

Columba phoenicoptera Latham, 1790, Index Orn. 2: 597 (India)
Baker, FBI No. 1826, Vol. 5: 181

LOCAL NAMES. General for all green pigeons, *Hāriāl* (Hindi); *Hāitha* or *Bōr hāitha* (Assam); *Daorep gadeba* (Cachar); *Inruigu* (Naga).

SIZE. Pigeon; length *c.* 33 cm. (13 in.).

FIELD CHARACTERS. A stout green pigeon with a red shoulder-patch and yellow legs. Very similar to 504 but with a markedly greenish yellow forehead, and grey lower breast, belly and flanks instead of uniform bright yellow.

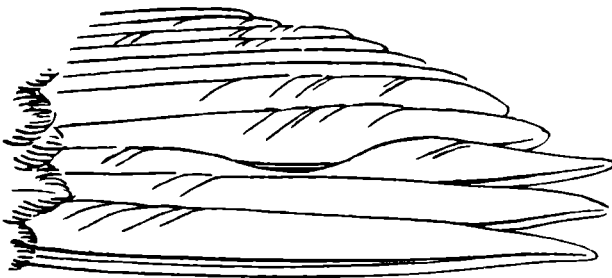
Young (immature) like adult but minus the shoulder-patch.

STATUS, DISTRIBUTION and HABITAT. Resident, wandering locally with fruit-ripening. West Pakistan and northern India from c. 73°E. long. (Lyallpur, Punjab) south through E. Rajasthan and eastward along the Himalayan foothills and Gangetic Plain (including Nepal lowlands) through Bihar, northern Orissa, W. Bengal, Assam north and south of Brahmaputra R., Manipur (?), and E. Pakistan. Southern boundary uncertain and confused owing to difficulty of interpreting frequent occurrence of both races together. Birds from Gwalior district, Madhya Pradesh (c. 26°N., 78°E.) belong to the southern race *chorigaster* (Whistler, JBNHS 41: 477), whereas both subspecies have been reported as common and procured together around Pachmarhi, M.P. (c. 22°29'N., 78°26'E.) (B. B. Osmaston, *ibid.* 28: 458), and Ambala Cantonment, Punjab (c. 34°54'N., 76°57'E.) (Jones, A. E., *ibid.* 28: 1006). Furthermore, Jones found the southern *chorigaster* 'very common in one locality c. 3500 ft. in the low hills south of Kasauli [c. 30°54'N., 76°57'E. — Simla district] where only the nominate race would be expected! Further investigation is desirable. Affects dry- and moist deciduous forest with a sprinkling of *Ficus* and other fruiting trees. Also groves of such in the open countryside, around villages and cultivation, and in rambling jungly gardens and roadside avenues.

Extralimital. Other races extend the species to Burma, Thailand and the Indochinese countries.

GENERAL HABITS, FOOD, VOICE and CALLS. As of 504, q.v.

BREEDING. *Season*, chiefly March and April; sometimes continuing into May and June or even later. *Nest and eggs* as in 504, q.v.



Primaries, $\times c. \frac{1}{2}$

MUSEUM DIAGNOSIS. See Key to the Subspecies and Field Characters; for details of plumage Baker, loc. cit.

MEASUREMENTS

Wing	Bill (from feathers)	Tarsus	Tail
184–200	19–20	c. 25–26	110–118 mm.
Females are rather smaller, Wing 180–186 mm.			

(Baker)

COLOURS OF BARE PARTS. As in 504.

504. Southern Green Pigeon. *Treron phoenicoptera chlorigaster* (Blyth)

Vinago chlorigaster Blyth, 1843, Jour. Asiat. Soc. Bengal 12 (1): 167, note
(No locality = Indian Peninsula)
Baker, FBI No. 1828, Vol. 5: 184

LOCAL NAMES. For all green pigeons, *Hāriāl* (Hindi, Bengali); *Pāchcha polka*, *Pāchcha gūvvā* (Telugu); *Pāchchai purā* (Tamil); *Pisawa* (Marathi).

SIZE. Pigeon; length c. 33 cm. (13 in.).

FIELD CHARACTERS. A stout arboreal pigeon, chiefly olive-green and ashy grey above, uniformly bright yellow below, with a lilac patch on wing-shoulder and a conspicuous yellow band across the blackish wings. Readily distinguished from all other Indian green pigeons by its *yellow* (v. red) legs. Sexes more or less alike; female somewhat duller, with a less pronounced shoulder-patch.

Young (immature) like adult but minus the shoulder-patch.

STATUS, DISTRIBUTION and HABITAT. Resident, wandering locally with fruit-ripening. All peninsular India, including southern Rajasthan and Gujarat, roughly south of the Gangetic Plain (south of range of Bengal Green Pigeon) but boundary between the two races undefined (cf. 503). Rare vagrant to Ceylon (low-country Dry zone near Jaffna etc.). Affects dry- and moist-deciduous forest with a scattering of *Ficus* and other fruiting trees. Also groves of such on the open countryside, around villages and cultivation, and in rambling jungly gardens in towns, and roadside avenues.

Extralimal. Allied races in Burma, Thailand, and the Indochinese countries.

GENERAL HABITS. Almost exclusively arboreal descending to the ground only occasionally to drink or to pick earth at salt-licks; rarely also to feed on ground crops (see under Food). Gait on ground rather clumsy, with the tail held well up. Keeps in flocks of 5-10 birds or so, sometimes congregating in very large numbers to gorge themselves on ripe banyan or peepul figs (*Ficus*) in company with other green pigeons, hornbills, barbets and suchlike frugivorous species. The birds deftly clamber amongst the fruit-laden twigs like parakeets, clinging sideways or upside down and swinging out to reach a distant berry with the agility of a trapeze acrobat. When such a tree is approached the green pigeons deliberately 'freeze', and in spite of their large size become completely obliterated among the surrounding foliage till a little inadvertent movement by one here and another there betrays their presence. All the while the frozen bird will be peering intently at the intruder through a tiny gap between the leaves, as can clearly be seen through the binocular. The unsuspected numbers that will tumble out of a fig-laden banyan or peepul tree on the report of a gun is often quite amazing; but the birds soon return in twos and threes and small parties till the foliage is once more a jostling, quarrelling mass of guzzling green pigeons. They stuff themselves so greedily that the impact of a flying bird falling to shot often bursts the turgid crop, exposing and scattering the contents. Twelve complete banyan figs have been removed from a single crop! They feed chiefly in the mornings and afternoons doing regular rounds of their favourite trees, and can then provide excellent sport. Decent bags can be made by two or three guns placed in strategic positions as the

birds fly back and forth between the trees. Flight swift and direct, accompanied by a loud metallic clatter when suddenly flying out of a tree. Like all green pigeons has the habit of perching, in couples and small parties, on the topmost branches of dead trees to sun themselves, especially at sunrise and in the late afternoon.

FOOD. Drupes, berries, and wild figs of numerous kinds. Among the most commonly recorded are nearly all species of *Ficus* [especially *F. bengalensis* (banyan), *F. religiosa* (peepul), *F. glomerata* (guler), and *F. benjamina*]; *Zizyphus jujuba* (bēr), *Z. oenoplia*, etc., *Eugenia jambolana* (jamun), *Terminalia* spp. (myrabolams), *Buchanania latifolia* (charoli), *Bridelia hamiltoniana*, and *Lontana aculeata*. Specimens have been shot with their crops stuffed with 'peas' (*Cicer*?) (Briggs, JBNHS 37: 386).

VOICE and CALLS. A series of modulated mellow musical whistles of rather human quality; very similar to call of Orangebreasted (*T. bicincta*) but louder and in a lower key.

BREEDING. *Season* March to June, occasionally a month or two earlier or later; mainly March and April. *Nest*, characteristic of the family, a flimsy platform of interlaced twigs in a moderate-sized tree, concealed among the foliage. On outskirts of forest, near villages and in gardens; often in same tree as holds a Black Drongo's nest, the birds obviously taking advantage of the protection from nest-robbers like crows and tree pies afforded by these bold and vigilant guardians. *Eggs*, 2, white, elliptical and glossy. Average size of 40 eggs 31.8×24.6 mm. (Baker). Both sexes share nest-building and incubation; period undetermined.

MUSEUM DIAGNOSIS. See Key to the Subspecies and Field Characters; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	187-201	21-24	24-29	104-120 mm.
♀♀	181-202	20-24	24-28	97-116 mm.
				(SA, HW)

COLOURS OF BARE PARTS. Iris outer ring pink, inner bright lapis blue. Bill pale French grey, basal portion including cere greenish; mouth greyish pink or greyish yellow. Legs and feet bright chrome yellow; claws French grey.

505. **Ceylon Green Pigeon.** *Treron phoenicoptera phillipsi* Ripley

Treron phoenicoptera phillipsi Ripley, 1949, Proc. Biol. Soc. Wash. 62: 9
(Nilgala, Uva, Ceylon)
Not in Baker, FBI

LOCAL NAMES. As for other Ceylon green pigeons, cf. 497, 502.

SIZE. Pigeon $\pm$; length c. 30 cm. (12 in.).

FIELD CHARACTERS. As of 504; somewhat smaller but not distinguishable from it in the field.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. Resident in the low-country Dry zone. 'Appears to be confined to and fairly plentiful

in a small area of open [dry deciduous] forest country around Bibile and Nilgala, in the lowlands to the south-east of Uva hills ' (Phillips).

GENERAL HABITS, FOOD, VOICE and CALLS. As in the south Indian race (504).

BREEDING. Not yet reported.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Differs from *chorigaster* in being smaller, with duller more greenish yellow nape, and duller more greyish green back and wings. Vinous shoulder-patch also duller and slightly darker. *Below*, breast and abdomen dull greenish yellow suffused with greyish green. Lemon-yellow of neck and underparts confined only to a submental spot, and to a patch about thighs and vent.

MEASUREMENTS				
	Wing	Bill (from feathers)	Tail	
4 ♂♂	163-167	c. 18-19	97-100	mm.
4 ♀♀	160-169	c. 17-18	95-104	mm.
(SDR)				

COLOURS OF BARE PARTS. ' Iris (both sexes), inner ring blue, outer carmine; eyelids bluish grey. Bill pale bluish white. Legs chrome yellow ' (Phillips).

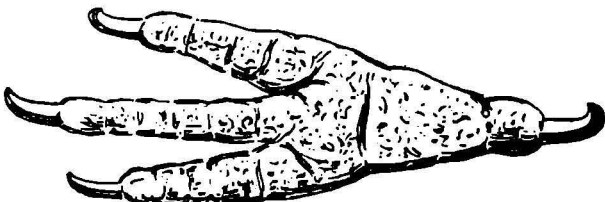
GENUS DUCULA Hodgson

Ducula Hodgson, 1836, *Asiat. Res.* 19: 160. Type, by monotypy, *Ducula insignis* Hodgson

Muscadivora Schlegel, 1872, *Dier. K. zool. Genoot.* Amsterdam: 209. Type, by subsequent designation, *Columba aenea* Linnaeus

Myristicivora Reichenbach, 1852, *Nat. Syst. Vög.*: 26. Type, by original designation, *Columba littoralis* Temminck = *C. bicolor* Scopoli

Contains three species of large arboreal fruit pigeons — one with some bronzy green in plumage, one without, and one with very peculiar pied white and black coloration. Fleshy padded soles of feet less expanded than in *Treron* but broader



Sole of foot of *D. a. sylvatica*, × c. 1

than in *Columba*. Bill slender and long, with a long soft basal portion (cere) and a short horny tip (rhamphotheca). Caeca absent as in *Treron*, but both ambiens muscle and oil gland present as in *Columba*.

Key to the Species

		Page
A	Plumage entirely black and white.....	<i>D. bicolor</i> 115
B	Plumage not as above.....	1
1	Mantle green.....	<i>D. aenea</i> 111
	Mantle plain brown or with purplish or coppery tint.....	<i>D. badia</i> 116

DUCULA AENEA (Linnaeus)

Key to the Subspecies

		Page
A	Smaller; wing generally under 215 mm.....	<i>D. a. pusilla</i> 112
B	Larger; wing generally over 215 mm.....	1
1	Under tail-coverts deep dull maroon.....	<i>D. a. sylvatica</i> 111
	Under tail-coverts deeper chestnut-maroon	<i>D. a. andamanica</i> 114
	Under tail-coverts dull rufous-brown.....	<i>D. a. nicobarica</i> 113

506. **Northern Green Imperial Pigeon.** *Ducula aenea sylvatica* (Tickell)

Columba Sylvatica Tickell, 1833, Jour. Asiat. Soc. Bengal 2: 581 (Borabhum)

Baker, FBI No. 1847, Vol. 5: 208

Plate 33, fig. 3, facing p. 32

LOCAL NAMES. *Dūnkūl* or *Doomkūl*, *Sonā kābūtār*, *Bādā hāriāl* (Hindi); *Paguma*, *Porguma* or *Purgoomba* (Assam); *Dūkūl* (Nepali, in Nepal); *Hūkās* (Nepali, in Bengal duars); *Daohukuruma* (Cachar); *Inruikuru* (Naga).

SIZE. Crow; length *c.* 43 cm. (17 in.).

FIELD CHARACTERS. A large arboreal fruit pigeon, pinkish grey overall with bright metallic bronzy green back and tail (above), and chestnut-maroon under tail-coverts. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident; locally abundant, moving about with ripening of wild fruits. Nepal (?) and eastern U.P., eastward through Bihar, Orissa, W. Bengal, Assam and E. Pakistan. Not met with in Manipur (Higgins, JBNHS 37: 302). South to lat. 20°N., the arbitrary boundary proposed by Whistler (ibid. 38: 675) between this and the peninsular form (507). Birds from Orissa and northeastern Andhra Pradesh may well pass for either race. Affects evergreen and moist-deciduous biotope — plains and foothills normally up to *c.* 300 metres, occasionally to 600 m. Partial to secondary jungle with a scattering of large *Ficus* and other wild fruit trees.

Extralimital. Burma to central Tenasserim, northern Thailand, Indo-chinese countries.

GENERAL HABITS. Keeps singly or in pairs and parties of 5 or 6, sometimes joining up in small feeding flocks up to 20 or so in large fruit-laden trees; seldom in larger numbers like the smaller green pigeons (*Treron*). Gentle and sociable, not blustering and quarrelsome like them while feeding. Has the common green pigeon habit of sunning itself with fluffed plumage on the leafless tops of tall trees in the early morning and before sunset. Flight swift and powerful in spite of the seemingly leisurely wingbeats; accompanied by a noisy clattering of the wings when first launching out of a tree. Flies high and well above the tree-tops when birds commuting between favourite feeding places. Commonly descends to the ground to drink and pick earth pellets at salt-licks. The male has a spectacular seesaw aerial display during the breeding season, reminiscent of the Roller (*Coracias*) and also the Blackbellied Finch-Lark (*Eremopterix*), very similar to that of Jerdon's Imperial Pigeon (511), q.v. He also has a bowing display, as common to many pigeons, consisting of a movement in which the head

is lowered quickly on to the breast so that the crown and nuchal region is frontally presented.¹

FOOD. Exclusively frugivorous. *Ficus* figs the staple, but most other wild fruits eaten. Nutmegs (*Myristica*) a favourite item; swallowed entire, the mace being digested and the nutmeg voided later through the mouth. Gape, lower mandible (which is wider at base than upper) and gullet enormously extensible and capacious, capable of negotiating fruits of up to c. 4 cm. diameter with ease.

VOICE and CALLS. Of several deep, resounding, rather ventriloquistic notes *wück-wück-woor*, or *wück-woor-woor-woor-woor* ending in a peculiar prolonged rollicking which sounds singularly like jeering laughter!

BREEDING. *Season* overall March to June, aberrantly somewhat earlier or later; principal months April and May. *Nest*, a skimpy unlined platform of interlaced twigs through which the contents often visible from below; placed up in a leafy sapling in forest, usually under c. 10 metres from the ground. *Eggs*, normally 1, rarely 2, white, elliptical, slightly glossy. Average size of 22 eggs 45.4×33.5 mm. (Baker). Both sexes share nest-building and incubation; incubation period undetermined.

MUSEUM DIAGNOSIS. Differs from the peninsular Indian and Ceylon race *pusilla* (507) only in being clinally larger. See Key to the Subspecies; for details of plumage Baker, loc. cit.

MEASUREMENTS

' ♂ ♀ Wing 212–254 mm. In northern birds seldom under 224 mm.; Bengal and Orissa birds seldom under 220 mm.'—Baker.

In 6 ♂? from Eastern Himalayas: Wing 232–248 mm.; bill (from skull) 31–34 mm. — Whistler.

COLOURS OF BARE PARTS. Iris deep red, maroon-red, or crimson. Bill white at tip, bluish white in the centre, purplish red on basal half and cere. Legs and feet dull purple-red to lake red, rarely deep coral-red; claws reddish horny brown.

507. Southern Green Imperial Pigeon. *Ducula aenea pusilla* (Blyth)

Carpophaga pusilla Blyth, 1849, Jour. Asiat. Soc. Bengal 18: 816 (Nilgiris)

Baker, FBI No. 1848, Vol. 5: 209

LOCAL NAMES. *Māhā nila goya*, *Māila goya* (Sinhala); *Periya purā* (Tamil); *Kakarani gūvva* (Telugu); *Mēni prāvu*, *Pogonna* (Malayalam).

SIZE. Same as 506; length c. 43 cm. (17 in.).

FIELD CHARACTERS. As of the northern race 506 q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; locally common, moving about with ripening of wild fruits. Ceylon and peninsular India north to 20°N. lat., the arbitrarily fixed boundary between it and 506. In the Peninsula chiefly in the Eastern and Western Ghats [north to near Bombay (Bassein, c. 19°20'N. lat.) — JBNHS 40: 377] and associated hill ranges in appropriate biotope; in Ceylon in the low-country Wet and Dry zones.

¹ For a discussion on its significance in phylogeny, see Goodwin, Derek, 1966, *The Auk* 83 (1): 117–23.



PLATE 37

Charadrius d. curonicus, Little Ringed Plover (379). 2 *Ducula b. cuprea*, Maroonbacked Imperial Pigeon (511).
Perdica erythrorhyncha, Painted Bush Quail, ♂ (262). 4 *Columba elphinstonii*, Nilgiri Wood Pigeon (521)
Arenaria i. interpres, Turnstone (402). 6 *Treron p. affinis*, Greyfronted Green Pigeon (496).

Affects evergreen and moist-deciduous plains and foothills forest, normally to c. 300 metres; somewhat higher with availability of food. Partial to secondary jungle dotted about with large *Ficus* and other wild fruit trees.

GENERAL HABITS, FOOD, VOICE and CALLS. Same as in the northern race (506). In Ceylon the birds collect in flocks of 6 to 30 or more after the breeding season and appear to have regular roosting places whence they issue in the morning to their feeding grounds, often several miles away (Parker, H., 1881, SF 9: 481), flying high above the tree-tops. Among food items other than *Ficus* figs and nutmegs (*Myristica*), specifically recorded are berries of the Marking Nut or Bibba (*Semecarpus anacardium*) and buds of mangroves (*Avicennia* spp.).

BREEDING. *Season*, in south India (Kerala, Mysore, etc.) principally February to June; in Ceylon December to May, chiefly during December. *Nest* — a flimsy platform of twigs, and *eggs* — normally a singleton, white, smooth, elliptical — as in 506. Average size of 7 eggs (Kerala and Ceylon) 43.1×34.1 mm. (Baker).

MUSEUM DIAGNOSIS. Differs from the northern *sylvatica* (506) only in being clinally smaller; see Key to the Subspecies.

MEASUREMENTS

'♂♀ Wing 200–220 mm. Ceylon birds do not exceed 216 mm. and most are under 210 mm.' — Baker.

8 specimens from Ceylon, Kerala, and Mysore give

	Wing	Bill (from skull)	Tarsus	Tail
3 ♂♂	210–214	31–32	28–32	131–140 mm.
5 ♀♀	202–217	28–32	27–30	131–140 mm. (SA, HW)

COLOURS OF BARE PARTS. As in 506.

508. **Nicobar Green Imperial Pigeon.** *Ducula aenea nicobarica* (Pelzeln)

Carpophaga insularis Blyth, 1858, Jour. Asiat. Soc. Bengal 27: 270 (Nicobar Islands).

Nomen nudum

Carpophaga aenea var. *nicobarica* Pelzeln, 1865, Reise 'Novara' Zool. Th. 1: 105, Vög. (Nicobars). Restricted by Abdulali to Car Nicobar, 1967, JBNHS 64: 164

Baker, FBI No. 1849, Vol. 5: 210 (= *insularis*)

LOCAL NAMES. None recorded.

SIZE. Jungle Crow; length c. 47 cm. (18½ in.).

FIELD CHARACTERS. A large stout arboreal fruit pigeon, very similar to 506 but purer grey overall with dark metallic bluish- or purplish green back and tail (above), and dingy brown under tail-coverts. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to the Nicobar group of islands south of the Ten Degree Channel. Has been procured on the following by Hume (SF 2: 262): Comorta, Nancowry, Katchall, Trinkat, Bompoka, Teresa, Tillanchang, Treis, Trak, Pilu Milu, Chowra, Meroe, Batti Malv and Kondul; and on Car Nicobar and Great Nicobar by Abdulali (JBNHS 61: 525). Resident; possibly moving back and forth between islands not too widely separated. Common and abundant to the

point of swarming on some of the islands not yet subjected to heavy deforestation for human settlement. Affects lofty evergreen forest.

GENERAL HABITS, FOOD. As in 506 and the other races, qq.v.

VOICE and CALLS. A deep low *coo* (Sewell); '(1) a deeper and longer *ghoom* than in *andamanica*, (2) a *koo-o* followed by a *kukku kukku-kukku*, more like an owl than a pigeon' (Abdulali).

BREEDING. Very little information. *Season*, evidently February and March. Apparently the only nest known was a loosely put together platform of twigs 'built on a dried-up fruit branch in a coconut palm *c.* 20 ft. from the ground' (Davison, SF 2: 263). It contained a single white egg measuring '1.9 × 1.39' inches (= 48.2 × 34.8 mm.).

MUSEUM DIAGNOSIS. Differs from the north Indian race (506), with which Andaman birds were hitherto included, in having the grey of the head and underparts purer, without the pinkish tinge; the green of the upperparts is darker and more blue; tail more blue and darker both above and below; under tail-coverts dingy brown.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	222-260	<i>c.</i> 25-31	25-30	152-177 mm. (Baker)
6 ♂ ♂ (av. 257)	253-265	—	—	157-169 mm. (av. 161.5)
3 ♀ ♀ (av. 248)	246-250	—	—	152-158 mm. (av. 155) (Abdulali)

Weight 1 lb. to 1 lb. 12 oz. (454-795 gm.) — Hume.

COLOURS OF BARE PARTS. Irides variable, sometimes pale ruby red; eyelids pale lavender. Bill pale plumbeous, paler on tip and darker on cere and base. Legs and feet dull deep pink, pinkish red or livid purple (Hume).

508a. **Andaman Green Imperial Pigeon.** *Ducula aenea andamanica* Abdulali

Ducula aenea andamanica Abdulali, 1964, Jour. Bombay nat. Hist. Soc. 61 (2): 414
(Betapur, Middle Andamans)
Not in Baker, FBI

LOCAL NAMES. Not recorded.

SIZE. As 506; length *c.* 43 cm. (17 in.).

FIELD CHARACTERS. As of the north Indian race 506, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to the Andaman Islands evidently south to the Ten Degree Channel. Common throughout the group. Affects tall evergreen forest.

GENERAL HABITS. As in 506.

FOOD. Items specifically recorded are large yellow flowers and fruits of an unidentified tree, and fruits of *Sideroxylon longepetiolatum*, *Myristica andamanica*, *Calamus pseudorivialis*, and *Ficus infectoria* (Abdulali, JBNHS 61: 525).

VOICE and CALLS. 'A loud *qoo* and sometimes a more guttural *qroo*, uttered once, twice or thrice.' Abdulali also considered this species probably 'responsible for a deep *whoom*, often in answer to one calling *gr-groo*, the first *gr* resembling the beginning of a hiccup' (ibid.).

BREEDING. *Season*, February to May; aberrantly somewhat earlier or later. *Nest* and *eggs* as in 506 with which Andamans birds were hitherto included.

MUSEUM DIAGNOSIS. Slightly larger than the north Indian race 506. Differs also in being greener above, with the red coppery bronze less brilliant. Forehead and throat whiter; under tail-coverts deeper chestnut-maroon.

MEASUREMENTS

Wing 13 ♂♂ 222-257 (av. 236); 8 ♀♀ 212-240 (av. 227) mm.

Tail 5 ♂♂ 155-161 (av. 157.6); 4 ♀♀ 137-146 (av. 142.25) mm.

(Abdulali)

COLOURS OF BARE PARTS. As in 506.

509. **Pied Imperial Pigeon.** *Ducula bicolor* (Scopoli)

Columba bicolor Scopoli, 1786, Del. Flor. et Faun. Insubr., fasc. 2: 94

('Nova Guina', i.e. New Guinea)

Baker, FBI No. 1850, Vol. 5: 211

Plate 38, fig. 2, facing p. 160

LOCAL NAME. *Kaluia* (Car Nicobar).

SIZE. Pigeon +; length *c.* 41 cm. (16 in.).

FIELD CHARACTERS. A uniquely coloured large arboreal fruit pigeon: overall creamy white with sharply contrasting jet black flight feathers and broad tail-tip. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Abundant resident in the Nicobars but not so generally distributed as *D. a. nicobarica*; possibly wandering to the smaller islands only in search of food. Rare in the Andamans, possibly only a seasonal visitor; also in Great Coco, and Barren Is. (Hume). Fairly common on Narcondam where may be resident (B. B. Osmaston). Affects mangrove swamps and tall evergreen forest near the shore.

Extralimal. 'Philippines, eastward to the Aru Islands and islands west of New Guinea' (Peters).

GENERAL HABITS. Keeps in small parties to high tree-tops, forming into large flocks of 50 or 60 birds where food is plentiful. On some islands abundant to the point of swarming and remarkably tame. On Treis I. Hume's party bagged 50 together with a smaller number of *D. a. nicobarica* in a single fusillade! (*c.* 1874, SF 2: 84), and they were equally plentiful on Trak I. Reported even now to be very numerous and tame on some of the less disturbed islands of the Nicobar group. Very conspicuous on the wing against background of dark trees, but coloration amazingly obliterative when bird perched high up within the foliage canopy with patches of sunlight filtering through the dense leaves. Flight strong and direct, accompanied by a loud clatter of wings when launching out of a tree. Has the same bowing display as *Ducula aenea* (506), q.v. Aerial display, if any, not known.

FOOD. Exclusively frugivorous; chiefly wild figs (*Ficus*) and nutmegs (*Myristica*). As in *D. aenea* gape and gullet enormously extensible, ridiculously large nutmegs being swallowed entire, two or three being accommodated in the crop at a time — a seemingly impossible physical feat. The mace is digested, the nut being later voided orally.

VOICE and CALLS. Rather inadequately described as ‘a chuckling *hu-hu-hu*’ (Butler). Apparently rather silent, though HA reports and often-repeated *cru-croo*, reminiscent of a domestic pigeon’s.

BREEDING. *Season*, reportedly January to March. B. B. Osmaston (JBNHS 18: 201) found some 50 nests in February on South Sentinel I. (c. 1½ km. long, ¾ km. broad) NW. of Little Andaman, each containing a single egg — some fresh some partly incubated. *Nest*, the usual flimsy stick platform through which the contents visible from below; mostly 7 or 8 metres up in trees. *Egg*, pure white, fairly glossy, somewhat elongated ellipsc. Average size of 28 eggs 45·7 × 30·5 (Osmaston). Share of the sexes in nest-building and incubation, and period of incubation, not recorded.

MUSEUM DIAGNOSIS. Distinctive white and black coloration. No naked skin round eye; lores fully feathered. Tail much shorter than in *Ducula a. nicobarica*. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	c. 218–231	23–26	c. 26–29	c. 125–135 mm. (Baker)
		(from skull)		
4 ♂♂	233–238	26–28	26–27	127–133 mm. (SA)
	(Nicobars)			

Weight 2 ♂♂ 465, 510; 1 ♀ 475 gm. (Grubb).

COLOURS OF BARE PARTS. Iris dark brown. Bill leaden blue, the tip darkist. horny or dark plumbeous. Legs and feet pale smalt-blue (Davison).

DUCULA BADIA (Raffles)

Key to the Subspecies

		Page
A	Back brown with no purple tint..... <i>D. b. cuprea</i>	118
B	Back brown with slight purple tint..... 1	
1	Crown and hind-neck both lilac..... <i>D. b. insignis</i>	116
	Crown grey, contrasting with lilac hindneck..... <i>D. b. griseicapilla</i>	119

510. Hodgson’s or Nepal Maroonbacked Imperial Pigeon.

Ducula badia insignis Hodgson

Ducula Insignis Hodgson, 1836, *Asiat. Res.* 19 (1): 162, pl. 9 (Nepal)

Ducula badia caroliniae Ripley, 1953, *Postilla*, Yale Peabody Mus. No. 17: 1–2

(Phek, eastern Naga Hills)

Baker, FBI No. 1843, Vol. 5: 203

LOCAL NAMES. *Dūkūr* or *Dūkūl* (Nepal, Sikkim); *Fomok* (Lepcha); *Lāl pagoma* (Assam); *Hūkas* (Paharia).

SIZE. Jungle Crow +; length c. 51 cm. (20 in.).

FIELD CHARACTERS. A large greyish brown forest pigeon closely resembling Green Imperial on the wing but readily distinguished from it by larger size and whitish under tail-coverts.

Adult. *Above*, crown and hindneck lilac. Back and scapulars maroon-tinged copper-brown; rump and upper tail-coverts ashy grey. Tail black and brownish grey. *Below*, sides of head grey; throat white; breast and underparts vinous-grey. Under aspect of tail grey with a broad black subterminal band. Under tail-coverts buff. Sexes alike.

Young (immature). Duller than adult: upperparts without the copper-purple tint; upper wing-coverts edged with chestnut.

STATUS, DISTRIBUTION and HABITAT. Resident; with local movements governed by ripening of wild fruits. Eastern Himalayas from W. Nepal (?), Sikkim, Bhutan and through NEFA; from the terai and foothills to c. 2300 m. Assam hills north and south of Brahmaputra R. Affects tall evergreen forest. Birds from upper Assam (especially the Margherita and Tirap area) tend towards the greyheaded Burmese race *griseicapilla*.

GENERAL HABITS. Similar to *Ducula aenea* (506), q.v. Keeps in small flocks of up to 15 or 20 birds to heavy forest, rarely venturing into scrub jungle as *aenea* often does. Descends to drink, and at salt-licks. Sits high up in lofty trees hidden among the foliage canopy and is mostly seen only when flighting high above the tree-tops from one feeding ground to another. Flight swift and powerful but with seemingly leisurely wing-beats — rather crow-like in distant silhouette. Early mornings and again late afternoons the birds sit quietly sunning themselves on bare tree-tops high above the forest, flying off quickly and silently to their roost soon after the shadows have fallen. Bowing display in breeding season consists of the male advancing along a branch towards his mate cooing vigorously *ūk-ook . . . ook* with lowered head and inflated throat. Each *ook* uttered with a deep bow, bill pointing groundward. Calls often followed by a spectacular aerial display: the bird launches out from the top of a dead tree, and after a few rapid wing-beats he sweeps vertically upward for c. 6 or 8 metres with closed wings, using only the momentum. At peak of zoom reverses abruptly, bill pointing downward, and nose-dives with wings pulled in at the sides and tail expanded, for about the same distance. At bottom of dive, flattens out and flaps vigorously using the momentum to zoom vertically upward once more and repeat the performance. The manoeuvre repeated two or three times, the bird thereafter re-settling on some nearby dead tree. This switch-back aerial display very similar to Green Imperial's, and reminiscent of both Roller (*Coracias*) and Blackbellied Finch-Lark (*Eremopterix*).

FOOD. Exclusively frugivorous; very largely wild figs (*Ficus*) and nutmegs (*Myristica*), swallowed entire. Gullet and gape enormously extensible, as in 506.

VOICE and CALLS. Quite distinct from Green Imperial's. A deep, booming far-carrying and rather mournful *ūk-ook . . . ook* (or *gū-goo . . . goo*); uttered with tail slightly depressed, rump arched, head bowed, and throat inflated.

BREEDING. *Season*, March to August; possibly has two broods. *Nest*, the characteristic skimpy platform of interlaced twigs, 5 to 8 metres up in a sapling in forest. *Egg*, normally a singleton — very rarely 2 — white,

elliptical, fairly glossy. Average size of 22 eggs 46.2×33.5 mm. (Baker). Both sexes take part in nest-building and incubation; incubation period undetermined. Birds sit very close, usually leaving nest only when climber within a metre or so.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for the subspecies, Key.

Fresh skins are so different in tone from old specimens in collections that at first glance it is difficult to assign them to the same race. The oxidation process inherent in 'foxing' has turned the upperparts of old skins into brown and copper-coloured and taken away the greyish bloom of the fresh skin.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	228-259	c. 25-27	c. 25-32 mm.	— (Baker)
		(from skull)		
2 ♀ ♀	242-245	30-35	29-32	176-187 mm. (SA)

COLOURS OF BARE PARTS. Iris pale- to bluish grey; orbital skin purple-grey, purer grey next the eye. Bill pale brown, white at tip; cere and base of upper mandible fleshy purple or dull carmine. Legs and feet dull cherry-red; claws pale brown.

511. Jerdon's or Southern Maroonbacked Imperial Pigeon.

Ducula badia cuprea (Jerdon)

Carpophaga cuprea Jerdon, 1840, Madras Jour. Lit. Sci. 12: 12 (Wynaad)

Baker, FBI No. 1845, Vol. 5: 205

Plate 37, fig. 2, facing p. 112

LOCAL NAME. *Manti prāvu* (Malayalam).

SIZE. Crow $\pm$; length c. 43 cm. (17 in.).

FIELD CHARACTERS. A large forest pigeon, dull olive-brown or liver-brown above with pale greyish lilac head, neck and underparts. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident, with seasonal local and altitudinal movements depending on wild fruit ripening. The Western Ghats and associated hills (Nilgiri, Palni, etc.) in Kerala, western Mysore (Malnaad) north to about Belgaum and Goa (c. lat. 16° N.). Affects ever-green forest up to c. 2000 metres. Alleged occurrence in Ceylon not confirmed.

One of the peculiar discontinuously distributed Indo-Malayan forms separated from its nearest east-Himalayan relative by at least 1800 km. of ecologically unsuited country.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Nepal race (510), q.v.

BREEDING. *Season*, chiefly January to May. *Nest*, the typical flimsy pigeon structure — a skimpy platform of interlaced twigs through which the contents usually visible from below. Built in small trees, tangles of creepers draping them, or occasionally on the branches of bigger trees, between c. 5 and 8 metres up. *Egg*, normally a singleton, white, elliptical, fairly glossed. Average size of 12 eggs 44.4×34.6 mm. (Baker). Incubation by both sexes; period undetermined.

MUSEUM DIAGNOSIS. Under tail-coverts freckled with dusky; white on chin and throat more restricted than in 510 or 512. See also Key to the Subspecies; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	221-240	29-34	31-34	164-183 mm. (SA, HW)

Tails longer in males.

COLOURS OF BARE PARTS. Iris brown; eyelids magenta. Bill horny brown magenta on cere and base of upper mandible. Legs and feet magenta; claws horny brown.

512. Greyheaded Imperial Pigeon. *Ducula badia griseicapilla* Walden

Ducula griseicapilla Walden, 1875, Ann. and Mag. Nat. Hist. (4), 16: 228

(Karen Hills, between 4000 and 4200 feet)

Baker, FBI No. 1844, Vol. 5: 204

LOCAL NAMES. *Daohukuruma gagao* (Cachar); *Inruikuru gaherba* (Katcha Naga); *Lamkhunu* (Manipur, for wild pigeons generally).

SIZE. As of Nepal Maroonbacked Imperial (510); length *c.* 51 cm. (20 in.).

FIELD CHARACTERS. A large greyish brown forest pigeon like 510 but with a purer grey head; indistinguishable from it in the field. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Chiefly extralimital, occurring only along the Burma border, in Nagaland, Manipur, and Mizo Hills (?), but the birds here largely intermediate. Affects tall evergreen forest up to *c.* 2300 m.

Extralimital. Burma and SW. Yunnan to N. Tenasserim, Thailand and all the Indochinese countries.

GENERAL HABITS and FOOD. As of 510, q.v.

VOICE and CALLS. Generally, as in 510. Specifically described (Arunachal Pradesh) as 'cut-woo-woo, the latter a resonant note, rather organ-like and carrying a good quarter-mile' (SDR).

BREEDING. Season, nest and egg (singleton) as in 510.

MUSEUM DIAGNOSIS. Differs from the east Himalayan race *insignis* in having the crown and sides of head pure French-grey, darker than underparts and contrasting strongly with lilac of hindneck. Upper back and smaller wing-coverts more coppery; rump darker and less grey than in *insignis*.

MEASUREMENTS. As in 510 (Baker).

Weight of 2 ♂♂ 1 lb. 4 oz. (*c.* 580 gm.) and 1 lb. 7 oz. (*c.* 665 gm.) respectively; ♀♀ weigh somewhat less (Davison).

COLOURS OF BARE PARTS. 'Iris whitish. Bill cerise, tip plumbeous-brown. Feet dull cherry-red' (SDR).

Genus COLUMBA

Columba Linnaeus, 1758, Syst. Nat., ed. 10, 1: 162. Type, by subsequent designation, *Columba oenas* Linnaeus (Vigors, 1825).

Alsocomus Blyth, 1842, Jour. Asiat. Soc. Bengal 11: 461. Type, by monotypy, *Columba puniceus* Blyth.

Ianthoenas Reichenbach, 1852, Nat. Syst. Vög.: 25. Type, by original designation, *Columba ianthina* Temminck & Schlegel.

Dendrotreron Blyth, 1843, Jour. Asiat. Soc. Bengal 12: 937. Type, by monotypy, *Columba hodgsonii* Vigors.

Tail short or of moderate length, square or very slightly rounded. Wings long and pointed reaching to, or almost to, the end of tail in most species. Tarsus bare, shorter than middle toe with claw, the upper part overhung by feathers. Feet without broad padded soles as in fruit pigeons; well adapted for walking. Nostrils narrow and obliquely set in the swollen cere.

Key to the Species

		Page
A	Neck-feathers acuminate and lengthened, tipped with same colour as crown.....	<i>C. hodgsonii</i> 131
B	Neck-feathers not as above.....	1
1	Plumage deep chestnut above and below, head greyish white	
		<i>C. punicea</i> 135
	Plumage purple-black above; whole head grey, no spangled collar on hindneck.....	<i>C. palumboides</i> 137
	Plumage not as above.....	a
a	Tail less than two-thirds length of wing.....	I
	Tail more than two-thirds.....	II
I	White band across dorsal surface of tail.....	a ¹
	No white band across tail.....	a ²
a ¹	Head and foreneck grey.....	<i>C. rupestris</i> 123
	Head and foreneck black.....	<i>C. leuconota</i> 120
a ²	Head lilac, large area of naked skin around eye.....	<i>C. evermanni</i> 128
	Head purple-grey, area around eye not as above.....	<i>C. livia</i> 124
II	White band across and under tail.....	<i>C. palumbus</i> 129
	No white band.....	a ³
a ³	Crown lilac.....	<i>C. torringtoni</i> 134
	Crown dove-grey.....	b ¹
b ¹	Upperparts red-brown.....	<i>C. elphinstonii</i> 132
	Upperparts slate-grey.....	<i>C. pulchricollis</i> 134

COLUMBA LEUCONOTA Vigors

Key to the Subspecies

Upper back light brown.....*C. l. leuconota*

Upper back paler and more grey, less brown.....*C. l. gradaria*

513. West Himalayan Snow Pigeon. *Columba leuconota leuconota* Vigors

Columba leuconota Vigors, 1831, Proc. Zool. Soc. London, pt. 1: 23

(Himalayas, type probably from Nepal)

Baker, FBI No. 1858, Vol. 5: 224

Plate 39, fig. 8, facing p. 176

LOCAL NAMES. *Būjūl* (Chamba); *Chut kotūr* (Kashmir); *Lho peu rentieṭ* (Lepcha); *Bya don* (Bhutea).

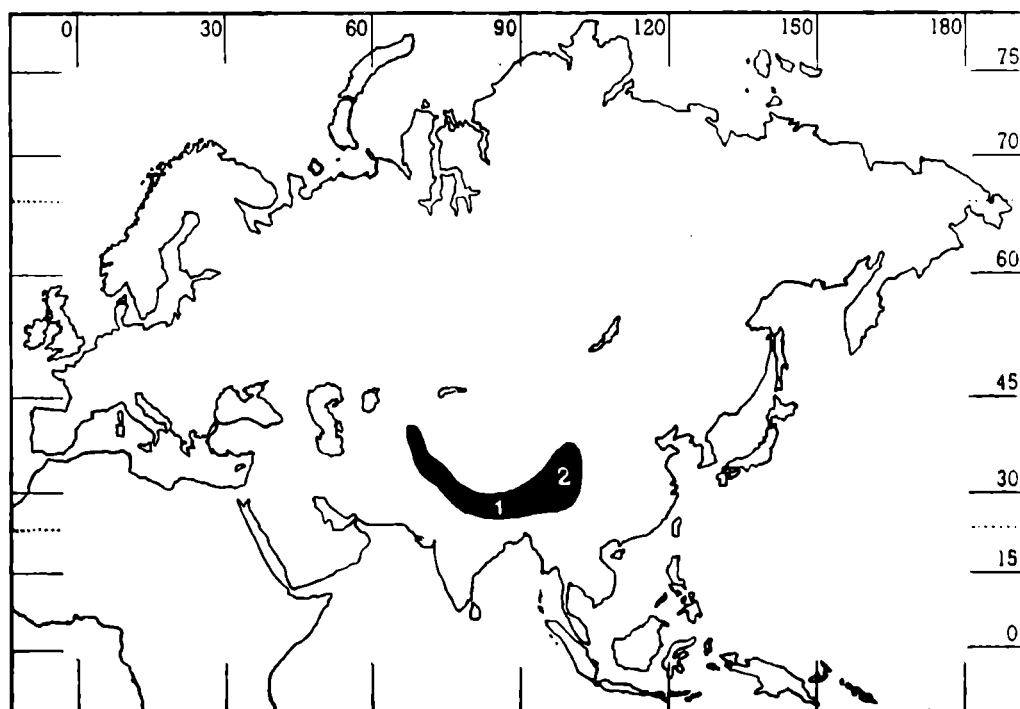
SIZE. Pigeon; length *c.* 34 cm. (13½ in.).

FIELD CHARACTERS. A particoloured brown and white Himalayan pigeon reminiscent of the domestic bird. In overhead flight the white body and blackish head are pointers; when flying below observer's level the blackish head, brown back, white rump-patch, grey wings with 3 dark bars, and blackish tail with a narrow white subterminal band, are diagnostic features. Sexes alike.

Young (immature). Feathers of upperparts and wings with narrow pale buff margins. White of underparts sullied with buff.

STATUS, DISTRIBUTION and HABITAT. Resident in the Himalayas chiefly between 3000 and 5000 metres; descending lower in winter to *c.* 1500 m. (occasionally to *c.* 750 m.). From the Afghan frontier in NW. Pakistan

Columba leuconota



■ Distributional range 1 *C. l. leuconota* (513). 2 *C. l. gradaria* (514).

eastward through Kashmir, Garhwal, Kumaon and Nepal to eastern Sikkim, where intergrading with *gradaria* (514) takes place. Does not extend far north into the desolate Tibetan Plateau. Affects rock cliffs and steep gorges in the alpine zone and above the snow line.

Extralimital. The Alai Mountains and the Pamirs in SW. Turkestan.

GENERAL HABITS. Similar to those of the wild Blue Rock Pigeon (517), living and roosting in colonies on cliffs; sometimes also perching on adjacent trees. Keeps in pairs and small parties in summer, feeding on open boulder scree and grassy slopes, or on the edge of melting snow patches. Gathers in large restless flocks in winter, often of 150 birds or more, flying about incessantly or gleaning in freshly sown wheat and barley fields around mountain villages. Whilst feeding the birds run about briskly like sheep at grass, often forming a close-packed jostling phalanx, each bird eager to be

the first to investigate new ground. Coloration remarkably obliterative on gravelly soil even at close range, particularly amongst piebald patches of melting snow. In summer reported to feed higher up in the evenings than in the mornings on patches of bare ground whence the snow has melted during the day. Flight, typical of pigeons, strong and direct, with rapid wing-beats. Flapping flight rather reminiscent of Cotton Teal; when sailing gracefully round contours of cliffs, of Ashy Swallow-Shrike.

FOOD. Chiefly weed seeds (once 16 gm. in a crammed crop), barley and other cultivated grain; bulbils (of *Polygonum* etc.). Meinertzhagen found crops stuffed with green food such as crocus bulbs and other small roots, small hard seeds, and a large quantity of quartzite grit.

VOICE and CALLS. Described as 'a repeated croak, not unlike a hiccough', apparently very different from the normal *coo* of a pigeon. 'On taking flight and alighting a prolonged, high-pitched and tremulous *coo* reminiscent of the note of the common myna when taking wing' (W. H. Matthews).

BREEDING. *Season*, principally May to July. *Nest*, the characteristic skimpy platform of a few twigs, or sometimes a little matted straw and a few feathers. Placed on inaccessible ledges of cliffs and in rock caves and fissures, often in large colonies. *Eggs*, 2, white, smooth-textured. Average size of 40 eggs 40.3×29.1 mm. (Baker). Share of the sexes in the domestic chores, and period of incubation, undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	240-258	c. 24-25	c. 31-35	122-137 mm. (SA)

Weight 3 ♂♂ 277-300; 3 ♀♀ 255-307 gm. (GD).

COLOURS OF BARE PARTS. Iris lemon-yellow. Bill horny brown; cere magenta-brown. Legs and feet reddish pink; claws horny brown.

514. East Himalayan Snow Pigeon. *Columba leuconota gradaria* Hartert

Columba leuconota gradaria Hartert, 1916, Nov. Zool. 23: 85 (Sungpan, Szechuan)
Baker, FBI No. 1859, Vol. 5: 225

LOCAL NAMES. *Lho peu rentiep* (Lepcha); *Bya don* (Bhutea).

SIZE. Pigeon; length c. 34 cm. ($13\frac{1}{2}$ in.).

FIELD CHARACTERS. A particoloured brown and white Himalayan high-altitude pigeon, indistinguishable in the field from 513. See Key and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident in the Himalayas from extreme eastern Sikkim eastward through Bhutan and NEFA, between c. 3000 and 4500 m. in summer, descending to c. 1500 or lower in hard winters. Does not extend far north into the Tibetan Plateau. Affects rocky cliffs and gorges in the alpine zone and above the snow line.

This eastern population differs from the west Himalayan only clinally. Birds from eastern Sikkim (and Chumbi Valley, Tibet) are intermediate, showing a gradual intergrading between the two forms.

Extralimal. Mountains of E. Tibet and W. China from the eastern Nan Shans south through Kansu and Szechuan to Yunnan and extreme NW. Burma (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 513, q.v.

BREEDING. As in 513.

MUSEUM DIAGNOSIS. Birds from the eastern end of its range (Kansu and Szechuan) are somewhat larger and paler, with the head more slaty grey less blackish. In freshly moulted plumage the underparts are washed with pale greyish. Abdomen pale grey, darkening on under tail-coverts.

MEASUREMENTS

17 ♂♂ (from Kansu and Szechuan) give Wing 241–260 (av. 248) mm. against 20 ♂♂ from the western end of the range of nominate *leuconota* (Punjab Himalayas) 235–248 (av. 240·5) mm. — Vaurie, 1965.

COLOURS OF BARE PARTS. As in 513.

515. **Turkestan Hill Pigeon.** *Columba rupestris turkestanica* Buturlin

Columba rupestris turkestanica Buturlin, 1908, Orn. Monatsb. 16: 45 (Altai). New name for *Columba rupestris pallida* Rothschild & Hartert, preoccupied

Baker, FBI No. 1857, Vol. 5: 222

Plate 38, fig. 4, facing p. 160

LOCAL NAMES. *Yaiva kābtār* (Turki); *Angoa, Ankhu, Oron* (Tibetan).

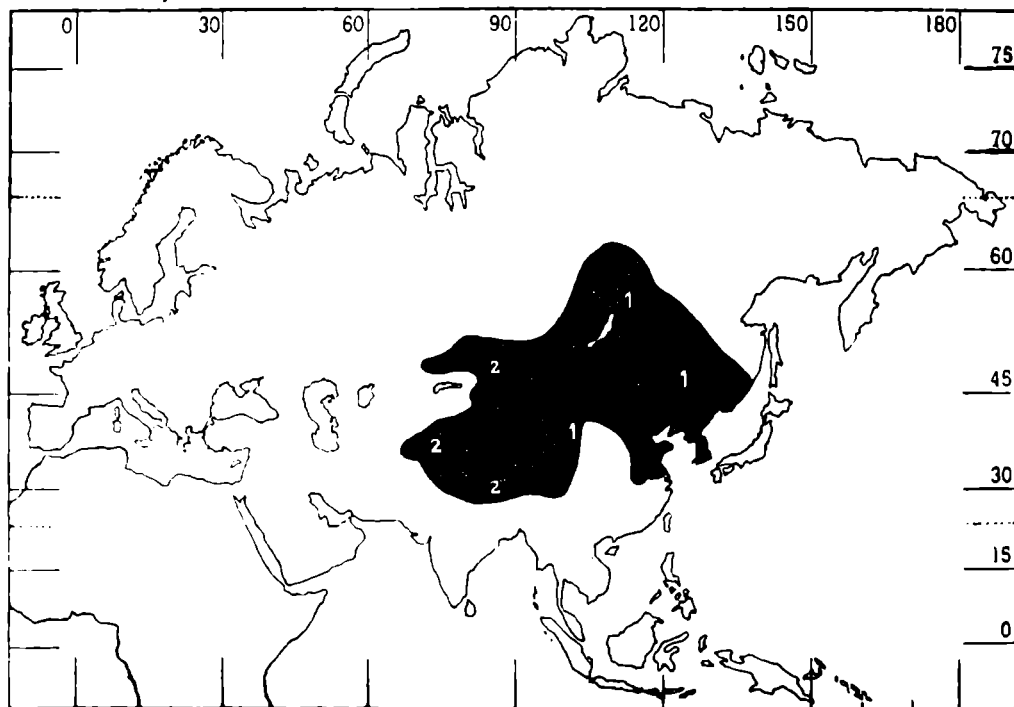
SIZE. Blue Rock Pigeon; length *c.* 33 cm. (13 in.).

FIELD CHARACTERS. A high-altitude Himalayan pigeon, very similar to the familiar Blue Rock (517) but readily distinguished from it by much paler upper plumage and whitish underparts; in flight also by a broad white band across middle of blackish tail — a pattern similar to snow pigeon's. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident in the Himalayas usually above the range of *livia*, in Gilgit, Chitral, Ladakh, Kashmir, Lahul, Spiti and through Garhwal eastward to Sikkim (not recorded in Nepal); between *c.* 3000 and 5500 m. in summer, to lower elevations in winter, occasionally down to *c.* 1500 m. Affects rocky cliffs and gorges and open rugged country, chiefly the northern slopes of the Himalayas in Tibetan Plateau facies.

Extralimal. Russian Altai, south through Turkestan and western Tibet.

GENERAL HABITS. Lives in colonies on crags and precipices at high altitudes, usually within commuting distance from upland villages where it resorts to feed in the surrounding cultivation. Has been recorded making daily visits to Everest mountaineers' camps up to *c.* 6100 metres. Usually tame and unafraid of man, moving about and picking grain and dung amongst the muleteers' bivouacs. Flocks commonly met with also along beaten mule tracks and trade routes picking up grains spilt during transport; visits high mountain passes to glean the votive grain scattered by devout pilgrims and travellers. Unlike snow pigeon, also frequents deserted crumbling dwellings where available. Feeds chiefly in the morning and afternoon, sitting about on cliffs and ledges during the day. Bowing display superficially similar to Blue Rock Pigeon's, but not specifically studied.

Columba rupestris

■ Distributional range 1 *C. r. rupestris* (RE). 2 *C. r. turkestanica*.

FOOD. Chiefly green shoots of crops, grain of oats and barley, and weed seeds. A quantity of quartzite grit present in stomachs.

VOICE AND CALLS. A high-pitched, quick-repeated *gūt-gūt-gūt-gūt* with a sort of 'jeering' intonation reminiscent of *Ducula aenea*.

BREEDING. *Season*, principally April to June/July; possibly double-brooded. *Nest*, the typical scanty pigeon platform of a few bents often matted with excreta, placed in a hole or fissure in a cliff face — sometimes in the crumbling piled stone wall of a deserted dwelling; usually several nests near one another, in a colony. *Eggs*, 2, white, smooth-textured. Average size of 50 eggs 37.0×27.5 mm. (Baker). Share of the sexes in the domestic chores and incubation period not recorded.

MUSEUM DIAGNOSIS. See Key. Wing very pointed: 1st primary (as.) equal to 2nd or longer. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	216-243	15-17	c. 25-28	c. 118-130 mm. (Baker)

Wing 5 ♂♂ 230-240 (av. 233.4); 6 ♀♀ 219-228 (av. 223.8) mm.—Stresemann.

COLOURS OF BARE PARTS. Iris deep orange. Bill slaty black, tinged on cere and gape with plumbeous or flesh colour. Legs and feet coral-red; claws horny.

COLUMBA LIVIA Gmelin**Key to the Subspecies**

Wing-coverts dove-grey with black edgings to secondaries.....

..... *C. l. neglecta*

Wing-coverts blackish..... *C. l. intermedia*

516. **Blue Rock Pigeon.** *Columba livia neglecta* Hume

Columba neglecta Hume, 1873, in Henderson & Hume's Lahore to Yarkand: 272
(Ladak)

Baker, FBI No. 1855, Vol. 5: 220

LOCAL NAMES. *Kābūtār* (Hindi); *Kentisiam* (Pushtu); *Kāpōth*, *Chāhi* (Baluchi), *Kāftār* (Persian); *Wān kotūr* (Kashmir).

SIZE. As of 517; length *c.* 33 cm. (13 in.).

FIELD CHARACTERS. As of 517; indistinguishable from it in the field. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, with seasonal movements — chiefly altitudinal — in W. Pakistan (Gilgit, Chitral, NW. frontier districts, Baluchistan, Sind) and NW. India (Ladakh, Kashmir, Punjab, Himachal Pradesh) from plains level to *c.* 3300 m. up in the Himalayas. Possibly in a less pure and semi-feral form over the greater part of the Peninsula.¹ Affects rocky gorges and precipices in the Himalayas in the neighbourhood of upland cultivation; also ruins and ancient forts about towns and villages lower down and in the plains.

Extralimital. Transcaspia and Turkestan, south to S. Persia (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 517, q.v.

BREEDING. *Season*, principally April to August but also at other times; except for the winter months at the higher altitudes. *Nest*, the typical scanty pad of a few twigs or bents often befouled and matted by the birds' droppings; placed in a hole or crevice of rock on inaccessible scarps at high elevations; also in deserted ruins and crumbling forts lower down. *Eggs*, 2, white, smooth-textured. Average size of 48 eggs 38.5 × 28.7 mm. (Baker). Breeding biology as in 517.

MUSEUM DIAGNOSIS. Paler and somewhat larger than *intermedia*, with the rump varying from pure white to pale blue-grey. But the differences seem clinal in character, and no boundary between NW. Indian and peninsular birds can be fixed.

MEASUREMENTS

Wing 10 ♂♂ 230–242 (av. 236); 10 ♀♀ 218–241 (av. 228.1) mm. (Vaurie, 1965).

COLOURS OF BARE PARTS. As in 517.

517. **Indian Blue Rock Pigeon.** *Columba livia intermedia* Strickland

Columba intermedia Strickland, 1844, Ann. and Mag. Nat. Hist. 13: 39
(India = Calcutta)

Baker, FBI No. 1856, Vol. 5: 221

LOCAL NAMES. *Kābūtār* (Hindi); *Gōlā pāyra* (Bengali); *Kātrētār*, *Pārāwā* (Bihar); *Pārvā* (Marathi); *Gūdi pāvrai* (Telugu); *Noni daotu* (Cachar); *Māda purā*, *Malai purā* (Tamil); *Gal pareyiya* (Sinhala); *Pārevūn* (Gujarat); *Kūtta prāvu* (Malayalam).

SIZE. Length *c.* 33 cm. (13 in.).

FIELD CHARACTERS. A familiar bluish grey pigeon with glistening metallic green, purple, and magenta sheen on upper breast and round the neck, and two dark bars on the wings. Sexes alike.

¹ See Sālim Ali, 1954, JBNHS 52: 428–9.

STATUS, DISTRIBUTION and HABITAT. Resident and locally abundant throughout the Indian Union, Nepal, Bhutan, E. Pakistan, Ceylon and Laccadive Islands; plains and hills — up to at least c. 3000 m. in the Himalayas, where it is a seasonal altitudinal migrant. Was introduced into Car Nicobar Island in c. 1898 but has apparently failed to become established (Abdulali, 1964, JBNHS 61: 526). Affects rocky cliffs and gorges in the hills, old ruins, ancient forts on the countryside, factory and warehouse sheds, residential and public buildings, temples, railway stations, etc. in populous cities.

Extralimal. Burma, Thailand.

GENERAL HABITS. In the wild state lives in colonies, roosting on ledges, and in fissures and holes in rock scarps, crumbling hill forts, ancient ruins, or down the shafts of old wells. Some colonies roost in palm trees in wild date groves, and in groves of large trees near villages. From here the birds flight regularly back and forth, often considerable distances, in small parties or large flocks of several hundred strong to feed in the mornings and afternoons, gleaning spilled grain in stubble fields and around ryots' threshing floors. They cause considerable local damage by digging out newly sown maize, pulse and other cereals, and also to groundnut crops. Flight swift and powerful with rapid wing-beats and tail fairly fanned out; often followed by a graceful sweep round contours of cliffs and upward glide before alighting. Short flights from ledge to ledge on nesting cliffs by deliberate wide deep strokes ('delayed action') and loud clapping together of wings above the back — a form of display during the breeding season. In urban localities the Blue Rock has degenerated into a semi-feral commensal of man, living in and about buildings in towns and cities, regularly fed at appointed places by pious citizens, and leading a pampered life of indolent ease. The birds become completely inured to the din and bustle of the most congested bazaars and factories, roosting and nesting within the buildings regardless of the inmates, and making an unmitigated nuisance of themselves by the filthy mess they create. They interbreed freely with domesticated varieties, producing a chaotic mixture of races.

FOOD. Grains of maize, jowar, and other cereals, moong dāl and other pulses; groundnuts, weed seeds, small tubers and green shoots of ground crops. A quantity of grit usually present in stomachs.

VOICE and CALLS. A deep *gootr-goo*, *gootr-goo*, etc. uttered by the male with head bowed and throat puffed out while he turns round and round on his own axis in courtship or aggressive display. A deep, nasal *goo*, *goo*, *goo* by an unaccompanied bird — apparently both sexes — at nest site; a squeaky squealing by squab begging for food.

BREEDING. *Season* not well defined, practically all year; mainly between May and July in the higher Himalayas, varying locally elsewhere. In heavy-rainfall areas activities slacken between July and September. Double (or multiple ?) brooded. *Nest*, the usual skimpy pad of bents, rubbish, and a few feathers, etc. often befouled and matted with the bird's droppings. Placed on sheltered ledges and in holes and fissures in rock scarps and crumbling ramparts of hill forts; often in large colonies, the nests sometimes huddled close together. In urban locations holes and niches in the sides of masonry and kutchra wells, rafters in factory and warehouse sheds, cornices

in dwelling-houses and mosques, and similar places form favourite sites. Holes in trunks of palms and other large trees are frequently appropriated. Eggs, 2, white, smooth-textured, elliptical. Average size of 100 eggs 36.9×27.8 mm. (Baker). Both sexes share nest-building, incubation, and tending the young. Incubation period *c.* 16 days. Squabs fed on regurgitated pap of semi-digested grain mixed with a secretion of the crop ('pigeon's milk').

MUSEUM DIAGNOSIS. Subspecies *intermedia* distinguished by upper back, lower back, and rump being concolorous dark bluish grey; in *neglecta* (516) lower back and rump contrastingly white or greyish white. For details of plumage see Baker, loc. cit.

MEASUREMENTS

Wing	Bill (from skull)	Tarsus	Tail
14 ♂ ♀ (Peninsula and Ceylon) 213-232	24-26	30-33 (1 ♀ 25)	97-115 mm. (SA, HW)

Wing ♂♂ 210-238; ♀♀ 202-232 mm. (Baker).

COLOURS OF BARE PARTS. Iris orange. Bill brownish black; cere powdery greyish white. Legs and feet magenta; claws brownish black.

MISCELLANEOUS. In many parts of India and Pakistan pigeons enjoy a certain amount of protection based on religious sentiment and are passively, if not cheerfully, tolerated in mosques and temples despite the filthy mess they make on the floor.

There are stories that have gained wide popular credence about the wild pigeons inhabiting the Vengurla Rocks off the Ratnagiri coast, and the gigantic rock scarps flanking Gersoppa or Jog Falls in Mysore. It is believed that the birds lay up — or at least used to lay up — during the dry season a regular granary in caves and hollows for monsoon consumption. In the case of Gersoppa the quantity of hoarded paddy was so large that the right of collecting the grain used to be auctioned by the Bombay Government, a hundred years or so ago, for Rs 500 annually. It is alleged that 20 candies (*c.* 70 quintals) or more were plundered at a time by a man lowered in a basket. Since a misadventure which terminated the career of the last intrepid exploiter in action, no one has evidently mustered enough nerve to tap this store. As the governmental records have all been destroyed after superannuation the truth about the alleged auction fee and other relevant details cannot now be traced. Believers offer no explanation of how the pigeons transported such vast quantities of paddy to Gersoppa over the many miles from the nearest paddy cultivation, or over the 15 km. or so of sea that separates Vengurla Rocks from the Konkan coast! However, it would be interesting to learn the factual bases of these two quite independent 'legends'. (For particulars see Vidal, G. W., 1881, SF 9: 74; Sálím Ali, 1943, JBNHS 44: 24-5.)

518. Eastern Stock Pigeon. *Columba eversmanni* Bonaparte

Columba eversmanni Bonaparte, 1856, Compt. Rend. Acad. Sci. Paris 43: 838

(Western and central Asia)

Baker, FBI No. 1860, Vol. 5: 226

Plate 38, fig. 3, facing p. 160

LOCAL NAMES. *Pāhāri kābūtār* (Hindi); *Bān pārāwā*, *Bagar* (Bihar); *Kāpūth*, *Chari kāpūth* (Baluchi); *Kāftār* (all pigeons, Persian).

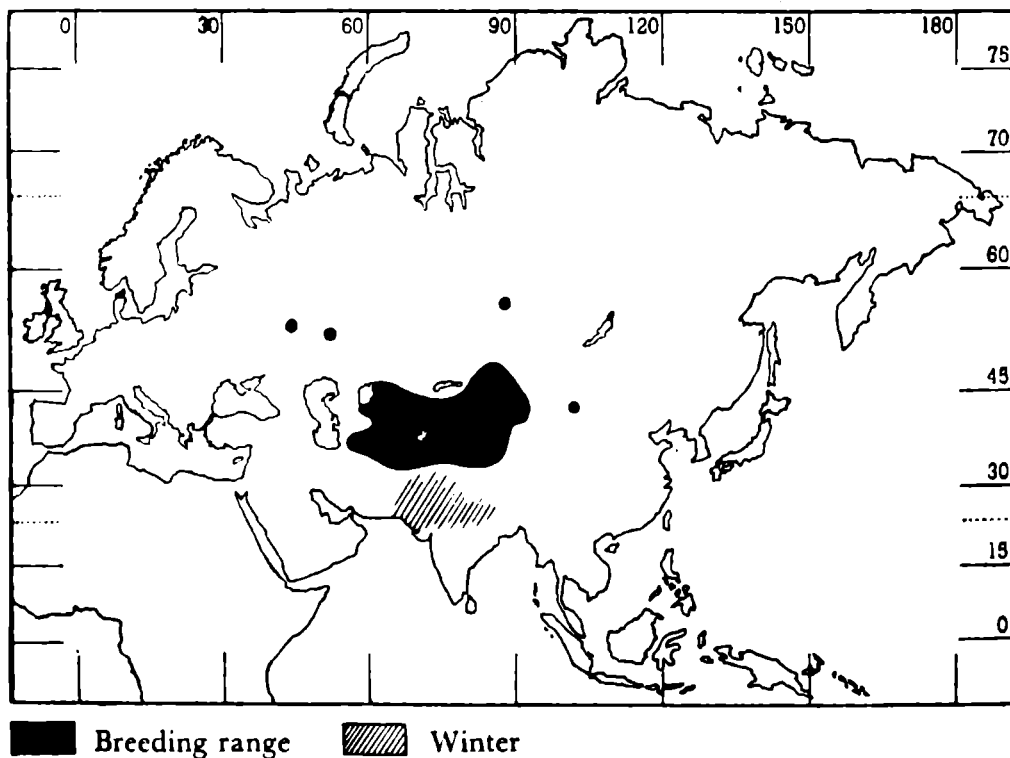
SIZE. Pigeon —; length *c.* 30 cm. (12 in.).

FIELD CHARACTERS. A smaller and paler edition of the Blue Rock Pigeon, easily recognized on the ground and in flight by the dark grey rump contrasting with white lower back. In fading light flight silhouette confusingly like Ring Dove (534) but the comparatively shorter tail of the pigeon usually decisive.

Adult, overall ashy grey. Crown, hindneck and breast tinged with vinous or lilac; sides of lower neck glossed metallic green and lilac showing up as a distinct patch of glossy purple-red on either side. Three interrupted black bars on wing. Lower back pure white; rump, upper tail-coverts, and most of tail leaden grey; terminal third of tail blackish with a paler grey band across the outer feathers. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Winter visitor and/or passage migrant, chiefly W. Pakistan (NW. frontier districts, Baluchistan, Sind). Less commonly also NW. India — recorded in Jammu and Kashmir,

Columba eversmanni



Punjab (Ludhiana and Ambala dists.); Uttar Pradesh (Lucknow and Gorakhpur dists.), and as far east as Bihar (Darbhanga dist.). Affects groves of trees amidst open cultivated country.

MIGRATION. 'Migrates in small flocks through Kohat in the latter half of April; probably also through the Kurram Valley' (Whitehead, 1911, JBNHS 20: 966-7).

Extralimal. Turkestan from the Aral Sea to N. Afghanistan and east to Zaissan-nor. For details of range see Vaurie, 1965: 542.

GENERAL HABITS. Similar to those of the Blue Rock Pigeon (517), q.v. Keeps in small parties or flocks, sometimes of a hundred or more. Roosts in poplar, mango or babool groves, feeding in the surrounding fields in the mornings and afternoons, often in company with Blue Rocks, resting in the trees during mid-day. Flight fast and direct but interrupted by lightning twists and turns when once thoroughly disturbed, the birds then affording a variety of difficult shots and excellent sport with the gun.

FOOD. Ripening mulberries plucked from the trees. Maize and other cereals dug up in freshly sown fields or gleaned in stubbles after harvest.

VOICE and CALLS. Not recorded in India.

BREEDING. Extralimal. Colonial. *Season*, May-June. *Nest*, the characteristic flimsy twig platform placed high up in a poplar tree, in a hollow in a trunk, or hole in an earthen cliff. *Eggs*, 2, white.

MUSEUM DIAGNOSIS. See Key; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	200-208	c. 16-19	c. 26-28	96-105 mm.
	(once 210)	(from feathers)		(Hartert)
Wing 7 ♂♂ (Afghanistan)	197-205; 1 ♀ 194 mm. Weight 183-234 gm. (Paludan).			

COLOURS OF BARE PARTS. Iris light yellow to golden brown; bare skin around eyes pale yellow. Bill greenish, slaty at base brownish at tip. Legs and feet pale flesh; claws horny brown.

519. **Eastern Wood Pigeon or Cushat.** *Columba palumbus casiotis* (Bonaparte)

Palumbus casiotis Bonaparte, 1854, Compt. Rend. Acad. Sci. Paris 39: 1103
(Chinese Tartary)

Baker, FBI No. 1861, Vol. 5: 227

Plate 38, fig. 6, facing p. 160

LOCAL NAMES. *Dahnud* (Chamba); *Kūkil* (Kashmir); *Silera* (Punjab).

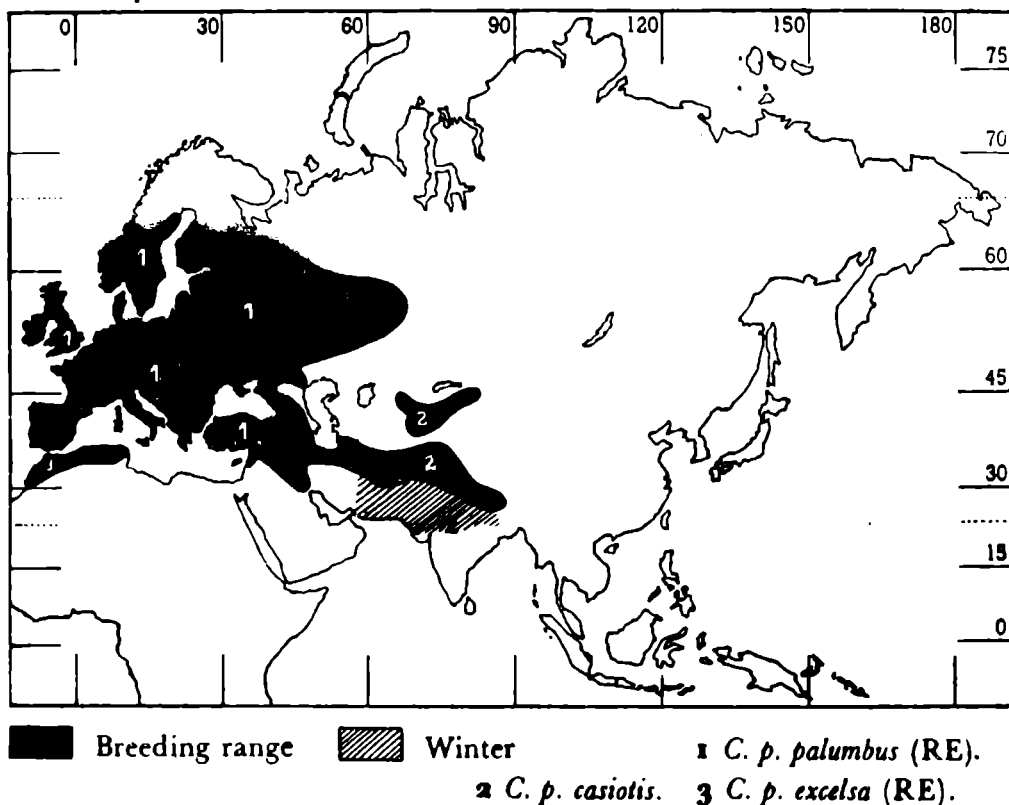
SIZE. Pigeon +; length c. 43 cm. (c. 17 in.).

FIELD CHARACTERS. A large, stout grey and brown pigeon distinguished by a broken buff collar at sides of hindneck, and a broad whitish band across wing very prominent in flight.

Adult. *Above*, head and upper neck all round dark ashy grey with narrow bare red ring round eye. Sides of lower neck glossed metallic green and purplish red near the shoulders; a conspicuous buff spot (like broken half collar) on either side of neck near body. Mantle brownish grey; a broad whitish longitudinal band on wing. Lower back, rump, and upper tail-coverts dark ashy grey; tail above mostly blackish. *Below*, ashy grey, tinged with lilac or vinous on breast. Tail underneath black with a broad whitish grey band across the middle. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident and rather erratic wanderer and altitudinal migrant. W. Pakistan (Chitral, Gilgit, NW. frontier districts, Salt Range, Baluchistan, Sind ?); and NW. India (Jammu and Kashmir). In summer chiefly between c. 1500 and 3000 m.; in winter at lower altitudes. Affects wooded hillsides, valleys, and nullahs with firs, oaks

Columba palumbus



and junipers, etc. Not reported within recent years in the Himalayas east of Kashmir — in Garhwal, Kumaon, where in the 1880s Hume found it about Simla, Mussooree and Almora between November and April. There is an old specimen from Nepal where a large flock was recently observed by R. L. Fleming in Kathmandu Valley at c. 2300 m. in February (JBNHS 65(2): 327). Reported occurring in winter in vast flocks ('of thousands', '17 killed in a single shot') even until 1952 in parts of Punjab (Man Mohan Singh) and Doon Valley, Kumaon (S. M. Osman), now almost completely deserted. Cause needs investigation.

Extralimital. Turkestan and Zaissan, south to eastern Persia (Peters).

GENERAL HABITS. Locally abundant. Keeps in small parties and large flocks in non-breeding season, sometimes of 50 or more birds. Moves about a great deal depending on food conditions, normally descending to the lower limit of its range (800 m. or so) in November/December and ascending to c. 3000 or 3500 m. in March/April to breed, commuting back and forth daily in quest of food over a wide range of altitudes. Feeds on the ground in paddy stubbles etc. as well as in trees and shrubbery. Flight fast and direct, with rapid steady wing-strokes, accompanied by a loud initial clatter when suddenly flushed from tree or ground. Congregates in large numbers to roost in oak woods etc.

Nuptial display rather similar to that of Ring Dove (534), rising a few metres steeply from a branch with a couple of loud claps of the wings and volplaning down to another perch some distance away.

FOOD. Cereals, gleaned on the ground or pecked out of freshly sown fields; buds, acorns, mulberry, *bēr* (*Zizyphus*) and other berries plucked from trees and bushes.

VOICE and CALLS. A deep muffled cooing of five notes *kookooo-koo* . . . *kookoo* (accent on 2nd syllable) with slight variations, repeated two or three times.

BREEDING. From *c.* 700 m. (Salt Range) to *c.* 2500 m. (N. Baluchistan, Gilgit). *Season*, April to August; chiefly June and July at the higher altitudes. *Nest*, a sketchy pad of interlaced twigs placed 4 to 6 m. or so up in a juniper, pine, oak, or other tree in forest. *Eggs*, 2, pure white, fairly glossy. Average size of 50 eggs 37.0×27.5 mm. (Baker). Incubation and other details not recorded in India.

MUSEUM DIAGNOSIS. Neck and tail longer than in Blue Rock Pigeon. Wing more rounded: 1st primary (as.) more or less equal to 4th. No dark bars on wing. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	243–263	<i>c.</i> 17–18	<i>c.</i> 24–27	139–153 mm. (Baker)

COLOURS OF BARE PARTS. Iris pale yellow; circumorbital skin carinine-red. Bill rather variable: orange-red at base, pinkish white in centre, orange at tip; cere whitish. Legs and feet coral-red.

520. Speckled Wood Pigeon. *Columba hodgsonii* Vigors

Columba Hodgsonii Vigors, 1832, Proc. Zool. Soc. London, pt. 2: 16 (Nepal)

Baker, FBI No. 1867, Vol. 5: 234

Plate 39, fig. 7, facing p. 176

LOCAL NAMES. *Hagrani daohukuruma* (Cachar); *Pāhāri pagooma* (Assam); *Bhēkalā* (Garhwal).

SIZE. Pigeon +; length *c.* 38 cm. (*c.* 15 in.).

FIELD CHARACTERS. A dark arboreal Himalayan pigeon.

Male (adult). *Above*, head and neck grey, the latter speckled with blackish behind. Upper back and wing-shoulders (coverts) claret-maroon, the latter speckled with white. Rest of upperparts dark brown and dark grey; tail blackish brown. *Below*, upper breast grey, speckled with blackish grey and claret, changing to uniform claret on lower breast and passing into deep slaty grey on abdomen and under tail-coverts. The bright yellow claws contrasting with the dull green feet are an arresting feature through binoculars.

Female has grey of head brownish, and red of back and breast duller and browner.

STATUS, DISTRIBUTION and HABITAT. Resident, with local altitudinal and spatial movements dependent on food supply. The Himalayas from Gilgit

and Kashmir eastward through Garhwal, Kumaon, Nepal, Sikkim, Bhutan and NEFA; Nagaland, Manipur, Mizo. E. Pakistan (?). Affects tall evergreen and semi-evergreen hill forest of oak, rhododendron, etc., between c. 1800 and 4000 metres.

Extralimital. Burma and western China (S. Kansu, W. Szechuan, W. Yunnan)—Peters.

GENERAL HABITS. Chiefly arboreal and frugivorous, but also gleans weed seeds and cereal grain in harvested stubbles. Keeps in twos and threes and small flocks of 6 to 10, wandering about the wooded hillsides and valleys in search of fruits and berries. The birds clamber about among the foliage while feeding, and have a habit of 'freezing' on alarm, as on an observer's approach, in whatever position they happen to be, even hanging upside down! Flies with steady purposeful wing-strokes high above the forest when travelling from one feeding ground to another.

FOOD. Acorns, drupes, and berries. Blue-black plum-like fruits of *Prinsepia utilis* favoured in Garhwal (local name of the fruit *Bhēkalā*, same as of the bird). Cereal grains, weed seeds.

VOICE AND CALLS. A very deep *whock-whr-o-o . . . whroo*.

BREEDING. *Season*, at c. 1800 to 3300 metres altitude, chiefly May-June. *Nest*, a sketchy platform of interlaced twigs, placed in a leafy branch c. 3 to 8 m. up in an oak or similar tree in forest or wooded nullah. *Egg* apparently only a singleton, white, smooth-textured. Average size of 8 eggs 39.3 × 30.1 mm. (Baker). Courtship display, incubation period, etc. not recorded.

MUSEUM DIAGNOSIS. Distinguished from all other pigeons by the tapering elongated feathers of the neck. No metallic gloss on any part of the plumage; for details of latter see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	228-244	c. 16-18	c. 24-26	140-153 mm. (Baker)

Wing 4 ♂♂ (Sikkim) 218-232 mm. (av. 227.7); 4 ♀♀ 221-233 mm. (av. 225.5) — Stresemann.

COLOURS OF BARE PARTS. Iris greyish white; ocular skin grey. Bill purple at base, black distally. Legs and feet brownish yellow to dull green; claws bright yellow.

521. Nilgiri Wood Pigeon. *Columba elphinstonii* (Sykes)

Ptilinopus Elphinstonii Sykes, 1833 (1832), Proc. Zool. Soc. London, pt. 2: 149
(The Ghauts of Dukhun)

Baker, FBI No. 1862, Vol. 5: 228

Plate 37, fig. 4, facing p. 112

LOCAL NAME. *Marapṛāvu* (Malayalam).

SIZE. Pigeon +; length c. 42 cm. (16½ in.).

FIELD CHARACTERS. A large dark forest-haunting fruit pigeon with grey head and a conspicuous black-and-white 'chessboard' of white-tipped stiffish

feathers on hindneck. *Above*, reddish brown with a glistening metallic green-and purple sheen on upper back. *Below*, chin and throat whitish; rest of underparts grey with a lilac tinge on abdomen. Under tail-coverts and underwing lining slaty. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident, but moving about a great deal consequent upon fruit ripening: the Sahyadri or Western Ghats complex from Kerala northward to c. 19°N. lat. (a little beyond Bombay), including the Anaimalais, Nilgiris, Palnis, and hills of western Mysore (Malnaad). Affects moist evergreen forest from the foothills up to the highest sholas at c. 2000 m. In Kerala cardamom sholas with their tall shade trees constitute a favourite habitat.

GENERAL HABITS. Frugivorous and arboreal, but frequently descending to the mulchy forest floor to feed on fallen berries and snails. Keeps singly, or in pairs and small parties. Wanders about a good deal: a shola full of them one week may not contain a single bird the next when the particular attraction—some special berry—is over. Rests sitting quietly up in densely foliated trees. Numbers reported roosting at night on the roof trusses of an old derelict grass hut high up in the Anaimalai Hills, but this unusual. Flies at speed, twisting and turning through the dense tree-trunks and branches in forest with remarkable agility, and offering a number of difficult snap shots to the sportsman.

FOOD. Various fruits, commonly of *Randia dumetorum*, berries, and buds; small snails' (Jerdon).

VOICE and CALLS. A langur monkey-like *who*, somewhat undertone, followed by three or four quick-repeated deep owl-like, almost eerie, notes *who-who-who* or *who-who-who-who*.

BREEDING. *Season*, March to July, principally April to June. *Nest*, the typical sketchy pigeon platform of twigs, placed in a moderate-sized tree in a shola, normally above c. 1000 metres elevation. *Egg*, a singleton, pure white. Average size of 9 eggs 38.4 × 28.8 mm. (Baker). Other particulars of breeding biology unrecorded.

MUSEUM DIAGNOSIS. See Key; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	204-224	c. 17-18	c. 25-26	152-178 mm. (Baker)
5 ♂ ♀ (from Kerala and Mysore)	wing 199-205; bill (from skull) 27-28 mm. (SA).			
	Weight 1 ♂ ? 379 gm. (SA).			

COLOURS OF BARE PARTS. Iris bright khaki or greyish brown. Bill, basal half including cere magenta; distal half old ivory white; mouth greyish pink. Legs and feet magenta; claws old ivory.

MISCELLANEOUS. Advice of one epicure: 'Do not put in a pie but serve on toast!'

522. **Ceylon Wood Pigeon.** *Columba torringtoni* Bonaparte

Columba torringtoni 'Layard' = Bonaparte, 1854, Compt. Rend. Acad. Sci. Paris
39: 1103 (Ceylon)

Baker, FBI No. 1863, Vol. 5: 229

Plate 38, fig. 5, facing p. 160

LOCAL NAMES. *Mā nila goya* (Sinhala); *Kārūppu purā* (Tamil).

SIZE. Pigeon +; length *c.* 36 cm. (14 in.).

FIELD CHARACTERS. A dark forest pigeon very like 521 (also with a prominent black-and-white 'chessboard' on hindneck) but dark slaty grey above, lacking any brown on the mantle. Head and neck glossy lilac turning to green. Hindneck, below the 'chessboard', and upper back richly glossed with reddish lilac. *Below*, reddish grey; breast darker and glossed with reddish lilac; abdomen paler; under tail-coverts darker; wing-lining blackish brown. Sexes alike.

Young (immature) duller, with only a trace of the black-and-white chessboard on hindneck.

STATUS, DISTRIBUTION and HABITAT. 'Species peculiar to Ceylon. Resident in the Hill zone. Plentiful in the mountain forests [usually above 1200 m.] especially around Nuwara Eliya and the Horton Plains; occasionally wanders down to the foothills as low as 1000 ft. [*c.* 300 m.]' — Phillips, 1952.

GENERAL HABITS and FOOD. As in Nilgiri Wood Pigeon (521), *q.v.*

VOICE and CALLS. Rather silent except for a deep, rather owl-like *hoo* uttered when courting (Henry).

BREEDING. *Season* 'February, March and August to November, but chiefly during October' (Phillips). *Nest* and *egg* (a singleton) as in 521. Size *c.* 39 × 29 mm.

MUSEUM DIAGNOSIS. For details of plumage see Baker, *loc. cit.*

MEASUREMENTS

♂ ♀ Wing 182–208; bill (from feathers) *c.* 15–17 mm. (Baker).

1 ♀ Wing 199; bill (from skull) 26; tarsus 26; tail 138 mm. (HW).

COLOURS OF BARE PARTS. 'Iris pale red; orbital skin dull pink. Bill plumbeous; apical portion bluish. Legs and feet pinkish fleshy, toes and soles red; legs sometimes white with the fronts of the tarsus and tops of the toes reddish' (Legge).

523. **Ashy Wood Pigeon.** *Columba pulchricollis* Blyth

Columba pulchricollis 'Hodgson' = Blyth, 1846 (1845), Jour. Asiat. Soc. Bengal 14 (2):
866 (Wooded region of eastern Himalaya, i.e. Nepal)

Baker, FBI No. 1864, Vol. 5: 230

Plate 39, fig. 9, facing p. 176

LOCAL NAMES. *Ka-o* (Lepcha); *Daohukuruma majungbi* (Cachari); *Pukurr* (Dafla).

SIZE. Pigeon +; length *c.* 36 cm. (14 in.).

FIELD CHARACTERS. A Himalayan forest pigeon. *Above*, dark ashy or slaty grey, with pale grey head and nape. A conspicuous buff collar, broad and stippled with blackish behind, narrow in front. Upper back below this

buff collar, and all round lower neck blackish with iridescent sheen of lilac and green. Tail blackish brown. *Below*, chin white changing to buff on throat and passing into the glossy buff collar. Breast metallic-glossed dark slaty blue passing into pale cinnamon or brownish buff on abdomen and vent. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident, but like other fruit pigeons subject to considerable wandering dependent on fruit supply; from west-central Nepal through Sikkim, Bhutan, NEFA, Nagaland, Manipur (?), Mizo (?). Normally between *c.* 1200 and 3200 m., but recorded locally in Bengal duars and NEFA foothills (Charduar, Gorumara) as low as 100-150 m. in both winter and summer, so possibly resident. Altitudinal movements unclear. Affects dense mixed deciduous and evergreen forest of oak, chestnut, and rhododendron, etc.

Extralimital. NE. Burma, Arakan, N. Thailand, Taiwan.

GENERAL HABITS. Very little specifically known. Largely frugivorous and arboreal. Keeps singly, or in pairs or small flocks of 10 to 30 birds. Shy and difficult to observe as it usually sits quietly high up in a tree concealed by the foliage, launching out on the approach of an observer with a muffled clatter of wings, flying fast and silently and vanishing among the trees. Normally very silent and thus doubtless often overlooked.

FOOD. Various drupes and berries, acorns, grain and seeds; 'tiny snails, wild cardamom pods' (Baker).

VOICE and CALLS. Seldom heard, and needs proper description. Described as a deep, sonorous *coo* very like that of the English Wood Pigeon, but perhaps deeper still, and more abrupt and less soft (Baker, 1913: 175).

BREEDING. Little known. *Season* (Darjeeling dist.) evidently May to August. *Nest*, the usual flimsy twig platform fairly low down in a small tree in forest. *Egg*, singleton, white, *c.* 38 × 28 mm. No other information.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	194-216	16-17	<i>c.</i> 22-25	120-130 mm. (Baker)

COLOURS OF BARE PARTS. Iris white, greyish white, or pale yellow; ocular skin grey. Bill purplish at base, dull grey-green distally. Legs and feet fleshy purple to coral-red, soles paler; claws horny brown.

524. **Purple Wood Pigeon.** *Columba punicea* Blyth

Columba (Alsocomus) puniceus 'Tickell' = Blyth, 1842, Jour. Asiat. Soc. Bengal 11(1): 461
(Chyebassa [Chaibasa, Bihar])

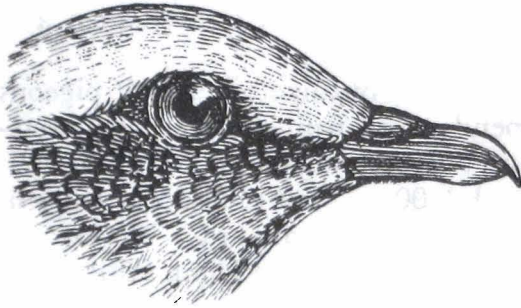
Baker, FBI No. 1865, Vol. 5: 232

Plate 33, fig. 8, facing p. 32

LOCAL NAMES. *Lāli pagooma* (Assam); *Daohukuruma koro gopu* (Cachari).

SIZE. Pigeon +; length *c.* 36 cm. (14 in.).

FIELD CHARACTERS. Male (Adult). *Above*, crown and nape greyish white; upperparts rich chestnut-brown with dark slaty rump and blackish brown tail. *Below*, vinous-chestnut. Entire plumage with brilliant metallic green and amethyst sheen.



× c. 1

Female somewhat smaller and duller. Head browner grey with a lilac gloss.

Young (immature) like female but with head more or less unicolorous with body. Juveniles in first plumage very dull and brown with the wing-coverts and scapulars

margined with rufous.

STATUS, DISTRIBUTION and HABITAT. Resident but very local; Bihar, Orissa, eastern Madhya Pradesh (Bastar dist.), W. Bengal, Assam, Nagaland, Manipur, Mizo (?) and E. Pakistan; from plains level up to c. 1600 metres. Affects forested tracts interspersed with scrub jungle and cultivation, and wooded ravines with dense evergreen undergrowth.

Extralimital. Burma, Thailand, Laos, northern Malaya, central Vietnam.

GENERAL HABITS. Usually keeps singly, occasionally in small parties; local gatherings of 30 or 40 birds where food is abundant, e.g. in patches of gregarious bamboo seeding. Feeds up in fruiting trees as well as by gleaning on the ground. Sits quietly, concealed among the foliage, flying out on an observer's close approach and resettling in another tree a short distance away. Flight comparatively slow, reminiscent of Green Imperial Pigeon's.

FOOD. Wild figs and other fruits and berries (those of *Litsaea nitida* specifically recorded); also bamboo seeds, paddy, and other grains.

VOICE and CALLS. 'Rather similar [to *Ducula aenea*'s] though notes not so loud nor so prolonged' (Mooney, 1934, JBNHS 37: 735). 'A soft mew, not unlike that of *Carpophaga* [*Ducula*] *aenea*, only not half so loud or booming' (Bingham, 1880, SF 8: 196).

BREEDING. *Season*, May to July-August. *Nest*, the usual flimsy pigeon structure of twigs, placed fairly low down — normally under 6 metres — in a tall bush or bamboo clump in forest. *Egg*, a singleton, pure white; according to Baker occasionally two. Average size of 15 eggs 37.6 × 29.2 mm. (Baker). No other precise information.

MUSEUM DIAGNOSIS

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	210-236	c. 16-17	c. 23-25	152-178 mm.
♀♀	203-225	—	—	—
				(Baker)

Weight c. 13-18 oz. (c. 370-510 gm.).

COLOURS OF BARE PARTS. Iris creamy yellow, orange-yellow or orange-red; orbital skin greyish magenta, eye-rim brighter. Bill: cere and base magenta, rest pale horn or old ivory colour. Legs and feet crimson-magenta; claws pale horn.

525. **Andaman Wood Pigeon.** *Columba palumboides* (Hume)¹*Carpophaga palumboides* Anonymous = Hume, 1873, Stray Feathers 1: 302

(Port Mouat, Andaman Islands)

Baker, FBI No. 1866, Vol. 5: 233

LOCAL NAMES. None recorded.

SIZE. Pigeon +; length *c.* 41 cm. (*c.* 16 in.).

FIELD CHARACTERS. A dark fruit-eating pigeon, confusingly like Nicobar Green Imperial (508) especially when seen from below perched on a high tree.

Male (adult). *Above*, head and neck all round pale grey with a slight metallic green gloss, especially on lower hindneck. Rest of upperparts blackish with dark slaty rump, the feathers edged with metallic green and amethyst gloss ('scalloping'). *Below*, underparts from lower neck down slaty grey with metallic emerald-and-purple sheen. Wing-lining dark slaty.

Female has the head and neck darker grey.

Young (immature) duller coloured overall, with the head and neck still darker and brownish.

STATUS, DISTRIBUTION and HABITAT. Resident; Andaman and Nicobar Islands, comparatively scarcer than Green Imperial in both groups. Wanders from island to island with availability of food — ripening of the different fruits and berries. Affects dense evergreen forest.

GENERAL HABITS. Arboreal and entirely frugivorous. Seen in pairs and small parties in forest trees, often perching at lower heights than Green Imperial. Flies high up in the air while crossing the straits from one island to another.

FOOD. Wild figs and other fruits and berries. Abdulali obtained fruits of *Leae* sp. and *Syzygium cumini* from crops of specimens killed, and Davison 'several fruit about the size of a walnut, two of these with stalks about 2 inches long and as thick as a goose-quill, attached'.VOICE and CALLS. 'A deep *whoom* without the preliminary *gr* of *Ducula [aenea andamanica]*' (Abdulali, 1964, JBNHS 61: 526).

BREEDING. Unrecorded.

MUSEUM DIAGNOSIS. See Key; for details of plumage Baker, loc. cit.

MEASUREMENTS

♂ ♀ Wing 241–258 mm. (Baker).

Weight 1 lb. 2 oz. (*c.* 510 gm.) — Davison; 1 ♂ 520 gm. (Grubh).

COLOURS OF BARE PARTS. Iris orange, reddish yellow or orange-pink. Bill: cere and base lake red or pinkish lilac, rest yellowish white. Legs and feet fleshy pink redder in front; claws horny white.

Genus *MACROPYGIA* Swainson*Macropygia* Swainson, 1837, Classif. Bds. 2: 348. Type, by subsequent designation, *Columba phasianella* Temminck, 1824, pl. col. 100

Distinguished by the long graduated tail, exceeding the wing in length. Rump feathers spinous; tail-coverts elongate. Head small and dove-like. Bill slender.

¹ On the basis of some comparative material obtained by him recently in the Andamans and Nicobars, Abdulali (1967, JBNHS 64(2): 166) seeks to resuscitate the race *nicobarica* Walden collected on Trinkat and Nancowry, which was suppressed by Hume (1874, SF 2: 498–9). It was originally described, *inter alia*, as having the entire head, nape, cheeks and neck dark French-grey and wanting the pearly white or greyish white head, throat and nape of *palumboides*.

Tarsus short and partly feathered; feet adapted for perching; toes long, soles broad.

Key to the Species

Central tail-feathers banded throughout with black and rufous
 *M. unchall*
 Central tail-feathers not banded. *M. rufipennis*

526. **Bartailed Cuckoo-Dove.** *Macropygia unchall tusalia* (Blyth)

Columba tusalia 'Hodgson' = Blyth, 1843, Jour. Asiat. Soc. Bengal 12 (2): 936
 (Darjeeling)

Baker, FBI No. 1884, Vol. 5: 253

Plate 39, fig. 10, facing p. 176

LOCAL NAMES. *Tusal* (Nepal); *Phoochong-pho*, *Ka-er* (Lepcha); *Pumok* (Bhutea); *Daotukunt laima* (Cachari).

SIZE. Pigeon $\pm$; with longer, pointed tail; total length *c.* 41 cm. (16 in.).

FIELD CHARACTERS. A slender reddish brown long-tailed pigeon.

Male (adult). *Above*, forehead buff shading to lilac-purple on crown and hindneck, highly glossed with metallic green. Rest of upperparts rufous, barred with black. Tail long, broad, graduated, barred with brownish black and rufous. *Below*, chin and throat lilac-buff. Upper breast metallic lilac, changing to dull lilac on lower breast and to buff on lower abdomen, vent, and under tail-coverts.

Female has the upperparts duller; head and breast barred with dark brown.

Young (immature) like female but duller overall, with no trace of metallic gloss.

STATUS, DISTRIBUTION and HABITAT. Resident: Himalayas from Kashmir eastward through Garhwal, Kumaon, Nepal, Sikkim, Bhutan and NEFA; Assam hills south of Brahmaputra river (Garó, Khasi, etc.), Nagaland, Manipur, Mizo (?), E. Pakistan — between *c.* 450 and 2700 metres. Affects dense evergreen forest and secondary jungle.

Extralimital. W. Szechuan (?), Burma, N. Thailand.

GENERAL HABITS. Keeps in pairs, small parties, and flocks of up to 10 or so. Feeds on the ground by gleaning in cultivation clearings and open glades in forest; also in trees like green pigeon, clambering about among the fruit-laden twigs, sometimes hanging upside down and swinging out for a berry just out of reach. Very jealous of its feeding tree, attacking and chasing off bulbuls and other birds arriving in the same quest. Extended flight fast and pigeon-like, but when moving from tree to tree the habit of gliding upwards to settle on a branch very cuckoo-like. Hind aspect of the bird, perched upright, also strongly reminiscent of a hepatic cuckoo. Silent except in the breeding season.

FOOD. Grain, seeds, shoots, buds, acorns, small drupes and berries.

VOICE and CALLS. Described as a very deep *croo-umm*, the second syllable a booming note, audible a long way off. Heard in the distance only as a low, muffled, single *hu* or *umm* repeated at short intervals.

BREEDING. *Season*, chiefly May to July. *Nest*, the typical flimsy platform of twigs with a slight central depression, placed *c.* 2 to 8 metres up in a sapling or stunted oak growing in forest. *Eggs*, normally a singleton; in

Assam 2 eggs stated to be not uncommon. Pale buff to *café-au-lait* in colour, smooth-surfaced long narrow ovals. Average size of 200 eggs 35.3×25.4 mm. (Baker). Both sexes incubate and feed the young. Incubation period unrecorded. Aerial display of male, as described by Baker, of the same general pattern as, e.g. in Ring Dove (534) but with his feathers fluffed out 'until the shiny ones on his rump stand out like a lady's powder-puff'.

MUSEUM DIAGNOSIS. See Key; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	177-203	13-15	c. 16-18	200-210 mm.
♀♀	191-200	—	—	—

(Baker)

6 recent specimens from Nepal, Sikkim and Bhutan give Wing 4 ♂♂ 196-209; 2 ♀♀ 191-200 mm. Weight c. 200 gm. (SA).

COLOURS OF BARE PARTS. Iris outer ring pink, inner pale blue (sometimes brown); ocular skin grey, eyelids purple. Bill leaden black. Legs and feet dull cherry-red or purplish brown; claws horny black.

MACROPYGIA RUFIPENNIS Blyth

Key to the Subspecies

Crown of male glossed with lilac-purple *M. r. rufipennis*

Crown of male without such gloss.....*M. r. andamanica*

527. **Nicobar Cuckoo-Dove.** *Macropygia rufipennis rufipennis* Blyth

Macropygia rufipennis Blyth, 1846, Jour. Asiat. Soc. Bengal 15: 371 (Southern Nicobars)

Baker, FBI No. 1885, Vol. 5: 255

LOCAL NAMES. None recorded.

SIZE. Same as 526; length c. 41 cm. (16 in.).

FIELD CHARACTERS. A slender reddish brown long-tailed pigeon.

Male (adult). *Above*, whole head and hindneck chestnut, glossed with metallic lilac-purple on crown. Rest of upperparts dark brown (more rufous on wing-coverts, rump, and tail) minutely speckled and barred with black and rufous-buff on hindneck and upper back. *Below*, chin and throat whitish; rest of underparts rufous-buff wavy cross-barred with black; sides of neck and breast with metallic gloss. Under tail-coverts, wing-lining and wing-quills conspicuously ferruginous-red in flight.

Female. *Above*, head variously mottled with black; neck all round lightly streaked with brown; stipplings on upper back more pronounced and bar-like in character. *Below*, more chestnut than male, and unbarred.

Young (immature). Overall more rufous than adults. Feathers of head and neck edged with black; upperparts more heavily barred; wing-quills edged and tipped with rufous.

STATUS, DISTRIBUTION and HABITAT. Species peculiar to the Andaman and Nicobar Islands, and this race to the latter group. Affects heavy ever-green forest and secondary jungle.

GENERAL HABITS. As of 526, q.v.

FOOD. Various fruits and berries, those of *Vitis* and *Leae* spp. identified in crops (Abdulali); bird's-eye chilli (*Capsicum fastigiatum*) growing commonly in secondary jungle and on the edge of clearings, evidently the staple food locally (Davison).

VOICE and CALLS. Unsatisfactorily described as 'peculiar, somewhat resembling that of *Cuculus canorus*, the Common Cuckoo' (B. B. Osmaston). A hoarse, deep, subdued croaking only audible at close range 'resembling o-o-o-o-ah repeated several times successively' (Blyth)..

BREEDING. No data.

MUSEUM DIAGNOSIS. See Key to the Species; for details of plumage, Baker loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	180-193	12-13	c. 23-25	210-233 mm. (Baker)

Weight 8-10 oz. (c. 230-285 gm.).

COLOURS OF BARE PARTS. 'Iris violet or light blue with an inner ring of carmine. Bill dull horny or purplish red, paler at gape. Legs and feet dull pinkish red in front, bright pale pink behind, soles still paler' (Baker).

527a. **Andaman Cuckoo-Dove.** *Macropygia rufipennis andamanica* Abdulali

Macropygia rufipennis andamanica Abdulali, 1967, Jour. Bombay nat. Hist. Soc.
63 (2): 421 (Betapur, Middle Andamans)

SIZE and FIELD CHARACTERS. As of 527, q.v.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to the Andaman Is.

BREEDING. A male collected by Abdulali in the Middle Andamans on 24 February had enlarged testes.

MUSEUM DIAGNOSIS. Lacks the lilac-purple gloss on the crown of the male, described as a character of the Nicobar population.

Genus STREPTOPELIA Bonaparte

Streptopelia Bonaparte, 1855, Compt. Rend. Acad. Sci. Paris 40: 17; id., Consp.

Av. 2: 63: Type, by subsequent designation, *Columba risoria* Linnaeus

Oenopopelia Blanford, 1898, Fauna Brit. Ind., Bds. 4: 28 (in key): 47. Type, by monotypy, *Columba tranquebarica* Hermann

Doves of this genus differ from *Columba* chiefly in smaller size, comparatively small head and slender neck, and weaker narrower bill. Wing relatively long and narrow:



Sole of foot of *S. c. suratensis* (537), × c. 1

2nd and 3rd primaries (as.) longest. Tail considerably graduated, never exceeding two-thirds length of wing. Feet well adapted for walking: tarsus stout and short, toes narrow. All the species are grey or brown in colour with a dark narrow collar or a patch ('chessboard') of black-and-white or rufous feathers on the neck. The genus contains both resident and migratory forms.

Key to the Species

		Page
A	Sexes differing; 1st and 2nd quills longest.....	<i>S. tranquebarica</i> 149
B	Sexes alike; 2nd and 3rd quills longest.....	1
1	A collar of black feathers with rufous tips around front of the neck	<i>S. senegalensis</i> 155
	A collar of black feathers around back of the neck.....	a
	A collar of black feathers on either side of the neck, divided at the nape.....	b
a	Collar feathers plain black.....	<i>S. decaocto</i> 147
	Collar feathers ending in a double white spot.....	<i>S. chinensis</i> 151
b	Tips to feathers of neck-patch white.....	<i>S. turtur</i> 141
	Tips to feathers of neck-patch grey.....	<i>S. orientalis</i> 142

STREPTOPELIA TURTUR (Linnaeus)

Key to the Subspecies

Darker and duller with more vinous on the upperparts. *S. t. turtur*
 Paler and brighter with the abdomen more extensively white
 *S. t. arenicola*

529. **Persian Turtle-Dove.** *Streptopelia turtur arenicola* (Hartert)¹

Turtur turtur arenicola Hartert, 1894, Nov. Zool. 1: 42 (Fao on the Persian Gulf)
 Baker, FBI No. 1869, Vol. 5: 237

Plate 38, fig. 7, facing p. 160

LOCAL NAMES. None recorded.

SIZE. Pigeon — ; length *c.* 28 cm. (*c.* 11 in.).

FIELD CHARACTERS. A small, rather slender pinkish and ashy grey pigeon with a patch of white-spotted black feathers on either side of base of neck, looking like miniature chessboards. Upperparts rufous with blackish centres to the feathers, and contrasting ashy grey wing-coverts. Tail black, graduated, with broad white terminal border conspicuous in flight especially when spread before alighting. Sexes alike.

Confusingly like *S. orientalis*, and field identification except by experienced experts unreliable.

¹ *Streptopelia turtur turtur* (Linnaeus) was included in FBI 5: 236 and then in Synopsis (No. 528) on the strength of a single specimen obtained at Quetta (N. Baluchistan) by Swinhoe. Dr Ticehurst examined this skin in the British Museum and found it inseparable from some examples of the race *arenicola*. Since Quetta would be well over 1000 miles beyond the range of nominate *turtur*, we agree with Dr Ticehurst that it would be more satisfactory to delete this form from the Indian list.

STATUS, DISTRIBUTION and HABITAT. A vagrant in winter, or straggling passage migrant, in W. Pakistan (Gilgit, Afghanistan frontier, N. Baluchistan). Affects open cultivated country.

Extralimal. Breeds in N. Africa from Morocco to Tripoli; in SW. Asia from the Kirghiz Steppes and Turkestan south to Iraq, Persia, Afghanistan and Yarkand (Peters).

GENERAL HABITS and FOOD. As in other members of the genus, qq.v. A migrant form.

VOICE and CALLS. A continuous and rhythmic 'deep crooning or purring note rroorrrr, rroorrrr, rroorrrr' (Witherby, for nominate race) heard chiefly in the breeding season.

BREEDING. Extralimal.

MUSEUM DIAGNOSIS. See Keys to the Species and Subspecies; for details of plumage Baker, loc. cit.

MEASUREMENTS

Wing ♂ ♀ 163–177 mm. (Hartert).

7 adult specimens from Afghanistan give: Wing 5 ♂♂ 169–173; 2 ♀♀ 166 mm.

Weight 111 (1), 121–140 gm. (Paludan, 1959).

COLOURS OF BARE PARTS. Iris deep or brownish orange; orbital skin purple-brown, eye-rim reddish brown. Bill greyish or slaty black, purple-red at gape. Legs and feet purple or reddish purple, soles paler; claws horny brown.

STREPTOPELIA ORIENTALIS (Latham)

Key to the Subspecies

	Page
A Forehead and crown vinous-red	
Under tail-coverts and terminal fringe of tail slaty grey.....	
..... <i>S. o. erythrocephala</i>	146
B Forehead and crown grey..... 1	
1 Under tail-coverts and terminal fringe of tail white..... <i>S. o. meena</i>	143
Under tail-coverts and terminal fringe of tail dove-grey.....	
..... <i>S. o. orientalis</i>	142
Under tail-coverts and terminal fringe of tail slaty grey.....	
..... <i>S. o. agricola</i>	145

530. **Rufous Turtle-Dove.** *Streptopelia orientalis orientalis* (Latham)

Columba orientalis Latham, 1790, Index Orn. 2: 606 (China, ex Sonnerat)

Streptopelia orientalis baicalensis Buturlin, 1934, Polnyi opredelitel ptitsy S.S.S.R. 1: 224. New name for *S. o. orientalis* (Pallas)

Cf. Whistler, H., and Kinnear, N. B., 1936, JBNHS 38: 677–9

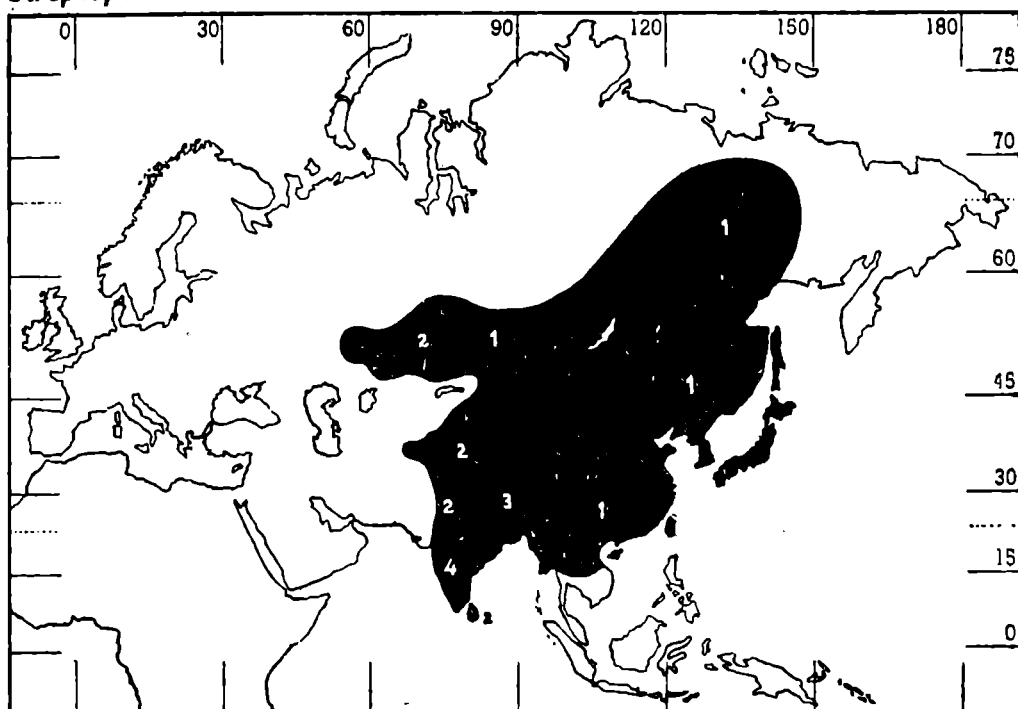
Baker, FBI No. 1870, Vol. 5: 238

LOCAL NAMES. As for 531.

SIZE. Pigeon; length c. 33 cm. (13 in.).

FIELD CHARACTERS. As of 531, q.v., but with dove-grey tips to tail-feathers instead of white.

STATUS, DISTRIBUTION and HABITAT. Evidently only a winter visitor to ? Nepal (a pair in Kathmandu Valley — October. Fleming, JBNHS 65(2):

Streptopelia orientalis

■ Breeding and wintering ranges (see text)

1 *S. o. orientalis* (530).

2 *S. o. meena* (531). 3 *S. o. agricola* (532) 4 *S. o. erythrocephala* (533).

328), northern Sikkim, northern Bhutan, and NEFA, but the population there largely intermediate with resident *agricola* (532), in addition to being subject to a considerable amount of individual variation; specimens usually impossible to assign to either race with conviction.

Extralimital. Breeds in central Siberia, Transbaikalia, Amurland, south to SE. Tibet, Yunnan, and across to Japan.

GENERAL HABITS, FOOD, VOICE AND CALLS. As in 531, 532, qq.v.

MUSEUM DIAGNOSIS. See Key; very similar to *agricola* but has the crown and nape clinally greyer, and the rufous margins of upper wing-coverts more greyish.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	180–198	15–17	25–28	c. 130–145 mm. (Hartert)

COLOURS OF BARE PARTS. As in 532.

531. **Western Turtle-Dove.** *Streptopelia orientalis meena* (Sykes)

Columba meena Sykes, 1833 (1832), Proc. Zool. Soc. London, pt. 2: 149 (Dukhun)

Columba ferrago Eversmann, 1842, Addenda Pallas Zoogr. Rosso-Asiat., fasc. 3: 17
(Songaria and mountains of Targabatai)

Baker, FBI No. 1871, Vol. 5: 239

LOCAL NAMES. *Kālā fākhtā*, *Barko fākhtā* (Hindi); *Wān kūkil*, *Gūgi*, *Jāngli konkli*, *Kāmīr*, *Kāmru* (Kashmir).

SIZE. Pigeon; length c. 33 cm. (13 in.).

FIELD CHARACTERS. A large reddish brown dove with scaly-patterned upperparts, black 'chessboards' on sides of neck, and broad *white* terminal border to the rounded tail—conspicuous when spread while alighting. Distinguished from the rather similar and commoner Spotted Dove (537) by rich rufous coloration and stocky pigeon-like build.

Adult. *Above*, head and neck vinous-brown, greyish on forehead and crown; a grey-spotted black patch on either side of hindneck. Mantle rufous-brown with dark centres to the feathers producing a scaly pattern; lower back and rump slaty grey; tail largely blackish brown with terminal white band. *Below*, chin and centre of throat whitish; foreneck and breast pale vinous-rufous passing to whitish on abdomen and white on under tail-coverts. Sexes alike.

Young (immature) browner and less rufous, lacking the grey on head and rump, and also the checkered neck-patches. Feathers of back, wing-coverts, and breast with pale margins.

STATUS, DISTRIBUTION and HABITAT. Resident and breeds in the western Himalayas up to c. 4000 m. from the Afghan frontier in W. Pakistan eastward through Kashmir (also in Baltistan and Ladakh as far as Leh), Garhwal and Kumaon to central Nepal where it meets and intergrades with the richly coloured east Himalayan form *agricola* (532). Migrates south in winter, its numbers augmented by extralimital immigrants, and spreads widely over northern and peninsular India, chiefly on the western side, south to Mysore. Rare vagrant to Ceylon; only four records in the last 90 years, the last in December 1954. Affects open mixed deciduous and bamboo forest, particularly broken foothills country and the neighbourhood of cultivation. Avoids semi-desert tracts.

Extralimital. 'Breeds in the southern part of western Siberia east to western Altai; Turkestan, Persia, Afghanistan . . .' (Peters).

MIGRATION. No ringing records. 'Small numbers migrate through Kohat from mid April till the 3rd or 4th of May, returning in September and October' (Whitehead). 'None had arrived about Leh by the middle of May' though common there and in full moult [post-nuptial] in early August (Meinertzhagen).

GENERAL HABITS. A ground-feeding granivorous dove. Keeps in pairs and small parties, forming into larger flocks when migrating. Gleans scattered grain and weed seeds in stubbles and on shaded dusty cart-tracks connecting forest villages etc. Also commonly frequents the *parāos* or bivouac sites of bullock-carts along country roads to glean the spillage from the grain sacks etc. Flight swift and direct, typical of the pigeons. In courtship male bows and bobs ludicrously in front of the female as he advances towards her in stiff mincing hops, calling with goitred-out throat—an action rather reminiscent of a *Calotes* lizard. Also has the characteristic aerial display of the doves, springing up into the air with clapping wings and coasting down in an arc or wide spiral with fanned-out tail.

FOOD. Paddy and other cereals, weed and bamboo seeds, and green shoots.

VOICE and CALLS. Commonly heard at Himalayan hill-stations: a hoarse, rather mournful *goor* . . . *gūr-grūgroo* repeated in slow runs, the final *groo* particularly mournful-sounding and as though uttered with intake of breath.

BREEDING. *Season*, principally May to June-July. *Nest*, a flimsy platform of twigs, placed in a sapling or scrubby bush or bamboo clump in fairly open forest, as a rule under *c.* 3 or 4 metres from the ground. *Eggs*, almost invariably two, white, of the typical oval shape of pigeons' eggs. Average size of 40 eggs 32.2×23.9 mm. (Baker). Both sexes share in incubation and tending the young. Incubation period unrecorded.

MUSEUM DIAGNOSIS. Distinguished from the other races by conspicuously paler underparts, much white on belly, white under tail-coverts, and white tips to the tail-feathers.

Chick. 'Down long, plentiful, hair-like, yellowish white. Whole body covered except sides of head, centre of abdomen and breast, chin and upper throat. Distribution and character as in the *Columbae*' (Ticehurst).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
10 ♂ ♀	ad. 185-207 (av. 196.2)	<i>c.</i> 22-23	<i>c.</i> 26-28	<i>c.</i> 122-140 mm. (SA)

Weight 165-229 gm. (Paludan, 1959).

COLOURS OF BARE PARTS. Iris orange; ocular skin magenta. Bill: base and cere magenta, distal half horny brown. Legs and feet magenta, hind tarsus paler and pinkish; claws horny brown.

532. **Rufous Turtle-Dove.** *Streptopelia orientalis agricola* (Tickell)

Columba agricola Tickell, 1833, Jour. Asiat. Soc. Bengal 2: 581

(Jungles of Borabhūm and Dholbhūm)

Streptopelia orientalis meridionalis Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 28 (Sangau, Lushai Hills)

Streptopelia orientalis khasiana Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 28 (Mawryngkneng, Khasi Hills)

Baker, FBI No. 1872, Vol. 5: 240 (= *meena*)

Plate 33, fig. 5, facing p. 32

LOCAL NAMES. *Rām ghūghū* (Bengal); *Daotu gajao* (Cachari); *Pūko* (Assam); *Inruikū* (Naga); *Voh gūra* (Kuki); *Hārūā kopu* (Nowgong, Assam); *Khunu chaphubi* (= 'the pot pigeon', alluding to likeness of coloration to red earthenware pot burnt blue in patches); *Leima khunu* (= 'the goddess pigeon' — Manipur).

SIZE. Pigeon; length *c.* 33 cm. (13 in.).

FIELD CHARACTERS. A stocky rufous dove like 531, q.v. — also with black-and-whitish chessboard on either side of neck — but more richly coloured and with slaty border to tail instead of white. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident and breeds in the Himalayas to *c.* 4000 m. alt. from central Nepal [where it intergrades with the paler *meena* (531)] eastward through Sikkim, Bhutan and NEFA; also in the Assam hills south of Brahmaputra R. to *c.* 1300 m. alt., Nagaland, Manipur, Mizo, E. Pakistan. Affects oak and other mixed deciduous forest, often around cultivation. Migrates in winter southward into peninsular India, chiefly on the eastern side. Winter range unclear owing to intermingling then with the very similar resident peninsular race *erythrocephala* (533).

Extralimital. Burma south to Tenasserim.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 531. In captivity 'Besides the usual *coo* they will, when annoyed, utter a sharp noise like the twang of a banjo string' (Ludlow).

BREEDING. *Season* and *Nest* as in 531. Average size of 11 eggs (*orientalis*, Gyantse) 33.5×24.5 mm. (Ludlow).

MUSEUM DIAGNOSIS. Intermediate between *meena* and nominate *orientalis* and merged by some authors with the latter. Markedly richer coloured than 531. Crown and nape grey; abdomen grey; thighs, under tail-coverts, and terminal fringe of tail slaty grey. Individual specimens of the two could be assigned to either form.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	186-198	22-24	c. 26-27	135-140 mm.
♀♀	184-191	22-24	26-27	112-132 mm.
		(once 28)	(once 30)	(SA)

Weight c. 200-210 gm.

10 ♂♀ (Sikkim) average wing 188.9 mm. (Stresemann).

COLOURS OF BARE PARTS. As in 531.

533. **Peninsular Turtle-Dove.** *Streptopelia orientalis erythrocephala* (Bonaparte)

Turtur erythrocephalus Bonaparte, 1855, Consp. Gen. Av. 2: 60 (South Africa *in errore* southern India *vide* Whistler, H., 1943, JBNHS 44: 26). Restricted to Mysore by Ripley. Type in British Museum

Not in Baker, FBI

LOCAL NAMES. As for the other races where applicable.

SIZE. Pigeon; length c. 33 cm. (13 in.).

FIELD CHARACTERS. A stocky rufous dove, practically indistinguishable from 532 when both together in winter except by redder forehead and crown. See Museum Diagnosis. Both distinguished from 531 by richer coloration and *slaty grey* (*v.* white) fringe to tail. Sexes alike.

Young (immature) like juvenile *meena* (531) but brighter rufous overall with faint rusty edges to slaty feathers of rump and upper tail-coverts, and marked rufous wash on central pair of rectrices.

STATUS, DISTRIBUTION and HABITAT. Resident and breeds in peninsular India from Bihar and Orissa south to Mysore. Has not yet been procured in western India north of Castle Rock (c. 15°N. lat.) nor in the Bombay Deccan, but range not properly worked out. Local movements unknown. Affects open mixed deciduous forest and bamboo jungle in the neighbourhood of cultivation.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the other races qq.v.

BREEDING. *Season* in Bihar, Orissa and Madhya Pradesh as well as Mysore November to January/February, but possibly not well defined. *Nest*, the usual skimpy pad of twigs placed fairly low down (c. 2 to 4 m.) in a bushy sapling or shrub, or up in a bamboo clump. *Eggs*, normally 2, very rarely 3, white, as in other races. Measurements not available.

MUSEUM DIAGNOSIS. Distinguished from the equally richly coloured *agricola* (and/or *orientalis*) by vinous-red crown, nape, and mantle without any trace of grey. Edges to scapulars, wing-coverts, and tertiaries deeper red. Vinous-red of underparts much redder.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	183–193	22–24	25–28	122–134 mm.
♀♀	179–190	22–23	26–27	112–127 mm.
10 ♂♂ (Orissa, M.P., Mysore)	average wing 189.1, tail 126.4 mm.; 5 ♀♀ wing 183.8, tail 120 mm. (SA).			

Weight 4 ♂♀ 173–206 gm. (SA).

COLOURS OF BARE PARTS. As in 531.

534. Indian Ring Dove. *Streptopelia decaocto decaocto* (Frivaldszky)

Columba risoria Linnaeus, 1758, Syst. Nat., ed. 10, 1: 65 (India). [Based on a pale domesticated bird.]

Columba risoria L. var. *decaocto* Frivaldszky, 1838 (1834–6), K. Magyar Tudos Társaság Evkönyvi, 3: 183, pl. 8 (Turkey)
Baker, FBI No. 1879, Vol. 5: 248

Plate 33, fig. 2, facing p. 32

LOCAL NAMES. *Dhōr fākhtā*, *Pārki*, *Pāndūk*, *Gūgi* (Hindi); *Kūkil* (Kashmir); *Gēro* (Sind); *Jāngli kāpōth* (Baluchi); *Daolo*, *Doula* (Bihar); *Pār ghūghū* (Bengal); *Pīthā hōlā*, *Kāvdā* (Marathi); *Dhōl* (Gujarati); *Pedda bella guwā* (Telugu); *Kalli purā*, *Sāmbal purā* (Tamil, Ceylon); *Pottanchengālī* (Malayalam); *Māhā kobēyiyā* (Sinhala); *Daota gōphu* (Cachari); *Set kōphu* (Assam).

SIZE. Pigeon — ; length *c.* 32 cm. (12½ in.).

FIELD CHARACTERS. A pale grey and brown pigeon distinguished by a prominent narrow black half-collar on hindneck. Breast lilac passing into ashy grey on abdomen and darker grey on vent and under tail-coverts. Broad white terminal edge to blackish tail conspicuous in flight, especially when spread while alighting. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident but subject to marked seasonal migrations, altitudinal and presumed of a local character. Found in appropriate biotopes throughout both Pakistans, the entire Indian Union, and Ceylon. Not recorded in Sikkim or Bhutan, and only as occasional post-monsoon visitor to Nepal Valley. Absent in the Andaman, Nicobar, Laccadive, and Maldive islands. Occurs up to *c.* 2400 m. alt. (rarely to *c.* 3000 m.) in the western Himalayas in summer, in Kashmir then almost completely replacing *S. orientalis meena* below *c.* 1800 m.

Affects open, cultivated, essentially dry deciduous country (even semi-desert) with groves or a scattering of babool (*Acacia*), dhāk (*Butea*) and similar trees, commonly sharing these facies with Little Brown Dove (541). Avoids moist evergreen tracts.

Extralimital. 'Resident from Hungary over SE. Europe, Asia Minor, Turkestan, N. China and Japan; south to Palestine, Iraq, Persia . . . and W. China' (Peters). Within the last decade has 'exploded' phenomenally all over Europe, now breeding regularly as far west as Great Britain, and north to Scandinavia.

GENERAL HABITS. One of our commonest doves; very plentiful in some areas, inexplicably scarce in others outwardly just as suitable. Keeps in pairs or small parties — often in company with other doves — gleaning in paddy stubbles, newly sown millet fields, or fallow land often in the environs of towns and villages. The birds perch freely on the buildings, and boldly enter cattle sheds and verandas and courtyards of rustic dwellings to feed within an arm's length of the occupants. Occasionally gathers in large flocks, maybe of a hundred or more, where food is particularly abundant, or when preparing for one of its local migrations. Flight characteristically pigeon-like, strong and direct, with rapid steady wing-beats — and high up in the air when migrating. Courtship display on ground consists of the male bowing and bobbing to the female, cooing with inflated throat and depressed tail as he advances on her in stiff ludicrous hops punctuated by a mincing step or two. Also displays in the air, springing up from a tree-top or post at a steep angle with a loud clapping of wings and then coasting down with tail fanned-out in a graceful arc or wide spiral to the accompaniment of an aggressive-sounding nasal *koon-koon-koon*. Very pugnacious when nesting, chasing an intruder in its territory with vigour and determination, literally from 'pillar to post', accompanied by the strident challenging *koon-koon* as 'war cry', until he is driven off. On the ground the rivals sidle up to one another rather surreptitiously, then suddenly jump up and lash out viciously with the wings, each ducking in turn to avert the coming onslaught, one bird frequently jumping clean over the other in the excitement of these comical antics. Often seen in hot pursuit of a crow making off with an egg or chick filched from its nest, but contact with marauder seldom registered, and even then is so innocuous as to leave the crow mildly surprised and not at all repentant!

FOOD. Grain and seeds. Stomachs examined at Pusa in Bihar contained chiefly wheat, barley, and paddy grains, and seeds of mustard, linseed and various weeds (Mason & Lefroy, 1912). *Toria* (*Brassica campestris*) at time of threshing (Afzal Husain & Bhalla, 1937).

VOICE and CALLS. 'Song' a deep, pleasant *kūkkoo . . . kook* repeated several times in runs. A strident *koon, koon* in aggression and aerial display.

BREEDING. Breeds throughout its range — up to c. 2400 m. alt. in Kashmir and the western Himalayas. *Season*, in the northern areas with a definite cold winter May to September, chiefly May-June. Elsewhere, and in peninsular India, practically all year; in Ceylon December to May, chiefly April and May. *Nest*, a flimsy-bottomed sketchy pad of twigs usually placed low down in a *Euphorbia* bush or small tree such as babool (*Acacia*); occasionally on rafters in a cattle-shed or outhouse. *Eggs*, normally 2, exceptionally 3, pure white, smooth-textured. Average size of 60 eggs 30.1×23.2 mm. (Baker). Both sexes share in nest-building and incubation; period unrecorded.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	160–174	20–23	21–24	116–134 mm.

No disparity in the sexes, but tail of ♀ ♀ averages shorter.

(SA, HW)

Weight 2 ♂ 127; 138 gm. (SA).

COLOURS OF BARE PARTS. Iris lake red to crimson; edge of eyelid red; narrow circumorbital skin greyish pink. Bill brownish black. Legs and feet dark pinkish red or magenta; claws black.

STREPTOPELIA TRANQUEBARICA (Hermann)

Key to the Subspecies

Paler, especially on the lower parts. *S. t. tranquebarica*

Darker and more red, especially on the lower parts. . . . *S. t. humilis*

535. Indian Red Turtle-Dove. *Streptopelia tranquebarica tranquebarica*
(Hermann)

Columba tranquebarica Hermann, 1804, Obs. Zool.: 200 (Tranquebaria, India)

Baker, FBI No. 1881, Vol. 5: 250

Plate 33, fig. 1, facing p. 32

LOCAL NAMES. *Serōti fākhtā*, *Girwi fākhtā*, *Biki* (Hindi); *Itoōā* (Bihar); *Vitākāri kowda* (Marathi); *Terra gūvā* (Telugu); *Powari* (Maria Gond).

SIZE. Myna $\pm$; length *c.* 23 cm. (9 in.).

FIELD CHARACTERS. A small, dainty, brightly coloured grey and pinkish brick-red dove.

Male (adult). *Above*, head and nape dark ashy grey, with a black collar round hindneck; mantle vinous-red, wing-coverts grey; lower back, rump and upper tail-coverts dark slaty grey. Tail brownish and grey with the outer feathers and a broad terminal band (broken in centre) conspicuously white. *Below*, vinous-red; chin and vent whitish, under tail-coverts white, flanks grey.

Female pale brownish and grey with hindneck collar and tail as in male. In overall effect a good replica of Ring Dove but smaller and with relatively shorter tail.

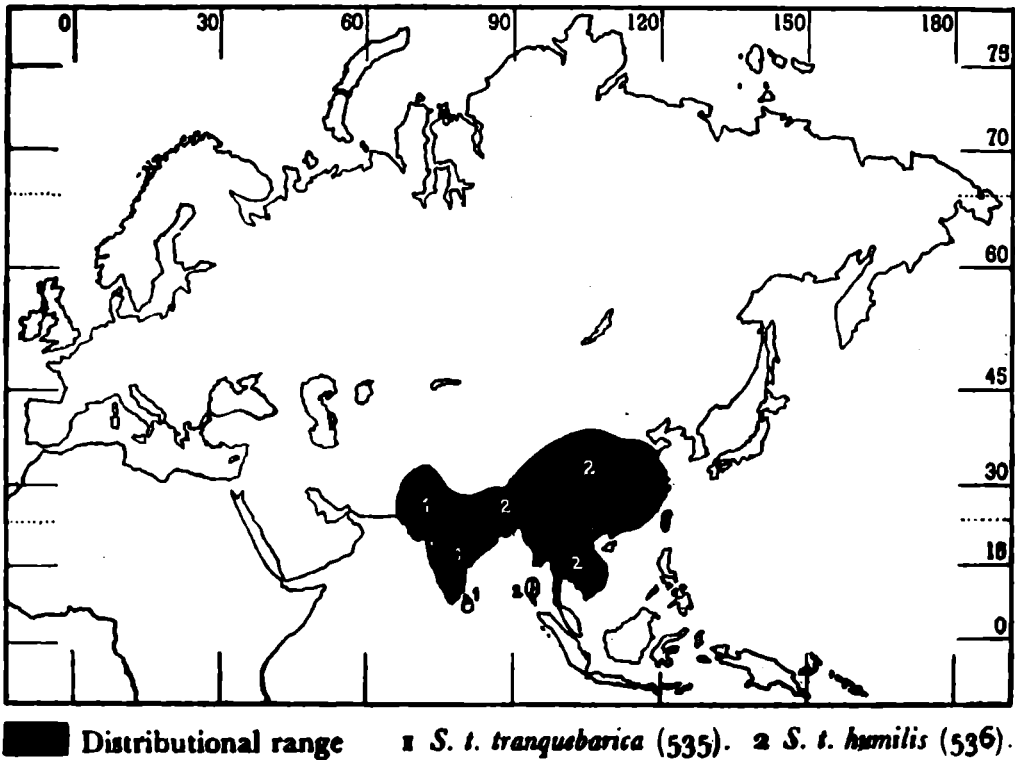
Young (immature) like female but feathers of upperparts, wing-coverts and breast narrowly edged with pale fulvous.

STATUS, DISTRIBUTION and HABITAT. Resident; widely but rather capriciously distributed, and subject to marked local migrations as yet little understood, involving some intermingling and overlap of the races. From West Pakistan (Baluchistan, Sind, Punjab) east through Uttar Pradesh to W. Nepal (?) and Bihar, south through peninsular India to Madras and Mysore. Only a summer (breeding) visitor to the Himalayan duns and foothills, normally under *c.* 800 m. alt. Rare vagrant to Ceylon; once (*c.* 1880) recorded breeding in the Jaffna area. Affects open scrub jungle and cultivation in deciduous biotope.

MIGRATION. Only a single definite record: a bird ringed in Bhavnagar, Gujarat (*c.* 21°45'N., 72°15'E.) 13.ix.1961, recovered near Karachi, West Pakistan (*c.* 24°37'N., 67°5'E.) 27.iii.1967.

GENERAL HABITS. Similar to (534) but the least common of all the doves and seldom found in close familiarity with man. Associates with Ring and Little Brown Doves to glean in outlying stubble fields and village environs, and on the countryside, in the morning and late afternoon, retiring during the midday heat into the trees and topes dotted around. Usually seen in twos and threes, but flocks and feeding congregations of up to 50 or more,

Streptopelia tranquebarica



mixed with other doves, not uncommon after the harvest. In cold weather they have the common dove habit of sitting with fluffed plumage, bunched like starlings, on bare tree-tops at sunset to warm themselves before retiring to roost. Courtship display as in 534 and other doves; when bowing and bobbing to female, calling with distended throat, looks in the distance as if hammering the ground with the bill.

FOOD. Granivorous: grains of paddy, maize, and other cereals; grass- and weed seeds.

VOICE and CALLS. A somewhat harsh rolling *groo-gürr-goo groo-gürr-goo* quickly repeated several times without interruption — in runs.

BREEDING. Season in northern India, with a cold winter, chiefly April to September; elsewhere more or less all year, the incidence varying locally and individually. Nest as of other doves, a skimpy platform or saucer of twigs and grass-stems placed perhaps somewhat higher up than in others (c. 3 to 7 or 8 metres) near the extremity of a leafy branch. Eggs, normally 2, rarely 3, white, typical. Average size of 49 eggs 25.9 × 19.9 mm. (Baker). Both sexes share in nest-building, incubation and tending the young; incubation period unrecorded.

MUSEUM DIAGNOSIS. Paler than the eastern race *humilis* (536) especially on the underparts, but variation clinal and many individuals impossible to assign definitely. For details of plumage see Baker, loc. cit.

MEASUREMENTS			
	Wing	Bill (from skull)	Tarsus
			Tail
♂ ♀	136-145	16-19	17-21
			84-92 mm.

No disparity between the sexes.

(SA, HW)

Weight 1 ♂ 104 gm. (GD).

COLOURS OF BARE PARTS. Iris hazel- to dark brown; eye-rim plumbeous. Bill black, tinged with plumbeous at base and on cere. Legs and feet dull red or magenta; claws black.

536. **Burmese Red Turtle-Dove.** *Streptopelia tranquebarica humilis*
(Temminck)

Columba humilis Temminck, 1824, Pl. Col., livr. 44: 259 [but not pl. 258]

(Bengal and Luzon)

T.(urtur). murvensis 'Hodgs.' = Bonaparte, 1856, Compt. Rend. Acad. Sci. Paris 43, no. 20: 942 ('continent [de l'Asie]' = Nepal *ex* Hodgson), *vide* Hartert, 1922, Vög. pal. Fauna 3: 2222

Baker, FBI No. 1882, Vol. 5: 251

LOCAL NAMES. *Lāli pōhū*, *Hāruā kōpū* (Assam); *Daotu kashiba gajao* (Cachari); *Gūlābi ghūghū*, *Ithūiyā ghūghū*, *Tuma khuri*, *Lāl ghūghū* (Bengal).

SIZE. Myna $\pm$; length *c.* 23 cm. (9 in.).

FIELD CHARACTERS. As in 535, q.v. — an elegant, brightly coloured little dove, grey pinkish and brick-red overall, with a narrow black collar on hindneck. Female, a smaller replica of Ring Dove.

STATUS, DISTRIBUTION and HABITAT. Resident and locally migratory; east of range of 535 — Nepal, Sikkim (?), Assam (north and south of Brahmaputra river), Manipur, East Pakistan; Andaman Islands. Summer (breeding) visitor to Nepal Valley, bhabar and duns, and to the Bengal and Assam duars, up to *c.* 1300 m. altitude. Affects scrub jungle and open cultivated country, as 535.

Extralimital. The greater part of SE. Asia: NE. Tibet and N. China south to Burma, Thailand, and the Indochinese countries and N. Philippines (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian race (535).

BREEDING. *Season* in northern areas with a cold winter chiefly March to September; elsewhere no fixed period; in the Andamans B. B. Osmaston took eggs between February and April. *Nest* and *eggs* as in 535. As in the case of several mild-mannered birds and other dove species, nest often sited in the same tree as holds a drongo's nest (*Dicrurus* sp.) obviously for the protection from crows and other nest robbers afforded by these vigilant and pugnacious guardians.

MUSEUM DIAGNOSIS. Differs from the nominate Indian race in its much darker and richer coloration, above and below. But this variation is clinal and many intermediate individuals are impossible to place with conviction. The axillaries given as white in *tranquebarica* and grey in *humilis* are variable in colour and not infallibly diagnostic.

MEASUREMENTS and COLOURS OF BARE PARTS as in 535. 'Wing 137-148' (Baker).

STREPTOPELIA CHINENSIS (Scopoli)

Key to the Subspecies

	Page
A Wing usually under 130 mm. <i>S. c. ceylonensis</i>	153
B Wing usually over 130 mm. 1	

		Page
1	Back distinctly and boldly spotted with pale rufous. . . . <i>S. c. suratensis</i>	152
	Back less distinctly spotted with darker buff. <i>S. c. edwardi</i>	155
	Back spotted very indistinctly or not at all. <i>S. c. tigrina</i>	154

537. Indian Spotted Dove. *Streptopelia chinensis suratensis* (Gmelin)

Columba suratensis Gmelin, 1789, Syst. Nat. 1 (2): 778

(Surat, Gulf of Cambay, India)

Baker, FBI No. 1873, Vol. 5: 242

Plate 38, fig. 8, facing p. 160

LOCAL NAMES. *Chitrōka fākhtā*, *Chitta fākhtā*, *Pārki*, *Chittā*, *Kangskiri*, *Pāndūk* (Hindi); *Chhitē ghūghū*, *Tēlia ghūghū* (Bengal); *Thipkya kāvdā* (Marathi); *Chakkara kutta prāvu*, *Aripāvu* (Malayalam); *Vānā hōli* (Gujarati); *Bode* (Gond); *Poda bellāgūvā* (Telugu); *Pūlli pūrā* (Tamil); *Pāti kōpū* (Assam); *Kodāyā pāndūk* (Bihar); *Daotu* (Cachari); *Inruigu* (Naga); *Voh kūrūp* (Kuki).

SIZE. Pigeon —; slenderer. Length *c.* 30 cm. (12 in.).

FIELD CHARACTERS. A slender pigeon, *above* pinkish brown and grey, spotted with white and with a conspicuous black-and-white 'chessboard' at base of hindneck. Tail blackish brown and slate with broad white terminal border which flashes prominently when spread out as bird is alighting. *Below*, vinous-grey, paler on throat, white on belly, vent, and under tail-coverts. Sexes alike.

Young (immature) paler and browner without the black chessboard on hindneck. *Above*, barred instead of spotted; wing-coverts edged with rufous. *Below*, fulvous-brown; breast feathers narrowly fringed with pale fulvous.

For downy chick see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; in some areas altitudinal and local migrant. Common in appropriate biotopes throughout West Pakistan (excepting desert and semi-desert areas), and India east to *c.* Cachar in Assam, including Nepal, Sikkim, and Bhutan, south through the Peninsula to Kanyakumari. Normally to *c.* 2400 m. alt. in the Himalayas in summer (individual stragglers once observed at *c.* 4900 m., Lahul, Himachal Pradesh, in June — H. G. Alexander); up to *c.* 1500 m. in the peninsular hills. Everywhere affects better wooded, better watered facies than Ring and Little Brown Doves — gardens, groves, cultivation and moist deciduous jungle. Habitat preference more clear-cut in dry season.

GENERAL HABITS. Except the preference for moister facies, not appreciably different from other doves. Pairs or small parties glean in stubble fields, on cross-country dust tracks, cartmen's bivouac sites, and in village environs, freely entering courtyards and verandas of inhabited dwellings. When disturbed suddenly on the ground takes off with an explosive flutter of wings and a quick side to side rolling action. Flight, as of other doves, strong and direct with a peculiar jerky saw-toothed action of gliding and abrupt braking with wings and outspread tail when alighting on a branch. Bowing and aerial nuptial displays, and agonistic and territorial behaviour as described under 534.

FOOD. Grains of paddy, jowar and other cereals, lentils and pulses, grass- and weed seeds.

VOICE and CALLS. A soft, pleasant though rather mournful-sounding *Krookrūk-krūkroo* . . . *kroo-kroo-kroo*, the number of the final *kroos* varying from two to six. Pattern of this song common, but individual idiosyncracies very marked; also discrete dialects in different parts of the range.

BREEDING. *Season*, in the northern portions, with a definite cold season, mainly April to July; elsewhere practically throughout the year; evidently two broods (or more ?). *Nest*, the customary flimsy platform of a few twigs and grass-stems with a central depression; placed fairly low down in a tree, thorn bush, or bamboo clump, or in the head of a stunted date palm; commonly also under eaves and on cornices and rafters in verandas of inhabited bungalows. *Eggs*, normally 2, exceptionally 3, white, with a smooth texture. Average size of 100 eggs 27.2×21.8 mm. (Baker). Both sexes take part in nest-building, incubation and tending the young. Incubation period *c.* 13 days; needs confirming.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Chick. 'Down long, plentiful, hair-like, yellowish white, darker than in *S. orientalis meena*' (Ticehurst).

There is a slight variability in colour and in the amount of spotting on the back and tertiaries; S. Indian birds are also clinally somewhat smaller than N. Indian, but less markedly so than Ceylonese (538) q.v. Intergrades with the darker *edwardi* (540) in eastern NEFA and Nagaland, and with the Burmese *tigrina* (539) in Manipur and E. Pakistan.

MEASUREMENTS

Peninsular and S. Indian birds measure:

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	135-146	18-21	21-24	118-143 mm.
♀♀	132-143	19-21	20-24	117-133 mm.
				(SA)
21 examples from Nepal give				
11 ♂♂	135-151 (av. 142)	—	—	131-150 mm. (av. 139.5)
10 ♀♀	133-145 (av. 139.2)	—	—	125-141 mm. (av. 134.1)
				(Biswas)

Weight 3♂♂ 123-128 gm. (GD); 1 o? 116 gm. (SA).

COLOURS OF BARE PARTS. Iris pale reddish brown; eyelids and narrow bare orbital patch dull crimson. Bill dark horny or plumbeous-brown. Legs and feet bright magenta; claws brown.

MISCELLANEOUS. Popular as a cage bird for its song, especially in the eastern portions of its range. Has been introduced as a colonist into Mauritius.

538. Ceylon Spotted Dove. *Streptopelia chinensis ceylonensis* (Reichenbach)

Turtur ceylonensis Reichenbach, 1851, Vollst. Natursyst., Tauben, pl. 253b. ff. 3373-4 (Ceylon)

Baker, FBI No. 1876, Vol. 5: 245

LOCAL NAMES. *Alu kobēyiyā* (Sinhala); *Mani purā*, *Ūmi purā* (Tamil).

SIZE. Pigeon —; slenderer. Length *c.* 30 cm. (12 in.).

FIELD CHARACTERS. As for 537. A slender white-spotted pinkish grey and brown pigeon with a conspicuous black-and-white 'chessboard' on hindneck. See Key to the Subspecies, and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. Abundant all over the island up to *c.* 1400 m. in the hills. Affects well-wooded country and paddyfields.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 537 q.v.

BREEDING. *Season* practically all year; chiefly from December to September (Phillips). *Nest* and *eggs* as in peninsular birds. Average size of 30 eggs 25.7×20.0 mm. (Baker).

MUSEUM DIAGNOSIS. Differs from the Indian *suratensis* (537) only in its smaller size.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	128-136	19-20	20-22	114-132 mm.
♀♀	130-136	19-20	20-22	118-127 mm. (HW)

COLOURS OF BARE PARTS. As in 537.

539. **Burmese Spotted Dove.** *Streptopelia chinensis tigrina* (Temminck)

Columba Tigrina Temminck, 1810, in Knip, Les Pigeons, les colombes: 94, pl. 43 (Timor and Batavia; type from Java)

Baker, FBI No. 1874, Vol. 5: 244

Plate 33, fig. 4, facing p. 32

LOCAL NAMES. As under 537 where applicable.

SIZE. Pigeon —; slenderer. Length *c.* 30 cm. (12 in.).

FIELD CHARACTERS. As of 537. A slender white-spotted pinkish grey and brown pigeon with a conspicuous black-and-white 'chessboard' on hindneck. See Key to the Subspecies, and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident: Cachar, Manipur, Mizo, and East Pakistan. A single doubtful old record from the Nicobars. Affects well-wooded moist deciduous biotope chiefly plains and foothills, keeping to paddyfields etc. like the other races.

Extralimal. 'Burma, [Thailand], Malay Peninsula, Indochinese countries, Palawan, Borneo, Sunda Is. from Sumatra to Babar. Introduced into Celebes, small islands in the Flores Sea, and the Moluccas' (Peters).

GENERAL HABITS, FOOD. As in 537.

VOICE and CALLS. Pattern of 'song' of Manipur birds recorded as consistently different from Indian — a syncopated *krūk-krooo* minus the terminal *kroos* (SA).

BREEDING. *Season, nest, and eggs* as in the Indian race. Average size of 50 eggs 27.6×21.9 mm. (Baker).

MUSEUM DIAGNOSIS. Birds from Cachar, Manipur, etc. are intermediate between the Indian *suratensis* and the Burmese *tigrina*. The latter is distinguished by absence of rufous spots on back, whilst those on the wing-coverts, scapulars and tertiaries are obsolete or absent. Outer webs of median coverts pale vinous-brown; greater

coverts the same with pale grey edges instead of all grey as in *suratensis*. White of underparts less in extent and often replaced with pale fulvous-brown.

MEASUREMENTS. Wing ♂ ♀ 137–155 mm. (Baker).

COLOURS OF BARE PARTS. As in 537.

MISCELLANEOUS. A favourite cage bird for its song throughout its range.

540. NEFA Spotted Dove. *Streptopelia chinensis edwardi* Ripley

Streptopelia chinensis edwardi Ripley, 1948, Proc. Biol. Soc. Wash. 61: 99

(Chabua, Lakhimpur dist., NE. Assam)

Not in Baker, FBI

LOCAL NAMES. As under 537 where applicable.

SIZE. Pigeon —; slenderer. Length *c.* 30 cm. (12 in.).

FIELD CHARACTERS. As of 537. A slender white-spotted pinkish grey and brown pigeon with a conspicuous black-and-white ‘chessboard’ on hindneck. See Key to the Subspecies, and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Eastern NEFA, in moist deciduous biotope, chiefly plains and foothills.

Extralimital. Unrecorded; possibly extreme N. Burma, W. China (?).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 537, q.v. Song ‘noticeably different from *suratensis* of peninsular India. Ends abruptly with a single *krūk* in place of several prolonged *kroos*’ (SA). Local dialect?

BREEDING. Season, nest, and eggs as in the Burmese race.

MUSEUM DIAGNOSIS. Conspicuously darker on the upperparts than Indian *suratensis*. Terminal bars on feathers of back and median wing-coverts darker buff and much reduced in extent. Differs from Burmese *tigrina* in having the upperparts darker still with more pronounced dark margins to feathers of back.

MEASUREMENTS

10 ♂ ♀ Wing 141–151; tail 139–146 mm. (SDR).

COLOURS OF BARE PARTS. As in 537.

541. Indian Little Brown or Senegal Dove. *Streptopelia senegalensis cambayensis* (Gmelin)

Columba cambayensis Gmelin, 1789, Syst. Nat. 1 (2): 779 (‘Cambaya’, i.e. Gulf of Cambay, NW. India)

Baker, FBI No. 1877, Vol. 5: 246

Plate 38, fig. 9, facing p. 160

LOCAL NAMES. *Chhōta fākhtā*, *Pārki*, *Tōtrā fākhtā*, *Pāndūk* (Hindi); *Tutan ghēri* (Sind); *Chitti bellagūvvā*, *Sowata gūvvā* (Telugu); *Touta purā* (Tamil); *Ariprāvu* (Malayalam); *Rām kōpū* (Nowgong, Assam).

SIZE. Myna +; length *c.* 27 cm. (10½ in.).

FIELD CHARACTERS. A small slim pinkish brown-and-grey dove. *Above*, head and neck lilac-pink with a miniature ‘chessboard’ in black and rufous on either side of foreneck; rest of upper plumage earthy brown with prominent grey patches on wing-shoulders. *Below*, breast pinkish brown; rest of underparts white. Tail graduated, with much white near tips of the outer feathers. Sexes alike.

Young (immature) lacks the chessboards on foreneck. Plumage duller and browner overall; feathers of upperparts and wing-coverts edged with rufous; breast duller and less pink.

STATUS, DISTRIBUTION and HABITAT. Mainly resident, hitherto believed more or less sedentary. Evidently also migratory to an unsuspected extent, but movements as yet very unclear. Restricted to dry deciduous biotope, and largely coincident with Ring Dove (534); more common in semi-desert facies. Throughout West Pakistan and India (up to *c.* 1000 m. in the western Himalayas and 1500 m. in the peninsular hills) east to Bihar, W. Bengal and East Pakistan (Tippera), south through the Peninsula to Rameswaram I. and Kanyakumari. Not Nepal, Sikkim, Bhutan, Assam or Ceylon. Recorded in the Andaman Islands (Port Blair) *c.* 1898; possibly introduced. Not met by later observers, so evidently failed to establish in the palpably inappropriate moist biotope. Birds in Baluchistan and NW. frontier districts of W. Pakistan intergrade with the paler race *ermanni* (Bonaparte) of Turkestan etc. Affects village environs and stony scrub-and-bush country about cultivation, particularly where interspersed with *Euphorbia* hedges and *Opuntia* thickets.

MIGRATION. An example ringed on 15.iii.1961 near Bhuj in Kutch (*c.* 23°10'N., 69°50'E.) was recovered on 27.ii.1964 near Hyderabad in W. Pakistan (*c.* 25°20'N., 68°25'E.), *c.* 200 km. north of the ringing place. Previously Ticehurst had recorded with surprise 4 or 5 exhausted birds, obviously on migration, coming on board ship when *c.* 10 miles off Karachi on a foggy morning in late March 1918 (*Ibis* 1923: 466).

GENERAL HABITS. Similar to Indian Ring Dove (534). Keeps in pairs or small parties — sometimes large close-packed flocks of 50 or more — glean-ing with it and with other doves in stubble fields and village environs. Occasionally stretches up to pluck seeds from growing weeds 30 to 50 cm. high. Male has the characteristic bowing courtship display on the ground, advancing towards the female in stiff ludicrous hops punctuated by a couple of mincing steps — head lowered, throat inflated, rump arched and tail depressed — bobbing and cooing. Female, seemingly quite unimpressed, usually moves away from these amorous advances, flying off when too ardently pursued, but sometimes crouching to permit copulation. Also has the typical aerial display, launching upwards from an exposed perch with noisy flapping, and sailing down on motionless wings in an arc or wide spiral to another perch nearby.

FOOD. Grains of paddy, jowar, bajra and other cereals and lentils; grass- and weed seeds.

VOICE and CALLS. A soft, pleasant *coo-rooroo-rooroo* or *cru-do-do-do-do*.

BREEDING. Season not defined, practically all year, chiefly January to October; two or more broods raised. Nest, a ridiculously flimsy and sketchy platform of twigs and grass stems, placed low down in a *Euphorbia* or other open bush, or a stunted date palm (*Phoenix sylvestris*). Although in exposed situations, with the incubating bird sitting closely the nest is quite inconspicuous. Nests frequently built on cornices and rafters, or on a rolled-up chik, in inhabited dwellings unmindful of the close proximity and comings and goings of the human occupants. Eggs, almost invariably 2, white, elliptical, with a smooth texture. Average size of 60 eggs 25.3 × 19.3 mm.

(Baker). Both sexes share in building the nest, incubation, and tending the young; incubation period unrecorded.

MUSEUM DIAGNOSIS. The extralimital race *ermanni* (of Afghanistan and Turkestan) with which the West Pakistan population is intermediate, is slightly larger and markedly paler (Wing ♂♂ 135–145; ♀♀ 130–140 mm. — Hartert). It is likely that some of these birds may be found as winter visitors in NW. India.

Chick (in down) dull yellowish fawn coloured.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	121–137	17–19	18–22	107–119 mm.
♀♀	124–134	17–19	20–21	104–113 mm.
				(SA, HW)

Weight 30 ♂♀ 71–91 gm. (av. 80.4 gm.).—SA.

COLOURS OF BARE PARTS. Iris brown; eyelids pale magenta. Bill brownish black. Legs and feet magenta; claws brownish black.

Genus *CHALCOPHAPS* Gould

Chalcophaps Gould, 1843, Bds. Austr., pt. 13; pl. (8) (= 5, pl. 62 of bound vol.).

Type, by monotypy, *Columba chrysochlora* Wagler

Small, terrestrial-feeding, metallic-plumaged pigeons rather closely allied to *Caloenas* both in anatomy and the possession of 12 tail-feathers, but lacking the neck-hackles. Wing of moderate length: 2nd and 3rd primaries (as.) subequal. Tarsi and toes bare, the latter slender and well adapted for running about on the ground.

CHALCOPHAPS INDICA (Linnaeus)

Key to the Subspecies

		Page
A	A grey median line from head to scapulars <i>C. i. robinsoni</i>	159
B	No median line on hindneck	
	Larger <i>C. i. maxima</i>	160
	Smaller <i>C. i. indica</i>	157
	Medium. Richer coloured. Breast and abdomen concolorous <i>C. i. augusta</i>	319

542. **Indian Emerald Dove.** *Chalcophaps indica indica* (Linnaeus)

Columba indica Linnaeus, 1758, Syst. Nat., ed. 10, 1: 164 (*orientali* = Amboina *vide* Stresemann, 1952, Ibis 94: 511)

Chalcophaps indica salimalii Mukherjee, 1960, Bull. Brit. Orn. Cl. 80 (1): 6 (Jenmalai (*sic*) = Tenmalai, central Travancore, Kerala)¹
Baker, FBI No. 1852, Vol. 5: 215

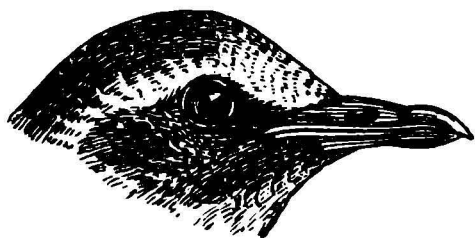
Plate 33, fig. 7, facing p. 32

LOCAL NAMES. *Rāj ghūghū* (Bengal); *Pāchu kāvdā* (Marathi); *Andi bellaguvvā* (Telugu); *Pāddaki pūrā* (Tamil); *Ōmana prāvu*, *Mānikā prāvu* (Malayalam); *Kā-er* (Lepcha); *Mati kupohu* (Assam); *Sil kopu* (Nowgong, Assam); *Daotualai* (Cachar).

SIZE. Myna +; length c. 27 cm. (10½ in.).

¹ Described as larger and darker (Wing ♂♂ 153–157) with abdomen paler than throat and breast, and green more pronounced in upperparts than metallic bronze. Race untenable.

FIELD CHARACTERS. A small brownish pink forest dove with brilliant bronzed emerald-green upperparts. Crown and neck grey, with prominent white forehead and eyebrows, and a band of white-fringed feathers across lower back. A white-bordered vinous-grey patch on wing-shoulder. Rump grey; tail brown and grey, with a broad black cross-band, broken in the middle. Sexes more or less alike, but see Museum Diagnosis.



× c. 1

Bronze-green mantle, white rump-patch, chestnut underwing, and coral

red bill conspicuous in flying flash-past.

Superficially a more brilliant but passable facsimile of Green Imperial Pigeon (506).

STATUS, DISTRIBUTION and HABITAT. Resident (and sedentary as far as known) in evergreen and moist deciduous biotope, patchily throughout India up to c. 1800 m. in the lower Himalayas, from Kashmir (Jammu) east to NEFA and Assam (including Nepal, Sikkim, and Bhutan); East Pakistan. South through the entire Peninsula. Affects thick secondary and mixed bamboo jungle and outskirts of forest clearings, chiefly in foothills country.

Probability of some sort of migratory movement suggested by their attraction to incandescent lights during certain moonless overcast nights in the late monsoon months with heavy fog and ground mist. These doves along with several other believedly sedentary diurnal species then obviously distracted from their course while actively on the move. (For details see Sálím Ali, 1962, JBNHS 59: 128-9.) Further investigation is desirable.

Extralimital. Burma, Malay Peninsula, Indochinese countries, Philippines, Indonesia.

GENERAL HABITS. A ground-feeding dove. Keeps singly or in pairs, but locally quite abundant. Usually seen running about gleaning on earth roads through forest and plantations, or on the sites of cartmen's bivouacs with scattered spillage from grain bags in transit, or leavings of bullock feed. Fond of overgrown outscoured ravines running through tea plantations etc., and tangles of wild castor plants (*Ricinus communis*) in old *jhoom* or cultivation clearings, for midday rest. Flight silent, very swift and direct but evidently lacking in quick manoeuvrability; hence the frequent casualties of birds dashing themselves to death against walls of plantation buildings as they shoot across at top speed through the surrounding glades low under the forest canopy.

FOOD. Grain, seeds, and fallen berries — those of lantana (*Lantana aculeata*) being a favourite. Termites caught on the ground (Baker).

VOICE and CALLS. A soft, deep, very low single moaning note *hoon*, with a nasal ending, repeated at intervals.

BREEDING. *Season*, variable locally, covering practically the whole year; in areas with a definite cold winter chiefly March to May; in Kerala peak periods April-May and again November-December. *Nest*, the typical flimsy twig structure of doves, perhaps somewhat more compact and better concealed;

normally 2 or 3 metres up in a dense bamboo clump or sapling in forest. *Eggs*, 2, pale creamy buff or *café-au-lait*, elliptical, smooth-textured. Average size of 200 eggs 27.0×21.0 mm. (Baker). Both sexes share in nest-building, incubation, and tending the young. Incubation period believed to be about 12 days, but needs confirming.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Female like male but generally with less white on forehead and supercilia; grey crown and nape somewhat suffused with reddish. White patch on wing-shoulder and white barring on rump less pronounced. Central tail-feathers redder brown and only the outermost pair grey.

Young (immature) of both sexes like adult female but duller, the bronze-green of mantle less in extent and barred with copper-red. A broad dull green and rufous band across wing (median and lesser coverts); inner secondaries tipped with rufous-red. Underparts except for pale chin and throat uniform dull brown darker than in adult, the feathers faintly vermiculated and narrowly barred with dull black, especially on breast and flanks. Under tail-coverts black.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	147-156	22-26	25-29	93-100 mm.
♀♀	147-149	c. 22	24-26	89-91 mm.
				(SA)

Wing average 14 ♂♂ 149, 8 ♀♀ 143 mm. (HA).

Weight 8 ♂♀ 119-144 gm. (av. 132) — SA.

COLOURS OF BARE PARTS. Adult. Iris brown. Bill coral-red, magenta on cere. Legs and feet pinkish- or purplish red; claws brown. Immature. Iris brown; orbital skin slaty brown. Bill slaty brown with ivory tip; mouth pink. Legs and feet pinkish grey; claws horny brown.

543. Ceylon Emerald Dove. *Chalcophaps indica robinsoni* Baker

Chalcophaps indica robinsoni Baker, 1928, Bull. Brit. Orn. Cl. 48: 58

(Cocawatte Estate, Ceylon)

Baker, FBI No. 1853, Vol. 5: 217

LOCAL NAMES. *Nil kobēyiyā* (Sinhala); *Pāthekai purā*, *Thamil purā* (Tamil).

SIZE. Myna +; length c. 27 cm. ($10\frac{1}{2}$ in.).

FIELD CHARACTERS. As of 542. A small brownish pink forest dove with brilliant bronzed emerald-green mantle. See Key to the Subspecies, and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Common resident. Race peculiar to Ceylon. Affects forests and well-wooded areas throughout the island, to over 1800 m. in the hills.

GENERAL HABITS. As of the Indian race (542) q.v. 'The highest elevations are visited only when *nillu* [*Strobilanthes* = *Karvia*] is seeding upcountry (about once in eleven years) when it migrates to exceptional heights to feast on the seeds' (Henry).

FOOD. Seeds and berries. Said to be very fond of seeds of the candlenut tree (*Sapium sebiferum*) and castor (*Ricinus communis*).

VOICE and CALLS. A mournful, somewhat ventriloquistic booming note, as of the Indian bird, ' *tk-hoon . . . tk-hoon*, uttered with crop inflated as in Pouter Pigeon ' (Henry).

BREEDING. *Season*, practically all year but chiefly February-March and again in September. *Nest and eggs* as in 542. Nest sometimes placed on a cardamom or tree-fern frond in jungle. Average size of 24 eggs 25.9×20.8 mm. (Baker).

MUSEUM DIAGNOSIS. Differs from peninsular birds both in colour and size. Adult male has the grey of head and neck running down to the scapulars in a well-defined line. Abdomen in both sexes lighter coloured than throat and breast, a difference hardly perceptible in Indian birds.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♂	135-147	21-22	c. 24	— mm.
♀ ♀	130-142	19-21	22-24	80-93 mm. (HW)

COLOURS OF BARE PARTS. As in 542.

544. **Andaman Emerald Dove.** *Chalcophaps indica maxima* Hartert

Chalcophaps indica maxima Hartert, 1931, Orn. Monatsb. 39: 145

(Golapabung, South Andamans)

Not in Baker, FBI

LOCAL NAMES. Unrecorded.

SIZE. Myna +; length c. 27 cm. ($10\frac{1}{2}$ in.).

FIELD CHARACTERS. As of 542. A small brownish pink forest dove with brilliant metallic emerald-green mantle. See Key to the Subspecies, and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to the Andaman Islands. Common resident in appropriate forest biotope everywhere.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 542.

BREEDING. *Season*, undefined as in other races: a fresh egg taken on 29 May (Osmaston, 1906, JBNHS 17: 489) and specimens with mature gonads procured on 16 February (Abdulali, 1964, *ibid.*, 61: 528). *Nest and eggs* as in Indian birds.

MUSEUM DIAGNOSIS. Differs from nominate *indica* of peninsular India and Burma only in having a larger wing.

MEASUREMENTS

Wing 12 ♂♂ 146-155 (av. 151), 6 ♀♀ 142-162 (av. 149) mm. — HA.
Hartert gives Wing 3 ♂♂ 157-164; 1 ♀ 165 mm.

COLOURS OF BARE PARTS. As in 542.



PLATE 38

1 *Treron s. sphenura*, Wedgetailed Green Pigeon (494). 2 *Ducula bicolor*, Pied Imperial Pigeon (509). 3 *Columba eversmanni*, Eastern Stock Pigeon (518). 4 *Columba r. turkestanica*, Hill Pigeon (515). 5 *Columba torringtoni*, Ceylon Wood Pigeon (522). 6 *Columba p. casiotis*, Wood Pigeon (519). 7 *Streptopelia t. arenicola*, Turtle-Dove (529). 8 *Streptopelia c. suratensis*, Spotted Dove (537). 9 *Streptopelia s. cambayensis*, Little Brown Dove (541).

544a. **Nicobar Emerald Dove.** *Chalcophaps indica augusta* Bonaparte
See Appendix, p. 319

Genus *CALOENAS* G. R. Gray

Caloenas G. R. Gray, 1840, List Gen. Bds.: 59. Type, by original designation, *Caloenas nicobarica* (Gmelin) = *Columba nicobarica* Linnaeus

Cf. Salvadori, 1893, Cat. Bds. Brit. Mus. 21: 614-18

Distinguished from all other pigeons by its long metallic neck hackles, longest and narrow on hindneck, disintegrated and hair-like on occiput and foreneck. Legs long and stout; toes slender, well adapted for walking. Bill large with the apical portion curved; a fleshy protuberance at base of culmen, larger in male than in female. Tail of 12 feathers.

544b. **Nicobar Pigeon.** *Caloenas nicobarica nicobarica* (Linnaeus)

Columba nicobarica Linnaeus, 1758, Syst. Nat., ed. 10, 1: 164 (Nicobar Islands)

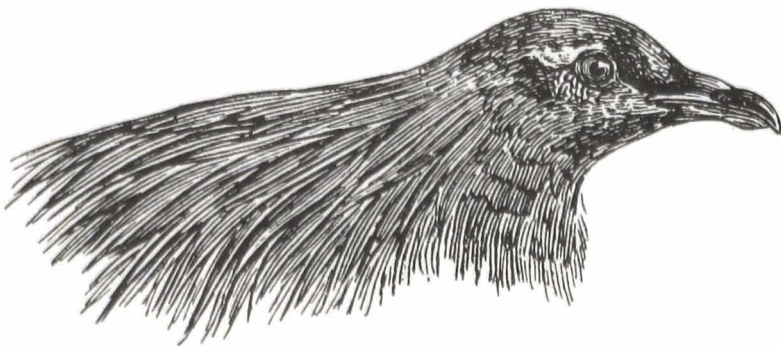
Baker, FBI No. 1851, Vol. 5: 213

Plate 33, fig. 10, facing p. 32

LOCAL NAME. *Lo-ung* (Nicobars).

SIZE. Pigeon +; length c. 41 cm. (16 in.).

FIELD CHARACTERS. A dark slaty grey pigeon with lustrous metallic blue-green and copper-bronze upperparts; unmistakable by the glistening mane-like neck hackles and sharply contrasting white tail-coverts and tail.



× c. $\frac{1}{2}$

Female very similar to male but with head, neck and breast more grey less slaty; sheen on upperparts less deep blue; neck hackles shorter.

Young (immature) duller coloured, lacking the neck hackles, and with bronzy green tail instead of white.

STATUS, DISTRIBUTION and HABITAT. Resident, common and locally abundant in the Nicobar Islands (Car Nicobar, Batti Malv, Tillanchang, Teressa, Camorta, Nancowry, and others). Perhaps less rare and straggling

in the Andamans than supposed. Has been collected and/or observed (in some cases breeding) as far north as the Cocos (Barren I., Havelock I., S. Sentinel, S. Andaman, and doubtless occurs on others of the group). Affects heavy evergreen forest, chiefly on small uninhabited islets off the larger land masses.

Extralimal. Mergui Archipelago eastward through the Indonesian, Philippine and other islands over the greater part of the Indo-Australasian region.

GENERAL HABITS. Keeps singly, in parties of 3 or 4, and flocks of a dozen to 20 or 30. Feeds entirely on the ground, walking about briskly hither and thither with a steady sprightly gait flicking aside the leaves to expose fallen seeds and berries, or pecking in the mulch with its bill. Walks very much like Emerald Dove but with wings drooping low at the sides, giving the impression of being maimed in the shoulders. Flight looks rather heavy, but in fact is swift and powerful, capable of being sustained over long distances when traversing wide stretches of sea from one island to another in search of food. A flock in swift commuting flight high up in the air is reminiscent of sandgrouse (Hume). Launches from tree and flushes from ground with a characteristic very noisy flutter of wings often sufficiently diagnostic even when the bird itself unseen. When settling, pitches clumsily on to a horizontal bough high up in the foliage canopy, often walking along it like a hen.

FOOD. Fleshy fruit picked off the forest floor, and seeds including some very hard ones like plum stones, evidently for crushing which the stomach is specially adapted (for structural details see Flower, 1860, *Proc. zool. Soc. London*: 330).

VOICE and CALLS. Normally very silent. Occasionally utters a harsh guttural croak not unlike that sometimes made by a domestic pigeon when handled (Butler).

BREEDING. *Season*, January to March-April; presumably, as in most pigeons, also at other times. *Nest*, an untidy loosely put-together platform of twigs built c. 3 to 8 metres up in trees in evergreen forest; often several nests thickly in a single tree in rookery fashion. In the 1870s W. Davison found it breeding 'in thousands' on Batti Malv island, almost every bushy tree containing several nests. *Egg*, a singleton, white, smooth-textured, long ellipse, often slightly pointed at either end. 'Colour of the membrane lining the shell gives a delicate purple tinge to the egg' (Osmaston). Average size of 18 eggs 48.0×33.9 mm. (Baker). Both sexes incubate (in captivity) and tend the young. Incubation period unrecorded.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill	Tarsus
		(from feathers)	
♂ ♀	247-268	c. 24-27	c. 36-42 mm. (Baker)

An adult ♂ recently collected has wing 240 mm. (Abdulali).

Weight 2 ♂♂ 460, 525; 4 ♀♀ 490-600 gm. (Grubh).

COLOURS OF BARE PARTS. Iris white, buff, or nut-brown [age?]. Bill greyish or slaty black. Legs and feet purplish violet to almost coral-red.

Order PSITTACIFORMES

Family PSITTACIDAE: Parrots

Contains arboreal fruit- and grain-eating birds usually of brightly coloured plumage, all the Indian representatives being chiefly green. Bill short, stout, strongly hooked: upper mandible loosely articulated with the skull and capable of kinetic movement. Tongue thick and fleshy. Feet zygodactylous—2 toes in front, 2 behind—adapted for clambering among branches. Feathers furnished with an aftershaft. Primaries 10; tail-feathers 12 in both Indian genera. For general information see Jean Dorst, 1964, Article 'Parrot' in Thomson, A. L. (ed.) *New Dict. Birds*: 600–602; for morphological details Stresemann, E., 1927–34, *Aves*: 820–4; Baker, 1927, *FBI* 4: 196; Van Tyne, J. & Berger, A. J., 1959: 455.

Key to the Genera

	Page
A Tail long, graduated, extending a considerable distance beyond tip of closed wing.....	<i>Psittacula</i> 163
B Tail short, slightly rounded, about even with tip of closed wing... ..	<i>Loriculus</i> 188

Genus PSITTACULA Cuvier

Psittacula Cuvier, 1800, *Leçons d'Anat. Comp.* 1, table at end. Type, by subsequent designation, *Psittacus alexandri* Linnaeus. (Mathews, 1917, *Bds. Austr.* 6: 169)

Tail very long and graduated, the median feathers narrow, pointed, and much exceeding the others in length. Bill thick, deeper than long: upper mandible swollen at the sides, culmen convex, much curved; lower mandible short and blunt.

The genus contains some of the most abundant and destructive bird pests of agriculture and horticulture in India.

Key to the Species

	Page
A Crown green	1
B Crown not green	2
1 Cheek-patch reddish.....	<i>P. longicauda</i> (♂ ♀) 176
Cheek-patch not reddish, males with pink or red collar at nape... a	
a Red patch on wing-coverts.....	<i>P. eupatria</i> (♂ ♀) 164
No red patch on wing-coverts.....	<i>P. krameri</i> (♂ ♀) 169
2 Wing 190 mm. and above.....	b
Wing below 190 mm.	c
b Underparts violet.....	<i>P. derbyana</i> (♂ ♀) 175
Underparts green.....	<i>P. caniceps</i> (♂ ♀) 175
c Underparts pinkish violet.....	<i>P. alexandri</i> (♂ ♀) 172
Underparts not as above.....	I
I Red patch on wing-coverts.....	a ¹
No red patch on wing-coverts.....	a ²
a ¹ Head grey or dark lavender.....	b ¹
Head not as above.....	b ²
b ¹ Wing c. 162–174 mm.....	<i>P. himalayana</i> (♂) 183
Wing c. 146–150 mm.....	<i>P. finschii</i> (♂) 184
Wing 140 mm. or below.....	<i>P. roseata</i> (♀) 181
b ² Forehead and orbital region pale rose, nape and crown pale lavender.....	<i>P. roseata</i> (♂) 181

	Page
Forehead and orbital region bright red, nape violet.....	
..... <i>P. cyanocephala</i> (♂)	178
a ² Flight-feathers blue..... <i>P. columboides</i> (♂ ♀)	185
Flight-feathers green.....b ³	
b ³ Rump grey..... <i>P. calthorpeae</i> (♂ ♀)	187
Rump viridis-green..... <i>P. cyanocephala</i> (♀)	178
Rump grass- or yellow-green.....c ¹	
c ¹ Collar obsolete or occasionally yellow..... <i>P. roseata</i> (♀)	181
Collar viridis-green.....d ¹	
d ¹ Back dark grass-green..... <i>P. himalayana</i> (♀)	183
Back paler, more yellowish green..... <i>P. finschii</i> (♀)	184

NOTE: *Psittacula intermedia* not seen but said to be intermediate in size and colour between *P. himalayana* and *P. roseata*.

PSITTACULA EUPATRIA (Linnaeus)

Key to the Subspecies

	Page
(Males only)	
A Bill 39 mm. or over; generally over 40 mm..... <i>P. e. magnirostris</i>	168
B Bill 39 mm. or under; generally under 37 mm..... 1	
1 Moustachial streak very broad..... <i>P. e. nipalensis</i>	164
Moustachial streak narrow.....a	
a Blue of nape and sides of head more extensive; throat less yellow; tarsus slaty..... <i>P. e. eupatria</i>	166
Blue of nape and sides of head less extensive; throat more yellow; tarsus yellowish..... <i>P. e. avensis</i>	167

545. **Large Indian Parakeet.** *Psittacula eupatria nipalensis* (Hodgson)

Palaeornis Nipalensis Hodgson, 1836, Asiat. Res. 19 (1): 177 (Nepal)
P. (alaeorins) indoburmanicus Hume, 1878, Stray Feathers 7: 459 (No locality;
restricted to Sikkim by Kloss)
Baker, FBI Nos. 1497, 1498, Vol. 4: 199, 200
Plate 40, fig. 3, facing p. 240

LOCAL NAMES. *Rāi tōtā*, *Hirāmān tōtā* (Hindi); *Pāhāri tōtā* (U.P., Lucknow); *Kārān tōtā* (M.P., Saugor); *Takru* (= 'of the hills'. Sukkur, Sind); *Chandana* (Bengal); *Kārān sūgā*, *Kārāria* (Nepal); *Ne tso* (Lepcha); *Sūwā* or *Swā* (Orissa).

SIZE. Pigeon ±; slenderer. Length ♂ (including long pointed tail) c. 53 cm. (21 in.); ♀ somewhat smaller.

FIELD CHARACTERS. A large grass-green parakeet with the typical short massive, deeply hooked red bill, and a conspicuous deep red patch on the wing-shoulders (secondary wing-coverts).

Male (adult) has a prominent rose-pink collar round the back and sides of neck, and a broad black band from the lower mandible to the rose collar. Tail-feathers below dull yellow.

Female and Young (immature) lack the rose-pink collar and the black mandibular stripe.

STATUS, DISTRIBUTION and HABITAT. Resident; also nomadic and locally migratory — the movements dependent chiefly on food supply. West Pakistan (Sind, chiefly the northern and southern parts; Bahawalpur; Peshawar district), and all India from Punjab along the Himalayan foothills (recorded up to c. 1600 m.), bhabar, terai, and duars (including Nepal, Sikkim and Bhutan) across the Gangetic Plain to eastern Assam and NEFA; Nagaland and Manipur (subspecies? See under 547). East Pakistan (Dacca, Chittagong, Tippera, etc.) south through Gujarat, N. Andhra, Madhya Pradesh and Orissa roughly to about latitude 18°N.; plains and hills normally to c. 800 metres. Affects dry and moist deciduous biotope — forest and well-wooded country. Also the older canal-irrigated desert settlements with well-grown trees and forest plantations, e.g. in the Punjab.

GENERAL HABITS. Keeps in parties of 3 or 4 birds or small flocks which band together in large congregations where food is abundant. Has noisy communal roosts, usually unshared with other species, in large densely foliated trees and groves in forest at which the birds collect from all quarters at sunset flying over long distances in batches of 5 to 50. Flight graceful and swift in spite of the seemingly 'stately' and unhurried wing-beats — reminiscent of the Nakta as compared with the smaller ducks. Flocks do considerable damage in orchards, the birds clambering amongst the branches and gnawing into the half-ripe fruit while still on the tree or plucking and flying off with it to a convenient perch, there raising it up to the bill held in one foot; often wastefully abandoning it after a bite or two and returning to filch more. Highly destructive also to ripening cereal crops, cutting off the growing ears, wantonly pulling them to shreds and wasting far more grain than it actually consumes.

FOOD. Fruits, vegetables and seeds of all kinds, wild or cultivated; also cereals like maize, wheat, and paddy. Analyses of stomach contents in an agricultural area in Lyallpur (W. Pakistan) showed 52 per cent crop seeds, 2·7 per cent weed seeds, 11·4 per cent neutral seeds, 4·8 per cent vegetables, 19·3 per cent cultivated fruits, 9·80 per cent wild fruits (Husain & Bhalla, 1937). Thus the bird is harmful in the highest degree to agriculture and horticulture. Like other parakeets feeds avidly also on the nectar of *Salmalia*, *Butea*, *Erythrina*, and suchlike flowers, but biting off and discarding (sometimes eating) the petals and floral parts to reach the liquid, thus evidently not even useful in cross-pollinating.

VOICE and CALLS. A loud, high-pitched screaming single note *keeāk*, or *kee-ār*, deeper and more-sonorous than of the commoner Roseringed species; uttered from a perch as well as on the wing. In captivity readily learns to imitate a few words of human speech, but not known to mimic any extra-specific calls or sounds in the wild state.

BREEDING. *Season*, overall December to April, generally somewhat earlier than the Roseringed Parakeet. *Nest*, a vertical shaft a few cm. deep with a neat round entrance-hole, cut by the birds themselves in the trunk of a coconut palm or large softwood tree such as *Salmalia malabarica*; occasionally also in sal (*Shorea robusta*), sheesham (*Dalbergia sissoo*) and other hardwoods growing in rambling gardens or in forest. In the Sunderbans the mangroves Keora (*Sonneratia apetala*) and Sundri (*Heretiera minor*) are

specially favoured. Holes — sometimes several in the same trunk in apartment-house fashion — unlined, but may have a bed of wood chippings fortuitously accumulated at the bottom during excavation. Nest-holes of barbets and woodpeckers are often enlarged and appropriated. Normally nests away from populated human settlements and only exceptionally in holes in buildings etc., as is so common with Roseringed. Eggs, 3 or 4, white, glossless, roundish ovals. Size *c.* 34 × 28 mm. Both sexes partake in excavating the nest, incubation, and feeding the young by regurgitation. Incubation period 19-21 days (Baker). Courtship display not specifically described but presumably of same ludicrous pattern as in Roseringed (550), q.v.

MUSEUM DIAGNOSIS. Distinguished from the nominate race (546) of peninsular India and Ceylon by somewhat larger size, brighter coloration, and more massive bill. Black mandibular stripe much broader and more conspicuous; occiput, cheeks, and nape usually more washed with blue.

MEASUREMENTS

	Wing	Bill (from posterior edge of cere)	Tarsus	Tail
♂♂	200-234	33-40	19-22	220-361 mm.
♀♀	192-221	33-36	19-22	206-325 mm.
				(SA)

Ticehurst (*Ibis* 1923: 43) gives for birds from N. India to Madhya Pradesh

♂♂	225-236	36-38	—	— mm.
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Greatest height of bill 22-24 mm.

COLOURS OF BARE PARTS. Iris lemon-yellow with a narrow outer blue ring; eyelids orange-yellow. Bill scarlet, darker on culmen orange-red at tips. Legs and feet dirty yellow; claws slaty.

MISCELLANEOUS. Learns to imitate a few words but is a far less accomplished mimic than the Hill Myna. Along with the Roseringed Parakeet is taught to perform a variety of clever table-top tricks such as loading and firing a toy cannon, and performing parakeets usually form a popular side-show at upcountry *melas* and fairs. Very popular as the 'common man's' pet, vast numbers of partly fledged young being regularly taken from nests for sale in bird markets, or hawked in the streets of most Indian towns; usually hung imprisoned in tiny hoop-iron cages outside bazaar shops. Birds from certain areas (e.g. Amrabad Plateau in Andhra and Dumkhal in Rajpipla, Gujarat) have acquired a local reputation for special excellence as talkers, and are highly prized by fanciers.

546. Large Ceylonese Parakeet. *Psittacula eupatria eupatria* (Linnaeus)

Psittacus Eupatria Linnaeus, 1766, Syst. Nat., ed. 12, 1: 140

(No locality = Gingi, India *ex* Brisson)

Baker, FBI No. 1496, Vol. 4: 198

LOCAL NAMES. *Hirāmān tōtā* (Hindi); *Pedda chilukā*, *Bandi rama chiluka* (Telugu); *Periya kili* (Tamil); *Labu girawā* (Sinhala).

SIZE. Pigeon $\pm$; slenderer. Length σ (including long pointed tail) c. 51 cm. (20 in.); q somewhat smaller.

FIELD CHARACTERS. A large grass-green parakeet with the typical short massive, deeply hooked red bill, and a conspicuous deep red patch on wing-shoulders (secondary wing-coverts). Indistinguishable from 545 except in the hand (see Museum Diagnosis).

STATUS, DISTRIBUTION and HABITAT. Resident, with nomadic and local migratory movements governed mainly by food supply; patchily throughout peninsular India roughly south of 18°N . latitude, and Ceylon (low-country Dry zone). Affects forest and well-wooded country to c. 900 metres elevation, in dry- and moist-deciduous biotope.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the northern race 545, q.v. In season the fleshy petals of *mhowa* flowers (*Bassia latifolia*) comprise a favourite food item.

BREEDING. *Season*, both in peninsular India and Ceylon chiefly November December to March/April. *Nest* and *eggs* as in 545, the latter somewhat smaller. Ceylon eggs measure c. 31×24 mm.

MUSEUM DIAGNOSIS. Slightly smaller and less richly grass-green than *nipalensis*. Bill less massive (greatest height c. 20–21 mm. v. 22–24). Black mandibular stripe narrower. For details of plumage see Baker, loc. cit.

MEASUREMENTS

Size decreases clinally southward; Ceylon birds measure

	Wing	Bill (from posterior edge of cere)	Tarsus	Tail
$\sigma\sigma$	187–219	32–36	c. 20	200–304 mm. (HW, CBT)
qq	175–195 (Baker)			

COLOURS OF BARE PARTS. 'Iris pale blue speckled with yellow, pale yellow, or yellow with a blue outer ring. Bill deep red. Feet plumbeous or greenish slate' (Baker).

547. Large Burmese Parakeet. *Psittacula eupatria avensis* (Kloss)

Palaeornis eupatria avensis Kloss, 1917, Jour. Nat. Hist. Siam 2: 219
(Bhamo, Upper Burma)

Baker, FBI No. 1498 (part), Vol. 4: 200 = *indoburmanica*

LOCAL NAMES. Unrecorded.

SIZE. As of 545: pigeon $\pm$; slenderer, with long pointed tail.

FIELD CHARACTERS. A large grass-green parakeet with long pointed tail and a bright red shoulder-patch. Indistinguishable in the field from 545 or 548 qq.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, with local movements as in 545. Cachar ('very common'); presumably also Nagaland and Manipur, but western limits of this form not yet worked out.

Extralimital. Burma south to Amherst (to c. 16°N . lat.).

GENERAL HABITS, FOOD, VOICE and CALLS. As in the other races, cf. 545.

BREEDING. Season, chiefly December to February/March. Nest and eggs as in 545; size *c.* 34 × 28 mm.

MUSEUM DIAGNOSIS. Closely resembles *P. e. magnirostris* (548) of the Andamans, but has a smaller bill and perhaps a yellower throat, while it lacks the narrow sky-blue neck-ring of that race (C. Boden Kloss).

MEASUREMENTS of the type specimen, ♂ adult: Wing 217; 'culmen' 38 (greatest height 22); tarsus 21; tail 342 mm.

COLOURS OF BARE PARTS. Iris 'white bluish speckled' (Anderson). Rest as in 545.

548. Large Andaman Parakeet. *Psittacula eupatria magnirostris* (Ball)

Palaeornis magnirostris Ball, 1872, Jour. Asiat. Soc. Bengal 41 (2): 278
(Andaman Islands)

Baker, FBI No. 1499, Vol. 4: 201

LOCAL NAMES. None recorded.

SIZE. As of 545: pigeon ±; slenderer, with long pointed tail.

FIELD CHARACTERS. A large grass-green parakeet with long, pointed tail and a bright red shoulder-patch. Indistinguishable in the field from the other races, qq.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to the Andaman Islands. Common and fairly plentiful everywhere in the North, Middle, and South Andamans, moving about between the smaller islands of the group in search of food. Has been specifically recorded on Table, Long, Barren, and South Sentinel islands besides the main ones, but is doubtless found on most others ecologically suitable. Also occurs on Coco Is. and Narcondam. Not reported south of the Ten Degree Channel — in the Nicobar Group. Affects tall evergreen forest and mangroves.

GENERAL HABITS. Keeps in noisy parties and flocks of half a dozen to several score to the lofty forest trees, joining up into enormous congregations at roosts which are often shared with the Redbreasted species (552). The birds commonly roost among mangroves (*Rhizophora mucronata*) growing along tidal creeks, preferably such patches as are more or less islanded from the shore by shallow water. Large areas of such mangroves become denuded ('stag-headed') at the top, the branches presenting a dead appearance due to the stripping of the leaves by the myriads of parakeets that sleep in them.

FOOD. As in the other races — fruits, grain, buds, seeds both wild and cultivated.

VOICE and CALLS. Loud harsh screeching screams as typical of the parakeets (cf. 545), but the notes said by W. Davison to be very distinct from either the Redcheeked or Redbreasted species occurring side by side with it.

BREEDING. Season, February-March. Nest, a self-cut hole high up in the trunk of a lofty tree, usually on the edge of forest. Osmaston found one nest 150 feet up, and another over 100 feet, in immense jungle trees. The latter nest was more than 8 feet below the entrance-hole. Eggs, 2 or 3, white. Average size of 10 eggs 35.1 × 28.2 mm. (Baker).

MUSEUM DIAGNOSIS. Distinguished from all other races by its heavier, more massive bill; from *nipalensis* by the well-developed narrow, almost sky-blue ring above the rosy hind-collar. Red shoulder-patches much brighter.

MEASUREMENTS

	Wing	Bill (from cere)
♂♂	205-217	39-45 mm.
♀♀	190-209	34-39 mm. (Baker)

Weight 2 ♀♀ 220, 225 gm. (Grubb).

COLOURS OF BARE PARTS. As in 545.

PSITTACULA KRAMERI (Scopoli)**Key to the Subspecies**

(Males only)

Lower mandible black.....*P. k. manillensis*

Lower mandible red.....*P. k. borealis*

549. Northern Roseringed Parakeet. *Psittacula krameri borealis*
(Neumann)

Palaeornis krameri borealis Neumann, 1915, Orn. Monatsb. 23: 178 (Assam)

Psittacula krameri fragosa Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1:
25 (Anadra, Sirohi, Rajasthan)

Baker, FBI No. 1501, Vol. 4: 204

LOCAL NAMES. *Tôtā*, *Lybār tôtā* (Hindi); *Gallar* (NW. Pakistan); *Chātūn* (Sind); *Tiyā*, *Tiyā tôtā* (Bengal); *Tenthia sūga* (Nepal); *Tôtā sōrāi* (Assam); *Daobator* (Cachari); *Pōpāt*, *Sūdo* (Gujarat); *Pōpāt*, *Keerā* (Marathi).

SIZE. Myna +; with long, pointed tail. Length overall *c.* 42 cm. (16½ in.).

FIELD CHARACTERS. A slim grass-green parakeet with the typical short, heavy, deeply hooked red bill.

Male with a rose-pink and black collar; no red shoulder-patch as in 545.

Female without the collar but with an indistinct emerald-green ring round neck.

Young (immature) like female. Male acquires pink-and-black collar in the third year.

STATUS, DISTRIBUTION and HABITAT. Resident. West Pakistan (Baluchistan, Sind, NW. frontier districts, Punjab), and all northern India, eastward along the Himalayan foothills, terai, and the entire Gangetic Plain through Assam and E. Pakistan, south to the arbitrarily fixed boundary of 20°N. lat.; Nepal, terai and bhabar. Affects moist- and dry-deciduous biotope — even semi-desert — keeping to light secondary jungle, gardens, orchards and cultivation in the neighbourhood of human habitations. Was introduced in the Andamans by Col. Tytler, about a hundred years ago (Hume, 1874, SF 2: 177) but failed to 'take on'.

Extralimital. Burma (including Shan States), SE. China, and reportedly Vietnam.

GENERAL HABITS. One of the most destructive bird pests of agriculture and horticulture. Keeps in small parties or large noisy rabbles which often

band together in enormous swarms to raid ripening crops of jowar, maize, and other cereals, and orchard fruit. The birds clamber about among the twigs and gnaw into the half-ripe fruits, one after another, wasting far more than they actually eat. Or they descend in swarms upon ripening fields of food crops, biting into the ears of grain or cutting off the head completely and flying with it to a nearby tree where it is raised up to the bill with one foot and after a nibble or two wastefully discarded, the bird soon returning to the field to renew its ravages. Frantic shouts and stones hurled from slings by the ryot from his machan amidfield only serve to move the destructive horde to a different corner of the field where the depredation complacently continues. Rabbles of these parakeets commonly gather at wayside railway stations and goods sheds, clambering amongst the sacks of grain and groundnuts awaiting entrainment, biting through the fabric and helping themselves to the contents; or they waddle about comically on the ground with partly raised tail to pick up the spillage. Has communal roosts, often shared with crows and mynas, among groves of trees in sprawling urban gardens and outskirts of habitation where enormous numbers collect at sunset, flying in, battalion after battalion, from all points of the compass. The birds are extraordinarily abundant in and around some of the larger northern cities like Lahore, New Delhi and Kanpur. Flight swift and direct with rapid wing-beats.

A large noisy swearing mob of parakeets soon musters at the summons of a pair whose nest is threatened, e.g. by mynas or a snake, the birds flying at and around the intruder, flitting angrily about him in a sort of hypnotized frenzy, all screeching and screaming wildly together. The male has a very ludicrous courtship display, sidling up to his mate, stretching himself up to his full height, feeding her on regurgitated pap and caressing her, often with the bills interlocked. He suddenly backs away stiffly, eying her from a foot's distance with his head pulled well back (as if in rapt admiration), strutting and posturing, wings partially open at the shoulders, and the foot on her side lifted and ridiculously 'clawing the air' towards her. He then crosses over to the other side of the hen to repeat the antics, and thus back and forth several times. (For further details of courtship and mating see Sálím Ali, 1927, JBNHS 32: 218-19; also Malcolm Macdonald, 1960, *Birds in my Indian Garden*: 48-60.)

FOOD. Fruits, cereal, grain, and seeds of all kinds, wild as well as cultivated. Among items specifically identified are chillies (*Capsicum*), groundnuts (*Arachis hypogaea*), gram (*Cicer arietinum*); flower-petals and nectar of *Salmalia malabarica*, *Erythrina indica*, *Butea monosperma*, *Bassia latifolia* and other species; seeds of *Prosopis spicigera*, *Acacia arabica*, *Casuarina equisetifolia*, green spiny fruit of the common wasteland weed *Xanthium*, and flowers and fruits of *Capparis aphylla*.

VOICE and CALLS. A loud, shrill screaming *kee-āk*, sometimes quickly repeated several times, varying in tempo with the occasion, and uttered at rest as well as on the wing.

BREEDING. *Season*, chiefly January to April but may go on till July. *Nest*, an unlined hollow in a tree-trunk, usually some small natural hole cut and enlarged by the birds to size; or preferably a readymade nest-hole of barbet or woodpecker, at any height between c. 3 and 10 metres. Holes

in rock scarps and walls of ruined buildings and ancient forts are freely occupied, many pairs often nesting close to each other in a loose colony. Frequently holes in the outside walls of buildings in towns are appropriated, often in the heart of noisy congested bazaars. *Eggs*, 3 or 4, sometimes 5, rarely 6; pure white roundish ovals. Average size of 20 eggs 29.3×24.0 mm. (Baker). Cutting of nest-hole by both sexes; incubation entirely by female. Period of incubation undetermined. Both parents feed the nestlings by regurgitation. According to Malcolm Macdonald, young leave nest about four weeks from laying of the egg by parent.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. *P. k. borealis* differs from the peninsular and Ceylon race *manillensis* in being clinally larger and slightly paler and yellower; also in having — in the majority of cases — both mandibles red;¹ in *manillensis* the lower mandible is black.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
10 ad. ♂♂ (Punjab)	175–187 (once 191)	24–27	—	225–263 mm. (once 189) (HW)
5 ad. ♂♂ (Gujarat)	170–180	26–29	18–19	157–245 mm. (SA)
Baker gives				
♂♂	164–183	24–26	16–17	{ 240–282 mm. 190–240 mm.
♀♀	162–170			

Weight 5 ♂♂ (104) 116–139 gm. (SA).

COLOURS OF BARE PARTS. Iris yellowish white. Bill, both mandibles coral-red. Legs and feet greenish slate.

550. Roseringed Parakeet. *Psittacula krameri manillensis* (Bechstein)

Psittacus Manillensis Bechstein, 1800, Stubenvögel, 2nd Gotha ed.: 612

(Philippines, *errore* = Ceylon)

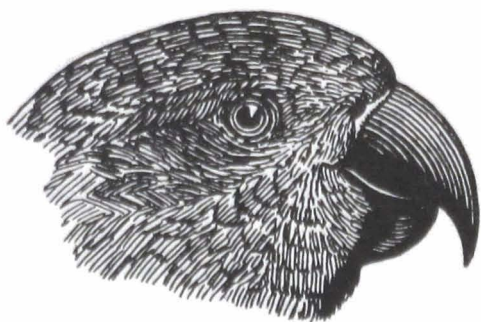
Baker, FBI No. 1500, Vol. 4: 202

LOCAL NAMES. *Tôtā*, *Lybār tōtā* (Hindi); *Swā*, *Sūvā* (E. Madhya Pradesh); *Pōpāt*, *Sūdo* (Gujarat); *Pōpāt*, *Keerā* (Marathi); *Chilukā* (Telugu); *Kili* (Tamil); *Rannā girawā* (Sinhala); *Tattā*, *Modirattattā* (Malayalam).

SIZE. Myna +; with long pointed tail. Length overall c. 42 cm. (16½ in.).

FIELD CHARACTERS. A slim, grass-green parakeet with the typical short heavy, deeply hooked red bill. Indistinguishable in the field from 549 q.v. except by black (*v.* red) lower mandible.¹

STATUS, DISTRIBUTION and HABITAT. Resident. Peninsular India south of lat. 20°N. — the arbitrarily fixed boundary with the northern race — and Ceylon (low-country Wet and Dry zones). Affects moist- and dry-deciduous biotope: lightly wooded country and cultivation in the neighbourhood of human habitations.



× c. 1

¹ In some cases lower mandible partly red partly black.

GENERAL HABITS. As of the northern form (549), q.v. By its ubiquitous abundance, the vast swarms in which it occurs in agricultural areas, and its wasteful feeding habits, is a menace to food crops and orchard fruit. A highly destructive pest with no compensating virtues from the economic point of view. A popular pet of the 'common man'. If taken as nestling and hand-reared learns to repeat a few words rather indistinctly, and to perform a variety of table-top tricks.

FOOD, VOICE and CALLS. As in 549. Locally very destructive to coffee 'cherries' in Mysore plantations.

BREEDING. *Season* overall (including Ceylon) chiefly between January and April/May. *Nest, eggs* and *site* as in the northern race. Average size of 100 eggs 30.5 × 24.3 mm. (Baker).

MUSEUM DIAGNOSIS. Clinally somewhat smaller than 549; differentiated from it chiefly by the lower mandible being black (*v.* red). Specimens from around lat. 20°N. are intermediate in this regard and can readily pass for either form. Ceylon birds agree with those from S. India in size and colour and cannot be separated from them.

MEASUREMENTS				
	Wing	Bill (from cere)	Tarsus	Tail
11 ad. ♂♂				
(Ceylon,	159–172	22–25	16–17	186–238 mm.
Kerala,				(SA, HW)
Mysore)				
COLOURS OF BARE PARTS. As in 549.				

PSITTACULA ALEXANDRI (Linnaeus)

Key to the Subspecies

- Paler above and below; tail longer: ♂ 196–198, ♀ 172–193 mm. *P. a. abbotti*
- Darker above and below; tail shorter: ♂ 168–189, ♀ 145–171 mm. *P. a. fasciata*

551. **Indian Redbreasted Parakeet.** *Psittacula alexandri fasciata* (P. L. S. Müller)

Psittacus fasciatus P. L. S. Müller, 1776, *Natursyst.*, Suppl.: 74 (Pondicherry, *errore*, restricted to Arakan¹ by Ticehurst, 1933, *Jour. Bom. nat. Hist. Soc.* 36: 934)
Baker, FBI No. 1508, Vol. 4: 210

Plate 39, fig. 1, facing p. 176 and Plate 40, fig. 5, facing p. 240

LOCAL NAMES. *Mādnā, Kājilā, Gour tōtā* (Hindi); *Imrit bhēlā* (Nepal); *Daobator gajao* (Cachari).

SIZE. Pigeon — ; with long, pointed tail. Length overall *c.* 38 cm. (15 in.).

FIELD CHARACTERS. A long and pointed-tailed grass-green parakeet with greyish pink head and plum-red throat and breast. A prominent yellow shoulder-patch where maroon in Alexandrine Parakeet (545).

¹ But see remarks on allocation of type locality, Biswas, 1960, *JBNHS* 57: 536–7.

Male (adult). *Above*, head purplish grey with narrow black forehead running back to eyes, and broad black stripes from lower mandible to sides of head. Hindneck and sides of neck brighter green than rest of upper-parts. A large yellow patch on wing-shoulder (median and greater coverts). *Below*, throat and breast vinaceous red; belly bluish green; vent and under tail-coverts yellowish green. Tail bluish green above with yellowish tips; dusky yellow below. Bill largely red.

Female. Head tinged blue-green and with less plum-coloured bloom; breast redder and darker, untinged with plum colour. Bill largely black.

Young (immature). Green throughout lacking the red breast and with only a slight dull brownish plum-colour about the head. Black head markings are acquired after the first moult (Baker). Bill like female's, but nestlings said to have both mandibles horny reddish orange. Needs confirmation.

STATUS, DISTRIBUTION and HABITAT. Resident, with local nomadic movements governed by food supply. The lower Himalayas (terai, bhabar, and up to c. 1500 m.) from about Dehra Dun (Kumaon) eastward through Nepal, Sikkim, Bhutan, and NEFA; south through Assam, Nagaland, Manipur, and Mizo (?). East Pakistan. Affects moist-deciduous biotope — thin secondary jungle and the neighbourhood of *jhoom* or shifting hill cultivation. Avoids dense evergreen forest.

Extralimital. SW. Yunnan, Burma, N. Vietnam and the other Indochinese countries; S. China and Hainan Island.

GENERAL HABITS. Usually keeps in parties of 6 to 10, occasionally larger rabbles as when raiding fields of hill paddy or orchards. Often descends to the ground in harvested fields, parties of the birds waddling about actively to glean the fallen grain. Small flocks do the rounds of particular fruiting or flowering trees day after day until a tree is cleared. The birds feed quietly among the foliage as they clamber about, their presence in a tree only betrayed by the rain of leaves and other matter dropped in the process or by the muffled whirr of wings as a bird flies from one branch to another. When moving to another tree the flock fly swiftly as a compact wheeling battalion, uttering their distinctive cries. 'If one of a flock should happen to be wounded, its calling will bring the whole party flying round almost within arm's length, the entire number keeping up all the time an unceasing din of not unpleasing chatter' (Armstrong, 1876, SF 4: 308).

FOOD. Wild figs (*Ficus* spp.) and other wild and orchard fruit; leaf buds, and fleshy petals and nectar of *Salmalia*, *Butea*, and suchlike flowers; hill paddy, maize, etc.

VOICE and CALLS. A short sharp nasal, not unpleasant scream, *kaink*, quickly repeated by several birds together when a flock is disturbed and flying off; cry arrestingly different from that of Roseringed or Alexandrine.

BREEDING. *Season*, chiefly between January and April, varying locally with altitude and other conditions. *Nest*, a natural tree-hole enlarged and excavated by the birds to suit; normally c. 3 to 10 metres up in thin forest or well-wooded country, often close to cultivation and habitations; sometimes several nests in neighbouring trees in a loose colony. Nest-holes of barbets and woodpeckers frequently utilized. *Eggs*, 3 or 4, white, less spherical than of most parakeets. Average size of 50 eggs 30.9×25.6 mm.

(Baker). Courtship not described, but judging from mating behaviour is evidently of same pattern as Roseringed Parakeet's. 'While on female's back (for over two minutes) male's wings drooped limply at her sides as he actively trod her shifting from one foot to the other, his head bobbing quickly up and down, first on one side of hers then on the other as if kissing alternately on both cheeks' (SA).

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
♂♂	162-174	23-28	16-17	{ 168-189 mm. 145-171 mm. (Baker)
♀♀	157-162			

COLOURS OF BARE PARTS. Iris, ♂ straw-yellow to bright pale yellow, ♀ whitish yellow. Bill, ♂ upper mandible coral-red, lower brownish black; ♀ upper mandible black, lower brownish black. Legs and feet dusky greenish yellow or pale yellowish slate.

552. **Andaman Redbreasted Parakeet.** *Psittacula alexandri abbotti* (Oberholser)

Conurus fasciatus abbotti Oberholser, 1919, Proc. Biol. Soc. Washington 32: 29
(South Andaman Island)

Baker, FBI No. 1508 (part), Vol. 4: 210

LOCAL NAMES. Unrecorded.

SIZE. As of 551; length overall c. 38 cm. (15 in.).

FIELD CHARACTERS. As of 551, q.v.; indistinguishable from it in the field.
See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to the Andaman Islands. Recorded from Middle and South Andamans, but doubtless occurs over the entire group wherever conditions favourable, with settlements and cultivation. 'Perhaps the commonest bird in the Andamans. Comes into Port Blair in tens of thousands in December and January, devouring the paddy' (Osmaston, 1906, JBNHS 17: 487). Not reported south of the Ten Degree Channel, in the Nicobar Islands.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 551, q.v.

BREEDING. *Season*, evidently chiefly February during which month Osmaston found numerous nests. *Nest, eggs* and clutch size as in 551.

MUSEUM DIAGNOSIS. Differs from *P. a. fasciata* in being larger and paler-coloured overall.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
3 ♂♂	170-174	28-31	13-14	187-193 mm. (BNHS Coll.)
8 ♀♀	168-172			
		23-25	14-21 [!]	172-190 mm. (U.S. Nat. Mus. Coll.)

COLOURS OF BARE PARTS. As in the Indian form.

553. **Blyth's Nicobar Parakeet.** *Psittacula caniceps* (Blyth)

Palaeornis caniceps Blyth, 1846, Jour. Asiat. Soc. Bengal 15: 23 (Nicobars)

Baker, FBI No. 1509, Vol. 4: 212

LOCAL NAMES. None recorded.

SIZE. Pigeon $\pm$, slenderer and with long, pointed tail. Length overall c. 61 cm. (24 in.).

FIELD CHARACTERS. A large, rather dingy-looking, long-tailed grass-green parakeet with black head markings similar in pattern to Redbreasted, but without the red breast.

Male (adult). *Above*, forehead black continued backward as a broad stripe to each eye; a very wide black band from lower mandible to each side of neck. Rest of head, hindneck and sides of neck brownish grey gradually diffusing into the bright yellowish green upperparts. Tail dingy yellow; middle feathers blue at base, violet-grey towards tips. *Below*, chin black; rest of underparts yellowish green like back. Bill red.

Female has the grey of the head tinged with bluish, and black bill.

STATUS, DISTRIBUTION and HABITAT. Resident. Nicobar Islands; so far recorded only on Great Nicobar, Montschall and Kondul. Affects high forest.

GENERAL HABITS. Keeps singly or in pairs or parties of 5 or 6, much to the tops of high trees when not feeding. Difficult to observe among the dense foliage, its presence only betrayed by its distinctive noisy calls which can be heard a long way off (Davison).

FOOD. Largely 'the ripe fruit of the pandanus, so abundant on the inhabited islands of the Nicobar group'.

VOICE and CALLS. 'A wild screeching note (but quite unlike either *magnirostris*, *erythrogenys* or *fasciatus*)'; continually uttered while at rest and in flight. A loud raucous *kraan kraan*, not unlike a crow's (HA).

BREEDING. Unrecorded.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; Hume, 1874, SF 2: 178-80.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
♂ ♂	202-222	28-30	20-21	290-345 mm.
♀ ♀	195-212			

The female has as long a tail as the male.

(Baker)

10 examples from the Nicobars in the Abbott collection, U.S. Nat. Mus., give

5	♂ ♂	200-215	29-32	19-23	308-358 mm.
5	♀ ♀	208-217	29-30	21-22	290-308 mm.

COLOURS OF BARE PARTS. Iris orange-red. Bill: upper mandible in ♂ coral-red, in ♀ black; lower mandible in both sexes black. Legs and feet plumbeous green (or plumbeous red, according to Baker).

554. **Lord Derby's Parakeet.** *Psittacula derbyana* (Fraser)

Palaeornis Derbyanus Fraser, 1852 (1850), Proc. Zool. Soc. London: 245, Aves, pl. 25.

(No locality, cage bird)

Not in Baker, FBI

LOCAL NAMES. None recorded.

SIZE. Myna; with long pointed tail. Overall length *c.* 46 cm. (18-19 in.).

FIELD CHARACTERS. Head violet-blue washed with green, with a narrow black band from eye to eye along base of bill, and a wide moustache of the same colour; underpart of neck, breast, and upper abdomen a fine purplish violet. Rest of plumage green, becoming yellowish on the wings and bluish on dorsal side of the tail. Bill red and black in male; all-black in female.

STATUS, DISTRIBUTION and HABITAT. Presumably summer visitor to NEFA in the Siang and Subansiri Divisions, as in adjacent SE. Tibet (between *c.* 2700 and 3500 m.), where according to Ludlow it only arrives during the first half of May and departs about end September. Evidently does not occur west of about the 93rd meridian.

Extralimal. SE. Tibet; SW. China in the provinces of Szechuan and Yunnan (Peters).

GENERAL HABITS. On arrival (in SE. Tibet), and before departure, seen in large flocks of 40 to 50 birds in cultivated valleys and conifer forest higher up. Noisy and very destructive to ripening crops.

FOOD. Barley, poplar catkins, cones of *Pinus tabulaeformis* and orchard fruit, according to season and availability.

VOICE and CALLS. Not described.

BREEDING. *Season* (in SE. Tibet) mid June. *Nest*, in holes in trees especially those of *Populus ciliata* (Ludlow, 1944).

MUSEUM DIAGNOSIS. Distinguished from *Psittacula a. fasciata* (551) chiefly by the green of the back running up on the nape and occiput (*v.* these parts concolorous with the crown). Breast much more lavender (*v.* vinaceous rosy), the colour extending considerably lower down towards vent than the rosy in *fasciata*.

MEASUREMENTS of specimens collected by F. Ludlow in SE. Tibet, Wing 3 ♂♂ 223-231; 5 ♀♀ 218-224 mm. (Kinnear).

COLOURS OF BARE PARTS. Iris greyish yellow. Bill: upper mandible in adult ♂ red, in ♀ and juv. ♂ black; lower mandible in both sexes black. Legs greenish grey; claws brown.

PSITTACULA LONGICAUDA (Boddaert)

Key to the Subspecies

Back distinctly pale, tinged with lilac and blue. . . . *P. l. tytleri* (♂ ♀)

Back almost concolorous with crown. *P. l. nicobarica* (♂ ♀)

555. **Andaman Redcheeked Parakeet.** *Psittacula longicauda tytleri* (Hume)

Palaeornis Tytleri Hume, 1874, Stray Feathers 2: 454 (Andaman Islands;

new name for *Palaeornis affinis* Beavan, 1867, not of Gould, 1858)

Baker, FBI No. 1511, Vol. 4: 214

LOCAL NAMES. None recorded.

SIZE. Myna ±; with a very long pointed tail. Overall length *c.* 46 cm. (18 in.).

FIELD CHARACTERS. Redcheeked like 556, q.v., but both sexes less yellowish green and much bluer above and below.



PLATE 39

1 *Psittacula a. fasciata*, Indian Redbreasted Parakeet (551). 2 *Psittacula himalayana*, Himalayan Slatyheaded Parakeet (562). 3 *Chalcites maculatus*, Emerald Cuckoo (586). 4 *Harpactes e. hodgsonii*, Redheaded Trogon (593). 5 *Batrachostomus h. hodgsoni*, Hodgson's Frogmouth (667). 6 *Treron a. apicauda*, Pintailed Green Pigeon (693). 7 *Columba hodgsonii*, Speckled Wood Pigeon (520). 8 *Columba l. leuconota*, Snow Pigeon (513). 9 *Columba pulchricollis*, Ashy Wood Pigeon (523). 10 *Macropygia u. tusalia*, Bartailed Cuckoo-Dove (526). All males.

STATUS, DISTRIBUTION and HABITAT. Resident and very common throughout the Andaman Islands, including Barren I., Narcondam, the Cocos, and Preparis. Affects cultivated areas and surrounding forest.

GENERAL HABITS. Keeps in vast flocks of thousands about fields of ripening paddy, to which the birds are enormously destructive (Butler, 1899).

FOOD. As of other parakeets — grain and fruit.

VOICE and CALLS. Unrecorded.

BREEDING. *Season*, February-March. *Nest*, a hole in a tree, very commonly a padouk (*Pterocarpus marsupium*), between about 4 and 8 metres up, growing near habitation or in forest. *Eggs*, two or three, white. Average size of 30 eggs 30.6×24.7 mm. (Baker).

MUSEUM DIAGNOSIS. Male distinguished from that of the Nicobar population (556) by the strong wash of violet on the upper back and blue on the lower back; underparts much less yellow, more tinged with bluish. Female also more bluish overall, and with the mandibular stripe all green instead of green-tinged black. Both sexes rather smaller than Nicobar birds.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
♂♂	173-182	23-25	c. 19-20	235-253 mm.
♀♀	165-173	22-23	c. 17-18	178-204 mm.
				(Baker)

COLOURS OF BARE PARTS. As in 556.

556. **Nicobar Redcheeked Parakeet.** *Psittacula longicauda nicobarica* (Gould)

Palaeornis Nicobaricus Gould, 1857, Bds. Asia, pt. 9, pl. 13 [= 6, pl. 6 of bound vol.] (Nicobars). New name for *Palaeornis erythrogenys* Blyth, 1846, not of Lesson, 1831 Baker, FBI No. 1510, Vol. 4: 213

LOCAL NAMES. *Talaka*, *Talahi* (Car Nicobarese).

SIZE. Myna $\pm$; with a very long pointed tail. Overall length c. 48 cm. (19 in.).

FIELD CHARACTERS. Male (adult). *Above*, crown green; a black band of green-tipped feathers from nostril to eye; sides of head light brick-red; nape yellowish green with an indistinct lilac collar on hindneck. Upper back pale greyish yellow-green, interscapular region more bluish, rump bright green. Wings largely yellow-green and blue-green. Tail green-and-blue, the middle feathers largely blue. *Below*, chin and broad mandibular stripe to each side of neck black; rest of underparts green, yellower on throat and breast.

Female has the cheeks duller red and the mandibular stripe partially tinged with green. Rest of plumage, above and below, nearly uniform green.

STATUS, DISTRIBUTION and HABITAT. Resident. Nicobar Islands. Recorded in the 1870s and 90s as excessively abundant on all the islands of the group; presumably this status continues. Affects forest, gardens (kampongs), cultivation, and mangroves.

GENERAL HABITS. As in 555.

FOOD. As of other parakeets — grain and fruit. Items specifically recorded are papaya (*Carica papaya*), ripe pandanus fruit, and occasionally the outer covering of betel nuts (*Areca catechu*)—Davison, 1874, SF 2: 183.

VOICE and CALLS. Loud, not unlike that of *Psittacula krameri* (HA).

BREEDING. *Season*, evidently as in the Andamans, February-March. *Nest*, the only two known were in tree-holes on Trinkut I. *c.* 4 metres up in a *Pandanus* and 10 m. up in a large forest tree respectively. Each contained two young birds (Davison).

MUSEUM DIAGNOSIS. Both sexes rather larger and bluer than Andaman birds. For distinguishing from that population see under 555; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
♂♂	186–192	26–28	18–20	{ 250–286 mm. 180–205 mm. (Baker)
♀♀	178–187	24–25		

6 ♂♂ ad. Wing 195–202 (av. 199.5); tail 240–290 mm. (HA).

COLOURS OF BARE PARTS. Iris yellow, creamy white, or pale brown. Bill: ♂ upper mandible vermilion, yellow at the tip, lower mandible horny black, yellowish horny, or dingy red; ♀ both mandibles blackish; in very young birds (both sexes) dull red. **Legs and feet** dull earthy or dingy green (Hume).

PSITTACULA CYANOCEPHALA (Linnaeus)

Cf. Whistler, H. & Kinnear, N. B., 1935, JBNHS 37: 752–3. Biswas, B., 1951, Amer. Mus. Novit., No. 1500: 1–8

Key to the Subspecies

Head in ♂ richer coloured, more blue less red; under wing-coverts and rump (♂ ♀) bluish green.....*P. c. cyanocephala*

Head in ♂ paler, less blue more red; under wing-coverts and rump (♂ ♀) bluish green.....*P. c. bengalensis*

557. Northern Blossomheaded Parakeet. *Psittacula cyanocephala bengalensis* (Forster)

Psittacus bengalensis Forster, 1781, in Pennant's Indian Zool.: 40
(Bengal; restricted to Calcutta by Whistler & Kinnear)

Baker, FBI No. 1502, Vol. 4: 204

Plate 40, fig. 1, facing p. 240

LOCAL NAMES. *Fāriādi* (= 'complainer'), *Tūi*, *Fūltūsi* (Bengal); *Bengali tōtā* (Punjab); *Dēsi tūiya*, *Lālsirā tōtā*, *Tūiyā tōtā* (U.P.); *Tūi sūgā* (Nepal).

SIZE. Myna —; with a long, pointed tail. Overall length *c.* 36 cm. (14 in.).

FIELD CHARACTERS. As of the southern bird (558), q.v.

STATUS, DISTRIBUTION and HABITAT. Resident, with local movements governed mainly by food supply. Roughly from about Rawalpindi (*c.* 73°E. long.) in West Pakistan eastward along the lower Himalayas through Jammu and Kashmir, Uttar Pradesh and Nepal to Bhutan duars and West Bengal; normally up to *c.* 600 metres, exceptionally and locally to *c.* 1500 m. Southward in the Gangetic Plain and through Saurashtra in Gujarat and

Madhya Pradesh to lat. 20°N., the arbitrarily fixed boundary where it intergrades with nominate *cyanocephala*. Affects well-wooded moist-deciduous plains and foothills country; avoids semi-desert areas.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 558.

BREEDING. Season, overall January to April, varying with locality. Nest, eggs, etc. as in the nominate race. Average size of 40 eggs 25.0 × 20.4 mm. (Baker).

MUSEUM DIAGNOSIS. Differs from the nominate form of south India and Ceylon (558) in being clinally larger, with the head paler coloured (less blue, more red) in the male. Tail much paler blue; rump, upper tail-coverts, under wing-coverts, and axillaries green (*contra* bluish green or verdigris). Birds approaching the 20th parallel are intermediate and can pass with either race.

MEASUREMENTS

	Wing	Bill (from cere)	Tail
♂ ♂	138–150	17–19	183–253 mm.
♀ ♀	135–144	16–18	185–200 mm. (Biswas)

Tarsus ♂ ♀ 14–16 mm. (SA).

Weight 2 ♂♂ 70, 71.5; 1 ♀ 66 gm. (GD).

COLOURS OF BARE PARTS. As in 558.

558. Southern Blossomheaded Parakeet. *Psittacula cyanocephala cyanocephala* (Linnaeus)

Psittacus cyanocephalus Linnaeus, 1766, Syst. Nat., ed. 12, 1: 141 (East Indies = Gingi, South Arcot district, Madras)

Psittacus rosa Boddaert, 1783, Table Pl. enlum.: 53 (Mahé; restricted to Chittagong by Whistler & Kinnear, 1935; re-restricted to Malabar coast by Biswas, 1951, *tom. cit. supra*)

Baker, FBI No. 1503, Vol. 4: 206

Plate 42, fig. 4, facing p. 288

LOCAL NAMES. *Tūiya tōtā* (Hindi); *Keerā* (Marathi); *Tui* (Gujarati); *Rāma chiluka* (Telugu); *Pānnū girāwā*, *Rosa girāwā* (Sinhala); *Kili* (Tamil); *Poon tōttā* (Malayalam).

SIZE. Myna —; with a long, pointed tail. Overall length c. 36 cm. (14 in.).

FIELD CHARACTERS. A slender, dainty grass-green or yellowish green parakeet with bright bluish red or plum-coloured head, a black-and-verdigris collar, and a maroon-red patch on wing-shoulder. Broad white tips to the narrow, blue central tail-feathers particularly conspicuous in the swift arrow-like flight.

Female has the head duller and greyer, surrounded by a bright yellow collar. No neck-ring; maroon shoulder-patch absent or obsolete.

Young (immature) green overall, with the central tail-feathers shorter and broader. Tips of primaries more pointed than in adults. Dark head apparently acquired after the first winter.

STATUS, DISTRIBUTION and HABITAT. Resident, with marked local movements governed mainly by food supply. All peninsular India south of lat. 20°N. (the arbitrarily fixed boundary with 557), and Ceylon; lowlands and hills, locally up to c. 1300 metres. Affects moist-deciduous biotope — light

forest, well-wooded compounds, and cultivation; altogether less closely associated with man than Roseringed Parakeet.

GENERAL HABITS. Largely restricted to wooded country. Usually keeps in small parties of 5 to 10 birds, but in areas of food abundance, especially in cultivation within forest, often collects in very large flocks, of several hundred, committing serious depredations on ripening crops. Flight — aptly likened by one observer to 'a badly balanced arrow' — very swift, the flocks turning and twisting from side to side and in and out of the stems of forest trees with amazing agility. It is accompanied by a distinctive, interrogative, shrill but pleasant note *tooi?* or *tooi-tooi?* which, coupled with the prominent white-tipped blue tail, makes its identity unmistakable even while dashing past. Roosts in large noisy rabbles in bamboo clumps and *Butea* jungle, and the like.

FOOD. Grain and fruit of all kinds, buds, fleshy petals and nectar of flowers such as *Salmalia*, *Butea*, and *Bassia*. Figs of peepul and other *Ficus* species, and *bēr* drupes (*Zizyphus* spp.) are important 'wild' items. Very destructive to paddy (*Oryza*), jowar (*Sorghum*), maize (*Zea mays*), gram (*Cicer*), and vetches (*Dolichos lablab* and other species) commonly cultivated in forest clearings. Destructive also to orchard fruit.

VOICE and CALLS. Besides the shrill *tooi-tooi?* uttered in dashing flight, has a variety of soft musical conversational notes when at rest in company.

BREEDING. *Season*, chiefly December/January to April; in Ceylon occasionally also in July and August. *Nest*, as of other parakeets — a vertical shaft in a tree-trunk or bough with a neat round entrance-hole at the top, at moderate heights from the ground. Usually chiselled out by the birds themselves (both sexes), but old nest-holes of small woodpeckers and barbets, enlarged to suit, also freely utilized. Nest unlined, but sometimes with a little chance debris of wood-chips fallen in during excavation. F. N. Betts observed that this species chisels out long slivers of wood unlike other parakeets which bite off dice-shaped pieces. Several pairs often nest in a loose colony in the same or adjacent tree-trunks. *Eggs*, 4 or 5 — rarely 6 — white, more spherical than of most other parakeets. Average size of 50 eggs 24.9×20.2 mm. (Baker). As far as observed the hen alone incubates; share of the male, if any, and period of incubation undetermined. Nestlings fed by regurgitation, apparently also by the hen alone.

Courtship pattern and antics mainly as in Roseringed Parakeet (549), q.v.

MUSEUM DIAGNOSIS. Clinally smaller than the northern *bengalensis* (557). Head richly coloured in male (more blue, less red). Tail much darker blue; rump, upper tail-coverts, under wing-coverts, and axillaries bluish green or verdigris (*contra* green). Birds approaching the 20th parallel are intermediate and can pass with either race. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from cere)	Tail
♂ ♂	132-145	16-19	180-240 mm.
♀ ♀	126-140	16-18	164-176 mm.
			(Biswas)

Tarsus 13-15 mm. (SA).

Weight 9 ♂ ♀ 56-70 gm. (av. 65) — SA.

COLOURS OF BARE PARTS. Iris yellowish white. Bill (paler in ♀): upper mandible pale orange-yellow; lower blackish brown, pale flesh colour at chin. Legs and feet greenish grey; claws horny.

MISCELLANEOUS. Like other parakeets extremely wasteful in its feeding habits and wholly injurious from the economic point of view. Is a popular and ornamental though rather uninteresting pet. May learn to whistle snatches of some simple tunes, but has no claim to talking ability.

PSITTACULA ROSEATA Biswas

Key to the Subspecies

(Males only)

Green above and below; red patch on upper wing-coverts smaller;
under wing-coverts green *P. r. roseata*
Similar to above but more yellowish; red patch on upper wing-
coverts larger *P. r. juneae*

559. Assam Blossomheaded Parakeet. *Psittacula roseata roseata* Biswas

Psittacula roseata Biswas, 1951, Amer. Mus. Novit., No. 1500: 4

(Gunjong, North Cachar, Assam)

Included by Baker under FBI No. 1503

Plate 40, fig. 2, facing p. 240

LOCAL NAMES. *Daobator kashiba* (Cachari); *Assāmi fūltūsi* (Calcutta bird dealers).

SIZE. Myna —; with a long, pointed tail. Overall length *c.* 36 cm. (14 in.).

FIELD CHARACTERS. As of the Indian Blossomheaded parakeets (557, 558), qq.v. Indistinguishable from 557 in the field. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, with the usual local movements governed by food supply. Lower Himalayas and duars of Sikkim, Bhutan and northern Bengal; Assam; East Pakistan. Intergrades with *P. r. juneae* (560) in southeastern E. Pakistan (Tripura area) roughly around 91-92°E. longitude. Affects well-wooded country, light forest, and cultivation in jungle clearings.

Extralimal. 'Upper Burma' (Biswas).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 558, q.v.

BREEDING. *Season*, chiefly January to March/April; in the Assam hills sometimes continuing into early May. *Nest and eggs* as in 557.

MUSEUM DIAGNOSIS. The species *Psittacula roseata* 'differs from *P. cyanocephala* in having the forecrown, cheeks, and ear-coverts rosy pink instead of red; the crown bluish lilac; back and rump green; no verdigris collar; the colour of the patch on wing-coverts between Morocco Red and Claret Brown of Ridgway (1912, pl. 1); under wing-coverts green and not verdigris; tips of central rectrices pale yellow; tail conspicuously shorter. The nominate subspecies is larger and darker; the patch on the wing-coverts is smaller' (Biswas).

MEASUREMENTS

	Wing	Bill (from cere)	Tail
♂♂	139-150	18-20	155-195 mm.
♀♀	137-143	18-19	140-163 mm.
			(Biswas)

COLOURS OF BARE PARTS. As in 558.

560. Arakan Blossomheaded Parakeet. *Psittacula roseata juneae* Biswas

Psittacula roseata juneae Biswas, 1951, Amer. Mus. Novit., No. 1500: 5

(Arakan, Burma)

Included by Baker under FBI No. 1503

LOCAL NAMES. Not specifically recorded. *Tenuwā* (for parakeets generally, Manipur).

SIZE. Myna — ; with a long, pointed tail. Overall length *c.* 36 cm. (14 in.).

FIELD CHARACTERS. As of 558. Indistinguishable in the field from other Blossomheaded parakeets. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. The Tripura area (roughly around longitude 91-92°E.) where the population intergrades with nominate *roseata*; Mizo (?); Manipur (?); Chittagong, E. Pakistan(?).

Extralimital. 'Arakan, Lower Burma south to Tavoy district, Siam, and Indochina [Vietnam, Laos, Cambodia]' (Biswas).

BREEDING. As in 557; nothing specifically recorded.

MUSEUM DIAGNOSIS. 'Similar to *roseata* but more yellowish, both above and below; the central tail-feathers less bluish; the patch on the wing-coverts more extensive on the average; wing smaller' (Biswas).

MEASUREMENTS of intermediate examples from the Tripura area: 4 ♂♂ Wing 137-145; bill (from cere) 18-19; tail 170-198 mm.

COLOURS OF BARE PARTS. As in 558.

561. Rothschild's Parakeet. *Psittacula intermedia* (Rothschild)

Palaeornis intermedia Rothschild, 1895, Nov. Zool. 2: 492 (India)

Cf. Hartert, E., 1924, Nov. Zool., 31: 126

Not in Baker, FBI

LOCAL NAMES. Unrecorded.

SIZE. About that of the Himalayan Slatyheaded Parakeet (562).

FIELD CHARACTERS. Presumably more or less as of 562, q.v., but never consciously seen alive in the wild state by any ornithologist.

STATUS, DISTRIBUTION and HABITAT. Completely unknown. Originally described from a single trade skin (the Type) of unknown provenance — allegedly 'Native Sikkim' — shipped from Bombay along with two skins of *Psittacula himalayana*. Six more were obtained later from a London plume dealer. These 7 specimens — all that are known — are now in the Rothschild Collection, American Museum of Natural History, New York.¹

GENERAL HABITS, FOOD, VOICE and CALLS. Unknown, but presumably not different from its putative parent stocks.

MUSEUM DIAGNOSIS. Superficially a hybrid between *Psittacula himalayana*/*P. finschii* and *Psittacula cyanocephala*/*P. roseata* sharing many characters with both the groups. Approximates in coloration to the Blossomheaded species, and in size to the Slaty-headed. For a discussion and analyses of the shared characters see Biswas, 1959 JBNHS 56: 558-62.

MEASUREMENTS

Wing	Bill (from cere)	Tail
6 ad. [♂] 148-158	19-21	185-221 mm. (3 measured) (Biswas)

¹Forshaw (1975) opines that they are hybrids.

The seventh specimen, immature (sex ?), is green overall and matches well in coloration and size immature examples of *Psittacula himalayana*.

COLOURS OF BARE PARTS. Unrecorded.

562. Himalayan Slatyheaded Parakeet. *Psittacula himalayana* (Lesson)

Psittacus (*Conurus*) *Himalayanus* Lesson, 1832, in Belanger's Voy. Ind. Orient, Zool.: 239 (Valleys of the Himalayas)

Palaeornis schisticeps Hodgson, 1836, Asiat. Res. 19: 178 (Nepal)

Baker, FBI No. 1504, Vol. 4: 206

Plate 39, fig. 2, facing p. 176

LOCAL NAMES. *Tōtā*, *Shōgā* (Kashmir); *Pāhāri tūiyā* (U.P.); *Mādnā sūga* (Nepal); *Gāgi*, *Pahāri tōtā*, *Pāhāri mādnā* (Calcutta bird dealers).

SIZE. Myna; with a long, pointed tail. Overall length *c.* 41 cm. (16 in.).

FIELD CHARACTERS. A grass-green parakeet with the entire head dark bluish slaty in the male. Chin and a narrow black ring encircling neck followed by a bright verdigris-green collar on hindneck; a prominent dark red patch on wing-shoulder (secondary coverts). Tail steeply graduated, all the feathers broadly tipped with bright pale yellow, particularly the narrow, pointed, blue middle pair.

Female similar but without the red shoulder-patch.

Both sexes readily distinguishable from Blossomheaded Parakeet by dark *slaty* head *v.* bluish red or grey, and bright *yellow* tail-tip *v.* white, these features striking even in a flashing fly-past.

Young (immature) green overall, apparently acquiring the dark head after the first winter.

STATUS, DISTRIBUTION and HABITAT. Resident, migrating altitudinally in winter and with marked nomadic wanderings governed by food supply. The Himalayas from the Afghan frontier in West Pakistan (Kohat, Kurram, Chitral) eastward through Kashmir, Garhwal, Kumaon, Nepal and Sikkim to Bhutan and western Assam — roughly to around 92°E. longitude. At higher elevations than other parakeets, chiefly between *c.* 600 metres (winter) and 2500 metres (summer); occasionally down to 250 m. locally. Affects well wooded hillsides and valleys; especially partial to deodar forest and the neighbourhood of terraced cultivation and hill orchards.

GENERAL HABITS. Keeps more to forest than other parakeets, in family parties and small flocks; nowhere as abundant or in such large congregations as *e.g.* the Blossomheaded. Like other parakeets clambers among the foliage and branches in hand-over-hand fashion aided by the hooked bill for leverage. Flight very swift and direct, accompanied by a high-pitched double note, the birds turning, twisting, and banking in unison to weave their way through the forest trees with remarkable agility, the whole flock suddenly swinging upwards to alight in the foliage canopy.

FOOD. Nuts, acorns, seeds, and fruits — wild as well as cultivated. Very destructive to walnuts, and apples and pears in hill orchards, gnawing into the half-ripe fruit and wasting far more than it actually consumes. Is a local pest of maize in upland valleys.

VOICE and CALLS. The high-pitched double scream *tooi-tooi?* uttered in flight is like the Blossomhead's but harsher and quite distinctive: rather

reminiscent of the shrill 'whistles' of a marmot. A single high-pitched shriek commonly uttered at rest; also a variety of softer and more musical conversational notes when in company.

BREEDING. Normally up to *c.* 2500 metres. *Season* chiefly March to May, varying with altitude. *Nest*, a natural hollow in a tree-trunk, or old woodpecker or barbet hole, chiselled out to suitable size, or one self-excavated by the birds, between *c.* 6 and 18 metres up. Sometimes several holes in the same or adjacent trees in forest occupied in a loose colony. *Eggs*, 3 to 5 — most commonly 4 — white, glossless, rather spherical ovals. Average size of 40 eggs 28.3×22.2 mm. (Baker). Share of the sexes in the domestic chores presumably as in Blossomhead but not specifically recorded. Incubation period undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Differs from the allied eastern species (563) by darker plumage, including slate colour of head. Wing longer; central tail-feathers shorter and broader (breadth near tip *c.* 11 mm.) in both sexes.

MEASUREMENTS

Wing		Tail	
39 ♂♂	157–175 (av. 166)	38 ♂♂	175–275 (av. 233) mm.
11 ♀♀	153–165 (av. 160)	11 ♀♀	149–275 (av. 200) mm.

(K. Z. Husain)

Tarsus 12–13 mm.; **bill** (from cere) 20–22 mm. (Baker).

COLOURS OF BARE PARTS. Iris creamy white to lemon-yellow. Bill: upper mandible orange, reddish at base, yellow at tip; lower mandible yellow. Legs and feet yellowish green; claws plumbeous horn.

563. Eastern Slatyheaded Parakeet. *Psittacula finschii* (Hume)¹

Palaeornis Finschii Hume, 1874, Stray Feathers 2: 509

(Kollidoo, 3500–5000 ft, upper Salween River, Burma)

Baker, FBI No. 1505, Vol. 4: 208

Plate 40, fig. 6, facing p. 240

LOCAL NAME. *Daobator kogashim* (Cachar).

SIZE. Myna; with a long, pointed tail. Overall length *c.* 36 cm. (14 in.).

FIELD CHARACTERS. A slatyheaded hill-forest parakeet, indistinguishable from 562 in the field. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. From southeastern Bhutan and western Assam east and south through NEFA, the rest of Assam, Nagaland, Manipur, Mizo, and East Pakistan (Sylhet-Chittagong area); foothills and up to *c.* 2100 m. Affects hill forest and cultivation.

Extralimital. W. Yunnan, Burma south to Tenasserim, N. Thailand, southern Laos, and central Vietnam.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 562, q.v.

¹ Treated as a race of *Psittacula himalayana* in Synopsis. The fact of sympatry (overlapping breeding distribution) in the duars area of northern Bengal and southeastern Bhutan apparently without hybridization, pointed out by K. Z. Husain (1959, *Ibis* 101 (2) : 249–50) and confirmed by Biswas (1960, JBNHS 57: 538), necessitates this change in its taxonomic status.

BREEDING. Season, February to May. Nest, eggs, etc. as in *P. himalayana*. Average size of 30 eggs 27.1×21.5 mm. (Baker).

MUSEUM DIAGNOSIS. Similar to *P. himalayana* (562) sex for sex, but paler overall including slate colour of head. Back more yellow; central tail-feathers a paler lilac-blue in the middle and duller lilac-yellow on the terminal halves; under wing-coverts and axillaries a darker blue-green. Wing shorter; central tail-feathers much longer and narrower (breadth near tip *c.* 5 mm.) in both sexes.

MEASUREMENTS

	Wing		Tail
34 ♂♂	145–155 (av. 150)	32 ♂♂	240–305 (av. 270) mm.
10 ♀♀	141–149 (av. 143)	9 ♀♀	212–250 (av. 223) mm.

(K. Z. Husain)

COLOURS OF BARE PARTS. Iris creamy white to yellow. Bill: upper mandible coral-red or vermillion, tipped yellow; lower mandible all yellow. Legs and feet dirty green (Baker).

564. **Bluewinged Parakeet.** *Psittacula columboides* (Vigors)

Palaeornis columboides Vigors, 1830, Zool. Jour. 5: 274

(No locality = Aneichardi, Travancore)

Baker, FBI No. 1506, Vol. 4: 208

Vol. 4, plate 49¹

LOCAL NAMES. *Màlāngour tōtā* (Hindi; of bird dealers?); *Nilattāttā* (Malayalam).

SIZE. Myna $\pm$; slenderer and with a long, pointed tail. Overall length *c.* 38 cm. (14½ in.).

FIELD CHARACTERS. A bluish green (rather than grass-green) parakeet with pinky grey head, back and breast, and a brilliant blue-green and black collar round occiput. Lower back, rump, and upper tail-coverts greenish blue. Wings and central tail-feathers conspicuously blue, the latter tipped with yellow.

Female lacks the blue-green or verditer collar behind the black neck-ring and has the dove-grey on back and breast less pure in tint.

Young (immature) more or less entirely green with the collar only faintly indicated. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, with the usual nomadic wandering in quest of food. The Western Ghats complex from Kerala north to *c.* 19°N. lat. (Kasa in Thana dist., north of Bombay) including the Nilgiri, Palni, and associated hills of Tamil Nadu and Mysore States — chiefly between *c.* 500 and 1500 m. alt. Not in Ceylon. Restricted to evergreen biotope but wandering into the intermediate zone to about the same limit as *P. cyanocephala* does from the deciduous end. Both species frequently occur together in low foothills country; only the Bluewinged at higher elevations.

GENERAL HABITS. Keeps in parties of 4 or 5, or small flocks, to forested hillsides in the vicinity of hillmen's settlements and cultivation or *poddus*.

¹ The figure is not quite accurate. The beautiful lilac-blue sheen on the head is not shown, nor the bright green of the lores and cheeks merging into violet-blue on forehead. The blue-green collar next the black one is not brilliant or prominent enough; moreover these actually go round the occiput and not hindneck. The prominent yellow tips of bill and tail are missing!

Secondary jungle on old forest clearings and abandoned coffee and rubber plantations are favourite haunts. Flight and general behaviour as in the Blossomheaded Parakeet.

FOOD. Grain, seeds, and fruits — especially the various wild figs (*Ficus*). Also buds, petals and flower nectar, *Erythrina* and *Grevillea*, so widely grown as shade trees in South Indian tea and coffee plantations, being regularly patronized. Very destructive to jowar (*Sorghum*) and other cereals and vetches (*Dolichos*) in hillmen's cultivation; also to orchard fruit.

VOICE and CALLS. A double-noted cry like the Blossomhead's but harsher and distinctive. Uttered chiefly on the wing, and rather reminiscent of the harsh *che-chwe* of Paradise Flycatcher (*Terpsiphone*), but much louder. Parties very noisy.

BREEDING. *Season*, January to March. *Nest*, a hole in a tree-trunk in forest, coffee plantations, and the like between c. 6 and 30 metres from the ground. Lofty ironwood trees (*Mesua ferrea*) seem particularly favoured in spite of the considerable extra effort it must involve to chisel this hard wood. Readymade woodpecker and barbet holes are also altered to suit and utilized. *Eggs*, normally 4, white, spherical. Average size of 25 eggs 28.3×24.5 mm. (Baker). Share of the sexes in the domestic chores, and incubation period, undetermined.

MUSEUM DIAGNOSIS. For details of adult male plumage see Baker, loc. cit.

Female (adult) differs in having the green wash on forehead and lores reduced to a minimum; no ring of verditer green behind the black neck-ring; grey of breast less pure in tint.

Young (immature). Sexes alike. Entire head, hindneck, mantle, and underparts green, with the neck rings only shadowed in verditer and black. Scapulars, wing-coverts, and inner secondaries more green, less blue; pale edging to wing-coverts less defined; central tail-feathers shorter and broader. Adult plumage attained with first complete moult. On leaving nest both sexes have red bills like adult males. They rapidly darken to black as in adult female, that of male again reverting gradually to red within the first year.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
♂♂	142-156	22-26	14-18	{ 204-246 mm. 170-190 mm. (SA)
♀♀	135-145			

COLOURS OF BARE PARTS. Iris pale golden to bright yellow. Bill: ♂ upper mandible scarlet or cherry-red with yellow tip; lower mandible horny brown tinged with orange at chin, yellowish at tip; ♀ both mandibles dark horny brown or blackish, tinged with orange at chin. Legs and feet greenish grey; claws horny brown.

MISCELLANEOUS. Much prized by fanciers as the 'Bababudan Parrot', this species has acquired a spurious reputation, especially in Mysore, as a talking paragon, being able to converse with humans in Arabic! The basis for this widespread belief appears to be that one Bābūddīn, a pilgrim from Mecca (and incidentally the introducer of coffee from Yemen into S. India) who settled on the hills that now bear a semblance of his name (Bababudan), kept some local parakeets whom he taught to call to Allah and recite verses from the Koran. Whether some of his trained birds escaped or were artfully

released after their graduation is not clear. But they were regularly fed and so kept in the neighbourhood of the holy man's abode. To his glorification they caused open-mouthed wonderment amongst the devout who pilgrimaged to the saint periodically, and who helped later to broadcast the magical piety of Bābuddīn and the spell it had cast upon the parakeets of the locality!

565. Layard's Parakeet. *Psittacula calthorpeae* (Blyth)

Palaeornis Calthorpeae (sic) 'Layard' = Blyth, 1849, Jour. Asiat. Soc. Bengal 18 (2): 800 (Ceylon)

Baker, FBI No. 1507, Vol. 4: 209

Plate 42, fig. 5, facing p. 288

LOCAL NAMES. *Alu girāwā* (Sinhala); *Kili* (Tamil).

SIZE. Myna —; slenderer, with a long, pointed tail. Overall length c. 31 cm. (12 in.).

FIELD CHARACTERS. A slim green parakeet, superficially very like the Bluewinged (564) of southwestern India, but ♂ with green wings (v. blue), bluish crown and upper back (v. grey) and green breast instead of grey.

Male (adult). *Above*, forehead, lores and a patch round eye green; rest of head, nape, and upper back bluish grey; a conspicuous broad emerald green and black collar. Lower back, rump, and upper tail-coverts blue. Central tail-feathers deep purplish blue tipped with greenish yellow.

Female similar to ♂ but duller green on the face, and with black instead of red upper mandible.

Young (immature) green throughout except the tail which is blue.

STATUS, DISTRIBUTION and HABITAT. Species peculiar to Ceylon. Resident; moderately plentiful in the wooded areas of the hills to c. 1800 metres and throughout the greater part of the lowlands (both Wet and Dry zones) to the east and southeast of the mountains (Phillips). An unconfirmed sight record in January on Hulule Island, N. Mahé Atoll, Maldives (Gadow & Gardiner, 1903). Probably escapes.

GENERAL HABITS. Principally a hill parakeet though descending locally to nearly sea level in the Wet zone. Coincident with the Blossomhead (558) over much of its range. Keeps in fair-sized flocks on the outskirts of woods, in open spaces in the jungle, and in the wooded gorges of the *patanas* (open stretches of grassland). Flight and general behaviour not significantly different from 558.

FOOD. Fruits, flowers, buds, nectar, etc.; 'less destructive to grain fields than the Blossomheaded and Roseringed Parakeets, being more definitely arboreal than they' (Henry).

VOICE and CALLS. A loud, harsh chattering scream *ak ak ak ak ak* (Henry).

BREEDING. *Season*, 'January to May, and often again in July-September' (Henry). *Nest*, a tree-hole as in other parakeets, usually high up, sometimes in the top of a dead coconut palm. *Eggs*, 2 or 3, white, glossless, broad ovals. Average size of 9 eggs 24.7 × 19.2 mm. (Baker). Share of the sexes in the domestic chores and incubation period unrecorded.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
6 ♂♂	143-148	21-23	14-16	127-145 mm.
4 ♀♀	133-143	20-22	14-16	111-124 mm. (HW)

COLOURS OF BARE PARTS. Iris white to greenish white or yellow. Bill: ♂ coral-red, tipped paler; ♀ and imm. black, lower mandible sometimes tinged reddish. Legs and feet dusky green, greenish plumbeous, or dirty green (Baker).

Genus *LORICULUS* Blyth

Loriculus Blyth, 1850, Jour. Asiat. Soc. Bengal 19: 236. Type, by monotypy,
Psittacus galgulus Linnaeus

Bill much smaller and longer comparatively than in *Psittacula*, much more compressed, the culmen less curved; depth at base less than length from cere to tip. Tail short, slightly rounded. Two species within our limits.

Key to the Species

Crown green.....*L. vernalis*
Crown red.....*L. beryllinus*

566, 567. **Indian Lorikeet.** *Loriculus vernalis* (Sparrman)

Psittacus vernalis Sparrman, 1787, Mus. Carls., fasc. 2, no. xxix and pl.
(No locality = Cachar)

Coryllis vernalis rubropygialis Baker, 1926, Bull. Brit. Orn. Cl. 47: 44
(Belgaum dist., India)

Baker, FBI Nos. 1513, 1514, Vol. 4: 217, 218

Plate 40, fig. 4, facing p. 240 and Vol. 4, plate 49

LOCAL NAMES. *Lātkān*, *Bhōra* (Hindi, Bengali); *Daobator lai* (Cachar); *Tāttā-chinnan* (Malayalam); *Cheey* (Marathi).

SIZE. Sparrow $\pm$; length *c.* 14 cm. ($5\frac{1}{2}$ in.).

FIELD CHARACTERS. A diminutive, dainty, bright grass-green parrot with short square tail and rich crimson rump. A small blue patch on throat of male.

Female similar to male but lacking the blue throat-patch.

Young (immature) has the red rump mixed with green. See also Museum Diagnosis.

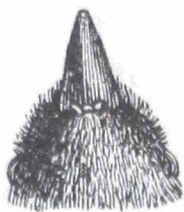
STATUS, DISTRIBUTION and HABITAT. Resident; with a wide range. Also subject to local migrations as yet little understood, but apparently not altogether connected with food supply: rains visitor in certain parts, winter visitor in others. Nepal, Sikkim, Bhutan, NEFA, Assam, Nagaland, Manipur, Mizo (?), Tripura, and East Pakistan (Tippera, Sylhet, Chittagong); Western India — coastal strip and Ghats — from north of Bombay (*c.* 19°N. lat.) southward, including the Nilgiris, Palnis, and associated hills of Mysore, Tamil Nadu, and Kerala States; thence north along the Eastern Ghats through eastern Madhya Pradesh and Orissa; plains, and foothills normally up to *c.* 1000 m.; in the Nilgiris to *c.* 1800 m. Also Andaman and Nicobar

Islands (very common). Affects wooded country in evergreen and moist-deciduous biotopes.

Extralimital. Arakan, central and southern Burma to Tenasserim, Thailand, and the Indochinese countries.

GENERAL HABITS. Keeps in pairs or family parties — sometimes small loose flocks of up to 50 or more where the feeding is good, as in a grove of flowering trees. Their diminutive size and concealing coloration make the birds difficult to observe in the canopy of the tall trees they usually frequent; oftener seen when dashing from one tree to another. They have a curious way of ascending a branch in a spiral course around it, clambering energetically — almost at a run — among the trusses and leaf-stalks, aided by bill and feet, and seem just as much at home hanging upside down or sideways as perched the right way up. Flight very swift, rather finch-like, consisting of several rapid 'vibrating' wing-strokes punctuated by a short pause with wings closed and a consequent dip. It is invariably accompanied by a shrill trisyllabic bat-like squeak *chi-chi-chee* repeated every couple of seconds or so. These characteristic cries, sometimes also uttered when clambering about in the foliage, are often the only indication of the presence of the birds in a locality. Lorikeets possess one very unorthodox peculiarity, unique among Indian birds, that of sleeping at night hanging upside down like a bat.¹ Another unique habit of the female (or both sexes?), of conveying strips specially cut out of green leaves for nest lining tucked under her rump feathers, as in the small African parrots or Love Birds (*Agapornis*), has not been observed in India, but see under Ceylon Lorikeet (568). For details of behaviour see Buckley, Francine G. (1968), 'Behaviour of the Blue-crowned Hanging Parrot, *Loriculus galgulus*, with comparative notes on the Vernal Hanging Parrot, *L. vernalis*'. *Ibis*, 110: 64; for courtship and mating, Neelakantan, K. K., 1974, *JBNHS* 70: 554-6.

FOOD. Soft pulp of fruits and berries, chiefly wild figs (*Ficus* spp.), largely supplemented by flower nectar. Flowers of the parasitic Loranthaceae and of *Salmalia malabarica*, various species of *Erythrina*, and of many introduced



x c. 1

Eucalypti are irresistible, the trees often 'crawling' with these little birds in season. Unlike the parakeets they do not destroy the floral parts of non-tubular blossoms to reach the nectar, and by transporting pollen adhering to their head-feathers must play a helpful role in cross-fertilization. Fond of coconut palm toddy, bibbing from the pots hung up for collecting the juice, sometimes becoming stupefied and helpless as a result. Partial to seeds of casuarina, bamboo, and teak (*Tectona grandis*) in forest and plantations, and to guavas (*Psidium*) and

loquats (*Eriobotrya japonica*) in orchards, often doing considerable damage locally.

VOICE and CALLS. As above. Normally very quiet.

BREEDING. Overall January to April; in the Andamans chiefly January and February. *Nest*, a vertical or oblique natural hollow in a rotten tree-stem or branch sometimes up to a metre in depth, enlarged to suit where

¹ In captivity some other members of the Psittacidae, e.g. *P. cyanocephala*, frequently sleep clinging to the wire-netting of their cages upside down but not freely suspended like bats.

necessary, and with entrance from the top or through a lateral hole between 2 and 10 metres from the ground. Usually lined with a pad of cut out strips of green leaves. In the Andamans, Osmaston found nests at the bottom of holes in stumps, the eggs being laid below ground level, *Eggs*, 3 or 4, white, rather spherical and glossy, often stained brownish by contact with rotten wood of nest-interior during incubation. Average size of 30 eggs 19.1×15.8 mm. (Baker). Apparently both sexes incubate, but female takes the major share. Close sitter, only uttering a long-drawn querulous *chee-ee* when nest about to be handled, without forsaking the eggs. Incubation period undetermined. Both parents feed the nestlings by regurgitation.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. The subspecies *rubropygialis* erected by Baker for south Indian birds and included in *Synopsis* (567) cannot be sustained. The northern and southern populations, assumed to be disjunct at the time, have since proved to be continuous. The supposed characters on which the race was based — darker coloration above and below, deeper duller red rump, and darker undersurface of tail and wing-quills — are evidently due to individual variation or wear, or both.

Young (immature) differs from adult in the paler blue of the abdomen and absence of any purple wash on chin and throat. Tail-feathers much narrower with the outer pair more rounded at the tips.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
♂♂	91–102	11–15	10–12	38–45 mm.
♀♀	96–100	11–15	10–12	45–48 mm.
				(SA, HW)

COLOURS OF BARE PARTS. Iris yellowish white, brownish buff, or greyish khaki. Bill reddish orange or coral-red, yellower at tip. Legs and feet pale orange or pale yellowish slate; claws horny brown.

568. **Ceylon Lorikeet.** *Loriculus beryllinus* (J. R. Forster)

Psittacus beryllinus J. R. Forster, 1781, Indische Zool.: 40 (Ceylon)

Baker, FBI No. 1515, Vol. 4: 219

Plate 42, fig. 6, facing p. 288

LOCAL NAMES. *Girā malichchā*, *Pol girāwā* (Sinhala); *Känni kili*, *Thennāng kili* (Tamil).

SIZE. Sparrow $\pm$; length c. 14 cm. ($5\frac{1}{2}$ in.).

FIELD CHARACTERS. A diminutive bright grass-green parrot with short square tail, exactly like Indian Lorikeet but with the crown rich crimson, in addition to rump, passing into orange on nape and into yellowish-tinged hindneck and upper back.

Female similar to male but duller coloured with merely a trace of the blue throat-patch.

Young (immature) lacks the crimson crown; at time of leaving nest, though fully fledged, has the whole forehead and face naked (Henry).

STATUS, DISTRIBUTION and HABITAT. Species peculiar to Ceylon. Abundant, locally throughout the lowlands and hills up to c. 1300 metres,

wandering higher seasonally with fruit ripening. Affects wooded country in evergreen and moist-deciduous biotopes.

GENERAL HABITS, FOOD, VOICE and CALLS. As in Indian Lorikeet (566), q.v. Courtship described by Henry (1955: 189). Male strikes ridiculous postures before female, struts along the perch towards her with jerky gait and short hops, beak held high, blue throat-feathers puffed out; tail spread, and scarlet rump-feathers raised, all the while uttering a squeaky warble. Further sequences not recorded. Female procures the nest-padding material by nibbling strips from the edges of green leaves, tucking one end into the bases of the scarlet rump-feathers and flying off when a rumpful has been collected.

BREEDING. *Season*, January to August, chiefly March to May. *Nest*, similar to Indian Lorikeet's: a narrow vertical or oblique hollow in a tree-stump or branch with entrance near the top, padded with strips of green leaves. *Eggs*, 2 or 3, white, nearly spherical. Size *c.* 19 × 16 mm. Apparently the female alone incubates, or largely so; period undetermined. 'She sits very close and, if interfered with, voices her displeasure in angry screechings and, in some mysterious way, produces an extraordinary, heavy, thumping sound, suggestive of pounding the inside of the hollow with a sledge-hammer' (Henry).

MUSEUM DIAGNOSIS.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	90-98	12-13 (from cere)	10-12	36-44 mm. (HW)

COLOURS OF BARE PARTS. Iris white. Bill light orange-red, paler at tip, yellow on cere. Legs and feet dusky yellow.

Order CUCULIFORMES

Family CUCULIDAE: Cuckoos

Feet zygodactyle, the first and fourth toes directed backwards. Contour feathers without any aftershaft; dorsal feather-tract divided between the shoulders and enclosing a lanceolate naked patch on the back; a nude oil gland present. Young nidicolous — hatched naked and not passing through a downy stage before acquiring feathers. Tail-feathers 10 in all Oriental genera. For general information see Thomson, A. L. (ed.) 1964, *New Dict. Birds* (Article 'Cuckoo'): 169-71; for morphological details Stresemann, E., 1927-34, *Aves*: 817-20; Baker, 1927, FBI 4: 133.

The family has an almost world-wide distribution, but its members are most numerous in the tropics. They are best known for their habit of brood-parasitism: building no nests of their own, laying their eggs in the nests of other birds, and foisting on them the labour of incubating them and bringing up the young. One section of the family is non-parasitic, whose breeding habits are normal as in most other birds. Both groups are well represented in India and Pakistan.

In spite of all that has been published in literature by Stuart Baker and others, unequivocal data on the breeding biology of Indian parasitic cuckoos are, by and large, lacking. Much of what exists is of a dubious nature, and even some of the eggs ascribed to this or that species appear to be wrongly identified. A thorough-going and *de novo* investigation of our cuckoo problems is an urgent need, and reference is invited to J.H. Becking's 'Notes on the Breeding of Indian Cuckoos (JBNHS).

Key to the Genera

		Page
A	Tarsus more or less feathered anteriorly.....	1
B	Tarsus naked, plumage of head and shoulders not spiny....	<i>Eudynamys</i> 226
	Tarsus naked, plumage of head, or of head and shoulders, spiny....	2
1	Head crested, tarsus feathered at top only.....	<i>Clamator</i> 192
	Head not crested, tarsus feathered throughout in front.....	a
a	Tail square or forked.....	<i>Surniculus</i> 224
	Tail rounded or graduated.....	I
I	Plumage of upperparts metallic.....	<i>Chalcites</i> 221
	Plumage of upperparts not metallic.....	a ¹
a ¹	Larger; wing 150 mm. or above.....	<i>Cuculus</i> 198
	Smaller; wing below 150 mm.....	<i>Cacomantis</i> 215
2	Claw of hind toe much lengthened and nearly straight.....	<i>Centropus</i> 239
	Claw of hind toe not as above.....	b
b	Naked sides of head united across forehead.....	<i>Phaenicophaeus</i> 237
	Naked sides of head not united.....	<i>Rhopodytes</i> 230
	Sides of head not naked.....	<i>Taccocua</i> 234

Genus CLAMATOR Kaup

Clamator Kaup, 1829, Skizz. Entw.-Gesch. Eur. Thierw.: 53. Type, by original designation and monotypy, *Cuculus glandarius* Linnaeus

Genus distinguished from all others of the family by having a long pointed crest. Wing short and rounded, the primaries not exceeding the secondaries by more than one-fourth the length of the wing. Bill compressed, culmen much curved towards tip. Tarsus feathered at base only. Tail much longer than wing; well graduated. Sexes alike.

Key to the Species

		Page
Wings black and white.....	<i>C. jacobinus</i>	194
Wings chestnut.....	<i>C. coromandus</i>	192

569. **Redwinged Crested Cuckoo.** *Clamator coromandus* (Linnaeus)

Cuculus coromandus Linnaeus, 1766, Syst. Nat., ed. 12, 1: 171

(Coromandel = Pondichery)

Baker, FBI No. 1474, Vol. 4: 170

Plate 41, fig. 3, facing p. 256 and Vol. 4, plate 44

LOCAL NAMES. *Tseben* (Lepcha); *Yerra golā kōkilā* (Telugu); *Ūppān kūyil* (Malayalam); *Ratu kondé kōhā* (Sinhala); *Kondé kūyil* (Tamil).

SIZE. House Crow +; slenderer. Length *c.* 47 cm. (*c.* 18 in.).

FIELD CHARACTERS. A largish, crested cuckoo similar in overall effect to the more familiar Pied Crested (570) but metallic glossy black above interrupted by a white half-collar on hindneck, and with chestnut wings as in Crow-Pheasant. *Below*, chin, throat, and upper breast rust-coloured; rest of lower parts white or whitish. When flying across observer's front, crested head, white nuchal collar, red wings, and whitish underparts are diagnostic pointers. Sexes alike.

Young (immature). *Above* brown, the feathers (including wing-coverts) broadly edged with rufous; *below* white.

In older young when glossy black upper plumage first assumed, many feathers, especially on the wings, still fringed with rufous, and tail tipped with dull buff instead of white.

STATUS, DISTRIBUTION and HABITAT. Breeding and apparently resident in the Himalayan duns, duars, and foothills (up to c. 1500 metres altitude) from Garhwal and Kumaon eastward through Nepal, Sikkim, N. Bengal, Bhutan and NEFA; in the Assam hills (Garo, Khasi, N. Cachar, etc.), and probably in Nagaland, Manipur, Mizo, and also in East Pakistan (Tippera, Chittagong). Common in eastern Assam. In peninsular India recorded variously as on passage, or a rare straggler, or scarce but regular rainy season or winter visitor, in Kerala, Mysore, Tamil Nadu, and Maharashtra States; status and movements very imperfectly known or understood. Regular winter visitor in small numbers to Ceylon, up to c. 2000 metres, from about October/November to April. Affects evergreen and moist-deciduous biotopes: foothills forest, and scrub-and-bush jungle.

Extralimital. 'Malay Peninsula, Sumatra, Lingga Archipelago, Borneo, Java during northern winter only, as in Ceylon' (Stresemann, *in epist.*).

MIGRATION. On passage (to Sri Lanka?) in numbers through Pt Calimere (10°18' N., 79°51' E.), mid-October.

GENERAL HABITS. Keeps singly or in loose parties of 3 or 4. Not shy but rather retiring. Strictly arboreal, preferring the foliage canopy of trees in forest, but frequently descends into undergrowth of scrub and bushes, skulking about silently in search of food. Actions and behaviour very like Pied Crested Cuckoo's. Flight swift and direct though seeming somewhat leisurely, with quick wing-beats like Koel.

FOOD. Mainly caterpillars.

VOICE and CALLS. A harsh grating or rasping scream resembling the cry of the jay or magpie, but more so (B. B. Osmaston). Also a quite different 'bisyllabic whistling note very like Collared Pygmy Owl (*Glaucidium brodiei*) but with more metallic sound' uttered at night (H. H. Harington). Bird rather silent in winter; reportedly very noisy in breeding season.

BREEDING. Brood-parasitic mainly on Himalayan laughing thrushes (*Garrulax* spp.), the commonest fosterers being *Garrulax pectoralis* and *G. moniligerus*. (For a list of other fosterers see Baker, 1942: 196-7.) *Season*, synchronous with that of the fosterers: overall April to August, principally May and June. *Eggs*, pale hedge-sparrow blue, unmarked, very broad ovals, fine-textured, glossless; matching perfectly the eggs of the fosterers and normally indistinguishable from them except by more spherical shape. Usually 2 or more (up to 4 recorded) eggs are laid in the same nest which, from their similarity in colour, shape and size could all well be the product of one and the same female. Evidently some of the rightful eggs are removed to make room, but a much more thoroughgoing study of the Indian cuckoos is desirable for elucidating the various problems they pose. Average size of 50 eggs 26.9×22.8 mm. (Baker).

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Fledgling (at time of leaving nest) was rufous, with pale bars. Crest developed at c. 5 weeks; moulted gradually into adult plumage at 3 months old (Osmaston, JBNHS 24: 361).

A fledgling in the Brit. Mus. collection from Assam has upperparts dark brown, with pale tips to the feathers; white below (David Lack, *in epist.*).

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	157-166	c. 24-25 (from feathers)	c. 27-28	231-245 mm. (Baker)
Whistler gives for 2 ♀ ♀ from Ceylon		(from skull)		
	153-158	30-32	27-28	217-222 mm.

Weight 6 oo? 61-75 (av. 70) gm. — SA.

COLOURS OF BARE PARTS. Iris pale reddish brown. Bill black, base of lower mandible generally paler and yellowish; angle of gape and mouth salmon-pink. Legs and feet plumbeous or slaty brown (Baker).

CLAMATOR JACOBINUS (Boddaert)

Key to the Subspecies

- Larger; wing over 144 mm.....*C. j. serratus*
- Smaller; wing under 144 mm.....*C. j. jacobinus*

570. **Pied Crested Cuckoo.** *Clamator jacobinus serratus* (Sparrman)

Cuculus serratus Sparrman, 1786, Mus. Carls., fasc. 1, no. 3 and pl. (Cape of Good Hope = Cape Peninsula, Cape Province, S. Africa)
Cuculus pica Hemprich & Ehrenberg, 1833, Symb. Phys., Aves, sig. r. note 2 (Ambukohl, Dongola)
 Baker, FBI No. 1472, Vol. 4: 167

LOCAL NAMES. *Pāpiya*, *Kālā pāpiya*, *Chatak* (Hindi); *Hor kūk* (Kashmir); *Kālā būlbūl*, *Shāh būlbūl* (Bengal); *Chātāk* (Marathi).

SIZE. Myna ± with a much longer tail. Overall length c. 33 cm. (13 in.).

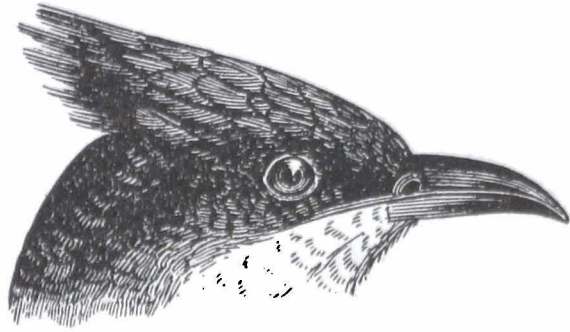
FIELD CHARACTERS. A slender, long-tailed, crested black and white bird.

Adult. Black above, including prominent pointed bulbul-like crest; white below. A roundish white patch on the black wings, and white tips to the black graduated tail-feathers conspicuous in flight. Sexes alike.

Young (immature). Crest less developed; wing-patch

smaller. Black portions of plumage dull and sooty; white portions strongly suffused with fulvous, or fulvous-grey.

STATUS, DISTRIBUTION and HABITAT. SW. monsoon (breeding) visitor, arriving over most of its Indian range more or less synchronously with the rains (early June) and departing by September-October: West Pakistan and northern India — Sind, Punjab, Gilgit, Kashmir, U.P., Nepal, eastward through Assam, Manipur, and East Pakistan; south in peninsular India to c. 18°N. lat.; plains, and up to c. 2600 m. Not recorded in the Andaman and Nicobar Is. The majority of definite records (specimens) are



from west of a diagonal line from slightly south of Bombay (Maharashtra) to Darbhanga dist. (N. Bihar). A specimen collected in Mysore during November (SA) with a large wing (148 mm.) and excessive body-fat could well be a straggler of this form preparing for belated emigration. East of this line there is a paucity of definitive records and a confusing intermingling during the rainy season with the resident southern population (571). Sight records dubious since the two races cannot be told apart in the field. Affects open well-wooded country, gardens and groves, even within the precincts of towns and villages, and the neighbourhood of cultivation. Also stunted jungle in semi-desert areas.

Extralimital. Putatively Africa south of the Sahara in winter.

MIGRATION. No ringing data, and evidence of migration to and from Africa as yet only circumstantial and largely conjectural. For a discussion of Indian evidence see Whistler, H., 'The Migration of the Pied Crested Cuckoo,' JBNHS 33 (1): 136-46, 1928, and E. Ghats Survey Report, *ibid.* 37: 522-3, 1934; of African, Friedmann, H., 1948, *The Parasitic Cuckoos of Africa*: 19, 23, *passim*. Route of migration unknown and enigmatical. Only odd specimens have been obtained in SW. Arabia in March, April, and May presumably on passage (to India ?) but no mass movement observed. 'Occurs rarely during autumn migration, August and September' in Kohat

and Kurram Valley, NW. Pakistan (Whitehead). A specimen (straggler?) obtained by the first Mt Everest Expedition at Tingri, Tibet (28°33'N., 86°40'E.) at c. 4270 metres altitude (Wollaston & Kinnear, 1922, *Ibis*: 504) and another by M. Babault at Rahla near the Rotang Pass in Kulu (Himachal Pradesh) at c. 3800 m. on 28 June, the latter a male with testes in breeding condition!

GENERAL HABITS. Largely arboreal and insectivorous, feeding up in trees but commonly also descending into low bushes and even to the ground, hopping about in search of food. In many areas arrives overnight with almost clockwork regularity, heralding the monsoon, in the last week of May or early June, proclaiming its advent unmistakably by loud metallic calls. At first the birds are usually seen in loose parties of 5 or 6 chasing each other about from tree to tree (territorial or sexual rivalry?) calling noisily and evidently



x c. 3/8

establishing themselves. In urban areas invariably set upon and persecuted by the resident House Crows (*Corvus splendens*), and commonly blundering into buildings to escape their tormentors. Courtship displays and chasing commence almost simultaneously with arrival, the male calling lustily and chasing the female about often with tail partly spread and slow deliberate wing-action, as in a pigeon 'clapping'; but breeding biology very imperfectly known. Whether pair bond maintained throughout the season or female promiscuous in her sex relations uncertain.

FOOD. Mainly caterpillars including large hairy ones; also mealy bugs, beetles, ants, terrestrial molluscs (in shady woods in the rains); occasionally green leaves ('possibly of digestive value' — Hingston). Flying termites hawked in air by vertical leaps from a busstop perch, like bulbul.

VOICE and CALLS. A loud metallic, rather plaintive but pleasant *piu* . . . *piu* . . . *pee-pee-piu*, *pee-pee-piu*, and so on, uttered on the wing, especially during courtship chase, and from a perch — in daytime as well as during moonlit nights. Often only the tinkling initial *piu* is repeated, every second or so. Flying juvenile utters a harsh *chū-chū-chū-chū*, and so on, rather reminiscent of the Large Wood Shrike (*Tephrodornis gularis*).

BREEDING. Brood-parasitic mainly on babblers of the *Turdoides* group — most commonly on the lowland and foothills species, e.g. *T. caudatus*, *T. striatus*, and *T. malcolmi*. In the lower Himalayas laughing thrushes (*Garrulax*) are commonly victimized, *G. lineatus* being a popular dupe. In Kashmir the Rufousbacked Shrike (*Lanius schach erythronotus*) is a frequent victim. (For a fuller list of fosterers see Baker, 1942: 195-6.) Season overall June to August, synchronizing with that of the local fosterers. Eggs, unmarked sky-blue varying in depth of tint, usually closely matching those of the fosterer, though in some cases rather larger. The larger size and more rounded oval shape — blunt at both ends — often give the clue. Average of 100 eggs, varying greatly in size, *c.* 23.9 × 18.6 mm. (Baker). Indistinguishable with certainty from eggs of Hawk-Cuckoo (*Cuculus varius*) both of which sometimes found together in the same nest. Incubation period undetermined, but believed to be shorter than that of fosterer. Usually only a single cuckoo fledgling (rarely 2) is found in the fosterers' nest or being fed by them outside, which makes it evident that the impostor somehow disposes of the rightful eggs or hatchlings to monopolize the food brought by the parents. A more definitive study is called for.

Has been recorded as 'often feeding fully fledged young of its own species' (E. H. N. Gill). This observation may actually represent courtship feeding of female cuckoo by male and needs critical verification.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. This migratory race is clinally larger than nominate *jacobinus*; there is no difference in the plumage, and borderline examples are impossible to assign satisfactorily.

MEASUREMENTS. Birds from NW. India (Kashmir, Punjab, U.P.)

	Wing	Bill (from skull)	Tail
12 ♂♂	146-155	25-28	158-176 mm.
8 ♀♀	144-151	25-28	156-169 mm.
			(HW)

Tarsus 25-28 mm. (SA)

20 ♂ ♀ from Africa and Arabia measure Wing 147–162 (once 167) mm. (Ticehurst).
Weight 4 ♂? 61–74 gm. (SA).

COLOURS OF BARE PARTS. Iris brown. Bill horny black, lemon-yellow at chin.
Legs and feet slaty grey; claws black.

571. Ceylon Pied Crested Cuckoo. *Clamator jacobinus jacobinus* (Boddaert)

Cuculus Jacobinus Boddaert, 1783, Table Pl. enlum.: 53 (Coromandel Coast, ex
Daubenton, Pl. enlum., pl. 872)

Clamator jacobinus taprobanus Hartert, 1915, Nov. Zool. 22: 254 (Northwestern Ceylon)
Baker, FBI No. 1473, Vol. 4: 169

LOCAL NAMES. *Kondé kōhā* (Sinhala); *Kondé kūyil* (Tamil); *Gola kōk:la*, *Tangada gorankah* (Telugu); *Erattāttalachi kūyil* (Malayalam).

SIZE. Myna $\pm$, with a much longer tail. Overall length c. 33 cm. (13 in.).

FIELD CHARACTERS. As of 570; a slender, long-tailed, crested, black and white cuckoo. A roundish white patch on the wings, and white tips to tail-feathers conspicuous in flight. Sexes alike.

Young (immature). Crest less well-developed; wing-patch smaller; black portions of plumage dull and sooty; white portions strongly suffused with fulvous or fulvous-grey.

STATUS, DISTRIBUTION and HABITAT. Resident: Ceylon and peninsular India chiefly south of c. 15°N. lat. — Mysore, Tamil Nadu, Kerala. Disperses widely in the rainy season (SW. monsoon, May/June to September/October), then intermingling with the migratory population (*serratus*) in Andhra Pradesh, Madhya Pradesh and possibly elsewhere. Affects lightly wooded country in dry- and moist-deciduous biotope, lowlands and hills: up to c. 1300 metres in Ceylon (Uva), and to c. 2000 m. in south India (Nilgiris etc.).

GENERAL HABITS, FOOD, VOICE and CALLS. Not different from 570, q.v., except that its rainy-season migrations and dispersal are restricted to within our limits; but no ringing or other precise data.

BREEDING. Brood-parasitic, like the migrant form, on babblers of the *Turdoides* group, the species most commonly victimized being *T. caudatus*, *T. striatus*, *T. malcolmi*, and *T. subrufus* in the plains, and the laughing thrush *Garrulax cachinnans* in the Nilgiri Hills. In Ceylon the local common babbler, *T. affinis taprobanus*, is the chief fosterer. Season, practically the whole year coincidentally with the fosterers', but mainly June to September in peninsular India, February to May in Ceylon. Eggs, beautiful glossy turquoise-blue as in 570, as a rule matching the eggs of the dupes closely; usually distinguishable from them only by their blunter more oval shape. Average size slightly smaller than in *serratus*. Breeding biology as far as known, same as in the migrant form.

MUSEUM DIAGNOSIS. Identical with *C. j. serratus* except for somewhat smaller size clinally. Borderline examples impossible to assign satisfactorily.

MEASUREMENTS. Specimens from Ceylon and Kerala:

Wing		Bill	Tail
		(from skull)	
16	♂ ♀ 136–144	24–27	147–163 mm.
			(HW)

Tarsus 25–28 mm. (SA).
Weight 13 oo? 50–73 gm. — SA.
COLOURS OF BARE PARTS. As in 570.

Genus CUCULUS Linnaeus

Cuculus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 110. Type, by tautonymy, *Cuculus canorus* Linnaeus (*Cuculus* prebinomial specific name in synonymy)
Hierococcyx S. Müller, 1842, Verh. Nat. Gesch. Ned. Land-en-Volkenk.: 223. Type, by monotypy, *Cuculus fugax* Horsfield

No crest. Bill of moderate size; gape exceptionally large and flexible. Nostrils round. Tarsus partly feathered. Contains both migratory and sedentary forms. In the former, wing long and pointed: 1st primary (as.) = two-thirds length of 3rd, which is longest. Tip of closed wing exceeds tips of secondaries by nearly half its total length. In the non-migratory forms (formerly *Hierococcyx*) wing shorter and more rounded: 3rd or 4th primary longest. Tip of closed wing exceeds tips of secondaries by only one-fifth to one-third its total length. Tail long, yet shorter than wing, well graduated; upper tail-coverts very long, somewhat pointed, reaching to about middle of tail.

Plumage in adults chiefly ashy grey or ashy brown above, barred below — remarkably accipitrine in pattern. Young pass through more than one phase before assuming adult plumage. Sexes alike or nearly so.

Key to the Species

		Page
A	Secondaries in closed wing two-thirds length of primaries or more . . .	1
B	Secondaries scarcely exceeding half the length of primaries	2
1	Tail 197 mm. or above <i>C. sparverioides</i>	198
	Tail under 197 mm. a	
a	Tail shorter, under 145 mm.; abdomen never banded <i>C. fugax</i>	203
	Tail longer, 150 mm. or above; abdomen transversely banded in adults <i>C. varius</i>	200
2	A broad black subterminal band on upper side of tail . . . <i>C. micropterus</i>	204
	No subterminal black band on tail b	
b	Edge of wing mixed brown and white <i>C. canorus</i>	207
	Edge of wing white <i>C. saturatus</i>	211
	Edge of wing ashy <i>C. poliocephalus</i>	213

Key to the Calls, Appendix p. 320

572. **Large Hawk-Cuckoo.** *Cuculus sparverioides sparverioides* Vigors
Cuculus sparverioides Vigors, 1832 (1831), Proc. Zool. Soc. London 1: 173 (Himalayas)
Baker, FBI No. 1457, Vol. 4: 146

LOCAL NAMES. *Bādā bhārāo* (Nepal); *Nimbin piyal* (Lepcha).
SIZE. House Crow —; slimmer. Length c. 38 cm. (c. 15 in.).
FIELD CHARACTERS. Adult. Above, crown, nape and sides of neck ashy grey passing into rich ashy brown of rest of upperparts. Tail above brown, banded with blackish and tipped with white or rufous-white. Below, throat white streaked with ashy and rufous, passing into more rufous upper breast and then into the white underparts suffused with rufous and cross-banded with brown. Sexes alike.

Young (immature), brown above rufous below broadly streaked (not barred) with blackish.

Both adults and young deceptively hawk-like in plumage-pattern at comparable ages, the resemblance to shikra (*Accipiter badius*) further heightened by style of flight.

STATUS, DISTRIBUTION and HABITAT. Breeds in the Himalayas between c. 900 and 2700 metres, from West Pakistan (c. Murree in Rawalpindi dist.) eastward through Kashmir, Himachal Pradesh, Garhwal, Kumaon, Nepal, Sikkim, and Bhutan to easternmost NEFA (and beyond); also Naga, Manipur, Khasi, and N. Cachar hills. Affects wooded hillsides and valleys. Migrates southward into the Peninsula in winter, recorded then from Madhya Pradesh, Orissa, Tamil Nadu, Mysore and Kerala. Not Ceylon. Unsupported winter sight records not reliable owing to possibility of confusion with the commoner *Cuculus varius*.

Extralimital. From Szechuan and the lower Yangtse valley south to the hills of Burma, Thailand and South Vietnam; partially resident, but migratory in China. In winter Malay Peninsula, Sumatra, Borneo, Java, the Philippines, and Celebes (Sulawesi)—Peters.

GENERAL HABITS. Chiefly arboreal keeping singly to the foliage canopy of forest trees. Drops suddenly out of one and flies swiftly to another, threading its way deftly through the trunks — a few rapid wing-strokes followed by a glide, very like a hawk. The shikra-like plumage and flight, together with the bird's habit of sweeping upward into the branches before settling, are sufficiently convincing to cause a flutter among small birds each time the mimic is on the move. Mostly silent in its winter quarters, but extremely vocal in spring and summer on its Himalayan breeding grounds.

FOOD. Predominantly caterpillars, including large hairy ones; also beetles, bugs, crickets, grasshoppers and hoppers of locusts, ants and spiders.

VOICE and CALLS. A loud, shrill, insistent screaming whistle, rather musical and even pleasant in small doses: *pipēēah*, *pipēēah* or just *pipēē*, *pipēē*, etc. (accent on second syllable) shrieked with monotonous persistency in runs of 5 or 6, usually rising in scale to frantic pitch and breaking off abruptly — presently to commence all over again. The birds call chiefly in the mornings and at sunset, often continuing far into the night and even throughout moonlit nights. Particularly vocal in cloudy overcast weather.

BREEDING. Brood-parasitic chiefly on laughing thrushes (*Garrulax*) and also on a miscellaneous lot of smaller birds of which the Large Spiderhunter (*Arachnothera magna*) and Nepal Shortwing (*Brachypteryx l. nipalensis*) are described as the most popular victims. *Season.* In the Western Himalayas eggs have been taken between 15 June and end July; in Assam April to end June coinciding with the laying of its accustomed hosts. Evidently two types of eggs have been evolved: (1) turquoise blue, matching closely those of laughing thrushes, (2) brown, approximating the eggs of spiderhunters, shortwings, etc.; in both cases usually distinguishable from the dupes' by larger size and blunt oval shape. Average size of blue eggs c. 30 × 22 mm.; of the brown type c. 26 × 19 mm. (Baker). For a fuller list of fosterers see Baker, 1942: 191-2, and 1906, JBNHS 17: 364.

No other explanation seems rational for the cuckoo's egg being found in the closed nest of the spiderhunter — attached on the underside of a swaying

banana leaf, and with only a narrow semicircular entrance-hole — than that the egg is initially laid elsewhere and then transferred to the nest with the cuckoo's bill. However, the actual process has never been observed.

MUSEUM DIAGNOSIS. See Key; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	213–236	28–30	c. 25–27	175–220 mm. (SA, BB, HW)

Weight 2 ♂♂ 116, 131 gm. (GD).

COLOURS OF BARE PARTS. Iris [creamy khaki to] orange-yellow; edges of eyelids lemon-yellow. Bill: upper mandible dark horny, paler on the tip, lower mandible greenish slaty, dusky on sides of anterior half and on tip; gape dull lemon-yellow. Legs and feet lemon-yellow; claws pale yellowish horny; pads dirty lemon-yellow (Biswas).

CUCULUS VARIUS Vahl

Key to the Subspecies

- Paler above and below in all plumages.....*C. v. varius*
- Darker above and below in all plumages.....*C. v. cicelliae*

573. **Common Hawk-Cuckoo or Brainfever Bird.** *Cuculus varius varius* Vahl

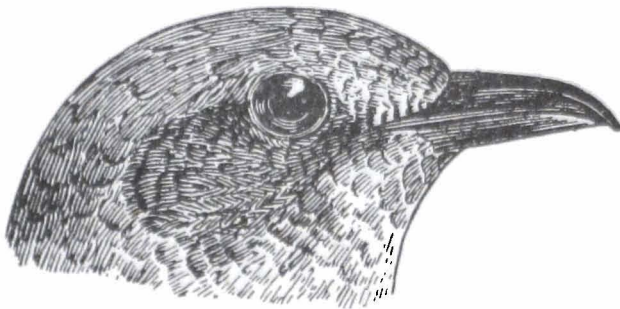
Cuculus varius Vahl, 1797, Skriv. Naturhist.-Selsk., Kjobenhavn 4 (1): 60
(Tranquebar)

Baker, FBI No. 1458, Vol. 4: 148

Plate 42, fig. 3, facing p. 288

LOCAL NAMES. *Kapak*, *Ūpak*, *Pāpiya* (Hindi); *Bhārāo* (Mirshikars, Bihar); *Chokgallo* (Bengal); *Kūtti pitta* (Telugu); *Zakkhat* (Deccan); *Bāppāiyo* (Gujarati); *Shikrā kūyil* (Malayalam).

SIZE. Pigeon ±, slenderer and with proportionately longer tail. Overall length c. 34 cm. (13½ in.).



× c. 1

FIELD CHARACTERS. A shikra-like cuckoo.

Adult. Above ashy grey, tail tipped rufescent and with 4 or 5 whitish and black bars, the terminal one broadest. Below, white suffused with rufous and ashy on breast and barred with brownish on abdomen and flanks. Sexes alike.

Young (immature). Above, brown, barred with

dull rufous; barring in tail rufous and black instead of whitish and black. Below, buffy white broadly streaked (not barred) with blackish brown drops. Thus juvenile plumage also very like immature shikra hawk.

STATUS, DISTRIBUTION and HABITAT. Resident, but subject to local migratory and nomadic movements especially during the rainy season. Apt to be overlooked in winter when it is silent. Occupies a lower zone in the Himalayas than *sparverioides*, normally not above c. 1000 m. Widespread over the entire subcontinent from Punjab (Rawalpindi dist.) eastward through Nepal, Sikkim, Bhutan, Assam, and East Pakistan; southward to Kanyakumari, and straggling into Ceylon. A rains straggler in Rajasthan and the semi-desert portions of Gujarat. Affects well-wooded deciduous and semi-evergreen biotope, hill and plain; partial to gardens, groves of trees, mango topes, etc. in the neighbourhood of cultivation and human habitations.

GENERAL HABITS. Arboreal, seldom if ever descending to the ground; usually keeps singly or in pairs to the foliage canopy of trees. Silent in winter and then very liable to be passed over as absent. With approach of the hot weather (c. March in the Himalayan foothills and duns) waxes increasingly vocal to a peak in about May, thereafter gradually reverting to silence by August/September. Exasperatingly obstreperous in the plains during the rainy season, calling monotonously and often almost incessantly throughout the day and during moonlit nights. Flight and movements deceptively hawk-like, as in 572, q.v.

FOOD. Principally caterpillars and cutworms; also grasshoppers, locust hoppers, beetles, bugs, ants, winged termites and spiders; wild figs (*Ficus* spp.); occasionally lizards. Among stomach contents the following insects have been frequently identified: *Brachytrypes achatinus*, *Gryllodes melanocephalus*, *Schizodactylus monstrosus*, *Gryllotalpa africana*, *Dysdercus cingulatus*, *Annomala varians*, cutworms (*Agrotis* spp.), hairy caterpillars (Lymantriid?), and ants (*Oecophylla*, *Camponotus*).

VOICE and CALLS. A loud shrieking high-pitched *wee-piwhit*, aptly syllabified as *brainfever* (accent on *fe*), repeated *ad nauseam* in runs of 4 to 6 crescendo calls, mounting progressively to frantic shrillness and breaking off abruptly, to commence all over again after a minute or two. On cloudy overcast days and moonlit nights during the peak period the screaming is almost non-stop. A 'trilling note' in addition to the *brainfever* calls has been recorded, without details (Basil-Edwardes, 1926, JBNHS 31: 569). 'Female has a harsh grating call quite different from male's' (W. E. Brooks, 1878, SF 7: 265).

When clamouring to be fed by foster parents (Jungle Babblers), a stub-tailed fledgling uttered a harsh single screech like a Roseringed Parakeet's. While accompanying a flock of these babblers, it gave a grating *kē-kē* from time to time, a very passable imitation of the fosterers' but in somewhat higher key (SA).

BREEDING. Brood-parasitic chiefly on babblers of the *Turdoides* group, mostly the Jungle Babbler (*T. striatus*). In the Himalayan foothills and the Nilgiris, laughing thrushes (*Garrulax*) are commonly victimized. For a fuller list of hosts see Baker, 1942: 192-3. *Season*, variable, coinciding with the laying season of the local hosts, chiefly between March and June, but also in later months. *Eggs*, beautiful glossy turquoise-blue, often indistinguishable from those of its babbler hosts except by somewhat blunter oval shape. They are hard to tell from eggs of Pied Crested Cuckoo, both sometimes found in the same nest, but are somewhat more elliptical. Size very variable,

averaging $c. 26 \times 20$ mm. (Baker). A young cuckoo accompanying a flock of Jungle Babblers will be fed by its particular foster parents from time to time, and occasionally even by other members of the sisterhood. Yet paradoxically enough each time the fledgling flies there will be a nervous stir among the flock, some members promptly giving the 'ware hawk' alarm; they will, however, tolerate the same impostor complacently and resume tending it the moment it has settled again and is hopping about in their midst greedily begging food!

MUSEUM DIAGNOSIS. As in 572, wing more rounded than in *Cuculus canorus*: primaries exceeding secondaries in closed wing by only one-fifth to one-third the total length. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	193-213	25-31	21-23	157-188 mm.
♀♀	192-207	26-29	23-26	156-180 mm.
				(SA, BB)

Weight 1 ♀, very fat, 104 gm. (GD).

COLOURS OF BARE PARTS. Adult. Iris greyish yellow or yellowish buff; rim round eyes (eyelids) and gape lemon-yellow. Bill yellowish green, black on culmen and tips; mouth pink and yellow. Legs, feet, and claws bright chrome yellow. Fledgling (just *ex* nest). Iris greyish brown; eyelids greenish yellow. Bill pale brownish yellow; gape and mouth yellow (like young babbler's). Legs, feet, and claws pale yellow.

574. **Ceylon Hawk-Cuckoo.** *Cuculus varius ciceliae* (Phillips)

Hierococcyx varius ciceliae Phillips, 1949, Bull. Brit. Orn. Cl. 69: 56 (Caledonia Estate, 4000 ft, Lindula, Dimbula, Ceylon)

Not in Baker

LOCAL NAMES. *Kōhā* (Sinhala); *Kūyil*, *Kūṣil* (Tamil).

SIZE. Pigeon $\pm$, slenderer and with proportionately longer tail. Overall length $c. 34$ cm. ($13\frac{1}{2}$ in.).

FIELD CHARACTERS. An ashy grey shikra-like cuckoo, indistinguishable from 573 (q.v.) except in the hand. See Key and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. Resident; moderately plentiful locally in the hills above $c. 650$ m., especially in the Central Province, possibly visiting the Wet zone when not breeding. Affects well-wooded country such as tea estates and gardens.

It is probable that the nominate race also visits the island from the Indian mainland.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 573, q.v.

BREEDING. Brood-parasitic on babblers of the *Turdoides* group. Season, January to April and probably later. Eggs not yet taken but doubtless the same as in Indian birds, glossy turquoise-blue closely matching those of its normal hosts.

MUSEUM DIAGNOSIS. Differs from nominate *varius* only in being somewhat darker overall in a comparative series.

MEASUREMENTS and COLOURS OF BARE PARTS as in 573.

575. **Hodgson's Hawk-Cuckoo.** *Cuculus fugax nasicolor* Blyth

Cuculus nasicolor Blyth, 1843, Jour. Asiat. Soc. Bengal 12(2): 943 (Nepal)

Baker, FBI No. 1460, Vol. 4: 151

LOCAL NAME. *Ding-pit* (Lepcha).

SIZE. Pigeon — ; slenderer. Length *c.* 29 cm. (11½ in.).

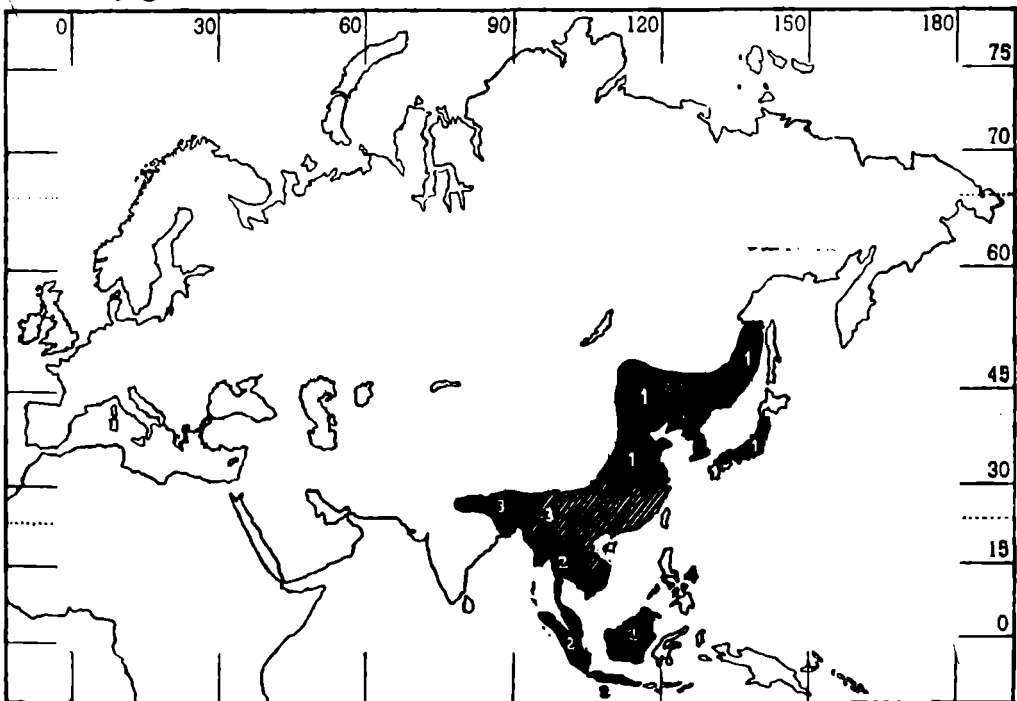
FIELD CHARACTERS. A slender grey cuckoo with unbarred rufous underparts.

Adult. *Above*, including sides of head and hindneck uniform slaty grey; wings brownish; tail alternately banded grey and black, tipped with rufous. *Below*, chin grey; throat and foreneck white sparsely streaked with grey; rest of underparts largely rufous; vent and under tail-coverts white. Sexes alike.

Young (immature). *Above*, brown, the feathers edged and barred with rufous; tail as in adult. *Below*, white, rather rufous on breast, closely barred and streaked with blackish (Baker).¹

STATUS, DISTRIBUTION and HABITAT. Predominantly a hill species like *C. sparverioides*. Mainly resident, but subject to local and altitudinal migration, occasionally (or regularly?) wandering considerable distances possibly

Cuculus fugax



■ Breeding range. ▨ Winter
 1 *C. f. hyperythrus* (RE).
 2 *C. f. fugax* (RE). 3 *C. f. nasicolor*. 4 *C. f. pectoralis* (RE).

even extralimittally. The lower Himalayas in Nepal, Sikkim, Bhutan and eastward through NEFA. Assam hills south of Brahmaputra river, Nagaland, Manipur, East Pakistan. Affects wooded country in deciduous,

¹ This needs confirming; see Key to the Species. Fledgelings and immatures of parasitic cuckoos are notoriously difficult to identify with certainty chiefly owing to lack of definitive clues to their parentage. Hence the confusion and contradictions in published descriptions.

semi-evergreen and evergreen biotopes, between c. 600 and 1800 m. altitude. Keeps chiefly to bushes and the understorey.

Extralimital. Breeds also in Burma, Thailand, Indochinese countries, and S. China. Winter visitor in part (?) to the Malay Peninsula, Sumatra, Java, etc.

GENERAL HABITS. Apparently nowhere common. Little specifically known as the bird is usually very silent and skulking, thus doubtless often overlooked.

FOOD. Caterpillars, cicadas, and other insects. Also a quantity of fruits and berries.

VOICE and CALLS. Described as a sibilant, insistent *gee-whizz*, *gee-whizz* repeated up to 20 times; vaguely reminiscent of the shrill shrieking of *C. sparveroides* but the call is even thinner and shriller and quite distinct from any other cuckoo's. In breeding season often calls throughout the night.

BREEDING. Brood-parasitic apparently chiefly on flycatchers and short-wings (Muscicapinae and Turdinae), but the breeding biology is practically unknown. The only oviduct egg ever taken was by Mandelli in Sikkim on 5 June. A putative egg was taken from a nest by Baker as late as 14 September. The oviduct egg was broad oval in shape with unglossed but smooth and firm shell, uniform olive-brown in colour with an indistinct ring of darker shade round the larger end. It measured 22.6×16.3 mm.

Baker (1942: 198) gives the average of 73 eggs from all fosterers' nests as 24.44×15.84 mm.

MUSEUM DIAGNOSIS. Underparts unbarred. Penultimate broad black band in tail followed by a narrow band of rufous grey or grey-brown and then a narrow band of black.

Nestling. Feathers of head and upper back more definitely edged with pale rufous. *Below*, chin, throat, and upper breast dark brown narrowly edged with rufous (Baker).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	178-182	19-20	c. 23-24	141-144 mm.

COLOURS OF BARE PARTS. Iris orange to vermilion; eyelids yellow. Bill horny black, the base and nearly all the lower mandible pale greenish horny; gape more yellow. Legs, feet, and claws bright yellow (Baker).

576. **Indian Cuckoo.** *Cuculus micropterus micropterus* Gould

Cuculus micropterus Gould, 1837, Proc. Zool. Soc. London: 137 (Himalayas)

Cuculus micropterus fatidicus Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 24 (Laikul, N. Cachar)

Baker, FBI No. 1456, Vol. 4: 144

Plate 41, fig. 6, facing p. 256

LOCAL NAMES. *Bou-kathā-kao* (Bengal); *Kyphāl pākka* (U.P., Mussooree); *Kūpūl pākki* (Himachal Pradesh); *Kyā-phāl-pāko* (Nepal); *Tākpo* (Lepcha); *Kāng kā tong* (Bhutea); *Kāpoo* (Hunza).

SIZE. Pigeon $\pm$, slenderer and with proportionately longer tail. Overall length c. 33 cm. (13 in.).

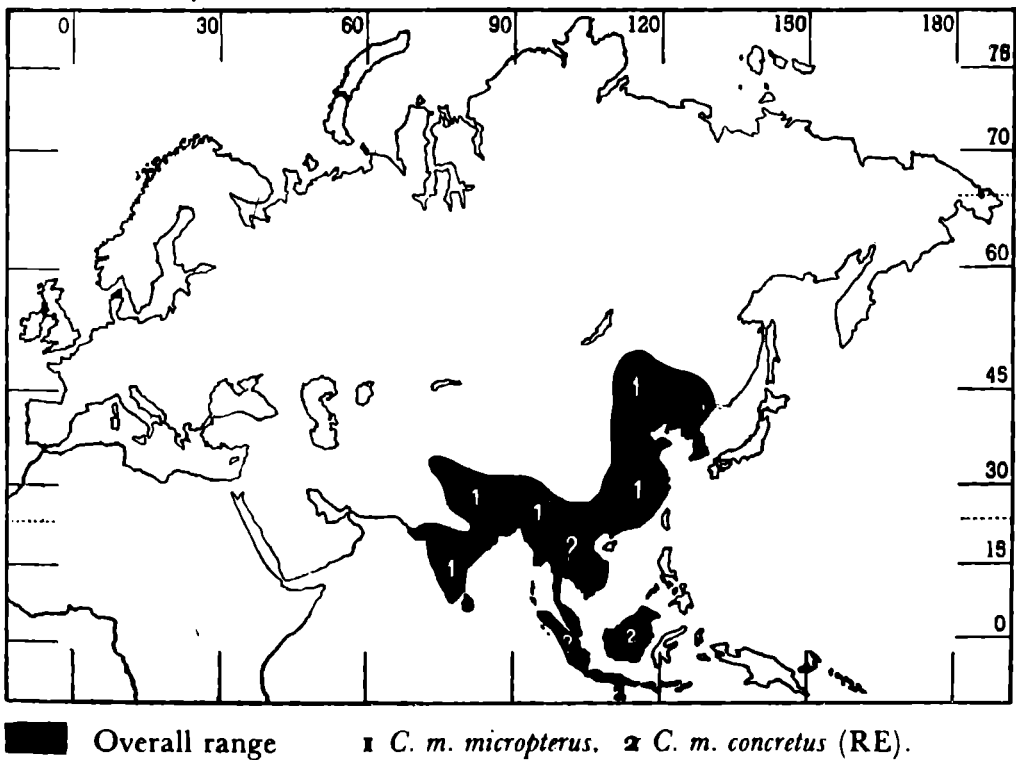
FIELD CHARACTERS. Very similar to the European and Himalayan Cuckoos (578, 580) qq.v. Dark slaty grey above with a brownish tinge; pale ashy and white below cross-barred with widely spaced broad black bands. Readily distinguished from them also by broad black subterminal band on tail, more rounded and quicker flapping wings, and most conclusively by the unmistakable 4-syllabled call — a musical *kyphāl-pākka* or *crossword-puzzle*, repeated *ad nauseam*.

Female differs in having the pale grey throat and breast browner and with a rufous tinge.

Young (immature). *Above*, barred with white or rufous white on head and neck; broadly tipped with rufous and white elsewhere. *Below*, pale buff broadly barred with black. Tail as in adult but more rufous and more numerous barred.

STATUS, DISTRIBUTION and HABITAT. Occurs variously as resident, nomadic or seasonal visitor (rains and winter) in the lower Himalayas from Kashmir eastward through NEFA (including Nepal, Sikkim, and Bhutan), and southward throughout the subcontinent excepting the arid portions of W. Pakistan, Rajasthan, Kutch, Saurashtra and N. Gujarat. Occurs also in E. Pakistan ('excessively common in Chittagong' — Bates),

Cuculus micropterus



Ceylon, and the Andaman and Nicobar islands. Affects fairly wooded country in deciduous and evergreen biotopes up to *c.* 2300 m. altitude, and rarely even to *c.* 2800 m. In Nepal 'very common [in summer] up to 10,000 ft [*c.* 3300 m.] and at 12,000 ft [*c.* 3700 m.]' (Desirée Proud). Silent over most of its range between August/September and March/April, then

likely to be overlooked and assumed absent; but most vociferous in Ceylon between *c.* January and May, especially during March and April.

Extralimital. Breeds also in Burma, Thailand, Malay Peninsula, S. China, Korea, and U.S.S.R. (lower Amur region). Winters in the Philippines and Indonesian islands.

MIGRATION. No ringing data. Whether, as suspected, it performs regular extralimital migrations in addition to local seasonal movements not proven.

GENERAL HABITS. Chiefly arboreal, keeping singly to tree-tops and canopy foliage or seen flying about hawk-like above the forest canopy. In northern and most of peninsular India very vocal when breeding, mainly between mid March and early August. Especially obstreperous in the early hours before dawn and till about 9 a.m., and again from about dusk till far into or even throughout the night, particularly if moonlit. Noisy during daytime in cloudy overcast weather. Also calls on the wing during courtship chase of female.

FOOD. Hairy and other caterpillars, and various insects. Sometimes descends to the ground, hopping about awkwardly to pick them up from among the littered leaves. Among stomach contents of specimens, *Gryllotalpa africana*, *Sphex lobatus*, and other hymenopteran remains have been specifically identified.

VOICE and CALLS. Very distinctive and diagnostic. The 'song' is a loud and far-carrying 4-syllabled fluty whistle capable of a wide range of local onomatopoeic renderings, *Kyphāl-pākka*, *Bo-kotāko*, *Orange-pekie*, *Crossword puzzle*, *What's your trouble*, being some. The key and timbre is often individually variable. The calls may be iterated continuously every two seconds or so for 5 minutes or more at a stretch, monotonously and with unvarying cadence, in intermittent runs for hours on end; timed at 23 calls per minute and 43 in two minutes. A warbling call aptly described as 'water-bubbling' uttered by the female, chiefly in flight, is almost identical with similar calls of female *C. canorus* and *C. saturatus*. There is also a rapid twice- or thrice-repeated *quik* occasionally given by the female (?). While serenading a nearby female the wings are drooped, the tail often spread out and erected, and the bird pivots from side to side.

BREEDING. Brood-parasitic, reportedly in the main on the drongos *Dicrurus adsimilis* and *D. leucophaeus*. Other species in whose nests putative eggs of this cuckoo are claimed to have been found, or which have been observed feeding its young, are Paradise Flycatcher (*Terpsiphone paradisi*), Streaked Spiderhunter (*Arachnothera magna*), and Ceylon Blackheaded Oriole (*Oriolus x. ceylonensis*). However, the available data on the breeding biology of this and other parasitic cuckoos in India are, by and large, meagre, and of dubious authenticity. Most accounts are vague, largely conjectural and often contradictory. The whole subject calls for a more methodical *de novo* re-investigation. Oviduct eggs from females of this species are reported as of two types: (1) whitish with reddish brown stippling closely matching drongos' eggs, and (2) pale greyish blue, resembling the eggs of some of the Turdinae. They measure *c.* 25 × 19 mm.

In Amurland (U.S.S.R.) whence we possess fuller information, the principal fosterer is the Amur Brown Shrike (*Lanius cristatus confusus* Stegmann) whose eggs closely match those of this cuckoo. The incubation

period of the cuckoo's eggs is *c.* 12 days, i.e. 2 or 3 days shorter than the shrikes'. [For an excellent recent account and details see Neufeldt, I., 1966, 'Life History of the Indian Cuckoo (*Cuculus micropterus micropterus* Gould) in the Soviet Union', JBNHS 63: 399-419.]

MUSEUM DIAGNOSIS. See Key.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	190-207	28-32	<i>c.</i> 20-21	142-161 mm. (SA, HW, BB)

A pair from Ceylon are smaller, and more material may reveal a discrete insular population there. They measure

		(from feathers)	
♂	187.5	24	148 mm.
♀	185.5	21.5	143 mm.

Weight 1 ♂? 128 gm. (winter) — SA. (SDR)

COLOURS OF BARE PARTS. Iris brown to reddish brown; rim round eye (eyelids) bright lemon-yellow. Bill: upper mandible horny brown, lower greenish brown, yellow at chin and gape; mouth yellowish pink. Legs and feet yellow; claws horny brown.

CUCULUS CANORUS Linnaeus

Key to the Subspecies

		Page
A	Colour of upperparts darkest; barring on lower plumage broader and blacker..... <i>C. c. bakeri</i>	210
B	Colour of upperparts palest; barring on lower plumage finer and less black..... <i>C. c. subtelephonus</i>	207
C	Colour of upper- and underparts intermediate..... <i>C. c. canorus</i>	208

577. **Asiatic Cuckoo.** *Cuculus canorus subtelephonus* Zarudny

Cuculus canorus subtelephonus Zarudny, 1914, Orn. Mitt. 5: 108, 115 (Turkestan)
Not in Baker, FBI

LOCAL NAMES. Not recorded.

SIZE. Pigeon $\pm$; slenderer. Length *c.* 33 cm. (13 in.).

FIELD CHARACTERS. As for 578, q.v. See Key and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Evidently occurs in Baluchistan (breeding or on passage?) but available material insufficient to clarify the status (Ticehurst, 1927, JBNHS 31: 881). It is the breeding bird of Iran (west to the Caspian Sea), and a passage migrant in Iraq and 'Persian Baluchistan' (SE. Iran). May also occur in northeastern NEFA.

Extralimital. 'Transcaspia, Russian Turkestan and western Chinese Turkestan; recorded from the western slopes of the Ala Shan in extreme southern Mongolia, from the valley of the upper Huang ho and from a northern tributary of the Mekong in SE. Tibet. Winters in East Africa' (Peters).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 578.

BREEDING. Extralimital. May possibly breed in Baluchistan, but unknown with certainty.

MUSEUM DIAGNOSIS. Differs from both 578 and 579 in being much paler coloured on head, neck, and breast, and in having fewer, finer, and less blackish cross-bars on the underparts; also in being smaller, with wings sometimes down to *c.* 180 mm.

MEASUREMENTS

Wing ♂♂ 204–220, ♀♀ 184–216 mm. (Portenko, 1931, *Mitt. Zool. Mus. Berlin* 17: 417–22).

COLOURS OF BARE PARTS. As in 578.

578. **Cuckoo.** *Cuculus canorus canorus* Linnaeus

Cuculus canorus Linnaeus, 1758, *Syst. Nat.*, ed. 10, 1: 110

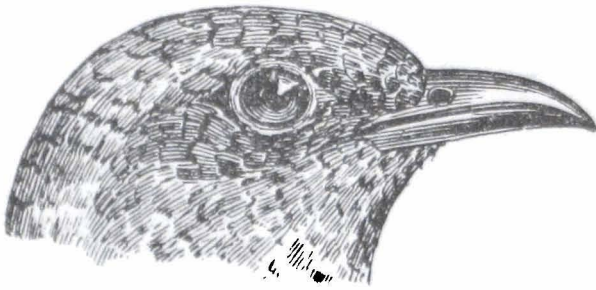
(Europa = Sweden, *ex Fn. Suec.*)

Cuculus telephonus Heine, 1863, *Jour. f. Orn.* 11: 352 (Japan)

Baker, FBI No. 1451, Vol. 4: 135

LOCAL NAMES. *Phūphū*, *Kūpwāh* (Kumaon); *Kūkkū* (Lepcha); *Ākkū* (Bhutea); *Hōr kūk*, *Shākūk*, *Kūkū*, *Kūkil* (Kashmir)

SIZE. Pigeon ±; slenderer. Length *c.* 33 cm. (13 in.).



× *c.* 1

FIELD CHARACTERS. General effect, shape of wings and manner of flight reminiscent of sparrow-hawk. Unmistakable oft-repeated *cūck-koo* call.

Male (adult). *Above*, dark ashy grey; tail blackish brown, spotted and tipped with white and without the subterminal black band of Indian Cuckoo. *Below*, chin, foreneck and breast pale

ashy; rest of underparts white, narrowly cross-barred with blackish.

Adult Female has a rufous tinge on upper breast and sometimes on throat and sides of neck. Also has a hepatic phase with the entire upperparts barred chestnut and blackish brown. *Below*, as in normal female but chin, throat and upper breast barred pale chestnut and blackish, and lower breast and abdomen tinged with rufous.

Juvenile hepatic female duller, with white fringes to feathers of upperparts.

Fledgeling distinguished from fledgelings of *C. saturatus* and *C. poliocephalus* by almost invariable presence of a conspicuous white nuchal spot.

STATUS, DISTRIBUTION and HABITAT. Resident, nomadic, and seasonal local migrant — possibly also translimital as in the Palaearctic Region.¹ Common in the Himalayas in summer, arriving *c.* mid March and leaving again in July/August, from the Afghan frontier through Gilgit, Kashmir (the commonest cuckoo), Ladakh, Himachal Pradesh, Garhwal, Kumaon, and Nepal to Sikkim (?), breeding at between *c.* 600 and 4100 metres altitude. Highest occurrence recorded at Shaksam, Kashmir, 5250 m.

¹ On winter status and probable winter quarters, see Deshayes, M., 1974, *JBNHS* 71: 145–6.

Between early August and mid March both this race and the next (*C. c. bakeri*) are dispersed practically throughout the Peninsula south to Kerala. Rare vagrant in Ceylon and Andaman Is. Maldivé Is. (sight record, Phillips, JBNHS 60: 579). There is good circumstantial evidence (persistent 'singing' by males, enlarged gonads of dissected specimens, and fledgelings being tended by fosterers) that some birds also breed in the Peninsula, e.g. in Madhya Pradesh (Mhow, Saugor, Kamptee), Maharashtra (Chikalda), Gujarat (Mt Abu, Deesa, Kutch), Chota Nagpur, and possibly in the south Indian hills and elsewhere between May and July/August, during the SW. monsoon. However, the ecology and breeding biology of Indian parasitic cuckoos, and their varying status from locality to locality and season to season, are as yet very imperfectly known. Their unobtrusive habits, the superficial resemblance of many species to one another, and likelihood of misidentification particularly when not calling, renders definitive observations difficult and often unreliable. Many of the mysteries can only be solved through large-scale ringing of fledgeling cuckoos.

Extralimital. Breeds in Europe and Asia from the British Isles eastward through Scandinavia and N. Russia, to NE. Siberia and Kamchatka; southward to the Pyrenees, the Mediterranean, Asia Minor and N. Iran; east to Manchuria, Korea, Japan, and the Kurile Is. Winters in Africa, Malaysia to New Guinea.

GENERAL HABITS. Chiefly arboreal, keeping singly to leafy tree-tops or seen flying about hawk-like above the canopy in well-wooded country. Occasionally descends to the ground and walks about to pick caterpillars and other insects from amongst littered leaves, or to investigate eligible nests of pipits and chats for laying in. Mostly silent and unobtrusive in non-breeding season, then apt to be easily overlooked. Very obstreperous when breeding, the males singing lustily from tree-tops all day (chiefly early morning and around sunset) and often far into or even throughout the night. While calling under excitement of a female's proximity the throat is inflated or 'goitred' out like a pigeon, the body held horizontal with wings drooping at the sides, tail spread out and partly cocked (sometimes vertical), the bird lightly oscillating or pivoting from side to side. At other times calls with tail depressed, rump-feathers fluffed out, and wings drooping at the sides. The call is also uttered on the wing during courtship chase of a female, or while in pursuit of an interloping rival.

FOOD. Insects and their larvae, particularly hairy caterpillars. The cicada *Geana sulphurea* Hope largely eaten in E. Himalayas (Stevens).

VOICE and CALLS. 'Song' of the male, the well-known *cûck-koo* occasionally varied to *cûck-cûck-koo*, repeated persistently in long unbroken runs (once 170 counted) at the rate of about one call per second. These are interlarded with hoarse wheezy chuckles. The tempo of the calls varies with the degree of the prevailing excitement at the proximity of a female. The female utters a series of 'water-bubbling' notes *quick-quick quick-quick*, sometimes repeated rather slowly, and also an occasional harsh chuckle like the male's. Her bubbling notes are almost identical with those of *C. saturatus* and *C. micropterus*, and females of the three species cannot be satisfactorily differentiated by their calls.

BREEDING. Brood-parasitic on a wide range of hosts, pipits (*Motacillidae*), shrikes (*Laniidae*), but chiefly on babblers, flycatchers, warblers and chats (*Muscicapidae*). Female believed to be polyandrous or promiscuous in her sex relations. *Season*, March to August synchronizing locally with that of the fosterers. Eggs laid directly into nest of host. In the case of closed or globular nests the cuckoo clings on the outside in acrobatic postures with her vent against the tiny entrance-hole and projects the egg directly into it. In inaccessible nests, such as a chat's in a ground-hollow under a stone, the egg is first laid outside then inserted within with the bill. This process has been observed and authenticated in the case of the Khasi Hills race, *C. c. bakeri* (Livesey, 1937, JBNHS 39: 625-6). *Eggs*, broad blunt oval, widely variable in size and coloration, usually matching those of the fosterer; ranging from white with reddish brown streaks and stippling to uniform pale blue. Average size of 100 eggs picked at random from a large series 23.6×18.1 mm. (Baker). Incubation period also variable, the eggs of the cuckoo usually hatching a day or two earlier than the host's. The young cuckoo in the first 5 or 6 days of hatching possesses a curious sensitive patch or depression on its back, any contact with which produces an impulse to heave upwards. By means of this adaptation the impostor manages to jettison all the rightful hatchlings and unhatched eggs over the rim of the nest or out of the entrance-hole, thereafter monopolizing the attention of the fosterers and the entire food intended for their brood. The young cuckoo thus grows apace, and by the time it leaves the nest it is already several times the bulk and weight of some of the smaller fosterers like pipits and warblers who are often obliged to settle on its back in order to put the food down the cavernous gape of the insatiable monster!

MUSEUM DIAGNOSIS. No subterminal black band on tail; edge of wing mixed white and brown. For distinguishing from *C. c. bakeri* see Key to the Subspecies; for description of plumages, structure (and bionomics) Witherby, 1938, 2: 296-302.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	209-243	26-29	c. 21-24	152-183 mm.
♀♀	213-230	c. 28	c. 23-24	157-170 mm.
				(SA, BB)
For British examples Witherby gives:				
♂♂	216-228	24-28	18-24	165-180 mm.
♀♀	200-223	—	—	— mm.

Weight 1 ♂ 90 gm. (GD).

COLOURS OF BARE PARTS. Iris pale to deep yellow; eyerim yellow. Bill dark horny brown, paler and yellowish at base and on commissure, orange-yellow at gape. Legs and feet wax yellow; claws horny.

579. **Khasi Hills Cuckoo.** *Cuculus canorus bakeri* Hartert

Cuculus canorus bakeri Hartert, 1912, Vög. pal. Fauna 2: 948 (Shillong, Assam)
Baker, FBI No. 1453, Vol. 4: 139

LOCAL NAME. *Kūkū* (Khasi).

SIZE. Pigeon ±; slenderer. Length c. 33 cm. (13 in.).

FIELD CHARACTERS. As of 578, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Not properly worked out. Breeds in the Assam hills south of Brahmaputra river — Garo, Khasi, Jaintia, Cachar, etc. — probably also in Nagaland, Manipur, Mizo and East Pakistan. Occurs at one season or another (and may breed) in Sikkim, Bhutan (collected by Ludlow up to c. 3300 m. alt. in summer) and NEFA. May occasionally turn up in far-flung parts of the subcontinent, thus Ahmadnagar dist., Maharashtra (Abdulali, 1954, JBNHS 52: 210). Affects well-wooded country, orchards, etc.

Extralimital. 'Breeds from eastern Kokonor and SW. Kansu southward through W. Szechuan and W. Kansu (probably adjacent parts of E. Tibet) to Burma (Pegu Yomas) and the Shan States' (Peters). In winter to the Indochinese countries.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 578, q.v.

BREEDING. As in 578. *Season*, chiefly April/May to June/July. Principal fosterers over most of its range and also in the Khasi Hills, warblers of the genera *Cisticola* and *Suya* (= *Prinia*) which build fragile domed nests of grass with a small lateral entrance-hole. Other members of the family Muscicapidae, especially chats and small babblers, are also victimized. For method of the cuckoo's laying in domed and even less accessible nests see under 578. *Eggs*, broad blunt oval, as widely variable in size and coloration as in 578. Average size of 300 eggs 24.2×17.9 mm. (Baker).

MUSEUM DIAGNOSIS. Distinguished from nominate *canorus* by darker upperparts, often almost blackish slaty; barring on underparts broader, blacker and further apart. Female differs from male as in 578.

MEASUREMENTS

♂ ♀ Wing 208–240, mostly between 225–235 mm. (Baker). One very small ♀ has wing 198 mm. (Abdulali). Males usually somewhat larger.

COLOURS OF BARE PARTS. As in 578.

580. Himalayan Cuckoo. *Cuculus saturatus saturatus* Blyth

Cuculus saturatus 'Hodgson' = Blyth, 1843, Jour. Asiat. Soc. Bengal 12 (2): 942 (Nepal)

Cuculus optatus Gould, 1845, Proc. Zool. Soc. London: 18

(Port Essington, Northern Territory)

Baker, FBI No. 1454, Vol. 4: 140

LOCAL NAMES. *Tong ting vyang* (Lepcha); *Dao hoo hoo* (Cachar); *Hoo kūkū* (Khasi).

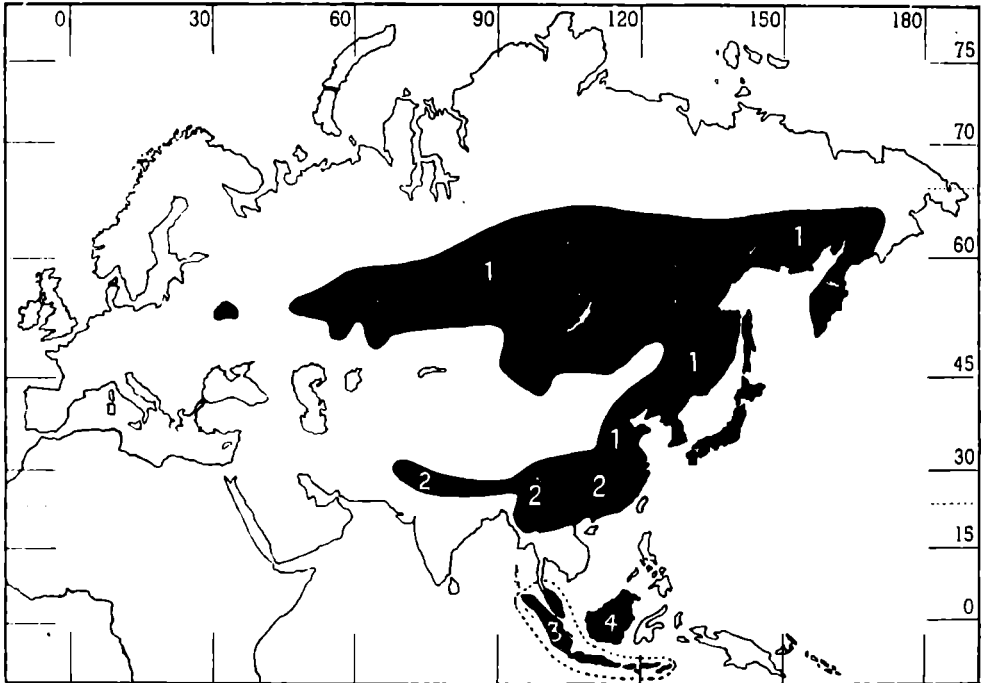
SIZE. Pigeon — ; slenderer. Length c. 31 cm. (12 in.).

FIELD CHARACTERS. Very similar to 579 and doubtfully distinguishable from it except by its distinctive 4-noted hoopoe-like call. At rest and on a good view perhaps also by the edge of the wing-shoulder being pure white v. barred brown and white (see Key and Museum Diagnosis). Female sometimes has a hepatic phase as in *C. canorus*.

STATUS, DISTRIBUTION and HABITAT. Described as 'summer visitor' to the lower Himalayas, but probably resident. Like other Himalayan cuckoos vocal between March/April and July/August mostly when breeding, and much oftener heard than seen. Liable to be overlooked or misidentified in

silent period. Breeds from the Afghan frontier eastward through Gilgit, Kashmir, Ladakh, Himachal Pradesh, Garhwal, Kumaon, Nepal, Sikkim, Bhutan and NEFA between c. 1500 and 3300 m. altitude; also in the Assam hills south of the Brahmaputra river. Has been taken (rarely) in winter in the plains in N. India (Uttar Pradesh, Rajasthan, Bihar, Assam).

Cuculus saturatus



■ Breeding range 1 *C. s. horsfieldi* 2 *C. s. saturatus*
 3 *C. s. lepidus* (RE) 4 *C. s. insulindae* (RE)

No authentic data for further south; possibly occurs as vagrant but unrecorded owing to difficulty of recognition when not calling. Davison's old record from Wynaad, Kerala (SF 10: 359) probably mistaken as shown by Blanford (1893, PZS: 318). Not uncommon in the Andaman and Nicobar Is. 'in summer' (Butler 1899, JBNHS 12: 565). Affects hilly wooded country and orchards.

Extralimital. Burma, Thailand, S. China, Formosa (Taiwan).

GENERAL HABITS and FOOD. By and large as in 578, q.v.

VOICE and CALLS. Distinctive and diagnostic: a loud, far-carrying *ūp* . . . *oop-oop-oop-oop* or *hūd-hūd-hūd-hūd*, the initial *ūp* a soft undertone audible only at close range. In the distance call confusable with hoopoe's, but characteristically 4-noted against hoopoe's 3. While calling from a tree-top throat inflated or 'goitred' out as in a pigeon, and wings drooped at the sides. Male also emits a medley of hoarse, almost ghoulish, croaks and chuckles. Calls less persistently than Indian Cuckoo or 578, but at all times of day and night, especially moonlit nights. 'Water-bubbling' notes of female indistinguishable from those of 578, q.v.

BREEDING. Brood-parasitic commonly on flycatcher- and leaf warblers of the genera *Seicercus* and *Phylloscopus*, tiny birds less than one-third its own size; in Kashmir the Large Crowned Leaf Warbler (*Phylloscopus occipitalis*) most frequently victimized. Season, principally May-June,

synchronizing with that of the hosts. *Eggs*, long ellipses, greatly variable in size, often incongruously small for the cuckoo. Coloration also variable, mainly pale skim-milk blue or white with faint minute dark stippling, usually matching the eggs of the host. Average size of 40 eggs *c.* 20 × 13.5 mm. (Baker). Fellow-nestlings and unhatched eggs ejected from nest presumably in same way as by 578.

MUSEUM DIAGNOSIS. Similar to 578, q.v., but with the edge of the wing-shoulder pure white, without any brown barring. Black bars on underparts bolder and wider apart. For description of hepatic female, juvenile, and nestling see Biswas, 1960, JBNHS 57 (3): 542.

MEASUREMENTS

Nepal specimens give

	Wing	Bill	Tail
14 ♂ ♀	179-192	27-30	144-159 mm. (BB)

2 ♂♂ from Sikkim, wing 185, 188 mm. (Schäfer).

Thus it is evident that Baker's measurements loc. cit. (♂ ♀ Wing 208-226; bill (from feathers) *c.* 20-22; tail 151-176 mm. do not relate to Himalayan birds.

Weight 1 ♂ 105; 1 ♀ 72 gm. (GD).

COLOURS OF BARE PARTS. Iris reddish brown or orange-red; eyerim yellow. Bill dark horny green, yellowish at gape. Legs and feet wax yellow to bright yellow. (For details see Biswas, loc. cit.)

580a. **Horsfield's Cuckoo.** *Cuculus saturatus horsfieldi* Moore
See Appendix, p. 320

581. **Small Cuckoo.** *Cuculus poliocephalus poliocephalus* Latham

Cuculus poliocephalus Latham, 1790, Index Orn. 1: 214 (India)

Cuculus poliocephalus assamicus Koelz, 1952, Jour. Zool. Soc. India 4: 45
(Kohima, Naga Hills)

Baker, FBI No. 1455, Vol. 4: 142

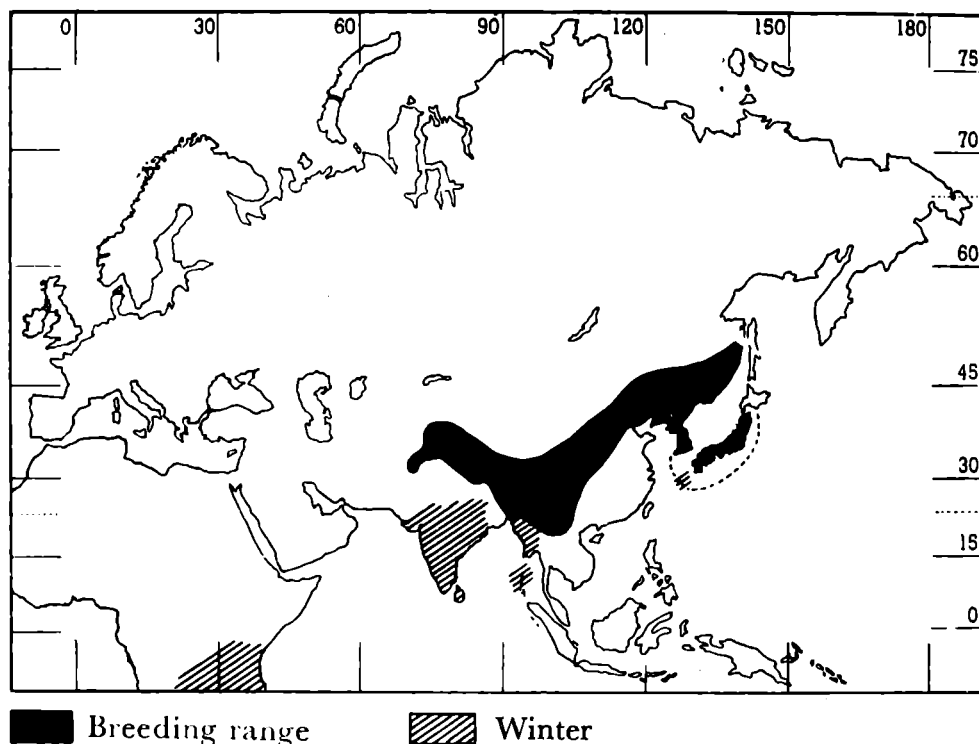
Plate 42, fig. 9, facing p. 288

LOCAL NAMES. *Dang-hlem* (Lepcha); *Pichu giapu* (Bhutea); *Dao pia pihu* (Cachar).

SIZE. Myna +, with a longer tail. Length *c.* 26 cm. (10 in.).

FIELD CHARACTERS. Smaller than 579 but otherwise very similar: slaty grey above, black-barred white below, the underparts suffused with buff. Sexes more or less alike, but ♀ has also a hepatic phase. Most satisfactorily recognized by its distinctive husky chattering call, *That's your choky pepper* (accent on *choky*).

STATUS, DISTRIBUTION and HABITAT. Locally common and breeding in summer (April/May to July/August) in the Himalayas between *c.* 1500 and 3200 m. alt. (possibly to *c.* 4000 m.) from the Afghan frontier, Gilgit and Kashmir eastward, through Nepal, Sikkim, Bhutan, and NEFA. Also in Assam hills south of the Brahmaputra, Nagaland, and Manipur (?). Migrates in winter to lower elevations and the northern plains, wandering widely in the Peninsula south to Kerala (Cannanore). Recorded thus from Madhya Pradesh (Nagpur), Gujarat (Surat Dangs), Maharashtra (Dhulia, Ahmadnagar, Khandala), Mysore (Coorg, Belgaum), Tamil Nadu (Nilgiris),

Cuculus poliocephalus poliocephalus

Andhra Pradesh (Nellore, Seshachalam Hills), and Andaman Is. Scarce visitor to Ceylon. Doubtless more generally dispersed but unrecorded owing to difficulty in identification when silent (in non-breeding season). Affects well-wooded country.

Extralimital. Breeds also in W. and C. China, Manchuria, and Japan from Hondo to Kiusiu. Recorded as migrant or straggler from E. China, the Bonin Is., Formosa (Taiwan), Ryukyu Is., S. Vietnam, etc. (Peters). Apparently scarce and local in the higher hills of Burma (Smythies).

MIGRATION. No ring recoveries. Passes through Pt Calimere (10°18' N., 79°51' E.) in numbers during October, presumably *en route* to Ceylon.

GENERAL HABITS and FOOD. Not significantly different from other members of the genus, qq.v. Very noisy in the breeding season, calling as much during the day, especially in cloudy weather, as at night; from a perch as well as on the wing.

VOICE and CALLS. A curious unmusical rattling, or chattering, cry of 5 or 6 notes, the first half going up in scale, the second coming down; well rendered as *That's your choky pepper . . . choky pepper* (accent on first *choky*). Uttered several times in quick succession, each repetition somewhat lower than the preceding. Timbre rather bulbul-like, but harsh and husky; pattern of call vaguely reminiscent of the *brain-fever* shrieks of *Cuculus varius* (573).

BREEDING. Brood-parasitic chiefly on small ground-nesting passerines of the family Muscicapidae, e.g. leaf warblers (*Phylloscopus*), wren-babblers (*Pnoepyga*) and shortwings (*Brachypteryx*). Season, May, June, July synchronizing with that of the hosts at various altitudes. Eggs, short, broad, elliptical;

variably coloured, white to terracotta red, usually matching the eggs of the normal local hosts. The egg is remarkably large for the size of the layer, and in the white phase almost indistinguishable from that of *C. saturatus*, a bird at least one-third larger. Average size of 30 eggs 21.0 × 14.2 mm. (Baker).

MUSEUM DIAGNOSIS. Smaller than *C. saturatus* and with edge of wing ashy. For description of immature plumages see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	142–162	24–25	17–19	126–137 mm.
		(from skull)		(Various)

Baker's lower limits for wing (152 mm.) and tail (132 mm.) are misleading.

Weight 2 ♂♂ (Nepal, May), 48, 54 gm. — GD; 6 oo?

(Pt Calimere, October) 32–44 gm. — SA.

COLOURS OF BARE PARTS. Iris brown; eyerim yellow. Bill blackish horny; base of both mandibles, commissure and gape yellow. Legs and feet wax yellow.

Genus CACOMANTIS S. Müller

Cacomantis S. Müller, 1843, Verh. Nat. Gesch. Ned. Land-en Volkenk., pt. 6: 177, note. Type, by subsequent designation, *Cuculus flavus* Gmelin = *Cuculus merulinus* Scopoli

Penthoceryx Cabanis & Heine, 1863 (1862–63), Mus. Hein., Th. 4 (1): 16

Type, by monotypy, *Cuculus sonneratii* Latham

Contains small-sized cuckoos distinguished from *Cuculus* by shorter, more rounded wings with the primaries exceeding the secondaries by only about one-third length of wing. Tail as long as or longer than wing and well graduated.

Key to the Species

	Page
A Bill stout and not compressed; tail-feathers narrower posteriorly.	
..... <i>C. sonneratii</i>	215
B Bill compressed; tail-feathers of uniform width	
1 Upperparts dark ashy; abdomen white or grey	<i>C. passerinus</i> 218
2 Upperparts ashy grey and brown; abdomen rufous	<i>C. merulinus</i> 220

CACOMANTIS SONNERATHI (Latham)

Key to the Subspecies

Upper plumage brighter and more rufous.*C. s. sonneratii*

Upper plumage darker and more brown.*C. s. waiti*

582. Indian Baybanded Cuckoo. *Cacomantis sonneratii sonneratii* (Latham)

Cuculus sonneratii Latham, 1790, Index Orn. 1: 215 (India)

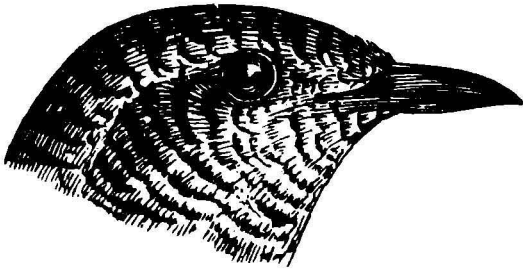
Baker, FBI No. 1464, Vol. 4: 157

Plate 42, fig. 8, facing p. 288

LOCAL NAMES. *Basha katti pitta* (Telugu); *Chenkūyil* (Malayalam); *Pāttāvāli lāl kōyāl* (Gujarati).

SIZE. Myna +; slenderer. Length *c.* 24 cm. (9½ in.).

FIELD CHARACTERS. A small slim cuckoo: *above*, bright rufous or bay colour, conspicuously crossbarred with brown; *below*, including sides of head and neck, whitish with fine wavy brown cross-bars. Tail largely rufous, tipped with white and subtipped with black. Sexes alike. Easily confused with hepatic phase of female Plaintive Cuckoo (584, 585); see Museum Diagnosis.



× *c.* 1

Young (immature) similar to adult but with the rufous bars on the upperparts more pronounced, and the brown bars on the upperparts as well as the rufous on tail more extensive.

STATUS, DISTRIBUTION and HABITAT. Status unclear due to the bird being silent during non-breeding season when easily overlooked. Believed to be resident and nomadic as well as seasonal local migrant. Widely scattered in the monsoon season practically throughout India, sparse in the north, fairly common in the Deccan and southern India (excepting the areas of heaviest rainfall). Recorded from the lower Himalayas (up to *c.* 2400 m. alt.), foothills and plains, from Kumaon through Nepal, Sikkim and Bhutan to Assam (common in hills south of Brahmaputra R.), Gujarat, Madhya Pradesh, Orissa, W. Bengal. Commoner in southern Maharashtra, Andhra, Tamil Nadu, Mysore, Kerala, East Pakistan. Affects deciduous and ever-green lightly wooded country around cultivation, as well as fairly heavy forest.

Extralimital. Burma south to Tenasserim, Thailand, Vietnam.

GENERAL HABITS. Arboreal, usually keeping singly to bare tree-tops especially when calling, flying about from one to another. Sometimes springs up in the air to take a flying insect.

FOOD. Mainly caterpillars and bugs (Hemiptera). The red Silkcotton Bug (*Dysdercus cingulatus*) is a favourite item with both this and the Plaintive Cuckoo.

VOICE and CALLS. A loud, rather pleasant 4-noted whistle *wee-ti-tee-ti* uttered with cuculine persistence and monotony from an exposed tree-top chiefly in the early morning and at dusk with tail depressed, rump-feathers fluffed out, and wings drooping at the sides; at all hours during overcast drizzly weather. The call is reminiscent of the *crossword-puzzle* calls of *Cuculus micropterus* (576) but is in a higher key and with a slightly different intonation. In addition has a sweet, clear whistling song of ventriloquial quality *tee titee-teeti titee-teeti?*, rising in scale, ending interrogatively.

BREEDING. Brood-parasitic evidently on ioras (*Aegithina*), bulbuls (*Pycnonotus*), and small babblers (*Timaliinae*). *Season*, variable and prolonged (February to August), synchronizing locally with that of its hosts. Oviduct eggs broad oval in shape and variable in coloration. One common type is white or pinky white speckled with reddish- or purple-brown, usually resembling closely the eggs of the hosts. Average size *c.* 19.3 × 15.8 mm. (Baker).

MUSEUM DIAGNOSIS. Distinguished from the very similar hepatic female of Plain-tive Cuckoo (584) by the tail-feathers being a little narrower towards their tips instead of uniformly broad throughout. Bill stouter and broader up to the tip, which is blunt seen from above.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	116-128	23-26	c. 17-18	112-118 mm. (SA)

COLOURS OF BARE PARTS. Iris brown. Bill horny black, olive-grey at base of lower mandible. Legs and feet greyish green; claws horny brown.

583. Ceylon Baybanded Cuckoo. *Cacomantis sonneratii waiti* (Baker)

Penthoceryx sonneratii waiti Baker, 1919, Bull. Brit. Orn. Cl. 39: 47 (Ceylon)
Baker, FBI No. 1466, Vol. 4: 159

LOCAL NAMES. *Kōhā* (Sinhala); *Kūyil* (Tamil).

SIZE. Myna +; slenderer. Length c. 24 cm. (9½ in.).

FIELD CHARACTERS. As of 582, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. Resident in all zones. Very local but moderately plentiful in many districts in the lowlands and lower hills to c. 750 m.; in winter (NE. monsoon season) visiting the Uva hills to over 1200 m. (Phillips). Affects borders of forest, chenas (shifting cultivation), and open jungle, preferably in the intermediate belt of country between the Wet and Dry zones (Henry).

GENERAL HABITS and FOOD. As in 582.

VOICE and CALLS. As in the Indian race. 'In the breeding season it utters a different note, a whistled *whew, whew, whu-u-u, whu-u-u, whu-u-u* — each stanza higher pitched than the last, the call ending abruptly as if the bird had reached the top of its compass — or run out of breath' (Henry). Most noisy in the mornings and evenings during the first quarter of the year, when presumably breeding.

BREEDING. 'Practically unknown. Victimizes the Orange Minivet (*Pericrocotus flammeus*) occasionally, if not regularly; and also the Little Minivet (*P. peregrinus ceylonensis*). Young observed in June and October' (Phillips).

MUSEUM DIAGNOSIS. Differs from the Indian bird in being much darker and browner above rather than rufous.

MEASUREMENTS. Baker gives Wing 121-126 mm.; bill (from feathers) 19-20 mm. Two specimens from Ceylon in the American Museum of Natural History, New York, measure:

	Wing	Bill (from feathers)	Tail
♂	129	20	111 mm.
♀	125	21	110 mm. (SDR)

COLOURS OF BARE PARTS. As in 582.

584. **Indian Plaintive Cuckoo.** *Cacomantis passerinus* (Vahl)¹

Cuculus passerinus Vahl, 1797, Skriv. Naturhist.-Selsk., Kjobenhavn, 4(1): 57
(Tranquebar)

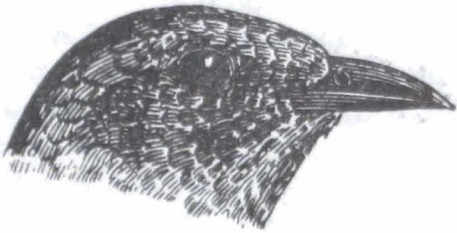
Baker, FBI No. 1462, Vol. 4: 154

Plate 41, fig. 7, facing p. 256

LOCAL NAMES. *Pousya* (Marathi); *Chinna katte pitta* (Telugu); *Kōhā* (Sinhala); *Kūyil* (Tamil); *Cherūkūyil* (Malayalam); *Nāni rākhodi kōyāl* (Gujarati).

SIZE. Myna $\pm$; slenderer. Length *c.* 23 cm. (9 in.).

FIELD CHARACTERS. A small slim cuckoo: *above*, dark grey and brown; *below*, chin, throat and breast grey, paling on abdomen and to whitish on vent. Tail blackish with a white tip and with the outer rectrices obliquely barred white. Occasional examples dark ashy throughout, and these easily confused with Dark Grey Cuckoo-Shrike (*Coracina melaschistos*, No. 1077). A white patch on underside of wings (at base of primaries) conspicuous in flight. Sexes alike, but female dimorphic; in the hepatic (red) phase easily confused with Baybanded Cuckoo (582): bright chestnut-bay above and on throat, crossbarred with black on back, and with finely black-barred white underparts.



$\times c. 1$

Young (immature) superficially similar to hepatic female: *above*, bright chestnut barred with black; *below*, chin, throat and breast suffused with chestnut with a few black bars; rest of underparts white finely and wavily barred with blackish. Tail-feathers marked longitudinally with black along the shafts. Some females moult from this dress direct into adult hepatic plumage.

STATUS, DISTRIBUTION and HABITAT. Throughout the well-wooded parts of the subcontinent including Nepal, Sikkim and Bhutan; up to *c.* 2700 m. altitude in the Himalayas; to *c.* 1800 in the Nilgiris and peninsular hills. Largely absent in W. Pakistan, western Rajasthan, northern Gujarat, and Kutch; not recorded from the Andaman and Nicobar Is. Occurs also in E. Pakistan, Ceylon ('winter visitor'), and Maldivé Is. As in Baybanded Cuckoo (582), status evidently variable, but unclear chiefly because of

¹ Biswas (*Ibis* 93: 596, 1951) has shown that both *passerinus* and *merulinus* occur side by side in the breeding season without any intergrades. Therefore treated here as full species.

liability to be misidentified in the field or overlooked during the silent (non-breeding) period: resident in some parts of the country, nomadic or local migrant in others; from its calls perhaps most widely dispersed during the monsoons. Affects light open forest, gardens, groves of trees in village environs, shade trees in tea plantations, and the like.

GENERAL HABITS. General appearance and behaviour reminiscent of Dark Grey Cuckoo-Shrike. Keeps singly to foliage canopy of trees and bushes, mounting to their exposed tops for calling. Active and restless, constantly flying across swiftly from tree-top to tree-top over a wide area (its territory ?) to call from different vantage points. Occasionally launches short flycatcher-like aerial sallies to capture flying bugs, or descends to the ground and hops a few steps to pick up caterpillars. When calling the tail is depressed, the rump arched (feathers fluffed out), and the wings drooped loosely at the sides.

FOOD. Hairy caterpillars (those of the moth *Nepita conferta* identified), bugs (*Dysdercus cingulatus* and others), and various soft-bodied insects.

VOICE and CALLS. Various. One commonly heard and quite diagnostic of the species is a rather plaintive single whistle *piteer* or *kiveer* frequently repeated at short intervals. Another call is clearly of the Indian Cuckoo's crossword-puzzle pattern but in a higher key: *weeti-teeti* or *peter-peter*. The song proper is a clear lilting whistle of several notes ending interrogatively: *Pee-pipee-pee*, *pipee-pee?* or its variant *pee-pipee-pee-pi*, *pipee-pee-pi?* ascending in scale and slightly higher pitched with each repetition. The calling bird turns its head this way and that, producing a marked ventriloquial effect. Most noisy in the mornings and evenings in the breeding season, but at all times of the day in cloudy, drizzly weather. Calls also during nights, whether dark or moonlit.

BREEDING. Brood-parasitic on warblers (Sylviinae) principally of the genera *Prinia*, *Cisticola* and *Orthotomus*. All these build more or less closed nests with narrow entrance-holes in which it is difficult to conceive the cuckoo introducing its egg in any way other than with the bill. The actual process needs determining. *Season* overall June to September, synchronizing locally with that of its hosts. *Eggs* long narrow ovals, appreciably smaller at one end. Coloration variable, usually matching those of the hosts. Average size of eggs 19.9×14.0 mm. (Baker). A remarkable case of adaptive selection has been revealed by Prof. R. K. Burnett in Andhra. He found that in Hyderabad city the Plaintive Cuckoo habitually laid in the nests of the locally abundant Ashy Wren-Warbler (*Prinia socialis*) which lays a uniform brick-red egg, whereas a few miles out in the surrounding country the principal host is the Tailor Bird (*Orthotomus sutorius*) whose eggs are reddish- or bluish white spotted with brownish red. The eggs of the cuckoo in the respective areas 'mimic' those of the host in a convincing way. This would imply the evolution of remarkable plasticity in egg production, the urban population of the cuckoo being so strictly adapted as to lay an egg different from that of the population in the surrounding countryside. Whether the hatching cuckoo evicts its rightful nestmates, as observed in the genus *Cacomantis* elsewhere, not known.

An extraordinary instance, fairly reliably reported from Poona (30 August 1944), of a chick of this cuckoo in the nest of a Purple Sunbird

(*Nectarinia asiatica*) being fed in turns by the fosterers and by Tailor Birds (*Orthotomus sutorius*)! (M. F. Suter, JBNHS 45: 235).

MUSEUM DIAGNOSIS. For details of plumages see Whistler, H., 1944, *Spolia Zeylonica* 23 (3 & 4): 213-14.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	113-120	22-23	c. 17-19	105-115 mm. (SA, BB, HW)

COLOURS OF BARE PARTS. Iris brown. Bill horny brown, paler at chin and basal portion of lower mandible; mouth bright orange-brick colour. Legs and feet brownish yellow; claws horny brown.

585. **Rufousbellied or Burmese Plaintive Cuckoo.** *Cacomantis merulinus* Heine

Cacomantis querulus Heine, 1863, Jour. f. Orn. 11: 352. New name for *Polyphasia tenuirostris* Jerdon, not *Cuculus tenuirostris* Gray, 1834, which = *Cacomantis passerinus* (Vahl) (Lower Bengal, Assam, Sylhet, Burma, and China)
Baker, FBI No. 1463, Vol. 4: 156

LOCAL NAME. *Chhōta bhārāu* (Bengal).

SIZE. Same as 584; length c. 23 cm. (9 in.).

FIELD CHARACTERS. A small, slim, ashy grey and brown cuckoo with white-tipped and barred blackish tail. Very similar to 584 (q.v.) but with the underparts, from breast down, rufous-buff to rusty red instead of white.

Female dimorphic, with a hepatic phase as in the Indian race.

Young (immature). Confusable with Baybanded Cuckoo on a superficial view. *Above*, barred brown and dull chestnut, including wings and tail. *Below*, chin, throat and foreneck chestnut, streaked with blackish; rest of underparts white, variably suffused with rufous and narrowly barred with dark brown.

STATUS, DISTRIBUTION and HABITAT. Status uncertain: locally resident, nomadic and migratory. Assam, Manipur, East Pakistan, West Bengal, the lower Himalayas to c. 2000 m. (also duars and terai) in NEFA and westward through Bhutan, Sikkim and Nepal. Has been taken in winter in eastern peninsular India west to c. 81°E. (Raipur, Madhya Pradesh) and south to c. 15°N. (Cumbum, Andhra Pradesh).¹

Affects well-wooded country — gardens, groves, shade trees in tea plantations, light open forest, and scrub jungle.

Extralimital. Eastward through Yunnan to Fukien, south through Burma, Thailand and the Indochinese countries to the northern Malay States; Hainan (Peters).

¹ This may be juvenal *passerinus* *vide* Biswas (JBNHS 37: 520).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 584.

BREEDING. Brood-parasitic on warblers—in the Assam hills chiefly on *Prinia* (*criniger*, *atrogularis*, *hodgsonii*), *Cisticola* *cursor*, and *Orthotomus* *sutorius*. Season, April to August. Eggs varying in colour from pure white to pale blue, spotted and blotched with reddish brown, generally matching those of the hosts, only larger. Average size of 30 eggs taken at random 19.8×13.8 mm. (Baker).

MUSEUM DIAGNOSIS

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	109–119	15–17	17–18	112–125 mm. (Baker)

COLOURS OF BARE PARTS. As in 584.

Genus *CHALCITES* Lesson

Chalcites Lesson, 1830, *Traité d'Orn.*, livr. 2 : 152. Type, by tautonymy, *Cuculus chalcites* Illiger, i.e. Lichtenstein, 1818 (Temminck, 1821, *Pl. col.*, livr. 17, pl. 102, f. 2) = *Cuculus plagosus* Latham

Small cuckoos of brilliant metallic plumage. Sexually dimorphic. Tail short and slightly rounded; wings long and pointed, the primaries exceeding the secondaries by more than one-third the length of the closed wing. Tarsus feathered almost throughout.

The genus extends through the Malay Peninsula and Indochinese countries to New Guinea; represented by two species in our limits.

Key to the Species

	Page
Upperparts glossy violet..... <i>C. xanthorhynchus</i> (♂)	223
Upperparts brilliant green..... <i>C. maculatus</i> (♂)	221
Upperparts light coppery green..... <i>C. xanthorhynchus</i> (♀)	223
Upperparts green, crown rufous..... <i>C. maculatus</i> (♀)	221

586. **Emerald Cuckoo.** *Chalcites maculatus* (Gmelin)

Trogon maculatus Gmelin, 1788, *Syst. Nat.* 1 (1) : 404 (Ceylon)

Baker, FBI No. 1468, Vol. 4 : 162

Plate 39, fig. 3, facing p. 176

LOCAL NAMES. *Ang pha* (Lepcha); *Dao piu pip* (Cachar).

SIZE. Sparrow +; length *c.* 18 cm. (7 in.).

FIELD CHARACTERS. A diminutive resplendent-plumaged cuckoo.

Male (adult). *Above*, head, neck, and upperparts brilliant glossy green with golden bronze reflections. A white patch at base of primaries conspicuous in flight. Rectrices tipped white, the outermost pair with three irregular white bars. *Below*, chin, throat, and upper breast glossy green like back; rest of underparts white, barred with metallic bronze-green. Under tail-coverts metallic green, barred with white.

Female. *Above*, glistening emerald green with golden rufous crown and nape, these parts reminiscent of Little Green Bee-eater (*Merops orientalis*):

tail barred chestnut and black, tipped with white. *Below*, white, tinged with rufous on throat and flanks and barred with bronze-brown, narrowest on throat, broader and wider apart on abdomen.

Young (fledgling *ex* nest). *Above*, barred rufous and brown, the marks on head elongate instead of across. *Below*, chin, throat and foreneck dull rufous streaked with black; rest of underparts barred alternately with dull white and brown.

STATUS, DISTRIBUTION and HABITAT. Status uncertain. Possibly resident but subject to nomadism and local migration like other cuckoos. Occurs in the Himalayas (terai, bhabar, duars and foothills) up to *c.* 1000 m. — rarely to 1500 m. alt. — from Garhwal through Kumaon, Nepal, Sikkim, N. Bengal, Bhutan, and NEFA. Also Assam, Manipur, and East Pakistan. Once recorded from Ceylon, the type, possibly a stray. A straggler obtained at Adyar, a few miles south of Madras on 6 March 1878 (W. F. Dique, SF 9: 298); a specimen from Palni Hills in BNHS collection. Andaman and Nicobar Is. Affects evergreen jungle, chiefly secondary growth.

Extralimital. Breeds in SE. Tibet and Szechuan to Hupeh, south to Burma, Yunnan and central Vietnam. Has occurred in winter or as a wanderer in Hainan, S. Vietnam, Malay Peninsula and Sumatra (Peters).

GENERAL HABITS. Keeps singly or in small parties of 4 to 6 to the higher branches in the foliage canopy of forest trees, and is difficult to observe except when flying across from tree to tree. Is unusually active for a cuckoo, constantly flitting from one bough to another or making aerial sorties after winged insects. In the breeding season is very vociferous, calling at intervals throughout the day and often far into the night, or all through if moonlit. Has a characteristic crouching stance when perched on a branch, along rather than across it, the tips of the closed wings projecting beyond the tail. Flight swift, reminiscent of a lorikeet.

FOOD. Ants, caterpillars, bugs (Hemiptera), and other soft-bodied insects, often taken on the wing.

VOICE and CALLS. 'A very fine clear loud whistling call of 3 notes rapidly uttered' (Hume). 'A constantly uttered trill not unlike that of the lorikeet' (Betts). 'A quick high-pitched rattle of 5 or 6 notes descending slightly in pitch' (Smythies). 'A sweet twittering' (Stevens). 'A shrill but not unmusical succession of three notes in an ascending scale' (Baker).

BREEDING. Brood-parasitic chiefly on yellowbacked sunbirds (*Aethopyga* spp.), and spiderhunters (*Arachnothera* spp.). Season, 'middle April to end July' (Baker). Eggs, broad obtuse ovals usually white in ground colour, blotched and smudged with light brown or reddish brown, being passable replicas of those of the hosts, but larger. Average size of 17 eggs 16.9×12.3 mm. (Baker). Though not yet observed in the hatchlings of either this species or *C. xanthorhynchus*, other members of the genus (extralimital) are known to evict their rightful nest-mates from the nest.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	105–114	14–15	<i>c.</i> 15	63–70 mm. (Baker)

COLOURS OF BARE PARTS. Iris reddish brown to crimson; eyelids crimson. Bill bright orange-yellow tipped with black. Legs and feet dark brownish green.

587. **Violet Cuckoo.** *Chalcites xanthorhynchus xanthorhynchus* (Horsfield)

Cuculus xanthorhynchus Horsfield, 1821, Trans. Linn. Soc. London 13 (1): 179 (Java)

Baker, FBI No. 1467, Vol. 4: 160

Plate 42, fig. 7, facing p. 288

LOCAL NAME. *Daopiu-pip* (Cachar).

SIZE. Sparrow +; length *c.* 17 cm. ($6\frac{1}{2}$ in.).

FIELD CHARACTERS. A diminutive resplendent-plumaged cuckoo.

Male (adult). *Above*, head, neck and upperparts glistening metallic violet. Tail blackish, all the feathers tipped white, the outermost pair barred with same. *Below*, chin, throat, foreneck, and upper breast glistening violet; rest of underparts, including wing-lining, banded with broad white and violet (or green) bands.

Female. *Above* greenish bronze with a coppery tinge, and sometimes a little white on forehead; tips of primaries and rectrices greener. Tail banded green and chestnut and tipped white on all except the central pair of feathers. *Below*, including sides of head and neck, alternately banded with white and bronze-green, the bands narrowest on chin and throat, broadest on vent.

Young (immature). *Above*, barred rufous and brown. *Below* white, barred with brown.

'Young males moult direct from the barred rufous stage into that of the adult and are never like the female' (Baker).

Fledgeling. Like immature but with the entire head and neck (all round) streaked with black instead of banded.

STATUS, DISTRIBUTION and HABITAT. Status uncertain; possibly various — resident, nomadic, and local migrant like 586 and other cuckoos. Assam, NEFA (?), Nagaland, Manipur, Tripura, East Pakistan (and possibly adjoining eastern W. Bengal); plains and up to *c.* 1500 m. alt. in the hills. Has been taken in the Andaman Is. in March, May, July and August; once at Perambur near Madras (season ? — Whistler, JBNHS 37: 521). 'Winter status in India quite unknown' (Desfayes, M., 1974, JBNHS 71: 146). Affects secondary evergreen forest, keeping to clumps of trees, orchards, etc. and difficult to observe or detect unless calling.

Extralimital. SW. Yunnan and central Vietnam, south to Malay Peninsula, Thailand, and S. Vietnam. Sumatra; Lingga Archipelago; Java; Borneo.

GENERAL HABITS and FOOD. Very little known; presumably as of the Emerald Cuckoo.

VOICE and CALLS. Not recorded in India. 'A shrill high-pitched trilling call resembling that of the nuthatch and barred woodpeckers' (D. M. Batchelor, 1963, *Sarawak Museum Journal* 21-2 N.S.: 278).

BREEDING. Brood-parasitic putatively on yellowbacked sunbirds (*Aethopyga*) and spiderhunters (*Arachnothera*) in the main. But since the supposed eggs taken in these nests are exactly like those of the Emerald Cuckoo and no oviduct eggs of this species are available for confirmation, the evidence remains only circumstantial. Average size of 7 of these supposed eggs 17.2×12.5 mm. (Baker).

MUSEUM DIAGNOSIS. See Key.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	95-105	16-17	14-15	64-72 mm. (Baker)

COLOURS OF BARE PARTS. Iris red; eyelids green with a red rim. Bill ♂ orange-yellow or bright yellow; ♀ dull yellow, dusky on culmen and base. Legs and feet brownish green; claws yellow.

Genus *SURNICULUS* Lesson

Surniculus Lesson, 1830, *Traité d'Orn.*, livr. 2: 151. Type, by subsequent designation, *Cuculus lugubris* Horsfield

Genus remarkable for its extraordinary superficial resemblance to the Black Drongo (*Dicrurus adsimilis*) in shape, proportions and coloration. Differs from all other cuckoos in the tail being long and forked, the central pair of rectrices falling short of the outermost pair by about one-third the length of the tail. Bill as in *Camantis*.

SURNICULUS LUGUBRIS (Horsfield)

Key to the Subspecies

Larger.....	<i>S. l. dicruroides</i>
Smaller.....	<i>S. l. stewarti</i>

588. **Indian Drongo-Cuckoo.** *Surniculus lugubris dicruroides* (Hodgson)

Pseudornis Dicruroides Hodgson, 1839, *Jour. Asiat. Soc. Bengal* 8: 136 and pl.
(Mountains of Nepal)

Baker FBI No. 1470, Vol. 4: 165

Plate 42, fig. 10, facing p. 288

LOCAL NAMES. *Kario-uyem* (Lepcha); *Kākkātāmpurātti kūyil* (Malayalam).

SIZE. Same as of the Black Drongo. Myna $\pm$; slimmer, with longer forked tail. Length *c.* 25 cm. (10 in.).

FIELD CHARACTERS. Overall glossy metallic black. General appearance, size, and forked tail deceptively like Black Drongo, but under tail-coverts and outermost tail-feathers near their base nearly always barred with white. Calls entirely diagnostic (see below). Sexes alike.

Young (immature) has the plumage unglossed, the feathers of the head, back and breast with many terminal white spots; wing-coverts tipped with white; more white on tail and under tail-coverts.

Fledgeling dull black speckled all over with white.

STATUS, DISTRIBUTION and HABITAT. The lower Himalayas up to *c.* 2000 m. alt. and submontane tracts (terai, bhabar, and duars) from Punjab and Himachal Pradesh through Garhwal, Kumaon, Nepal, Sikkim, Bhutan, and NEFA. Also Assam, Nagaland, Manipur and East Pakistan. Occurs at one time or another, chiefly detected during the monsoons when vocal (June to October/November), practically throughout the better wooded parts of the Peninsula (plains and up to at least 1500 m. in the hills) south

to Tamil Nadu and southern Kerala. But status south of the Himalayas unclear and difficult to determine due to possible confusion with Black Drongo unless verified by specimens or by its diagnostic calls which are 'on the air' only during breeding season. Status probably varies from locality to locality between breeding, nomadism, and local migration. Affects open secondary forest, plantations, orchards, etc.; sometimes dense evergreen jungle.

Extralimital. Eastward across to southern China (north to southern Yunnan and central Fukien), southward to Tenasserim, Thailand, the Indochinese countries and Hainan I. Recorded from Sumatra apparently as a migrant (Peters).

GENERAL HABITS. Superficial appearance deceptively like Black Drongo but is comparatively sluggish and less alert. Entirely arboreal. Keeps singly to the foliage canopy of trees and shrubs, mounting to the exposed bare branches for calling. Where available, snags of the fronds of palms, e.g. palmyra (*Borassus*), form favourite singing posts. Normal perching stance upright, when the resemblance to Black Drongo is heightened; while calling assumes a more horizontal axis, rather 'humped up' and with the wings slightly drooped at the sides. Flight cuckoo-like and noticeably different from drongo's. Sometimes springs up in the air to capture a flying insect very like a Bronzed or Ashy drongo, or clings to a vertical tree-trunk to pick off a caterpillar. Apparently disperses widely during the monsoon, its distinctive calls announcing its arrival and presence in a locality. In the breeding season calls persistently in the mornings and evenings; at all hours of the day in overcast, drizzly weather. Often also throughout the night. Like other cuckoos, silent in non-breeding season, making its local status difficult to determine.

FOOD. Hairy and other caterpillars, soft-bodied insects, and occasionally fruit, e.g. banyan and peepul figs (*Ficus* spp.).

VOICE and CALLS. 'Song', a run of 5 or 6 (sometimes up to 7 or 8) evenly spaced high-pitched musical whistling notes *pip-pip-pip-pip-pip* (exactly as if the bird was counting 1-2-3-4-5-6 or practising the musical scale), rising in pitch with each *pip* and breaking off abruptly to be reiterated afresh after a few seconds, with monotonous persistency. Another call, mostly heard late in the season, is like a shrill version of the beginning of the *brain fever* shrieks of the Hawk-Cuckoo and is 'accompanied by a lifting of both wings to touch above the back' (Mrs Wright, 1957, JBNHS 54: 653). The significance of this call is not understood.

BREEDING. Very imperfectly known. Brood-parasitic reportedly on drongos (*Dicrurus*), forktails (*Enicurus*), minivets (*Pericrocotus*), and Black-headed Babbler (*Rhopocichla atriceps*). Season presumably March to October (January to March in Kerala?) when most widely vocal and gonads of specimens in breeding condition. *Eggs.* Dependable data lacking. An oviduct egg was 'heavily spotted purplish around ends' (Biswas).

MUSEUM DIAGNOSIS. In the hand the exposed round nostril, shape of bill, and structure of foot (zygodactyle) immediately distinguishes it from the black drongo (*Dicrurus adsimilis*). In the latter the bill is shrike-like hook-tipped, and it has the characteristic perching foot with three toes in front and one behind. For distinguishing from the Ceylon race see Key.

MEASUREMENTS

	Wing	Bill (from skull)	Tail
♂ ♀	135-148	23-26	128-152 mm. (BB, SA, SDR)

Tarsus *c.* 19 mm. (Baker).

COLOURS OF BARE PARTS. Iris dark brown or reddish brown. Bill brownish black. Legs and feet bluish slaty or pinkish plumbeous; claws horny brown.

589. Ceylon Drongo-Cuckoo. *Surniculus lugubris stewarti* Baker

Surniculus lugubris stewarti Baker, 1919, Nov. Zool. 26: 293 (Ceylon)
Baker, FBI No. 1471, Vol. 4: 166

LOCAL NAMES. *Kāudā kohā* (Sinhala); *Irattāi-vālan kūyil* (Tamil).

SIZE. Same as 588; Black Drongo.

FIELD CHARACTERS. Deceptively drongo-like. See under 588, also for immature and fledgeling.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. 'Widely but locally distributed and resident, in small numbers, in forest areas throughout the lowlands; visits the hills to 4000 ft. [*c.* 1200 m.] when not breeding' (Phillips). Frequents shade trees in tea plantations etc.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian bird, 588, q.v.

BREEDING. Little known. Brood-parasitic supposedly on Iora (*Aegithina tiphia*) and Blackheaded Babbler (*Rhopocichla atriceps*); possibly also other species. Season probably from December to May.

MUSEUM DIAGNOSIS. Somewhat smaller in wing and bill but otherwise identical with the Indian *dicruroides* in colour and wing formula (*contra* Baker); doubtfully meriting separation. Baker gives for Ceylon birds Wing ♂ ♀ 123-131 (av. 126.5) mm.; tail 136-146 mm.

3 ♂♂ measured by HW and SDR have Wing 127-128; bill (from skull) 23 (1), (from feathers) 20-20.5 mm.; tail 136-146 mm. 1 ♀ Wing 130; bill (from feathers) 19; tarsus *c.* 16-18 mm.; tail 141 mm.

COLOURS OF BARE PARTS. As in 588.

Genus EUDYNAMYS Vigors & Horsfield

Eudynamys Vigors & Horsfield, 1826, Trans. Linn. Soc. London 15 (1): 303. Type, by subsequent designation, *Cuculus orientalis* Linnaeus

No crest. Bill stout, the culmen rounded and much curved. Wing and tail more or less equal in length, the latter moderately graduated and with broad rectrices. Tarsus stout, strongly scutellate in front, only feathered at extreme upper end. Sexes dimorphic.

Ranges throughout the Oriental Region to New Guinea and Australia. Only 1 species with 3 races occurs within our limits. Numerous other extralimital races extend the species through SE. Asia to Australia.

EUDYNAMYS SCOLOPACEA (Linnaeus)

Key to the Indian Subspecies

	Page
A Smaller: wing <i>c.</i> 185–198 mm..... <i>E. s. scolopacea</i>	227
B Larger: wing <i>c.</i> 199–235 mm..... 1	
1 Wing-tail index ¹ smaller: Male, wing <i>c.</i> 203–235 mm.; tail 189–221 mm.; female, wing <i>c.</i> 201–216 mm.; tail 184–197 mm. Plumage of female darker, more buffy spotted above and below..... <i>E. s. dolosa</i>	230
Wing-tail index larger: Male, wing <i>c.</i> 203–218 mm.; tail 194–208 mm.; female, wing <i>c.</i> 199–221 mm.; tail 190–210 mm. Plumage of females paler above and below..... <i>E. s. malayana</i>	229

590. **Indian Koel.** *Eudynamys scolopacea scolopacea* (Linnaeus)

Cuculus scolopaceus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 111 (Malabar)

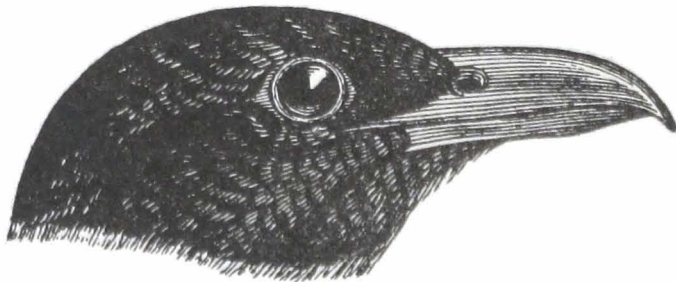
Baker, FBI No. 1475, Vol. 4: 172

Plate 41, fig. 9, facing p. 256

LOCAL NAMES. *Koel* (Hindi); *Kōkil*, *Kōkīla* (Bengal, Marathi); *Nalla kovēla* ♂, *Poda kovēla* ♀ (Telugu); *Kūyil*, *Pūllikūyil*, *Kākkākūyil* (Malayalam); *Kōhā*, *Gomerā kōhā* (Sinhala); *Kūyil* (Tamil); *Karlu koel* ♂, *Dindin koel* ♀ (Maldivé Is.).

SIZE. House Crow $\pm$; slimmer and with longer tail. Length *c.* 43 cm. (17 in.).

FIELD CHARACTERS. Male (adult) glistening metallic black all over, with yellowish green bill and crimson eyes. Distinctive shrieking crescendo calls: *kūoo*, *kūoo*, etc.



♂, $\times c. 1$

Female. *Above*, dark brown, profusely white-spotted and barred. Tail-feathers and wing-quills barred with white. *Below*, white; spotted on chin, throat and foreneck, barred on rest of underparts with blackish.

Fledgeling (in nest). More or less like adult, sex for sex, but female far darker and more sooty above with blackish head, throat and breast; thus closer in the character of its plumage, especially upperparts, to male rather than to adult female as is the norm in birds. This adaptation is presumably of some survival value amidst the black nestlings of its normal fosterers, the House and Jungle crows. Bill black not green as in adult.

STATUS, DISTRIBUTION and HABITAT. Resident, nomadic, and local

¹ A figure derived by dividing the smaller (tail) measurement by the larger (wing) measurement.

migrant throughout the subcontinent excepting Assam and East Pakistan (see under 591). Described as summer visitor in many localities in north and peninsular India, and as winter visitor in the south. However, its silence and retiring behaviour during the non-breeding period is apt to convey a misleading impression regarding its local status, and these dicta must be treated with reserve. Rare or absent in the more arid tracts of W. Pakistan, western Rajasthan and northern Gujarat, but spreading gradually in the wake of advancing colonization and its inseparable concomitant the House Crow. Common resident in Ceylon, and the Maldivé and Laccadive Is. (status?). Occurs locally up to c. 1000 m. in the peninsular hills, and to c. 1800 m. in the outer Himalayas from Punjab and Kashmir across to NEFA, including Nepal, Sikkim, and Bhutan. Occurrence and local abundance everywhere closely linked with its principal fosterers the House and Jungle crows (*Corvus splendens* and *C. macrorhynchos*). Affects lightly wooded country — gardens, mango orchards, and groves of trees in and around cultivation and towns and villages.

MIGRATION. See Appendix, p. 321

GENERAL HABITS. Arboreal, the bird usually keeping to the seclusion of leafy trees and shrubs, thus apt to be easily overlooked. Normally silent and unobtrusive, seldom showing itself except while it dashes across, almost fugitively, from one tree to another in short hurried flight. However, with the approach of the hot weather and its breeding season, coincident with that of its principal hosts the House and Jungle crows, waxes aggravatingly vociferous, shrieking its shrill crescendo calls chiefly in the morning and late afternoon, but often all through the day and far into the night. It is then one of the first bird voices of the dawn, commonly heard while still quite dark, and long before its early-rising dupes, the crows, are up and astir. Flight swift and direct with rapid wing-beats — rather hawk-like.

FOOD. Largely fruits and berries, some commonly recorded species being banyan and peepul figs (*Ficus bengalensis* and *F. religiosa*), ber (*Zizyphus*), mulberry (*Morus*), sandalwood (*Santalum album*), *Cinnamomum camphora*, *Cephalandra indica*, and nuts of the Fishtail palm (*Caryota urens*). Poisonous fruits of *Thevetia nerifolia* also freely eaten. Other items: hairy caterpillars, bugs (Hemiptera) and various insects, terrestrial snails, eggs of small birds, e.g. oriole and bulbul, filched from nests, and flower nectar, e.g. of *Erythrina indica*.

VOICE and CALLS. The calls commonly heard are:

1. A loud, continuous, rollicking *Urūk-keookeookeookeookeo* (6 or 7 times repeated) without change of pitch but varying in insistence and shrillness, uttered by the male at earliest dawn as the first call of the day evidently to announce himself or as a challenge to other cocks in the neighbourhood. These soon answered similarly by another male (or males) in the distance and repeated by each at intervals of a minute or so, sometimes assuming the form of an uneven duet. Later in the morning the calls usually settle down to the characteristic 'song'.

2. Song, a loud shrill shrieking whistle *kūoo, kūoo*, etc. rising in scale with each repetition to frantic pitch at the 7th or 8th, then breaking off abruptly. The bird soon commences it all over again, and so on and on *ad nauseam*.

3. Normal call of female a shrill, quick-repeated *kik-kik-kik-kik* etc. as she dashes from tree to tree in courtship chase by male, or hops amongst the branches ostensibly to escape his ardour.

In addition various croaks, gurgles, and chuckles uttered by both sexes under different provocations. Flying fledgeling emits a loud harsh *kaaa* — a passable imitation of young crow.

BREEDING. Brood-parasitic almost exclusively on House and Jungle crows (*Corvus splendens* and *C. macrorhynchos*) combining strategem, cunning, and opportunism to lay in their nests. (For details of the process, and breeding biology, see D. Dewar, 1907, JBNHS 17: 765 et seq.; B. S. Lamba, 1963, JBNHS 60: 130-3; 1966, *ibid.* 63: 750-1.) Exceptionally, eggs have been found in nests of *Oriolus o. kundoo* (D'Abreu, JBNHS 31: 1032) and *Acridotheres tristis* (Inglis, *ibid.* 18: 682). Season everywhere synchronous with that of its hosts, overall March to August, chiefly May to July but varying locally. Eggs very similar in appearance to crows' only smaller — greenish grey in ground colour, profusely blotched and speckled with reddish brown. Average size of 100 eggs 31.0×23.6 mm. (Baker). As many as 11 eggs once found in a single crow's nest, evidently the product of several females. Eggs of host and parasite frequently found together in the same nest, and also young of both. Unlike cuckoo (*C. canorus*) koel hatchling does not eject contents of fosterer's nest, but in this case the shorter incubation period (13-14 days *v.* 16-17 in House Crow and 18-20 in Jungle Crow) gives it sufficient advantage to monopolize the food brought by the fosterers and gradually to starve out its lawful nest companions. Thus koel and crow fledgelings from the same nest seldom seen together though not unknown. Feeding of koel fledgeling outside the nest by adult female koel has been frequently observed.

MUSEUM DIAGNOSIS. See Key.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	182-205	29-34	32-35	186-205 mm.
♀♀	179-203	30-34	31-35	171-189 mm.
			(SA, HW, SDR, BB)	

Weight 10 ♂ ♀ 136-190 (av. 167) gm. — BNHS.

COLOURS OF BARE PARTS. Iris crimson. Bill apple green or yellowish green, blackish at base and dusky round nostrils. Legs and feet plumbeous; claws horny; pads of sole whitish.

591. **Malay Koel.** *Eudynamys scolopacea malayana* Cabanis & Heine
Eudynamys malayana Cabanis & Heine, 1863 (1862-63), Mus. Hein., Th. 4 (1): 52
 (Sunda Islands and Sumatra)
 Baker, FBI No. 1476, Vol. 4: 174

LOCAL NAMES. *Kōkil* (Bengal); *Kōkil sōrāi* (Assam); *Kūli* (Nowgong dist., Assam).

SIZE. House Crow $\pm$; slimmer and with longer tail. Length *c.* 43 cm. (17 in.).

FIELD CHARACTERS. As for the Indian Koel (590), q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Assam, southern NEFA, Nagaland, Manipur, Mizo (?), Tripura, East Pakistan.

Extralimital. Burma, Thailand, Malaysia, Indonesia.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 590.

BREEDING. Nothing recorded as specifically different from the Indian bird.

MUSEUM DIAGNOSIS. Slightly larger than the nominate race and with a larger bill. Male often indistinguishable from the Indian bird; female much more rufescent above and below.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	190-221	32-34	c. 35-37	181-203 mm. (Baker)

COLOURS OF BARE PARTS. As in 590.

592. **Andaman Koel.** *Eudynamys scolopacea dolosa* Ripley

Eudynamys scolopacea dolosa Ripley, 1946, Auk 63: 241 (Barren Island, Andamans)
Not in Baker, FBI

LOCAL NAME. *Koel* (Hindi).

SIZE. House Crow $\pm$; slimmer and with a longer tail. Length c. 43 cm. (17 in.).

FIELD CHARACTERS. As for the Indian Koel (590), q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Andaman and Nicobar Islands.

Formerly recorded (Osmaston, 1905, 1906, JBNHS 16: 621; 17: 487) only as a common winter visitor September-April, as it apparently still is to Narcondam and the Nicobars; but present status needs checking.

Frequents jungle and trees around the settlements.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the Indian bird (590), q.v.

BREEDING. Unrecorded.

MUSEUM DIAGNOSIS. Larger than nominate *scolopacea*. Upperparts of female more blackish, and conspicuously spotted with rufous-buff. Rufous wash extends over all the white parts including chin, lower abdomen, and under tail-coverts. Wing/tail index smaller than in *E. s. malayana*. See Key.

MEASUREMENTS

	Wing	Tail
♂ ♂	203-235	189-221 mm.
♀ ♀	201-216	184-197 mm.

(SDR)

Bill (from feathers) ♂ ♀ 27-34 mm. (HA).

COLOURS OF BARE PARTS. As in 590.

Genus RHOPODYTES Cabanis & Heine

Rhopodytes Cabanis & Heine, 1863 (1862-63), Mus. Hein., Th. 4(1): 61. Type, by subsequent designation, *R. diardi* = *Melias diardi* Lesson

Bill deep, compressed, pale green or apple-green in colour; nostril small, round or oval, and oblique. A large naked space round orbit, blue or crimson, separated from bill by a narrow band of feathers. No bristly eyelashes as in *Taccocua*, q.v.

The genus ranges almost throughout the Oriental Region; represented by two species within our limits.

Key to the Species

	Page
Larger; wing <i>c.</i> 152–180 mm.; orbital skin red.....	<i>R. tristis</i> 231
Smaller; wing <i>c.</i> 131–142 mm.; orbital skin blue.....	<i>R. viridirostris</i> 233

RHOPODYTES TRISTIS (Lesson)

Key to the Subspecies

Smaller; nape and mantle grey.....	<i>R. t. saliens</i>
Larger; nape and mantle paler grey.....	<i>R. t. tristis</i>

593. Large Greenbilled Malkoha. *Rhopodytes tristis tristis* (Lesson)

Melias tristis Lesson, 1830, *Traité d'Orn.*, livr. 2: 132 (Sumatra, *errore* = Bengal)

Baker, FBI No. 1479, Vol. 4: 178

Plate 41, fig. 8, facing p. 256

LOCAL NAMES. *Bon kōkil* (Bengal); *Bamūra* (Assam); *Sanku* (Lepcha).

SIZE. Pigeon $\pm$ with tail *c.* 38 cm. long. Overall length *c.* 51 cm. (23 in.).

FIELD CHARACTERS. A long-tailed cuckoo with naked crimson orbital patch and yellowish green bill. Sexes alike. Long graduated rectrices with broad white tips very conspicuous in flight, especially when tail spread before alighting.

Adult. *Above*, forehead grey with shiny bristly black shafts to the feathers. Upperparts dark ashy grey with deep green gloss. Tail green-glossed black, long, broad, steeply graduated, the rectrices cross-rayed darker and broadly tipped with white. *Below*, chin, throat and sides of head yellowish ashy grey, darkening to blackish on lower abdomen and vent. Feathers of chin, throat, and breast with black bristly shafts.

Young (immature) undescribed.

Fledgeling (1 ♂ taken in central Nepal, June 1). Coloration similar to that of adult birds; the tail proportionately very small (Biswas, 1960).

STATUS, DISTRIBUTION and HABITAT. The outer Himalayas from the terai, bhabar and duars up to *c.* 700 m. altitude (commonly) and to *c.* 1800 m., from Garhwal eastward through Kumaon, Nepal, Sikkim and Bhutan to NEFA where it intergrades with *saliens* (594) in the Mishmi Hills. Also Assam (Lakhimpur, Sibsagar, Cachar Hill dists.), Nagaland, Manipur, Tripura, W. Bengal (duars and Sunderbans) and E. Pakistan (Dacca and Chittagong dists.). South through Chota Nagpur (Manbhum and Hazaribagh dists.) and eastern Madhya Pradesh (Bastar dist.) to *c.* 18°50'N. Affects dense thickets and shrubbery in evergreen jungle.

GENERAL HABITS. Rather sluggish, skulking, and silent. Keeps to the seclusion of impenetrable thickets, creeping its way through the dense cover with remarkable celerity, and is seldom seen except in short flight from one thicket to another. Usually works low down in the bushy tangles, sometimes mounting into thickly foliated saplings and forest trees, diving into the undergrowth on alarm. When shooting down a hillside thus, looks very like tree pie in the distance. Hops its way up gracefully, almost gliding from

branch to branch with occasional flicks of the long tail. Flight weak, laboured and ill sustained.

FOOD. Large caterpillars and insects, e.g. grasshoppers, mantids, and crickets; also lizards, and probably other small animals.

VOICE and CALLS. A very peculiar low croaking *ko, ko, ko* uttered at intervals of a few seconds. 'A peculiar cat-like chuckle' when flushed in dense cover (Davison).

BREEDING. A non-parasitic cuckoo. *Season*, April to August, varying somewhat locally. *Nest*, very small for size of the bird; a rather flimsy cup like a dove's, of twigs and rootlets lined with green leaves; sometimes formed by a mere interlacing and twining of the surrounding green leaves and tendrils. Placed between c. 3 and 7 m. up, in tangled masses of creepers smothering a sapling or bamboo clump, in heavy jungle with no special effort at concealment. *Eggs*, 2 to 4, most commonly 3, chalky white varying in shape from elliptical to longish oval. Average size of fifty eggs 33.8×25.8 mm.; incubation by both sexes (Baker). Period undetermined.

MUSEUM DIAGNOSIS. Differs from the Burmese race *saliens* (594) chiefly in having a larger wing. See Key.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	165-176	36-37	40-43	375-385 mm.
♀♀	164-173	36-40	40-43	345-425 mm.

(SA, BB, SDR)

Tail moult in the species centripetal (Biswas).

Weight 1 ♂ juv. 116; 1 ♀ juv. 114 gm. (GD).

NOTE. In 1949 SA collected a ♂ and ♀ in Bastar dist., M.P. which, apart from being the smallest so far examined (W. 157 and 146 mm. respectively) also represent the most southerly point in the distribution within our limits.

COLOURS OF BARE PARTS. *Adult.* Iris brown (rarely crimson); orbital skin deep crimson. Bill dark green with red on the base and around nostrils. Legs and feet greenish slaty; claws horny; sole pads white. *Fledgeling.* Iris brown; orbital skin dark brown. Bill: upper mandible slaty horn, lower mandible greenish horn. Legs and feet pale plumbeous; claws dark horny; sole pads white (BB).

594. **Burmese Large Greenbilled Malkoha.** *Rhopodytes tristis saliens* Mayr

Rhopodytes tristis saliens Mayr, 1938, Ibis: 306 (Chapa, Tonkin)

Not in Baker, FBI

LOCAL NAMES. Unrecorded.

SIZE. Pigeon $\pm$ with tail c. 38 cm. long. Overall length c. 51 cm. (23 in.).

FIELD CHARACTERS. As for 593, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Mishmi Hills, NEFA, where it intergrades with the nominate race (593). Birds from Nagaland approach this race, but less closely than the virtual intermediates of the Mishmis.

Extralimital. 'Bhamo and the Upper Chindwin dist. of Burma, SW. Yunnan and Tonkin [N. Vietnam], southward to the mountains of N. Siam, N. Laos and N. Annam [C. Vietnam]'—Peters.

GENERAL HABITS, FOOD, VOICE and CALLS. Not different from 593.

BREEDING. Not recorded in our limits.

MUSEUM DIAGNOSIS. See Key. 'Smaller than *tristis*. Wing 152–163 (av. 155.4); tail 364–394 (av. 377.9), once 347; underparts not very much washed with ochraceous; crown, back, and underparts rather dark; white on forehead and superciliary not extensive; gloss on wings and tail rather bluish; white tips on tail feathers narrow; . . .' (Mayr, loc. cit.).

2 ♀ ♀ from the Mishmi Hills (intermediate) measure 'Wing 164–167; culmen 34–37; tail 330–372 mm. The wing measurement agrees with *tristis*, but the tail with *saliens*. The upperparts are darker than in *tristis*' (SDR).

COLOURS OF BARE PARTS. As in 593.

595. **Small Greenbilled Malkoha.** *Rhopodytes viridirostris* (Jerdon)

Zanclostomus viridirostris Jerdon, 1840, Madras Jour. Lit. Sci. 11: 223

(bottom of the Coonoor Pass)

Baker, FBI No. 1478, Vol. 4: 177

LOCAL NAMES. *Kappra*, *Popiya* (Hindi); *Wāmanā kāki* (Telugu); *Kalahā kōhā*, *Pūnchi māl kōhā* (Sinhala); *Kūyil* (Tamil); *Pācha chūndān* (Malayalam).

SIZE. House Crow —; slimmer and with a longer tail. Overall length c. 39 cm. (15½ in.).

FIELD CHARACTERS. An untidy looking greenish ashy-grey cuckoo, suffused with rufous on the underparts. Bright green bill, naked blue patch round eye, and long, broad, graduated tail with conspicuous white tips to the feathers, are diagnostic pointers. Sexes alike.

Young (immature). Undescribed, but see Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; locally common. Ceylon (low-country Wet and Dry zones), and peninsular India roughly north to lat. 20°N.; northernmost record on the western side Baroda (Gujarat, c. 22°20'N.), on the eastern Cuttack (Orissa, c. 22°25'N.). Affects deciduous and semi-evergreen scrub-and-bush terrain with euphorbia and lantana brakes, and open secondary jungle — plains and broken foothills country up to c. 1000 m. alt.

GENERAL HABITS. Keeps singly or in pairs to low bushes and thorn scrub, skulking its way through the thickets and clambering about actively among the branches. Seldom if ever descends to the ground, but habits and behaviour otherwise clearly reminiscent of the Crow-Pheasant. Is a poor flier, rarely seen on the wing except in short laboured flight from one thicket to another; normally preferring to creep away through the tangled shrubbery on alarm.

FOOD. Caterpillars and large insects such as grasshoppers and mantises. Also lizards and other small animals, and probably berries.

VOICE and CALLS. Very silent and seldom heard: a low croak, sounding like *kraa*.

BREEDING. Non-parasitic. Season ill defined; breeds practically all the year, perhaps more specially between March and May. Nest, an untidy saucer of thorny twigs, rather like a dove's, placed in a thorn bush or euphorbia brake or bamboo clump a metre or two above the ground. Eggs, almost

invariably 2, exceptionally 3, chalky white, roundish. Average size of 6 eggs 29.4 × 24.8 mm. (Baker). Share of the sexes in nest building and incubation, and incubation period, undetermined.

MUSEUM DIAGNOSIS. Feathers of chin and throat bifurcate, a character absent in *tristis*, the bifurcated portion yellowish, giving a streaked appearance.

Ceylon birds have a larger extent of white on the outer web at the tips of the 2nd and 3rd tail-feathers (counting from outside) than those from the Peninsula; S. Kerala birds are closer to Ceylon in this respect. (For details see Whistler, 1934, JBNHS 37: 525.) Ceylon birds moreover have a somewhat heavier bill.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂♂	131-143	29-33	32-36	202-246 mm.
♀♀	129-140	28-34	32-34	218-240 mm.
		(from skull)		(SA, HW)

Weight 21 ♂ ♀ 52-82 (av. 67) gm. — BNHS.

COLOURS OF BARE PARTS. Iris, fine outer ring white, inner claret; crinkled warty circumorbital skin pale blue. Bill greyish green; mouth brownish black or slaty black. Legs and feet olive-slate; claws dusky.

Genus TACCOCUA Lesson

Taccocua Lesson, 1830, *Traité d'Orn.*, livr. 2: 143. Type, by monotypy, *Taccocua leschenaultii* Lesson

Bill shorter and deeper than in *Rhopodytes*; upper mandible distinctly festooned near base. Wings short and rounded. Tail long, broad, and graduated; upper tail-coverts more than half length of tail. Plumage of head, neck, upper back, and breast spinous; shafts of the forehead-feathers projecting. A row of coarse bristles (like eyelashes) nearly surrounding the eye except behind. Tarsus stout; claws short and curved.

A single species, peculiar to and widely distributed in India and Ceylon.

TACCOCUA LESCHENAULTII Lesson

Key to the Subspecies

	Page
Darkest in colour..... <i>T. l. infuscata</i>	236
Intermediate..... <i>T. l. leschenaultii</i>	237
Palest..... <i>T. l. sirkee</i>	234

596. **Western Sirkeer Cuckoo.** *Taccocua leschenaultii sirkee* (J. E. Gray)

Centropus sirkee J. E. Gray, 1831, in Hardwicke's Ill. Ind. Zool. 1 (6), pl. 28
(No locality = Cawnpore)

Taccocua leschenaultii vantlynei Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 24 (Sasan, Junagadh, Saurashtra)
Baker, FBI No. 1487, Vol. 4: 187

LOCAL NAME. *Jāngli tōtā* (Hindi).

SIZE. House Crow ± with longer broader tail; overall length c. 42-44 cm. (16½-17½ in.).

FIELD CHARACTERS. An obvious relation of the crow-pheasant and malkohas. A heavy-tailed earthy brown and rufous cuckoo with fine glistening black shaft-streaks to the head and breast feathers, and a stout bright



× c. 1

cherry-red and yellow bill. Broad white tips to the graduated cross-rayed blackish tail-feathers conspicuous in flight. Sexes alike.

Fledgeling. Feathers of back, scapulars, and wing-coverts edged with pale rufous; feathers of head dully centred blackish; of chin, throat, breast, flanks and upper abdomen boldly streaked with black (Baker).

STATUS, DISTRIBUTION and HABITAT. Resident. West Pakistan (Sind, Punjab) and NW. India — Himachal Pradesh, Garhwal, parts of southern Uttar Pradesh, western Madhya Pradesh, and ? eastern Maharashtra (Nagpur area); Rajasthan, Gujarat (including Kutch and Saurashtra) south to about Cambay, c. 22°20'N. lat. Precise limits undefinable as the populations intergrade over extensive areas.

Was practically unknown in Sind till the early thirties of the present century, but has established itself since, and is steadily expanding its range consequent on the opening up of desert areas by the perennial canal system of the Sukkur Barrage (N. H. Menesse, 1939, JBNHS 41: 172-3).

Affects deciduous tangled thorn and grass jungle, particularly in stony, broken ravine country, often semi-desert.

GENERAL HABITS. Largely terrestrial; usually keeps singly or in pairs, stalking along on the ground or threading its way through the thickets in search of food. Sometimes mounts into shrubs or saplings clambering amongst the twigs or hopping upward actively from branch to branch in the manner of a crow-pheasant. Flight weak and laboured: is loth to take wing unless deliberately beaten out of the undergrowth or almost trod upon in tall grass. Prefers to trust to its legs for escape when disturbed, sprinting swiftly over loose stones and rough ground with head ducked and tail horizontal, dodging deftly in and out of thickets, then looking singularly like a mongoose in the distance.

Courtship display consists of a ludicrous repeated bowing (or bobbing) by one bird of a pair (in one case verified as female) before the other, with its plumage fluffed out and tail cocked and expanded like a rounded fan, the white tips of the rectrices showing up as a conspicuous band. At other times both birds partake in these antics with equal enthusiasm, puffing out their plumage, fanning and erecting the tails, and repeatedly bowing low

to each other with beaks wide open, each bow commencing with the head thrust high into the air.

FOOD. Caterpillars, locusts, grasshoppers, termites, and other insects; fallen fruit and berries; lizards, and small snakes.

VOICE and CALLS. Normally silent. Occasionally a sharp *kek-kek-kek-kerek-kerek-kerek* or *kik-kik-kik* of the tone quality of the Roseringed Parakeet's shrieks; in a way reminiscent also of some of the Barred Jungle Owlet's calls.

BREEDING. Non-parasitic. *Season*, chiefly June to August. *Nest*, very similar to the malkohas', an untidy saucer of twigs lined with green leaves, roughly wedged into the fork of a 'cactus' (*Euphorbia*) or branching shrub up to about 6 metres from the ground, normally between two and three. Not deliberately concealed, but easily overlooked. *Eggs*, 2, rarely 3 (once 4, Currie, JBNHS 24: 604), chalky white, unmarked. Average size of 12 eggs 36.2×27.3 mm. (Baker). Both sexes incubate. Period of incubation undetermined.

MUSEUM DIAGNOSIS. See Key. 'Upperparts much as in *leschenaultii* [q.v.]; lower parts paler and more rufescent and also more uniform, the foreneck and breast being more or less concolorous with the belly' (Whistler).

MEASUREMENTS

24 ♂ ♀ Wing (once 148) 153–168; bill (from skull) 30–34 mm. (HW).

COLOURS OF BARE PARTS. Iris brown. Bill magenta-crimson or cherry-red, yellow at tips of both mandibles and brown along commissure; mouth slaty black. Legs and feet slaty; claws horny brown.

597. **Eastern Sirkeer Cuckoo.** *Taccocua leschenaultii infusata* Blyth

Taccocua infusata Blyth, 1845, Jour. Asiat. Soc. Bengal 14 (1): 200 (Sub-Himalayan region; type from the terai region near Darjeeling)

Taccocua affinis Blyth, 1846, Jour. Asiat. Soc. Bengal 15: 19
(Rajmahal and Monghyr Hills)

Baker, FBI Nos. 1488, 1489, Vol. 4: 187, 188

LOCAL NAME. *Jāngli tōtā* (Hindi).

SIZE. As 596, House Crow $\pm$ with longer, broader tail.

FIELD CHARACTERS. As of 596, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. The sub-Himalayan terai and duars (and locally up to c. 2100 m. alt.) from Kumaon eastward through Nepal, W. Bengal, Bhutan and western NEFA; western Assam and E. Pakistan. South through Bihar, Orissa, eastern Madhya Pradesh (Bastar dist.), northern Andhra, and Maharashtra (Marathwada) to c. 18°N. lat. Affects dry deciduous sparsely wooded or scrub-and-bush covered hillsides and broken stony country.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 596.

BREEDING. *Season*, chiefly April to July but straggling over other months as well. *Nest* and *eggs* as in 596; normal clutch reported to be of 3 eggs. Average size c. 35×27 mm.

MUSEUM DIAGNOSIS. The darkest of the three races.

MEASUREMENTS

	Wing	Bill (from skull)
27 ♂ ♀	148-167	31-35 mm. (HW)

COLOURS OF BARE PARTS. As in 596.

598. **Southern Sirkeer Cuckoo.** *Taccocua leschenaultii leschenaultii* Lesson

Taccocua Leschenaultii Lesson, 1830, *Traité d'Orn.*, livr. 2: 144 (India = Madras)

Baker, FBI No. 1486, Vol. 4: 185

Plate 42, fig. 2, facing p. 288

LOCAL NAMES. *Jāngli tōtā* (Hindi); *Adāvi chiluka*, *Potu* (or *Pūtta*) *chiluka* (Telugu); *Kālli kūyil* (Malayalam); *Pātthāng atti-kukkulā* (Sinhala).

SIZE. As 596, House Crow $\pm$ with longer, broader tail.

FIELD CHARACTERS. As of 596, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Ceylon and peninsular India (Kerala, Tamil Nadu, Andhra, Maharashtra), north approximately to between 18° and 20° N. lat. Affects dry deciduous secondary forest and scrub-and-bush jungle, stony *Euphorbia*-covered hillsides, etc. Plains and foothills, locally up to c. 1000 m. altitude.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 596, q.v.

BREEDING. *Season*, c. July in Ceylon; chiefly March to June in peninsular India. *Nest* and *eggs* as in 596; normally 2. Average size of 20 eggs 33.9 $\times$ 26.1 mm. (Baker).

MUSEUM DIAGNOSIS. 'Upperparts brown, washed with dusky green. Throat whitish, foreneck and breast more or less ashy, contrasting with the ferruginous colour of the belly. The entire head often has a distinctly ashy cast' (Whistler).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	147-162	30-34	38-40	c. 214-230 mm. (HW, SA)

COLOURS OF BARE PARTS. As in 596.

Genus PHAENICOPHAEUS Stephens

Phaenicophaeus Stephens, 1815, in Shaw's *Gen. Zool.* 9 (1): 58

Type, by subsequent designation, *Cuculus pyrrhocephalus* Pennant

Cf. Whistler, H., 1936, JBNHS 39: 7

Bill stout, wide at base, compressed anteriorly; culmen curved throughout; upper mandible very high; nostril a narrow horizontal slit close to commissure and parallel with it. Sides of head naked and papillose, the bare skin extending across forehead all round base of upper mandible. No eyelashes. Wing rounded. Tail long, broad, and graduated. Feathers of crown and throat with stiff bristly shafts as in *Rhopodytes*. Sexes alike, differing only in colour of iris.

Only a single species.

599. **Redfaced Malkoha.** *Phaenicophaeus pyrrhocephalus* (Pennant)

Cuculus pyrrhocephalus Pennant, 1769, Ind. Zool.: 6, pl. 6 (Ceylon)

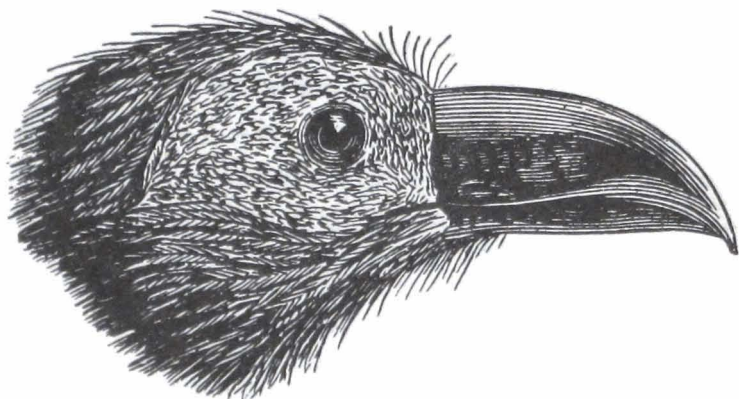
Baker, FBI No. 1484, Vol. 4: 182

Plate 42, fig. 1, facing p. 288

LOCAL NAMES. *Māl kōhā*, *Māl kandettā* (Sinhala).

SIZE. Crow-Pheasant $\pm$; somewhat slimmer, with a proportionately longer, graduated tail. Overall length *c.* 46 cm. (18 in.).

FIELD CHARACTERS. A long and broad graduated-tailed cuckoo similar to the greenbilled malkohas, with a bare crimson-red face.



$\times c. 1$

Adult. *Above*, black, glossed with metallic green and blue, the crown, nape, and neck flecked with white. Tail-feathers more bronze-green, with white terminal bands. *Below*, throat and breast black; rest of underparts white. Its most diagnostic features are the bare red face and heavy apple-green bill. Sexes alike.

Young (immature). Bare patch on face brick-red and confined only to round the eye; crown streaked with dull grey. Tail-feathers shorter and less broadly tipped with white. *Below*, the black feathers on chin and throat streaked with white.

STATUS, DISTRIBUTION and HABITAT. Resident in Ceylon and south Kerala; rare and local. Was long regarded as peculiar to the Island, and reports of its occurrence (and breeding) in south Travancore by J. Stewart (*in* Baker, 1932-4) were discredited. However, since then the species has been reliably observed at the foot of High Wavy Mountains in the adjoining Tamil Nadu district of Madurai (C. H. Biddulph, 1956, JBNHS 53: 697-8) therefore previous doubts probably unjustified. Must undoubtedly be one of the rarest Indian birds. Affects heavy forest, chiefly evergreen, but scattered colonies also found in the Dry zone in Ceylon, low country and hills up to *c.* 1700 m. Avoids cultivation. Its existence on the Island is seriously threatened by the relentless encroachment upon its native forest habitat for cultivation.

GENERAL HABITS. Similar to *Rhopodytes* (593, 595) qq.v. Keeps singly, or in pairs or small parties to the foliage canopy of trees and shrubs in heavy forest, threading its way deftly through the tangles of leaves and draping twiners and disappearing on alarm. Flight feeble and laboured, usually no

more than a 'hop' from one thicket to another. 'In flight the wings produce a musical hum' (Henry).

FOOD. Recorded as mainly berries of forest trees.

VOICE and CALLS. Usually very silent. Sometimes utters 'short, single yelping whistles; a note like *kok*, imitated by a sucking action of the tongue; and a low, petulant-sounding *kra*' (Henry).

BREEDING. *Season*, in Ceylon January, April, and May; from mature gonads of specimens evidently also breeds in August-September (or continuingly?). In Kerala April and May (Stewart in Baker). *Nest*, typical of the malkohas, a shallow saucer of roughly put-together twigs, grass and roots, placed in shrubs in forest with dense undergrowth. *Eggs*, 2 or 3, chalky white; rounded oval, practically equal at both ends. Average size of 12 eggs 35.8×27.0 mm. (Baker). Share of the sexes in the domestic chores, and incubation period, unrecorded.

MUSEUM DIAGNOSIS. As for the genus, q.v. *supra*.

MEASUREMENTS

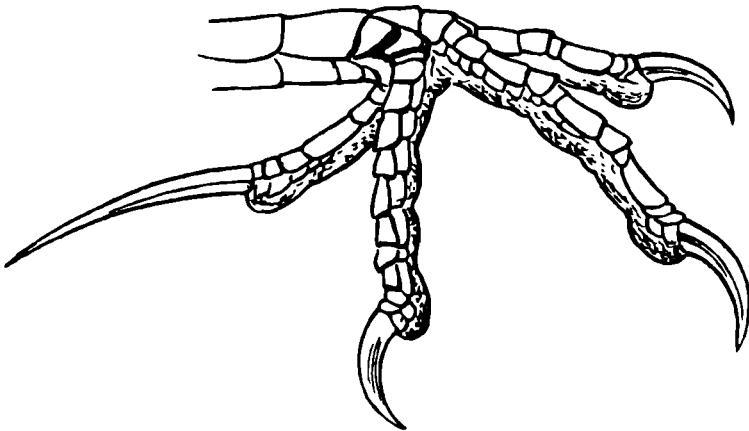
	Wing	Bill (from skull)	Tarsus	Tail
5 ♂♂	148-156	34-38	c. 30-40	249-286 mm.
4 ♀♀	153-159	34-38	c. 35-36	265-274 mm.
(HW, SDR)				

COLOURS OF BARE PARTS. Iris ♂ brown, ♀ white. Bill light green or apple-green, dusky at base and about the nostrils. Legs and feet bluish or bluish green.

Genus *CENTROPUS* Illiger

Centropus Illiger, 1811, Prodomus: 205. Type, by subsequent designation, *Cuculus aegyptius* Gmelin

Genus distinguished from all others of the family Cuculidae in having on the hallux a long, nearly straight hindclaw very much like a lark's (whence sometimes known as Larkheeled Cuckoos); other claws also little curved. Tarsus strong and naked, and longer than normal in the family. Bill deep, moderately large, with



Foot of *C. s. sinensis* (600), $\times c. 1$

culmen much curved. Nostrils partly covered by a membrane. A row of bristles like eyelashes above eye. Wing short and rounded with the primaries scarcely exceeding the secondaries in length. Tail long, broad, and graduated. Feathers of head, neck, and breast stiff and bristly. Sexes alike.

Represented in the Ethiopian, Oriental, and Australasian regions; by four species within our limits.

Key to the Species

		Page
A	Under wing-coverts chestnut.....	<i>C. toulou</i> 246
B	Under wing-coverts never chestnut ¹	1
1	Variously barred above and below.....	a
	Unbarred above and below.....	b
a	Tail oily green.....	<i>C. sinensis</i> (juv.) 240
	Tail brown.....	<i>C. andamanensis</i> (juv.) 244
b	Bill green or yellow.....	<i>C. chlororhynchus</i> (ad.) 245
	Bill black.....	I
I	Head and body black, glossed with purple-blue.....	<i>C. sinensis</i> (ad.) 240
	Head and body brown and buff.....	<i>C. andamanensis</i> (ad.) 244

CENTROPUS SINENSIS (Stephens)

Key to the Subspecies

A	Interscapulars chestnut.....	1
	Interscapulars black.....	<i>C. s. parroti</i> 243
1	Larger: Male, wing over 200; female, over 219 mm.....	<i>C. s. sinensis</i> 240
	Smaller: Male, wing under 200; female, under 219 mm.	<i>C. s. intermedius</i> 242

600. Common Crow-Pheasant or Coucal. *Centropus sinensis sinensis* (Stephens)

Polophilus sinensis Stephens, 1815, in Shaw's Gen. Zool. 9 (1): 51 (' Said to inhabit China ' = Ning Po, China, by designation of Stresemann, 1913, Nov. Zool. 20: 321) Baker, FBI No. 1490, Vol. 4: 189

LOCAL NAMES. *Māhokā* (Hindi); *Kūkā* (Bengal); *Kūkoo sorāi* (Assam), *Kūkūhā*, *Dābahi kūkūhā* (Assam, Nowgong dist.); *Hookā* (Gulf of Kutch).

SIZE. Jungle Crow ± with long broad graduated tail. Overall length c. 48 cm. (19 in.).

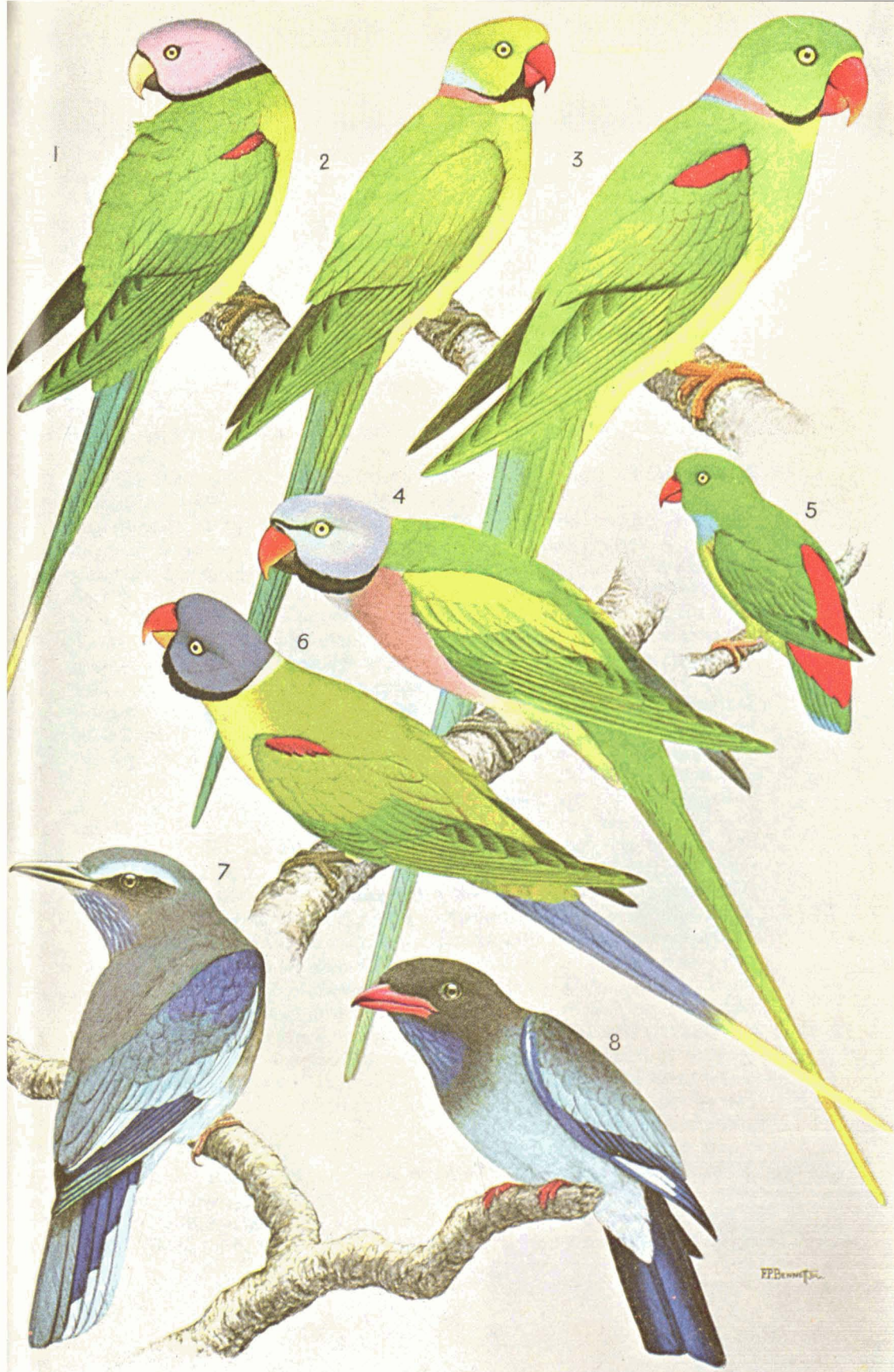
FIELD CHARACTERS. A clumsy glossy black bird with conspicuous chestnut wings, and long, broad, graduated black tail. Sexes alike; female slightly larger.

Young (immature). Variable; some similar to adult, others as follows: Above, barred dark brown and rufous with pale, glistening shafts to the feathers; rump barred blackish brown and pale fulvous; tail black, glossed

¹ This must be used with caution since some examples, especially of *C. s. parroti*, do show a variable amount of chestnut intermixed with the black.

PLATE 40

- 1 *Psittacula cyanocephala*, Blossomheaded Parakeet (557). 2 *Psittacula roseata*, Assam Blossomheaded Parakeet (559). 3 *Psittacula eupatria*, Large Parakeet (545). 4 *Loriculus vernalis*, Indian Lorikeet (566). 5 *Psittacula alexandri*, Redbreasted Parakeet (551). 6 *Psittacula finschii*, Slatyheaded Parakeet (563). 7 *Coracias bengalensis*, Roller (755). 8 *Eurystomus orientalis*, Broadbilled Roller (758).



with green and barred with dull grey or greyish fulvous. *Below*, from chin to under tail-coverts dark brown narrowly barred with dull white. Iris grey, glaucous blue-grey or dull brown.

Juvenile plumage in this species apparently of racial significance since the young of *C. s. sinensis* and *C. s. intermedius* are barred (as above) while those of *C. s. parroti* are not (Humayun Abdulali, 1956, JBNHS 54: 183-5).

STATUS, DISTRIBUTION and HABITAT. Resident. West Pakistan (Sind, Punjab) and northern India from Kashmir eastward through the Himalayas (terai, duns and foothills, locally up to c. 2100 m. alt.) and the Gangetic Plain to Assam north of Brahmaputra river. Also the duars of Bengal and Sikkim, and foothills of Bhutan. Affects deciduous scrub jungle and tall grassland, and shrubbery in and about cultivation and habitations, freely entering groves, orchards and urban gardens. Flooded tamarisk jungle on riverbanks, irrigated sugarcane fields, and bamboo jungle are also favourite haunts.

Extralimital. Southern China, in provinces of Kwangsi, Chekiang, and Fukien.

GENERAL HABITS. Sedentary, parochial, and largely terrestrial. Keeps singly or in pairs, skulking its way through low undergrowth or stalking along the ground like a pheasant, tail held horizontally, opened and shut from time to time, occasionally cocked and thrown forward right over the back. Works thus in and out of the thickets methodically searching for food. Sometimes suddenly flicks open wings bringing them forward almost to the head — obviously a manoeuvre to stampede lurking prey. Often springs up a foot or more in the air to seize a grasshopper or lizard from an overhanging weed-stem or twig. Walks and runs strongly but is a poor flier, reluctant to leave cover unless pressed, then making a short clumsy flight to the nearest thicket. Clammers with 'hand over hand' action along inclined branches, or ascends into the foliage canopy of trees, hopping with agility from branch to branch and hunting systematically. Volplanes down into undergrowth on alarm.

Pre-copulatory sexual play consists of male strutting grotesquely and chasing female on the ground, and in and out through shrubbery, the latter pretending to flee with tail depressed, wings drooped and occasionally vibrated to the accompaniment of a frequent harsh *cheeeaw* or *ske-e-ee-aw*. Sometimes the chase and its culmination take place up in the branches of trees.

FOOD. Predominantly animal. Items commonly recorded are baby mice, bats (occasional), geckos (*Hemidactylus* spp.), skinks (*Mabuia* spp.), 'blood-sucker' lizards (*Calotes* spp.), snakes (*Dryophis mycterizans*), stranded fish, frogs, crustaceans, molluscs, insects, spiders. Highly destructive to eggs and nestlings, especially of ground- and bush-nesting birds (also to small birds caught in low mist nets!). Among insect items the following identified at Pusa Agricultural Research Institute, Bihar: cutworms (*Agrotis* spp. larvae), *Brachytrypes achatinus*, *Opatrum depressum*, *Astycus lateralis*, besides various bugs (Hemiptera), ants (*Camponotus* and *Oecophylla*), grasshoppers and locusts. Occasionally some vegetable matter (grass, leaves, etc.) also found in stomachs (Mason & Lefroy, 1912).

VOICE and CALLS. A deep, resonant *coop-coop-coop-coop* etc. in runs of 6 or 7 (often up to 20 or 30) quickly repeated at the rate of 2 or 3 *coops* per

second. Usually in duets: as soon as one bird begins calling another within earshot (its mate?) almost invariably joins in. Single calls or short runs reminiscent of langur monkey's *whoop* in distance. Calling most persistent during the breeding season, often commencing at early dawn and sometimes kept up at night. An occasional quick repeated *kūt-kūt-kūt-kūt*, of about half-minute's duration sounding like the oil engine of a village flour mill has been heard, the significance of or provocation for which is not known. During courtship (also when annoyed) utters a medley of harsh, weird croaks and chuckles.

BREEDING. A non-parasitic cuckoo. *Season*, chiefly June to September. *Nest*, a large untidy globular structure like a Rugby football, c. 45 × 35 cm., of twigs and leaves, or mainly leaves of elephant grass or bamboo, with a lateral entrance; sometimes a deep cup with the dome formed by intertwining the surrounding living foliage and creeper stems. Placed within a thick bush or bamboo clump or among the branches of a thorny tree, at moderate heights, usually well concealed amongst tangled vines. *Eggs*, 3 or 4 (exceptionally 5 and even 6 recorded), broad ellipses, chalky white, becoming yellow-stained as incubation proceeds. Average size of 50 eggs 35.9 × 28.0 mm. (Baker). Nest-building and incubation by both sexes; incubation period and other details of breeding biology unknown.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for subspecies, Key.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	205-232 (one 195, one 239, one 242)	33-37	58-66	220-262 mm. (Baker)
5 ♂ ♀	from Nepal 193-210	(from skull) 38-41		222-254 mm. (BB)
5 ♂ ♀	from Sindh (in British Museum)			Wing 225-239 mm. (Ticehurst).

Weight 1 ♂? 362 gm. (SA).

There is considerable individual variation in size, but in most cases females are larger than males. The significance of this disparity needs to be studied.

COLOURS OF BARE PARTS. Iris bright crimson. Bill, legs and feet black.

MISCELLANEOUS. Flesh of the coucal is relished as an epicurean delicacy in many parts of the country, and widely believed to be a panacea for consumption, asthma and other pulmonary ailments.

601. **East Pakistan Crow-Pheasant.** *Centropus sinensis intermedius* (Hume)

Centrococcyx intermedius A. O. H. (= Hume), 1873, *Stray Feathers* 1: 454, in text (Dhoon, Dacca, and Thayetmyo)

Baker, FBI No. 1491, Vol. 4: 192

Plate 41, fig. 10, facing p. 256

LOCAL NAMES. *Dao di dai* (Cachar); *Kūkā* (Bengal, E. Pakistan); *Kūkū sordī* Assam); *Nongkoubi* (Manipur).

SIZE. Jungle Crow $\pm$ with long broad graduated tail. Overall length *c.* 48 cm. (19 in.).

FIELD CHARACTERS. As of 600, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Assam south of Brahmaputra river, Cachar, Nagaland, Manipur, Mizo (?), Tripura; East Pakistan (Sylhet, Tippera, Chittagong Hill Tracts); up to *c.* 1200 m. altitude. Affects scrub-and-bush jungle and tall grassland.

Extralimital. Burma north to the Chin Hills, and S. Yunnan south to peninsular Thailand and the Indochinese countries; Hainan I.

GENERAL HABITS, FOOD, VOICE and CALLS. Not significantly different from 600, q.v.

BREEDING. *Season*, principally mid June to end August. *Nest*, as of 600, globular, of twigs and grass. *Eggs*, 3 or 4, chalky white, elliptical. Average size of 50 eggs 35.7×28.6 mm. (Baker). Fledgelings said to leave nest when about a month old.

MUSEUM DIAGNOSIS. Differs from the nominate race (600) only in being smaller.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	183-204	30-34	<i>c.</i> 56-60	215-265 mm. (Baker)

COLOURS OF BARE PARTS. As in 600.

602. **Southern Crow-Pheasant.** *Centropus sinensis parroti* Stresemann

Centropus sinensis parroti Stresemann, 1913, Nov. Zool. 20: 323 (Ceylon)

Baker, FBI No. 1492, Vol. 4: 192

LOCAL NAMES. *Māhōkā* (Hindi); *Jemudu kāki*, *Chemara kāki* (Telugu); *Kalli kāka*, *Chempakam* (Tamil); *Atti kukkulā*, *Bū kukkulā* (Sinhala); *Uppan*, *Chemboth* (Malayalam); *Kūmbhār kāola* (Marathi); *Hokko*, *Ghōyāro* (Gujarati); *Hooka* (Gulf of Kutch).

SIZE. Jungle Crow $\pm$ with long broad graduated tail. Overall length *c.* 48 cm. (19 in.).

FIELD CHARACTERS. As of 600, q.v. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Peninsular India south of the range of *C. s. sinensis* (south of the Gangetic Plain) from N. Gujarat, Kutch, and Saurashtra east through Madhya Pradesh, Andhra and Orissa, south through Maharashtra, Mysore, Tamil Nadu and Kerala. Plains and hills, locally to *c.* 2220 m. altitude. Ceylon (all zones). Affects light forest, scrub-and-bush jungle, grassland, plantations, cultivation and the neighbourhood of habitations.

GENERAL HABITS and FOOD. As in 600, q.v. In addition, recorded feeding on fruits of Yellow Oleander, *Thevetia neriifolia* (Sanjeeva Raj, JBNHS 60: 457).

BREEDING. *Season*, in peninsular India practically all year, chiefly November to May; in Ceylon chiefly February to April and August-September. *Nest* and *eggs* (2 to 4) similar to the northern race (600), but in

Ceylon the normal clutch is of 2 or 3 eggs only. Average size of 30 eggs 36.2×26.3 mm. (Baker).

VOICE and CALLS. 'The scold-note used when the bird mobs a lurking snake or owl etc., is an explosive *k'wiss*; and, in courtship, a curious sound is produced — *djoonk* — like a stone dropped into deep water, or a tight cork drawn from an empty bottle' (Henry).

MUSEUM DIAGNOSIS. Differs from 600 and 601 in having the interscapulars black instead of chestnut (but see Whistler, 1934, JBNHS 37: 528). Forehead and forecrown paler and brownish with little or no gloss; sheen of head, back, and underparts more blue or blue-green than rich purple-blue as in the other two. These characters however show considerable individual variation.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	173–195	37–45	42–57	197–265 mm.
♀♀	178–210	38–45	46–58	223–310 mm.
				(SA, HW)

Weight 1 ♂ 230 gm. (Rensch).

COLOURS OF BARE PARTS. As in 600.

MISCELLANEOUS. There is a curious folk-belief common to such far-flung parts of the country as Saurashtra and South Kanara (possibly more general) that the crow-pheasant's nest is lined with some particularly valuable (and magical!) kind of 'grass' known in Kanara as *sānjivānā kāddi* ('life-giving herb') — which can be separated from the rest of the material by throwing it into a stream, whereupon the former will flow *against* the current!

603. Andaman Crow-Pheasant. *Centropus (sinensis) andamanensis* Beavan

Centropus andamanensis 'Tytler' = Beavan, 1867, Ibis: 321 (Andaman Islands)
Baker, FBI No. 1494, Vol. 4: 194

LOCAL NAMES. None recorded.

SIZE. Jungle Crow $\pm$, with long broad graduated tail. Overall length c. 48 cm. (19 in.).

FIELD CHARACTERS. Like Common Crow-Pheasant (600) with chestnut wings, but whole head, body and tail brown instead of glistening black. Sexes alike. See Museum Diagnosis.

Young (immature). *Above*, traces of barring on head, neck, and upper back. *Below*, barred from chin to vent with pale brown and pale dusky ochre.

STATUS, DISTRIBUTION and HABITAT. Andamans (North, Middle, and South), Great and Little Coco, and Table islands. Nicobars?. To what extent, if at all, moving from island to island not known. Affects outskirts of forest, gardens, and cultivated tracts especially sugarcane. Partial to newly ploughed paddyfields and mangrove swamps.

GENERAL HABITS. As of Common Crow-Pheasant (600), q.v. Commonly walks about on the ooze of mangrove swamps in search of food (A. L. Butler, JBNHS 12: 566).

FOOD, VOICE and CALLS. Presumably as in 600; nothing recorded as specifically different.

BREEDING. *Season*, mainly mid May to end July, but as in other races not well defined. *Nest* and site as in Indian birds. *Eggs*, 2 or 3 — occasionally 4 — also similar. Average size of 30 eggs 34.7×28.0 mm. (Baker).

MUSEUM DIAGNOSIS. Whole head and body greyish brown, darker and browner on lower back, rump, vent and under tail-coverts. Tail darker brown towards tip, and conspicuously black-shafted. Scapulars, interscapulars, and wings rich deep chestnut-bay (of variable intensity), the tips of the quills more dusky brown.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	173–195	29–35	52–56	235–242 mm. (Baker)
		(from skull)		
9 ♂ ♀	180–198	30–40	—	228–261 mm. (HA)

COLOURS OF BARE PARTS. As in 600 and other races.

604. **Ceylon Coucal.** *Centropus chlororhynchus* Blyth

Centropus chlororhynchus Blyth, 1849, Jour. Asiat. Soc. Bengal 18 (2): 805 (Ceylon)
Baker, FBI No. 1493, Vol. 4: 193

LOCAL NAMES. *Bättā atti-kukkulā*, *Wāl atti-kukkulā* (Sinhala); *Chempakam* (Tamil).

SIZE. House Crow $\pm$ with long broad graduated tail. Overall length c. 43 cm. (17 in.).

FIELD CHARACTERS. Like Common Coucal (600), q.v., but smaller; readily distinguished by pale apple-green (v. black) bill. Sexes alike.

Young (immature) has no distinct plumage (Wait, 1931).

STATUS, DISTRIBUTION and HABITAT. Species peculiar to Ceylon. 'Resident, in moderate numbers, in and confined to the dense scrub jungles and cane brakes of the Wet zone and neighbouring intermediate tracts, to 2500 ft. [c. 750 m.] on the SW. slopes of the hills' (Phillips, 1953). Affects high humid forest with dense undergrowth of dwarf bamboo and other luxuriant herbage.

GENERAL HABITS and FOOD. Similar to Crow-Pheasant (600), q.v., but very shy and elusive and oftener heard than seen. Its existence now endangered by the rapid destruction of its specialized habitats for agriculture.

VOICE and CALLS. Similar in character to Common Crow-Pheasant's but apparently quite distinctive and unmistakable with it: 'usually only two- or three-syllabled, deeper, and with a sonorous, mournful quality — *hooo-poop*, *hooo-poop-poop* — the *poop* being lower-pitched than the *hooo*' (Henry).

BREEDING. *Season*, January to July. *Nest*, globular or domed, of twigs, roots and grass, lined with green leaves and supple green twigs. Placed in a thorny bush c. $1\frac{1}{2}$ to 2 m. from the ground, inside deep evergreen forest. *Eggs*, 2 or 3, chalky white, typical of the crow-pheasants. Average size of 9 eggs 34.7×27.0 mm. (Baker).

MUSEUM DIAGNOSIS. Head, body, and tail black, glossed with purple, passing on the neck, upper back, and breast into coppery bronze. Wing-coverts, scapulars, and interscapulars deep chestnut-bay; tips of quills dusky; wing-lining blackish.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂♂	160-172	38-44	45-47	215-240 mm. (Baker)
♀♀	174-182			
		(from skull)		
1 ♂	179	48.5	48	225 mm.
1 ♀	160	43	45	223 mm. (HW)

COLOURS OF BARE PARTS. Iris deep red to crimson. Bill apple-green, blackish at base and about nostrils. Legs and feet black; claws dusky.

605. **Lesser Coucal.** *Centropus toulou bengalensis* (Gmelin)

Cuculus bengalensis Gmelin, 1788, Syst. Nat., 1 (1): 412 (Bengal)

Cf. Whistler, H. & Kinnear, N. B., 1935, JBNHS 37: 528

Baker, FBI No. 1495, Vol. 4: 194

Vol. 4, plate 44

LOCAL NAMES. *Chhōto-kūkō* (Bengal); *Ūlū kūkūhā* (Assam); *Nyong* (Lepcha); *Kyok-kyok* (Bhutea); *Vāri ūppān* (Malayalam).

SIZE. House Crow — ; with a long broad graduated tail. Overall length ♂ *c.* 33 cm. (13 in.), ♀ *c.* 37 cm. (14½ in.).

FIELD CHARACTERS. Similar to the Common Crow-Pheasant (600), glistening blue-black with chestnut wings, but conspicuously smaller and with the tail-feathers tipped whitish. Sexes alike; female larger.

Young (immature) in one stage, dark brown above, mottled and barred with rufous on wings and tail. *Below*, rufescent white with dusky bars. On a casual sighting young bird could be confused with Sirkeer Cuckoo, but absence of latter's cherry-red bill always diagnostic.

STATUS, DISTRIBUTION and HABITAT. The submontane tracts of the Himalayas — terai, bhabar, duns, and duars — and locally up to *c.* 1500 metres, from about Dehra Dun eastward through Nepal, Sikkim, Bhutan to Assam north and south of the Brahmaputra, Nagaland, Manipur, Mizo (?); East Pakistan. Widely but locally distributed in the Peninsula from the Gangetic Plain (Uttar Pradesh, Bihar, West Bengal) southward through Mysore, Kerala, and Tamil Nadu. Confined to a specialized habitat — stretches of tall grassland and dense scrub jungle bordering forest, and reed-beds and 'seas' of elephant grass on the edge of swamps and jheels and in flood plains; thus absent from large tracts of country. In some areas has been presumed to be migratory, but not proven. Occurrence in Ceylon doubtful.

Extralimital. Burma, S. Yunnan, south to Tenasserim, Thailand, and the Indochinese countries; Hainan I.

GENERAL HABITS and FOOD. Not significantly different from the Common Crow-Pheasant (600), *q.v.* Flight weak, laboured, and ill-sustained — several rapid wing-beats followed by a glide. 'Feeds almost exclusively on grasshoppers' (Gammie, Sikkim).

VOICE and CALLS. A double series of notes, *whoot, whoot, whoot, whoot* followed by a pause of 4 or 5 seconds, then *kurook, kurook, kurook, kurook*; the *whoots* decidedly ventriloquistic. Therefore, 'When searching for the caller one must take no notice of the *whoot* but wait for the *kurook*' (J. A. Gammie, 1877, SF 5: 385). Apparently both sexes call from bush-tops. The neck and body are drawn together, the body-feathers slightly fluffed out raising or arching the back, and the tail is depressed. At every *whoot* the body throbs violently as if in agony; but the bill remains closed and hardly any movement of the throat is perceptible. After the *whoots* the bird seems greatly relieved; it stretches itself out, the feathers are sleeked, and it utters the *kurook* notes with open bill and throbbing throat, with no suggestion of ventriloquism (Gammie).

BREEDING. *Season*, May to September, chiefly after onset of rains in June. *Nest*, similar to that of Common Coucal but smaller; a domed, oval structure like a Rugby football in shape, c. 25 × 20 cm. with a lateral entrance-hole; of twigs, grasses, and leaves with the living grass blades of the substrate often worked into the dome; occasionally lined with green leaves. Usually placed less than 1½ metres or so above the ground in a dense bush standing in grassland, or among tussocks of grass or reeds. *Eggs*, 3 or 4, chalky white, smaller replicas of those of the Common Coucal. Average size of 50 eggs 28.2 × 23.8 mm. (Baker). Both sexes take part in nest-building, incubation, and tending the young. Incubation period and other details unknown.

MUSEUM DIAGNOSIS. See Key. Tail black glossed with green, tipped narrowly with white or rufous and faintly cross-rayed. Scapulars, interscapulars and wings chestnut, the tips of the quills, and the tertiaries, darker and browner, highlighting the paler chestnut shafts by contrast.

For details of juvenile plumage and description of nestling see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	137-174	22-26	36-37	156-211 mm. (Baker)
Specimens recently collected in Nepal give:				
		(from skull)		
5 ♂♂	137-148	25-27 (4 msd.)	—	163-181 + mm. (3 msd.)
5 ♀♀	161-169	28-31 (4 msd.)	—	180-200 mm. (2 msd.) (BB)

More material is needed from SW. India to verify that the race there is in fact *bengalensis* as presumed. 5 unsexed and 1 ♀ from 'Travancore' in the British Museum collection, and 1 ♀ recently collected there, measure:

	(from skull)		
168-173	27-30	43 (1)	205-209 mm. (3 msd.) (HW)

COLOURS OF BARE PARTS. Iris crimson. Bill black. Legs and feet slaty black to black.

Order STRIGIFORMES

For morphological details see Stresemann, E., 1927-34, *Aves*: 824-6; Witherby *et al.*, 1938, 2: 308-9; Baker, 1927, FBI 4: 283. For a general account see Voous, K. H., 1964, article 'Owl' in Thomson, A. L. (ed.), *New Dict. Birds*, London and New York.

Family STRIGIDAE

Characters as in the Order.

Key to the Genera

	Page
A Middle claw pectinate on inner side.....	1
B Middle claw not pectinate.....	2
1 Ruff around eyes meets at forehead.....	<i>Tyto</i> 249
Ruff around eyes separated at forehead.....	<i>Phodilus</i> 253
2 Ear-tufts present.....	a
Ear-tufts absent.....	b
a Wing exceeding 350 mm.....	<i>Bubo</i> 271
Wing 280 to 330 mm.....	<i>Asio</i> 312
Wing under 250 mm.....	<i>Otus</i> 255
b Wing 245 mm. and above.....	I
Wing 240 mm. and below.....	II
I Plumage almost entirely white or white barred with sepia....	<i>Nyctea</i> 284
Plumage not as above.....	<i>Strix</i> 303
II Plumage uniform above.....	<i>Ninox</i> 292
Plumage barred above.....	<i>Glaucidium</i> 284
Plumage spotted above.....	a ¹
a ¹ Facial disc wide and distinct.....	<i>Aegolius</i> 316
Facial disc narrow, indistinct; ear-coverts brown.....	<i>Athene</i> 297

Key to Owl Calls

Barn Owl (606)	Discordant shrieks, chuckles, snores and hisses.
Bay Owl (609)	Loud 3-noted whistle like man calling dog.
Spotted Scops Owl (611, 612)	Metallic double cowbell-like whistle <i>tunk</i> .. <i>tunk</i> .
Andaman Scops Owl (613)	A rapidly jerked-out <i>hoot!</i> <i>hoot-coorroo!</i>
Striated Scops Owl (614)	Short, monotonous <i>boo-boo</i> resembling stock dove's call.
Eastern Scops Owl (615)	Like tinkling of small brass bell.
North Indian Scops (616)	Monotonous 3-noted song <i>kūrook-took</i> or <i>wūkh-tuk-tah</i> or <i>wūk-chug-chug</i> somewhat resembling barbet's call.
Ceylon Scops (618)	<i>Tūk, tok torok</i> . . . <i>tūk, tok torok</i> .
Collared Scops (619-623)	Interrogative <i>wūt?</i> repeated every 3 seconds or so.
Burmese Scops (624)	Mellow single hoot every 15-20 seconds.
Horned or Eagle Owl (627)	Deep hollow <i>bū-bo</i> , or solemn <i>dur-goön</i> or <i>to-whoot</i> .

Forest Eagle-Owl (628)	Low deep moaning hoot.
Ceylon Eagle-Owl (629)	Very deep mumble or human-sounding snore.
Dusky Horned Owl (630)	Deep resonant <i>WO, Wo, wo, wo-o-o-o-o</i> like pingpong ball bouncing to silence.
Brown Fish Owl (631)	Deep, hollow-sounding <i>boom-o-boom</i> .
Tawny Fish Owl (633)	Deep <i>whoo-hoo</i> , and curious mewing.
Collared Pygmy Owlet (635)	4-noted bell-like whistle <i>toot . . tootoot . . toot</i> .
Barred Jungle Owlet (636, 637)	<i>Kāo, kāo, kāo-kūk, kāo-kūk, kāo-kūk</i> , etc. like distant crow of Red Junglecock.
Chestnutbacked Barred Owlet (638)	Far-carrying <i>kraw, kraw, kraw</i> , etc.
Barred Owlet (639-641)	A continuous bubbling musical whistle <i>wowowowowowowowo</i> or <i>woioioioioi . . . keek</i> , like a variant of 636.
Hawk-Owl (642-645)	Soft, musical <i>oo . . ūk, oo . . ūk, oo . . ūk</i> .
Hutton's Owlet (648)	Shrill, plaintive <i>piu</i> repeated every few seconds.
Spotted Owlet (650-652)	Harsh screechy <i>chirurrr-chirurrr-chirurrr</i> , and variants.
Hume's Wood Owl (654)	Clear long-drawn <i>huu</i> at intervals, and variants.
Mottled Wood Owl (655-657)	Loud quavering eerie <i>chūhua-aa</i> (breeding) and mellow metallic single hoot (non-breeding).
Brown Wood Owl (658-660)	Mellow, musical, hollow-sounding <i>tok . . . tū-hoo</i> (<i>tok</i> in undertone).
Ceylon Brown Owl (660a)	Sonorous hoot <i>hūhū-hōōō</i> .
Himalayan Wood Owl (661, 662)	Loud <i>hoo . . . hoo . . . hoo-ho-ho-hooo</i> .

Subfamily TYTONINAE: Barn Owls

Genus TYTO Billberg

Tyto Billberg, 1828, Syn. Faun. Scand. 1, pt. 2, tab. A. Type, by monotypy,

Strix flammea auct. = *Strix alba* Scopoli

No ear-tufts. Facial disc well developed and large, entirely surrounded by a ruff of stiff feathers. Bill straight at base, compressed and comparatively weak. Nostrils oval. Legs long, the upper part of the tarsus covered with feathers which pass into bristles on lower tarsus and upper surface of toes. Middle toe scarcely longer than inner, with the claw expanded and pectinate on the inner side. Wings very long and pointed, exceeding tail in length: 2nd primary (as.) longest, first subequal. Tail moderately long.

Key to the Species

	Page
Upper surface speckled; tarsus less than 75 mm.	<i>T. alba</i> 249
Upper surface spotted; tarsus over 75 mm.	<i>T. capensis</i> 252

TYTO ALBA (Scopoli)

Key to the Subspecies

Wing over 270 mm.; general colour paler	<i>T. a. stertens</i>
Wing under 270 mm.; general colour deeper	<i>T. a. deroepstorffi</i>

606. **Indian Barn Owl.** *Tyto alba stertens* Hartert*Tyto alba stertens* Hartert, 1929, Nov. Zool. 35: 98 (Cachar)*Tyto alba crypta* Koelz, 1939, Proc. Biol. Soc. Washington 52: 80

(Londa, Bombay Presidency)

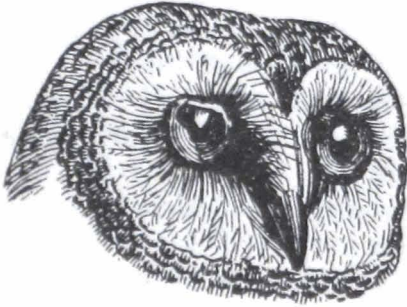
Baker, FBI No. 1636, Vol. 4: 385

Vol. 4, plate 46

LOCAL NAMES. *Kuraya*, *Karail*, *Būri churi* (Hindi); *Lakshmi pechā* (Bengal); *Ghūbād* or *Ghūvād* (Marathi); *Rēvi devi* (Gujarati); *Chāvu kūrūvi* (Tamil); *Chaaō pitta* (Telugu); *Bakamūnā* (Sinhala); *Veli mūnga* (Malayalam); *Madoosa* (Bihar); *Ghūghū* (Damoh, Madhya Pradesh).

SIZE. House Crow — ; length *c.* 36 cm. (14 in.).

FIELD CHARACTERS. A typical owl with large round head and a conspicuous ruff of stiff feathers surrounding a comically pinched (heart-shaped) white monkey-like facial disc. *Above*, golden buff and grey, finely stippled with black and white. Much yellowish brown about the shoulders and on wings. *Below*, silky white, more or less tinged with buff and usually spotted dark brown. Sexes alike.

× *c.* 1

STATUS, DISTRIBUTION and HABITAT. Resident. West Pakistan (Baluchistan, Sind, Punjab) and all India from Jammu eastward through the Gangetic Plain to Bengal,

Assam, Nagaland and Manipur, south throughout the Peninsula to Kanyakumari; East Pakistan; Ceylon (rare, and restricted to Jaffna and Aripo districts on the NW. coast). Recorded from Nepal in *c.* 1879 (Scully, SF 8: 229) but not met there by recent investigators, nor in Sikkim or Bhutan. Affects the neighbourhood of cultivation and human habitations chiefly in the plains and peninsular hills to *c.* 1000 m. — ruins of ancient forts, crumbling archaeological structures, caves, disused wells, and buildings both deserted and occupied in towns and city suburbs.

Extralimital. Probably northern Burma, where the limits of this form and the prevailing *javanica* not known. The species in numerous races has an almost global distribution.

GENERAL HABITS. Largely crepuscular and nocturnal, less because of inability to withstand the glare than to escape the persecution invariably meted out by crows and other birds as soon as it shows itself in daytime. Is capable of flying in broad sunlight without apparent discomfort and has even been observed hunting on a sunny morning, flying purposefully to and fro 3 or 4 metres above a grass field, hovering for up to 30 seconds like a Blackwinged Kite (*Elanus*), before pouncing on ground prey. Usually spends the day standing upright, dozing with shut eyes, singly or in pairs, in a dark hollow in some ruin or ancient tree, or under the eaves or roof of a building, sallying forth at dusk to feed heralded by a harsh prolonged screech. The ground under such diurnal roosts is usually strewn with cast-up pellets of undigested skulls and bones of its victims. Often seen flying ghost-like over the blaze of a city's illumination after dark, uttering its distinctive screech from time to time.

FOOD. Small birds like house sparrows, bats, etc. but predominantly rats and mice; thus, as a species, highly beneficial to agricultural economy.

VOICE and CALLS. A variety of discordant long-drawn shrieks and chuckles, and weird snoring and hissing notes; a castanet-like bill-snapping when angry. Particularly noisy in the breeding season.

BREEDING. *Season*, undefined, covering practically the entire year, the peak periods varying locally. *Nest*, none built; occasionally the eggs deposited on a layer of, or amongst, cast-up pellets and bony debris of victims—in holes or niches in ruins, in the space between ceiling and roof of a building whether deserted or occupied, in hollows in ancient tree-trunks, and the like. The same sites are used in successive years, and if left undisturbed tend to become traditional. *Eggs*, 4 to 7, white, fine-textured and smooth; short, broad ellipses, somewhat less rounded than most other owls' eggs. Average size of 38 eggs 40.7×32.5 mm. (Baker). Laid at about 48-hour intervals, incubation often commencing with first egg, thus great disparity noticeable among young of the same brood. Incubation evidently by female alone; period elsewhere recorded as 32–34 days. Both parents tend the young.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for plumages and structure (also bionomics), Witherby, 1938, 2: 343–6 (for nominate race).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	275–322	30–32	c. 68–77	119–127 mm. (Baker)
		(from skull)		
10 ♂♂	262–303	34–37	70 (1)	111–123 mm.
5 ♀♀	278–315	35–37	60–70	114–125 mm. (HW, SA)

COLOURS OF BARE PARTS. Iris deep brown, hazel, or black. Bill fleshy white to fleshy horny; cere more flesh coloured. Legs and feet pale fleshy brown; claws darker.

607. **Andaman Barn Owl.** *Tyto alba deroeptorffi* (Hume)

Strix DeRoepstorffi Anonymous = Hume, 1875, Stray Feathers 3: 390

(Aberdeen, South Andaman Is.)

Baker, FBI No. 1637, Vol. 4: 386

LOCAL NAMES. None recorded.

SIZE. House Crow — ; length c. 36 cm. (14 in.).

FIELD CHARACTERS. As of 606, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Evidently a very scarce resident in the Andaman Is. (Port Blair; a specimen collected on South Cinque island (Abdulali, 1971, JBNHS 68: 403); not recorded from the Nicobars.

GENERAL HABITS, FOOD, VOICE and CALLS. As of the Indian bird (606) q.v.

BREEDING. Unknown.

MUSEUM DIAGNOSIS. See Key to the Subspecies. Much darker overall than *stertens*. Facial disc very rufescent; grey of upperparts replaced by dark brown, and ochre by rich rufous. Some grey stippling retained on the tips of wing- and tail-quills. Underparts, axillaries and under wing-coverts deep brownish rufous.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	250-264	c. 32	c. 61	c. 113 mm. (Baker)

COLOURS OF BARE PARTS. Unrecorded.

608. **Grass Owl.** *Tyto capensis longimembris* (Jerdon)

Strix longimembris Jerdon, 1839, Madras Jour. Lit. Sci. 10: 86 (Neilgherries, India)
Baker, FBI No. 1638, Vol. 4: 387

LOCAL NAME. 'Sun ūlū sorāi (Assam).

SIZE. House Crow — ; length c. 36 cm. (14 in.).

FIELD CHARACTERS. An unmistakable first cousin of the Barn Owl, found only in tall grassland habitats. *Above*, dark brown minutely spotted with white; *below*, white with scattered brown spots. Facial disc white or pinkish rusty white bordered by a dark brown ruff; a prominent blackish spot in front of each eye. Tail largely white and buff, cross-barred with brown. Tarsus very long, slender, and tightly feathered, as though clad in underpants or *chūridār pajamas* ! In flight the bird looks very white overall with brownish patches. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident. The submontane tracts of the Himalayas from at least Dehra Dun eastward through the terai and duars and Gangetic Plain to Bengal, and Assam (north and south of Brahmaputra river), hills and plains. Probably also Manipur and East Pakistan, and in appropriate grassland biotopes in the terai and duars of Nepal, Sikkim, and Bhutan. Recorded from several localities in the Peninsula, e.g. Chota Nagpur, Madhya Pradesh (Balaghat, Raipur), and in south India (up to c. 1800 m. in the hills) from Tamil Nadu (Nellore, Nilgiris, Palnis), Mysore (Brahmagiris), and Kerala (Munnar, High Range). Not Ceylon. Affects tall grass jungle, open grassland on flood-plains (swamp deer and florican country) and in depressions among low rolling hilltops.

Extralimital. Burma, North Vietnam (D. Amadon, 1959, JBNHS 56: 344-5).

GENERAL HABITS. Crepuscular and nocturnal. Almost entirely terrestrial; spends the daytime standing bolt upright and dozing in some small opening amidst tall grass, flying a short distance when disturbed and dropping into the cover again. Hunts silently and ghost-like at night, presumably hovering like Barn Owl to espy prey among the heavy grass. Usually keeps singly or in pairs, but as many as six on the wing at the same time have been observed in northern Uttar Pradesh when florican shooting (A. Anderson, 1876, SF 4: 253).

FOOD. Chiefly field mice; in addition, as shown by cast-up pellets, locusts, grasshoppers and cicadas; once a bustard quail (*Turnix*). Doubtless feeds regularly on small ground birds as well as reptiles.

VOICE and CALLS. Not specifically recorded; according to Baker weird screeches similar to Barn Owl's.

BREEDING. *Season*, overall October to March (chiefly October to December) in N. India and Kerala; once July in Cachar (Baker). *Nest*, a

pad or mat of flattened-down grass amidst tall grassland, canopied by the arching surrounding growth. *Eggs*, 4 to 6, pure white with a smooth matt surface, indistinguishable from eggs of Barn Owl. Average size of forty 39.9×32.7 mm. (Baker). Period of incubation, and share of the sexes in the domestic chores, unknown.

MUSEUM DIAGNOSIS. See Key; for details of plumage Baker, loc. cit.

Chick (in down) 'Fulvous-rufous' (Baker).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	305-348	c. 36	86-94	114-125 mm. (Baker)

COLOURS OF BARE PARTS. Iris hazel to deep brown. Bill fleshy white to fleshy horny; cere pinkish. Legs and feet dark fleshy brown to almost blackish brown; claws horny brown.

Genus PHODILUS G. St-Hilaire

Phodilus Geoffroy Saint-Hilaire, 1830, Ann. Sci. Nat. 21: 199. Type, by original designation and monotypy, *Strix badia* Horsfield

Facial disc distinct but incomplete above the eyes. Bill weak and compressed. Ear orifice of fair size but smaller than eye; no operculum. Wings rounded: 4th and 5th primaries (as.) subequal and longest. Tail short. Tarsus feathered throughout; inner toe longer than middle toe; middle claw pectinate as in *Tyto*.

Contains a single Oriental species of which two races occur within our limits.

PHODILUS BADIUS (Horsfield)

Key to the Subspecies

	Page
Upperparts chestnut, sparsely speckled; inner webs of primaries chestnut, barred black. <i>P. b. saturatus</i>	253
Upperparts dark brown, speckled; inner webs of primaries brown, barred black. <i>P. b. assimilis</i>	255
Upperparts chocolate-brown, finely stippled; inner webs of primaries vinous, barred dark brown. <i>P. b. ripleyi</i>	321

609. Sikkim Bay Owl. *Phodilus badius saturatus* Robinson

Phodilus badius saturatus Robinson, 1927, Bull. Brit. Orn. Cl. 47: 121 (Native Sikkim)
Baker, FBI No. 1640, Vol. 4: 390

Vol. 1, plate 17

LOCAL NAMES. None recorded.

SIZE. Pigeon—; length c. 29 cm. (11½ in.).

FIELD CHARACTERS. A small, dainty chestnut-bay owl with short ear-like tufts projecting above sides of head. *Above*, chestnut, spotted with black and buff. Outer webs of first two primaries barred white and black. Tail chestnut, barred with black. A broad frontal tract (forehead) and facial disc vinous-pink surrounded by a white ruff tipped black and chestnut. The patch of chestnut feathers round each eye is a striking feature. *Below*, vinous-pink

spotted with black and white except on foreneck and down centre of abdomen to under tail-coverts. Legs fully feathered. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident; apparently very rare. Nepal, Sikkim, Bhutan (?), Assam north and south of Brahmaputra river, Nagaland, Manipur. Confined to heavy evergreen forest in the submontane tracts and foothills, locally up to c. 1500 metres alt.

Extralimal. N. Burma, N. Thailand, N. and S. Vietnam (Peters).

GENERAL HABITS. Very little known as the bird is strictly nocturnal and seldom seen. Is greatly incommoded by, and practically helpless in daylight; spends the daytime lurking in dark holes and hollows in tree-trunks etc. ‘. . . hunts from a perch, but sharpens its gaze by rocking the head rhythmically from side to side [like a pendulum] over a small amplitude (almost hypnotic to the observer), and it flies for its captures through dense stands of young trees beneath the forest canopy. Uniquely short, rounded wings facilitate this rapid flight by which the bird threads its way easily through the maze of vertical stems.’ Perches sideways on stems of saplings, its huge feet enabling the vertical stalk to be grasped in the manner of a tit clinging to an upright twig (J. T. Marshall, Jr., 1966, *The Natural History Bulletin of the Siam Society* 21 (3-4): 238).

FOOD. On evidence of cast-up pellets, mainly small mammals, birds, lizards, frogs, and beetles and other large insects. An example picked up dead in heavy forest disclosed the cause to be the wing bone of a bat it had swallowed protruding through the stomach! (Hume, SF 11: 19).

VOICE and CALLS. Very imperfectly known. According to Baker a single soft hoot; also much noisy caterwauling during the breeding season, and a hissing when approached at nest. ‘A loud 3-noted whistle reminiscent of someone calling his dog, the birds answering each other in the forest’ (H. Elliott McClure *in epist.*, for nominate race).

An entirely different call, also of the nominate race, described by another observer as ‘*kwankwit-kwankwit-kek-kek-kek* heard most when flying in complete darkness’ (J. Cairns, 1955, *Malayan Nature Journal*, Vol. 10).

BREEDING. *Season*, March to May. *Nest*, an unlined hollow in a tree-trunk or a rotten stump between c. 2 and 5 metres up; the same site used year after year, the hollow becoming littered with cast-up food pellets. *Eggs*, 3 or 4, sometimes 5, pure white roundish ovals with a smooth matt surface, typical of the owls. Average size of 30 eggs 34.5 × 30.0 mm. (Baker). Incubation period, share of the sexes in the reproductive chores, and other points concerning breeding biology completely unknown.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for subspecies, Key.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	214-237	30-32	47-48	92-97 mm. (Baker)

COLOURS OF BARE PARTS. Deep brown or black. Bill creamy yellow. Legs and feet clay-brown or yellowish brown, claws paler.

610. Ceylon Bay Owl. *Phodilus badius assimilis* Hume*Phodilus assimilis* Hume, 1877, *Stray Feathers* 5: 138 (Ceylon)

Baker, FBI No. 1641, Vol. 4: 391

LOCAL NAMES. *Bassā* (Sinhala; a general term for all small owls); *Anāai* (Tamil).SIZE. Pigeon—; length *c.* 29 cm. (11½ in.).

FIELD CHARACTERS. As of 609, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. A very scarce resident in the low-country Wet zone and Hill zone to *c.* 1200 m. Less than a dozen specimens have so far been taken in the Island.

GENERAL HABITS, FOOD, VOICE and CALLS. Even less known than of 609.

BREEDING. Three young birds once taken from a nest in a tree-hole, in November (1876), exhibited great disparity in size indicating that as with some other owls the eggs had been laid at intervals of several days and incubation had probably commenced from the first egg (Henry).

MUSEUM DIAGNOSIS. Differs from 609 in being much darker, almost chestnut-brown, above and more freely marked with black. *Below*, the black spots are double, one behind the other along the shaft, divided by, and edged with, whitish.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	197–203	<i>c.</i> 30 (from feathers)	<i>c.</i> 47	81–89 mm. (Baker)

COLOURS OF BARE PARTS ' Iris dark brown. Bill greenish white. Feet pale whitish green; claws pale ash ' (Whyte).

610a. Peninsular Bay Owl. *Phodilus badius riplei* Hussain & Khan

See Appendix, p. 321

Subfamily STRIGINAE: Owls

Genus OTUS Pennant

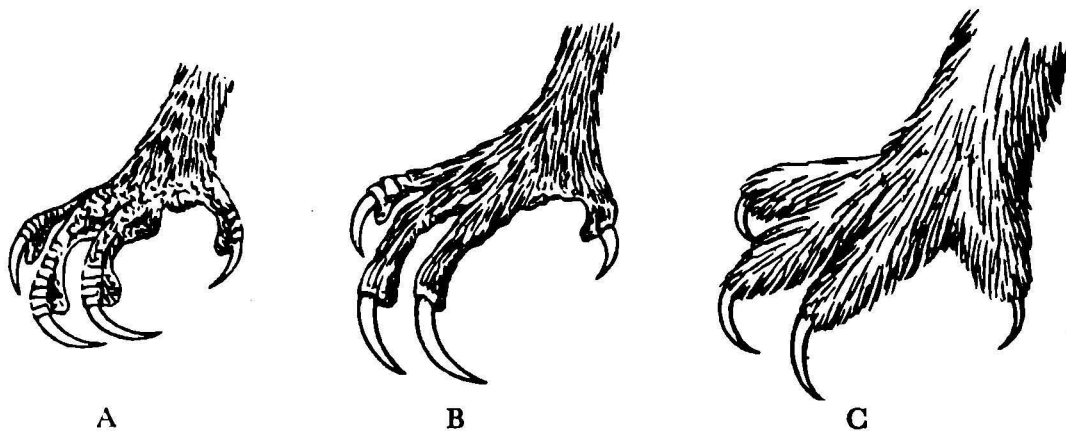
Otus Pennant, 1769, *Ind. Zool.*: 3. Type, by monotypy, *Otus bakkamoena* Pennant

Contains small owls of extremely beautiful vermiculated and speckled grey, brown, and rufous plumage, with well developed aigrettes or ear-tufts. Head proportionately large. Bill rather small; nostrils round, pierced in the anterior margin of the cere. Wing long but of variable shape. Tail moderate, rounded at the ends. Tarsus fully feathered or nearly so. Sexes alike, but juvenal plumage different from adult.

Cf. Delacour, J., 1941, *Zoologica* 26: 133–42; Deignan, H. G., 1950, *Auk* 67: 189–201.

Key to the Species

A	Fourth or fifth quill longest; first primary much shorter than eighth.	1	Page
B	Third quill longest; first longer than eighth.	2	
1	A distinct pale collar on hindneck.	<i>O. bakkamoena</i>	266
	No distinct collar on hindneck.	<i>a</i>	
a	Tarsus feathered to base of toes.	<i>O. spilocephalus</i>	256
	Lower third of tarsus bare.	<i>O. balli</i>	258
2	Feathers of tarsus extending on to base of toes.	<i>O. brucei</i>	259
	Feathers of tarsus not extending on to base of toes.	<i>O. scops</i>	261



× c. 1

Foot of A. Scops Owl (617), B. Little Owl (648), C. Tengmalm's Owl (665)

OTUS SPILOCEPHALUS (Blyth)**Key to the Subspecies**General tone of colour rufous brown.....*O. s. spilocephalus*General tone grey- or fulvous brown.....*O. s. huttoni***611. Western Spotted Scops Owl. *Otus spilocephalus huttoni* (Hume)**

Ephialtes Huttoni Hume, 1870, Rough Notes, pt. 1, no. 2: 393 (Near Mussoorie, Garhwal and below Simla, i.e. Jerripani, Mussoorie)
Baker, FBI No. 1673, Vol. 4: 429

LOCAL NAMES. None recorded.

SIZE. Myna $\pm$; length c. 18–20 cm. (7–8 in.).

FIELD CHARACTERS. A pretty little nocturnal greyish brown 'eared' forest owlet, hardly ever seen except by flashlight after dark, and then rather difficult to distinguish from the many other similar species. Recognized mainly by its distinctive calls, q.v.

Adult. *Above*, speckled greyish brown, conspicuously marked on crown and nape with twin spots of black and white. Wing- and tail-quills brown with numerous pale bands. Face whitish brown indistinctly barred, surrounded by a buff coloured ruff. *Below*, speckled brown on white with indistinct paler stippling on breast and abdomen. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident in the western Himalayas from about Murree in W. Pakistan eastward through Himachal Pradesh, Garhwal and Kumaon to central Nepal, where intergrading with the nominate race (612) occurs. Affects oak, rhododendron, blue pine and deodar forest between c. 600 and 2600 metres alt.

PLATE 41

1 *Megalaima virens*, Great Barbet (777). 2 *Megalaima lineata*, Lineated Barbet (784). 3 *Clamator coromandus*, Redwinged Crested Cuckoo (569). 4 *Megalaima asiatica*, Bluethroated Barbet (788). 5 *Megalaima haemacephala*, Crimsonbreasted Barbet (792). 6 *Cuculus micropterus*, Indian Cuckoo (576). 7 *Cacomantis passerinus*, Plaintive Cuckoo (584). 8 *Rhopodytis tristis*, Large Greenbilled Malkoha (593). 9 *Eudynamis scolopacea*, Koel (590). 10 *Centropus sinensis*, Crow-Pheasant (601).



GENERAL HABITS. Strictly nocturnal. Spends the daytime hidden in some dark hollow in a tree-trunk; hardly ever met with abroad even in heavily shaded forest. Bestirs itself at dusk, commencing to call an hour or so before complete darkness and continuing intermittently throughout the night from fixed stances — especially during the breeding season.

FOOD. Chiefly large insects — beetles, cicadas, mantises, etc. Also believed to take small rodents, small birds, and lizards.

VOICE and CALLS. A metallic, cowbell-like double whistle *tunk . . . tunk* or *phew . . . phew*, with $\frac{1}{2}$ to 1 second between the notes. Repeated at regular intervals of 6 or 7 seconds for hours on end, ceasing only before dawn. Several birds within earshot answering one another. Readily decoyed by an imitation of its calls, and this in fact is often the only way in which specimens can be shot.

BREEDING. *Season*, March to May or June. *Nest*, an unlined hollow in a tree-trunk, either natural or a disused woodpecker or barbet hole, between c. 2 and 6 or 7 metres up. *Eggs*, 2 or 3 — sometimes 4, rarely 5 — pure white roundish ovals with a smooth texture. Average size of 20 eggs 31.9×27.6 mm. (Baker). Share of the sexes in the reproductive chores and period of incubation undetermined.

MUSEUM DIAGNOSIS. Differs from the nominate race (612), q.v., in being generally much paler and greyer and lacking the rich rufous tinge. Birds from central Nepal are intermediate.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	135-144	c. 17	30-31	71-76 mm. (Baker)

COLOURS OF BARE PARTS. Iris golden yellow. Bill horny or wax yellow. Feet fleshy brown.

612. **Eastern Spotted Scops Owl.** *Otus spilocephalus spilocephalus* (Blyth)

Ephialtes spilocephalus Blyth, 1846, Jour. Asiat. Soc. Bengal 15: 8 (Darjeeling)

Otus spilocephalus rupchandi Koelz, 1952, Jour. Zool. Soc. India 4: 45

(Kohima, Naga Hills)

Baker, FBI No. 1672, Vol. 4: 427

LOCAL NAME. *Dao hoo too* (Cachar).

SIZE. Myna $\pm$; length c. 18-20 cm. (7-8 in.).

FIELD CHARACTERS. A rusty brown 'eared' forest owlet with pale-spotted crown and nape, like 611, q.v. See Key to the Species and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident in the eastern Himalayas from central Nepal eastward through Sikkim, Bhutan, and NEFA. Also Assam hills north and south of Brahmaputra river, Nagaland, Manipur, Mizo (?), Tripura, and East Pakistan (Chittagong Hill Tracts). Affects dense evergreen forest in the duars and foothills; oak, rhododendron, pine, etc. higher up, to c. 2600 metres alt.

Extralimal. Burma. Other races in Thailand, Indochinese countries, China, Formosa, Malaysia, and Indonesia.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the western race (611), q.v.

BREEDING. *Season, nest and eggs* as in 611. Average size of 36 eggs 32.5×28.2 mm. (Baker).

MUSEUM DIAGNOSIS. Plumage overall distinctly rufous brown, but varying individually from almost russet-red to dusky brown. For details see Baker, loc. cit.

Young. Two juveniles [age ?] from Bhutan 'are more rufous than the adult. The heads are barred with narrow black lines, the back with broader ones, while on the underside they are also present but very faint' (Kinnear in Ludlow, *Ibis* 1937: 490).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	137-151	c. 17-18	c. 31-32	77-90 mm. (Baker)

COLOURS OF BARE PARTS. As in 611.

613. Andaman Scops Owl. *Otus balli* (Hume)

Ephialtes Balli Hume, 1873, *Stray Feathers* 1: 407 (South Andaman Island)
Baker, FBI No. 1674, Vol. 4: 429

LOCAL NAMES. Not recorded.

SIZE. Myna $\pm$; length c. 19 cm. ($7\frac{1}{2}$ in.).

FIELD CHARACTERS. Described by Hume as 'the handsomest as well as gamest looking of all our Indian Scops Owls'. A small nocturnal rufous brown or dull bay-coloured 'eared' owl, finely freckled and mottled on the upperparts with black, and with black-edged whitish spots; the latter most numerous on crown and neck where they form an ill-defined collar. *Below*, paler and greyer but speckled more or less as above. Sexes alike. See Key to the Species and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Andaman Islands. Quite common, living about the settlements and cultivation, and 'rather given to coming into bungalows' (A. L. Butler, 1899, JBNHS 12: 570-1). Not recorded in the Nicobars.

GENERAL HABITS. Little known. Nocturnal, therefore oftener heard than seen.

FOOD. Apparently caterpillars to a considerable extent, in search of which 'it sidles up and down the boughs of small trees in a very parrot-like manner' (Butler, loc. cit.). Doubtless also beetles and other large insects.

VOICE and CALLS. Described by Butler as exactly like that of the Ceylon Scops (*Otus scops leggei*), 'resembling the syllables *hoot! hoot-coorroo!* jerked out very rapidly, the rolling *r* in the last note being very distinct'. It is also said to have a low clucking note.

BREEDING. *Season*, evidently c. mid February to mid April. *Nest*, a natural tree hollow, or deserted woodpecker or barbet hole, between c. 2 and 5 metres from the ground, sometimes higher. *Eggs*, 2, occasionally 3, pure

white smooth roundish ovals, as characteristic of the family. Average size of 20 eggs 30.5×27.1 mm. (Baker). Osmaston once caught a female in a nest with one egg and released her on another island two miles away. About three weeks later he found the same hole occupied by another (or the same ?) owl with two fresh eggs!

MUSEUM DIAGNOSIS. Has a different wing-formula from *Otus scops* but is like it in that the feathering of the tarsus does not extend to the toes. See Key to the Species of *Otus*; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	138-143	19-20	27-28	75-77 mm. (Baker)

COLOURS OF BARE PARTS. Iris yellow, golden yellow, hazel, or brown (age?). Bill yellowish or greenish horny, darker on culmen and tip; cere dusky green. Bottom third of tarsus, and feet, fleshy grey to greenish yellow.

614. Striated or Pallid Scops Owl. *Otus brucei* (Hume)

Ephialtes Brucei Hume, 1872, Stray Feathers 1: 8 (Rahuri, Ahmednagar)

Baker, FBI No. 1676, Vol. 4: 431

Plate 43, fig. 1, facing p. 304

LOCAL NAME. *Kutruz* (Marathi?).

SIZE. Myna $\pm$; length *c.* 22 cm. ($8\frac{1}{2}$ in.).

FIELD CHARACTERS. A small, slim greyish scops owl with ear-tufts rather inconspicuous unless specially raised on excitement.

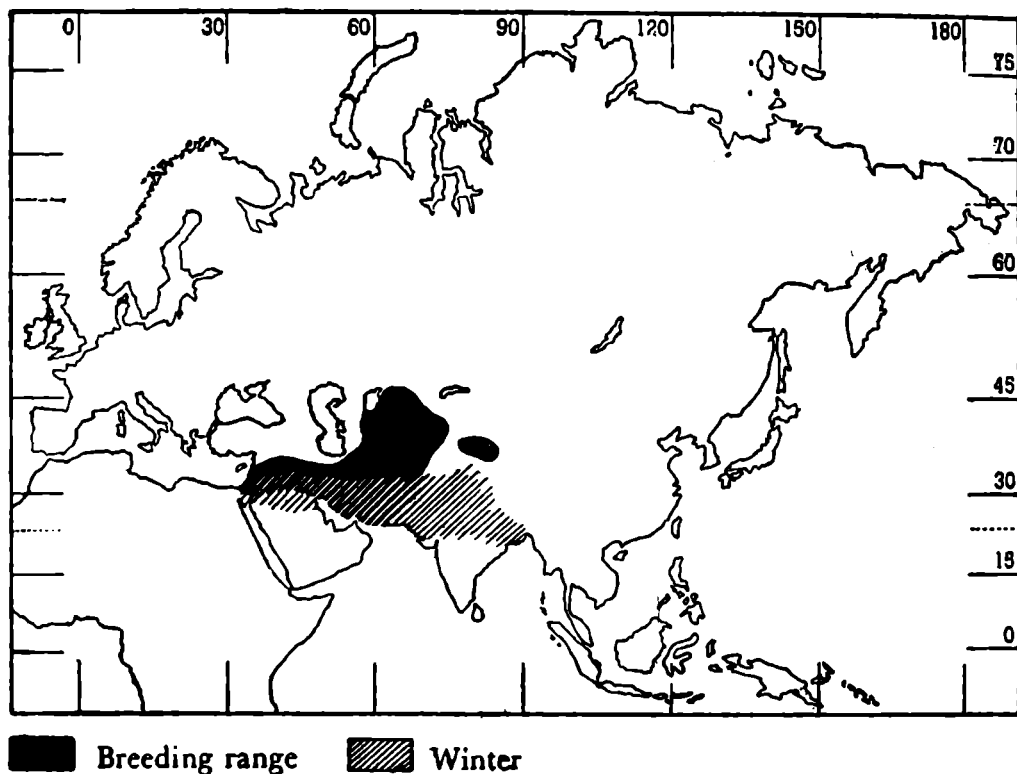
Adult. *Above*, greyish brown with a sandy yellow tinge, finely vermiculated and shaft-streaked with black. *Below*, paler (more whitish) and more heavily streaked with black. Sexes alike. See Key to the Species and Museum Diagnosis.

Young (immature). Much paler (whitish) grey, finely and wavily barred with dark brown above and below.

STATUS, DISTRIBUTION and HABITAT. Very imperfectly known. Breeds for certain in Baluchistan (Chaman-Quetta dist.); elsewhere in W. Pakistan occurs in Gilgit, Punjab (Salt Range, in the Jhelum and Shahpur portions), and Sind. Individuals (accidental ?) recorded in Maharashtra from Greater Bombay (Andheri), Poona and Ahmednagar dist. (Rahuri). Described as 'common' in Khandesh (Akrani plateau and deep valleys in the Satpura mountains — Davidson, 1882, SF 10: 291). But this as well as the record of its breeding there open to doubt because of ecological incompatibility and in the absence of supporting specimens. Affects arid semi-desert, and stony foothills country, up to *c.* 1800 m. alt.

Extralimital. Palestine, Syria, Iraq, Turkestan from south of the Aral Sea to eastern Persia (Peters).

GENERAL HABITS. Largely nocturnal; hiding in tree-holes or dense foliage during daytime, standing bolt upright close to the trunk, with plumage sleeked and eyes half closed, perfectly camouflaged by the background. Rarely seen by day except perhaps when accidentally blundering into and

Otus brucei

stranded within a dwelling house as is not infrequent. Is often abroad and feeding before dusk, flying as fast as a bat and taking insects on the wing (Ticehurst). In Baluchistan 'often seen sitting in a pistacio tree or on a ledge of rock by day and hunting; only flying a short way when disturbed' (A. F. P. Christison).

FOOD. Beetles, moths, mole-cricket and other insects; small birds like house sparrows; probably mice and lizards.

VOICE and CALLS. Noisy during the breeding season. 'A short monotonous boo-boo resembling that of a stock dove, quite different from that of *Otus s. pulchellus*' [615, q.v.] (Ticehurst, JBNHS 28: 417). But another observer (Meinertzhagen) says 'The call is identical with that of *Otus s. scops* [doubtfully different from *pulchellus*] in spite of many assertions to the contrary. There is considerable variation in the vocal sounds of all owls, and *Scops* is no exception' (1954, *Birds of Arabia*: 316)! Has another note, a sort of wheezing squeak like the noise produced when pumping a motor tyre; also a sharp clicking of the mandibles (or from inside mouth?) when annoyed.

BREEDING. *Season*, in Baluchistan chiefly April and May. *Nest*, a hole in a tree-trunk or date palm at moderate height. Only a single authentic record of breeding within our limits, near Quetta, Baluchistan (Williams, 1929, JBNHS 33: 608)—16 April. The nest was in a hole in a 'Sticky Plum' tree; it contained 1 egg, while a second was obtained from the female's oviduct when shot. Average size of 40 eggs from Persia 31.1×27.3 mm. (Baker). Clutch size, share of the sexes, and incubation period, unrecorded. 'Young ones' found in the hills east of Nushki (Chagai, Baluchistan) where the species is fairly common (A. F. P. Christison, 1941, *Ibis*: 546).

MUSEUM DIAGNOSIS. Spots on scapulars buff; tarsus fully feathered.

General aspect of plumage pale grey streaked with black, more boldly above; hardly ever with any rufous tint as almost always the case in *O. scops scops* and *O. s. pulchellus*. For details see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	150-161	17-18	c. 34	78-82 mm.
		(from feathers)		(Baker)

Weight 1 ♂? (December) 110 gm. — BNHS.

COLOURS OF BARE PARTS. Iris bright yellow. Bill horny yellow; culmen and tip darker, lower mandible paler. Feet grey; claws dark horny; soles paler.

OTUS SCOPS (Linnaeus)

Key to the Subspecies*

		Page
A	Third primary (as.) longest; first primary equal to sixth, or between fifth and sixth or sixth and seventh.....	<i>O. s. pulchellus</i> 261
B	Fourth primary longest or subequal to third; first primary between eighth and ninth.....	<i>O. s. modestus</i> 265
C	Fourth primary longest; first primary sometimes equal to sixth but usually between sixth and seventh or seventh and eighth.....	1
1	Upperparts dark.....	<i>O. s. sunia</i> 262
	Upperparts darker.....	<i>O. s. rufipennis</i> 263
	Upperparts darkest.....	<i>O. s. leggei</i> 264
* Modified from Delacour, 1941, <i>Zoologica</i> : 135-40. Cf. Ticehurst, C. B., 1923, <i>Ibis</i> : 241-2.		

615. **Eastern Scops Owl.** *Otus scops pulchellus* (Pallas)

Stryx pulchella Pallas, 1801, Reise Russ. Reichs 1: 456 ('Copiosius in australioribus ad Volgam, Samaram. Iaicum')

Baker, FBI No. 1677, Vol. 4: 433

LOCAL NAMES. None recorded.

SIZE. Myna — ; length c. 19 cm. (7½ in.).

FIELD CHARACTERS. A small slim owl, delicately vermiculated greyish brown, with feathered legs and ear-tufts, more conspicuous when erected. Sexes alike. See Keys to the species and subspecies, and Museum Diagnosis.

Individuals of the different forms difficult to identify except in the hand, and even then not always with confidence. Many have dark and light phases (rufous and grey) which tend to add to the uncertainty. Calls also somewhat variable, and in many cases identical; thus not completely dependable as pointers.

STATUS, DISTRIBUTION and HABITAT. Possibly only a winter straggler to Sind (Karachi, Hyderabad). Summer visitor (or resident ?) in some numbers in northern Baluchistan (Loralai — March); breeding for certain in the juniper forest at Ziarat (c. 2500 m.), and doubtless elsewhere (Ticehurst, JBNHS 34: 474).

Vagrants have twice been taken in Bombay City, in September (1891) and October (1925), the latter perched on a hat-peg within a living room! (SA & HA, JBNHS 40: 368).

Extralimital. 'Breeds in Russia east of long. 35°E. and lat. 56°N.; Caucasus; SW. Asia north to the upper Irtysh, east to Krasnoyarsk and south to the Kirghiz Steppe, Ferghana, Tarbagatai and the Altai. Winters in the upper Nile Valleys . . .' (Peters).

GENERAL HABITS. As common to all scops owls, e.g. 614. Entirely nocturnal, retiring during daytime into hollows in tree-trunks and thickly foliated branches, standing upright and attenuated with sleeked plumage and half-shut eyes. Emerges at dusk when almost dark and withdraws into seclusion again in the twilight of dawn. Thus seldom seen, and its habits remain largely unknown. In Europe (nominate race) has been observed bringing an ortolan bunting to nest young in sunny midday (Desfayes, *in epist.*). Calls intermittently throughout the night.

FOOD. Beetles, grasshoppers, and other insects; also mice, small birds, lizards, etc.

VOICE and CALLS. See under 614. Another observer (Cheeseman, Iraq) says the call resembles 'the tinkling of a small brass bell and, as the birds seldom have exactly the same note, the combined effect of several is like an erratic peal of small bells'.

BREEDING. No details from Baluchistan. Elsewhere *season* April to June. *Nest*, holes in trees, old walls and buildings, etc. *Eggs*, 3 to 6 white, roundish ovals. Average size of 44 eggs 31·32 × 27·02 mm. (Jourdain *in* Baker, FBI).

MUSEUM DIAGNOSIS. Alleged to average a trifle larger and to be more deeply coloured than nominate *scops* of Europe and W. Asia, but is in fact doubtfully distinguishable from it. For description of plumages and structure (also bionomics) of *O. s. scops* see Witherby, 1938, 2: 335-8.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	150-158	16-17	c. 26	66-71 mm. (Baker)

COLOURS OF BARE PARTS. Iris pale to deep golden yellow. Bill dusky greenish yellow, darker on culmen and tip. Feet pale fleshy or fleshy grey.

616. North Indian Scops Owl. *Otus scops sunia* (Hodgson)

Scops sunia Hodgson, 1836, *Asiat. Res.* 19: 175 (Nepal)

Otus sunia khasiensis Koelz, 1954, *Contrib. Inst. Regional Exploration*, No. 1: 27
(Mawphlang, Khasi Hills)

Baker, FBI No. 1680, Vol. 4: 435

Plate 43, fig. 4, facing p. 304

LOCAL NAMES. *Choghād kūsiāl*, *Sūnyā kūsiāl* (Nepal); *Dundul* (Himachal Pradesh).

SIZE. Myna —; length c. 19 cm. (7½ in.).

FIELD CHARACTERS. A small, slim, 'eared' owl, very like 615 but browner; highly variable with dark, rufous, and greyish phases. Sexes alike. Sight records not reliable. See Keys and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. The lower Himalayas from the Afghan frontier in West Pakistan eastward through Chitral, Kashmir, Himachal Pradesh, Garhwal, Kumaon, Nepal, Sikkim, Bhutan and NEFA

(?), chiefly the submontane tracts; locally up to *c.* 1500 m. The Gangetic Plain south to Madhya Pradesh and Orissa (to *c.* 19°N.), east to Assam north and south of Brahmaputra river; Nagaland (?), Manipur, East Pakistan. Affects forest (deciduous and evergreen), orchards, groves of densely foliated trees around cultivation, etc.

GENERAL HABITS and FOOD. As in 614 and 615, qq.v.

VOICE and CALLS. A monotonous 3-noted 'song' variously described as *kūrook-took*, *wūkh-tuk-tah*, and *wūk-chug-chug* somewhat resembling a barbet's call, repeated at short intervals endlessly 'in a very regular and rhythmic manner, like the swinging of a giant pendulum or the working of a pump engine' and audible several hundred metres away (Osmaston, Whistler). 'Sings' after dark, all through the night; noisier in the breeding season.

BREEDING. *Season*, *c.* mid February to April-May. *Nest*, a hollow in a tree-trunk or hole in a ruined wall, at moderate heights. *Eggs*, 3 or 4 (occasionally 5?), white, smooth-textured, roundish ovals. Average size of 10 eggs 32.8 × 27.0 mm. (Baker). Share of the sexes in the reproductive chores, and incubation period, unknown.

'During the breeding season both sexes fly quickly into the air off some elevated perch and then fly round in circles with wings stiffly extended, both birds being sometimes in the air together, squawking softly in a note I have heard at no other time' (Baker).

MUSEUM DIAGNOSIS. Very similar to *O. s. pulchellus* (615) but browner and with a different wing formula: 1st primary (as.) equal to 8th or between 7th and 8th. *Above*, more finely vermiculated with fewer central streaks; these sometimes absent except on forehead and crown. *Below*, also less streaked and rather more barred. The rufous phase varies from a mere rufescence overall to almost bright cinnamon-bay with no vermiculations on the upperparts and only a few black streaks on forehead and crown. For details of the rufous plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	137-154	16-17	25-26	61-71 mm. (Baker)

Wing ♂ ♀ 132-158 mm. (Ticehurst).

Weight 1 ♂ 79 gm. (SDR).

COLOURS OF BARE PARTS. Iris pale yellow, golden yellow, or dark brown (age?). Bill horny green or horny yellow, tipped blackish. Feet dingy yellowish flesh or fleshy grey.

617. **Peninsular Scops Owl.** *Otus scops rufipennis* (Sharpe)

Scops rufipennis Sharpe, 1875, Cat. Bds. Brit. Mus. 2: 60 (Eastern Ghats, Madras)
Baker, FBI No. 1678, Vol. 4: 434

LOCAL NAMES. *Chittā gūbā*, *Yerrā chittā gūbā* (Telugu); *Nāthé* (Malayalam).

SIZE. Myna —; length *c.* 19 cm. (7½ in.).

FIELD CHARACTERS. As for *O. s. sunia* (616). See Keys and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Peninsular India south of the range of *sunia* (616) from northern Maharashtra (Khandesh, *c.* 21°N.),

southeast at least to Madras (northern limit in Andhra Pradesh undetermined), including Mysore and Kerala; chiefly the ghats and associated hill ranges. Affects forest (deciduous and evergreen), and groves of trees around hill cultivation and settlements etc.

GENERAL HABITS, FOOD. As in *O. s. sunia* (616), q.v.

VOICE and CALLS. Not specifically described; presumably the same as *sunia*'s, with which also the call of the Ceylon race *leggei* is identical.

BREEDING. Not recorded.

MUSEUM DIAGNOSIS. Differs from *O. s. sunia* in being smaller, and with a different wing formula: 1st primary equal to or longer than 5th. Coloration very variable; cannot be separated on this character from *sunia*, and like it also has a cinnamon-bay phase.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	122-135	17-18	25-26	52-62 mm. (Baker)

Wing ♂ ♀ (123, 124) 129-135 mm. (Ticehurst).

COLOURS OF BARE PARTS. As in 616.

618. **Ceylon Scops Owl.** *Otus scops leggei* Ticehurst

Otus sunia leggei Ticehurst, 1923, Ibis: 242 (Ceylon). New name for

Scops minutus Legge, preoccupied

Baker, FBI No. 1679, Vol. 4: 434

LOCAL NAMES. *Pūnchi bassā* (Sinhala); *Sinna āndai*, *Nāthé* (Tamil).

SIZE. Myna —; length c. 18 cm. (7 in.).

FIELD CHARACTERS. As for *O. s. sunia* (616), q.v. See Keys and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Race peculiar to Ceylon. Scattered, in small numbers, throughout the lowlands and lower hills to c. 1350 m.; more plentiful in the jungle districts of the Eastern Province than elsewhere (Phillips).

GENERAL HABITS. Little known; chiefly as in *O. s. sunia* (616) q.v. 'It is strictly a forest bird, spending the day roosting in some dense tangle of creepers, dark foliage, etc. If alarmed by the approach of an intruder it erects its ear-tufts, contracts its plumage until it assumes the semblance of a snag of wood, and watches the enemy through nearly closed eyes; in this pose it is almost indistinguishable as an animate object' (Henry).

FOOD. Mainly beetles and other insects.

VOICE and CALLS. 'A loud monotonously repeated *tūk*, *tok torok* . . . *tūk*, *tok torok*, etc. [*Wook*, *took-toorroo* . . . *wook*, *took-toorroo*, etc. — Phillips] (the first syllable *tūk* being much less loud than the others) which continues for long periods at night' (Henry). The call is in fact identical with that of both *sunia* and *rufipennis*.

BREEDING. Season March-April. No other details recorded; presumably not different from Indian birds.

MUSEUM DIAGNOSIS. Wing formula as in *rufipennis*. The smallest and darkest of the Indian forms; like them it also has a cinnamon-bay phase.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	119-127	17-18	20-21	49-54 mm. (Baker)

Wing ♂ ♀ 118-127 mm. (Ticehurst).

COLOURS OF BARE PARTS. As in 616 and the other races.

618a. **Andaman Scops Owl.** *Otus scops modestus* (Walden)

Scops modestus Walden, 1874, Ann. & Mag. Nat. Hist. (4), 13: 123

(Port Blair, South Andaman Island)

Baker, FBI No. 1681, Vol. 4: 437

LOCAL NAMES. None recorded.

SIZE. Myna —; length *c.* 18 cm. (7 in.).

FIELD CHARACTERS. As for *O. s. sunia* (616), q.v. See Keys and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Very little known. Apart from the type there is one other specimen (in the U.S. National Museum) and 5 in American Mus. of Nat. Hist., New York all collected at Port Blair in the Andamans, May, September, December. 'Doubtfully distinct from *O. s. malayanus* [of Malay Peninsula]'—Peters. More specimens are needed to settle the status of the Andaman population.

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing specifically recorded.

BREEDING. Not described.

MUSEUM DIAGNOSIS. Differs from other races in having the 4th primary (as.) longest or subequal to 3rd; first primary between 8th and 9th. *Above*, cinnamon-brown, only faintly spotted and vermiculated. Scapulars with pure white markings on outer edges. *Below*, throat and chest greyer than in other races. Belly with considerable white, closest to *sunia* in this respect. Tarsus feathered for three-quarters its length.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
1 ♂	143	—	—	— mm.
4 ♀ ♀	140-142	16 (1)	22 (1)	62 (1) mm. (SDR)

COLOURS OF BARE PARTS. As in 616 and the other races.

618b. **Nicobar Scops Owl.** *Otus scops nicobaricus* (Hume)

See Appendix p. 321

OTUS BAKKAMOENA Pennant

The species differs from *Otus scops* in wing formula: 1st primary (as.) much shorter than 8th and about equal to shortest secondary; 2nd primary between 6th and 7th or 7th and 8th; 4th or 5th primary longest. Also in the possession of a distinct pale collar on hindneck.

Cf. Ticehurst, C.B., 1923, *Ibis*: 238-40.

Key to the Subspecies

		Page
A	Smaller; wing 162 mm. or under.....	1
B	Larger; wing 162 mm. or over.....	2
1	Darkest; wing 135 to 152 mm..... <i>O. b. bakkamoena</i>	269
	Intermediate in colour; wing 152 to 162 mm..... <i>O. b. marathae</i>	268
	Palest; wing 153 to 162, rarely up to 167 mm..... <i>O. b. gangeticus</i>	268
2	Toes feathered to the subterminal phalanx..... <i>O. b. plumipes</i>	266
	Toes not feathered.....a	
a	Very pale; wing 165 to 175 mm. <i>O. b. deserticolor</i>	267
	Dark; wing 162 to 182 mm..... <i>O. b. lettia</i>	270

619. Punjab Collared Scops Owl. *Otus bakkamoena plumipes* (Hume)

Ephialtes plumipes Hume, 1870, *Ibis*, ser. 2, 6 (July): 439 (India = Murree, Punjab)
Baker, FBI No. 1669, Vol. 4: 425

LOCAL NAME. *Tharkavi choghād* (Hindi).

SIZE. Myna $\pm$; length c. 23-25 cm. (9-10 in.).

FIELD CHARACTERS. A delightful little 'horned' or 'eared' owl, very similar to Scops; differentiated from it chiefly by presence of a prominent pale collar at base of hindneck (upper back). Sexes alike.

Adult. *Above*, grey-brown or rufous-brown, mottled and vermiculated with whitish. *Below*, chin and throat white or buff, the latter barred and stippled with black. Rest of underparts white to rich buff streaked with black, and with fine wavy bars of reddish brown.

STATUS, DISTRIBUTION and HABITAT. Resident. Western Himalayas between c. 900 metres (perhaps lower) and at least 2200 m. alt., from Murree eastward through Jammu and Kashmir (?), Himachal Pradesh, Garhwal, and Kumaon. Affects forest — sal, oak, pine, and deodar — and well-wooded country in the neighbourhood of hill cultivation.

GENERAL HABITS. Nocturnal; seldom seen by day, its presence in a locality being detected only by its distinctive calls at night. Spends the daytime lurking in some dark corner in a densely foliated branch standing upright and motionless, effectively disguised as a snag.

FOOD. Beetles, grasshoppers, and other insects, lizards, mice, and small birds.

VOICE and CALLS. A single mellow interrogative note *wūt?* jerked out unhurriedly and monotonously every three seconds or so, commencing at dark and continuing intermittently throughout the night, in runs of 10 to 15 minutes' duration or longer. The calling is resumed after a short break from a changed position in a different tree suggesting that the bird may be hunting for food in the interval. It is to be heard all through the year.

BREEDING. *Season*, chiefly April-May. *Nest*, a tree-hollow at moderate height. *Eggs*, 3 to 5, white, roundish, smooth-textured, as typical of owls. Hume's measurements for his eggs average $c. 32.2 \times 28.0$ mm.; average size of 12 eggs from the Punjab Himalayas (Murree) and Kumaon (Simla and Naini Tal) 28.4×23.7 mm. (Baker).

MUSEUM DIAGNOSIS. For wing formula see under the Species (above). The only Indian race with feathering on toes extending to the subterminal phalanx. As large as the eastern *lettia* (624), but slightly darker brown and less rufescent above — though rather variable in this.

MEASUREMENTS

♂ ♀ Wing 162–182 mm. (47 measured) — Ticehurst. Bill (from feathers) 22–24 mm. — Baker.

COLOURS OF BARE PARTS. As in the nominate and other Indian races.

620. **West Pakistan Collared Scops Owl.** *Otus bakkamoena deserticolor* Ticehurst

Otus bakkamoena deserticolor Ticehurst, 1922, Bull. Brit. Orn. Cl. 42: 57

(Hyderabad, Hyderabad dist., Sind Province, India)

Baker, FBI No. 1670, Vol. 4: 426

LOCAL NAMES. None recorded.

SIZE. Myna $\pm$; length $c. 23$ – 25 cm. (9–10 in.).

FIELD CHARACTERS. As of 619, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; not uncommon. West Pakistan (Baluchistan and Sind). This is possibly also the form that occurs in N. Gujarat. Affects forest and the better wooded parts. Partial to tops of trees in gardens, e.g. of Inspection Bungalows, and on canal banks and roadsides.

Extralimital. There are specimens in the Bombay Natural History Society's collection labelled Bushire (Persian Gulf) and Muscat (southern Arabia). No other information.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 619, q.v. Seldom seen in daytime when it hides up in thickly foliated trees; its presence only betrayed at night by its distinctive soft monosyllabic *wūt . . . wūt* call.

BREEDING. *Season*, March–April. *Nest* (tree-hole) and *eggs* (3 or 4 white, spherical) as in 619. Size of eggs $c. 33 \times 27$ mm.

MUSEUM DIAGNOSIS. For wing formula see under the Species (above). A very pale race; ground colour pale grey-brown; underparts almost white, with practically no rufescent tinge; yellow-buff on the collar and scapulars very pale. Tarsus feathered only to base of toes.

MEASUREMENTS

♂ ♀ Wing 165–175 mm. (Ticehurst). Bill (from feathers) 20–22 mm. (Baker).

COLOURS OF BARE PARTS. As in the nominate and other Indian races.

621. Gangetic Collared Scops Owl. *Otus bakkamoena gangeticus*
Ticehurst

Otus bakkamoena gangeticus Ticehurst, 1922, Bull. Brit. Orn. Cl. 42: 122
(Fatehgarh, U.P.)

Otus bakkamoena stewarti Koelz, 1939, Proc. Biol. Soc. Washington 52: 80
(Bajinath Kangra, Punjab)
Baker, FBI No. 1668, Vol. 4: 425

LOCAL NAME. *Tharkavi choghād* (Hindi).

SIZE. Myna $\pm$; length *c.* 23–25 cm. (9–10 in.).

FIELD CHARACTERS. As of 619, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Mt Abu and eastern Rajasthan through Uttar Pradesh, approximately to Allahabad. Eastern Nepal terai (Fleming, JBNHS 65: 328) and possibly N. Bihar. Precise limits undefinable. Affects wooded country, mango orchards, and gardens with densely foliated trees.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 619, 620, qq.v.

BREEDING. *Season*, March and April with perhaps an extra week or two at either end. *Nest*, a hole or hollow in a tree-trunk in mango orchards or groves around villages. *Eggs*, normally 3 or 4, occasionally 5, white, spherical, as in the other races. Average size of 50 eggs 33.1×28.1 mm. (Baker).

MUSEUM DIAGNOSIS. Wing formula as in the Key to the Species, q.v. Tarsus feathered only to base of toes. General coloration paler and more yellowish grey than in Madhya Pradesh birds (*marathae*) but this readily seen only in series; single specimens and borderline cases often impossible to place.

MEASUREMENTS

♂ ♀ Wing 153–167, mostly 155–162 mm. (19 measured) — Ticehurst.

Bill (from feathers) 19–21 mm. — Baker.

Weight 1 ♂ ? 121 gm. (SA).

COLOURS OF BARE PARTS. As in the other races.

622. Central Indian Collared Scops Owl. *Otus bakkamoena marathae*
Ticehurst

Otus bakkamoena marathae Ticehurst, 1922, Bull. Brit. Orn. Cl. 42: 122
(Raipur, Central Provinces)

Baker, FBI No. 1667, Vol. 4: 424

LOCAL NAME. *Tharkavi choghād* (Hindi).

SIZE. Myna $\pm$; length *c.* 23–25 cm. (9–10 in.).

FIELD CHARACTERS. As of 619, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Approximately between lat. 20° and 24°N. from the Surat Dangs (Gujarat) eastward through Khandesh (Maharashtra) and Madhya Pradesh to Orissa and southern W. Bengal; precise limits not worked out. Affects forest, and groves of densely foliated trees in gardens, and about villages and cultivation.

GENERAL HABITS, FOOD, VOICE and CALLS. As in the other races, qq.v.

BREEDING. *Season*, January to April. *Nest* and *eggs* as in 619, 620, qq.v.

MUSEUM DIAGNOSIS. Wing formula as in the Key (p. 255). General coloration as in *plumipes*, and in a series darker than *gangeticus*. Size larger than nominate

bakkamoena (623), smaller than *lettia* (624). Tarsus feathered only to base of toes as in 623.

MEASUREMENTS

♂ ♀ Wing 152–162, once 165, mm. (41 measured) — Ticehurst.

COLOURS OF BARE PARTS. As in the other races.

623. Ceylon Collared Scops Owl. *Otus bakkamoena bakkamoena* Pennant

Otus bakkamoena Pennant, 1769, Ind. Zool.: 3, pl. 3 (Ceylon)

Baker, FBI No. 1666, Vol. 4: 422

Vol. 1, plate 17

LOCAL NAMES. *Pedda chittā gūbā* (Telugu); *Pūnchi bassā* (Sinhala); *Sinnā āndāi*, *Nāthé* (Tamil, Malayalam).

SIZE. Myna $\pm$; length *c.* 23–25 cm. (9–10 in.).

FIELD CHARACTERS. As of 619, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; widespread but local. Peninsular India south of the range of *marathae* (i.e. from *c.* 20°N. lat.)—Maharashtra, Madhya Pradesh, Andhra, Tamil Nadu, Mysore, and Kerala; also Ceylon (all zones). Plains and hills to at least 1200 m. altitude. Affects deciduous and semi-evergreen forest, and well-wooded country; partial to groves and orchards around villages and cultivation.

GENERAL HABITS, FOOD. As in 619, q.v.

VOICE and CALLS. In addition to the regularly spaced interrogative *wūt . . . wūt* (or *what? . . . what?*) calls (q.v. 619), has an occasional series of slowly repeated *ack, ack, ack*, etc. in ascending scale strung out for five seconds or so; usually interposed between the normal notes but sometimes heard independently. This peculiar bubbling or chattering is common to the other races as well.



$\times c. \frac{1}{2}$

BREEDING. Season in peninsular India principally January and February; in Ceylon March and April; occasionally July (Phillips). Nest, as in 619 and other races, an unlined hole or hollow in a tree-trunk or bough *c.* 2 to 7 metres up, in Kerala and Ceylon frequently on the edge of tea and rubber plantations. Exceptional nesting in roofs of houses and holes in walls recorded in Kerala. Eggs, 3 to 5, white,

smooth-textured, almost spherical. Average size of 27 eggs 31.8×27.0 mm. (Baker). Share of the sexes in incubation and other domestic chores, and period of incubation, unrecorded.

MUSEUM DIAGNOSIS. Wing formula as for the Species: 1st primary (as.) much shorter than 8th; 4th or 5th primary longest. The smallest and darkest of the Indian races. Warmer, darker brown and yellower than *marathae* (622). Has also a rufous grey phase in both adults and young. Tarsus feathered only to base of toes.

Young (immature). Pale grey or pale to warm fulvous narrowly barred all over with dusky brown bars, these covering even face and chin (Baker).

MEASUREMENTS

♂ ♀ Wing 135–152, once 154, mm. (38 measured) — Ticehurst.

Bill (from feathers) *c.* 20–22; tarsus 30–32; tail 64–67 mm. (Baker).

COLOURS OF BARE PARTS. Iris yellow, golden yellow, hazel or brown (age?). Bill greenish horny brown, paler on lower mandible darker at tip; cere dusky green; mouth pink. Feet brownish flesh to greenish yellow; claws pale horny brown.

624. Burmese Collared Scops Owl. *Otus bakkamoena lettia* (Hodgson)

Scops lettia Hodgson, 1836, *Asiat. Res.* 19: 176 (Nepal)

Otus bakkamoena manipurensis Roonwal & Nath, 1949, *Rec. Ind. Mus.* 46: 162
(6 miles north of Imphal, Manipur)

Otus bakkamoena alboniger Koelz, 1952, *Jour. Zool. Soc. India* 4: 45
(Hmuntha, Lushai Hills)

Baker, FBI No. 1671, Vol. 4: 427

LOCAL NAME. *Lättyā kūsyāl* (Nepal).

SIZE. Myna $\pm$; length *c.* 23–25 cm. (9–10 in.).

FIELD CHARACTERS. As of 619, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident, Eastern Himalayas from Nepal through Sikkim, Bhutan, and NEFA. Assam north and south of Brahmaputra river, Nagaland, Manipur, Mizo, and East Pakistan; from the plains and submontane tracts to *c.* 2400 metres. Affects forest — sal, oak, pine, deodar, etc. — around hill cultivation; also groves of trees and bamboos about habitations.

Extralimital. All Burma, northern Thailand.

GENERAL HABITS, FOOD. As in 619 and other races, qq.v.

VOICE and CALLS. In addition to the calls as under 619 and 623, SA records a short mellow single hoot, quite different from the normal *what?* or *wut?* and repeated at much longer intervals (15 to 20 seconds). A bird uttering this call when shot at 2.30 a.m. had its stomach crammed with a freshly ingested field mouse.

BREEDING. *Season*, February to April. *Nest*, a natural hollow or woodpecker hole in a tree-trunk or dead stump *c.* 2 to 5 metres up. *Eggs*, 3 or 4, rarely 5, white, roundish ovals as in the other races. Average size of 34 eggs 32.3 × 28.1 mm. (Baker). On circumstantial evidence both sexes share in incubation, but this needs proving. Period of incubation and other points of breeding biology unrecorded.

MUSEUM DIAGNOSIS. Wing formula as in the Species. Tarsus feathered only to base of toes. Larger than any of the Indian races except *plumipes* (619). Coloration as in nominate *bakkamoena* (623).

MEASUREMENTS

♂ ♀ Wing 162–182 mm. (40 measured) — Ticehurst.

Specimens recently collected in Nepal give:

	Wing	Bill	Tail
5 ♂♂	158–168	24–25	75–85 mm.
4 ♀♀	159–180	24–25	83–89 mm.
		(from skull)	(BB)

Weight 1 ♀ 170 gm. (BB).

COLOURS OF BARE PARTS. Iris yellowish brown. Bill greenish horn, paler at base, blacker near tip; lower mandible pale dusky yellow. Feet and claws fleshy grey to dusky olive; pads yellowish white.

Genus *BUBO* Dumeril

Bubo Dumeril, 1806, Zool. Analytique: 34. Type, by tautonymy, *Strix bubo* Linnaeus.

Ketupa Lesson, 1830, Traité d'Orn., livr. 2: 114. Type, by tautonymy, *Ketupa javanensis* Lesson = *Strix ketupu* Horsfield.

Huhua Hodgson, 1836, Asiat. Res. 19: 171-4. Type, by original designation, *Bubo nipalensis* Hodgson.

Includes Horned Owls, Eagle-Owls; and Fish Owls, large powerful birds with long, pointed 'horns' or ear-tufts (aigrettes). Ear orifice not exceeding eye in size; no operculum. Facial disc generally ill defined and never extending as far above eye as below it; ruff nearly or quite obsolete.

Key to the Species

	Page
A Tarsus feathered throughout.....	1
B Tarsus partly or wholly naked.....	2
1 First quill longer than seventh; iris yellow.....	a
First quill shorter than seventh; iris brown.....	<i>B. nipalensis</i> 276
a General colour buff and blackish brown.....	<i>B. bubo</i> 271
General colour greyish brown.....	<i>B. coromandus</i> 278
2 Tarsus naked behind and only feathered about one-third down in front.....	<i>B. zeylonensis</i> 280
Tarsus feathered about one-third behind and more than half-way down in front.....	<i>B. flavipes</i> 283

BUBO BUBO (Linnaeus)

Cf. Vaurie, C., 1963, American Mus. Novitates, No. 2132: 1-10.

Key to the Subspecies

A Darkest and most richly coloured; wing 370-433 mm...	<i>B. b. bengalensis</i> 273
B Darker and more brown; wing 420-465 mm.....	<i>B. b. tibetanus</i> 272
C Paler and more grey; wing 435-513 mm.....	<i>B. b. turcomanus</i> 271
D Palest but with brown streaks sharper on the hind crown and nape; wing 433-508 mm.....	<i>B. b. hemachalana</i> 273

625. **Turkestan Horned or Eagle-Owl.** *Bubo bubo turcomanus* (Eversmann)

Strix turcomana Eversmann, 1835, Addenda Pallas Zoogr. Rosso-Asiat., fasc. 1: 3
(Ust Urt Plateau, western Kazakhstan)

Baker, FBI No. 1658, Vol. 4: 413

LOCAL NAMES. *Boom* (Baluchistan); *Oōg-pa* (Ladakh).

SIZE. Pariah Kite +; stouter. Length *c.* 66 cm. (26 in.).

FIELD CHARACTERS. As of 627, q.v. A large brown owl, streaked and mottled tawny buff and black, with two prominent upstanding black 'horns' or ear-tufts above the head. Sexes alike. See Museum Diagnosis.

General aspect in flight a stout yellowish tawny owl, heavily spotted and streaked with blackish, with broad rounded wings.

STATUS, DISTRIBUTION and HABITAT. Resident; sparsely scattered over extensive tracts of high mountain country chiefly between c. 1800 and 4500 metres: Gilgit, Chitral, Ladakh,¹ Kashmir. Affects open plateaux, steep mountainsides, bare rocky cliffs, and old ruined forts, etc.

Extralimal. 'Kazakhstan from the region between the lower Volga and the lower Ural rivers east across the southern Kirghiz Steppes to the regions of Semipalatinsk and Lake Balkhash, and south to Transcaspia and the basin of the Chu river . . .' (Vaurie, loc. cit.).

GENERAL HABITS. As in 627, q.v. but keeps to bare rocky hillsides.

FOOD. Largely rodents and game birds; hare (*Lepus*) and mouse-hare (*Ochotona*) among the former, and Snow Partridge (*Lerwa lerwa*), Ruddy Shelduck (*Tadorna ferruginea*) adults and ducklings, and Rock Pigeons (*Columba*) among the latter have been identified. Remains of fish (one of c. 1 + kg.) recorded from a nest with young.

VOICE and CALLS. Evidently as in 627.

BREEDING. Little recorded. Meinertzhagen found two nests (apparently disused ones of some diurnal raptor) in Ladakh¹ (Chimre c. 3600 m. and Shushal c. 4300 m. in May and June). Nest in both cases a pad of twigs c. 1 m. in diameter lined with smaller twigs, hare-fur and feathers (possibly left-overs from meals) and fine roots; one placed in a rock fissure, the other on a shelf with an overhanging ledge. Eggs, apparently only 2. Measurements not given, but the six large ones averaging 60.1×47.3 mm. taken by Osmaston in Kashmir (see under 627) presumably belong to this race.

MUSEUM DIAGNOSIS. A pale subspecies 'resembling *hemachalana* (626a) in general coloration, but duller, less variegated; and not so distinctly patterned'. Toes completely feathered, the feathers overhanging and concealing base of claws, *contra bengalensis* where last joint of toes naked.

MEASUREMENTS

Wing 12 ♂♂ 440–470 (av. 449.7); 21 ♀♀ 445–512 (482.4) mm. (Vaurie). Bill (from feathers) 45–47; tarsus 77–81; tail 260–310 mm. (Baker).

COLOURS OF BARE PARTS. Iris golden yellow. Bill greenish black, slaty black to black. Toes dull greenish; claws greenish slate, darker at tips (Baker).

626. **Tibetan Horned or Eagle-Owl.** *Bubo bubo tibetanus* Bianchi

Bubo bubo tibetanus Bianchi, 1906, Bull. Brit. Orn. Cl. 16: 69

(Upper Yangtse River in southeastern Tibet)

Baker, FBI No. 1659, Vol. 4: 414

LOCAL NAMES. None recorded.

SIZE. Pariah Kite +; stouter. Length c. 66 cm. (26 in.).

FIELD CHARACTERS. As of 627, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Range within our limits hypothetical. According to Vaurie (1965: 587) 'probably also inhabits the eastern

¹ See footnote, p. 273.

Himalayas at high altitudes'. Thus *may* occur in northern Sikkim, and perhaps also N. Bhutan and NEFA, but no evidence of this as yet.¹

Extralimal. Central and eastern Tibet (regions of Lhasa, Gyantse, and Khamba Dzong) eastward to central Kansu, and south to extreme NW. Yunnan (Vaurie).

GENERAL HABITS, FOOD, VOICE and CALLS, BREEDING. Not recorded in Indian limits; presumably as in 625 and 627, qq.v.

MUSEUM DIAGNOSIS. See Key to the Subspecies; also under 625 and 626a.

MEASUREMENTS

Wing 13 ♂♂ 450–485 (av. 461); 9 ♀♀ 490–505 (498.8) mm. (Vaurie).

COLOURS OF BARE PARTS. As in 625.

626a. Himalayan Horned or Eagle-Owl. *Bubo bubo hemachalana* Hume

B.(ubo) Hemachalana A.O.H. (= Hume), 1873, Stray Feathers 1: 315
(Kulu, 12,000 feet, India)

Not in Baker, FBI

LOCAL NAME. *Boom* (Baluchistan).

SIZE. Pariah Kite +; stouter. Length *c.* 66 cm. (26 in.).

FIELD CHARACTERS. As of 627, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Northern Baluchistan (Kalat, Quetta) NW. Himalayas, Ladakh (see footnote under *tibetanus*), and Himachal Pradesh (Kulu, Lahul)—between *c.* 2000 and 4200 m. altitude. Status and range *vis-à-vis turcomanus* confusing.

Extralimal. Western Tibet (perhaps Badakhshan in eastern Afghanistan), north to the western Kun Lun and the western Tian Shan in Chinese Turkestan (Vaurie).

GENERAL HABITS, FOOD, VOICE and CALLS, BREEDING. See under *turcomanus* (625).

MUSEUM DIAGNOSIS. See Key to the Subspecies.

MEASUREMENTS

Wing 3 ♂♂ 450–472 (av. 462); 7 ♀♀ 470–505 (492.3) mm. (Vaurie).

COLOURS OF BARE PARTS. As in *turcomanus* (625).

627. Indian Great Horned or Eagle-Owl. *Bubo bubo bengalensis* (Franklin)

Otus Bengalensis Franklin, 1831 (1830–31), Proc. Zool. Soc. London: 115

(The Ganges between Calcutta and Benares and in the Vindhyan Hills
between the latter place and Gurra Mundela)

Baker, FBI No. 1660, Vol. 4: 414

Plate 43, fig. 9, facing p. 304

LOCAL NAMES. *Ghūghū* (Hindi); *Gūg* (Sind); *Hūtom pechā* (Bengal); *Ghūbād* (Marathi); *Ghūvād* (Gujarati); *Yerra gudla gūba* (Telugu); *Kombān āndai* (Tamil); *Kombān mūnga* (Malayalam).

¹ Considerable uncertainty prevails in the records of the races of this variable owl along our northern borders due to the paucity of skins in collections and the fact that *tibetanus*, *hemachalana*, and *turcomanus* have been consistently confused. For example Meinertzhagen (*Ibis* 1927: 605) assigned his breeding birds from Ladakh to *turcomanus* (q.v.) whereas Vaurie, with the advantage of access to fuller material in Russian museums, states that all the specimens he has seen from Ladakh are *hemachalana*, into which '*tibetanus* probably grades in W. Tibet' (loc. cit.). The confusion is understandable since the differences between the populations are slight and only perceptible in a *series* which is not readily available to most workers.

SIZE. Pariah Kite $\pm$; stouter. Length *c.* 56 cm. (22 in.).

FIELD CHARACTERS. A large dark brown owl, streaked and mottled with tawny buff and black, with two prominent upstanding blackish 'horns' or ear-tufts (aigrettes) above the head, large round forwardly directed orange eyes, and fully feathered legs. Sexes alike.

'Large size and conspicuous ears make it look, when sitting motionless, more like a large cat than a bird' (Unwin, Kashmir).

On a good view may be distinguished from Brown Fish Owl by feathered *v.* naked legs, and more erect *v.* nearly horizontal 'horns'.

STATUS, DISTRIBUTION and HABITAT. Resident in suitable biotopes throughout the subcontinent from *c.* 1500 m. (rarely *c.* 2400 m.) in the western Himalayas — Punjab (Kohat, Peshawar, Rawalpindi dists.), Kashmir, and eastward at least to west-central Nepal (possibly further east, but not yet recorded from Sikkim, Bhutan or NEFA). Sind, Rajasthan, and across the Gangetic Plain to Assam, Nagaland, Manipur, and East Pakistan; south throughout the Peninsula to Kanyakumari, plains and hills. Not in Ceylon, or Andaman and Nicobar Is. Affects bush-covered rocky hills and wooded country with outscoured ravines, and old mango orchards and groves of ancient trees in the neighbourhood of cultivation and villages; partial to steep earth banks and clay cliffs of dry nullahs and rivers. Not uncommon in eroded semi-desert thorn jungle, but avoids both pure desert tracts and humid evergreen forest.

Extralimital. Arakan (Burma).

GENERAL HABITS. Largely nocturnal, but may frequently be seen perched on a pinnacle of rock or similar exposed situation well before sunset and till long after sunrise. Spends the daytime in the seclusion of a thickly foliated bough or in a fissure of rock, sheltered ledge on a clay-cliff flanking a ravine, or among ruined and deserted buildings. When flushed will fly considerable distances in open sunshine with no apparent discomfort, and has been observed pouncing on a bull frog in broad daylight (Magrath). Flies with slow deliberate flaps interspersed with long bouts of gliding on outstretched wings, usually fairly close to the ground. Refuge by day probably sought largely in order to escape the mobbing and chivvying which it invariably receives from all diurnal birds as soon as it shows itself. Issues forth at sundown heralded by a deep resounding double hoot.

FOOD. Predominantly field rats and mice. In the egg-shaped cast-up pellets freely littered below nests and daytime retreats, rodent fur, bones and skulls are almost invariably the chief component. Thus the bird is of major significance to agricultural economy. Also eats birds (remains of peafowl, partridge, and roller identified in stomach contents), reptiles, frogs, crabs, and large insects.

VOICE and CALLS. A deep, resonant, hollow *bū-bo* (accent on second syllable which much prolonged) repeated at intervals; not particularly loud but with a curious penetrating and far-carrying quality. This call has also been rendered as a deep and solemn *dur-goon* or *to-whoot*. At nest, or when cornered, snaps mandibles loudly, producing a loud *tuck, tuck, tuck* (like the clicking of one's tongue against the palate), and hisses menacingly, fluffing its plumage and spreading out the wings at the sides.

BREEDING. *Season*, overall October/November to May, chiefly February to April, but peak periods vary locally. *Nest*, no structure; eggs laid on the bare soil in a saucer-like scrape, generally on a sheltered ledge of rock or in a recess in a clay-cliff flanking a ravine; sometimes on the ground under a bush or tree. *Eggs*, normally 4, sometimes only 2 or 3: white with a faint creamy tinge, broad roundish ovals, smooth-textured and often with a slight gloss. Average size of 40 eggs from Kashmir 58.1×46.0 mm. [of six 60.1×47.3 mm. (Osmaston)], of 100 from the Peninsula 53.6×43.8 mm. (Baker). Share of the sexes in incubation, and period, unrecorded. The considerable disparity in growth of young in the same brood suggests that eggs are laid at longer than 24-hour intervals and that incubation commences with the first egg. When a nest with chicks is approached the parents frequently resort to diversionary tactics, feigning wing injury 'by turning from side to side with their heads down and flapping their wings like a beheaded chicken, squealing at the same time' (Dharmakumarsinhji).

MUSEUM DIAGNOSIS. Tarsus fully feathered to toes. Feet exceptionally powerful; claws well curved, the inner or 2nd claw longest. Third primary (as.) longest, or 3rd and 4th subequal. Tail moderately long and slightly rounded. For details of plumage see Baker, loc. cit. This is a variable race with paler (more buff) and darker (more rufous) phases and a cline in size — largest in N. India, smaller in the south.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
7 ♂♂	364–390	42–47	69–76	185–195 mm.
3 ♀♀	375–425	44–46	70–75	205–227 mm.
				(SA, HW)

Wing 10 ♂♂ 358–391 (av. 370); 12 ♀♀ 376–403 (av. 387) mm. — Vaurie.

Weight 1 ♂ 1100 gm. (GD).

COLOURS OF BARE PARTS. Iris bright orange-yellow or reddish orange. Bill horny brown; mouth pink. Feet dirty greyish brown; claws horny black.

MISCELLANEOUS. In most parts of India the large owls are considered birds of ill omen, foreboding death to one of the inmates of a house on which one happens to settle at night and call. There is a great deal of folklore connected with these birds, and some fantastic beliefs and superstitions which command wide credulity. Here are two popular recipes:

1. Keep an owl without food for eight days. Thereafter beat it well with a stick when it will begin to talk fluently like a human (language unspecified!) and tell your fortune with infallible accuracy.

2. Keep an owl in a dark chamber; give it no food. Drive a nail in the centre of the room and tie the bird to this by one of its legs. Sit near the bird for an hour every day and chant the prescribed mantra (words not disclosed!). After 40 days put the dead bird in a sack and hang up from the ceiling of the room for a further 21 days. Thereafter separate the bones from the rest and go to the bank of a river where nobody must see you. Pick out the bones one by one and throw them in the water. The bone that swims like a snake, keep that; you will get your heart's desires for evermore!

BUBO NIPALENSIS Hodgson

Key to the Subspecies

A narrow pectoral band of brown with a golden tinge. . . . *B. n. nipalensis*

No pectoral band as above. *B. n. blighi*

628. **Forest Eagle-Owl.** *Bubo nipalensis nipalensis* Hodgson

Bubo nipalensis Hodgson, 1836, *Asiat. Res.* 19: 172 (Nepal)

Huhua pectoralis Jerdon, 1840, *Madras Jour. Lit. Sci.* 10: 89 (Malabar)

Baker, *FBI* No. 1663, Vol. 4: 418

Vol. 1, plates 15 and 17

LOCAL NAMES. *Huhu*, *Huhu cheel* (Nepal); *Migdori* (Bhutea); *Ummān*, *Kattu mūnga* (Malayalam); *Dao bu gao deba* (Cachar).

SIZE. Pariah Kite $\pm$; heavier built; length *c.* 63 cm. (25 in.).

FIELD CHARACTERS. A large, powerful, nocturnal brown owl with two outwardly slanting erect black-and-white 'horns' or ear-tufts above the head, fully feathered legs, and *brown* eyes (*contra* orange in Great Horned).

Adult. *Above*, dark brown scalloped with buff. *Below*, fulvous white, barred with blackish on throat and breast, the bars breaking up into chevron-like spots on abdomen. Sexes alike.

Young (immature) pale buff, whiter on head, barred above and below with dark brown. Tail and wings as in adult: dark brown with fulvous bars.

STATUS, DISTRIBUTION and HABITAT. The submontane tracts and lower Himalayas up to *c.* 2100 m. (normally to *c.* 900–1200 m.) from Kumaon eastward through Nepal, Sikkim, Bhutan, and NEFA (?). Assam hills north and south of Brahmaputra river, Nagaland, Manipur, and East Pakistan. Peninsular India in the Western Ghats and associated hills from about Belgaum (*c.* 16°N. lat.) south through western Mysore and Kerala. Also Shevaroy Hills (southern Eastern Ghats). Affects dense evergreen and moist deciduous forest as in the tropical valleys, terai and duars in the north, and sholas in the southern hills.

Extralimital. North and central Burma. Recorded also from Thailand, Laos and central Vietnam.

GENERAL HABITS. Largely nocturnal, spending the day dozing on some densely foliated bough in deep forest or shola; sometimes on the move and even hunting during daytime. At evening dusk moves up to the edge of clearings or streams in quest of prey, but is essentially a forest dweller and does most of its hunting within the forest. A bold and powerful owl, capable of overpowering such large birds as peafowl and junglefowl, pouncing on them while asleep at their nightly roosts in trees or bamboo clumps.

FOOD. Chiefly game birds like the above, and pheasants. Is reported to kill jackals, hare, and fawns of barking deer; also eats lizards, snakes and fish.

VOICE and CALLS. 'A low, deep and far-sounding moaning hoot' (Jerdon). A long-drawn kite-like whistle, occasionally heard in forest at night, has circumstantially been attributed to this owl; likewise the diabolical blood-curdling shrieks as of a woman being strangled, which have suggested the name 'Devil Bird'. However, the true identity of the Devil Bird remains unproven.

BREEDING. *Season*, in the Himalayas February-March; in Kerala December-January. In N. Cachar Baker took an egg in June. *Nest*, a hollow in an ancient tree, or a deserted stick-nest of an eagle brought into commission. Sometimes the egg is laid on the bare soil in a cave or horizontal fissure in a rock scarp. *Egg*, a singleton, white, roundish oval with a smooth

surface. Average size of 10 eggs 61.2×49.9 mm. (Baker). Share of the sexes in incubation, incubation period, and other facets of breeding biology unknown. Reported to be very fierce and aggressive in defence of its egg or nest-young.

MUSEUM DIAGNOSIS. For details of plumage, see Baker, loc. cit. Wing more rounded than in *Bubo bubo*: 4th and 5th primaries (as.) longest. Differs from that species also in the character of the juvenile plumage which is quite distinct from that of the adult.

Y o u n g (juvenile plumage). *Above*, including lesser and median coverts and tertiaries, white, washed with warm buff except on crown and hind nape; spotted or barred on the head, barred on the hindneck and rump, and crescent-barred with dark brown elsewhere. Face yellowish white. *Below*, white, washed with buff and barred with dark brown. Tail and wings as in adult: dark brown with fulvous bars (Whistler).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	425-470	52-54	c. 60-62	229-250 mm. (Baker)

South Indian birds smaller than Himalayan.

COLOURS OF BARE PARTS. Iris brown or hazel brown. Bill dull wax-yellow to yellow. Toes dusky yellow; claws pale horny, darker at tips.

629. **Ceylon Forest Eagle-Owl.** *Bubo nipalensis blighi* Legge

Bubo blighi Legge, 1878, Bds. Ceylon, pt. 1: 133 (Kandyan district, Ceylon)
Not in Baker, FBI

LOCAL NAMES. *Lokū bakamūnā* (Sinhala); *Periya āndai* (Tamil).

SIZE. Pariah Kite +, heavier built; length c. 63 cm. (25 in.).

FIELD CHARACTERS. As of 628, q.v. A large powerful owl, brown above, brown-barred whitish below, with two long ear-tufts, feathered legs, and brown eyes.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon. Resident; 'Widely scattered, in very small numbers, throughout the larger forest tracts both in the lowlands and in the hills to over 6000 feet [c. 1800 m.]' — Phillips.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 628, q.v. Normal call 'a deep, deep mumble or human-sounding snore' (Phillips).

Identified as probably the authentic Devil Bird. Henry (1955: 197) believes that the dreadful shrieks and strangulating noises are merely its 'mating love-song', which would also account for their rare and periodic occurrence.

BREEDING. *Season*, April-May. *Nest*. The only authentic one described was a collection of debris in the hollow formed by the junction of large boughs, c. 6 metres up, in a big tree by a stream in heavy forest at c. 600 m. alt. (Phillips). It contained a single half-grown young bird on 29 May. *Egg*, undescribed; presumably as in 628.

MUSEUM DIAGNOSIS. Smaller than the Indian race; slightly darker above, and with narrower and fewer bars on the underparts. But the population doubtfully distinct from South Indian.

MEASUREMENTS

	Wing	Bill (from skull)	Tail
3 ♂ ♀ (in B.M.)	370 (damaged) - 412	50.5-55.5	184-215 mm. (HW)

COLOURS OF BARE PARTS. As in 628.

630. Dusky Horned Owl. *Bubo coromandus coromandus* (Latham)

Strix coromanda Latham, 1790, Index Orn. 1: 53 (Coromandel Coast)

Baker, FBI No. 1661, Vol. 4: 416

Plate 43, fig. 8, facing p. 304

LOCAL NAMES. *Gūg* (Sind); *Jāngli ghūghū* (Lucknow, U.P.); *Rādiyo ghūvād* (Gujarat).

SIZE. Pariah Kite $\pm$; heavier built. Length *c.* 58 cm. (23 in.).

FIELD CHARACTERS. A large horned owl, similar to 627 but more grey or sooty-washed rather than tawny, and with paler yellow eyes (*contra* deep orange-yellow). When perched, the horns stand erect close to each other like twin spires. Sexes alike.

Adult. Overall, including ear-tufts, greyish brown finely mottled and vermiculated with whitish, especially on underparts, with dark shaft-stripes to the feathers. A few buff and white spots about the shoulders. Wing- and tail-feathers brown with pale cross-bands and tips.

STATUS, DISTRIBUTION and HABITAT. Resident; widely distributed in well-wooded, well-watered tracts throughout the subcontinent south of the Himalayas: Sind, Rajasthan, Punjab, Uttar Pradesh east through the terai and duars of Nepal, Sikkim (?), and Bhutan (?) to Assam south of Brahmaputra river, Manipur, and East Pakistan. South through the entire Peninsula to Mysore and the Nilgiris; no record further south. Affects old mango topes, and groves and roadside avenues of ancient tamarind and other densely foliated trees, in the neighbourhood of water and habitations — normally in the plains.

GENERAL HABITS. Usually keeps in pairs. Very parochial, pairs often inhabiting the same grove year after year. By no means entirely nocturnal, though usually spends the daytime in the seclusion of some shady bough, issuing forth an hour or so before sunset. Not particularly handicapped by daylight, may frequently be heard calling at all hours of the day, and seen on the move, even hunting, especially in cloudy drizzling weather.

FOOD. Small mammals, birds, reptiles, large insects, and doubtless frogs and fish. Among items identified in stomachs and from remains of food brought for nest-young, are hare, rats, striped squirrels, coots, pond herons, redwattled lapwings, once a shikra, rollers, ring doves, parakeets, house and jungle crows (very popular!). Also water beetles (*Dysticus* sp.). The larger victims are evidently decapitated at site of capture as their heads are never found in the pellets, and only exceptionally (of smaller prey) with the headless bodies in the eyrie.

VOICE and CALLS. A deep, resonant, hollow *WO, Wo, wo, wo-o-o-o-o* reminiscent of a large pingpong ball dropped from a height and allowed to bounce itself to silence, the sounds getting fainter and quicker with each successive bounce. Uttered both day and night, the birds being most noisy during the rainy and cold seasons. A loud snapping *tuck-tuck* of the mandibles when annoyed.

BREEDING. *Season*, overall November to April; principally December-January in N. India; somewhat later in the south. *Nest*, of sticks, in the fork of the trunk or boughs of some large peepul (*Ficus*), kadam (*Stephegyne*), sheesham (*Dalbergia*) or similar tree, preferably standing in or near water, and not infrequently close to habitation. Old nests of kites, vultures, and eagles are often appropriated, sometimes lined with a few green leaves. *Eggs*, normally 2 — sometimes only a singleton — white, roundish oval, typical of owls' eggs. Average size of 40 eggs 59.3×48.2 mm. (Baker). Eggs evidently laid at intervals of several days, thus resulting in great disparity in the size of the two chicks in a nest and in only the larger and stronger one usually reaching maturity. Share of the sexes in incubation, incubation period, and other details of breeding biology unknown.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Chick (in down). When first hatched almost entirely covered with short pure white down. No tracts (Ticehurst).

Fledgeling. 'Overall rufous, with head and neck of a dirty grey colour, the whole plumage having a mealy appearance due to the longer down tips.

'Lores clothed with a mixture of bristles and blackish sheath-encased feathers. Whole head and neck, excepting rufous ear-coverts, clothed with earthy coloured down with darker bases and greyish white tips, the whole having a somewhat barred appearance; this more pronounced on the head where the down is shorter. Whole body covered with creamy rufous down with a few dark shafts, the down of the legs somewhat lighter and ceasing at the toes which are sparsely covered with sprouting feathers tipped with down. The scapulars and wings bear feathers of the same tint, dark shafted, and vermiculated with dark brown. The quills are as yet confined in dark bluish cases, and only visible when the wing is lifted. The tail is merely represented by a tuft of down.

'Iris bright yellow, pupil blue-black. Bill and cere bluish lead. Feet plumbeous, the soles lighter and the claws darker' (Whistler MS.).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	380-415	41-43	65-70	205-210 mm. (Baker)
4 specimens from Gujarat give				
		(from skull)		
2 ♂♂	390-402	42-43	60-61	196-208 mm.
2 ♀♀	403-412	46-49	55-67	198-210 mm.
and a recent breeding ♀ from Rajasthan:				
	435	47	71	224 mm. (SA)

COLOURS OF BARE PARTS. Iris bright yellow. Bill bluish ivory. Toes (unfeathered tips) pale brown; claws blackish brown.

BUBO ZEYLONENSIS (Gmelin)

Key to the Subspecies

Smaller and darker; wing *c.* 355–385 mm. *B. z. zeylonensis*

Larger and paler; wing *c.* 375–445 mm. *B. z. leschenault*

631. **Brown Fish Owl.** *Bubo zeylonensis leschenault* (Temminck)

Strix leschenault Temminck, 1820, Pl. col., livr. 4, pl. 20

(Eastern provinces of India = Chandernagore)

Strix hardwickii Griffith, 1829, Anim. Kingd., Aves, 1: 77, *ex* Gray MS. (Futteghur)

Baker, FBI Nos. 1653, 1654, Vol. 4: 408, 409

Vol. 4, Plate 46

LOCAL NAMES. *Āmrāi kā ghūghū*, *Ūllū* (Hindi); *Bhootoom pechā* (in imitation of its call. Bengal and East Pakistan); *Hoodoo* (Assam); *Māchhimār ghūvād* (Gujarat); *Oomān* (Malayalam).

SIZE. Pariah Kite $\pm$; stouter. Length *c.* 56 cm. (22 in.).

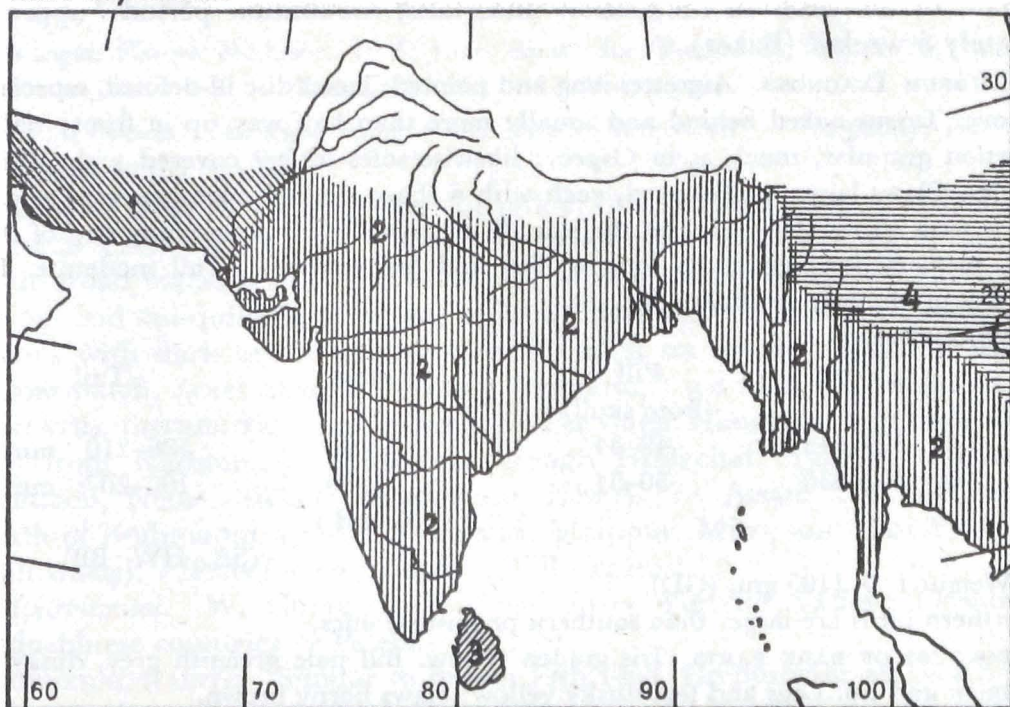
FIELD CHARACTERS. A large rufous-brown 'eared' owl, heavily streaked above with black. *Below*, whitish (pale fulvous) with fine wavy brown cross-bars and bold blackish streaks. A prominent large white patch on throat and foreneck. Eyes bright golden yellow. Legs naked (*contra* Eagle-Owl 627). Sexes alike.

Young (immature). *Above*, more rufescent with narrower and browner shaft-streaks. *Below*, paler and duller, with the shaft-streaks narrower, and merely a trace of the white throat-patch.

'Birds in the second year are duller and paler than birds in their third year' (Baker).

STATUS, DISTRIBUTION and HABITAT. Resident. Submontane Himalayas (terai, bhabar, duns and duars) locally to *c.* 1500 m. alt. including Nepal, Sikkim, and Bhutan; the entire Indian Union and both Pakistans from Punjab (Kohat and Sialkot dists.), Jammu, western U.P., Rajasthan and Sind, eastward through the Gangetic Plain, Bengal, and Assam south of Brahmaputra river, Manipur and Eastern Pakistan (Dacca etc.). South throughout the Peninsula; chiefly plains, but locally up to *c.* 1400 m., e.g. in sholas in the Nilgiri, Palni and other hills. Affects well-wooded well-watered country; partial to old mango topes, roadside and canal avenues and densely foliated trees along forest streams and tanks; commonly near human habitations. Overgrown eroded ravines and steep riverbanks are favourite haunts.

GENERAL HABITS. Similar to the Dusky Horned Owl (630) both in partiality for the neighbourhood of water and its semi-diurnal habits. Keeps in pairs, usually roosting on some sheltered bough in a leafy tree, bamboo clump, or in an overgrown ravine, but frequently seen abroad in daylight and even hunting, especially in cloudy weather. Issues from its diurnal retreat well before sunset, announced by its deep booming calls. The bird takes up a position on a stump overlooking a pool, or on a rock in the middle or on the edge of a stream to keep a look-out for prey, often flying up and down in the quest, at times almost skimming the water. Fish are scooped up from near the surface, not caught by plunging like the Osprey.

Bubo zeylonensis

Distributional range

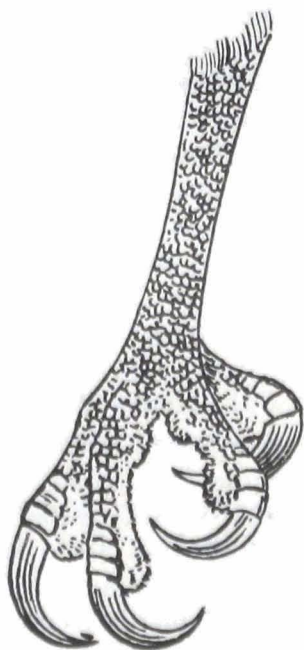
- 1 *B. z. semenowi* (RE). 2 *B. z. leschenault* (631).
3 *B. z. zeylonensis* (632). 4 *B. z. orientalis* (RE).

It is fond of bathing and will waddle into the shallows at the edge, shuffling itself in the normal manner of birds, thereafter drying and carefully preening the plumage.

FOOD. Mainly fish, frogs, and crabs; also rodents, birds and reptiles (once a *Varanus* 28+ cm.). Has been observed feeding on the putrefying carcase of a crocodile.

VOICE and CALLS. A deep, hollow-sounding boom-boom or boom-o-boom with a peculiar reverberating ventriloquistic quality, repeated at intervals. Suddenly 'exploding' in the stillness of the forest, the call has a distinctly eerie effect.

BREEDING. *Season* overall November to March; chiefly January–February in N. India, December to March in the Peninsula. *Nest* a cradle in the fork of the trunk or boughs of an ancient tree such as mango or *Ficus*, on a ledge or in a cleft in a rocky bank, or in an old derelict mausoleum or similar ruin; sometimes lined with a few twigs. Height above ground moderate and variable, but never far from water. Occasionally an old eagle's nest is appropriated. The same site is occupied year after year. Vicinity of nest always littered with cast-up food pellets and remains of its various victims.



$\times c. \frac{1}{2}$

Eggs, 1 or 2, white, roundish, with a smooth surface. Average size of 10 eggs 58.4 $\times$ 48.9 mm. Eggs of northern birds may be slightly larger (Baker).

Share of the sexes in incubation uncertain; incubation period 'approximately 5 weeks' (Baker).

MUSEUM DIAGNOSIS. Aigrettes long and pointed; facial disc ill-defined, especially above. Tarsus naked behind and usually more than half way up in front; naked portion granular, much as in Osprey; likewise soles of feet covered with prickly scales. Claws large, well curved, each with a sharp cutting edge beneath; middle claw with also a sharp keel on the side. Wings rounded, not reaching end of tail: 4th primary (as.) generally longest, 3rd and 5th subequal. Tail moderate. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
6 ♂♂	379-443	49-54	71-90	186-210 mm.
7 ♀♀	392-430	50-54	71-86	190-207 mm.
			(4 msd.)	(SA, HW, BB)

Weight 1 ♀ 1105 gm. (GD).

Northern birds are larger than southern peninsular ones.

COLOURS OF BARE PARTS. Iris golden yellow. Bill pale greenish grey, dusky on culmen and tip. Legs and feet dusky yellow; claws horny brown.

632. **Ceylon Brown Fish Owl.** *Bubo zeylonensis zeylonensis* (Gmelin)

Strix zeylonensis Gmelin, 1788, Syst. Nat. 1(1): 287 (Ceylon)

Baker, FBI No. 1652, Vol. 4: 406

LOCAL NAMES. *Bākāmūnā* (Sinhala); *Periya āndai*, *Ūmātān āndai* (Tamil).

SIZE. Pariah Kite $\pm$; stouter. Length c. 56 cm. (22 in.).

FIELD CHARACTERS. As for 631, q.v. Ear-tufts shorter than in Eagle-Owl (629); irides yellow v. brown; legs unfeathered. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to Ceylon; the commonest owl on the island. Resident and plentiful throughout the lowlands, and occurs in the hills to over 6000 feet [c. 1800 m.] — Phillips. Affects forest and groves of trees near water — tanks, and streams with rock pools.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 631. Henry describes the calls as 'doleful, and almost human-sounding moans, oomp-ooo-oo answered by its mate with an assenting oo'.

BREEDING. Season chiefly January to May; occasionally July. Nest and eggs as in the Indian race (631). Average size of 8 eggs 58.7 $\times$ 48.0 mm. (Baker).

MUSEUM DIAGNOSIS. Differs from the peninsular Indian population in its darker coloration and smaller size.

MEASUREMENTS

♂ ♀ Wing 365-383 mm. (as compared with *leschenault* from South India ♂♂ 379-405, ♀♀ 392-417 mm.) — Whistler.

COLOURS OF BARE PARTS. As in 631.

633. **Tawny Fish Owl.** *Bubo flavipes* (Hodgson)*Cultrunguis Flavipes* Hodgson, 1836, Jour. Asiat. Soc. Bengal 5: 364, pl. 26 (Nepal)

Baker, FBI No. 1657, Vol. 4: 411

LOCAL NAMES. *Lak kyo-o mūng* ('the *kyo-o* calling devil' — Lepcha); *Dao hao ho ho*, *Dao bu gao* (Cachar).SIZE. Pariah Kite $\pm$; stouter. Length *c.* 61 cm. (24 in.).FIELD CHARACTERS. As of 631, but *above* rich orange-rufous or tawny with broad blackish shaft-stripes. Much buff on scapulars and wing-coverts. Wing- and tail-quills dark brown; with buff bars and tips. *Below*, rich orange-rufous with dark brown shaft-stripes, broadest on breast; usually a white throat-patch. Sexes alike. For young (immature) see Museum Diagnosis.STATUS, DISTRIBUTION and HABITAT. The outer Himalayas (up to *c.* 1500 m.) from Kashmir (?) eastward through Himachal Pradesh, Garhwal, Kumaon, Nepal, Sikkim, Bhutan and NEFA (?). Assam hills north and south of Brahmaputra river, Nagaland, Manipur, Mizo, and East Pakistan (hill tracts). Affects forested banks of hill streams.*Extralimital.* W. China, N. Burma; lower Yangtse Valley; Formosa; Indochinese countries — Peters.

GENERAL HABITS. Similar to Brown Fish Owl. Crepuscular and partially diurnal; often on the move and even hunting during daylight apparently with no discomfort. Perches on high trees overlooking water and swoops down to capture prey from near the surface in the manner of the fish eagles.

FOOD. Chiefly fish, crabs, lizards and large insects. Also rodents ('once remains of a small porcupine about a nest' — Baker) and game birds as large as junglefowl and pheasants.

VOICE and CALLS. Seldom recorded. A deep *whoo-hoo*; as also in *B. zeylonensis*, has a curious mewling call, very like that of a cat — Baker.BREEDING. Little known. *Season* (in Assam) December, January, and February. *Nest*, sometimes eggs laid in a hollow in a ravine- or river bank, but mostly (in Cachar, *vide* Baker) in old dilapidated nests of fish eagles, quite high up in trees, with no attempt to repair them. *Eggs*, normally 2, sometimes only a singleton, white, roundish ovals, very similar to those of 631. Average size of 10 eggs 57.1×46.9 mm. (Baker). Share of the sexes in incubation, and incubation period, imperfectly known. The birds, female in particular, said to be very bold and truculent in defence of the nest.

MUSEUM DIAGNOSIS. Tarsi feathered for about one-third of their length behind, and for about two-thirds in front and at the sides. For details of plumage see Baker, loc. cit.

Young (immature). A ♂ and a ♀ taken in Nepal, described as follows: 'Compared with adult birds, the juv. ♀ (18 May) has the upper plumage with distinct spots, and narrower and browner streaks; its under plumage is downy, chin white, and the streaks finer and paler; and its tarsi are covered with down up to about 24 mm. above the base of the middle toe. The juv. ♂ (June 2) is very similar to it, but without spots on the upper plumage' (Biswas).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	410-455	<i>c.</i> 48-50	60-67	215-227 mm. (Baker)

COLOURS OF BARE PARTS. Iris yellow. Bill horny black, sometimes yellowish at extreme tip; cere dingy green. Legs and feet yellowish grey, dingy greenish or slaty green; claws horny black.

Genus NYCTEA Stephens

Nyctea Stephens, 1826 (1825), in Shaw's Gen. Zool. 13 (2): 62. Type, by tautonymy and monotypy, *Strix erminea* Shaw = *Strix nyctea* Linnaeus = *Strix scandiaca* Linnaeus

Aigrettes very small, hardly visible; feathers of face and legs extremely long and hairy, almost concealing the bill and toes. Under tail-coverts very long, reaching almost to end of tail; otherwise wings and tail as in *Bubo*.

Contains a single Holarctic breeding species, accidental to our area.

634. **Snowy Owl.** *Nyctea scandiaca* (Linnaeus)

Strix scandiaca Linnaeus, 1758, Syst. Nat., ed. 10, 1: 92 ('Habitat in Alpihus Lapponiae' ex Fn. Suec., Aves, no. 46, there based on a drawing by Rudebeck)

Baker, FBI No. 1665, Vol. 4: 420

LOCAL NAMES. None recorded.

SIZE. Pariah Kite $\pm$; stouter. Length c. 61 cm. (24 in.).

FIELD CHARACTERS. A large pure white round-headed owl, more or less flecked and barred with sepia brown, with densely feathered legs. Unique and unmistakable. Sexes alike, but female considerably larger.

STATUS, DISTRIBUTION and HABITAT. A specimen once taken (March 3, c. 1876) at Mardan in W. Pakistan (c. 34°14'N., 72°5'E.) and several other examples claimed to be seen by shikari at the same time. Evidently an accidental waif during an 'exodus year' when the species, presumably owing to food-scarcity cycles, irrupts enormous distances south of its normal range. No subsequent record.

Extralimital. Breeds in the northern parts of the Holarctic region. In Eurasia, migrates south in winter to central Europe and central Asia.

GENERAL HABITS. A powerful diurnal owl with buzzard-like flight, sometimes chasing birds and striking them down in the air like a falcon. Lives largely on rodents and other small mammals.

MUSEUM DIAGNOSIS. For bionomics, structure, plumages, and other details see Witherby, 1938, 2: 309-12.

MEASUREMENTS

	Wing	Bill (from base of feathers)	Tarsus	Tail
♂♂	398-415	30-38	55-65	195-225 mm.
♀♀	425-460	—	—	—

(Witherby)

COLOURS OF BARE PARTS. Iris golden. Bill and claws blackish horn.

Genus GLAUCIDIUM Boie

Glaucidium Boie, 1826, Isis von Oken, Bd. 2, col. 970. Type, by subsequent designation, *Strix passerina* Linnaeus (Gray, 1840, List Gen. Bds.: 6)

Cf. Ripley, S. D., 1948, *Zoologica* 33: 199-202

No ear-tufts or aigrettes. Differs from *Athene* (q.v.) in having the upper plumage barred instead of spotted. Cere swollen; nostrils tubular. Tarsus feathered; toes

covered above with bristles. Wing more rounded than in *Athene*: 1st primary (as.) very short; 3rd, 4th or 5th quill longest or the three subequal.

Genus represented throughout the Old World, and also in C. and S. America.

Key to the Species

		Page
A	A distinct collar; wing under 105 mm.....	<i>G. brodiei</i> 285
B	No collar; wing over 110 mm.....	1
1	Primaries barred dark brown and whitish.....	<i>G. cuculoides</i> 289
	Primaries barred black and rufous.....	<i>G. radiatum</i> 286

635. Collared Pygmy Owlet. *Glaucidium brodiei brodiei* (Burton)

Noctua Brodiei Burton, 1836 (1835), Proc. Zool. Soc. London: 152 (Himalayas, restricted to Simla by Baker, 1927, Fauna 4: 450)

Noctua tubiger Hodgson, 1836, Asiat. Res. 19: 175 (Nepal)

Glaucidium brodiei garoense Koelz, 1952, Jour. Zool. Soc. India 4: 45 (Tura)

Baker, FBI No. 1696, Vol. 4: 450

Vol. 1, plate 17

LOCAL NAME. *Dao whit-whit* (Cachar).

SIZE. Quail $\pm$; length *c.* 17 cm. ($6\frac{1}{2}$ in.).

FIELD CHARACTERS. A charming diminutive owl, a passable miniature of the better known Barred Owlet (639). Overall, barred grey-brown with a prominent white supercilium, rufous half-collar on upper back, and white patch on throat. Also has a dimorphic rufous or chestnut phase. Sexes alike.

From behind, the hind collar together with a black spot on each side of nape look deceptively like a staring owl's face!

STATUS, DISTRIBUTION and HABITAT. The Himalayas from Chitral through Punjab, Kashmir, Himachal Pradesh, Garhwal, Kumaon, Nepal, Sikkim, Bhutan, and NEFA. Assam hills south of Brahmaputra river, Nagaland, Manipur, Mizo, East Pakistan hill tracts (?). From the sub-montane terai and duars up to *c.* 3200 metres altitude. Affects open hill forest of oak, rhododendron, fir, deodar, etc.

Extralimital. Extends to S. China (north to Anwhei), south to the Malay Peninsula and northern Vietnam; Hainan I. (Peters).

GENERAL HABITS. A very diurnal little owl, usually seen singly perched close to the trunk on some thinly foliated branch in a tall forest tree. Flies about freely in open sunshine, even hunting and calling persistently at midday. Is also crepuscular, but far less nocturnal than many other owls. Flight, a series of rapid wing-beats punctuated by pauses. Suffers ceaseless mobbing and chivvying from small birds during daytime, whence it has been pertinently suggested that the peculiar staring face-like markings on the hindhead may be of value in discouraging attacks from the rear. So great is the animosity for it among tits and other birds that a mixed rabble can often be decoyed by imitating its calls. Extremely bold and fierce for its size, sometimes pouncing on birds almost as large as itself, and carrying them off to a perch in its talons. The victim is pinned under foot and torn up and devoured with vicious upward pulls of the bill.

FOOD. Small birds, mice, lizards, cicadas, grasshoppers, beetles, and other large insects.

VOICE and CALLS. A pleasant 4-noted bell-like whistle *toot . . tootoot . .toot* uttered in runs of 3 or 4, repeated at intervals. The call often ends incompletely with only the *tootoot*. The calling bird bobs its head from side to side, producing a marked ventriloquial effect.

BREEDING. *Season*, March to June, mainly April–May. *Nest*, an unlined natural hollow, sometimes a very large one, or an old or forcibly appropriated barbet- or woodpecker hole, 2 to 10 metres up in a tree-trunk standing in fairly open oak or other hill forest. *Eggs*, normally 4, sometimes 3 or 5, white, roundish, typical of owls’ eggs. Size *c.* 29 × 24 mm. Share of the sexes in incubation uncertain; incubation period undetermined.

MUSEUM DIAGNOSIS. In fresh plumage the white throat, white portions of underparts, and underwing, are strongly suffused with primrose yellow. For notes on the species, and break-up of over 100 skins in the Brit. Mus. collection into 6 colour groups irrespective of provenance, see Kinnear, *Ibis* 1937: 490–1.

MEASUREMENTS			
	Wing	Bill	Tarsus
♂ ♀	88–101	14–15	21–23
		(from skull)	(SA, BB, Baker).

Weight 2 ♂♂ 52, 53, 1 ♀ 63 gm. (SA, SDR).

COLOURS OF BARE PARTS. Iris bright lemon-yellow. Bill greenish yellow; cere and gape bluish. Legs and feet pale greenish yellow to olive-grey; claws dark horny.

GLAUCIDIUM RADIATUM (Tickell)

Key to the Subspecies		Page
A	Abdomen longitudinally striated..... <i>G. r. castanonotum</i>	288
B	Abdomen barred transversely..... 1	
1	General tone distinctly rufous..... <i>G. r. malabaricum</i>	288
	General tone not rufous..... <i>G. r. radiatum</i>	286

636. **Barred Jungle Owlet.** *Glaucidium radiatum radiatum* (Tickell)

Strix Radiata Tickell, 1833, Jour. Asiat. Soc. Bengal 2: 572
(Jungles of Borabhum and Dholbhum)
Baker, FBI 1694, Vol. 4: 448

LOCAL NAMES. *Jāngli choghād* (Hindi); *Kālā khūsāt* (U.P.); *Chhôtā kālpencha* (Bengal); *Pūnchi bassā* (Sinhala); *Sinna āndai* (Tamil); *Adāvi pāgādigānte* (Telugu).

SIZE. Myna ±; length *c.* 20 cm. (8 in.).

FIELD CHARACTERS. A small squat, round-headed owl without ear-tufts. *Above*, dark brown conspicuously barred with pale rufous. *Below*, chin, moustachial streak, middle of breast, and abdomen white; rest of underparts barred dark olive-brown and white or rufous-white. Sexes alike.

A fulvous or rufous patch on underwing conspicuous in flight. Call diagnostic, q.v.

STATUS, DISTRIBUTION and HABITAT. The submontane Himalayas (terai, bhabar, duns and duars), locally up to *c.* 2000 m. in the hills, from Himachal

Pradesh (Dalhousie, c. 76°E.) eastward through Garhwal, Kumaon, Nepal and Sikkim to Bhutarr. South throughout the Peninsula in appropriate biotopes (locally up to c. 2000 m. in the Nilgiris etc.), roughly east and south of a line from Almora (Kumaon) to Baroda (Gujarat), with a western extension to the Aravalli Range (Mt Abu area). Replaced in the Malabar coastal strip from c. 16°N. (S. Konkan) southward through Kerala by the race *malabaricum*, q.v.; resident in Ceylon — in the low-country Dry zone and Hill zone to c. 1100 m. Occurrence in Assam doubtful. Baker recorded it as 'occurring in small numbers everywhere' in N. Cachar (1897, JBNHS 11: 230), but omits it both from the *Fauna* and *Nidification*. Affects mixed moist-deciduous forest and secondary jungle; in the Peninsula, especially partial to the teak-and-bamboo facies in foothills country.

GENERAL HABITS. Keeps singly or in pairs. Largely crepuscular; most active an hour or so before dusk and likewise till after sunrise; but is also on the move during the night, and flies about freely — and even hunts — in daytime, especially in cloudy, drizzling weather. Normally retires during the day to some leafy branch or a tree hollow, perhaps more in order to escape the chivvying it invariably receives from small diurnal birds than from any handicap due to sunshine. Gives itself away by fussily dashing out from its retreat on the approach of a human, with rapid wing-flaps punctuated by pauses; settles in another tree a short way off, sitting upright and motionless with its head screwed round to stare at the intruder, looking deceptively like the snag of a dead branch. Over most of its range almost invariably found in the same facies and in loose association with tree pies (*Dendrocitta vagabunda*) and racket-tailed drongos (*Dicrurus paradiseus*).

FOOD. Locusts, grasshoppers, cicadas and other large insects; molluscs, lizards, small birds, mice.

VOICE and CALLS. Pleasant, distinctive, rather like distant crow of Red Junglecock to the uninitiated. Begins with a loud and slow *kāo* repeated 2 or 3 times, followed by *kāo-kūk* (or *kookūk*), *kāo-kūk*, *kāo-kūk*, *kāo-kūk* etc. of about five seconds' duration, quickening in tempo and fading off at the end. The head is slightly lowered while calling, giving the bird a hunchback profile, and the tail is wagged laterally or swung from side to side. Nuptial (?) song: a soft, musical, rather ventriloquistic, *cūr-cūr-cūr-cūr-er* (4½ times), fading towards end. Uttered (in moonlight only?) monotonously for 15+ minutes, with short pauses. Also has an occasional pleasant bubbling continuous *woioioioioioi . . . keek*, the final *keek* in a much higher key. Significance of this call not understood.

BREEDING. *Season*, March to May; in Ceylon unknown. *Nest*, a natural tree hollow, or deserted woodpecker or barbet's nest-hole in the trunk or branch of a tree standing in open forest, between 3 and 8 metres from the ground. *Eggs*, 3 or 4, white, roundish, typical. Average size of 28 eggs 31.5 × 26.8 mm. (Baker). Share of the sexes in incubation, and incubation period, unknown.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Some examples are much greyer than others, more particularly on lower back and tail. This apparently unconnected with provenance but in the nature of individual variation, presumably representing the grey phase found in most owls.

MEASUREMENTS

		Wing	Bill (from skull)	Tarsus	Tail
17	♂♂	124-134	18-21	22-28	66-80 mm.
22	♀♀	126-136	17-21	22-29	63-84 mm.

(SA, HW, BB)

Weight 2 ♂♂ 114, 114 gm. (GD).

COLOURS OF BARE PARTS. Iris bright lemon-yellow. Bill plumbeous to greenish yellow. Feet dirty greenish lemon-yellow; claws horny brown.

637. **Malabar Barred Jungle Owlet.** *Glaucidium radiatum malabaricum* (Blyth)

Athene malabaricus Blyth, 1846, Jour. Asiat. Soc. Bengal 15: 280

(Malabar Coast and Travancore)

Baker, FBI No. 1695, Vol. 4: 449

Vol. 1, plate 13

LOCAL NAMES. *Pūnchi bassā* (Sinhala); *Sinna āndai* (Tamil); *Chembān nāthē* (Malayalam).

SIZE. Myna ±; length *c.* 20 cm. (8 in.).

FIELD CHARACTERS. A small, squat, round-headed barred owl without ear-tufts, very like 636 q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; Malabar coastal strip from southern Konkan (*c.* 16°N.) southward through Goa, W. Mysore and Kerala. Moist deciduous biotope; chiefly low-country and foothills — locally to *c.* 1500 m. altitude. Affects mixed teak-and-bamboo and similar open forest.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 636, q.v.

BREEDING. *Season*, March to May. *Nest* and *eggs* as in the nominate race but 3 rather than 4 eggs reported to form the normal clutch. Average size of 30 eggs 30.4 × 26.4 mm. (Baker).

MUSEUM DIAGNOSIS. Differs from nominate *radiatum* (636) in being much darker and more rufous — practically bright chestnut in some specimens — especially on the upperparts, wings, breast and flanks.

MEASUREMENTS

		Wing	Bill (from skull)	Tarsus	Tail
4	♂♂	128-135	19-22	<i>c.</i> 22	65-69 mm.
5	♀♀	124-134	19-21	20-22	62-68 mm.

(SA)

COLOURS OF BARE PARTS. As in 636.

638. **Chestnutbacked Barred Owlet.** *Glaucidium radiatum castanonotum* (Blyth)

Athene castanonota Blyth, 1852, Cat. Bds. Mus. Asiat. Soc. 1: 39 (Ceylon)

Baker, FBI No. 1693, Vol. 4: 447

LOCAL NAMES. *Pūnchi bassā* (Sinhala); *Sinna āndai* (Tamil).SIZE. Myna —; length *c.* 19 cm. (7½ in.).



PLATE 42

- 1 *Phaenicophaeus pyrrhocephalus*, Redfaced Malkoha (599). 2 *Taccocua l. leschenaultii*, Sirkeer Cuckoo (598). 3 *Cuculus v. varius*, Hawk-Cuckoo (573). 4 *Psittacula c. cyanocephala*, Blossomheaded Parakeet (558). 5 *Psittacula calthorpeae*, Layard's Parakeet (565). 6 *Loriculus beryllinus*, Ceylon Lorikeet (568). 7 *Chalcites x. xanthorhynchus*, Violet Cuckoo, ♂ (587). 8 *Cacomantis s. sonneratii*, Baybanded Cuckoo (582). 9 *Cuculus p. poliocephalus*, Small Cuckoo (581). 10 *Surniculus l. dicruroides*, Drongo-Cuckoo (588).

FIELD CHARACTERS. As of 636, q.v., also without ear-tufts, but upperparts chestnut, narrowly cross-barred with blackish. *Below*, white, longitudinally streaked with olive-brown on abdomen instead of barred. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident; race peculiar to Ceylon. Widely distributed in small numbers throughout the dense forests of the Wet zone and western aspects of the hills to 6300 ft [c. 1950 m.] — Phillips. Its range reported to be dwindling owing to clearance of forests for plantations etc.

GENERAL HABITS. Frequents the tops of tall trees, usually on steep hill-sides. Very diurnal in habits, often hunting and calling in broad daylight, but very shy and wary, and seldom seen (Henry).

FOOD. Mainly insects; also mice, small birds, lizards, etc.

VOICE and CALLS. 'A curious note like *kraw kraw kraw kraw kraw* (the *r* accentuated) which carries a long distance' (Henry).

BREEDING. *Season*, March–May. *Nest* and *eggs* as in 636 and 637, but normal clutch of 2 eggs, measuring c. 35 × 28 mm.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	122–132	17–18	25–28	56–65 mm. (Baker)
1 ♀ (moulting)	137	15		64 mm. (SDR)

COLOURS OF BARE PARTS. Iris yellow. Bill yellowish or greenish horn; cere dusky greenish. Feet greenish olive; soles paler and more yellow.

GLAUCIDUM CUCULOIDES (Vigors)

Key to the Subspecies

- A Upperparts dark rufous-brown..... *G. c. austerum* 291
- B Upperparts blackish brown..... *G. c. cuculoides* 289
- C Upperparts more pure brown, less rufous than *austerum* but more rufous than *cuculoides*..... *G. c. rufescens* 291

639. West Himalayan Barred Owlet. *Glaucidium cuculoides cuculoides* (Vigors)

Noctua cuculoides Vigors, 1831, Proc. Zool. Soc. London: 8

(Himalayas, i.e. Simla-Almora district)

Baker, FBI No. 1689, Vol. 4: 444

Vol. 4, 2nd ed., plate 46

LOCAL NAMES. *Bādā dūndūl* (Hindi); *Tanpum* (Lepcha).

SIZE. Myna ±; length c. 23 cm. (9 in.).

FIELD CHARACTERS. Resembles Barred Jungle Owlet (636) but is larger. A dumpy 'hornless' dark brown (or olive-brown) owlet; closely barred with whitish above and below. Abdomen whitish with longitudinal dark striations. A prominent white throat-patch. Sexes alike.

Young (immature). Barred only on wings and tail. Generally more rufous, with the head and nape spotted with paler rufous, and underparts streaked.

STATUS, DISTRIBUTION and HABITAT. The outer Himalayas from about Murree in W. Pakistan eastward through Kashmir, Himachal Pradesh, Garhwal, Kumaon, Nepal, and W. Sikkim; from the foothills up to c. 2100 m. — locally to c. 2700 m.; possibly seasonal altitudinal migrant. Affects open forest of pine, oak, rhododendron, etc.; also subtropical and tropical evergreen jungle at the lower elevations.

GENERAL HABITS. Common and largely diurnal; often found sitting out on bare branches or dead tree-stumps in broad sunlight, and hunting freely at all hours of the day. Has been observed pouncing on a quail (*Coturnix coturnix*) flying past, and catching it in the air like a hawk (Dudgeon, JBNHS 13: 530). Subjected to relentless chivvying by bulbuls, tits, and other small birds as soon as its presence is detected. Sits statue-like under their mobbing attacks, betraying its agitation only by swinging its tail laterally (from side to side) — for many minutes at a time. Flight, as of other small owls, wavy and dipping — a series of rapid flaps followed by a pause with the wings closed.

FOOD. Beetles, grasshoppers, cicadas, and other large insects; lizards, mice, small birds.

VOICE and CALLS. Heard at all hours during daytime, but is most noisy at dawn and till a couple of hours after sunrise. Normal call, a crescendo of harsh squawks sounding 'as if the bird was trying to rise to some great effort which ends suddenly and unexpectedly' (Osmaston). In the breeding season a continuous bubbling musical whistle *wowowowowowowowo* etc. of c. 4 to 7 seconds' duration, reminiscent of the opening notes in the call of the Green Barbet (*Megalaima zeylanica*). Also occasionally a variant of this, *woioioioioi* . . . *keek* as in Barred Jungle Owlet (636).

BREEDING. *Season*, April–May. *Nest*, an unlined natural hollow in a tree-trunk, or a disused or forcibly appropriated barbet- or woodpecker hole. *Eggs*, normally 4, white, round, typical of owls'. Average size of 30 eggs 35.8 × 30.4 mm. (Baker). Presumably both sexes incubate; period and other details unrecorded.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Less dark and rufous than *austum* (640), slight intergrading with which is already apparent in eastern central Nepal.

Chick. Clothed with short white down all over when first hatched (Ticehurst).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	145–162	c. 19–22	c. 24–26	79–90 mm. (Baker)
Birds from Nepal and Sikkim give:				
		(from skull)		
5 ♂♂	143–158	19–21	—	75–89 mm.
9 ♀♀	145–162	19–22	28–30 (2 msd.)	77–98 mm.
				(BB, SA)

Weight 2 ♂♂ 159, 169 gm. (GD).

COLOURS OF BARE PARTS. Iris lemon-yellow. Bill yellowish green; cere greenish horny. Feet greyish olive-yellow or dull horny green; claws horny brown; pads chrome yellow.

640. East Himalayan Barred Owlet. *Glaucidium cuculoides austerum*
Ripley

Glaucidium cuculoides austerum Ripley, 1948, Zoologica 33: 200 (Tezu, Mishmi Hills)
Not in Baker, FBI

LOCAL NAMES. None recorded.

SIZE. Myna $\pm$; length *c.* 23 cm. (9 in.).

FIELD CHARACTERS. As of 639, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Eastern Sikkim, Bhutan, NEFA, Nagaland, from the submontane tract up to *c.* 2700 m. altitude. Affects open forest of pine, oak, rhododendron, etc.; also subtropical and tropical evergreen jungle in the foothills and duars.

Extralimital. NW. Burma (Hukawng Valley).

GENERAL HABITS, FOOD, VOICE and CALLS. As in 639, q.v.

BREEDING. *Season, Nest, Eggs* as in 639.

MUSEUM DIAGNOSIS. Differs from the nominate western population (639) in being darker and more rufous, i.e. altogether very rufous-brown.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂♂	150-154	20-22	26-29	{ 82-92 mm. 86-94 mm.
♀♀	156-162			
Weight ♂♀	150-176 gm.			(SDR, SA)

COLOURS OF BARE PARTS. As in 639.

641. Burmese Barred Owlet. *Glaucidium cuculoides rufescens* Baker

Glaucidium cuculoides rufescens Baker, 1926, Bull. Brit. Orn. Cl. 47: 59

(Nong-zai-ban = lat. 24°48'N., long. 93°12'E., Manipur)

Baker, FBI No. 1690, Vol. 4: 445

Vol. 4, plate 46

LOCAL NAME. *Dao ku-ra-ru-ru* (Cachar).

SIZE. Myna $\pm$; length *c.* 23 cm. (9 in.).

FIELD CHARACTERS. As of 639, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Assam hills south of Brahmaputra river (Cachar, Khasi, etc.), Manipur, Mizo (?), Tripura, East Pakistan (Sylhet, Chittagong); from the foothills to *c.* 1300 m. altitude, occasionally to *c.* 1900 m. Affects open hill forest and tropical evergreen jungle.

Extralimital. N. Burma, N. Laos, N. Vietnam.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 639, q.v. In Assam often frequents bamboo jungle feeding on a species of mouse which also lives in such places (Baker).

BREEDING. *Season*, late March to early June; mainly April–May. *Nest* and *eggs* as in 639 and 640. Normal clutch 4, but frequently 3 and 5 eggs laid. Average size of 48 eggs 36.5×30.5 mm. (Baker).

MUSEUM DIAGNOSIS. Much richer rufous-brown than *austerum*; particularly rich rufous on underparts. Breast more streaked, less barred.

MEASUREMENTS

♂ ♀ Wing 141–162 mm. (Baker).

COLOURS OF BARE PARTS. As in 639.

Genus *Ninox* Hodgson

Ninox Hodgson, 1837, Madras Jour. Lit. Sci. 5: 23. Type, by monotypy,
Ninox nipalensis Hodgson = *Strix lugubris* Tickell

The most hawk-like of all the owls owing to the ruff and facial disc being quite obsolete. Cere swollen and non-tubular; nostril placed close to its anterior margin. Wing long and more pointed than in *Glaucidium* or *Athene*: 3rd and 4th primaries (as.) longest; 1st about = 7th. Tail moderately long; rounded at tip. Tarsus feathered; upper surface of toes thinly covered with bristles.

Genus found throughout the Oriental Region, the greater part of the Australasian Region, New Zealand, and Madagascar. Two species within Indian limits.

Key to the Species

		Page
A	Spotting of underparts tawny to chocolate-brown..... <i>N. scutulata</i>	292
B	Spotting of underparts bright rufous brown..... <i>N. affinis</i>	296

NINOX SCUTULATA (Raffles)

Key to the Subspecies

A	Lower plumage almost entirely brown; quills not barred..... <i>N. s. obscura</i>	295
B	Lower plumage white; partly brown or rufous; quills barred..... 1	
1	Wing usually under <i>c.</i> 208 mm..... <i>N. s. hirsuta</i>	295
	Wing usually over <i>c.</i> 208 mm..... a	
a	Darker: the head more brown and as dark as, or darker than, the back..... <i>N. s. burmanica</i>	294
	Paler: with a much greyer head, this being paler and more grey than the back..... <i>N. s. lugubris</i>	292

642. **Indian Brown Hawk-Owl.** *Ninox scutulata lugubris* (Tickell)

Strix Lugubris Tickell, 1833, Jour. Asiat. Soc. Bengal 2: 572

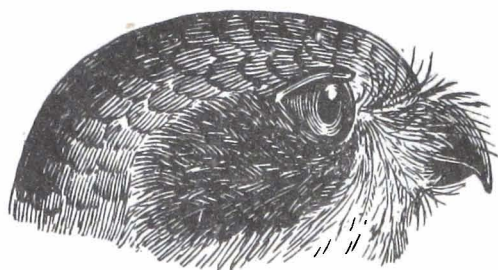
(Dampara, Dholbhum, Bengal)

Baker, FBI No. 1698, Vol. 4: 454

LOCAL NAMES. *Chōghād bāsra* (Hindi); *Kāl pēchā* (Bengal); *Mōh sordī* (Assam); *Tang kyī per chi ok* (Lepcha).

SIZE. Pigeon ±; length *c.* 32 cm. ($12\frac{1}{2}$ in.).

FIELD CHARACTERS. A very hawk-like owl, dark greyish brown above, with whitish forehead and irregular white patches about the shoulders.



x c. 4

Below, throat and foreneck fulvous, streaked with brown; rest of underparts white with large drops of reddish brown forming broken bars. Tail barred with black and tipped with white. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident. The outer Himalayas, and submontane tracts from about Murree in W. Pakistan eastward through Nepal, Sikkim, and Bhutan

to NEFA and Assam north of Brahmaputra river. Southward, excepting the arid tracts in the northwest (Sind, Rajasthan, N. Gujarat), widely but locally distributed through northern and central India, east to Bengal, Orissa, and N. Andhra. Southern limit uncertain: an example collected in Greater Bombay (c. 19°N. lat.) is intermediate between this and *hirsuta*, while 2 specimens from Madras (c. 13°N. lat.) in the B.M. seem referable to this paler northern race. Has been recorded in the past from Mt. Abu, but no recent confirmation thence; may occur in Gir forest, Saurashtra. Affects forest, well-wooded country, and groves of trees, particularly in the neighbourhood of water and lining forest streams and nullahs — often close to habitation.

GENERAL HABITS. Crepuscular and nocturnal. Keeps singly or in pairs which spend the daytime cuddled close together up in the seclusion of a shady branch often thickly smothered with creepers. But when disturbed will readily fly out to another tree through the dappled sunshine without any apparent discomfort. Flight (rapid wing-beats and glides), and manner of alighting at the end of it — sweeping upward to settle on a branch — characteristically hawk-like. Is normally not abroad before darkening dusk, but may sometimes be on the move during daytime in cloudy weather. Perches upright on a post or tree-stump at dusk — usually the same, night after night — keeping a look-out for prey, from time to time springing up vertically a metre or more in the air to take a passing insect in its claws, and diving back to the perch in the manner of a bulbul catching winged termites. Also flies about in the gathering dusk like a nightjar, hawking beetles in the air.

FOOD. Large insects such as beetles and grasshoppers; frogs, lizards, small birds, mice, and occasionally (or regularly?) small bats.

VOICE and CALLS. Very distinctive and diagnostic. A rather soft and pleasant, almost musical, *oo . . ūk*, *oo . . ūk*, *oo . . ūk*, etc. in runs of 6 to 20 calls (mostly 9 to 13) at the rate of about one per second, with a pause of a few seconds between each run. Very vocal during the breeding season, calling more or less continuously for hours on end, particularly during moonlit nights. Two birds (♂ and ♀?) will join in irregular duets, or several birds in the distance will answer one another from all directions. Has a specially noisy round of calling in the twilight of dawn before retiring for the day. In cloudy weather occasionally also calls in daytime.

BREEDING. Curiously enough almost nothing known concerning this race beyond that Osmaston once found its eggs 'in a large hole in a mango tree c. 8 ft. up in a compound in Dehra Dun' on 1 July. The 4 eggs measured c. 36×31 mm.

MUSEUM DIAGNOSIS. See Key to the Subspecies; for details of plumage Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	215-227	c. 21-22	c. 24	124-135 mm. (Baker)
Nepal birds give				
		(from skull)		
4 ♂♂	207-225	22-24	—	115-140 mm.
2 ♀♀	218-219	21-24	—	126-133 mm. (BB)

Weight 1 ♀ 186 gm. (GD).

COLOURS OF BARE PARTS. Iris bright golden yellow. Bill horny slate or bluish black, paler at tip; cere dull green or greenish brown. Feet dull yellow or yellowish green.

643. Burmese Brown Hawk-Owl. *Ninox scutulata burmanica* Hume

Ninox burmanica Hume, 1876, Stray Feathers 4: 285 (Pegu and Tenasserim)
Baker, FBI No. 1699, Vol. 4: 455

LOCAL NAME. *Mōh sorāi* (Assam).

SIZE. Pigeon $\pm$; length c. 32 cm. ($12\frac{1}{2}$ in.).

FIELD CHARACTERS. As of 642, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Assam south of Brahmaputra river, Nagaland, Manipur, Mizo, Tripura, East Pakistan; from the lowlands to c. 1700 m. Affects forest and well-wooded country, and kampongs around habitations; often groves of trees in jungly gardens within urban limits.

Extralimital. Southern Yunnan, south to the Malay Peninsula, Thailand, and all the Indochinese countries.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 642. Captures the fast and erratically flying pipistrelle bats on the wing, going through all manner of agile aerial contortions in the chase (McCann, JBNHS 36: 1002). 'Flight something similar to a woodcock's; often come across when beating patches of jungle for that bird' (Wickham, ibid. 34: 63).

BREEDING. *Season*, end March to early June. *Nest*, a natural hollow in a tree-trunk, unlined but usually littered with cast-up food pellets. *Eggs*, 3 or 4, exceptionally 5, white, roundish, typical. Average size of 50 eggs 35.1×29.5 mm. (Baker). Both sexes believed to incubate; incubation period in one case 24 days.

MUSEUM DIAGNOSIS. Differs from *lugubris* (642) in being darker both above and below. Head as dark as or darker than back, and much less grey. *Below*, dark markings usually richer and larger, but this subject to considerable individual variation.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	206-222	c. 21-22 (from feathers)	c. 24-25	128-134 mm. (Baker)

COLOURS OF BARE PARTS. As in 642.

644. **South Indian Brown Hawk-Owl.** *Ninox scutulata hirsuta*
(Temminck)

Strix hirsuta Temminck, 1824, Pl. col., livr. 49, pl. 289 (Ceylon)

Baker, FBI No. 1702, Vol. 4: 457

Vol. 1, plate 13

LOCAL NAMES. *Chōghād bāsra* (Hindi); *Pāgādigānte vestam* (Telugu); *Pūnchi bassā* (Sinhala); *Sinna āndai* (Tamil); *Pūllunāthē* (Malayalam).

SIZE. Pigeon $\pm$; length c. 32 cm. (12½ in.).

FIELD CHARACTERS. As of 642, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Southern India from about the latitude of Bombay (c. 19°N.) through Maharashtra, Goa, Mysore, western Tamil Nadu and Kerala. How far east needs to be determined since two specimens from Madras city in the British Museum appear to belong to the northern form *lugubris*! Resident in all zones in Ceylon; locally and sparsely distributed throughout the lowlands and up to c. 1300 m. in the hills. Affects forest and well-wooded country, and kampongs around habitations, e.g. in Kerala.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 642 and 643, qq.v.

BREEDING. Season, January to May; in Ceylon March-April and also in November. Nest and eggs (2 or 3) as in 642.

MUSEUM DIAGNOSIS. Very like *burmanica* (643) but still darker. Head always darker than back and more slaty brown, less red-brown. Below, very richly coloured; under wing-coverts and axillaries profusely barred with dark brown.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	190-212	22-24 (from skull)	24-28	112-122 mm. (SA, HW)

Weight c. 8 oz. (227 gm.) — Hume.

COLOURS OF BARE PARTS. As in 642.

645. **Hume's Brown Hawk-Owl.** *Ninox scutulata obscura* Hume

Ninox obscurus Hume, 1872, Stray Feathers 1: 11 (Camorta, Nicobars)

Baker, FBI No. 1703, Vol. 4: 457

LOCAL NAMES. None recorded.

SIZE. Pigeon —; length c. 31 cm. (12 in.).

FIELD CHARACTERS. As of 642, q.v., but overall deep chocolate-brown. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Andaman and Nicobar Islands. Affects forest about the settlements, and rubber plantations, etc.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 642 and the other races, qq.v. Beetles and grasshoppers mentioned as the two chief food items.

BREEDING. Little recorded beyond that B. B: Osmaston had a young one brought to him on 30 May.

MUSEUM DIAGNOSIS. Differs from the other races in being dark chocolate-brown, somewhat paler and rufous on abdomen. Forehead mixed black and white; head and primary coverts generally darker and blacker than rest of upperparts. A few small whitish spots and bars on flanks and abdomen (visible only on lifting the overlying feathers).

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	197-220	c. 22-23	c. 28	120-126 mm. (Baker)

COLOURS OF BARE PARTS. As in 642 and other races.

NINOX AFFINIS Beavan

Key to the Subspecies

Wing under c. 170 mm.....	<i>N. a. affinis</i>
Wing over c. 180 mm.....	<i>N. a. isolata</i>

646. **Andaman Brown Hawk-Owl.** *Ninox affinis affinis* Beavan

Ninox affinis 'Tytler' = Beavan, 1867, Ibis: 316
(Aberdeen Point, Port Blair, Andaman Islands)
Baker, FBI No. 1700, Vol. 4: 456

LOCAL NAMES. None recorded.

SIZE. Pigeon —; length c. 28 cm. (11 in.).

FIELD CHARACTERS. Overall as of 642, q.v. but smaller and very brown, with distinctive bright rufous-brown spotting on the underparts. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; Andaman Islands. Distribution within the group not worked out.

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing specifically recorded; presumably habits largely as in the species *scutulata*, but call described by A. L. Butler (*vide* Blanford, 4: 485) as 'a loud *craw* something like a *Glauucidium*'s note and quite different from that of *N. scutulata* in Ceylon which is a soft fluty disyllable, as is also that of *N. obscura*'.¹

BREEDING. Unknown.

MUSEUM DIAGNOSIS. Under wing-coverts and axillaries normally almost unspotted orange-rufous, but occasionally the former more or less barred.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	167-169	c. 20	c. 27-28	102-106 mm. (Baker)

COLOURS OF BARE PARTS. Iris yellow. Bill blackish, paler and greenish on culmen and tips; cere dull green. Feet yellowish; claws black.

¹ This, if correct, is another good reason for treating *obscura* as a race of *scutulata* and *affinis* as a distinct species, as has here been done.

647. Nicobar Brown Hawk-Owl. *Ninox affinis isolata* Baker

Ninox scutulata isolata Baker, 1926, Bull. Brit. Orn. Cl. 47: 60 (Car Nicobar)
Baker, FBI No. 1701, Vol. 4: 456

LOCAL NAMES. None recorded.

SIZE. Pigeon —; length *c.* 28 cm. (11 in.).

FIELD CHARACTERS. As of 646, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident; Nicobar Islands. So far known from Car Nicobar, Trinkat, and Camorta. Great Nicobar (?).

GENERAL HABITS, FOOD, VOICE and CALLS. Nothing specifically recorded beyond that Davison observed and shot a specimen hawking moths like a nightjar in low secondary jungle late in the evening.

BREEDING. Unknown.

MUSEUM DIAGNOSIS. Similar to 646 but distinctly larger and browner, less ashy on the upperparts.

MEASUREMENTS

	Wing	Bill	Tarsus	Tail
♂ ♀	185–205	<i>c.</i> 22 (from feathers)	<i>c.</i> 27–28	118–130 mm. (Baker)

COLOURS OF BARE PARTS. As in 646.

Genus *ATHENE* Boie

Athene Boie, 1822, Isis von Oken, Bd. 1, col. 549. Type, by subsequent designation,

A. noctua (Retz.) Boie, Pl. enl. 439. *Str. passerina* auct. = *Strix noctua* Scopoli

Heteroglaux Anonymous = Hume, 1873, Stray Feathers 1: 467. Type, by monotypy,

Heteroglaux blewitti Hume

Contains small owls without ear-tufts with the upper plumage more or less spotted with white. No distinct facial disc or ruff. Cere swollen; nostril a round orifice near its anterior margin. Wing rounded: 3rd primary (as.) longest; 1st primary between 5th and 8th. Tail moderate. Tarsus feathered to the toes which are also covered above with feathers and bristles.

Genus found throughout central Europe, N. Africa, and south and central Asia to China.

Key to the Species

		Page
A	Abdomen longitudinally streaked.....	<i>A. noctua</i> 297
B	Abdomen transversely barred.....	1
1	Crown distinctly spotted; back widely interspersed with subterminal spots; tail narrowly banded with white, less than 5 mm. in width; collar-band broken below; white throat-patch smaller; 1st primary (as.) longer than 6th; skull and feet smaller.	<i>A. brama</i> 299
2	Crown unspotted or faintly spotted on the feather shafts; back plain, spotting much reduced; tail broadly banded with white, more than 5 mm. in width; collar-band continuous; white throat-patch larger, extending to centre of abdomen; 1st primary (as.) equals 7th or shorter than 8th; skull and feet more massive.	<i>A. blewitti</i> 302

ATHENE NOCTUA* (Scopoli)*Key to the Subspecies**

Paler and smaller; wing *c.* 156–168 mm.....*A. n. bactriana*

Darker and larger; wing *c.* 169–173 mm.....*A. n. ludlowi*

648. **Hutton's Owlet.** *Athene noctua bactriana* Blyth

Athene bactrianus Blyth, 1848, in Hutton, Jour. Asiat. Soc. Bengal 16 (2): 776
(Old Kandahar, Afghanistan)

Baker, FBI No. 1687, Vol. 4: 442

LOCAL NAMES. None recorded.

SIZE. Myna; squatter, with shorter tail. Length *c.* 23 cm. (9 in.).

FIELD CHARACTERS. A small, squat, round-headed owl.

Adult. *Above*, sandy brown spotted with white; face 'pepper-and-salt' with pure white supercilia; a conspicuous white collar on hindneck; wings and tail broadly banded with white. *Below*, white, longitudinally streaked with reddish brown on breast and abdomen; a pale brown collar across throat. Sexes alike.

Young (immature). Paler than adult and more streaked with white above and on wings.

STATUS, DISTRIBUTION and HABITAT. Resident and fairly common: Baluchistan (Makran (?), Kalat, Chagai, Quetta, Chaman, etc.) and northward along the Afghan frontier (Thal, Kohat, etc.) from plains level to *c.* 3000 m. altitude. Affects bare, open semi-desert country living in bleak places in holes in earth-cliffs and high bluffs of rivers, rocks, and ruined walls, etc. 'Also visits gardens in cantonments' (Quetta, Christison).

Extralimital. Transcaspia eastward to the plains of the Syr Darya, and southward to Iraq, Iran, Afghanistan.

GENERAL HABITS. Very similar to those of the commoner and more familiar Spotted Owlet (650), q.v. Usually keeps in pairs, or family parties of 3 or 4. Largely crepuscular and nocturnal, but quite wide awake during daytime, sitting about on posts and telegraph wires and flying — even hunting — in the heat and glare of broad sunshine without any apparent discomfort.

FOOD. Beetles and other insects, lizards, small birds, and mice, etc.

VOICE and CALLS. A shrill but not unpleasant, rather plaintive *piu*, repeated every few seconds. Presumably also other calls, but not recorded.

BREEDING. *Season* (in Baluchistan) March to June. *Nests* in holes in earth-cliffs, rocks, crumbling walls, or trees. *Eggs*, 3 to 5 or 6, white, round, typical of owls', *c.* 32 × 28 mm.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Presents a wide range of individual variation, the colour ranging from the normal greyish or sandy brown to dark brown or dark reddish brown, partly but not entirely due to freshness or wear. Feathering on toes also very variable: in freshly moulted birds always more feathered, in worn ones more bristly.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	156–168	<i>c.</i> 18–20	<i>c.</i> 32	84–87 mm. (Baker)

Paludan (1959) gives for Afghan birds: Wing 8 ♂♂ 157–170; 3 ♀♀ 169–174 mm. Weight 138–172 gm.

COLOURS OF BARE PARTS. Iris pure sulphur-yellow. Bill greenish yellow; cere pale greenish white. Feet greenish; claws horny black (Stoliczka).

649. Tibet Owlet. *Athene noctua ludlowi* Baker*Athene noctua ludlowi* Baker, 1926, Bull. Brit. Orn. Cl. 47: 58

(Dochen, 15,000 ft., Rhamtso Lake, Tibet)

Baker, FBI No. 1688, Vol. 4: 443

LOCAL NAME. *Ügpa* (Tibet).**SIZE.** Myna; squatter, with shorter tail. Length *c.* 23 cm. (9 in.).**FIELD CHARACTERS.** As of 648, q.v. See Museum Diagnosis.**STATUS, DISTRIBUTION and HABITAT.** Ladakh (ssp.?) eastward probably through the Tibetan plateau facies of N. Sikkim, N. Bhutan, and northern NEFA, from *c.* 3000 to 4600 m. alt. Affects clay cliffs and bluffs of rivers and outscoured watercourses, stone walls of ruins, etc.*Extralimal.* Tibet.**GENERAL HABITS, FOOD, VOICE and CALLS.** As in 648, q.v.**BREEDING.** Not recorded within our limits. Ludlow took 2 eggs from a nest in a hole under the eaves of an inhabited Tibetan house near Gyantse (at *c.* 3750 m.) on 9 May, measuring *c.* 37 × 29 mm.**MUSEUM DIAGNOSIS.** Differs from *A. n. bactriana* (648) in being darker and larger.**MEASUREMENTS**

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	169–173	18–20	31–32	88–96 mm. (Baker)

COLOURS OF BARE PARTS. Iris yellow. Bill bright yellow. Feet grey; soles yellow (F. M. Bailey).**ATHENE BRAMA (Temminck)****Key to the Subspecies**

		Page
A	Upperparts earthy brown spotted with white..... <i>A. b. indica</i>	299
B	Upperparts darker.....a	
a	Spotted with white..... <i>A. b. brama</i>	302
	Spotting considerably reduced..... <i>A. b. ultra</i>	301

650. Northern Spotted Owlet. *Athene brama indica* (Franklin)*Noctua Indica* Franklin, 1831, Proc. Zool. Soc. London: 115 (Banks of the Ganges and in the mountain chain of upper Hindoostan, i.e. Uttar Pradesh)

Baker, FBI No. 1684, Vol. 4: 440

Vol. 4, plate 46¹**LOCAL NAMES.** *Oolloo*, *Khākūsāt*, *Khūsāttia*, *Chūghād* (Hindi); *Pēncha* (Bihar); *Kūtūrē pēncha* (Bengal); *Dang tang pum* (Lepcha); *Chibirū* (Sind).**SIZE.** Myna ±; length *c.* 21 cm. (8 in.).¹The illustration is of the extralimal Burmese race *pulchra*, which is quite like *indica* only somewhat smaller and darker.

FIELD CHARACTERS. A familiar squat, white-spotted greyish brown little owl with the typical large round head (no ear-tufts) and yellow forwardly directed staring eyes. Sexes alike.



$\times c. 4$

Young (immature). *Above*, much more marked with white, the spots running into definite bars. *Below*, from breast down the dark markings are longitudinal.

STATUS, DISTRIBUTION and HABITAT. Resident and generally common. From the Afghan frontier (Kohat and Peshawar dists.) eastward through

Punjab and Jammu in the plains and along the Himalayan submontane tract (terai, duars, duns — locally up to *c.* 1400 m.) through Nepal, Sikkim, Bhutan to Assam north and south of Brahmaputra river (excepting Lakhimpur dist.); Manipur, East Pakistan (Chittagong and Dacca dists.); Makran, Baluchistan (Sibi and Quetta dists.), Sind, Rajasthan, and east through the entire Gangetic Plain. Kutch, N. Gujarat, and all continental India south to the 20th parallel, the boundary arbitrarily fixed for convenience. Affects the neighbourhood of villages and cultivation, mango topes, groves of ancient trees, and ruins. Avoids heavy forest. In semi-desert areas where suitable trees are scarce, appropriates cavities in the sides of ravines and earth-cliffs, like *Athene noctua*.

Extralimital. Southeastern Iran (Bampur).

GENERAL HABITS. Keeps in pairs or family parties of 3 or 4. Largely crepuscular and nocturnal, but is frequently abroad — and even hunting — in the full glare of noonday. The nocturnal habit is evidently not so much because of intolerance to sunlight as in order to escape the merciless mobbing and chivvying it receives from all diurnal birds the moment it is discovered. Normally retires at sunrise to the seclusion of a tree-hollow or some leafy branch, the pair sitting cuddled closely together. In some localities almost every venerable banyan, tamarind or mango tree will hold a resident pair or two of these little owls, and one has but to tap on the trunk to bring up an inquiring and surprised little staring face to the entrance of a hollow, or dislodge a pair from some shady recess. The birds betray their presence by dashing out fussily to a neighbouring branch whence they bob and stare at the intruder in clownish fashion, with the head often screwed completely round.

Issues from its retreat at dusk to perch on fence-posts, telegraph wires and other points of vantage to look out for prey, pouncing from time to time on some unwary insect, or flying noiselessly across from 'pillar to post'. Will occasionally launch ungainly aerial sallies to catch winged termites in its claws, and sometimes even hover clumsily for a few seconds to espy creeping prey. Commonly uses street lamps as hunting bases, hawking the beetles and moths attracted to the light as they flutter in the circle of illumination, and returning to the perch. Here the quarry is dismembered and devoured, the bird raising one foot to its bill and dealing with the insect as a parakeet does with a nut. Flight, as of other small owls, deeply

undulating, consisting of a few rapid flaps followed by a dip with the wings pressed to the sides.

FOOD. Chiefly beetles, moths, locusts, and other insects; also earthworms, lizards, mice, and small birds. Among insects the following are some that have been identified at Pusa Agricultural Research Institute: *Chrotogonus* spp., *Brachytrypes achatinus*, *Gryllotalpa africana*, *Catharsius sabaeus*, *Onthophagus spinifer*, and various coprids and carabids (Mason & Lefroy, 1912).

VOICE and CALLS. A harsh screechy *chirurrr-chirurrr-chirurrr* etc. followed by or alternated with *cheevak*, *cheevak*, *cheevak*, and a variety of equally discordant screeches and chuckles. Particularly noisy in breeding season.

BREEDING. *Season*, February to April. *Nest*, a natural hollow in a tree-trunk, a hole in a dilapidated wall, or between the ceiling and roof of deserted as well as occupied dwellings — sometimes lined with a little grass, tow, and feathers. *Eggs*, 3 or 4, occasionally 5, white, roundish ovals. Average size of 50 eggs 32.2×27.1 mm. (Baker). Both sexes share in lining the nest, incubation, and tending the young. Incubation period undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.

Chick (in down). 'Pure white, short and very soft prepennae cover body, except apterions of lateral neck, lateral body in front, and each side of spinal tract above. Some preplumulae of same type of down on lateral apteria in front' (Ticehurst).

Moult. Post-nuptial moult complete and no spring moult. Post-juvenal moult apparently does not include wings and tail.

MEASUREMENTS of a series from Punjab and Nepal:

	Wing	Bill (from skull)	Tail
18 ♂♂	153-169	19-22	75-84 mm.
8 ♀♀	159-171	18-23	74-84 mm.
			(HW, BB)

Tarsus 4 ♂♀ 30-32 mm.; middle toe (without claw) 16.5-18 mm. (SDR).

Weight 1 ♂ 114 gm. (GD).

COLOURS OF BARE PARTS. Iris pale to deep golden yellow. Bill greenish horny, sometimes darker sometimes more yellow on culmen; cere dusky green or greenish brown. Feet dirty yellowish green; claws dark horny; sole pads yellowish white.

651. **East Assam Spotted Owlet.** *Athene brama ultra* Ripley

Athene brama ultra Ripley, 1948, Proc. Biol. Soc. Washington 61: 100

(Chabua, N. Lakhimpur dist., NE. Assam)

Not in Baker, FBI

LOCAL NAMES. None recorded.

SIZE. Myna $\pm$; length c. 21 cm. (8 in.).

FIELD CHARACTERS. As of 650, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Lakhimpur dist., NE. Assam north and south of Brahmaputra and Luhit rivers. Affects groves of ancient trees in and about towns and villages.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 650. 'Call distinctly harsher and more high-pitched than either *A. b. brama* or *A. b. indica*' (SDR).

BREEDING. Unrecorded. Presumably not different from 650.

MUSEUM DIAGNOSIS. Differs from *indica* by somewhat larger size and darker coloration; with the white spotting considerably reduced.

MEASUREMENTS

2 ♂♂ Wing 164–167; bill (from cere) 15–16; tail 83–93 mm. (SDR).

COLOURS OF BARE PARTS. As in 650.

652. Southern Spotted Owlet. *Athene brama brama* (Temminck)

Strix brama Temminck, 1821, Pl. col., livr. 12, pl. 68

(Pondicherry and west coast of India)

Carins brama fryi Baker, 1919, Bull. Brit. Orn. Cl. 40: 60

(Rameswaram, Madras, India)

Baker, FBI No. 1683, Vol. 4: 439

LOCAL NAMES. *Pāḡḍḍigantē* (Telugu); *Pūlli āndai* (Tamil); *Pinglā* (Marathi); *Chibri* (Gujarati).

SIZE. Myna $\pm$; length *c.* 21 cm. (8 in.).

FIELD CHARACTERS. As of 650, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident. Peninsular India south of 20°N. lat., the boundary fixed for convenience between the northern and southern populations which intergrade around this parallel. Affects ruins, mango topes and groves of ancient trees, etc. in and around towns, villages and cultivation.

Curiously enough not found in Ceylon though occurring on Rameswaram I. only *c.* 30 km. from its northern tip!

GENERAL HABITS, FOOD, VOICE and CALLS. As in 650, q.v.

BREEDING. Season, chiefly November to March. Nest and eggs (3 or 4) as in the northern form. Average size of 40 eggs 31.6 × 27.4 mm. (Baker). Eggs apparently laid at irregular intervals, and incubation starts from the first egg, resulting in considerable disparity in the growth of nestlings in the same brood, and mortality amongst the youngest and weakest.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Differs from the northern race *indica* in being considerably darker and smaller.

MEASUREMENTS of a series from South India (Kerala, Mysore, Tamil Nadu):

	Wing	Bill (from skull)	Tail
12 ♂♂	141–158	19–21	66–72 mm.
12 ♀♀	151–157	20–22	68–74 mm. (HW, SA)

Tarsus *c.* 27–28 mm.

COLOURS OF BARE PARTS. As in 650.

653. Forest Spotted Owlet. *Athene blewitti* (Hume)

Heteroglaux Blewitti Anonymous = Hume, 1873, Stray Feathers 1: 468
(Busnah, Phooljan State, India) [= Phuljhar, *c.* 21°N., 83°E., Madhya Pradesh]

Baker, FBI No. 1686, Vol. 4: 441

Plate 43, fig. 2, facing p. 304 and Sketch, p. 309

LOCAL NAMES. None recorded.

SIZE. Myna $\pm$; length *c.* 23 cm. (9 in.).

FIELD CHARACTERS. Very like Spotted Owlet (650) but larger though with shorter wings.

Adult. *Above*, whole head, back sides of neck, scapulars, and interscapular region unspotted dark earthy brown; hind collar of white spots ill defined. *Below*, a strongly marked dark brown bar across throat; underparts more brown less white; breast brown with merely white fringes to the feathers. Sexes alike. (For details see Ripley, S.D., 1976, JBNHS 73: 1-4.)

STATUS, DISTRIBUTION and HABITAT. Rare but apparently extending all along the Satpura mountain trend for over 1100 km. from Surat Dangs and W. Khandesh to eastern Madhya Pradesh and the Sambalpur area in Orissa. Since first described in 1873 less than a dozen specimens have been collected, the latest in October 1914 at Mandvi on Tapti river (21°16'N., 73°22'E.), c. 220 km. north of Bombay, by Meinertzhagen. Affects heavy moist deciduous jungle and groves of wild mango; partial to the neighbourhood of streams.

GENERAL HABITS. Very little known. Evidently a fairly diurnal and shy forest representative of the Spotted Owlet. Some of the specimens were shot in heavy jungle below the Satpuras late in the morning while sitting alone on the exposed tops of thin trees. 'Not uncommon in this dense jungle' (West Khandesh — J. Davidson, SF 10: 292).

FOOD, VOICE and CALLS, BREEDING. Not recorded.

MUSEUM DIAGNOSIS. See Key to the Species. Tarsus feathered; upper surface of toes with soft feathers, the barbs of which wear away, leaving the shafts only in some specimens (Blanford).

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail	Middle toe (without claw)
3 ♂♂	145-154	14-15	33-35	68-72.5	20-23 mm.
2 ♀♀	147.5, 148	15.5, 16	34.5, 37	63, 70	21, 21 mm.

Weight of one ♂ 8½ oz. (241 gm.) — Blanford. (SDR)

COLOURS OF BARE PARTS. Iris bright yellow. Rest not recorded.

Genus *STRIX* Linnaeus

Strix Linnaeus, 1758, Syst. Nat., ed. 10, 1: 92. Type, by tautonymy, *Strix stridula* Linnaeus (*Strix*, prebinomial specific name in synonymy) = *Strix aluco* Linnaeus

No ear-tufts (aigrettes); ear furnished with an operculum. Bill stout. Tarsus thickly feathered throughout; toes feathered above to base of last phalanx; claws strong. Ruff narrow, incomplete above; facial disc well developed, extending almost as far above eyes as below. Wings rounded: 3rd, 4th, and 5th primaries (as.) longest. Tail of moderate length, rounded. Irides always dark.

Genus represented over the greater part of the world; within our limits by four species.

Key to the Species

	Page
A Lower plumage with longitudinal streaks and transverse bars... <i>S. aluco</i>	310
B Lower surface streaked only..... <i>S. butleri</i>	304
C Lower surface with bars only..... 1	
1 A dark brown patch running back from the eye on either side of the neck..... <i>S. ocellata</i>	304
No dark brown patch running back from the eye.... <i>S. leptogrammica</i>	307

654. **Hume's Wood Owl.** *Strix butleri* (Hume)*Asio butleri* Anonymous = Hume, 1878, Stray Feathers 7: 316

(Omara [= Ormara], Mekran Coast, southern Baluchistan)

Baker, FBI No. 1651, Vol. 4: 404

LOCAL NAMES. None recorded.

SIZE. Pigeon +; length c. 36 cm. (14 in.).

FIELD CHARACTERS. Like a small Himalayan Wood Owl (662), but conspicuously paler and less streaked on the underparts.

Adult. Above, no ear-tufts; facial disc tawny white; ruff greyish brown finely stippled with buff. Upperparts chiefly brown irregularly banded and splodged with brownish buff; a distinct golden buff collar on upper back. Below, creamy white, the feathers edged at tip with rufous brown; narrow brown shaft-streaks on breast and upper abdomen. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Very rare. Only a single record (the type) from Ormara, Makran coast, W. Pakistan.

Extralimital. Known only from individual specimens from Sinai Peninsula, SE. Palestine, and Arabia (Mahd Dhahab, c. 400 km. NNE. of Jiddah). Evidently very rare everywhere.

GENERAL HABITS, FOOD. Not described.

VOICE and CALLS. 'An-unmistakable clear long-drawn huu uttered at intervals, sometimes varied by a tremulous and more throaty hoot as in *Strix aluco*' (Meinertzhagen).

BREEDING. Unknown.

MUSEUM DIAGNOSIS. 3rd primary (as.) longest; 4th very little shorter. Slender tarsi and small feet and claws striking. For details of plumage see Baker, loc. cit.

MEASUREMENTS. Wing 5 ♂ ♀ 251–257 mm. (Meinertzhagen). Bill (from feathers) 28; tarsus 57; tail 144 mm. (of the type specimen) — Baker.

COLOURS OF BARE PARTS. Not recorded.

STRIX OCELLATA (Lesson)

Key to the Subspecies

- A Paler above; wing in male c. 338–346 mm.....*S. o. grisescens*
 B Darker above 1
 1 Wing in male c. 333–338 mm.....*S. o. ocellata*
 Wing in male c. 360–372 mm.....*S. o. grandis*

655. **Saurashtra Mottled Wood Owl.** *Strix ocellata grandis* Koelz*Strix ocellata grandis* Koelz, 1950, Amer. Mus. Novit., No. 1452: 4

(Sasan, Junagadh, Kathiawar, W. India)

Baker, FBI No. 1649 (part), Vol. 4: 402

LOCAL NAME. *Girnāri ghūdd* (Gujarati).

SIZE. Pariah Kite ±; dumpier and with shorter tail. Length c. 48 cm. (19 in.).

FIELD CHARACTERS. As of 657, q.v. See Museum Diagnosis.

1 *Otus brucei*, Striated Scops Owl (614). 2 *Athene blewitti*, Forest Spotted Owlet (653). 3 *Asio f. flammeus*, Shorteared Owl (664). 4 *Otus scops sumia*, Scops Owl (616). 5 *Strix aluco nivicola*, Himalayan Wood Owl (662). 6 *Strix o. ocellata*, Mottled Wood Owl (657). 7 *Strix leptogrammica indralee*, Brown Wood Owl (659). 8 *Bubo c. coromandus*, Dusky Horned Owl (630). 9 *Bubo bubo bengalensis*, Eagle-Owl (627).

PLATE 43



STATUS, DISTRIBUTION and HABITAT. Saurashtra peninsula, Gujarat. Affects mango topes, and groves of ancient tamarind trees, etc. near villages and cultivation.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 657, q.v.

BREEDING. *Season, nest, and eggs* as in 657.

MUSEUM DIAGNOSIS. 'Differs from nominate *ocellata* (657) in being much larger; similar in coloration, but averaging greyer above; size of black areas on back and nape reduced' (Koelz).

MEASUREMENTS

2 ♂♂ Wing 360, 372; tail 197, 203 mm. (Koelz).

COLOURS OF BARE PARTS. As in 657.

656. Northern Mottled Wood Owl. *Strix ocellata grisescens* Koelz

Strix ocellata grisescens Koelz, 1950, Amer. Mus. Novit., No. 1452: 4

(Nichlaul, U.P. [NE. of Gorakhpur], N. India)

Baker, FBI No. 1649 (part), Vol. 4: 402

LOCAL NAMES. None recorded.

SIZE. Pariah Kite $\pm$; dumpier and with shorter tail. Length *c.* 48 cm. (19 in.).

FIELD CHARACTERS. As of 657, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident and widely distributed. The northern part of the subcontinent from the base of the Himalayas south to an undetermined boundary; from *c.* 74°E. long. in the Punjab (Lahore), and Jammu, south through Rajasthan, eastward across the Gangetic Plain (Uttar Pradesh, Bihar, W. Bengal). Not Assam or East Pakistan (?). Affects mango topes, groves of ancient banyan, tamarind, and suchlike densely foliated trees about village homesteads and cultivation.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 657, q.v.

BREEDING. *Season*, chiefly February and March. *Nest and eggs* as in the nominate race (657). Eggs not measured separately from those of *ocellata*.

MUSEUM DIAGNOSIS. 'Differs from *ocellata* by slightly larger size and lighter coloration of the upperparts. Black bars on scapulars, wing- and tail-feathers narrower; the black and white spots in the rufous area of the neck mostly white, while they are largely black in *ocellata*; rufous parts of plumage often paler' (Koelz).

MEASUREMENTS

Wing ♂♂ 338-346 mm. (Koelz).

COLOURS OF BARE PARTS. As in 657.

657. Southern Mottled Wood Owl. *Strix ocellata ocellata* (Lesson)

Syrnium ocellatum Lesson, 1839, Rev. Zool.: 289 (Pondicherry)

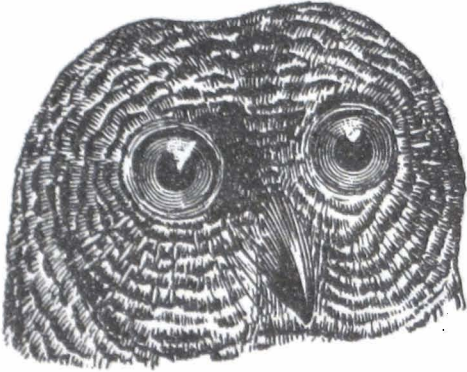
Baker, FBI No. 1649 (part), Vol. 4: 402

Plate 43, fig. 6, facing p. 304

LOCAL NAME. *Kolikkūravan* (Malayalam).

SIZE. Pariah Kite $\pm$; dumpier and with shorter tail. Length *c.* 48 cm. (19 in.).

FIELD CHARACTERS. A large owl without ear-tufts; beautifully mottled and vermiculated above with reddish brown, black, white, and buff. Facial disc white, finely barred concentrically with black; ruff white-and-black with chocolate admixed. *Below*, throat chestnut and black, stippled with white; a prominent white half-collar on foreneck. Rest of underparts white and golden buff, narrowly barred with blackish. Sexes alike. Large amount of yellowish buff on wings conspicuous in flight.



× c. ½

STATUS, DISTRIBUTION and HABITAT. Resident and widely distributed throughout peninsular India from southern Kerala and Tamil Nadu northward through Mysore, Andhra, Maharashtra, Gujarat, Madhya Pradesh, Orissa; zone of diffusion with the northern population (*griseus*) undetermined. Does not occur in Ceylon. Affects lightly wooded plains country; partial to mango topes, groves of ancient tamarind, banyan, and suchlike densely foliated trees on the outskirts of villages, homesteads, and cultivation.

GENERAL HABITS. Largely nocturnal. Pairs spend the day sitting together and dozing on some secluded branch hidden in the foliage. But when disturbed will fly long distances in bright sunlight without any apparent discomfort. At the end of the flight sweeps upwards to settle well within the seclusion of the foliage canopy, unlike *Bubo* which prefers to alight on the peripheral branches.

FOOD. Rats, mice, and other rodents; birds up to size of blue rock pigeon; lizards, crabs, beetles and other large insects. In one stomach was found a large scorpion (*Buthus?*) complete with sting!

VOICE and CALLS. In the breeding season, particularly, a loud quavering *ceerie chūhūa-aa* uttered regularly as the birds emerge from their daytime retreat, and again before retiring at dawn; also from time to time during the night, but not very frequently. At other seasons mostly a single mellow, metallic hoot. An occasional harsh screech similar to the Barn Owl's.

BREEDING. *Season*, November to April. *Nest*, a natural tree-hollow, practically unlined. Has been recorded building a stick nest like Dusky Horned Owl (630), but this very unusual. *Eggs*, normally 2, occasionally 3, creamy white, roundish. Average size of 18 eggs 51.1 × 42.6 mm. (Baker). Share of the sexes in incubation, incubation period, and other details unknown.

MUSEUM DIAGNOSIS. Characterized by a dark brown patch running back from the eye on either side of the neck. For details of plumage see Baker, loc. cit.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	320-345	36-39	54-56	174-201 mm. (Baker)

6 recent specimens from Gujarat and S. India give

		Bill (from skull)		
♂ ♀	333-357	38-42	61-65	177-193 mm. (SA, HW)

COLOURS OF BARE PARTS. Iris dark brown; eyelids (fine rim) dusky pink or dull coral-red. Bill horny black, paler at tip; mouth pale yellowish pink. Feet brownish flesh or dirty yellowish brown; claws horny black; soles yellow.

STRIX LEPTOGRAMMICA Temminck

Key to the Subspecies

	Page
Facial disc rufous; wing <i>c.</i> 291–348 mm..... <i>S. l. indranje</i>	308
Facial disc white; wing <i>c.</i> 382–412 mm..... <i>S. l. newarensis</i>	307

658. Himalayan Brown Wood Owl. *Strix leptogrammica newarensis* (Hodgson)

Ulula newarensis Hodgson, 1836, *Asiat. Res.* 19: 168 (Nepal)

Baker, FBI No. 1647, Vol. 4: 400

LOCAL NAMES. *Būlākā* (Nepal); *Mik dab bru* (Lepcha).

SIZE. Pariah Kite —; dumpier. Length *c.* 53 cm. (21 in.).

FIELD CHARACTERS. A large brown owl with close-barred underparts, whitish facial disc framed with brown, and no ear-tufts. A prominent white supercilium.

Adult. *Above*, chocolate-brown; scapulars, wings and upper tail-coverts barred with white. Tail brown, barred with fulvous and tipped with white. *Below*, chin mixed chocolate and white; a pure white patch on throat. Rest of lower plumage pale fulvous or buffy white suffused with brownish on breast, and closely barred with dark brown. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident throughout the Himalayas from W. Pakistan (Punjab) through Himachal Pradesh, Garhwal, Kumaon, Nepal, Sikkim, Bhutan (?) and NEFA (?) from *c.* 750 to 2450 m. alt. (recorded from *c.* as high as 4000 m.). Also Garo, Khasi, Cachar, Naga and Manipur hills. Affects deep forest.

Extralimital. N. and C. Burma, N. Thailand (evidently this race).

GENERAL HABITS, FOOD, VOICE and CALLS. Nocturnal. Keeps in pairs within heavy forest during daytime; this perhaps more to escape mobbing by diurnal birds than from any disability caused by sunshine. Very shy; easily disturbed at its daytime retreat by the faintest footfall, flying away swiftly and noiselessly from the intruder, threading its way through the welter of tree-trunks and branches with ease, and moving on further at longer and longer distances if followed.

FOOD. As in 659. Rat, dove and jungle myna identified among stomach contents.

VOICE and CALLS. 'A low double hoot *tu-whoo*' (S. L. Whympers). '(1) Very much like that of a male domestic pigeon, (2) a low sonorous squawk, possibly an alarm note, (3) a loud snapping of the bill when annoyed' (A. E. Jones). Sometimes calls also during daytime.

BREEDING. *Season*, January to March. *Nest*, of a few sticks and feathers in the hollow of a forking tree-trunk, on a shelf in a cliff-face, or shallow

scrape in the bare ground at the foot of a rock or large tree in some shady ravine. *Eggs*, normally 2, sometimes only a singleton, white, roundish oval. Average size of 16 eggs 56.2×45.9 mm. (Baker). Share of the sexes in the domestic chores, incubation period, and other details unknown.

MUSEUM DIAGNOSIS. Differs from the peninsular race *indranee* (659) in being much larger, with the facial disc whitish or only faintly fulvous; supercilium a purer white; terminal band on tail-feathers generally more white; underparts less fulvous, more white.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	382-412	c. 40-45	c. 53-56	229-335 mm. (Baker)

COLOURS OF BARE PARTS. As in 659.

659, 660, 660a. **Brown Wood Owl.** *Strix leptogrammica indranee* Sykes

Strix indranee Sykes, 1832, Proc. Zool. Soc. London: 82

(The Ghauts = Lonauli, Western Ghats)

Syrnium ochrogenys Hume, 1873, Stray Feathers 1: 431, in text (Ceylon)

Strix leptogrammica connectens Koelz, 1950, Amer. Mus. Novit., No. 1452: 3

(Amrastī [sic] = Amraoti, Bastar, Central Provinces)

Cf. Ripley, S. D., 1977, JBNHS 73: 1-4

Baker, FBI No. 1646, Vol. 4: 399

Plate 43, fig. 7, facing p. 304

LOCAL NAME. *Kolikkūravan* (Malayalam).

SIZE. Pariah Kite —; dumpier. Length c. 47 cm. (18½ in.).

FIELD CHARACTERS. As of 658, q.v. See Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Resident in the heavy evergreen and moist-deciduous forests of the Western and Eastern Ghats and their associated hill ranges in peninsular India roughly south of Mahabaleshwar (c. 18°N.) in Maharashtra, Madhya Pradesh (Bastar dist.), Orissa (Russelkonda), and south along the Eastern Ghats to the Shevaroy Hills and Kerala, and Ceylon. Also NE. India in Assam, Meghalaya, Nagaland and Manipur. Lowlands and up to c. 1800 m in the Nilgiris and Palnis, and 2100 m in Ceylon.

GENERAL HABITS. As in *newarensis* (658), q.v.

FOOD. Rodents, birds, reptiles, and reportedly fish.

VOICE and CALLS. A mellow, musical, hollow-sounding *tok . . . tū-hoo* repeated every few seconds. The initial *tok* (sometimes twice) is a low undertone and audible only at close range. Birds particularly vocal during moonlight nights, and in the breeding season. Also utters a variety of weird, eerie shrieks and chuckles, in addition to the loud bill-snapping.

BREEDING. *Season*, January to March. *Nest* and *eggs* also as in 658. Average size of 9 eggs 49.9×44.1 mm. (Baker).

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Differs from the Himalayan race *newarensis* (658) in being much smaller, with the facial disc as a rule distinctly more ochreous or fulvous; supercilium less pure white; crown darker, nape paler. Birds from the Assam hills approach South Indian examples in colour, but are much larger.

Young (immature). Feathers with broad whitish edges, especially on crown and upper back. Wing-coverts pale dull rufous, barred with pale buff and broadly tipped with white. Underparts white at first, gradually assuming the barring.

MEASUREMENTS

	Wing	Bill (from cere)	Tarsus	Tail
♂ ♀	291-360	c. 42	52-58	186-197 mm. (Various)

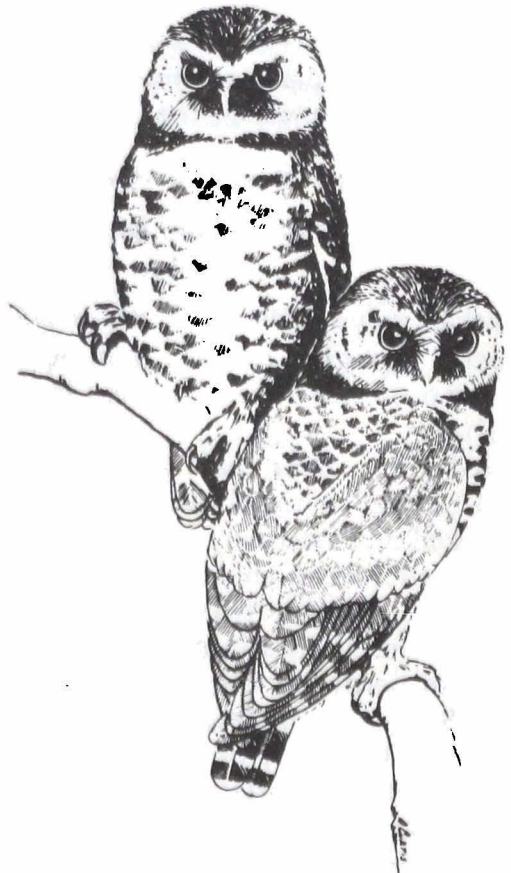
Bill from feathers 48-50 mm. (Baker)

COLOURS OF BARE PARTS. Iris brown ('rarely golden yellow' — Baker). Bill greenish horny, bluish near base; cere plumbeous. Feet pale leaden; claws dusky plumbeous.

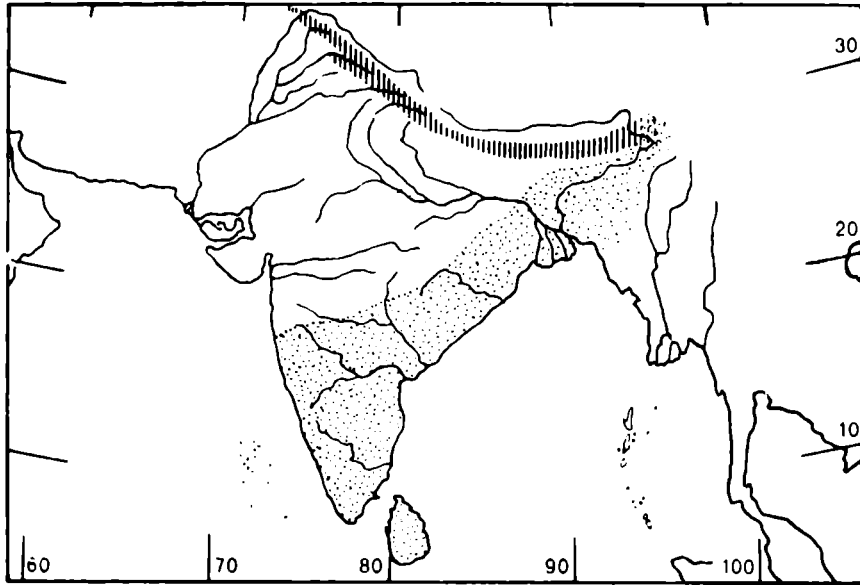
MISCELLANEOUS. Was introduced in the Laccadive in the 1870s under a hard-brained governmental plan for combating a plague of rats (*Rattus rufescens*). The grossly incompatible ecological conditions on these unforested coral islands, which the planners seem to have overlooked, soon brought an end to the birds but not to the rats! For an amusing account of this venture see Hume, SF 4: 433-4.



Athene brama
Spotted Owlet (650)



Athene blewitti,
Forest Spotted Owlet (653)

Strix leptogrammica

newarensis (658) indrancee (659)

STRIX ALUCO Linnaeus

Key to the Subspecies

Upper plumage streaked as well as barred *S. a. biddulphi*

Upper plumage not streaked but barred only *S. a. nivicola*

661. **Scully's Wood Owl.** *Strix aluco biddulphi* Scully

Strix biddulphi Scully, 1881, Ibis: 423, pl. 14 (Gilgit)

Baker, FBI No. 1644, Vol. 4: 397

LOCAL NAMES. *Rātā mogūl*, *Rāt monglū* (Kashmir).

SIZE. Jungle Crow $\pm$; dumpier. Length *c.* 47 cm. (*c.* 18½ in.).

FIELD CHARACTERS. A large brown owl with whitish facial disc and no ear-tufts.

Adult. *Above*, pale grey-brown streaked and barred with dark brown and mottled with whitish. *Below*, white; close-barred on chin and throat, streaked and narrowly barred on rest of underparts. Eyes dark brown; call diagnostic. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Resident, moving down from the highest levels in winter. Northern Baluchistan and northward along the Afghan border to Chitral, Gilgit, Baltistan, and Kashmir, between *c.* 1500 and 3800 m. occasionally nesting above tree line. Common in all wooded areas in Kashmir, in the main and side valleys. Partial to forests of oak, pine, and fir. Its status *vis-à-vis* *nivicola* in the region of southern Kashmir and Himachal Pradesh unclear. Generally replaces *nivicola* north of Simla and Mussooree.

Extralimital. Afghanistan.

GENERAL HABITS. Nocturnal, perhaps largely because of the merciless mobbing and chivvying it invariably suffers from crows and other diurnal birds as soon as discovered in daytime. Spends the day standing upright and motionless on a branch close to the trunk, partially concealed by foliage,

dozing with eyes half closed, looking deceptively like a dead snag; often in a low bush or even on the ground in a shady ravine. Very parochial, pairs — presumably the same — occupying restricted territories and using the same nesting and roosting sites year after year if undisturbed.

FOOD. Rats and other small mammals, especially voles (*Alticola* spp.), birds (bulbul, blackbird), lizards, beetles, etc.

VOICE and CALLS. A loud *hoo* *hoo* . . *hoo-ho-ho-hooo*, the final *hoo* being somewhat drawn out. There is a pause of about four seconds after the initial *hoo*, and half a second between the second and the rest of the concluding rolling note. 'The notes are not unlike those of the Turtle Dove' (Bates). Other calls sometimes heard are a loud *quack*, and a soft *coo* 'very similar to the call of the Ring Dove' (Osmaston). The calling begins an hour or so after sunset, generally from some exposed tree-top and is repeated often for 10 minutes at a time, a pair or number of birds calling and answering one another. When flying about at night a note repeatedly uttered sounding like *khawak*; occasionally also when perched (Magrath).

BREEDING. *Season*, apparently March to May probably varying somewhat with altitude. *Nest*, an unlined natural hollow in a tree-trunk, often quite low down and in close proximity to an occupied village hut (Kashmir). Sometimes in a recess or fissure under a large rock. *Eggs*, usually 2, rarely 3, white, roundish ovals. Average size of 5 eggs 50.6×43.3 mm. Share of the sexes in incubation, and incubation period, undetermined.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit. Tone of upper plumage paler and greyer than in *nivicola*, without any rufous tinge; longitudinally streaked as well as barred *v.* barred only in 662.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	285-335	c. 33-35	50-51	191-210 mm. (Baker)

Wing 6 ♂♂ 288-320; 6 ♀♀ 318-341 mm. *S. a. nivicola* ♀♀ rarely exceed 310 mm. (Meinertzhagen, 1927, *Ibis*: 606).

COLOURS OF BARE PARTS. Iris dark brown. Bill greenish, yellow at tip; cere olive. Toes pale green; claws horny black, slaty at base.

662. **Himalayan Wood Owl.** *Strix aluco nivicola* (Blyth)

Syrnium niviculum 'Hodgson' = Blyth, 1845, Jour. Asiat. Soc. Bengal 14 (1): 185 ('Himalaya', i.e. Nepal)

Strix nivicola obrieni Koelz, 1954, Contrib. Inst. Regional Exploration, No. 1: 27 (Blue Mountain, Lushai Hills)

Baker, FBI No. 1645, Vol. 4: 398

Plate 43, fig. 5, facing p. 304

LOCAL NAMES. *Kashi op tak pum* (Lepcha); *Ūko* (Bhutea).

SIZE. Jungle Crow $\pm$; dumpier. Length c. 45 cm. (c. $17\frac{1}{2}$ in.).

FIELD CHARACTERS. A large brown owl with whitish facial disc, no ear-tufts, and close-barred and streaked underparts. Similar to 661, but see Museum Diagnosis.

Young (immature). *Above*, marked with narrow whitish, or fulvous, and broad dark brown bars; *below*, with equally broad bars of dull brown and pale or rich fulvous. Tail and wings as in adult.

STATUS, DISTRIBUTION and HABITAT. Resident. The Himalayas between c. 1200 and 4250 m. altitude, from Murree in W. Pakistan eastward through Himachal Pradesh (race?), Garhwal, Kumaon, Nepal, Sikkim, Bhutan, and NEFA. Assam hills north and south of Brahmaputra river, Nagaland, Manipur, Mizo. Affects oak, pine, and fir forest.

Extralimital. Probably N. Burma. 'Shan States; China in provinces of Kansu, Szechuan, Yunnan, Hupeh, Kwangtung and Kweichow' (Peters).

GENERAL HABITS, FOOD. As in 661, q.v.

VOICE and CALLS. As in 661, but two other calls described besides the normal treble hoot: a 'hurried deep low *hu-hoo*' (Whistler), and 'a note which could be produced by placing a blade of grass between the two thumbs and then blowing through these sharply' (? cf. *khawak* under 661). This possibly a nuptial call uttered (during courtship display ?) 'usually on the wing as the bird soars up vertically for a few yards and descends for some distance with wings closed, gradually opening its wings and finally settling on the nearest suitable point of vantage' (P. T. L. Dodsworth, JBNHS 22: 627).

BREEDING. *Season*, mainly mid January to end April. *Nest and eggs* (2 or 3) as in 661. Average size of 13 eggs 48.2×41.6 mm. (Eaker).

MUSEUM DIAGNOSIS. Similar to *biddulphi* (661) but very much darker above, the general tone being dark brown rather than pale grey. Dark markings on upperparts in the nature of bars only; no longitudinal streaks. Both barring and streaking on lower plumage bolder and darker. In the eastern part of its range, i.e. from about Nepal eastwards, has two distinct phases: one very rufous, the other greyish rufous.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♀	282-312	c. 22-24	c. 45-48	168-175 mm. (Baker)
		(from skull)		
1 ♂ (Bhutan)	303	33	62	180 mm. (SA)

Weight 2 ♂♂ 375, 392, 1 ♀ 380 gm. (SA, GD). 1 ♀ 470 gm. (BB).

COLOURS OF BARE PARTS. Iris brown. Bill pale yellowish flesh; cere olive-brown. Tarsus woolly; toes partially feathered, plumbeous at ends; claws horny brown.

Genus *Asio* Brisson

Asio Brisson, 1760, Orn. 1: 28. Type, by tautonymy, *Asio* Brisson = *Strix otus* Linnaeus

Aigrettes or ear-tufts present but varying in size. Bill short and strong, the part covered by the cere longer than rest of culmen. Facial disc well marked, nearly as high above the eyes as below; ruff complete or nearly so. Wing long and pointed: 2nd primary (as.) longest; 3rd nearly equal to it. Tail moderate and rounded. Tarsus and upper part of toes thickly feathered. Iris yellow.

Represented within our limits by two migratory Palearctic species.

Key to the Species

Transverse as well as longitudinal markings on abdomen *A. otus*

No transverse markings on abdomen *A. flammeus*

663. **Longeared Owl.** *Asio otus otus* (Linnaeus)

Strix Otus Linnaeus, 1758, Syst. Nat., ed. 10, 1: 192 (Europa, restricted type locality
= Sweden, ex Faun. Svec.)

Baker, FBI No. 1642, Vol. 4: 393

LOCAL NAMES. None recorded.

SIZE. Pigeon +; length *c.* 37 cm. (14½ in.).

FIELD CHARACTERS. A slim medium-sized owl, mottled grey-brown above, buff below, boldly streaked and barred with blackish. Two long, upstanding black-and-buff ear-tufts; yellow eyes. Sexes alike. When ears not prominent, may — on a good view — be distinguished from Shorteared Owl by heavily streaked *v.* plain unmarked-looking underparts.



× *c.* 1

STATUS, DISTRIBUTION and HABITAT. Within our limits recorded breeding once in Kashmir (Gurais — B. A. G. Shelley, 1895, JBNHS 10: 149) and once in N. Baluchistan (Quetta; A. F. P. Christison, MS., *c.* 1941). Mainly seasonal visitor to the northwestern parts — winter in the plains, summer (breeding?) at higher altitudes. Described variously as

vagrant, rare, and as locally not uncommon and even 'fairly plentiful' in some years: Sind, N. Baluchistan (Quetta dist.), Afghan frontier (Kohat dist.), Gilgit, Chitral, Kashmir, Baltistan, Himachal Pradesh (Chamba, Lahul); Punjab (Lahore, Rawalpindi (?), and Shahpur dists.), Delhi dist., Nepal, Gujarat (Kutch dist.); from plains level to *c.* 1800 m. alt. Affects semi-desert country — low jungle of stunted trees, poplar plantations, tall grass on waste land, etc. Bhutan (specimen. Biswas).

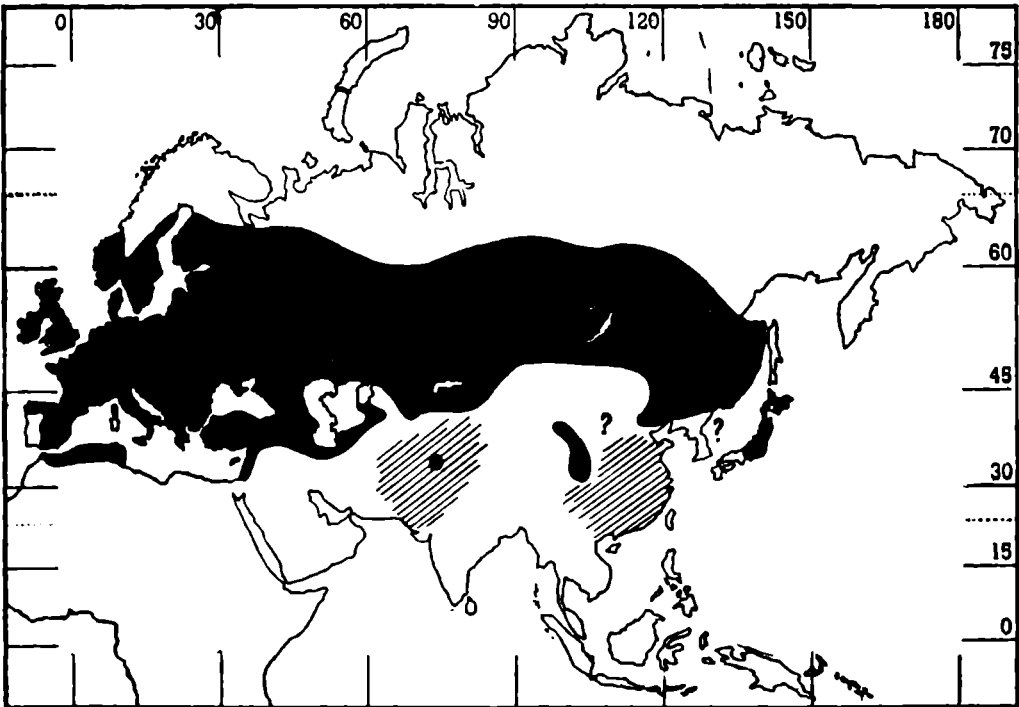
GENERAL HABITS. One of the most nocturnal owls, seldom seen except in the gathering dusk or at early dawn, or when flushed by chance. Usually keeps singly, but parties of 5 to 8 have been recorded (Punjab, Baluchistan) probably on migration passage. Roosts during daytime standing upright on a leafy branch close to the trunk with its plumage sleeked and body elongated or attenuated, making itself remarkably inconspicuous; thus doubtless often escaping observation. Sometimes rests on the ground under a bush or grass-tussock.

Extralimital. More or less throughout Europe and palaearctic Asia north to between *c.* 58° and 66°N. lat., and NW. Africa (see map).

FOOD. Rats, mice, and other small mammals; birds, lizards, beetles, etc.

VOICE and CALLS. Not recorded in India. Elsewhere 'the most characteristic note is the "song", a long drawn, low *ōō. ōō. ōō . . .*, a cooing moan

Asio otus



■ Breeding range ▨ Winter

rather than a hoot, with the notes spaced at regular intervals of about one every third second, and audible as much as half a mile ' (C. B. Moffat in Witherby, where some other notes also described).

BREEDING. *Season* in Europe mid March to early May. Of the two cases authenticated within our limits the first nest with 4 highly incubated eggs was found on 4 June 1895 (above Gurais, Kashmir), the second in Galbraith Spinney, Quetta (date not mentioned). *Nest*, in the first case a dilapidated nest, probably crow's, c. 4 m. up in a sycamore tree; in the second case an old magpie's nest was used. *Eggs*, elsewhere usually 4 or 5, broad white ovals, slightly glossy. Average size of 100 British eggs 40·94 × 32·7 mm. (Witherby).

MUSEUM DIAGNOSIS. For description of plumages and structure (also bionomics), see Witherby, 1938, 2: 327-31.

MEASUREMENTS

	Wing	Tarsus	Tail
♂ ♀	285-305*	c. 40	140-155 mm.

* Rarely as small as 280 mm. or as large as 310 mm. (Hartert)

' Culmen c. 28-29 mm.; cere c. 6-8 mm.' (Baker).
Weight 1 ♀ 8·75 oz. (c. 250 gm.) — Biddulph. 1 ♀ 290 gm. — BB.

COLOURS OF BARE PARTS. Iris bright golden orange. Bill blackish horn, greyish flesh at tip. Claws blackish horn (Witherby).

664. Shorteared Owl. *Asio flammeus flammeus* (Pontoppidan)

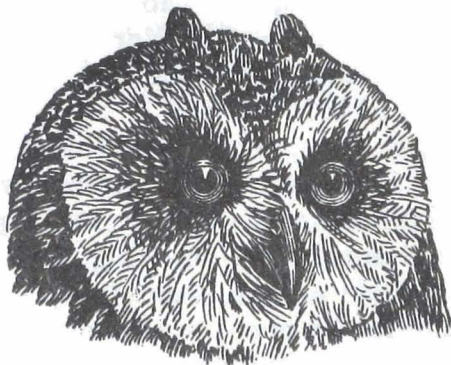
Strix Flammea Pontoppidan, 1763, Dansk. Atlas 1: 617, pl. 25 (Sweden)
Baker, FBI No. 1643, Vol. 4: 394

Plate 43, fig. 3, facing p. 304

LOCAL NAMES. *Pūcha mūnga* (Malayalam); *Bassā* (Sinhala); *Āndai* (Tamil); *Būkhamoonu* (Maldivian).

SIZE. Pigeon +; length *c.* 38 cm. (15 in.).

FIELD CHARACTERS. A slim medium-sized owl, overall pale buff, heavily streaked with dark brown, and with a darker greyish head. Facial disc white with bristly black feathers intermixed, surrounded by a dark brown ruff. Two short blackish brown upstanding ear-tufts above the yellow eyes. Wings and tail barred rufous and black. *Below*, pale buff, longitudinally brown-streaked on breast. Sexes alike.

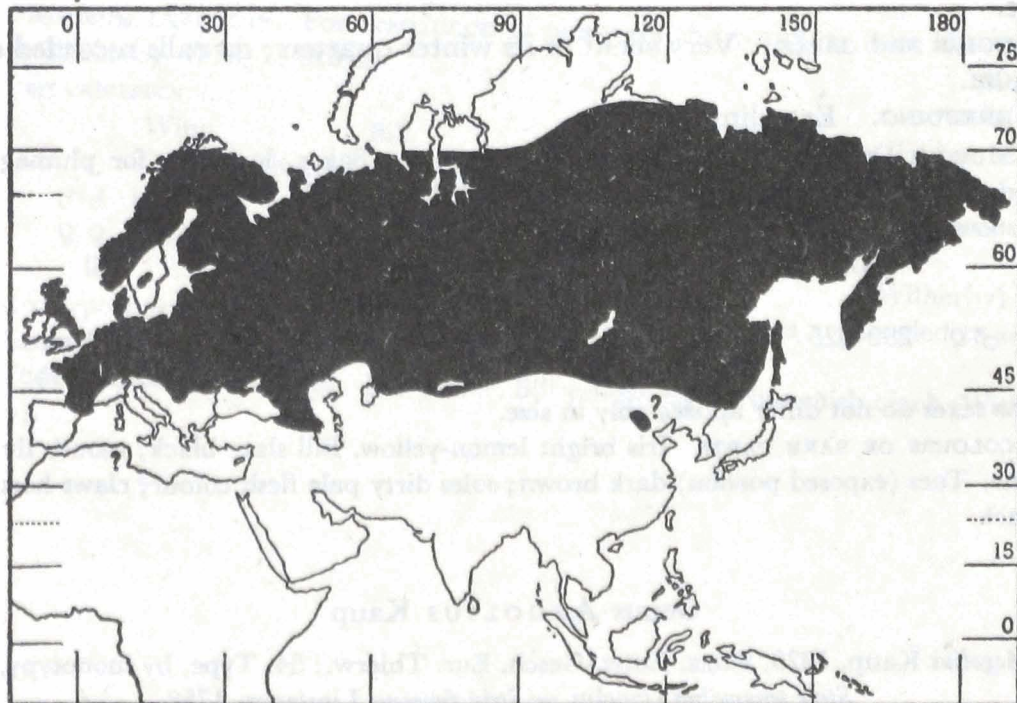


× *c.* $\frac{1}{2}$

In flight the rufous on the upperside and the white underside of the pointed wings with a prominent dark bar across each, and blackish tips, are leading pointers to its identity.

STATUS, DISTRIBUTION and HABITAT. Winter visitor (September/October to March/April) and/or passage migrant (the latter chiefly in northern mountainous portions, e.g. Gilgit, NW. Afghan frontier region). Practically throughout the subcontinent including both Pakistans, the entire Indian Union together with Nepal, Sikkim, Bhutan (?) to eastern Assam and Manipur. Also occasionally to Ceylon and Maldivé Is. Not recorded in the

Asio flammeus



■ Palearctic breeding range

Andamans or Nicobars. Plains and hills, normally to *c.* 1400 m., in appropriate facies. Local occurrences irregular, and abundance variable year to year; occasionally 'invasions'. Affects open, undulating grassy country

dotted with bushes, sparsely scrubbed hillsides, tall grassland on the margin of jheels; also in semi-desert.

Extralimal. Breeds in Europe and Asia north to c. 70°N. lat., south to Italy, the Balkan Peninsula, Caucasus, Turkestan, N. Mongolia, SE. Manchuria, and Sakhalin I. Also in N. America. In the Old World winters south to the Mediterranean, N. Africa, Palestine, Ethiopia and Aden, besides India. (For details of range see Vaurie, 1965: 595-6.)

GENERAL HABITS. In winter met with singly, in loose parties of 5 or 6, or scattered flocks ('swarms') of 20 or more birds. Very diurnal and terrestrial; frequently put up in scrubby grassland while walking up quail or partridge, or seen flying about and hunting in broad sunshine — hawking insects. Often flushed from the ground in daytime while at rest, standing upright at the base of a diminutive bush practically in the open, or sunning itself sprawled belly to ground with the wings outspread. Flies with leisurely-looking deliberate full wing-strokes, rather reminiscent of a Houbara bustard from the rear. But flight irregular, rather rolling and wandering, punctuated with glides. Either flops into the herbage again after a hundred metres or so or covers long distances before alighting, sometimes rising very high up in the air and flying in wide circles, especially when mobbed by crows and other birds. Has been observed miles out at sea between Kutch and Bombay coming from the west flying eastward towards land, evidently on migration (from ?), at times flying high above the observer's ship, at others skimming the water's surface like a gull (McCann, JBNHS 38: 624).

FOOD. Field rats and mice, small birds, grasshoppers, locusts, beetles, etc.

VOICE and CALLS. Very silent in its winter quarters; no calls recorded in India.

BREEDING. Extralimal.

MUSEUM DIAGNOSIS. For details of plumage see Baker, loc. cit.; for plumages and structure (also bionomics), Witherby, 1938, 2: 334-5.

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
♂ ♀	290-325	29-31	43-48	139-150 mm. (SA, HW)

The sexes do not differ appreciably in size.

COLOURS OF BARE PARTS. Iris bright lemon-yellow. Bill slaty black; mouth livid pink. Toes (exposed portion) dark brown; soles dirty pale flesh colour; claws horny black.

Genus AEGOLIUS Kaup

Aegolius Kaup, 1829, Skizz. Entw.-Gesch. Eur. Thierw.: 34. Type, by monotypy, *Strix tengmalmi* Gmelin = *Strix funereus* Linnaeus, 1758

Contains small owls with large rounded head; no ear-tufts but faint indications of them. 4th and 5th primaries (as.) equal and longest. Two outermost visible primaries only notched (emarginated) on inner webs, and rather near to tip. Tail slightly rounded. Tarsus and toes very thickly clothed in feathers.

Genus northern Holarctic.

665. **Tengmalm's Owl.** *Aegolius funereus caucasicus* (Buturlin)

Nyctala Caucasica Buturlin, Psov. i Ruzheinaya Okhota,
13, No. 6: 87 (Kislovodsk, northern Caucasus)

Cryptoglaux tengmalmi transvolgensis Buturlin, 1910, Nasha Okhota 4: 11 (Governments of Kazan, Perm and Orenburg)

Aegolius funereus juniperi Koelz, 1939, Proc. Biol. Soc. Wash. 52: 80
(Kyelang, Lahul, Punjab)

Not in Baker, FBI

LOCAL NAMES. None recorded.

SIZE. Spotted Owlet +; length c. 25 cm. (10 in.).

FIELD CHARACTERS. More or less like Spotted Owlet (650) but larger, chocolate-brown, and with a wide and distinct facial disc. Legs and feet thickly feathered to tips of toes. See figure, p. 256.



× c. $\frac{1}{2}$

STATUS, DISTRIBUTION and HABITAT. Species previously unknown within Indian limits. A single breeding female together with a feathered juvenile collected at Kyelang (32°33'N., 77°03'E.) in Lahul dist. of Himachal Pradesh.

Extralimital. Europe and C. Asia south to the Himalayas.

MUSEUM DIAGNOSIS. For description of plumages and structure (also bionomics) see Witherby, 1938, 2: 320-2.

MEASUREMENTS

	Wing	Bill (from base of feathers)	Tarsus	Tail
♂ ♂	160-170	18-21	20-23	95-106 mm.
♀ ♀	165-180	—	—	—

(Witherby)

More specimens of Tengmalm's owl from the NW. Himalayas are needed to settle the status of the population here.

COLOURS OF BARE PARTS. Iris yellow. Bill yellow. Claws brownish black (Witherby).

APPENDIX

p. 29

452a. Great Blackbacked Gull. *Larus marinus* Linnaeus

Larus marinus Linnaeus, 1758, Stst. Nat., ed. 10, 1: 136

(Gotland, Sweden)

SIZE. Same as 453.

FIELD CHARACTERS. A dark-mantled maritime gull, distinguished from Lesser Blackback (452) chiefly by larger size and pale pink or greyish pink legs *v.* yellow. Primaries black, tipped with white. Hind border (trailing edge) of wing white. Sexes alike.

STATUS, DISTRIBUTION and HABITAT. Vagrant. A single specimen shot by Col. R. Meinertzhagen at a tank at Deoli (Nasirabad dist., Rajasthan) 16.xi.1899 (JBNHS 13: 374). No other record since. Its occurrence so far inland noteworthy.

Extralimital. Breeds in northern Europe and eastern N. America.

HABITS etc. Broadly as of other gulls.

MEASUREMENTS

	Wing	Bill (from feathers)	Tarsus	Tail
♂ ♂	485-510	61-70	76-84	180-200 mm.
♀ ♀	457-470	55-61	—	— mm. (Witherby)

p. 161

544a. Nicobar Emerald Dove. *Chalcophaps indica augusta* Bonaparte

Chalcophaps augusta Bonaparte, 1855, Compt. Rend. Acad. Sci. Paris 40, no. 5: 209 ('... sa provenance ... est ... certainement asiatique ou oceanienne' = Nicobars

ex Blyth), *vide* Bonaparte, 1857, Consp. Gen. Av. 2: 92

Cf. Mukherjee, A. K. & J. M. Dasgupta, 1975 (1976), *Proc. Zool. Soc.*

Calcutta 28: 133-5

LOCAL NAMES. Unrecorded.

FIELD CHARACTERS. As 542. See Key to the Subspecies and Museum Diagnosis.

STATUS, DISTRIBUTION and HABITAT. Race peculiar to the Nicobar islands. Common resident in appropriate forest biotope.

GENERAL HABITS, FOOD, VOICE and CALLS. As in 542.

BREEDING. *Season.* Some specimens collected in February and April had mature gonads and were evidently breeding (Mukherjee & Dasgupta).

MUSEUM DIAGNOSIS. Deeper and richer in colour than 542 and 544. Grey absent on under tail-coverts. Light vermiculations of abdomen extending to breast.

MEASUREMENTS

	Wing	Bill (from skull)	Tail
2 ♂♂	152, 153	23, 23	90 (1) mm.
3 ♀♀	144-150	22(3)	82-90 mm.
		(Mukherjee & Dasgupta)	

COLOURS OF BARE PARTS. As in 542.

p. 198

Key to the Calls

Large Hawk-Cuckoo (572)	Loud, shrill, musical, screaming crescendo whistles <i>pipeeah</i> or <i>pipee</i> , in monotonously persistent runs of 5 or six.
Hodgson's Hawk-Cuckoo (575)	Sibilant, insistent <i>gee-whizz</i> repeated up to 20 times. Rather like 572 but shriller and thinner.
Brainfever Bird (573, 574)	Loud, shrieking, high-pitched <i>wee-piwhit</i> or <i>brain-fever</i> in crescendo runs of 4-6 broken off abruptly. Repeated endlessly.
Indian Cuckoo (576)	Loud, far-carrying 4-syllabled fluty whistles <i>bo-kotāko</i> or <i>orange-pekoe</i> or <i>crossword puzzle</i> repeated endlessly.
Cuckoo (577, 578, 579)	The well-known <i>cūck-koo</i> repeated persistently in long unbroken runs.
Himalayan Cuckoo (580)	Loud, far-carrying (<i>ūp</i>)- <i>oop-ooop-ooop-ooop</i> , very like hoopoe's but 4-noted instead of 3.
Small Cuckoo (581)	Unmusical chattering cry of 5 or 6 notes <i>that's your choky pepper . . . choky pepper</i> (accent on first <i>choky</i>). Quickly repeated.

p. 213

580a. **Horsfield's Cuckoo.** *Cuculus saturatus horsfieldi* Moore
Cuculus horsfieldi Moore, 1857, in Horsfield & Moore, Cat. Birds Mus. East India Co.
2: 703 (Java)

Cf. Wells, D. R., 1972, JBNHS 69: 179-85
Passage migrant in N. India (Uttar Pradesh, Bihar, Meghalaya) straying to Rajasthan and Maharashtra (Solapur). But see Abdulali, H., JBNHS 74: 172-3.

p. 228

MIGRATION. Large numbers pass through Pt Calimere (coastal Tamil Nadu) at commencement of NE. monsoon, c. October *en route* to Sri Lanka, whence recoveries of Indian-ringed koels reported.

p. 255

610a. **Peninsular Bay Owl.** *Phodilus badius ripleyi* Hussain & Khan
Phodilus badius ripleyi Hussain & Khan, 1978, Jour. Bom. Nat. Hist. Soc. 74: 335
 (Nelliampathy Hills, Kerala)

SIZE. Pigeon —.

FIELD CHARACTERS. Like 610, slightly smaller and darker than 609 of eastern Himalayas.

STATUS, DISTRIBUTION and HABITAT. Solo taken at Periasolai in the southern section of Nelliampathy Hills (south of the Palghat Gap) in heavy wet ever-green biotope. Apparently very rare. Unrecorded previously from peninsular India.

MUSEUM DIAGNOSIS. See Key to the Subspecies (p. 253).

MEASUREMENTS

	Wing	Bill (from skull)	Tarsus	Tail
1 ♀	208	33	51	81 mm. (Hussain)

COLOURS OF BARE PARTS. As in 610.

p. 265

618b. **Nicobar Scops Owl.** *Otus scops nicobaricus* (Hume)
Ephialtes nicobaricus Hume, 1876, Stray Feathers 4: 283
 (Nicobars = Camorta I.)

FIELD CHARACTERS. As for the Andaman subspecies (618a), but significantly larger.

STATUS, DISTRIBUTION and HABITAT. Resident. Nicobar Is. A breeding male collected in March 1964 at Campbell Bay, Great Nicobar (Abdulali, H., JBNHS 69: 106).

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