

## ADDITIONS AND CORRECTIONS TO THE RAWALPINDI DISTRICT FLORA

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Due to a variety of circumstances the Rawalpindi District Flora, though only two years old, needs many additions and corrections. Intensive collecting about Nathia Gali in Hazara, at Burbhan near Murree ; in the Panjar Valley in Kahuta Tehsil of Rawalpindi Dist. ; at Dhok Pathan and at Thatti, near Talagang in Attock Dist. has turned up a good many species which had been overlooked previously. As there are no barriers to stop the migration of plants those found in adjacent districts have been listed with those already found in Rawalpindi so that the Rawalpindi list contains most of the plants found in Jhelum, Attock and the parts of Hazara District below 10,000'.

About a year ago Dr. B. L. Burtt of Edinburgh discovered a few species in the Panjar Valley which is a small tributary which joins the Jhelum a few miles south of the bridge at Azad Pattan. The valley runs from west to east and is very well wooded on both sides of the stream. *Pinus longifolia* is dominant but there is a great deal of undergrowth and a great deal of soil shade on both sides of the stream but especially on the south side. We made four trips to this valley, once in March and three times after the monsoon and collected a surprising number of plants which seem to be at the western border of their range. Most of them I had collected many years ago in the Mussoorie Hills. The area has not been exhausted as we found several sterile shrubs which we have not yet identified.

Pakistan botany is entering a new era. For many years the knowledge of the flora of what is now West Pakistan was but little ahead of what it was in Sir Joseph Hooker's day when he completed the last volume of the Flora of British India in 1896. Prof. S. R. Kashyap's Lahore Flora and Parker's Forest Flora of Delhi, the Punjab and the N. W. F. P. were the only books which one could put into the hands of any one wanting to know what plants they were seeing. Now there are a number of young, active and capable botanists who are well trained and who are making collections which will be useful when the flora of West Pakistan is prepared. Dr. S. M. H. Jafri of Khairpur Mir's is working on the Cruciferae, Capparidaceae and Berberidaceae and Dr. S. I. Ali of Karachi University is specializing in the Leguminosae. Similarly Dr. Sultam Ahmad of Lahore has done excellent work on the grasses of the whole of West Pakistan and Prof. Eugene Nasir of Gordon College is specializing in the Umbelliferae and Caryophyllaceae. As a result of their work, the recent work of Japanese botanists in Nepal and scattered workers in other places a good many older names than those to be found in Hooker have been discovered and also some misidentifications have been corrected. As other families are taken up this process will go on and we will have to familiarize ourselves with many more unfamiliar names. Some of the name changes suggested by recent workers may not be valid but as local workers do not have access to much recent literature I have listed a good many proposed changes so Pakistani students may know what to look for, and where changes may have to be made.

## Ranunculaceae

*Anemone polyanthes* D. Don, North slope of Miranjani, Hazara Dist. cir 9,200'.  
*Thalictrum cultratum* Wall. " " " " 9,000'.  
*Nigella damascena* L. Love in a Mist. Commonly cult. The only genus in the family with the carpels fused together. The involucre is much divided.

## Menispermaceae

*Cocculus laeaba* DC. This name should be replaced by *C. pendulus* (Forst.) Diels.

## Berberidaceae

*Berberis parkeriana* C. K. Schneider. Common in forest undergrowth at Burbhan, Nathia, Thandiani etc. In Parker this is included under *B. lycium* Royle. The leaves are green, not glaucous below.

*B. lycium* Royle is the correct name, not *B. ceratophylla* G. Don.

## Fumariaceae

*Corydalis ramosa* Wall. Miranjani (Haz.) by path at cir. 8,600'.

## Cruciferae

*Matthiola incana* R. Br. Stock. Commonly cult. in gardens.

*Malcolmia cabulica* Boiss. After *M. strigosa* enter Fl. Br. Ind. in part non

Boiss.

*Sisymbrium alliaria* Scop. Instead of this name use *Alliaria petiolata* (M. B.) Cov. and Gr.

*Rapistrum hispanicum* (L) Crantz. Rawalpindi in May. Rare

*Farselia jacquemontii* H. & T. Hasan Abdal and near Rawalpindi.

*F. incana* (Burm.) Jafri with shorter broader pods. Campbellpur (Nasir).

*Lobularia maritima* (L.) Desv. Small flowered candytuft. Commonly cult.

*Iberis amara* L. Common candytuft. Very commonly cult. in the spring.

*Thlaspi alpestre* L. sens. lat. Our form of this spring perennial which is common in the forest about Murree is *T. cochleariforme* DC.

*Physorhynchus brahuicus* Stocks. Mt. Tilla and Salt Range (Aitch.)

## Capparidaceae

*Maerua ovalifolia* Camb. This should be called *M. arenaria* (DC.) Hk. f.  
*Crataeva religiosa* Forst. *Barna* is cult. in Jhelum.

### Resedaceae

*Reseda odorata* L. The Mignonette, which is easily recognized by its scent, is commonly planted in gardens.

*Oligomeris glaucescens* Camb. An older name is *O. linifolia* (Vahl.) Macbride.

### Polygalaceae

*Polygala tatarinowii* Regl. Under *P. triphylla* in F. B. I. Found on shady bank at Panjar with small white flos. Sept.-Oct. ; Poonch.

*P. arvensis* L. ? There is another *Polygala* which is common at Panjar and in Attock Dist. It is close to *P. erioptera* but is more pubescent, the leaves are closer together and more elliptic. Sept.-Oct.

### Caryophyllaceae

*Dianthus barbatus* L., Sweet William, *D. caryophyllus* L. the carnation.

*Polycarphaea corymbosa* Lamk. Jhelum (Aitch.)

*Gypsophila paniculata* L. Baby's Breath is commonly cult.

*Silene colorata* Poir. is reported from Salt Range (Aitch.)

*S. inflata* Sm. Use *S. latifolius* (Mills) R & B.

*Cerastium triiviale* Link. According to Kitamura this should be called *C. iananthe* Williams.

### Tamaricaceae

*Tamarix articulata* Vahl. *T. aphylla* (L.) Karst is an older name.

### Malvaceae

*Hibiscus vitifolius* L., with pretty hollyhock like flos. with a dark centre was found at Panjar in Sept. at the edge of a field.

*Abutilon theophrastii* Medic. (*A. avicennae* Gaertn.). Rawalpindi once only.

### Tiliaceae

*Corchorus acutangulus* Lam. *C. aestuans* L. is an older name.

*C. tridens* L. with narrow leaves and three small teeth at the tip of the capsule has been collected in both Attock and Rawalpindi Dists. after the rains.

*Triumfetta bartramia* L. Note that *T. neglecta* is not a synonym.

### Zygophyllaceae

*Seetzenia orientalis* Boiss. Reported from the Salt Range by Drummond.

## Linaceae

*Linum grandiflorum* Desf. with large red flos. is cult in Rawalpindi gardens in the spring.

## Rutaceae

*Ruta graveolens* L. was reported from Rawalpindi by Aitchison.

*Aegle marmelos* Corr. *Bil* or *bel*, is cult. in Jhelum.

*Feronia elephantum* Correa, the wood apple. Salt Range (Aitch.)

## Rhamnaceae

*Rhamnus persicus* Boiss. Jerram reported this species from Nandkot. Was it *R. pentapomica* Parker ?

## Anacardiaceae

*Rhus lancea* Cult. at Ghora Gali.

## Leguminosae

*Lotononis lebordea* Bth. *L. platycarpus* (Viv.) Pic. Ser. is older.

*Crotolaria ferruginea* Grah. of p. 32 was probably *C. calycina* Schrank.

*Medicago sativa* L. Lucerne. Burbhan, fields and banks.

*Psoralea corylifolia* L. Rare. Jhelum Dist. (Aitch.)

*Indigofera tinctoria* L. A single specimen at Panjar in Sept.

*I. heterantha* Wall. ex Brandis. According to Ali the *I. gerardiana* of Hooker's Flora should be called *I. heterantha* and he feels that the xerophytic form or variety with small leaves and short fruits is really the same species as the much larger shrub which Indian botanists have been calling *I. gerardiana*. I am not yet convinced that the two are not distinct. Botanists should watch this group in the field to see if they should be considered distinct or not.

*I. pulchella* Roxb. This handsome species which usually flowers in April, before the new leaves come out, should be called *I. cassioides* Rottl.

*I. anabaptista* Steud. The correct name is *I. hochstetteri* Baker.

*I. hebeptala* Bth. ex Baker var. *hebeptala* Baker emend. Ali. This was somehow dropped out from p. 35, although it is in the key on the opposite page. It is common in forest undergrowth in Murree and the Galis.

*I. hebeptala* var. *glabra* Ali, with leaves glabrous above, is also found in the Galis

*I. trigonelloides* J. & S. Chuch, Attock Dist. (Griffith).

*Tephrosia tenuis* Wall. The correct name is *T. strigosa* (Dalz.) Sant & Panth.

*T. hamiltonii* J. R. Drum. *T. purpurea* (L.) Pers. is older.

*Sesbania aculeata* Pers. var. *elatior* Prain. An older name is *S. bispinosa* (Jacq) W. F. Wight.

*Guldenstaedtia mirpurensis* Bth. An older name is *G. verna* (Georgi) Boris.

*Astragalus punjabicus* Sirj. The proper name is *A. scorpiurus* Bunge.

*A. subumbellatus* Kl. is distinct from *A. punjabicus* ; Burbhan in Sept.

- A. trichocarpus* Grah. (*A. sesbanioides* Bth.) Sakesar.  
*A. (Myobroma) flemingii* Ali. Collected in the Salt Range by J. L. Stewart. Leaflets 21—41 and a rachis 11—42 cm. long.  
*A. aitchisoni* Baker. Rawalpindi (Aitch). Probably in Attock which was then Part of Rawalpindi Distt.  
*Taverniera nummularia* Baker. *T. cuneifolia* W. & A. is older.  
*Onobrychis*, p. 37. Cut sentence beginning "Still unpublished."  
*Lespedeza falconeri* Prain. L. Ali uses *L. dubia* Schindler.  
*Desmodium laxiflorum* DC. Panjar in forest, Sept. Oct. Extension of range.  
*Desmodium microphyllum* DC. which is near *T. triflorum* but with lax, many flowered racemes grows at Jaba in Hazara.  
*Lens esculenta* Moench (*Erum lens sensu* Baker). According to Kitamura this should be called *Lens culinaris* ssp. *nigricans* (Bieb.) Thellung.  
*Uraria picta* Desv. Panjar, among rocks in thin forest. The leaflets are narrowly elliptic and mottled.  
*Alysicarpus rugosus* DC. var. *heyneanus* Baker. A field weed after the rains. Murree Road cir 4,000'.  
*Vicia griffithii* Baker. The correct name is *V. monantha* Retz. var. *cinerea* (M. Bieb.) Maire.  
*Shuteria involucrata* W. & A. Panjar, Oct., in leaf.  
*Phaseolus* sp. cf. *aureus* Roxb. Wild on the forest floor, Sept.-Oct. with small yellow flos.  
*P. trilobus* Ait. E. face of Tilla (Aitch.) Panjar.  
*Flemingia lineata* Roxb. Common in pine forest. Panjar at the close of the rains.  
*F. bracteata* Wight. Panjar. Leaves acute.  
*Poinciana pulcherrima* L. Cult. Jhelum.  
*Cassia absus* L. A monsoon annual with four leaflets. Panjar. Ext. of range.  
*C. glauca* Lamk. A handsome flowering tree with glabrous leaves. Cult occasionally in Rawalpindi.  
*C. dimidiata*. In the key on p. 44 it is erroneously stated that this is an annual.  
*C. pumila* Lamk. Enter "stamens 5" on line 12, page 44.  
*C. tora* L. Jhelum Dist. (Aitch.).  
*Tamarindus indica* L. Imli. Cut. in Jhelum (Aitch.).  
*Caesalpinia crista* L. (*C. bonducella* Fleming). Salt Range, Jhelum Dist. (Aitch.).  
*Acacia eburnea* Willd. Reported from Rawalpindi by Aitchison. It may have been *A. hydasypica* J. R. Drum.

## Rosaceae

- Neurada procumbens* L. This peculiar plant which does not look at all like the other Rosaceae has remarkable flat, rounded warted fruits. Dhok Pathan.  
*Rubus gracilis* Roxb. non Presl. According to Kitamura the correct name for this is *R. pedunculatus* D. Don.  
*Potentilla wallichiana* Del. The correct name seems to be *P. kleiniana* W. & A.  
*P. reptans* L. Wah, prostrate in ditch.  
*Agrimonia eupatoria* Hk.f. non L. According to Kitamura our form is *A. pilosa* Ledeb. var. *nepalensis* (Don) Nakai.

*Rosa moschata* J. Herrm. According to Kitamura this should be called *R. brunonii* Lindley.

*R. leavigata* Mchx. The Mardan Rose with large white single flos. is cult. in Rawalpindi, Abbottabad and other places.

*Cotoneaster bacillaris* Wall. Schneider calls our form *C. affinis* Lindl. var. *bacillaris* Schn.

### Saxifragaceae

*Saxifraga filicaulis* Wall. grows in tufts among rocks on the north slope of Miranjani at 9,500'.

### Onagraceae

*Circaea alpina* L. var. *himalaica* Clarke. This is so different from the European species that it has been published as *C. imaicola* (Asch. & Magn.) Hand. Maz. It is common in the Galis on the forest floor during the rains.

### Cucurbitaceae

*Bryanopsis laciniosa* (L.) Naudin, with fruits .75" in diam green and with white vertical stripes grows in a graveyard near Kahuta. When old the fruits become reddish.

*Trichosanthes cucumerina* L. Murree Road 15th mile. Petals white and fimbriate.

*Cucumis trigonus* Roxb. According to Santapau the correct name for this species is *C. callosus* (Rottle.) Cogn.

### Begoniaceae

*Begonia picta* Sm. Panjar. Sept. in shady forest.

*B. amoena* Wall. *B. tenella* D. Don is the valid name for this.

### Ficoideae

*Mollugo stricta* L. has priority over *M. pentophylla* L.

*Trianthema triquetra* Rottl. According to Cooke *T. crystallina* is not a synonym as I have stated on p. 56.

*Limeum indicum* Stocks. Prostrate on sand at Dhok Pathan, Attock Distt.

### Umbelliferae

*Bowlesia asiatica* Nasir. This is a synonym of *B. incana* R. & B. This species had not previously been reported from Asia.

*Peucedanum graveolens* Bth. According to Kitamura the valid name is *Anethum graveolens* L.

*Scaligeria aitchisonii* Wolff. According to Nasir our form may prove to be *S. indica* Wolff.

*Bunium stewartianum* Nasir. A new species found near Rawalpindi.

## Caprifoliaceae

*Lonicera parviflora* H. & T. According to Rehder in his Monograph of this genus the correct name for this species is *L. myrtillos* var. *depressa* Rehder.

*L. obovata* Royle. with blue black, confluent fruits grows on Miranjani at 9,500'.

*L. japonica* Thunb. Cult. Rawalpindi ; Chattar.

*L. discolor* Lindl. grows in forest undergrowth at Nathia Gali 8,000'.

## Rubiaceae

*Oldenlandia coccinea* Royle. Erect, very slender with scarlet flos. Patriata (Coventry).

*O. nudicaulis* Roth. Panjar in shady forest. Another extension of range.

*Argostemma sarmentosum* Wall. Ditto. Easily recognized by its slender runners.

*Rubia cordifolia* L. sensu Hk. f. non L. should, according to Kitamura, be called

*R. cordifolia* L. var. *munjista* Miq.

*Borreria stricta* (L.) Meyer. Panjar, common in forest. Kotli.

*Hedyotis aspera* Heyne. M. Tilla, Jhelum Dist. (Aitch.).

## Compositae

*Vernonia cinerascens* Schultz-Bip. An undershrub with ashy white stems. Sakesar (Drummond).

*V. cinerea* (L.) Less. According to Merrill. This is *V. patula* (Dryand.) Merrill.

*Adenostemma lavenia* (L.) O. Kze. According to Kitamura this should be called *A. parviflorum* (Bl.) DC.

*Cyathocline lyrata* Cass. *C. purpurea* (Ham.) O. Kze is older.

*Aster thomsoni* Clarke, with pretty lavender flos. grows on the north side of Miranjani at about 9,000' in forest.

*Blumea lacera* DC. The correct name is *B. mollis* (D. Don) Merrill.

*B. wightiana* DC. Rawalpindi fide Aitchison. Like the last but the flowers are purplish.

*Anaphalis cinnamomea* (Wall.) Clarke. Kitamura calls this species *A. margaritacea* Bth. & Hk. ssp. *angustior* Kitamura.

*A. araneosa* DC. An older name is *A. busua* (Ham.) Hand. Maz.

*Gnaphalium luteoalbum* L. var. *multiceps* Hk. f. Kitamura calls this *G. affinis* D. Don.

*G. indicum* L. according to Kitamura is a synonym of *G. purpureum* L. so the *G. purpureum* of the Fl. Brit. Ind. should be called *G. spathulatum* Lam.

*Inula grantioides* Boiss. Drummond reported this xerophytic, strongly scented species as growing in the Salt Range.

*Carpesium cernuum* L. of previous list. According to Kitamura this should be called *C. nepalense* Less.

*Eclipta alba* (L.) Hassk. *E. prostrata* L. seems to be the valid name.

*Artemisia laciniata* Willd. Reported by Drummond from the Salt Range. This is surprising as it is a high level species in the Himalaya.

*A. dubia* Wall. ex Besser var. *jacquemontiana* Hand. Maz. Changla Gali.

*Carthamus tinctorius* L. Safflower. Jhelum (Aitch.).

*Volutarella divaricata* Bth. According to Zain and Jafri the correct name is *Amberboa divaricata* (DC.) O. Kze. Santapau calls it *V. ramosa* (Roxb.) Santapau.  
*Ainsliaea pteropoda* DC. *A. latifolia* (D. Don) Schultz Bip. is older.  
*Gerbera kunzeana* Br. and Asch. Miranjani (Haz.) at 9,500' in grass on north slope.  
*Taraxacum indicum* Hand. Maz. Abbottabad.  
*Lactuca sagittarioides* Clarke (*Ixeris sagittarioides* (Clarke) Stebbins. Panjar in forest  
The long pedicelled sagittate leaves are distinctive. Ext. of range.  
*L. auriculata* DC. Jhelum (Aitch).  
*Epilasia acrolasia* (Bunge) Clarke var. *ammophila* O. Kze. is a synonym of *E. ammophila* Bunge.  
*Senecio coronopifolius* Desf. According to Druce the correct name is *S. desfontanei* Druce.

### Monotropaceae

*Monotropa hypopithys* L. According to Kitamura our form is var. *japonica* Fr. & Sav.

### Ericaceae

*Pieris ovalifolia* D. Don. In the Pflanzenreich this species is called *Lyonia ovalifolia* (Wall.) Drude. Rehder calls it *Xolisma ovalifolia*.

### Styracaceae

*Symplocos paniculata* (Thumb.) Miq. An older name is *S. chinensis* (Lour.) Druce.

### Oleaceae

*Jasminum pubigerum* D. Don is reduced to *J. humile* L. var. *pubigerum* by Kitamura and Kobuski.

### Asclepiadaceae

*Caralluma edulis* Bth. Reported from Rawalpindi by Aitchison.

### Gentianaceae

*Enicostemma littorale* Blume. Lehri, Jhelum Dist. Extension of range.

### Boraginaceae

*Heliotropium undulatum* Vahl. The correct name is *H. ramossissimum* Sieb.  
*H. paniculatum* R. Br. Among the specimens which I have been calling *H. strigosum* there are erect annuals, more or less branched which are *H. paniculatum* R. Br. or a closely related species. Khanpur (Haz.) and Rawalpindi.  
*H. dasycarpum* Ledeb. Salt Range (Aitch).  
*Bothriospermum tenellum* F. & M. "Where Chumuck joins the Jhelum". (Aitch).  
*Onosma echioides* L. Salt Range and Lower Kurram (Aitch).



### Convolvulaceae

*Rivea hypocrateriformis* Choisy. Salt Range (Parker and Aitch.).

### Scrophulariaceae

*Schweinfurthia sphaerocarpa* A. Braun. Salt Range (Aitchison).

*Pedicularis elephantoides* Bth. In rich forest on the north slope of Miranjani at about 9,000'. The flos. are a light cream colour when fresh. Ext. of range.

### Orobanchaceae

*Orobanche epithymum* DC. Miranjani on *Origanum* by roadside at 8,500'.

*O. orientalis* Beck ? Miranjani on *Selinum* 9-9,500'.

### Acanthaceae

*Justicia diffusa* Willd. Nurpur, Rawalpindi Dist.

### Phrymaceae

*Phryma leptostachya* L. is var. *asiatica* Hara. (Kitamura).

### Verbenaceae

*Lippia nodiflora* Rich. *Phyla nodiflora* (L.) Greene is older.

*Verbena bipinnatifida* Schau. This is an escape at Abbottabad and Mansehra.

*Clerodendron phlomoides* L. Near Jhelum as a hedge.

*C. inerma* Gaertn. Does well as a hedge at Gordon College.

### Labiatae

*Plectranthus coetsa* Ham. *Isodon coetsa* (Spr.) Kudo is a synonym.

*P. plectranthoides* Wall. *Isodon plectranthoides* Schrad. ex Kudo is a synonym.

*Nepeta spicata* Bth. *N. laevigata* (D. Don) Hand. Maz. is older.

*Ajuga macrosperma* Wall. ex Bth. Panjar. Prostrate in *chir* forest. Extension of range.

### Amaranthaceae

*Celosia cristata* L. Cocks Comb is commonly cult.

### Chenopodiaceae

*Salsola foetida* Del. According to Dr. Burt the correct name is *S. baryosma* (R. & S.) Dandy.

*Anabasis setifera* Moq. Salt Range (Drummond). A halophyte.

## Polygonaceae

*Fagopyrum cymosum* Meissn. Sidandi Hall, Thandiani (Haz.).

*F. esculentum* Moench. Buckwheat. Gharial.

*Polygonum lapathifolium* L. var. *salicifolium* Sibth. (*P. nodosa* Pers.) Nathia Gali, 8,000'.

*P. mite* Schrank. Murree, 6-7,000'.

*Rumex patientia* L. (*R. orientalis* Bth.). Balakot (Haz.) ; Peshawar. Wet places.

## Euphorbiaceae

*Euphorbia geniculata* (Kl. & Garcke) Ortega. Found in a field above Riwat below Murree at about 5,000'.

*Phyllanthus urinaria* L. Panjar and Kotli. Fruits warted. A monsoon annual.

## Urticaceae

*Maclura pomifera* Schneider, (*M. aurantiaca* Nutt.). The Osage Orange with large, round fruits made up of numerous drupelets is cult. at Wah.

*Ficus cunia* Ham. with leaves which are very asymmetrical at base is found on steep banks at Panjar.

*F. foveolata* Wall. nomen nudum. *F. luducca* Roxb. is the oldest valid name.

## Juglandaceae

*Juglans regia* L. Our form is var. *kumaonica* C. DC.

## Cupuliferae

*Betula utilis* D. Don. One clump, Miranjani, 9,600', north slope.

## Orchidaceae

*Nervilia aragoana* Gaud. (*Pogonia flabelliformis* Lindl.) Panjar, in rich humus. The leaves develop after flowering. Extension of range.

*N.* sp. Near the last there is a second kind with shorter leaf stalks, and leaves bluish green, turning reddish when dry.

*Habenaria pectinata* Don. Samli (Coventry), Panjar in fruit in Oct.

*H. marginata* Colebr. Flos. yellow leaves elliptic, few near stem base. Panjar Sept. Oct.

*Eulophia campestris* Wall. Pindi Gheb.

## Haemodoraceae

*Ophiopogon japonicum* Ker.-Gawl. Pindi Dist. (Sabnis). Was it *O. intermedius* ?

## Amaryllidaceae

*Curculigo orchidioides* Gaertn. Panjar in forest ; a larger edition of *Hypoxis* with a small flower near the ground . Ext. of range.

## Liliaceae

*Smilax parvifolia* Wall. ex Kunth. *S. glaucophylla* Kl. has priority.

*Yucca gloriosa* L. with a fine large inflorescence of bell shaped white flos. is cult. in Rawalpindi.

*Gagea amblyopetala* Boiss., a Kurram and Baluchistan plant, is reported from the Salt Range by Drummond.

*Allium capitellatum* Boiss (?) Small white flos. bulbs white ; leaves very narrow ; cir. 18" tall.

## Dioscoreaceae

*Dioscorea belophylla* Voigt. Panjar on the forest floor in the autum.

## Commelinaceae

*Commelina glabra* Clarke. Reported from Rawalpindi by Aitchison.

*Aneilema malabaricum* (L.) Merrill, (*A. nudiflorum* R. Br. ). Panjar, in forest. Extension of range.

## Lemnaceae

*Wolffia microscopica* Kurz. Reported from Fatehjang, Attock Dist.

## Naiadaceae

*Ruppia rostellata* Koch. Correct misprint on p. 131 line 3.

## Cyperaceae

*Kyllinga triceps* Rottb. Sarup Singh.

*Pycreus nitens* Nees. Burbhan, Murree Hills in Sept.

*Cyperus arenarius* Retz. In sand at Dhok Pathan Attock Dist. with erect tufts rising at intervals through the sand from a long horizontal rhizome.

*C. difformis* L. Potha, Murree Hills at 4,000' ; Thatti, Attock Dist. Spikelets very small in dense heads.

*C. compressus* L., Rawalpindi ; Panjar in Sept.

*Fimbristylis annua* (All.) R. & S. *F. bisumbellata* (Forsk.) Bieb, is said to be an older name.

*Scirpus littoralis* Schrad. was reported from Rawalpindi by Aitchison. Was it *S. pectinatus* Roxb. ?

*Carex wallichiana* Prescott. *C. fedia* Nees is said to be older.

*C. longipes* Don var. *dissitiflora* Clarke is reported from Ghora Gali. It was probably *C. brunnea* Thunb.

*C. chitralensis* Nelmes. New to this area, a rather small sedge with very narrow leaves and beaked hairy utricles. Changla-Dunga Gali.

### Graminaceae

*Bromus catharticus* Vahl. Some botanists, splitting the genus, call this *Ceratochloa unioloides* (Willd.) D.C.

*Poa stewartiana* Bor. The most delicate of our Poas grows at Nathia Gali and Miranjani, 8-9000' in shade.

*P. nemoralis* L. Near Nathia Gali.

*Eragrostis cilianensis* (All.) Link ex Lutati. Sultan Ahmad prefers *E. megastachya* (Koel.) Link.

*E. ciliaris* L. Near *Ghungrila*, Rawalpindi Dist. (McVean); Thatti in Attock Dist. (R.R.S.)

*E. tremula* Hochst ex Steud. South of Gujar Khan ((McVean).

*E. chariis* (Schult.) Hitchcock, Jhelum (S. Ahmad).

*Phragmites communis* Trin. Reported from Rawalpindi by Sabnis. Was it *P. karka* ?

*Neyraudia arundinacea* (L.) Henr. Panjar among rocks.

*Thysanolaena maxima* O. Ktze. Panjar on steep bank above stream in forest.

*Danthonia jacquemontii* Bor. Miranjani (Haz.).

*Agrostis stolonifera* L. S. Ahmad refers this to *A. gigantea* Roth.

*Aristida adscensionis* L. This species is very close to *A. depressa* Retz. and the two are often confused. In *A. adscensionis* the lower glume is at least 2/3 the length of the upper while in *A. depressa* the lower glume is only about half as long. Very common. I do not seem to have any *A. depressa* from our area.

*A. funiculata* Trin. & Rupr. and *A. royleana* Trin. and Rupr. are close together but are not synonyms. Both are found in Rawalpindi Dist. Dr. Sultan Ahmad separates them as follows.

Column 33 mm long ; lower glume more than 1.2 mm long *A. funiculata*.

Column 18 mm long ; lower glume 1.2 mm long. *A. royleana*. I find that in my specimens these figures are too definite for there is a good deal of difference in the length of column and glumes in both species but that the column and glumes are longer in the first species.

Line beginning *T. tenellus* P. 148. Read *Chloris tenella* instead of *C. tenella*.

*Dinebra retroflexa* (Vahl) Panzer. Jhelum (S. Ahmad).

*Digitaria stricta* Roth. Our form is var. *denudata* (Link) Henr.

*D. adscendens* ssp. *marginata* var. *criniformis* Henr. with bulbous based hairs on spikelets and sheaths has been collected in Rawalpindi (Det. Dr. Bor.)

*D. bicornis* (Lamk.) R. & S., Rawalpindi (S. Ahmad).

*Panicum hydaspicum* Edgew. *P. atrosanguineum* Hochst. is older.

*P. maximum* Jacq. An introduced species. Jhelum and Salt Range (S. Ahmad) ; Ayub Park (R.R.S.)

*P. proliferum* Hk. f. non Lamk. The correct name is *P. paludosum* Roxb.

*P. psilopodium* Trin. Rawalpindi, cult. fields (S. Ahmad).

- P. trypheron* Schult. Murree Hills (S. Ahmad).  
*Oplismenus burmannii* (Retz.) Beauv. Murree Hills (S. Ahmad).  
*Cenchrus barbatus* Schum. should be replaced by the older *C. biflorus* Roxb. Dhok Pathan, Attock Dist. in sandy field. Old fruits are shrap spined and troublesome.  
*Arthraxon serrulatus* Rochst. should be replaced by the older *A. lanceolatus* (Roxb.) Hochst. *A. nudus* is distinct and not a synonym.  
*Saccharum versicolor* (Nees) Steud. Kunja Gali, 8-9000' (Inayat).  
*Ischaemum rugosum* Salisb. with curious ridged fruits is common in a swamp in Kahuta Tehsil in Sept. Oct.  
*Bothriochloa intermedia* (R. Br.) A. Camus. Murree, Abbottabad. The primary axis is more elongated than in the other species in our area.  
*Capillipedium assimile* (Steud.) A. Camus. Siran Vy. Hazara ; Jhelum Valley Road. To be expected.  
*Eremopogon foveolatus* (Del.) Stapf. According to Raizada true *E. foveolatus* is unbranched and grows only in Sind. He states that our species is *E. strictus* (Roxb.) Camus.  
*Cymbopogon stracheyi* and *C. distans* are not synonyms as I stated on p. 155, line one. *C. distans* (Nees) Watson is found in the Galis. *C. stracheyi* has a slot like groove on the lower glume while *C. distans* does not.  
*Rottboellia exaltata* L. f. is common at Panjar. It is often 4-5 ft. tall ; the stems bear prickly hairs and the ripe inflorescence breaks up into small pieces when drying.

### Pteridophyta

- Dryopteris levingei* (Clarke) C. Chr., (*Leptogramme aurita* var. *levingei* Clarke) Nathia Gali, 8,000' in damp soil in the forest.  
*Athyrium fimbriatum* (Wall.) Moore. North slope of Miranjani near the top at bottom of little ravine. Catchment area Dunga Gali, cir 8,500'.  
*A. mackinnoni* (Hope) C. Chr. has been misidentified on p. 158. It should be *A. setiferum* C. Chr.  
*Asplenium adiantum nigrum* L. Dadar, Hazara ; Chenari, Jhelum Valley Road.  
*Ophioglossum vulgatum* L. or near it. Common near stream bank at Panjar cir 2,200'.

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