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M. KØIE AND K. H. RECHINGER

SYMBOLÆ AFGHANICAE

Enumeration and Descriptions of the Plants Collected by
L. EDELBERG and M. KØIE on "The 3rd Danish Expedition to Central Asia"
and by G. KERSTAN, W. KOELZ, H. F. NEUBAUER, O. H. VOLK,
and others in Afghanistan

VI.



København 1965

Kommissionær: Ejnar Munksgaard

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Synopsis

Die Arbeit stützt sich wie bei den früher erschienenen Lieferungen der *Symbolae Afghanicae* auf die Mehrzahl der seit dem Erscheinen von Boissier's *Flora Orientalis* in Afghanistan zusammengebrachten Sammlungen. Zu den in den früheren Lieferungen bearbeiteten Sammlungen kommen noch mehrere neue, unter anderen die von HEDGE und WENDELBO (1962) und von RECHINGER (1962) angelegten. Die vorliegende Lieferung enthält die Bearbeitung der Cyperaceen durch M. RAYMOND (Montreal) und der Gramineen durch N. C. BOR (Kew) und A. MELDERIS (London).

Die Bearbeitung der Cyperaceen umfasst 95 Arten, darunter vier neue. Der Artenreichtum konzentriert sich besonders auf die vorwiegend dem himalayischen Florengebiet angehörenden Landschaften Nuristan und das zu West-Pakistan gehörige Chitral. Der Formenkreis der *Carex stenophylla* wird kritisch untersucht und neu gegliedert. Für alle Arten werden Bestimmungsschlüssel gegeben. Die Bearbeitung der Gramineen umfasst 270 Arten, darunter sieben neue. Die Gramineen sind neben den Compositen und Leguminosen eine der artenreichsten Familien der afghanischen Flora. Der Endemismus ist jedoch bei den Gramineen verhältnismässig schwach ausgeprägt.

Introduction

“*Symbolae Afghanicae*” was initiated by plant collections made by L. EDELBERG and M. KØIE on “The 3rd Danish Expedition to Central Asia”.

In addition to these collections there have been included in part I. *Labiatae* (1954) the following collections: J. L. CHAWORTH-MUSTERS in Herb. of the British Museum, London; J. M. HONIGBERGER in Herb. of the Naturhistorisches Museum, Wien; H. F. NEUBAUER in Herb. of the Naturhistorisches Museum, Wien; W. KOELZ in United States National Herbarium, Washington DC., formerly at the Plant Industry Station, Beltsville, Maryland. Part one contains also a survey of plant-collecting in Afghanistan.

At the time of printing of part II. of the *Symbolae Afghanicae*, *Compositae* (1955), further collections from Afghanistan were received for determination, namely those of G. KERSTAN and A. SCHEIBE, Deutsche Hindukuschexpedition 1935 in Herb. of the Martin Luther Universität in Halle and O. H. VOLK, private collection, Würzburg. It was, however, too late to include the enumeration of the *Compositae* of these collections in the publication. As to the vast genus *Cousinia*, ALEXANDER GILLI having made extensive collections in Afghanistan (in Herb. of the Naturhistorisches Museum, Wien) between 1949 and 1951 agreed to hand over to me his material of that genus for determination and publication. Most of the results of his activities have been worked out and published separately by himself.

In part III of *Symbolae Afghanicae*, *Leguminosae*, all the above mentioned collections are being included. The same is true for part IV, including the following families: *Pteridophyta*, *Cruciferae*, *Saxifragaceae*, *Geraniaceae*, *Linaceae*, *Guttiferae*, *Onagraceae*, *Primulaceae*, *Apocynaceae*, *Asclepiadaceae*, *Convolvulaceae*, *Solanaceae*, *Scrophulariaceae*, *Rubiaceae*, *Dipsacaceae*, as well as *Liliaceae*, *Amaryllidaceae*, *Dioscoreaceae*, *Iridaceae*, and *Orchidaceae*. Among the smaller collections occasionally mentioned in part IV and V, and also now in the present part VI of *Symbolae Afghanicae* the following should be mentioned: K. LINDBERG, private collection, Lund, R. MEINERTZHAGEN and W. THESIGER, British Museum, London, P. WENDELBO, Herbarium of the University Bergen, and I. HEDGE, Herbarium of the Royal Botanic Garden, Edinburgh.

HONIGBERGER's specimens collected in 1833 are probably the oldest plant collection from Afghanistan. Most of them have not at all or only provisionally been named and they are inserted since many years in the Vienna Herbarium. Unfortunately their labels do not give any information excepted “Cabul-HONIGBERGER”. Most probably “Cabul” is to be understood in the sense of “Regnum Cabulicum”, the plants thus labelled do not necessarily originate from the neighbourhood of Kabul City.

Duplicates of many of the above mentioned collections have been deposited in the Herbarium of the Naturhistorisches Museum, Wien, the Grasses collected by

KØIE and EDELBERG in the Herbarium of the University of Copenhagen, in the Herbarium of the Royal Botanic Gardens, Kew, and in British Museum (Natural History), London.

Many of the localities referred to in this work are not shown on any map. Others will be difficult to identify because of the considerable discrepancies in orthography. In the absence of established orthographic rules, we have given the localities in the spelling that has been found on the labels. A complete list of more exact geographical locations cannot be prepared until the treatment has been completed because new material has been coming in all the time. For preliminary orientation we have divided Afghanistan into seven parts: N, NE, E, SE, SW, NW and C as indicated on the map. These geographical abbreviations are placed in front of the localities given. Nuristan has been segregated from the north-east part of the country, mainly because it is a well defined area from which a particularly large number of plants has been collected, but also because the monsoon rain renders the vegetation of Nuristan different from that of most of the other parts of Afghanistan. Otherwise no attempt has been made to divide the country by plant geography.

Data of habitats, etc. have been cited in the language used by the collector on the label.

Whereas in most of the earlier parts of the *Symbolae Afghanicae* enumerations only of the herbarium material recently obtained have been presented, the treatments published in part V as well as in the present part VI, however, cover all the species reported from Afghanistan. Keys to genera and species have been worked out in *Cyperaceae* by MARCEL RAYMOND. In many cases species reported from neighbouring countries, e. g. from Chitral, Swat, Peshawar and Kurram, as well as Balouchistan in the East, and in Khorasan in the West have been included too because their occurrence in Afghanistan is to be expected.

The names of the collectors are abbreviated as follows; indication of herbaria is given in brackets: AMSEL is H. G. AMSEL (W); B. L. is S. A. BOWES LYON (BM); CH.-M. is J. L. CHAWORTH-MUSTERS (BM); CN is C. DE B. CODRINGTON (BM); E is L. EDELBERG (C, W); G. is A. GILLI (W); H is HONIGBERGER (W); HDG. is I. HEDGE (E, W); K is M. KØIE (C, W); KN is G. KERSTAN (HAL); Kz is W. KOELZ (US); L is K. LINDBERG (W); M. is R. MEINERTZHAGEN (BM); N is H. F. NEUBAUER (W); REPP is G. REPP (W); SCH is A. SCHEIBE (HAL); ST is J. D. A. STANTON (BM); TH is W. THESIGER (BM); V is O. H. VOLK (W); WDB is P. WENDELBO (BG, E, O, W). The specimens collected by K. H. RECHINGER (RECH, W) in 1962 have been taken up too.

For herbaria the internationally recognized abbreviations as indicated in *Index Herbariorum* have been used.

Photographs of Grasses have been prepared by Messrs. M. G. SAWYERS and P. GREEN of Photographic Studio, British Museum (Natural History), London.

The plant families will be published in the sequence in which the treatment is completed. It is intended to conclude the work with a survey of Afghanistan's vegetation.

The typescript for the press was prepared by A. PATZAK, Wien.

CYPERACEAE

by MARCEL RAYMOND,¹⁾ Montreal.

The material enumerated below contains 95 species. It includes actual specimens submitted by Dr. K. H. RECHINGER, borrowed from several herbaria, as well as reliable records taken in the botanical literature. The loan included the material collected by KERSTAN during the German Hindukush Expedition of 1935, partial results of which only have been published. The *Cyperaceae* have not appeared in print, though some of them have been determined by the late G. KUEKENTHAL. Present also was a nice set of specimens from Chitral, collected by STANTON and BOWES LYON that add considerably to our knowledge of the Cyperaceous flora of that area. In some cases, as several species have been described with immature or fragmentary material, this beautifully prepared collection has given me the opportunity to write more complete descriptions of inadequately understood species. Years ago, my friend PER WENDELBO had given me duplicates of several of his own collection from Tirich Mir, so that I was already familiar with such species as *Carex chitralensis* NELMES, *C. Gilesii* NELMES and *C. Wendelboi* NELMES, to mention only these. Dr. M. KØIE was kind enough to send a very nice set, from various parts of Afghanistan. As several old collections labelled as coming from 'Afghanistan' or 'Kabul' have in fact been collected in Pakistan, the examination of all this material has often allowed me to confirm or reject the actual presence of such species in Afghanistan itself, though several old records have still to be authenticated by new material. GILLI's material, the basis of a recent publication, has also been examined, thanks to Dr. RECHINGER.

The following genera are represented: *Carex* (42 species), *Cyperus* (19 species), *Scirpus* (13 species), *Kobresia* (11 species), *Eleocharis* (6 species), *Bulbostylis* (1 species), *Fimbristylis* (1 species), *Eriophorum* (1 species), *Schoenus* (1 species).

Carex alsia and *C. austro-afghanica* are described as new, as well as *Kobresia afghanica*. *Carex sanguinea* is transferred to the genus *Kobresia* and *Scirpus maritimus* var. *orientalis* LITW. is raised to specific rank as *S. Schmidii*. Some minor transfers and taxa are also proposed.

The following enumeration shows that phytogeographically speaking NE. Afghanistan and Chitral, the richest area in species of *Carex* notably, is the western-

¹⁾ Curator, Montreal Botanical Garden, Canada.

most extension of the Himalayan flora, with several endemics of restricted range. The still poorly known Northern district shows floristic affinity with Turkestan and Pamiro-Alaj, whereas the Western district is the continuation of the Iranian flora. *Carex Halleriana*, ranging from Portugal through Iran and Afghanistan (one gathering) to Sind, indicates a faint Mediterranean influence. If Chitral is removed from the picture, the actual Cyperaceous flora of Afghanistan *sensu stricto* is a relatively poor one.

- 1a. Flowers unisexual. Female flowers (nut, achene) enclosed in a more or less flask-shaped closed perigynium 2
- b. Flowers hermaphrodite. Female flowers (nut, achene) subtended by a scale 3
- 2a. Female flowers enclosed in an incompletely closed perigynium *Kobresia*
- b. Female flowers enclosed in a completely closed flask-shaped perigynium *Carex*
- 3a. Spikelets flat, the scale distichous *Cyperus*
- b. Spikelets terete, the scales spirally arranged 4
- 4a. Spikelets mostly 1–3-flowered, with several empty basal scales *Schoenus*
- b. Spikelets several flowered, with 1–2 empty basal scales 5
- 5a. Spikelets solitary, at the end of a leafless culm. Style-base enlarged and persistent *Eleocharis*
- b. Spikelets mostly several, variously grouped. Style-base caducous 6
- 6a. Style-base flattened, often fimbriate *Fimbristylis*
- b. Style-base not flattened, smooth 7
- 7a. Style-base leaving a button-like scar on top of the achene. Plants mostly hairy *Bulbostylis*
- b. Style-base not button-like 8
- 8a. Spikelets variously grouped, terminal or pseudolateral, even solitary. Bristles several or 0, shorter than, or as long as, the achene *Scirpus*
- b. Spikelets small, very numerous, in a terminal compound umbelliform panicle. Bristles overtopping the achene. *Eriophorum*

Cypereae

***Cyperus* L.**

- 1a. Axis of spikelets continuous 2
- b. Axis of spikelets articulate and broadly winged. Spikes hemispherical. Scales 2,5 mm long, 3-5-nerved. Nutlets oblong. Small tufted annual 2-20 cm high. *C squarrosus* L.
- 2a. Stigmas 3. Nutlets trigonous 3
- b. Stigmas 2. Nutlets lenticular compressed or biconvex 15
- 3a. Spikelets on a rather long axis, spikelike 4
- b. Spikelets on a very short axis, digitate or fasciculate 10
- 4a. Axis of spikelets with margin of scales decurrent at base, conspicuously winged at last. Style long 5
- b. Axis of spikelets unwinged or narrowly margined. Style short 9

- 5a. Spikes cylindrical. Axis broadly winged; wings coloured so often
 *C. imbricatus* RETZ
- b. Spikes broad-ovate or turbinate. Wings of axis hyaline 6
- 6a. Rhizome horizontal with rather long stolons. Scales densely imbricate..... 7
- b. Rhizome with rather slender stolons or short suckers. Scales elliptical
 obtuse *C. eleusinoides* KUNTH
- 7a. Rhizome creeping. Stolons lignescent. Scales keeled, obscurely few-winged 8
- b. Rhizome fibrous. Stolons thin. Scales concave, scarcely keeled, conspicu-
 ously many-nerved *C. esculentus* L.
- 8a. Stolons tuberiferous *C. rotundus* L.
- b. Rhizome lignescent, creeping; no tuberiferous stolons present ... *C. longus* L.
- 9a. (4) Spikelets loosely spicate. Scales loosely arranged, broadly obovate or
 ovate, rounded at apex, 5-7-nerved. Nutlets nearly as long as scales .. *C. Iria* L.
- b. Spikelets densely spicate. Scales densely imbricate, ovate, cuspidate or
 rounded at apex, 5-13-nerved. Nutlets 1/2 as long as scales *C. glaber* L.
- 10a. Anthela spreading 11
- b. Anthela capitate-contracted 12
- 11a. Spikelets 5-15, loosely capitate. Scales ovate, blackish-brown..... *C. fuscus* L.
- b. Spikelets numerous, densely capitate. Scales orbicular-obovate, chestnut-
 brown, hyaline at margin *C. difformis* L.
- 12a. Spikelets turgid. Scales inconspicuously carinate towards apex
 *C. conglomeratus* ROTTB.
- b. Spikelets compressed. Scales conspicuously carinate 13
- 13a. Culms long. Scales muticous obtuse *C. niveus* RETZ.
- b. Culms very short. Scales ending in a conspicuous mucro *C. Michelianus* (L) LINK
- 14a. (2) Nutlets dorsally compressed, facing the axis 15
- b. Nutlets laterally compressed, their angles facing the axis 16
- 15a. Anthela loose, rays rather long. Scales veined *C. serotinus* ROTTB.
- b. Anthela capitate-contracted, not more than 1 mm wide. Scales not veined
 *C. laevigatus* L.
- 16a. Outermost cells hexagonal. Nutlets reticulate or punctulate 17
- b. Outermost cells rectangular oblong. Nutlets undulate or muricate at base
 and towards apex *C. flavescens* L.
- 17a. Scales never sulcate 18
- b. Scales conspicuously sulcate *C. sanguinolentus* VAHL
- 18a. Scales obtuse or acute, never ending in a recurved mucro *C. globosus* ALL.
- b. Scales truncate at apex or ending in a recurved mucro *C. pumilus* L.

C. conglomeratus ROTTB. - 'Balouchistan' (ELLIOTT).

C. conglomeratus ROTTB. var. *Aucheri* (JAUB. et SPACH) C. B. CLARKE - Common
 in nearby Persia and to be expected in SW.-Afghanistan.

C. conglomeratus ROTTB. var. *effusus* (ROTTB.) KUEKENTHAL, – ‘Afghanistan’ (AITCH. 36). – **Pakistan: Balouchistan:** Sibi (LACE).

Desert and sandy places of Africa and SW. Asia, eastwards to India. A difficult group to deal with, where BOECKELER recognized 9 species, all treated by KUEKENTHAL as varieties or forms of a single one.

C. difformis L. – **E:** Prov. Khost: Wuzak (V. 1072). Arghandab bei Kabul (V. 1352). Kabul (AKHTAR 422). ‘Afghanistan’ (GRIFF. 6155 p. p.).

C. eleusinoides KUNTH – **E:** Kabul (GRIFF. 28, 1267, 6199).

C. esculentus L. – **NE:** Khanabad, 700 m (Kz. 12201).

C. flavescens L. – ‘Afghanistan’ (AITCH. 964).

C. fuscus L. – **N:** Mazar-i Sharif: Aqtscha (N. 1950/131). Kataghan: Pul-e Khomri (N. 1950/239). – **SW:** Am Hilmend Fluss (V. 1327). – **SE:** Arghandab bei Kandahar (V. 1356). – **E:** Khost: Wuzak (V. 1076). Kabul: Sarobi bei Charikar (V. 490). Paghman, Beg-tut, 2300 m (V. 2200). Am Logar Fluss bei Tscharasiah, 1760 m (G. 241). Am Logar Fluss zwischen Tag-i Saidan und Lallandar, 1810 m (G. 242, 243). ‘Afghanistan’ (GRIFF. 6174, 6175, 6176). – **C:** Kamard near Doab, 2000 m (Kz. 13591). Doab, 1700 m (Kz. 13517). Pahin Shahr, 2700 m (Kz. 12393).

C. glaber L. – **E:** Kabul: Paghman, Beg-tut (V. 2208). – ‘Afghanistan’ (AITCH. 775).

C. globosus ALL. **SE:** Arghandab-Sümpfe bei Kandahar (V. 1358). – **NE:** Nuristan: Kamdesh im unteren Baschgal-Tal, 1800 m (KN. 144). – **E:** Kabul: Sarobi bei Charikar (V. 1392). Lataband (V. 538, 1173). – **C:** Doab, 1400 m (E. 2882). Kamard, 6000 ft., along stream (Kz. 13604). Rustak, 2000 ft., damp ground (Kz. 13140).

C. imbricatus RETZ. (Syn. *C. radiatus* VAHL.) – **SE:** Kandahar: Arghandab (KITAMURA 37).

C. Iria L. – **E:** ‘Afghanistan’ (GRIFF. 42, 96, 6177; AITCH. 418).

C. laevigatus L. (Syn. *Juncellus laevigatus* (L.) C. B. CLARKE). – **E:** ‘Afghanistan’ (GRIFF. 6215; AITCH. 778).

C. laevigatus L. var. *distachyos* (ALL.) COSS. et DURIEU (Syn. *C. distachyos* ALL., *C. junciformis* CAV., *Acorellus distachyos* (ALL.) PALLA). – **N:** Qataghan (Kataghan): Qunduz (Kunduz), 400 m (RECH. 16057). – **SW:** Herat, 1000 m (K. 4246). Shin Dand, 1200 m (K. 4245). – **SE:** Kajkai, 1000 m (K. 2155). – **E:** Kabul: Sarobi bei Kabul (V. 1214-a). ‘Afghanistan’ (GRIFF. 6199). – **Pakistan: Balouchistan** (DUKE 69).

KOYAMA gives 1879 as the date of publication of ALLIONI’s classical Auctuarium ad Floram Pedemontanam, instead of 1789. Then, treating var. *distachyos* as a species, he choses *Cyperus junciformis* CAV. (1794) as the oldest name, quite an unusual procedure.

C. longus L. – **SE:** Arghandab-Sümpfe bei Kandahar (V. 1358-a, KITAMURA 23). Pirzada near Kandahar, 900 m (K. 2132). – **E:** ‘Afghanistan’ (N. 1950/437). – **NE:**

Nuristan: Rustak, 2000 ft., pond edge (Kz. 13142). Takia, 4500 ft., field (Kz. 13113). – **Pakistan:** **Quetta** (HAMILTON).

C. longus L. var. *pallidior* KUEKENTHAL (Syn. *C. longus* L. var. *pallidus* (non BOECK.) BOISS.). – **NE:** Khanabad: Takia, Rustak, 1500 m (Kz. 13113). Rustak, 700 m (Kz. 13142). **Nuristan:** Arrandz, Waigel-dal, 1800 m (E. 2402). – **E:** Jallalabad, 580 m (G. 238). 'Afghanistan' (GRIFF. 6145); AITCH. 624).

Extremely variable. KUEKENTHAL recognizes 19 taxa at various levels.

C. Michelianus (L.) LINK ssp. *pygmaeus* (ROTTB.) ASCHERS. et GRAEBN. – **SW:** Am Hilmend Fluss (V. 1326).

C. niveus RETZ. – **Pakistan:** From Thal to Kurram (AITCH. 438). – **Balouchistan** (STOCKS 617).

C. pumilus L. – **E:** Khost (V.). – **C:** Doab, 2700 m (Kz. 13514).

C. rotundus L. – **NW:** Sangcharak: Tukzar, 1700 m (Kz. 13972). – **N:** Mazar-i Sharif, 400 m (Kz. 13189, KITAMURA 47, 48). Kataghan: Baghlan (V. 599, 645-a, 767, 1165, 1385). – **NE:** Kataghan: Qunduz (Kunduz) (RECH. 16028), Bala Hissar, 400 m (Kz. 13189, RECH. 16062). Tagau, 6000 ft., damp ground (Kz. 11805). **Nuristan** Mühlbach bei Barikot, 850 m (G. 239). – **SE:** Kajkai, 1400 m (K. 2882). Zwischen Kandahar und Kuschki, Nahod, 1000 m (KN. 310). Kandahar (KITAMURA 56). – **SW:** Farah, 600–700 m (Kz. 13253, K. 3906). – **E:** Kabul: Nidjrao, NE Sarobi (V. 2383). Sarobi bei Kabul (V. 1198). Tang-e Gharru, inter Kabul et Jallalabad, 1400–1500 m, substr. Gneiss (RECH. 16938). Jallalabad, Tschardagh, am Alingar Fluss, 600 m (KN. 653). Guzar Gah bei Kabul (N. 1950/670). Garten der Nedjatschule in Kabul, 1770 m (G. 240). 'Afghanistan' (GRIFF. 6179, 6180; AITCH. 25). – **Pakistan** (KN. 2006).

C. rotundus L. f. *latimarginatus* KUEKENTHAL. – **SE:** Zwischen Kandahar und Kuschki Nahod, 1000 m (KN. 310). – **E:** 'Afghanistan' (AITCH. 85). – **Pakistan:** **Chitral:** Yarkhun-Tal bei Koghosi, 600 m (KN. 2006).

C. rotundus L. var. *salsolus* C. B. CLARKE. – **E:** Jallalabad-Gebiet: Tscharbagh, am unteren Alingar, 600 m (KN. 653). – **Pakistan:** **Chitral:** Mastuj-Tal, 1600 m (KN. 2006).

C. sanguinolentus VAHL (Syn. *Pycreus sanguinolentus* (VAHL) NEES, *C. Rehmanni* BOISS.). – **E:** 'Afghanistan' (GRIFF. 6188). – **Pakistan:** **Swat:** Utror, 2500 (R. 19534).

C. serotinus ROTTB. (Syn. *C. Monti* L. f.). – **NE:** Badakhshan: Jurm, 2300 m (Kz. 12878, 12879). Khanabad, 700 m (Kz. 12208). Between Shinak and Alizai (AITCH. 494). – **E:** 'Afghanistan' (GRIFF. 6188 p. p.). – **Pakistan:** Lutkuh (Lutkho), Tal bei Shoghor (KN. 1601).

C. squarrosus L. (Syn. *C. aristatus* ROTTB.). – **E:** Porande-Tal, Seitental des Pandjir (G. 244).

C. squarrosus L. f. *alpinus* (C. B. CLARKE) RAYMOND, comb. nov. (Syn. *C. aristatus* ROTTB. f. *alpinus* C. B. CLARKE, Journ. Linn. Soc. 21: 92 (1884). – **NE:** **Nuristan:** Tchitur Tal, zwischen Tchitur-Pass und Ramgel-Tal (KN. 1143).

*Scirpeae.****Bulbostylis* KUNTH.**

B. puberula (POIR.) C. B. CLARKE – **E:** 'Kabul' (fide C. B. CLARKE).

***Fimbristylis* VAHL.**

F. dichotoma (L.) VAHL (Syn. *Scirpus dichotomus* L., *S. diphyllus* RETZ., *Fimbristylis diphylla* (RETZ.) VAHL, *F. annua* R. et S.). – **NE: Nuristan:** An der Mündung Kurderbach-Petsch (N. 1951/839). – **N:** Mazar-i Sharif: Aqtscha (N. 1950/130). – **SW:** Dilaram, 1100 m (K. 3346). – **SE:** Kandahar: Arghandab (V. 1357). – **E:** Sarobi (V. 1184). Nidjrao, NE Sarobi, 2800 m (V. 2310). Am Kabul-Fluss bei Jallalabad, 600 m (G. 285, N. 1949/20).

***Eleocharis* R. BR.**

- 1a. Style-base apparently confluent with the summit of the achene, but of a different color and texture *E. quinqueflora* (HARTM.) SCHWZ.
 b. Style-base articulated with the achene..... 2
 2a. Annual species. Achene deep purple to shining black 3
 b. Perennial species 4
 3a. Spikelet 1,5–2 mm thick. Achene 0,5 mm long *E. atropurpurea* (RETZ.) KUNTH
 b. Spikelet 2–3 mm thick. Achene 1 mm long *E. geniculata* (L.) R. et S.
 4a. Basal scale solitary, spatiform, encircling the base of the spikelet
 *E. uniglumis* (LINK) SCHULT.
 b. Basal sterile scales usually 2–3..... 5
 5a. Style-base elongate, longer than broad *E. palustris* (L.) R. et S.
 b. Style-base mitrate, broader than long *E. mitracarpa* STEUD.

The genus *Eleocharis* is a difficult one to deal with, and old views on several wide-ranging species have to be revised. The material from Afghanistan is not easy to sort out. Apparently, the most common species is *Eleocharis mitracarpa* STEUD., which turns out either as dwarf rigid plants or as tall plants with spongy wide culms, the spikes varying also in color from white to brown. Yet the mitriform style-base is unmistakable.

The line of demarcation between *E. palustris* and *E. uniglumis* is difficult to draw and the characters based on the number and shape of the sterile scales are not always reliable. ZINSERLING's treatment for the Flora URSS includes no less than 21 species in the *E. palustris*-group. One of his names has been retained as variety.

Eleocharis acicularis (L.) R. BR. and *E. carniolica* KOCH, reported by GILLI, FEDDES Repert. spec. nov. 64: 214–215 (1962) as occurring in Afghanistan are both based on specimens of *E. quinqueflora* (HARTM.) SCHWZ., the correct name for the well known *E. pauciflora* (LIGHTF.) LINK. Of the two specimens of *Eleocharis palustris* (L.) R. et S. that he mentions, one belongs to it, whereas the other represents *E. mitracarpa* STEUD., a frequent species in Southwestern Asia.

E. atropurpurea (RETZ.) KUNTH (Syn. *Scirpus atropurpureus* RETZ.). – **Pakistan:** Kurram: Shalizan, growing with *Scirpus juncooides* ROXB., in rice-fields (AITCH. 603).
E. geniculata (L.) R. et S. (Syn. *Scirpus geniculatus* L., *S. caribaeus* ROTTB.,

Eleocharis capitata R. BR., *E. caribaea* (ROTTB.) S. F. BLAKE). – **Pakistan: Balouchistan** (STOCKS).

E. mitracarpa STEUD. (Syn. *E. crassa* FISCH. et MEY., *E. Kitamura* T. KOYAMA, Act. Phytotax. et Geobot. 17: 48, fig. 1 (1957), *E. uniglumis* (LINK) SCHULT. var. *latior* T. KOYAMA, Act. Phytotax. et Geobot. 17: 49, fig. 2 (1957), *E. palustris* auct. Fl. As. Med. p. p.). – **E:** Kabul: Lal-i Zarjangel, 2500 m (K. 3344). Sarobi (KITAMURA 61). Darulfanun bei Kabul (V. 2083). Koktscha Mullah bei Kabul (N. 1950/660). Tschaman Wazirabad bei Kabul, 1750 m (G. 276). Wazirabad (N. 1951/123). Zwischen Kabul und Tschaman (N. 1951/56). Kabul, 2000 m (Kz. 11449, KITAMURA 21). – **C:** Kamard, NW Doab, 2000 m (Kz. 13603). – **Pakistan: Kurram Valley** (AITCH.).

E. palustris (L.) R. et S. – **E:** Kabul: Aliabad bei Kabul (V. 143). Ghazni: In jugo Sardalu W Qarabagh, 2300–2500 m (RECH. 17324). Ad lacum Djalgah-Shahr-Kawat inter Okak et Behzud (Diwal Kol), 2800 m (RECH. 17867). – **C:** Bamian: Ad ripam lacus Band-i Panir prope Band-i Amir, 2800 m (RECH. 18370). Am Bamian-Fluss bei Schar-e Schak, 2320 m (G. 277).

E. quinqueflora (HARTM.) SCHWZ. (Syn. *S. quinqueflorus* HARTM., *S. pauciflorus* LIGHTF., *E. pauciflora* (LIGHTF.) LINK) var. *meridionalis* (ZINSERL.) RAYMOND, comb. nov. (Syn. *Heleocharis meridionalis* ZINSERL., Fl. URSS. 3: 69, 580 (1935). – **NW:** Chist, 1600 m (K. 3635). – **C:** Bamian: Band-i Amir, 2800 m (K. 2844). Band-i Amir, in ripa lacus, 2800 m (RECH. 18319). Farakulum, 2800 m (K. 2577). – **E:** Kabul: Paghman-Berge oberhalb Beg-tut, 2900 m (G. 284). Porande-Tal, Seitental des Pandschir bei Basarak, 1950 m (G. 283, N. 1950/669). Tscharasiah bei Kabul, 1750 m (G. 282). – **Pakistan: Chitral:** Im Yarkhun-Tal bei Mastuj, 2040 m (KN. 2047-b).

E. uniglumis (LINK) SCHULT. var. *transcaucasica* (ZINSERL.) T. KOYAMA, Act. Phytotax. et Geobot. 17: 48 (1957). – **NW:** Obeh, 1900 m (K. 3648). – **SW:** Sabst Pass, 10000 ft. (Kz. 13818). – **SE:** Zwischen Mokor und Kalat-i Ghilzai (KN. 154). – **NE: Nuristan:** Kulam (Munui), Kulam-Tal, 2200 m (KN. 1069). – **E:** Ghazni: Dahan-e Barikak, inter Okak et Behzud (Diwal Kol), 2800 m (RECH. 17983). Dasht-e Nawar (Naour), 3000 m (RECH. 17805). Kabul: Wiesen zwischen Kartetschar und Aliabad, 1780 m (G. 280). Tschaman Wazirabad, 1750 m (G. 278, N. 1951/124-b). Wazirabad (G. 912, 991). Bala Hissar, 1800 m (RECH. 16003). Zwischen Sarobi und Kabul (KITAMURA 54). Dehrasang bei Kabul, 1770 m (G. 279). W of Kabul (KITAMURA 28). Hauz-i Mahiha, 2500 m (K. 2483). – **C:** Koh-i Baba, 3100 m (K. 2668). Am Bamian-Fluss bei Schar-e Schak, 2320 m (G. 281). Inter Bulola et jugum Shibar, 2600–2800 m (RECH. 16761). Between Bulola and Doab (KITAMURA 58).

Eriophorum L.

E. comosum (WALL.) WALL. (Syn. *Scirpus comosus* WALL.). – **NE: Nuristan:** Wama, Seitental des Petsch, 1380 m (KN. 803). Between Seprigal and Wama (KITAMURA 32). – **E:** Kabul: In faucibus Tang-e Gharru, inter Kabul et Sarobi, 1100–1300 m

(RECH. 16961). – **Pakistan:** From Thal to Kurram (AITCH. 316). In collibus supra Dargai, 400 m (RECH. 19623). Inter Saidu Sharif et Malakand, 800 m (RECH. 19618).

***Scirpus* L.**

- 1a. Spike solitary, terminal, small, 3–4 mm long, few-flowered. In loosely stoloniferous small tufts *S. pumilus* VAHL 2
 b. Spikelets several, variously arranged 2
 2a. Stem filiform, 3–20 cm high, with 1–3 small spikelets. Hypogynous bristles Ø. Annual *S. setaceus* L. 3
 b. Stem not filiform 3
 3a. Inflorescence terminal, subtended by 1 to several bracts 4
 b. Inflorescence pseudolateral, one of the bract erect as if continuing the stem 8
 4a. Inflorescence distichous, congested, subtended by 1 short bract *S. planifolius* GRIMM.
 b. Inflorescence umbellate, subtended by 1 to several leafy bract. Roots with internodes swollen in woody tubers 5
 5a. Spikelets 1–3 ovoid, straw-coloured, sometimes whitish. Glumes nearly glabrous *S. affinis* ROTH 6
 b. Spikelets pale to deep brown. Glumes minutely pubescent 6
 6a. Spikelets narrowly cylindrical 1–2 cm long and less than 6 mm thick, in dense groups at the end of the rays *S. tuberosus* DESF. 7
 b. Spikelets ovoid, more than 6 mm thick 7
 7a. Achene white. Hypogynous bristles Ø *S. Schmidii* RAYMOND
 b. Achene straw-colored. Hypogynous bristles 3–6 *S. maritimus* L.
 8a. Spikelets 1–9 aggregated in a dense lateral head located at the middle of the often septate stem *S. Roylei* (NEES) PARKER 9
 b. Spikelets located below the top of the stem 9
 9a. Annual, in tufts. Spikelets 8–10 cm long *S. juncooides* ROXB. 10
 b. Perennial species 10
 10a. Hypogynous bristles Ø. Spikelets congested into crowded sphaerical heads *S. Holoschoenus* L.
 b. Hypogynous bristles usually present. Spikelets arranged otherwise 11
 11a. Stem triquetrous *S. triquetra* L. 12
 b. Stem terete, sometimes triquetrous below the inflorescence 12
 12a. Bristles soft and plumose *S. litoralis* SCHRAD
 b. Bristles harsh and scabrid *S. lacustris* L. agg.

S. affinis ROTH (Syn. *S. strobilinus* ROXB., *S. maritimus* L. var. *macer* BOECK., *S. maritimus* L. var. *affinis* (ROTH) C. B. CLARKE, *Bolboschoenus affinis* (ROTH) DROBOV). – **C:** Kamard, 6000 ft. (Kz. 13602). – **SW:** Dilaram, 1100 m (K. 3345). – **SE:** 15 km E Kandahar (KITAMURA 36). – **E:** W of Kabul (KITAMURA 40 p.p.). – **C:** Doab, 5000 ft. (Kz. 13510, KITAMURA 33). – ‘Afghanistan’ (AITCH. 421, 788, 868).

S. affinis ROTH f. **maritimoides** (DROBOV) RAYMOND, comb. nov. (Syn. *Bolboschoenus affinis* DROBOV var. *maritimoides* DROBOV, Trav. Mus. Bot. Acad. Petersb. 16: 140 (1916), *S. vulpincolor* KOYAMA). – **E**: W of Kabul (KITAMURA 40 p.p.).

In this form, the rays are elongated and the yellow spikes numerous whereas in Indian and Indo-Chinese specimens, the inflorescence is reduced to 1–2, nearly white, large spikes.

S. Holoschoenus L. – **SW**: Herat to Shin Dand, 1400 m (K. 3941). 60 km S of Herat, 1600 m (K. 2276). Dilaram, 1100 m (K. 3348). Tuki, 4500 ft., clumps along spring (Kz. 13117). – **E**: Ghazni: Sang-i Masha, 2500 m (RECH. 17464). Kabul: Zwischen Tang-i Saidan und Lallandar, 1810 m (G. 252). Gulbagh, Kabul, 1800 m (G. 251). – **C**: Doab (V. 520, KITAMURA 57).

S. juncooides ROXB. (Syn. *S. erectus* (non POIR.) plurim. auct.). – **Pakistan**: Kurram, Shalizan, 6000 ft. (AITCH. 420). – **C**: Kamard, 6000 ft., along stream (Kz. 13587). – **E**: Zwischen Tang-i Saidan und Lallandar, 1810 m (G. 252, 253). Gulbagh, Kabul, 1800 m (G. 251-b)

S. lacustris L. var. **luxurians** (MIQ) RAYMOND, comb. nov.

(Syn. *S. Tabernaemontani* GMEL. f. *luxurians* MIQUEL, Ann. Mus. Bot. Batav. 2: 143 (1856), *S. Hyppoliti* V. KREZ., Not. Syst. Herb. Inst. Bot. Acad. Sci. URSS. 7 (I): 28 (1937), *S. lacustris* L. ssp. *validus* (VAHL) KOYAMA var. *luxurians* (MIQ.) KOYAMA, Can. Journ. Bot. 40: 927 (1962), *S. Tabernaemontani* plurim. auct. asiat.). – **EN**: Khanabad, 12000 ft., by stream (Kz. 12231). Rustak, 6000 ft. (Kz. 13138). – **E**: Ghazni: Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), 2800 m (RECH. 17907, 17913). Kabul, E Tscharasiah, 1740 m (G. 255, 256). Dehmasang, Dar-ul fanun, Gusargah, 1770–1780 m (G. 257, 158). Jallalabad (KITAMURA 59). Between Ghazni and Kabul (KITAMURA 25). – **C**: Doab, 1700 m, in spring stream (Kz. 13534). Kamardtal, am rechten Ufer des Surch, W Doab, 1620 m (G. 254). Kamard, 6000 ft., in stream (Kz. 13593, 13607). – Panjao, 2800 m (K. 2742). – **Pakistan**: Kurram Valley (AITCH. 312, 465, 689).

Var. *luxurians* seems to link var. *validus* (VAHL) KUEKENTHAL and var. *Tabernaemontani* (GMEL.) DOELL. Closely related to each other, they more or less intergrade. Together with var. *tenuiculmis* SHELDON (Syn. *S. heterochaetus* CHASE), which is strictly North American, they are at best treated as varieties. KOYAMA (loc. cit. 926–928) has recognized 3 subspecies and 3 varieties in the *Scirpus lacustris* complex.

S. lacustris L. var. *Tabernaemontani* (GMEL.) DOELL (Syn. *S. Tabernaemontani* GMEL.). – **N**: Khanabad, 400 m (Kz. 12231). Rustak, 650 m (Kz. 13138). Kunduz: In paludosis fluvii Kunduz, 400 m (RECH. 16054). In valle fluvii inter Doshi et Doab, 800–1300 m (RECH. 16582). – **C**: Kamard, NW Doab, 2000 m (Kz. 13593, 13607). Doab, 1700 m (Kz. 13534).

S. litoralis SCHRAD. (Syn. *S. subulatus* VAHL, *S. thermalis* TRABUT, *S. litoralis* SCHRAD. var. *subulatus* (VAHL) CHIOVENDA (1928), KOYAMA (1958). – **SW**: Inter Farah et Seistan, 600 m (K. 4345). – **SE**: Pirzada, nr. Kandahar, 980 m (K. 2185). Zwischen Ghirishk und Hilmend-Fluss, 880 m (G. 259). – **Pakistan**: From Thal to Kurram (AITCH. 312, 465).

Even if BEETLE (Amer. Journ. Bot. 28: 692 (1941) terms *Scirpus subulatus* VAHL "a clear-cut species from Afghanistan", it has been considered by various authors as identical to *S. litoralis* SCHRAD., of which *S. pectinatus* ROXB. is also a synonym. The only difference, if of any importance, resides in the culm, trigonous in *S. litoralis*, terete in *S. subulatus*, though slightly angled below the inflorescence. For another opinion, see TOWNSEND in Kew Bull. 1963: 415–418.

S. maritimus L. – **N**: Tuloqan (V. 594-a). – **C**: Kamard, 6000 ft. (Kz. 13602). Wazirabad (N. 1951/124-a). – **SE**: E von Kandahar, 1100 (KN. 221). – **E**: Kabul: Paghman, 6000 ft. (Kz. 11450). Bala Hissar bei Kabul, 1740 m (G. 260). Darulaman bei Kabul (V. 85-a). Pandscheschah bei Kabul (N. 1950/665). Kotsche Mullah bei Kabul (N. 1950/661). Gulbagh bei Kabul, 1800 m (G. 261).

S. maritimus L. f. *compactus* (HOFFM.) P. JUNGE (Syn. *S. maritimus* L. var. *compactus* (HOFFM.) G. F. W. MEYER). – **E**: Kabul: Paghman, 6000 ft. (Kz. 11450). E von Tscharasiah, 1740 m (G. 264-a). Zwischen Dehmasang und Dar-ul fanun, 1780 m (G. 265). – **C**: Im Kamardtal W von Doab, 1620 m (G. 266).

S. maritimus L. f. *monostachyus* (G. F. W. MEYER) P. JUNGE (Syn. *S. maritimus* L. var. *monostachyus* G. F. W. MEYER). – **E**: Kabul: Sumpfwiese bei Dehmasang, 1770 m (G. 267). E von Tscharasiah, 1740 m (G. 264-b).

S. planifolius GRIMM. (Syn. *Schoenus compressus* L., *S. compressus* (L.) PERS., *S. Caricis* RETZ., *Blysmus compressus* (L.) PANZER, *Nomochloa compressa* (L.) BEETLE). – **NW**: Safedsang, 10000 ft., along stream (Kz. 13998). Sabz Pass, 10000 ft., spring trickle (Kz. 13817). – **NE**: **Nuristan**: Kulam (Munui), Kulam Tal (SCH. 102). Parun-Tal, zwischen Schtive und Paschki, 2300–2500 m (KN. 1381-b). Porande Tal, Seitental des Pandjir-Flusses bei Basarak, 1950 m (G. 268). – **SE**: Zwischen Mokok und Kalat-i Ghilzai, 1900 m (KN. 155-b). – **E**: Ghazni: Distr. Malestan: Inter jugum Kotal-e Ketschru et pagum Miradina, NW Sang-i Masha, 3200 m (RECH. 17544). Ad lacum Djalgalah-Shahr-Kawat inter Okak et Behzud (Diwal Kol), 2800 m (RECH. 17871). Okak, NE altoplanitiei Dasht-e Nawar (Naour), 3000 m (RECH. 17682). Ad lacum Sabzabt (RECH. 17918). In montibus Paghman supra Beg-tut, 2900 m (G. 270, 271). In montibus Paghman ad ripam rivuli supra Paghman, 2480 m (G. 269). Paghman, 2500 m (Kz. 12104). Wardak, SW Kabul (V. 828). – **C**: Bamian: Band- Amir, ad lacum Band-i Gholoman, 2800 m (RECH. 18474). Band-i Amir, in ripa lacus, substr. Sinter, 2800 m (G. 272, 273), 274; RECH. 18303). Inter Bamian et Band-i Amir, 2800–3000 m (RECH. 18176). Bamian (V. 2813). Koh-i Baba, in latere austro-orientali jugi Hadjigak, 3000 m (RECH. 18540). Unai Pass, 2800–3100 m, feuchter Rasen (G., V. 2108). Farakulum (K. 3339). Hauz-i Mahiha, 2900 m (K. 2492). Lal-i Zarjantal, 2500 m (K. 3341). – **Pakistan**: **Chitral**: Khot An, N of Mastuj, 1000 ft., between Turikho and Mastuj Rivers (St. 2858). Mastuj, 2500 m (St. 2484). Swat: Utror, 2500 m (RECH. 19563).

S. planifolius GRIMM. var. *tenuis* (GILLI) RAYMOND, comb. nov. (Syn. *Blysmus tenuis* GILLI, FEDDES Repert. spec. nov. 46: 48 (1939). – **C**: Bamian: Kamard-Tal, rechtes Ufer des Surch, W Doab, 1620 m (G. 275).

Scirpus planifolius is a very variable species. In the Flora of British India (660–661, 1894), C. B. CLARKE, under *Scirpus Caricis* RETZ., recognized var. *brevifolia* (DECNE.) C. B. CLARKE, var. *sikkimensis* C. B. CLARKE and var. *dissita* (DUTHIE) C. B. CLARKE. These taxa have never been discussed and with such a wide-ranging species, variation is to be expected.

The synonymy of this species is much involved. It was first described as *Schoenus compressus* L., but when transferred to *Scirpus*, the specific epithet cannot be used, on account of the pre-existence of *Scirpus compressus* MOENCH (1794). See details in HYLANDER, Upps. Universit. Årsskr. 7: 92 (1945).

Young specimens of this protean species simulate various species of *Carex* Subgenus *Vignea* and are usually found in herbaria with *Carex divisa*. Judging from the specimens that have been turned to me for identification lately, the species is frequent in the Himalaya and extends to Yunnan. The following have been determined (in herb. Univ. Michigan): Kashmir, Ladak (KOELZ 6325, 6345); Lahul (KOELZ 587 p.p., 593, 620, 1029, 1303). Yunnan (these in herb. GRAY). Wei-si Hsien (WANG 67824). Li-kiang Hsien, 2300–2800 m (WANG 70542, 70589, 70892, 70922, 71318).

Nomochloa BEAUV. in LESTIBOUDOIS (1819), has been revived by BEETLE for the present species, whereas KUEKENTHAL cites *Nomochloa compressa* BEAUV. as a synonym of *Eleocharis ovata* (Bot. Jahrb. 75: 485 (1952)).

The correct name of *Scirpus planifolius* MUHLENBERG (1817), an unfortunate later homonym, but a good North American species of Section *Baeothyron*, is *Scirpus verecundus* FERNALD.

S. pumilus VAHL (Syn. *S. alpinus* SCHLEICH., *Trichophorum pumilum* (VAHL) SCHINZ et THELL.). – **NE: Nuristan:** Oberes Ramgel-Tal bei Puschol, 2300 m (KN. 1107). – **E:** Ghazni: Ad lacum Sabzak, inter Okak et Behzud (Diwal Kol), 2800 m (RECH. 17931). Kabul: Paghman, 2500 m (Kz. 12105). – **C:** Bamian: Band-i Amir, in ripa lacus, 2000–2800 m (RECH. 16321, V. 2847). Farakulum (K. 2613). – **Pakistan: Chitral:** Prope Mastuj in valle Yarkhun, 2040 m (Kz. 2047-a). Oberes Ramgel-Tal in der Nähe von Puschol, 2300 m, nasse Wiesen (KN. 1107).

S. Roylei (NEES) PARKER (Syn. *Isolepis Roylei* NEES, *I. lupulina* NEES, *S. quinquefarius* BUCH-HAMILTON, *S. lupulinus* (NEES) ROSHEV.). – **E:** Kabul (C. B. CLARKE).

Scirpus Schmidii RAYMOND, stat. nov.

(Syn. *S. compactus* HOFFM. var. *orientalis* LITW. Herb. Fl. Ross. Fasc. 8, n° 2792 (1922) *Bolboschoenus compactus* (HOFFM.) DROBOV var. *orientalis* (LITW.) ROSHEV., non *Scirpus orientalis* OHWI, Acta Phytotax. et Geobot. 1: 76 (1932)).

E grege *Scirpi maritimi* L. – Rhizoma in speciminibus nostris deficiens sed probabiliter durum, lignosum et tuberiferum. Culmi 15–45 cm alti, glaucescentes, striati, trigoni, angulis alato-scabridi. Folia subbasalia 3–4 mm lata, culmo breviora, glaucescentia, vaginis longis brunneis numerosis partem inferiorem culmorum tegentibus. Spiculae numerosae sessiles, ovoideae, 6–8 mm longae, in capitulum hemisphaericum 1 cm longum, 2 cm latum dense congestae. Bracteae 2, 3–6 cm longae, basi paulum dilatatae, carinatae, carina et marginibus scabrae, demum deflexae. Squamae concavae, 5 mm longae, late ovatae, dorso et marginibus ciliatae, papyraceae, castaneae, subtiliter rubro-lineatae, nervo medio incrassato praeditae, in aristam recurvam scabram prolongatae. Achenium 3 mm longum, rhomboideum, basi attenuatum, trigonum aut interdum planoconvexum, nitidum, eburneum, demum

griseo-album, densissime cellulosum. Stigmata 3 (interdum 2). Styli basis incrassata. Setae hypogynae deficientes.

Afghanistan: E: Kabul: Kabul, Scirpo-Phragmiteta (VOLK 69-a, 827, 832). — **Persia:** E: Khorasan: Bar, 1780–2350 m (SCHMID 6288, Typus, G, Isotypus, W).

Scirpus compactus HOFFM. is merely a form of *Scirpus maritimus* L. with the rays of the normally umbellate inflorescence undeveloped. They often grow in the same colony. All species of section *Bolboschoenus* with a normal umbellate inflorescence exhibit a “congested” phase. On the other hand, *S. Schmidii* with an inflorescence normally without rays was wrongly associated with *S. compactus* HOFFM., the correct name of which is *S. maritimus* L. f. *compactus* (HOFFM.) P. JUNGE.

Scirpus Schmidii stands apart in the following manner: achene white, 3 mm long, no hypogynous bristles; bracts 2, reflexed; foliage glaucous. Its exact range is not known; it is probably scattered in the mountainous of parts of Southwest and Inner Asia.

S. setaceus L. (Syn. *Isolepis setacea* (L.) R. BR.). — **E:** Ghazni: In jugo Sardalu W Qarabagh, 2300–2500 m (RECH. 17321). Kabul: Paghman, Berge oberhalb Beg-tut (G. 249). Paghman, 2500 m (V. 2174, 2316, 2800-a, AKHTAR). Im Porande Tal, Seitental des Pandjir, 2200 m (G. 247). Am Kabul Fluss zwischen Tangi Saidan und Lallandar, 1820 m (G. 246). — **C:** Bamian: Ad ripam fluvii Bamian, 2500 m (G. 248, V. K-236). Im Unai-Tal, 3120 m (G. 250). Koh-i Baba, 3100 m (K. 3342). — **Pakistan:** Kurram Valley, in glades at Pewarkotal (AITCH. 965). **Swat:** Utror, 2500 m (RECH. 19592).

S. triqueter L. — **NE:** Kataghan: Qunduz, in paludosis fluvii Qunduz, 400 m (RECH. 16056). Qunduz (KITAMURA 29).

S. tuberosus DESF. (Syn. *S. corymbosus* FORSK., *S. maritimus* plur. auct. p.p.). — **C:** Doab, 1700 m (Kz. 13510).

Rhynchosporoideae.

Schoenus

Sch. nigricans L. — **SW:** Obah, 1900 m (K. 3649). — **E:** Kabul: Salangtal N von Djabal Seradj, 1660 m (G. 286). Pandjir-Schlucht bei Gulbahar, 1700 m, feuchte Stelle an einem ENE-Hang, Gneiss (G. 287). In faucibus Tang-e Gharru inter Kabul et Sarobi, 1100–1300 m, substr. conglom. (RECH. 16968). — **Pakistan:** Kurram Valley (AITCH. 358).

Caricoideae.

Kobresia WILLD. (Syn. *Elyna* SCHRAD.).

- 1a. Lower leaves of previous years' growth reduced to bladeless, often shining, sheaths 2
- b. Lower leaves of previous years' growth with conspicuous green or dried up blades 4
- 2a. Inflorescence mostly compound, ovate-elliptic, 5–8 mm wide. Achene ovate, 2–2,5 mm long, beaked, shining. Coarse plant *K. pamiroalaica* IVANOVA

- b. Inflorescence mostly spicate, narrow, 3–5 mm wide 3
- 3a. Culms robust, rigid. Achene 3 mm long *K. tibetica* MAXIM.
- b. Culms subrigid. Achene 4 mm long *K. capillifolia* (DECNE.) C. B. CLARKE
- 4a. Densely cespitose. Stigmas short 5
- b. Loosely cespitose or slightly stoloniferous. Stigmas very long 8
- 5a. Dwarf plants, 2–6 cm high 6
- b. Slender plants up to 50 cm high 7
- 6a. Inflorescence oblong, 1 cm long, brown. Perigynium oblong, 2–3 mm long, the apex attenuated in a beak *K. persica* KUEKENTHAL
- b. Inflorescence elliptic, 8–11 cm long. Perigynium oblong, 3 mm long, the apex obtuse *K. pusilla* IVANOVA
- 7a. Achene oblong, shorter than the perigynium *K. stenocarpa* (KAR. et KIR.) STEUD.
- b. Achene obovate, as long as the perigynium *K. Royleana* (NEES) BOECK.
- 8a. Small plant. Perigynium split nearly to the base *K. afghanica* RAYMOND
- b. Taller plants, 40–50 cm high. Perigynium close nearly to the top, utriculiform, scabrous 9
- 9a. Inflorescence short, oblong, subtended by a long bract.
. *K. curvata* (BOOTT) KUEKENTHAL
- b. Inflorescence elongate, the bract very short 10
- 10a. Leaves 2 mm wide. Achene 5 mm long *K. laxa* NEES
- b. Leaves 3–6 mm wide. Achene 4 mm long *K. sanguinea* (BOOTT) RAYMOND

Kobresia afghanica RAYMOND, spec. nov.

Ser. nov. ***Longestigmaticae*** RAYMOND. – Stigmata longissima, testacea, indurata, persistentia, ad quam *K. afghanica*, *K. laxa* et *K. sanguinea* pertinent.

Planta 6 cm longa, gracilis, tenuiter stolonifera, basi fibrillis stramineis delicatulis praedita. Folia culmo breviora 1 mm lata plus minusve canaliculata. Inflorescentia spicata, 1,5–2 cm longa, oblongo-ovata. Spiculae propriae 5–6 sessiles, basilaribus distantibus, summis coarctatis. Bractea e squamiformes castaneae, late hyalinae, 3-nervis viridibus in aristam usque ad 1 cm longam evanescentibus praeditae. Prophyllum marginibus liberis sed anguste amplectens achenium lineari-oblongum brunneum, 3 mm longum, 0,75 mm latum. Stigmata 3 longissima, testacea, indurata, persistentia. Rhachilla elongata, ad 7 mm.

Afghanistan: E: Panjshir (VOLK 160, Typus, W). Bagrami, Nedjerau-Tal, 2800 m, an schattigen Felswänden und an schattigen Quellen (NEUBAUER 1951/331, VOLK 2346, 2348). Oestlich vom Nedschrabtal, zwischen Sarobi und Gulbahar (GILLI 294, 295).

Looking superficially like *K. macrantha* BOECK. of western Tibet, that has a crowded inflorescence, 2 stigmas and a lenticular achene loosely invested by the prophyllum. In *K. afghanica*, the inflorescence is more elongate, the very narrow achene is closely invested by the boat-shaped, open prophyllum and crowned by the three long persistent brick-red stigmas. See note under *K. sanguinea* (BOOTT) RAYMOND.

K. capillifolia (DECNE.) C. B. CLARKE (Syn. *Elyna capillifolia* DECNE., *Kobresia scirpina* (non WILLD.) AITCH., *Elyna spicata* (non SCHRAD.) BOISS., *Kobresia capillifolia* (DECNE.) C. B. CLARKE var. *filifolia* (TURCZ.) KUEKENTHAL. – **NE: Nuristan:** Minjan Pass, 12000 ft., in meadow (Kz. 12677). Auf einem Berg NNW von Kamdesch, 2800 m (G. 291). – **Pakistan:** Safed-Koh Range, on the tops of the hills from 11000 to 12000 ft. (AITCH. 230). **Chitral:** Ojhor, 36°04'N, 71°48'E, 12000 ft. (B. L. 863). Kiawas and Shendtoi, 11000 to 12000 ft. (AITCH. 410, 745).

The closely related *K. capilliformis* IVANOVA, with the achenes obovate, instead of elliptic, occurring frequently in the neighbouring Pamiro-Alaj district (sensu Fl. URSS), should be looked for confidently in Afghanistan.

K. curvata (BOOTT) KUEKENTHAL (Syn. *Carex curvata* BOOTT, *Kobresia Royleana* (NEES) BOECK. var. *bracteata* GILLI, FEDDES Repert. spec. nov. 64: 215 (1962).) – **NE:** Seitental der Pandjir-Schlucht bei Gulbahar, 1700 m (G. 292).

K. laxa NEES. – **NE:** Shingar, 2200 m, Porande-Tal, Seitental des Pandjir-Tales (G. 293). **Nuristan:** Kulam (Munui), im Kulam-Tal, 2150 m (KN. 1062-b). Brubrusts im oberen Kantivo-Tal, 2500 m (KN. 947). – **Pakistan:** **Chitral:** Shokor Shal, 3600 m (WDB.). Drosh Gol, 35°33'N, 71°48'E, steep moist bank, 10500 ft. (B. L. 117). Bromboret Gol, 35°41'N, 71°38'E, edge of aquaduct, 6800 ft. (B. L. 649). Shishi Gol, E of Drosh, 7000 ft., on marshy ground (St. 2379). Mastuj, Baroghil Track, Lasam, 9000 ft., at edge of stream (St. 2951). Chitral, 5500 ft., on boggy ground (St. 2534, 2536).

K. pamiroalaica IVANOVA (Syn. *K. schoenoides* (non STEUD.) AITCH.). – **NE:** **Nuristan:** Minjan Pass, 13500 ft., clumps (Kz. 12748). Mamgel Pass, Ost-Seite, im oberen Schuk-Tal nach Aterschuker, 3800 m (KN. 987). – **Pakistan:** Safed Koh Range, 11000–12000 ft. (AITCH. 301). **Chitral:** Chumarkhan Pass, E of Mastuj, 13000 ft., on open slopes (St. 2926, 2927, 2928). Zwischen Dorrah Pass und Babur, Pass-Sattel, 4500 m (KN. 1536).

IVANOVA (l. c.) recognizes 5 species in the *Kobresia schoenoides* complex: *K. sibirica* TURCZ. (extending from the Urals through Arctic Asia to Olenek River and Tehukh Peninsula, south to Mongolia); *K. Smirnovii* IVANOVA (alpine regions of Altai, Tarbagatai and Dzungarian Alatau); *K. tibetica* MAXIM. (Himalaya, Tibet, Nan Mountains in C. China, and W. China); *K. pamiroalaica* IVANOVA (Pamiro-Alaj, W. Tian-Shan, Himalaya, Chitral, E. Afghanistan and W. Pakistan). The true *K. schoenoides* (C. A. MEYER) STEUDEL is restricted to the Caucasus and Asia Minor (Cilicia). To which should be added: *K. hyperborea* A. E. PORSILD (W. Arctic Canada, from the Mackenzie Delta, east to Boothia Peninsula) and *K. macrocarpa* CLOKEY (Mountains of Colorado, U.S.A.). The exact taxonomical position of the two American species, in regard to the five Asiatic ones, has still to be investigated. The first one seems to be identical to *K. sibirica* TURCZ.

IVANOVA's monograph being absent from several botanical libraries, part of her treatment of Series *Sibiricae* is adapted here:

- | | |
|-------------------------------------|---|
| 1a. Mature achene shining | 2 |
| b. Mature achene dull | 3 |

- 2a. Inflorescence mostly compound, ovate-elliptical, 5–8 mm wide
 *K. pamiroalaica* IVANOVA
- b. Inflorescence mostly spicate, narrowly elliptical or cylindrical, 3–5 mm wide
 *K. tibetica* MAXIM.
- 3a. Female flowers provided with a perianth of small scales falling off with the
 2,5–3 mm long achene *K. sibirica* TURCZ.
- b. Female flowers without a perianth 4
- 4a. Achene 2,5–3 mm long; scales mostly oblong-ovate . . . *K. Smirnovii* IVANOVA
- b. Achene 3,5–4 mm long; scales mostly triangular-ovate
 *K. schoenoides* (C. A. MEYER) STEUDEL

Kobresia pamiroalaica apparently plays quite a part in the composition of pastures at high altitudes. STANIUKOVITCH has described from Eastern Pamir two types of wet association where this *Cyperacea* is involved. In the first type, *Kobresia pamiroalaica* and *Carex pseudofetida* are dominant, with *Poa tibetica*, *Potentilla multifida*, *Oxytropis hirsutiuscula*, *Taraxacum ceratophorum*, *Primula sibirica* and *Kobresia stenocarpa*. At 4500 m of altitude, *Kobresia pamiroalaica* and *Potentilla pamiroalaica* are dominant, the other components of the association being *Kobresia stenocarpa*, *Carex melanantha*, *Smelowskia calycina*, *Carex pseudofetida*, *Artemisia rupestris*, *Cerastium cerastioides*, *Primula sibirica* and *Roegneria schugnanica*. In both cases, *Kobresia pamiroalaica* occupies 60% of the space.

K. persica KUEKENTHAL (Syn. *Kobresia Royleana* (NEES) BOECK. var. *humilis* KUEKENTHAL, *K. humilis* SERGIANSKA). – **C**: Bamian: Koh-i Baba Kette, oberhalb des Sard-darra, 4000 m (G. 2900). Unai, 2900 m, Schneeboden (V. 1635).

K. pusilla IVANOVA, Journ. Bot. Russ. 24: 496 (1939). – **Pakistan**: Chitral: Turikho River, Istar, 10500 ft., on short turf (STAIN. 2496).

A tentative determination, the material being immature.

K. Royleana (NEES) BOECK. (excl. syn. *Kobresia stenocarpa* C. B. CLARKE p.p. et *Elyna stenocarpa* KAR. et KIR.). – **E**: Ghazni: Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), 2800 m (RECH. 17918). Inter jugum Kotal-e Ketschru et pagum Miradina, NW Sang-i Masha, 33°25'N, 66°45'E, 3200 m (RECH. 17543). Kabul (fide C. B. CLARKE). – **C**: Koh-i Baba, 3100 m (K. 2656). ***Kobresia sanguinea*** (BOOTT) RAYMOND, comb. nov.

(Syn. *Carex sanguinea* BOOTT, Trans. Linn. Soc. 20: 137 (1846). – **E**: 'Afghanistan' (GRIFF. 6094, 6111).

I did not see GRIFFITH's gatherings, but there is a good set of specimens in the GRAY Herbarium (Cambridge, Mass., U.S.A.) collected by R. R. STEWART at Murree, the only Himalayan locality known. With its very long brick-coloured persistent stigmas, it is closely related to *Kobresia laxa* NEES and *K. afghanica* RAYMOND, and so aberrant in Subgenus *Indocarex*, that I have no hesitation to bring it into genus *Kobresia* and to create, in conformity with IVANOVA's monograph, a new series to accommodate them.

K. stenocarpa (KAR. et KIR.) STEUDEL (Syn. *Elyna stenocarpa* KAR. et KIR., *E. kokanica* REGEL, *Carex paniculata* (non L.) REGEL, *Kobresia paniculata* MEINSH.,

K. Royleana KUEKENTHAL). – **NE: Nuristan:** Sanglich, 11500 ft., along spring (Kz. 12606). In jugo Mrami versus pagum Shtive, 3000 m (KN. 1412). – **C:** Sumpfwiese im Sard Darra in der Koh-i Baba, 3350 m (G. 289). Unai-Pass, zwischen Kabul und Bamian, 3120 m (G. 288).

K. tibetica MAXIM. (Syn. *K. Littledalei* C. B. CLARKE, *K. capillifolia* (DECNE.) C. B. CLARKE var. *tibetica* KUEKENTHAL, *K. schoenoides* (non STEUDEL) auct. p.p.). – **Pakistan: Chitral:** Khot An, N of Mastuj, between Turikho and Mastuj Rivers, on rock ledges, 13000 ft., in tufts (St. 2844).

Carex L.

- | | |
|---|--------------------------------------|
| 1a. Spikelets single, terminal. Perigynia subulate with an exerted rhachilla . . . | 2 |
| b. Spikelets several | 3 |
| 2a. Perigynia 3–5 mm long | <i>C. microglochin</i> WAHLENB. |
| b. Perigynia 7–10 mm long | <i>C. parva</i> NEES |
| 3a. Spikelets all bisexual | 4 |
| b. Spikelets male, female, androgynous or gynaeandrous | 16 |
| 4a. Rhizome long-creeping | 5 |
| b. Rhizome short-creeping or cespitose | 12 |
| 5a. Stem very slender, 1–1,25 mm in diam. Perigynia 4 mm long, barely winged, nerveless, castaneous. Achene nearly quadrate <i>C. austro-afghanica</i> | RAYMOND |
| b. Stem coarser. Other characters not linked | 6 |
| 6a. Spikelets few in a dense congested head. Perigynia more or less inflated. Sand-binding species with numerous minute rootlets | 7 |
| b. Spikelets more numerous. Perigynia plano-convex | 8 |
| 7a. Perigynia strongly inflated, reddish, up to 18 mm long | <i>C. physodes</i> M.B. |
| b. Perigynia subinflated, brown, 3,5 mm long | <i>C. maritima</i> GUNNER. |
| 8a. Perigynia membranaceous, faintly or obsoletely nerved. Spikelets congested in a globose head | 9 |
| b. Perigynia coriaceous, strongly nerved, with the margin thickened. Spikelets subcongested in an oblong or oblong-ovate head | 10 |
| 9a. Stem 6–20 cm high, subcurved. Spike about 1 cm long. Perigynia with smooth margin | <i>C. pseudofoetida</i> KUEKENTHAL |
| b. Stem 40–60 cm high, erect. Spike 1,5–3 cm long. Perigynia with scabrid margin from the middle up to the beak | <i>C. vulpinaris</i> NEES |
| 10a. Rhizome slender, bearing at irregular intervals tufts of sterile leaves and flowering stems. Perigynia 3–3,5 mm long, hidden by the scales. Spikelets densely congested (laxely in some varieties) | <i>C. stenophylla</i> WAHLENB. s. l. |
| b. Rhizome coarse. Inflorescence often lobate | 11 |
| 11a. Perigynia parchment-like, 3,2–4 mm long, nerved, passing into a scabrous short break | <i>C. pycnostachya</i> KAR. et KIR. |

- b. Perigynia coriaceous, 3,5–4 mm long, nerved, contracted into a scabrous beak *C. coarcta* BOOTT.
- 12a. Perigynia plano-convex, membranaceous, green, often turning brown..... 13
- b. Perigynia dorsally tuberoso-convex, ventrally subconvex, coriaceous..... 15
- 13a. Spikelets small, very numerous in an elongated continuous spike.....
..... *C. nubigena* D. DON
- b. Spikelets bigger..... 14
- 14a. Spikelets all simple. Perigynia 5–6 mm long, ovate, contracted at base
..... *C. polyphylla* KAR. et KIR.
- b. Basal spikelets compound. Perigynia 4–4,5 mm long, with a round or subcordate base *C. subvulpina* P. SENAY
- 15a. Perigynia ovate-elliptical, plano-convex, 2,5–3 mm long, finely nerved. Densely cespitose *C. Wendelboi* NERMES
- b. Perigynia ovate, dorsally tuberoso-convex, 2,5 mm long, striate only at base. Laxely cespitose *C. diandra* SCHRANK var. *major* (KOCH) RAYMOND
- 16a. Perigynia with a short beak 17
- b. Perigynia with a rather long beak 27
- 17a. Female spikelets densely flowered 18
- b. Female spikelets laxely flowered. Perigynia more or less hairy..... 25
- 18a. Perigynia 2,5 mm long, biconvex, orbicular. Stigmas 2, densely cespitose
..... *C. orbicularis* BOOTT
- b. Perigynia trigonous. Stigmas 3 19
- 19a. Lower bract foliaceous. Terminal spike often gynaeandrous 20
- b. Lower bract squamiform. Terminal spike male. Perigynia coriaceous, glabrous. Scales rufous *C. turkestanica* REGEL
- 20a. Perigynia 3–3,5 mm long. Scales dark, longer than the perigynia. Strongly stoloniferous *C. melanantha* C. A. MEYER
- b. Perigynia less than 3 mm long. Scales shorter than the perigynia. In dense tufts, the freely forking rhizome intricate 21
- 21a. Perigynia 2,2 mm long, beakless. Stems 8–12 cm long. *C. pseudobicolor* BOECK.
- b. Perigynia with a short beak 22
- 22a. Culms 40–45 cm long. Leaves 2–3 mm wide. Perigynia 1,75 mm long only, punctulate, pale yellowish *C. alsia* RAYMOND
- b. Perigynia brownish to black-purple towards beak 23
- 23a. Beak of the perigynia 0,5 mm long 24
- b. Beak of the perigynia longer. Leaves very narrow *C. gracilentata* BOOTT
- 24a. Leaves 2–3 mm wide. Stem 30–45 cm long. Perigynia 3 mm long.....
..... *C. infuscata* NEES
- b. Leaves 1–1,2 mm wide. Stem 3–12 cm long. Perigynia 2,75 mm long.....
..... *C. trispiculata* BOECK.
- 25a. Spikelets subradical. Perigynia obovate-oblong, 4–5 mm long, shortly beaked *C. Halleriana* ASSO

- b. Spikelets not subradical 26
- 26a. Leaves 1 mm wide. Female spikelets 7–14 mm long, subcylindrical.
Perigynia narrowly ellipsoid, 4,5–5,25 mm long *C. chitralensis* NERMES
- b. Leaves 1–2 mm wide. Female spikelets 10–20 mm long, cylindrical.
Perigynia obovate-oblong, 4 mm long *C. cardiolepis* NEES
- 27a. Leaves not septate-nodulose 28
- b. Leaves septate-nodulose 40
- 28a. Scales dark-coloured 29
- b. Scales not dark-coloured 36
- 29a. Bracts sheathless. Utricles 3,5–4 mm long, yellowish-green, nerved with a long bidentate beak. Stoloniferous. Culms 30–60 cm long *C. psychrophila* NEES
- b. Bracts sheathing 30
- 30a. Leaves narrow. Spikelets 3–6, the 1–3 upper ones male, the lateral one female, linear-cylindrical, slender, often pendulous 31
- b. Leaves wider. Phyllopodic species. Spikelets 3–6, the terminal one gynae-candrous or more rarely male, all subclavate, rather stout and often nodding 32
- 31a. Old sheaths desintegrating into reticulate fibres. Utricles 6–7 mm long, hispidulous, plurinerved. Leaves curled at tip *C. plectobasis* V. KREZ.
- b. Old sheaths desintegrating into parallel comose fibres. Utricles 4–5 mm long, appressed-hispidulous, delicately nerved. Leaves stiffish, not curled at tip *C. stenocarpa* TURCZ.
- 32a. Spikelets fasciculate, ovate, 0,5–2 cm long, on thick, erect, short peduncles, dark-coloured except the tip of the scales and the tip of the partially scabrid-margined utricles *C. oxyleuca* V. KREZ.
- b. Spikelets subfastigiate on long nodding slender peduncles 33
- 33a. Terminal spike male 34
- b. Terminal spike gynae-candrous 35
- 34a. Spikelets 3–5, the female 2–3,5 cm long, 1 cm wide, clavate-cylindrical. Perigynia 5–5,5 cm long. Stem 20–60 cm long *C. Griffithii* BOOTT
- b. Spikelets 4, the female ones 2,5–3,5 cm long, 5 mm wide, cylindrical. Perigynia 4 mm long. Stem 50–65 cm long *C. Gilesii* NERMES
- 35a. Spikelets 3–5, the female ones 2,5–5 cm long, 0,6–0,8 mm wide, clavate-cylindrical. Perigynia 5 mm long, cinnamon. Stem 60–100 cm long *C. Oliveri* BOECK.
- b. Spikelets 3–5, subfastigiate, the females 2–3 cm long, 0,4–0,6 mm wide, clavate-cylindrical. Perigynia 5–6 mm long, dark purple. Stem 20–50 cm long *C. nivalis* BOOTT
- 36a. Perigynia ovate, 2–2,5 mm long, with a short conical beak. Spikelets narrowly linear. Leaves narrow. In delicate dense tufts, up to 60 cm high *C. Karoi* FREYN
- b. Perigynia longer, not ending in a short conical beak 37

- 37a. Perigynia 5–7 mm long, plano-convex, yellowish, ending in a long bidentate curved beak, coriaceous, as well as the leaves. Stem 5–7 cm long
 *C. secalina* WILLD. var. *alpina* KUEKENTHAL et BORNMUELLER
 b. Perigynia membranaceous 38
- 38a. Spikelets 4–6, congested (sometimes with a distant lower one). Perigynia 3,5 mm long, yellowish-green. Lower bract much overtopping the inflorescence. Stem 10–30 cm high *C. philocrena* V. KREZ.
 b. Spikelets all distant 39
- 39a. Perigynia 3 mm long, glaucous-green, strongly ribbed, ending in a short conical beak. Stem 15–60 cm high *C. diluta* M. B.
 b. Perigynia 4 mm long, yellowish-green, often with darker markings, multi-nerved, ending in a short flat scabrous beak. Stem 30–60 cm high *C. distans* L.
- 40a. Perigynia 3,5–4 mm long, densely hirtous, several-nerved, the base spongiose, ending upwards in a deeply bidentate beak. Stem 30–60 cm high
 *C. fedia* NEES
 b. Perigynia glabrous 41
- 41a. Perigynia 5–5,5 mm long. Spikelets 4,5 cm long, 1,5 cm wide.....
 *C. pamirensis* C. B. CLARKE
 b. Perigynia 3–4 mm long. Spikelets 2–3 cm long, 0,5 cm wide.....
 *C. songorica* KAR. et KIR.

***Carex alsia* RAYMOND, spec. nov.**

Sect. *Atratae* KUNTH Subsect. *Alpinae* KALELA – Rhizoma caespitosum, radicibus numerosis, intricatum, breve stoloniferum. Culmi numerosi, 40–45 cm alti, obsolete trigoni, striati, graciles sed rigidi. Folia basalia et subbasalia glaucoviridia culmis breviora, 15–20 cm longa, 2–3 mm lata, longe acuminata, apice margine spinulosa, basi vaginis cinnamomeis mox fibrillosis dense investa. Spiculae 3 sessiles, dense congestae (saepe quarta remotiuscula bracteata), 6–10 mm longae, ovatae, terminali androgyna, lateralibus femineis. Bracteae 6–20 mm longae, spinulosae, ore atratae, aut totae nigrescentes, haud vaginantes. Utriculi 2,5 mm longi, obovati, subinflato-trigoni, celluloso-reticulati, enerves, basi stipitati, in rostrum breve conicum oblique sectum atrum abrupte contracti. Squamae ovatae, atratae, acuminatae, clare carinatae, 2 mm longae. Nux subovata, trigona, stipitata, 1,75 mm longa, dense puncticulata, pallide flava. Basis styli aequalis persistens. Stigmata (3), 2 mm longa.

Pakistan: Chitral: Khotan, N of Mastuj, between Turikho and Mastuj Rivers, alt. 13000 ft., on rock ledges, anno 1958 (STANTON 2839, Typus, W).

Another apparently good segregate of the '*C. alpina*' group, that seems to link the *Atratae* and the *Alpinae* and distinct from all its relatives in several minor characters. The whole group, well represented in Western North America and Central Asia, is in need of a serious revision. Examination of several types abroad shows for one thing that most species have been described on very poor material. Working the part of the *Cyperaceae* for Symbolae Afghaniae has given me the opportunity to write new descriptions of such neglected – but apparently perfectly recognizable species – as *C. trispiculata* БОЕСК. and *C. pseudobicolor* БОЕСК., to

mention only these two. During recent years, I had access to modern and perfectly mature material of several members of this essentially alpidgenous group of species, with the hope of eventually revising the whole section.

Carex austro-afghanica RAYMOND, spec. nov.

Sect. *Arenariae* KUNTH – Affinis *C. accrescens* OHWI (Syn. *C. pallida* C. A. MEYER, non SALISB.). – Rhizoma deficiens, sed probabiliter repens. Culmi erecti gracillimi 25–30 cm alti, 1–1,25 mm diam., trigoni, angulis apicem versus scabriusculi. Folia subbasalia, pauca, culmo breviora, 15–25 cm longa, 2 mm lata, glaucescentia, longe vaginantia, vaginis pallide castaneis striatis mox fibrillosis. Spiculae 4–7 ovatae androgynae, 8–10 mm longae, contiguae spicam subcongestam globoso-elongatam 1,5–2,5 cm longam formantes. Bractea amplectens squamiformis scabroso-aristata, ad 7 mm longa. Utriculi squamas aequantes, ovati, 4 mm longi, plano convexi, enervii, vix alati, pallide castanei, basi stipitati, in rostrum ca. 1 mm longum bidentatum spinulosum ore hyalino contracti. Squamae ovatae castaneae acuminatae, carina spinulosa, margine hyalina. Nux fere totum utriculum explans 1 mm longa, quasi quadrata, basi stipitata, luteola, puncticulata, basi styli persistentis coronata.

N. Afghanistan, 6.5.1938 (MEINERTZHAGEN, Typus, BM).

A remarkable plant, yet known only from this gathering and lacking the underground parts, quite important in Subgenus *Vignea*. The slender habit suggests at first look *C. accrescens* OHWI, of Northern and Eastern Asia, but its leaves are narrower and its glabrous perigynia nerveless. The nearly quadrate achene is quite unusual.

C. cardiolepis NEES – **NE: Nuristan:** Gegenüber Aterschuker, NW-Hang, Horst im Buschwald, 2300 m (KN. 1023). Zwischen Mum und Aspit im Kantiwo-Tal, im lichten Zedernwald, 2400 m (KN. 901). Berg NNE von Kamdesch, 2700–2800 m (G. 334, 335). – **E:** Waziri, Zedernwald, 2400 m (V. 2533). **Pakistan:** Kurram Valley (AITCH. 418, 1244). 'Afghanistan' (GRIFF. 6072).

Carex chitralensis NELMES, Nytt Mag. f. Bot. 1: 22, fig. 10 (1952).

Cespitose, the freely stoloniferous horizontal rhizomes very slender, 1 mm in diam., and covered with reddish scales. Stems 15–25 cm long, erect or recurved, the base thickened by fibrous sheaths and reticulate fibrous remains of sheaths. Leaves subbasal, 1 mm wide, mostly shorter than the stems, recurved and circinnate at tips, longly sheathing, the sheaths whitish. Spikes 2–3 (4), the lower one more or less distant; terminal one staminate, 1,25–2 cm long, 2–3 mm wide, cylindrical or subclavate; lateral ones pistillate, 7–14 mm long, 3–5 mm wide, densely flowered, more or less ovoid, the upper ones subsessile. Bract sheathing shorter than the inflorescence. Perigynia 4,5–5,25 mm long, 1–1,5 mm wide, elipsoid, trigonous, densely white-hispidulous, passing into a bidentate barely marginate beak marked on the back by a red patch. Scales 3,75–4,75 mm long, oblong-ovate, cymbiform, transparent, reddish with a wide hyaline margin. Achene 3 mm long, with a definite stipe and a definite beak of same length, 1,25 mm. Stigmas 3.

Pakistan: Chitral: Barum Gol, wet slope above Shokor Shal, E. side of Main Barum Glacier, c. 3600 m, 23.7.1950 (WENDELBO, Typus, OSLO, Isotypus MTJB). **Pakistan:** Hazara Distr.: Murree Hills, Dsunga Gali, steep slopes along pipe-line trail, c. 8000 ft., locally common in rock crevices (WEBSTER & NAZIR 5710, BM).

C. chitralensis NELMES var. *excedens* RAYMOND, var. nov.

Pergracilis, ad 50 cm alta, densissime caespitosa; spiculis masculinis saepe rotundatis; ceterum ut in var. *typica*.

Pakistan: Chitral: Shah Jinali Pass, N of Mastuj, 14000 ft., on dry stony rock, 1.8.1958 (STANTON 3043, Typus, BM). Ziarat, Lowarai Pass, 7000 ft., in tufts on rock ledges (STANTON 2321). Birir, 35°38'N, 71°44'E, dry cliff facing east, abundant at 10000 ft. (BOWES LYON 681, BM). Birir, crevices northern slope, 8500 ft. (BOWES LYON 694, BM).

An interesting species related to *C. cardiolepis* NEES, of a very limited range: Chitral and NW Pakistan, a frequent distributional pattern in the Himalayan flora.

C. coarcta BOOTT (Syn. *C. curaica* KUNTH var. *coarcta* BOOTT, *C. divisa* (non HUDS.) BOISS., *C. curaica* (non KUNTH) BOISS., *C. divisa* HUDS. var. *coarcta* (BOOTT) T. KOYAMA). – **NW:** Sauzak, 2000 m (K. 2197). Obeh, 1700 m (K. 3785). – **E:** Laghman: Daulatshah, 2300 m (Kz. 11659). Wazirabad bei Kabul, 1750 m (N. 1951/125-b, G. 311). Aliabad bei Kabul (G. 314, V. 11-a, 896). Zwischen Kartetschar und Aliabad, 1780 m (G. 313). Guzar Gah bei Kabul (N. 1951/156). E von Tscharasiah, 1740 m, Kabul (G. 310). Paghman, W Kabul, 2500 m (Kz. 12073). Kabul (Kz. 11471, V. 146, 450, 1882). 'Afghanistan' (GRIFF. 6079). – **C:** In valle Kamard W Doab, 1580 m (G. 309).

C. diandra SCHRANK var. *major* (KOCH) RAYMOND, comb. nov. (Syn. *C. teretiuscula* GOOD. var. *major* KOCH, Syn. Fl. Germ. et Helv. 751 (1837), *C. diandra* SCHRANK f. *major* (KOCH) KUEKENTHAL). – **NE: Nuristan:** Oberes Ptsigela-Tal, 15 km N Kantivo, zwischen Steinen, 2500 m (KN. 921). Brubruts im oberen Kantivo-Tal, am Bach in dichten Horsten zwischen Steinen, 2500 m (KN. 945).

C. diluta M. B. (Syn. *C. Aitchisonii* BOECK., *C. fissirostris* (non BALL.) AITCH.). – **NW:** Obeh, 1700 m (K. 3784). – **SW:** Herat, 1000 m (K. 3878). – **E:** Im Panjshir-Tal bei Gulbahar nächst Charikar (G. 341-a, V. 250, 528-c). – **C:** Am Schumbol-Fluss bei Bulola, 2200–2300 m (G. 342, RECH. 16753). Band-i Amir, 2800–2900 m (G. 343, RECH. 18302). Panjao, 2700 m (K. 2725). Doab: In valle Salang inter Jabal Seradsch et Laghman, 1680 m (G. 340). In valle Kamard W Doab, 1620 m (G. 339). Doab, 1400 m (K. 2883). Ghorat: Qala Qansi (Tschaktscharan), ad ripas fluvii Herirud, 2200 m (RECH. 18843). – **Pakistan:** Kurram Valley (ARCH. 313, 508). – **Pakistan: Chitral:** 5500 ft., damp rocks (St. 2535).

C. distans L. – North Afghanistan, 2500 ft. (M.).

Specimens of *Carex distans* from Iran and Afghanistan strongly simulate *C. laevigata* J. Sm. More material is needed for a proper appraisal.

C. fedia NEES (Syn. *C. Wallichiana* PRESC. ex WALL., *C. hirta* (non L.) BOECK.). – E: Sarobi, Quellsumpf (V. 2604). – Pakistan: Shinnak, Kurram Valley (AITCH. 33).

Carex Gilesii NELMES, Kew Bull. 1939: 306 (1939).

Stoloniferous. Stem 50–65 cm long, triquetrous, leafy at base only, smooth, surrounded by a few leafless sheaths. Sterile leaves bunched 4–7 mm wide, much shorter than the stem, longly attenuate, mostly flat. Spikes 4, the 2 superior ones male, 1,5–2 cm long, the 2 others female, 2,5–3,5 cm long, 5 mm wide, all peduncled, the basal one much more so, the 3 others more or less fastigiate, cylindrical, densiflorous, more laxely flowered at the base, nodding. Inferior bract briefly foliaceous, shorter than the spikes, longly sheathing, the upper ones much reduced. Perigynia 4 mm long, 2 mm wide, elliptic-obovate, papyraceous, whitish at the base and tinged with purple at the tip, compressed, nerveless, passing rapidly to a short whitish slightly bilobed, flexuous, smooth beak. Scales narrowly oblong, 3,5–4 mm long, acuminate, brown purple, the pale midrib excurrent. Achene stipitate, occupying the lower part of the perigynia. Stigmas 3 more or less included.

Pakistan: Chitral: Oihor Gol, 36°04'N, 71°48'E, in running water, 11000 ft. (BOWES LYON 821). Golen (Krui Ults), 36°01'N, 72°10'E, 13500 ft., moist soil among large boulders (BOWES LYON 131). Ishporili Gol, S of Mastuj, 14000 ft. (STAIN. 3125). Jamishi Ghochar, 4300 m (WENDELBO). Medial moraine of Main Barum Glacier, 3400 m (WENDELBO). Och Anzog, 3600 m (WENDELBO). Camp 2, 4500 m (WENDELBO).

C. gracilentata BOOTT (Syn. *C. alpina* SW. var. *infusata* (NEES) BOOTT p.p., *C. alpina* SW. ssp. *infusata* (NEES) KUEKENTHAL var. *gracilentata* (BOOTT) KUEKENTHAL, *C. dimorpha* BOECK., non BROTERO). – Pakistan: Chitral: Drosch Gol, 35°33'N, 71°48'E, 10000 ft., moist hillside (B. L. 166).

C. Griffithii BOOTT (Syn. *C. nivalis* BOOTT f. *Griffithii* (BOOTT) KUEKENTHAL). – NE: Nuristan: Minjan Pass, 13000 ft. (Kz. 12747). Ibidem, 13500 ft. (Kz. 13500). – C: Koh-i Baba (GRIFF. 7814). – Pakistan: Chitral: Golen (Krui Uts), 36°01'N, 72°10'E, moist soil among large boulders, 13500 ft. (B. L. 130).

C. Halleriana ASSO (Syn. *C. gynobasis* VILL).. – E: 'Kabul' (C. B. CLARKE).

Carex infusata NEES (Syn. *C. alpina* SW. var. *infusata* (NEES) BOOTT p.p., *C. alpina* SW. var. *infusata* (NEES) KUEKENTHAL p.p., excl. syn. *C. trispiculata* BOECK.), descr. emend.

In dense tufts, the intricate freely forking rhizomes covered with fibrous remains of old sheaths. Stems 30–45 cm high, slender, sharply trigonous, sheathing, the base thickened by accumulated old drab fibrillose sheaths. Leaves basal, much shorter than the stems, glaucous-green, 2–3 mm wide, long acuminate, finely setulose at tip. Spikes 2–3 approximate (or 4 with the lowest one remote), sessile, the terminal one 6–7 mm long, androgynous, the lateral ones slightly smaller, female. Bracts much longer than the spikes, barely sheathing, spinulose, blackish at mouth. Perigynia 3 mm long, ovate, tumid-trigonous, pale yellow, finely cellulose-reticulate, slightly stipitate, the stipe dark red, the two lateral nerves well marked, the others faintly so in the lower half, ending into a conical slightly bidentate, black-girdled beak. Scales

ovate, dark red, the mid-vein paler and spinulose, much shorter than the perigynia. Achene 2 mm long, sharply trigonous, pale yellow, the base of the style persistent. Stigmas 3, slender, exserted.

NE: Nuristan: Im Kantiwo-Tal zwischen den Dörfern Kantiwo und Brubruts, 2200–2460 m (KERSTAN 932). Im Kantiwo-Tal oberhalb Brubruts, 2460 m (KERSTAN 948). Drudo Pass, zwischen Aschkun und Petsch-Tal, 3280 m (KERSTAN 1237-c). Im Kulam-Tal beim Dorf Kulam (Munui), 2200 m, auf nassem Schutt (KERSTAN 1055). Shabul Gul (KITAMURA 40, 46). – **E: Kabul:** Paghman Tal, am Ufer des Paghman-Flusses, 2540 m (GILLI 329). In den Bergen von Paghman oberhalb Beg-tut, 2900 m (GILLI 331). In Schluchten östlich des Nedschrab-Flusses gegen Schechan, 3100–3200 m (GILLI 330, 332). – **Pakistan: Chitral:** Chumarkhan Pass, E of Mastuj, on marshy ground, 13000 ft. (STANTON 2921).

C. Karoi FREYN – **NE: Nuristan:** Sanglich, Minjan Pass, 3800 m (Kz. 12610). – **Pakistan; Chitral:** Tirich Gol, 36°25'N, 72°15'E, shady soil beneath willows, 11000 ft. (B. L. 1068).

C. maritima GUNNER. (Syn. *C. incurva* LIGHTF.). – **E: 'Afghanistan'** (GRIFF. 89).

C. melanantha C. A. MEYER – **NE: Nuristan:** Minjan Pass, 12000 ft. (Kz. 12662). – **Pakistan: Chitral:** Baroghil Pass, 12500 ft., at edge of marsh (ST. 2970).

In addition to *C. melanantha* itself, I have been able, recently, to examine mature material of *Carex praeclara* NELMES, *C. Moorcroftii* FALC., *C. sabulosa* TURCZ. and *C. leiophylla* MACKENZIE, closely-related, mostly sand-binding, species inhabiting high plateaux of Central Asia, except the last one which has been described from Yukon.

Carex praeclara NELMES, of Tibet, with its large scales, stands apart. KUEKENTHAL treated *C. Moorcroftii* and *C. sabulosa* as varieties of *C. melanantha*. On the other hand, KRECZETOWICZ, who wrote the treatment of *Carex* for the Flora URSS and who, following the Komarovian school, raised most geographical variants of wide-ranging species to specific rank, recognized *C. melanantha* C. A. MEYER, a closely-related segregate, *C. melanthaeformis* LITW., but wrongly considers *C. Moorcroftii* FALC. a synonym of *sabulosa* TURCZ. of a much wider range. The three were placed by him in a cycle *Orthocranion*, a subsectional category, the description of which is written in Russian.

Mr. J. A. CALDER, Ottawa, has provided me, a few years ago, with a good sheet of *Carex leiophylla* MACK. collected at Carcross, the type-locality, covering large tracts of sand, as well as a photograph of the type (NY). The conclusion of my examination is that *C. praeclara*, *C. melanantha*, *C. Moorcroftii* and *C. sabulosa* are distinct species, but that *C. leiophylla* is identical with *C. sabulosa*.

It is of great phytogeographical interest, that the more we know about the flora of Alaska and Western Canada, the more we find species with a more or less wide area in Asia, transgressing into Western Canada. Outside of *C. sabulosa* TURCZ. (Syn. *C. leiophylla* MACK.), I may add some other examples taken amongst the *Cyperaceae*: *Carex Franklinii* BOOTT (Syn. *C. macrogyna* TURCZ., *C. misandroides* FERN.), *C. eleusinoides* TURCZ. (Syn. *C. kokrinensis* A. E. PORSILD) and *Kobresia sibirica* TURCZ. (Syn. *K. hyperborea* A. E. PORSILD). This floristic pattern in our northern flora seems to me more frequent than first suspected.

Several other species of section *Atratae* need reevaluation. Essentially alpine species, they are found growing as high as 18000 ft. of alt. in Central Asia. In contrast with Europe, where few species are known to occur, Asia and Western North America harbor a host of them, 30 species alone in America and as many in Asia. Most of these are 'good' species but the problem

with them is that the type is usually poor, either too young or too old, and actual collections are often not better, not mentioning that in herbaria they are, as a rule, wrongly determined.

C. microglochin WAHLENB. – **NE: Nuristan:** Minjan Pass, 12000 ft., in meadow (Kz. 12676).

C. nivalis BOOTT – **NE: Nuristan:** Mranu Pass gegen Shtive, 2000 m (KN. 14080. – **E:** Kabul: Paghman-Berge, N von Kotal-e Kotandar, 4300 m (G. 336). Paghman-Tal (G. 337, N./1950/663). – **C:** Koh-i Baba, oberhalb Sard Darra, 4320 m (G. 338). – **Pakistan: Chitral:** Oihor Gol, 11000 ft., 36°04'N, 71°48'E (B. L. 821). Baroghil Pass, 12000 ft., on boggy ground (St. 3025). Rosh Gol, NE of Tirich Mir, 12000 ft., beneath slabs at edge of stream, in tufts (St. 2830).

C. nubigena D. DON – 'Afghanistan' (fide Fl. URSS., 9: 194 (1946).).

C. Oliveri BOECK. (Syn. *C. nivalis* BOOTT f. *cinnamomea* KUEKENTHAL). – **NE: Nuristan:** Minjan Pass, 13500 ft., clumps (Kz. 12747). – **E:** Kabul: Paghman, 3500 m, *Cousinia*-Bestand (V. 932). Mittleres Paghman-Tal, am Bach (N. 1950/663). – **Pakistan:** Kurram Valley (AITCH. 1242).

A characteristic species of limited range growing at 3000 m of altitude in Afghanistan and Pamiro-Alaj, Schugan Mountains. In Karakorum, the closely related *C. luteo-brunnea* NELMES (Syn. *C. lepus-aetatis* KOYAMA).

C. orbicularis BOOTT – **NW:** Sangcharak: Safedsang, 3300 m (Kz. 14013-a). – **N:** North-Afghanistan (M.). – **NE: Nuristan:** Mangel-Pass bei Idsebruts, 3300 m (KN. 986). – **E:** Ghazni: Ad lacum Djalghah-Shahr-Kawat inter Okak et Behzud (Diwal Kol), 2800 m (RECH. 17883). Ad lacum Sabzab inter Okak et Behzud (Diwal Kol), 2800 m (RECH. 17922). Parwan: In declivibus orientalibus jugi Shibar, 2500 m, in prato humido prope pagum Shibar (RECH. 16876). Kabul: Schakar-darra, Paghman-Berge, 2500–2900 m (G. 323, 327). Paghman-Berge, 2500 m, nasse Wiesen (Kz. 12101, V. 363). Ibidem, 3500 m (V. 932). Paghman, 17 miles W Kabul (CH.-M.). Kalai Surkh (N. 1950/662). Kabul, 7000 ft., swamp (M.). – **C:** Unai Pass, 2800 m (V. 1656). Bulola, 2200 m (RECH. 16738). Kamard-Tal, W von Doab, 1620 m (G. 326). Am See Band-i Gholaman, Band-i Amir, 2800 m (RECH. 18475). See-Ufer von Band-i Amir, 2800 m (G. 324, 328, RECH. 18300, 18301, V. 2828). Am oberen See von Band-i Amir (N. 1950/476). Sard Darra, Koh-i Baba, 3350 m (G. 325). Montes Koh- Baba, in latere austro-orientali jugi Hadjigak, 3000 m (RECH. 18527). Koh-i Baba, 3100 m (K. 2669). – **Pakistan:** (GRIFF. 6105). Kurram Valley, 10000 ft. (AITCH. 501). **Chitral:** Rumbur, 35°46'N, 71°40'E, peaty boggy portion in stream, 9500 ft. (B. L. 668, 670). Partsan, 63°03'N, 71°52'E, wet bank facing south in rich soil, 9700 ft. (B. L. 844). Ojhor, 36°04'N, 71°48'E, damp alpine pasture, steep slope, 12000 ft. (B. L. 864). Mastuj, 7500 ft., in marsh (St. 2482). Agram, Arkari Gol, W of Tirich Mir, 10500 ft., on damp ground (St. 2643).

C. orbicularis BOOTT var. *bulungensis* OSTENFELD – **NW:** Obeh, 1700 m (K. 3724). – **C:** Hauz-i Mahiha (K. 2406). Farakulum, 2800 m (K. 2605).

In Central Asia, *Carex orbicularis* BOOTT is vegetatively as variable as *C. Bigelowii* TORR. of the arctic zone. In loose soil, the rhizomes are not so tufted and the stolons get longer. Var. *bulugensis* OSTENFELD is a useful name for such specimens reaching 60 cm in length, with wider leaves and bigger spikes.

C. oxyleuca V. KREZ. (Syn. *C. ustulata* (NON SCHKUHR) auct. fl. turkest. – ‘Afghanistan’ (fide Fl. URSS. 3: 284 (1935)).

C. pamirensis C. B. CLARKE (Syn. *C. vesicaria* L. var. *pamirica* O. FEDTSCH., *C. pamirica* (O. FEDTSCH.) B. FEDTSCH., *C. vesicaria* L. var. *alpigena* (NON FRIES) B. FEDTSCH., *C. ampullacea* (NON GOOD.) DUTHIE, *C. rostrata* (NON STOKES) O. FEDTSCH., *C. obscuriceps* KUEKENTHAL var. *pamirica* (O. FEDTSCH.) KUEKENTHAL). – **NE: Nuristan:** Oberes Kantiwo-Tal oberhalb Brubruts, auf Sumpfwiesen an einem Bach, 2600 m (KN. 957). ‘Afghanistan’ (fide Fl. URSS. 3: 448 (1935)). – **Pakistan: Chitral:** Baroghil Pass, 13000 ft., at edge of lake (ST. 2994).

C. parva NEES (Syn. *Kobresia Lolonum* HAND.-MZT.). – **C:** Bamian: Sard Darra, Koh-i Baba Kette, 3350 m (G. 296). Koh-i Baba, 3100 m (K. 2657).

C. philocrena V. KREZ. in Fl. URSS. 3: 393 (1935). (Syn. *C. Oederi* (NON RETZ.) auct. var. *philocrena* KOYAMA in KITAMURA, Fl. Afgh. 51 (1960)). – **NE: Nuristan:** Between Chatrass and Kushimaikot (KITAMURA 38). – **E:** Im Panjshir-Tal bei Gulbahar, 1700 m (G. 341-b, V. 250 p.p.). Paghman-Tal bei Kabul, 2300–2800 m (RECH. 17193). Paghman, 7500 ft., wet meadow (Kz. 12106). – **C:** Kamard, NW Doab, 2000 m (Kz. 13605). Doab, 1400 m (K. 2883). – **Pakistan: Swat:** Utror, 2500 m (RECH. 19563).

A well-marked species related to *C. demissa* HORNEM. (“*C. Oederi*” auct., non RETZ.) with golden-yellow perigynias gathered in 4–6 spikelets, the lowermost remote, subtended by a bract 3–4 times longer than the inflorescence.

C. physodes M. B. – **NW:** Hari-rud Valley (AITCH. 1134). – **SW:** Herat, 1100 m (K. 3541). – **E:** ‘Afghanistan’ (GRIFF. 6083).

A typical steppe-plant, well adapted to dry conditions, the numerous minute rootlets covering large tracks of sand (map of distribution in Sov. Bot. 4: 49 (1937)). The enlarged fleshy perigynia are quite unique in the genus *Carex*. The plant is an important fodder for Kara-Kum sheeps in the Kara-Kum region. See KACHKAROV & KOROVINE. La vie dans les déserts, éd. française par Théodore Monod (PAYOT, Paris, 1942).

C. plectobasis V. KREZ. (Syn. *C. hirtella* DREJER (1844), non F. S. GMEL. (1791). – **Pakistan:** Kurram Valley, 11000 ft. (AITCH. 724, 1007).

C. polyphylla KAR. et KIR. (Syn. *C. nemorosa* LUMN., non SCHRANK, *C. Leersii* F. SCHULTZ, *C. Pairaei* F. SCHULTZ var. *Leersii* (F. SCHULTZ) KUEKENTHAL, *C. echinata* MURR. var. *Leersii* (F. SCHULTZ) KUEKENTHAL. *C. muricata* auct. plur., non L.). – **Pakistan:** Kurram Valley (AITCH. 670).

Carex pseudobicolor BOECK. (Syn. *C. alpina* SW. var. *erostrata* BOOTT, *C. alpina* SW. ssp. *infusata* (NEES) KUEKENTHAL var. *erostrata* (BOOTT) KUEKENTHAL), descr. emend.

In dense tufts; the intricate forking rhizomes covered with fibrous remains of sheaths. Stems 8–12 cm long, filiform, acutely trigonous, scabrous, nodding at tip. Leaves basal, 1–2 mm wide, yellowish-green, the margins scabrous, long acuminate, about half the size of the stems. Spikes 3, approximate, sessile, the central one a little longer, androgynous, the two others female, all densely flowered. Bracts narrow, about equalling the inflorescence, shortly sheathing, the mouth of the sheath blackish. Perigynia 2,2 mm long, obovate, tumid-trigonous, yellow-brick coloured, nerveless, finely cellulose-reticulate, obtuse and beakless, the mouth black-girdled, Scales black, the mid-nerve spinulose, about equalling the perigynium. Achene 1,25 mm long, largely ovate, trigonous, very finely punctulate, the angles thickened and crowned by the persistent style-base. Stigmas 3, barely exerted.

Pakistan: Chitral: Och Anzog, 3600 m, 19.7.1950 (WENDELBO).

C. pseudofoetida KUEKENTHAL – **E:** Kabul: Paghman, 17 miles W Kabul, 8000–9000 ft. (CH.-M.). Kabul (KITAMURA 29, 35). – **C:** Bamian: Shibar Pass (KITAMURA 44). Sard Darra, Koh-i Baba, 3350–4350 m (G. 316, 317, 318). – **Pakistan: Quetta** (KITAMURA 55). **Chitral:** Lashpur (Ishporill), 26°02'N, 72°27'E, 13600 ft., rich pasture near edge of stream (B. L. 105).

A well-marked species, the Centro-Asiatic representative of *C. foetida* ALL., of the European Alps, and of *C. vernacula* BAILEY, of the Rocky Mountains of North America, an interesting case of parallel evolution.

C. psychrophila NEES – **Pakistan: Chitral:** Shishi Gol, E of Drosh, 7000 ft., on marshy ground (ST. 2378).

C. pycnostachya KAR. et KIR. – **NW:** Qala Nau, 900 m (K. 3693). – **E:** Darul-fanun bei Kabul (N. 1951/22). Kabul (V. 69-b, 827, 834). – **C:** Panjao, 2800 m (K. 2744).

C. remota L. – **Pakistan: Swat:** Kulam, 2200 m (RECH. 19455).

C. secalina WILLD. var. *alpina* KUEKENTHAL et BORNMUELLER – **E:** Gardez: Sirotai, 9000 ft. (Kz. 11919). Ghazni: Inter jugum Kotal-e Ketschru et pagum Miradina, NW Sang-i Masha, 2700–3200 m (RECH. 17582). In jugo Sardalu W Qarabagh, 2300–2500 m (RECH. 17323).

C. songorica KAR. et KIR. (Syn. *C. heterostachya* (non BGE.) KUEKENTHAL, *C. nutans* (non HOST) BOECK., *C. Fedtschenkoana* KUEKENTHAL). – **NW:** Safedsang, 3300 m (Kz. 14013). – **NE: Nuristan:** Im Kantiwo-Tal beim Dorf Kantiwo, 2200 m (KN. 910-b). – **E:** Nidjrao, 2500 m, NE Sarobi (V. 2311). Paghman-Berge, W Kabul, 2500–3000 m (CH.-M., G. 344, V. 980). – **C:** Bamian: Zwischen Chardeh und Ghorband (V. 2812). Lal-i Zarjungal, 2500 m (K. 2756). Farakulum, 2800 m (K. 2606). Ibidem, 2700 m (K. 2607). Panjao, 2700 m (K. 2726). Am See Band-i Gholaman, Band-i Amir, 2800–2900 m (RECH. 18472, V. 2821). Am See von Band-i Amir, 2800 m (RECH. 18304). – **Pakistan:** Kurram Valley, Biankhél, common (AITCH. 602). **Chitral:** Khot An, N of Mastuj, between Turikhot and Mastuj Rivers, 13000 ft., on damp shores, at edge of stream (ST. 2841). Markhun, between 36°30'N, 72°40'E, and 36°48'N, 73°05'E, alt. 10000 ft., steep moist hillside near stream (B. L. 960).

C. stenocarpa TURCZ. (Syn. *C. sempervirens* VILL. ssp. *tristis* (M.B.) KUEKENTHAL) – ‘Afghanistan’ (fide Fl. URSS. 3: 291 (1935)).

C. stenophylla WAHLENB. var. *stenophylla* – **NE: Nuristan:** Brubruts, Mamgel-Pass, 3300 m (KN. 985). Oberhalb Puruns, 2520 m, nasse Wiesen (KN. 1390). Semenek Pass, 3410 m (KN. 1513). Gangallat Gol, Kafiristan, 12000 ft., on damp short turf (ST. 2721). – **E:** Kabul: Charikar (N. 1950/668). Koh-i Asmai, 17000 m (KN. 4). Kabul, Gulbagh, (N. 1951/24). – **C:** Bamian: Ufer des Bamian-Flusses bei Schar-Schak, 2320 m (G. 315). – **Pakistan:** Khybar Pass, 1200 m (KN. 2142) **Chitral:** Bogosht, 35°57'N, 71°32'E, well grazed pasture near stream in valley bottom, 8500 ft. (B. L. 772). Barum Gol, Shokov Shal, by a rivulet, 3500 m (WDB.). Mastuj track, 9000 ft., at edge of field (ST. 3519).

C. stenophylla WAHLENB. var. *pellucida* LITW. – **E:** Kabul: Bala Hissar, 34°30'N, 69°10'E, in stagno, 1800 m (RECH. 16002).

C. stenophylla WAHLENB. var. *planifolia* BOISS. – **Turcomania:** In deserto argilloso prope Aschabad (LITW. 274). – **Afghanistan:** **N:** North Afghanistan (M.). – **NE: Nuristan:** Zwischen Asmar und Barikot, 840 m (G. 297). – **E:** Ghazni: Ad marginem orientalem altoplanitiei Dasht-e Nawar (Naour), 3000 m (RECH. 17807). Kabul: Unter dem Gipfel des Sebroderakan bei Schewaki im Logartal, 2500 m (G.). Berghang zwischen Tschardeh und dem Logartal, 1840 m (G. 303). Sandfläche W von Darul-fanum, 1830 m (G. 302). Westhang des Scher Darwasah, Koh-e Tschelsotun Kette, 1820 m (G. 301). Scher Darwasah, Grabmal Chodsche Safa, 1880 m (G. 304). Sandiger Hügel zwischen Kabul und Tang-i Gharu, 1770 m (G. 298). Aliabader Berg bei Kabul, trockene lössreiche Steppe (V. 11-b). Nordwestlich des Aliabader Berges bei Kabul, 1800 m (G. 300). Aliabad bei Kabul (N. 1951/19). Koh-i Asmai bei Kabul, Süd- und Nordseite, 1700 m (KN. 4). Pandscheschah bei Kabul (N. 1951/55). An einem trockenen Feldrain bei Gulbagh, nahe Kabul (N. 1951/24 p.p.). In collibus ad septentriones urbis Kabul, 1800 m (RECH. 17042). Kabul, in hills (AKHTAR). Berghang bei Budchak, 1780 m (G. 299). Paghman, 2400 m (G. 306). – **C:** Bamian (V. 2230). – **Pakistan:** Khybar Pass (KN. 2142). **Chitral:** Mastuj track, 9000 ft., on damp ground at edge of field (ST. 2518). Gangallat Gol, Kafiristan, SW of Chitral, 12000 ft. (ST. 2721). Bogosht, 35°57'N, 71°42'E, 8500 ft. (B. L. 772).

C. stenophylla WAHLENB. var. *interrupta* LITW. – **E:** Ghazni: In monte ad occidentem jugi Sardalu inter Qarabagh et Sang-i Masha, 2600 m (RECH. 17411). Okak, NE altoplanitiei Dasht-e Nawar (Naour), 33°50'N, 67°55'E, 3000 m (RECH. 17759). In jugo Ghoutch Kol, NNE Sang-i Masha, 33°40'N, 67°25'E, 3300 (RECH. 17649). Kabul: Dasht-e Tup, S Maidan, inter Kabul et Ghazni, 34°10'N, 68°55'E, 2400 m (RECH. 17237). Darulaman-Ebene bei Kabul, an nassen Stellen (V. 85-b). Paghman, 2800 m, feuchter, kiesiger Schwemmkegel (V. 347). Kabul, *Cynodon*-Rasen (V. 1883), Steppe (V. 1475, 2779). – **C:** Ghorat: Qala Chahrak (Sharak), 2000 m, 34°07'N, 64°23'E (RECH. 19155). Bamian: Koh-i Baba, 2700–2900 m (K. 3337). Ibidem, 2900 m (G. 307). Hauz-i Mahiha, 2600–2700 m (K. 2471, 2472).

It is very difficult to deal with the various biotypes that occur in the *Carex stenophylla* complex. Some of them are apparently quite clear-cut in their extremes, if you do not examine too many specimens of them.

KUEKENTHAL's treatment is too conservative and a little incoherent in a way, though in later years he had another view on the subject. In 1909, he had in his monograph *C. stenophylla* itself with f. *elata* (SCHUR) KUEKENTHAL and f. *pachystylis* (GAY) ASCHERS. et GRAEBN., and the following varieties: var. *duriuscula* (C. A. MEYER) TRAUTV., var. *exigua* (SCHUR) KUEKENTHAL, var. *longepedicellata* (BOECK.) KUEKENTHAL, var. *enervis* (C. A. MEYER) KUEKENTHAL and var. *desertorum* LITWINOW.

In 1930, studying SMITH's Chinese gatherings of sedges, KUEKENTHAL found out that he made a mistake in associating *C. enervis* with *C. stenophylla*: "In meiner Monographie der *Caricoideae* (1909), p. 122, habe ich *C. enervis* C. A. MEYER als Varietät *C. stenophylla* WAHLENB. untergeordnet. Das zahlreiche Material, welches ich seitdem gesehen habe, führt mich zu der Ansicht, das die dort angegebenen Merkmale so konstant und so wesentlich sind, dass sie zur artlichen Trennung drängen". (Acta Horti Gothoburg. 5: 41 (1930).)

In fact, *C. enervis* C. A. MEYER, of which I have examined authentic specimens from Yunnan, Baical and Jacuts, is not related to *C. stenophylla*, but to *C. maritima* GUNN. (Syn. *C. incurva* LIGHTF.).

The North American representative had a poor treatment from the start. It was described as *C. Eleocharis* by BAILEY in 1889, but without any relationship indicated to *C. stenophylla*, instead it was said to be related to *C. disperma*. The type (immature), MACOUN 1665, from Saskatchewan, KUEKENTHAL did not see. In his monograph, he placed *C. Eleocharis* in the same section as *C. disperma*, adapted BAILEY's description to fit his own style, cited MACOUN's specimen with the n.v. that indicated his entire reliance on BAILEY. At the same time, he placed all the North American specimens that he had seen under *C. stenophylla* itself. In the new edition of GRAY's Manual (1950) FERNALD, unaware of KUEKENTHAL's second thought on the matter, treated the North American phase as *C. stenophylla* WAHLENB. var. *enervis* (C. A. MEYER) KUEKENTHAL. In 1931, MACKENZIE had used *C. Eleocharis* BAILEY for the North American plant and had pointed out its relationship with, and its distinction from, typical Eurasiatic *C. stenophylla* WAHLENB.

In 1908, *C. uralensis* C. B. CLARKE was published posthumously, too late to be taken into account by KUEKENTHAL, whose work was already in the printer's hands. C. B. CLARKE was restricting *C. stenophylla* to Europe.

In 1910, LITWINOW had some problems classifying his material from Turkestan and two useful segregates were set out: var. *pellucida* and var. *interrupta*, with reference to a former var. *desertorum*. One finds there a good understanding of the behaviour of the species in the desertic regions of Central Asia.

As early as 1884, FRANCHET had set apart the Far East representative as var. *rigescens*. Examination of various collections, including DAVID's, BUNGE's, FAURIE's, show that, with its hyaline scales and general shape of the aggregated spikes, it is the clearest cut of all the segregates. KUEKENTHAL wrongly placed var. *rigescens* in the synonymy of f. *pachystylis*. *C. pachystylis* GAY is based on flowering material; GAY states that it is remarkable by its thickened style-base. In a group as difficult as the *Vigneae*, I would reject this name entirely, though ASCHERSON and GRAEBNER retained it at formal rank for the European specimens (presumably shade-forms) with wide leaves (not BOISSIER's var. *planifolia*) and in the Flora URSS., it is treated as a species in another section, i.e. the *Physodeae*, with the well-known *C. physodes* M.B., characterized by big inflated reddish perigynia, with which it apparently hybridizes. To my mind, *C. pachystylis*, at least sensu KRECZETOWICZ, is *C. physodes* with sterile, undeveloped female flowers. The underparts with their innumerable minute rootlets are unmistakable.

The late KRECZETOWICZ wrote the treatment of *Carex* for the monumental Flora URSS. under the editorship of KOMAROV. As everyone knows, the KOMAROVIAN school treats as species every geographical variant, in contrast with the MAXIMOWICZ era, where a sense of synthesis always presided over the setting out of new taxa. So, there is no surprise that in this work *C. stenophylla* itself is not treated, being restricted to Eastern non-Russian Europe. It is replaced by *C. uralensis* C. B. CLARKE. Then *C. stenophylloides*, *C. duriusculiformis*, *C. rigescens* are described. *C. duriuscula*, *C. pachystylis* (in another section) are retained as species. Between this extreme view and KUEKENTHAL's there is an immense gap. Trying to conciliate the two, correcting the first, specially in regard to synonymy, and trying to take the best of the second, I propose here a realignment of the segregates of *Carex stenophylla*.

Pending further investigations, not only in herbaria but in the field, I do not think that any of the so-called species described by V. KRECZETOWICZ can be treated as such, neither as subspecies. At best they can be kept as varieties; though I have no experience with them in the field, they look, as a whole, as accommodates, i.e. seasonal ecotypes. In dry seasons or in dry areas, some plants will have a very short vegetative life, belonging to the ephemeroïd type; in better conditions they will grow during all summer. In the first case, the rootstock will become more or less pseudobulbous, through thickening, whereas a luxuriant foliage will develop in the other case, even flat leaves. Examination of a good number of specimens from North America shows that they duplicate several of the variations of the Asiatic population. The advantage of the present grouping is that the names of all the varieties are available as such, so that no transfers are needed. In a difficult group, it is not wise to set up new names; it only adds confusion to chaos.

Dr. TYCHO NORLINDH has recently studied carefully the European population (the type comes from Austria) and concluded that *C. uralensis* C. B. CLARKE is morphologically indistinguishable from *C. stenophylla* WAHLENB., their variation amplitude overlapping greatly. This was a first step towards a better understanding of the Mongolian population. Dr. NORLINDH's later opinion may alter the present synopsis:

Carex stenophylla WAHLENB., Vet. Akad. Handl. Stockh. 24: 124 (1803); KUEKENTHAL, Cyper.-Car. 120 (1909), pr. pte. max.; NORLINDH, Bot. Not. 113 (1): 1–19, fig. 1–5 (1960). Syn.: *C. juncifolia* (non ALL.) HOST, Synops. pl. Austr. 503 (1797), pr. pte.; SCHKUHR, Besch. u. Abb. d. Riedb. 26, nr. 18, tab. G, fig. 32 (1801). *C. glomerata* (non THUNB.) HOST, Icon. et descr. gram. austr. 1: 34, tab. 44 (1801). *C. Hostii* SCHKUHR, Nachtr. 7 (1806), pr. pte. *C. uralensis* C. B. CLARKE, Kew Bull. Add. ser. 8: 76 (1908); V. KRECZETOWICZ, Fl. URSS. 3: 14, tab. 10 a-c (1935).

– – var. *stenophylla*. – Eastern Europe and Western Sibiria, east to Chitral.

– – var. *pellucida* LITW., Trav. Mus. Bot. St. Pétersb. 7: 84 (1910). Syn.: *C. stenophylloides* V. KRECZ., Fl. Turkm. 1 (2): 230, tab. 93 (1932); Fl. URSS. 3: 141, 592, tab. 10, fig. 2a–b (1935); Act. Univ. As. Med. Bot. 20: 22 (1935). – Caucasus, Asia Minor to Central Asia.

– – var. *planifolia* BOISS., Fl. Orient. 5: 400 (1884). Syn.: *C. pachystylis* GAY, Ann. Sc. Nat. 2nd. sér. 10: 301 (1838); V. KRECZ. in Fl. URSS. 3: 197 (1935); Act. Univ. As. Med. Bot. 20: 23 (1935). *C. stenophylla* WAHLENB. var. *desertorum* LITW., Allg. Bot. Zeit. 5, Beih. 1: 56 (1899); KUEKENTHAL, Cyper.-Car. 122 (1909). *C. desertorum* LITW., Trav. Mus. Bot. St. Pétersb. 1: 19 (1902). *C. stenophylla* WAHLENB. f. *pachystylis* KUEKENTHAL, Cyper.-Car. 121 (1909), pr. pte. – The dominant phase in Caucasus, Iraq, Syria, Iran and Afghanistan.

– – var. *interrupta* LITW., Trav. Mus. Bot. St. Pétersb. 7: 85 (1910). Syn.: *C. stenophylla* WAHLENB. var. *duriuscula* (non TRAUTV.) B. FEDTSCH., Act. Hort. Petrop. 38: 189 (1925). *C. duriusculiformis* V. KRECZ., Fl. URSS. 3: 142, 591 (1935); Act. Univ. As. Med. Bot. 20: 22 (1935). – Tian Shan, Pamiro-Alaj, Hindukush, Karakorum, Kuen-Lun, Himalaya and Tibet.

– – var. *duriuscula* (C. A. MEYER) TRAUTV., Act. Hort. Petrop. 10: 537 (1887–89). Syn.: *C. duriuscula* C. A. MEYER, Mém. Sc. St. Pétersb. Sav. Etrang. 1: 214, tab. 8 (1831). *C. steno-*

phylla WAHLENB. var. *humilis* MEINSH., Act. Hort. Petrop. 18: 316 (1901). – Siberia, Mongolia, and Manchuria.

– – var. *longepedicellata* (BOECK.) KUEKENTHAL, Pflanzenr. 4 (20): 121 (1909). Syn.: *C. longepedicellata* BOECK., Cyper. nov. 1: 41 (1888). – Himalaya and Tibet.

– – var. *Eleocharis* (BAILEY) BREITUNG, Canad. Field. Nat. 71: 48 (1957). Syn.: *C. Eleocharis* BAILEY, Mem. Torrey Bot. Cl. 1: 6 (1889); KUEKENTHAL, Cyper. – Car. 0): 222 (1909); MACKENZIE, N. American Fl. 18 (1): 33 (1931); N. Amer. Car. tab. 16 (1940). *C. stenophylla* KUEKENTHAL, Cyper.-Car. 120, pr.pte. quoad spec. amer. 1909. *C. stenophylla* WAHLENB. var. *enervis* (non C. A. MEYER, nec KUEKENTHAL) FERNALD, GRAY'S Man., 8th. Ed., 302 (1950). *C. stenophylla* WAHLENB. ssp. *Eleocharis* (BAILEY) HULTÉN, Fl. Alaska and Yuk. 2: 314 (1942). – Western North America, eastwards to Manitoba.

C. subphysodes M. POPOV ex V. KREZC., Act. Univ. As. Med. Bot. 20: 23 (1935).

E: Kabul, an einem trockenen Feldrain bei Kabul-Gulbagh (N. 1951/24).

Apparently an hybrid between *C. physodes* and *C. stenophylla* var. *planifolia* or, perhaps, a specimen of *C. physodes* with undeveloped utricles.

C. subvulpina P. SENAY, Bull. Mus. Paris, 2e série, 17 (5): 444 (1945). (Syn. *C. compacta* (non LAM.) V. KREZC., *C. nemorosa* REBENT., *C. vulpina* (non L.) KUEKENTHAL, *C. vulpina* L. var. *nemorosa* KOCH, *C. vulpina* L. var. *tenuior* TREV., *C. vulpinoidea* (non MICHX.) BOISS., *C. vulpina* L. var. *pallidior* MEINSH., *C. vulpina* L. var. *orientalis* PACZ.). – 'Afghanistan' (AITCH. 870).

KREZCETOWICZ was the first to notice that two taxa were involved in *C. vulpina* L. He revived *C. compacta* LAM. (1778) for the second species, but, as the late P. SENAY has demonstrated, in a minutious study of the group (Le *Carex vulpina* et ses alliés, Bull. du Muséum, 1945), LAMARK'S diagnosis applies only to *C. vulpina* s. str.

Carex trispiculata BOECK., Cyper. nov. 1: 45 (1888). (Syn. *C. alpina* (non Sw.) AITCH., *C. Vahlü* (non SCHUHR) BOISS., *C. alpina* Sw. ssp. *infuscata* KUEKENTHAL, Cyper.-Car. 386 (1909), pr. pte., quoad spec. AITCHISON, *C. alpina* Sw. ssp. *infuscata* (NEES) KUEKENTHAL var. *humilis* GILLI, FEDDES Repert. spec. nov. 64: 217 (1962), descr. emend.

In dense tufts, the intricate freely forking rhizomes covered with fibrous remains of old sheaths. Stem 3–12 (–25) cm long, slender and stiff, sharply trigonous, the base thickened by accumulated old sheaths. Leaves basal, much shorter than the stems, 3–5 cm long, 1 mm wide, long acuminate, often falcate and involute, the margin finely spinulose. Spikes 2–3, approximate, sessile, the terminal one 4–5 mm long, androgynous, the lateral ones female, a little shorter and wider. Bracts about equaling the spikes, barely sheathing, spinulose, the mouth black. Perigynia 2,75 mm long, ovate, tumid-trigonous, pale yellow, finely cellulose-reticulate, the two lateral nerves well marked, the others faintly so, ending in a conical slightly bidentate, black girdled beak. Scales dark, red, the mid-vein paler, slightly shorter than the perigynia. Achene 2 mm long, sharply trigonous, rhomboidal, the base-style persistent. Stigmas 3, very slender, exserted.

NE: Gomando, Porande valley nr. Basarak, 9000 ft., damp ground (G. 333, Kz. 11712). Pandjshir-Tal bei Ruhka (V. 196). – **E:** Kabul: Bagrami, Nedjerou-Tal, E Kabul, 3000 m (N. 1950/301). Paghman, 2800 m (N. 1950/664, 667, V. 966). – **Pakistan:** Shentoi (AITCH.).

A well-marked species.

C. turkestanica REGEL (Syn. *C. orientalis* MEINSH., *C. nitida* HOST var. *aspera* (BOECK.) KUEKENTHAL, *C. heterostachya* BGE. f. *minor* BOOTT). – ‘Afghanistan’ (fide Fl. URSS. 3: 377 (1935)).

C. vulpinaris NEES – **NW:** Qala Nau, 900 m (K. 3963). – **SW:** Herat, 1000 m (K. 3879). – **E:** Kabul: Paghman, W Kabul, 2500–3000 m, feuchte Geröllhalde (V. 334). Ibidem, 9000 ft., clumps along stream (Kz. 12111, 12142). Ibidem, 3900 m, *Cousinia*-Bestand (V. 926). Paghman-Tal (N. 1950/666). Kurram Valley (GRIFF. 147, AITCH. 818). – **C:** Band-e Amir, 2900 m, Seeufer (V. 2822).

C. Wendelboi NELMES (Syn. *C. nubigena* D. DON var. *brevi-bracteata* GILLI, FEDDES Repert. spec. nov. 64: 216 (1962), syn. nov.) – **NE:** Nuristan: Shabul Gul (KITAMURA 52). – **E:** Kabul: Paghman Tal, oberhalb Beg-tut, 2900–3500 m (G. 319, 320). Nedschrab-Tal, zwischen Gulbahar und Sarobi, 3100 m (G. 322). Zwischen Schakar darra und Hauz-e Chas, in einer Schlucht am Fuss einer Felswand, 3250 m (G. 321). **Pakistan:** Chitral: Oihor Gol, 10500 ft., river bed, 36°04'N, 71°48'E (B. L. 838). Barum Gol, wet slope, above Shokor Shal, E. side of Main Barum Glacier, 3600 m (WDB.).

GRAMINEAE

By N. L. BOR, Kew
and A. MELDERIS, British Museum, London.

Panicoideae-Andropogoneae

***Apluda* L.**

A. mulica L. – **NE: Nuristan:** Nishei, ca. 1300 m (E. 825).

***Arthraxon* P. BEAUV.**

A. prionodes (STEUD.) DANDY – **NE: Nuristan:** Im Tal und um den Ort Kurder, Seitental des Petsch-Tales, 1600–1800 m (N. 1951/754). Darim-Tal ab Ort Darim aufwärts, 1900–2400 m (N. 1951/982).

***Bothriochloa* O. KTZE.**

B. caucasica (TRIN.) C. E. HUBBARD – **NE: Nuristan:** Kurder-Tal, Seitental des Petsch-Tales (N. 1951/804).

B. Ischaemum (L.) KENG – **NE:** Badakhshan: Ishkamish, ca. 1200 m, zerstreut in der Löss-Steppe (V. 2657). Kataghan: Taliqan, Khanabad, Grabenränder (V. 608). **Nuristan:** Aschpi-Pass (N. 1951/1050). Zwischen Kotal-Agok (Agok-Pass) und Alm bis Ort Waigel (N. 1951/867). Porande-Tal, Seitental des Panjshir-Tales bei Basarak, Wiese am rechten Porande-Ufer östlich von Daolana, ca. 2350 m (G. 372). Ort Parigel im Parigel-Tal, linkes Seitenufer des unteren Kulam-Tales, ca. 1800 m, trockener Wiesenhang (KN. 1167). – **E:** Ghazni: Inter Miradina et jugum Ghoutch Kol a Sang-i Masha septentriones versus, ca. 3000 m (RECH. 17612). Kabul: Gulbahar bei Charikar (V. 1009). In einer Schlucht zwischen Tschardeh und dem Logar-Tal, ca. 1880 m (G. 371). Guzar Geh, an westoffenem Hang (N. 1950/36). Oberes Paghman-Tal (N. 1950/791). – **C:** Bamian: In valle Ajar “Königsthal” a Doab occidentem versus, 1400–1500 m (HDG & WDB. 4126, RECH. 16604). – **Pakistan: Chitral:** Owir, SE of Tirich Mir, 8000 ft., on dry stony ground (ST. 2769). Mastuj, Baroghil Track, Bang, ca. 8000 ft., at edge of field (ST. 2935). Beorai Gol, S of Drosh, ca. 5000 ft., at edge of irrigation channel (ST. 3274). Golen Gol, ca. 7000 ft. (B. L. 24). Dir. Distri.: Panjkora-Tal bei Warai, ca. 1000 m (KN. 2107).

KERSTAN 2107 is not without interest. The joints and pedicel have a translucent central portion which indicates the genus *Bothriochloa*. – The lower glume of some of the sessile spikelets show a depression like the indication of a pit: also indicating *Bothriochloa*, e.g. *B. pertusa* (L.) A. CAMUS.

Chrysopogon TRIN.

Ch. Aucheri (BOISS.) STAPF – **SW:** Siason, inter Bakoa et Farah (L. 277). – **SE:** Kandahar: Am Hilmennd bei Germaub, nördlich von Ghirishk, ca. 1200 m (KN. 386). – **E:** Kabul: Tisin, an der Strasse Kabul nach Jallalabad (KN. 602, SCH. 72). Südöstlich von Sarobi, 1000–1450 m (G. 368, 369). In der Schlucht des Kabul-Flusses bei Tang-i Gharu, 1600–1700 m (KN. 518). Hills 30 miles E of Kabul (M.). – **NE:** Nuristan: Tshagan Serai, unteres Petsch-Tal, ca. 820 m, Gneiss, Glimmerschiefer (KN. 685). – **Pakistan: Quetta:** Near Quetta, ca. 1500 m (K. 3060).

Ch. Aucheri (BOISS.) STAPF var. *quinqueplumis* (A. RICH.) STAPF – **SE:** Pirzada, near Kandahar, ca. 1000 m (K. 2110). – **E:** Darunta, Sarobi (V. 1925). An der Strasse von Nimla nach Jallalabad, ca. 600 m, Schotter (SCH. 75-b).

Ch. echinulatus (NEES) W. WATS. – **NE: Nuristan:** Ashpi, ca. 2000 m (E. 1679). Ashpi-Pass (N. 1951/1043). Pashki, ca. 2300 m (E. 552, 1329). Parun-Tal bei Pashki, ca. 2200 m, Wegränder (SCH. 158). Auwiesen oberhalb Pashki, im Parun-Tal zwischen Pashki und Shtive, ca. 2300 m (KN. 1383). East-Nuristan (E. 1677). – **Pakistan: Swat:** Kalam, 35°30'N, 72°30'E, ca. 2200 m, substr. granit. (RECH. 19405).

Ch. serrulatus TRIN. – **Pakistan: Dir.:** Panjkora-Tal bei Warai, ca. 1000 m (KN. 2118). **Peshawar:** Inter Saidu Sharif et Malakand, ca. 800 m, substr. granit. (RECH. 19609). Rawalpindi, ca. 550 m (KN. 2267-a).

Cymbopogon SPRENG.

C. Olivieri (BOISS.) BOR (Syn. *Andropogon Olivieri* BOISS.). – **NW:** Herat: Steppe nördlich von Herat, ca. 940 m (G. 374). – **SW:** Herat, 900 m (K. 4269). Seistan to Farah (K. 4270). – **SE:** Germaub am Hilmennd, nördlich von Kandahar, ca. 1200 m, Steinsteppe (KN. 383). Kajkai, NNW of Kandahar, ca. 900 m (K. 2127). Pirzada, near Kandahar, ca. 900 m (K. 2091). Baba Wali bei Kandahar, Steppe (V. 229). – **E:** Kabul: Jallalabad (KN. W-155). Hills 30 miles E of Kabul, ca. 2700 m (M.). Jagdalek, östlich von Kabul (Kz. 8247). – **NE: Nuristan:** Zwischen Asmar und Barikot, ca. 840 m, *Quercus Baloot*-Bestand (G. 373). Zwischen Nishei und Ningalam (N. 1951/788). Zwischen Ningalam und Ort Darim, 1300–1900 m (N. 1951/965, 973). Asmar Barikot, ca. 900 m (E. 1615). Kadjahkai, bord de riviere (L. 1958/416). Siakou, champs (L. 284, 304).

C. Parkeri STAPF – **NE: Nuristan:** Vaigel, ca. 1500 m (E. 886). East-Nuristan (E. 1141). – **E:** Unteres Kunar-Tal, zwischen Tshagan Serai und Jallalabad oberhalb Nurgel, 600–800 m, Gneiss-Schiefer (KN. 664-b). An der Strasse von Kabul nach Jallalabad in der Gegend des Heiligengrabes Seh Baba, an Sandstellen (KN. 610). In faucibus Tang-e Gharu, inter Kabul et Sarobi, 1100–1300 m, substr. conglom. (RECH. 18977). Von Sarobi bis östlich von Lataband, Steppe (V. 1566). Zwischen Sarobi und Darunta (V. 1955). Auf einem Berg südöstlich von Sarobi, ca. 1100 m, Schutthalde (G. 375). Unter der Kammhöhe eines Berges SE von Sarobi, ca. 1400 m (G. 376). – **Pakistan: Quetta:** Near Khojak Pass, ca. 1900 m (K. 3046).

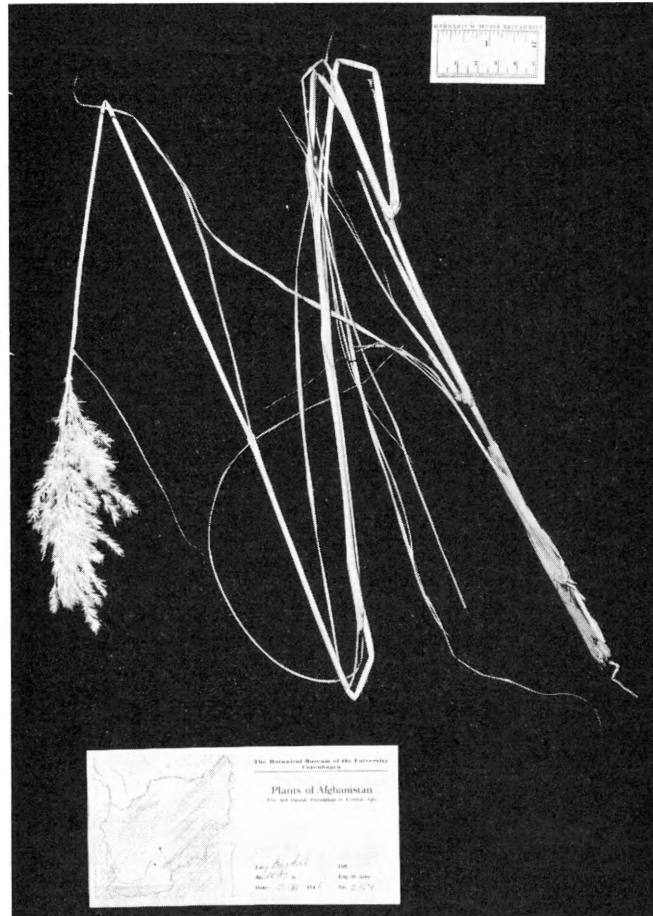


Fig. 1. *Erianthus kajkaiensis* MELDERIS (K. 2159, Holotypus, C).

***Dichanthium* WILLEMET.**

D. annulatum (FORSSK.) STAPF – **NE: Nuristan:** Unteres Petsch-Tal zwischen Tshaghan und Barkandi, ca. 800 m (KN. 694-a).

***Erianthus* MICHX.**

E. filifolius NEES ex STEUD. (Syn. *Saccharum filifolium* STEUD.) – **NE: Nuristan:** Petsch-Tal, unterhalb Wama, ca. 1200 m (KN. 1261-b). Petsch-Tal, bei Wama, ca. 1400 m (KN. 1281). – **Pakistan: Chitral:** Shoghot, N of Chitral, ca. 5500 ft., on stony ground (St. 2734).

E. Griffithii (MUNRO) HOOK. f. (Syn. *Saccharum Griffithii* MUNRO ex AITCH.) – **E:** Sarobi, Talaue (V. 2855, 2856, REGEL). In fauce fluvii Kabul inter Sarobi et Kabul (REGEL). – **NE: Nuristan:** Gusalak, ca. 1000 m (E. 1195).

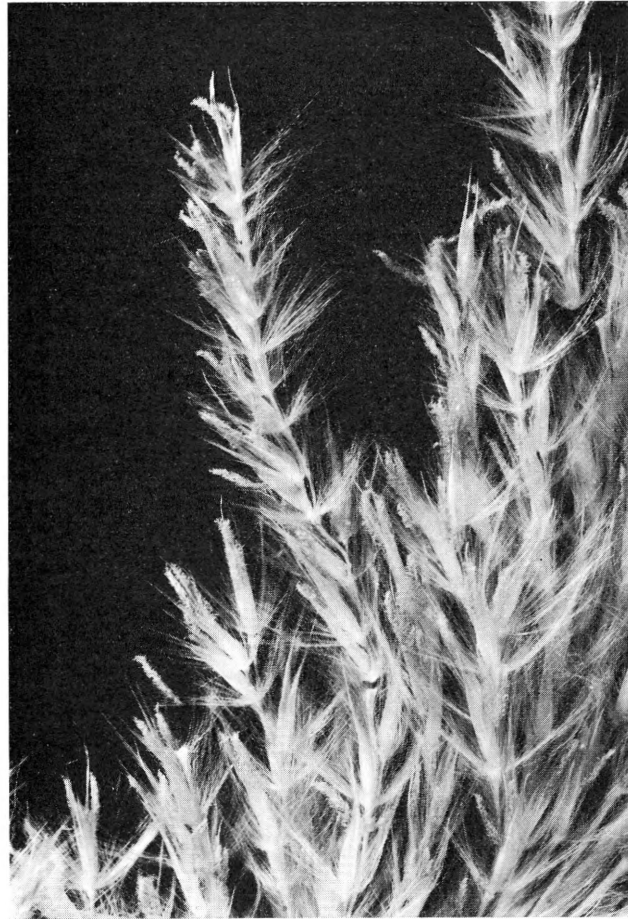


Fig. 2. *Erianthus kajkaiensis* MELDERIS, a part of the panicle (K. 2159, Holotypus, C) 4.5/1.

***Erianthus kajkaiensis* MELDERIS, sp. nov.** – Fig. 1, 2.

Gramen perenne, ad 1,25 m altum, erectum, caespitosum. Culmi validiusculi, multinodes, e basi nodisque infimis ramos simplices agentes, teretes, striati, superne et infra paniculam appresse sericeo-longipilosi, ceterum glabri laeves. Nodi longibarbati. Folia viridia; vaginae striatae, glabrae laeves, internodiis saepe longiores; ligulae ad 3,5 mm longae, membranaceae, laceratae, longibarbatae; laminae 10–40 cm longae, 1–2,5 mm latae, rigidae, anguste lineares, planae vel plus minusve convolutae, supra costa media crassiuscula, alba, nervis scabriusculae, marginibus scabrae, subtus glabrae laeves. Panicula erecta, ad 15 cm longa, laxiuscula, sublobata, composita, albo-sericeo-villosa, rhachidi ramulisque appresso-longipilosa. Racemi 1,5–7,5 cm longi, suberecti, laxiflori, articulati, rhachidi fragili; articuli basi subincrassati, villis ipsos paulo superantibus dense vestiti. Spiculae ad rhachidis nodos racemorum

binae, altera sessilis, altera pedicellata, lanceolatae, similes, aequilongae vel subaequilongae. Glumae absentes. Lemmata (cum appendice) 5,5–6 mm longa, hyalina, basi lanceolata, apice in appendicem 1,5–2,5 mm longam, tenuem, aristiformem attenuata. Lemma inferum sterile, prope margines 2-nerve, dorso apicem versus brevisetulosum, ad margines longiciliatum; palea absens. Lemma superum infero subaequilongum vel eo leviter longior, 1-nerve, dorso glabrum, ad margines longiciliatum; palea lanceolata, 3–3,5 mm longa, dorso glabra, ad margines longiciliata; stamina 2, antherae 1,8–2 mm longae, purpureo-luteae; ovarium glabrum, stigmatibus plumosis, brunneo-luteis, ex anthoeciis exsertis. Spiculae pedicellatae; pedicellus 2 mm longus, sparse longipilosus. – *E. Griffithii* (MUNRO) HOOK. f. similis sed ab eo culmis superne, paniculae rhachidi racemorumque rhachidibus appresso-longipilosis, glumis absentibus, lemmatibus basi lanceolatis, apice in appendicem brevem tenuem aristiformem attenuatis, lemmate infero prope margines 2-nervio, lemmate supero 1-nervio, antheris brevioribus, recedit.

SE: Kajkai, ca. 1000 m, 29.5.1948 (KØIE 2159, Holotypus, C; Isotypus, BM).

E. Ravennae (L.) P. BEAUV. (Syn. *Saccharum Ravennae* (L.) MURRAY – **SW:** Dilaram, östlich von Farah, ca. 1100 m (K. 3036). – **E:** Sarobi, (V. 2855-b). – **C:** Doab, ca. 1400 m (V. 2870). Am Fluss zwischen Doab und Doschi nördlich des Schibar-Passes (N. 1950/216). Ghorat: In valle supra Zarni inter Taiwara et Parjuman (Partcheman), ca. 2000 m (RECH. 19008). – **NE:** Kataghan: In valle fluvii Kunduz (Qunduz) prope Doshi, ca. 850 m (RECH. 16548). **Nuristan:** Vama, ca. 1300 m (E. 1231, 1237). – **Pakistan: Chitral:** Drasan, ca. 2080 m, Flusschotter (KN. 2060).

E. Ravennae (L.) P. BEAUV. var. *purpurascens* HACK. – **E:** Kabul: Unterhalb Munar Shakri, in einer Schlucht der Bergkette zwischen Scherwaki im Logar-Tal und Chord-Kabul, ca. 2300 m (G. 366).

E. rufipilus (STEUD.) GRISEB. (Syn. *Saccharum rufipilum* STEUD.) – **Pakistan: Chitral:** Urtsun Gol, SW of Drosh, ca. 2000 m (St. 3197).

Heteropogon PERS.

H. contortus (L.) P. BEAUV. – **NE: Nuristan:** Kurder-Tal, Seitental des Petsch-Tales (N. 1951/809). Zwischen Ningalam und Ort Darim, 1300–1900 m (N. 1949/945, 949).

Hyparrhenia ANDERSS.

H. hirta (L.) STAPF – **E:** Kabul: Zwischen Sarobi und Darunta, östlich von Kabul (V. 1955). – **NE: Nuristan:** Unteres Petsch-Tal unterhalb Sinsi, in der Nähe von Retschalam, ca. 900 m (KN. 707). Tshaghan Serai, unteres Petsch-Tal bei der Mündung, ca. 820 m (KN. 677). – **Pakistan: Chitral:** Arandu, SW of Drosh, ca. 4000 ft., at edge of fields (ST. 2308).

Imperata CYR.

I. cylindrica (L.) P. BEAUV. – **E:** Kabul: Jallalabad, östlich von Kabul, ca. 600 m (E. 21). E. Afghanistan (GRIFF. 359). – **NE: Nuristan:** Gusalak, ca. 1000 m (E. 1193).

Bagrami, Nedjerau-Tal, am Steinrand einer Wiese beim oberen Dorf (N. 1951/249). Baghlan: Pul-e Khomri, Wiese am Fluss (N. 1950/226, 227). – **Pakistan: Chitral:** Im Chitral-Tal zwischen Chitral and Ayum, 1300–1500 m (KN. 2071).

Lasiurus BOISS.

L. hirsutus (FORSSK.) BOISS. – **E:** Kabul: Jallalabad, östlich von Kabul (V. 2059, 2628).

Phacelurus GRISEB.

Ph. speciosus (STEUD.) C. E. HUBBARD (Syn. *Andropogon speciosus* STEUD., *Ischaemum speciosum* NEES ex STEUD., *Andropogon corollatus* NEES ex STEUD., *Ischaemum corollatum* NEES ex STEUD., *Vossia speciosa* (STEUD.) BENTH., *Rottboelia speciosa* (STEUD.) HACK., *Ischaemum robustum* HOOK. f., *Pseudophacelurus speciosus* (STEUD.) A. CAMUS, *Thyrsia viridula* OHWI) – **E:** Kabul: Tang-e Gharu in der Schlucht des Kabul-Flusses, 1600–1800 m (KN. 503, 504). Nordhang eines Berges am rechten Ufer des Kabul-Flusses in der Tang-e Gharu unweit des Wasserfalles Maipar, ca. 1640 m, senkrechte Kalkfelsenwände (G. 377, 478). Surkhab-Damm, *Artemisia*-Steppe (V. 110-b). Kurram: Patan, Kurram-Tal (V. 1133). – **NE: Nuristan:** Beim Dorfe Wama im oberen Petsch-Tal, ca. 1400 m, auf Felshängen (KN. 760, SCH. 86). Im unteren Petsch-Tal zwischen Gusalak und der Einmündung des Kurder-Flusses, ca. 1200 m (KN. 734). Bei Gusalak im Kurder-Tal, Seitental des Petsch-Tales (N. 1951/820). Darim-Tal ab Ort Darim aufwärts, 1900–2400 m (N. 1951/994). Im Kulam-Tal bei Kulam (Munui), ca. 2100 m, auf Felshängen (SCH. 111). Westlich des Drudapasses zwischen Don-Tal und Pischok-Tal, Aschkun-Gebiet, 1900–3000 m (SCH. 140). Ater-Schuker im Schuk-Tal, ca. 2300 m, auf Felsen am Nordhang (KN. 1016). Ahmedi Dewane, oberes Baschgal-Tal, ca. 2600 m (KN. 1477-b). – **Pakistan: Chitral:** Shishi Gol, NE of Drosh, ca. 7000 ft., at edge of field (ST. 3143). Madaklasht, NE of Drosh, stony ground (ST. 3137).

Ph. speciosus (STEUD.) C. E. HUBBARD var. ***afghanicus*** MELDERIS, var. nov.

A typo in partibus multis (culmis, foliorum vaginisque, rhachidi, pedicellis, glumis) dense brevissime pubescentibus differt.

NE: Nuristan: Vaigel, 31.7.1948 (EDELBERG 2051, Holotypus, C).

Saccharum L.

S. spontaneum L. – **NE:** Kataghan: In valle fluvii Kunduz prope Doshi, ca. 850 m (RECH. 16544). Badakshan: Faizabad, bord de riviere (L. 1049). – **E:** Jallalabad, östlich von Kabul, an der Darunta (N. 1951/859). Sarobi, östlich von Kabul, Talaue (V. 2854). – **Pakistan: Peshawar:** Ad confluentes fluvios Kabul et Indus prope Attok (RECH. 19650).

Sorghum MOENCH

S. bicolor (L.) MOENCH – **NE: Nuristan:** Vama, ca. 1400 m (E. 1216).

S. halepense (L.) PERS. – **NE: Kataghan:** In valle fluvii Kunduz inter Pul-i Khumri (Gomri) et Doshi, 700–800 m (RECH. 16527). – **E:** Kalgani im Nedschrab-Tal,

zwischen Gulbahar und Sarobi, ca. 1700 m (G. 370). – **Pakistan: Chitral:** Chitral village, ca. 5000 ft., at edge of fields (St. 3165).

Themeda FORSSK.

Th. anathera (NEES) HACK. in DC. – **NE: Nuristan:** Vama, ca. 1300 m (E. 1223). Vaigel, ca. 1650 m (E. 871). Im ganzen Tal und um den Ort Kurder, Seiten-Tal des Petsch-Tales, 1600–1700 m (N. 1951/766). Im Darim-Tal ab Ort Darim aufwärts, 1900–2400 m (N. 1951/996, 1005). – **Pakistan:** Zambeli, oberhalb Rawalpindi, ca. 600 m (KN. 276-a).

Th. anathera (NEES) HACK. in DC. var. *glabrescens* (ANDERSS.) HACK. – **NE: Nuristan:** Im Kotagel-Tal zwischen Kotagel und der Mündung in das Madschegel-Tal bei Kulatam, 1400–1600 m (KN. 1223-a).

Zea L.

Panicoideae-Maydeae

Z. Mays L. – **E:** Kabul: Garten der Nedschat-Oberrealschule in Kabul, ca. 1770 m (G. 345).

Brachiaria GRISEB.

Panicoideae-Paniceae

B. eruciformis (J. E. SM.) GRISEB. – **Afghanistan:** (V. 1443). – **Pakistan: Chitral:** Chitral village, ca. 5000 ft. (St. 3169).

B. ramosa (L.) STAPF in PRAIN – **Pakistan: Dir.,** Panjkova-Tal bei Warai, ca. 1000 m (KN. 2108-a). **Peshawar:** Inter Saidu Sharif et Malakand, ca. 800 m, substr. granit. (RECH. 19603). Ad confluentes fluviorum Kabul et Indus prope Attok, ca. 200 m (RECH. 19647, 19648).

Cenchrus L.

C. ciliaris L. – **E:** Tisin, an der Strasse von Kabul nach Jallalabad (KN. 2185). Dakka, an der Strasse Jallalabad nach Peshawar (KN. 2134). Zwischen Tshagan Serai und Nurgel, unteres Kunar-Tal zwischen Tshagan Serai und Jallalabad, 600–800 m (KN. 665). – **Pakistan: Peshawar:** In collibus supra Dargai, ca. 400 m (RECH. 19628). Peshawar, ca. 350 m, Agricult. Res. Farm (KN. 2166). An der Bahn zwischen Lahore und Peshawar, 200–350 m (KN. 2163).

Digitaria HEIST. ex FABRICIUS

D. cruciata (NEES) A. CAMUS in LECOMTE – **Pakistan: Chitral:** Beorai Gol, S of Drosh, ca. 6000 ft., at edge of irrigation channel (St. 3273).

The spikelets are not so turgid as in typical *D. cruciata* and the upper glume is larger, but the tip of the upper lemma does project visibly in some spikelets. The inflorescence is typically that of *D. cruciata* and not *D. adscendens*.

D. Ischaemum (SCHREB.) SCHREB. ex MUHL. – **E:** Kabul: Paghman, Begtut, westlich von Kabul, Ackerunkraut (V. 2223).

D. sanguinalis (L.) SCOP. – **NE: Nuristan:** Vama, ca. 1300 m (E. 1234). Zwischen Nischai und Ningalam (N. 1951/800). – **Pakistan: Swat:** Kalam, ca. 2200 m, substr. granit. (RECH. 19432, 19476).

Echinochloa P. BEAUV.

E. crus-galli (L.) P. BEAUV. – **SW:** Farah: Ad margines deserti Dasht-i Margo prope Khormalik inter Farah et Delaram, ca. 800 m, ad fontem (RECH. 19276). – **C:** Unterhalb Doab, Bewässerungsgraben (V. 504). Ghorband, NNW Kabul, ca. 1700 m (K. 2775). – **NE: Nuristan:** Zwischen Nischai und Ningalam (N. 1951/799). – **Pakistan: Chitral:** Koghosi, ca. 5000 ft., damp shady rich ground (B. L. 8). Chitral village, ca. 5500 ft., at edge of irrigation channel (St. 3166). **Swat:** Utror, ca. 2500 m, substr. granit. (RECH. 19593).

E. crus-galli (L.) P. BEAUV. var. *brevisetum* DOELL – **E:** Kabul: Reisfeld bei Gulbagh, ca. 1800 m (G. 350). Ruderal in einem Garten in Kabul, ca. 1780 m (G. 348). Ruderal im Garten der Nedschat-Oberrealschule in Kabul, ca. 1770 m (G. 347).

E. crus-galli (L.) P. BEAUV. var. *longisetum* DOELL – **E:** Kabul: Reisfeld bei Gulbagh, ca. 1800 m (G. 351).

Panicum L.

P. antidotale RETZ. – **SW:** Seistan, ca. 500 m, S Farah (K. 3698). – **SE:** Kajkai, NNW of Kandahar, ca. 1000 m (K. 2172). – **E:** Kabul-Schlucht bei Sarobi, ca. 1050 m (G. 352, 353). Abhänge bei Sarobi (V. 1895).

P. miliaceum L. – **E:** Kabul: Tschelsutun (N. 1950/94). – **NE:** Iamid (Vakhan), cult. (L. s. n.).

P. turgidum FORSSK. – **Pakistan:** Karachi, Wüste (V. K. 226-b).

Pennisetum RICH. in PERS.

P. divisum (FORSSK. ex GMEL.) HENR. – **SE:** Kandahar: Zwischen Kandahar und Ghirishk am Hilمند, ca. 1000 m (KN. 261). Pirzada, near Kandahar, 900–1000 m (K. 2044, 2074). Tshilsina, bei Kandahar, ca. 1000 m (K. 2241). Yaktchal (L. 411). – **Pakistan:** Karachi, Wüste (V.K.-226).

P. flaccidum GRISEB. – **E:** Kabul: Schotterbank im Nedschrab-Tal bei Schechan, zwischen Gulbahar und Sarobi, ca. 2200 m (G. 364). – **C:** Bamian, ca. 1600 m (K. 2896). – **NE:** Panjshir: Ruka, Panjshir, ca. 2000 m (K. 2932). **Nuristan:** Vama, ca. 1300 m (E. 1230). Porande-Tal, Seitental des Panjshir-Flusses bei Basarak, ca. 2150 m, Wegränder (G. 363). Zwischen Gusalak und der Einmündung des Kurder-Flusses, unteres Petsch-Tal, ca. 1150 m (KN. 741). Gusalak, im Kurder-Tal, Seitental des Petsch-Tales (N. 1951/821). Bagrami, im Nedjeraus-Tal (N. 1951/252). Gadwol, im oberen Ramgel-Tal, ca. 1970 m, Bachschutt (KN. 1128). Puschol, im oberen Ramgel-Tal, ca. 2250 m (KN. 1103-d). – **Pakistan: Chitral:** Shishi Gol, NE of Drosh, ca. 7000 ft., at edge of fields (St. 3144). Mastuj-Baroghil Track, Bang, ca. 8000 ft., at edge of fields (St. 2932). Lutkuh (Luthko), ca. 8000 ft., at edge of fields (B. L. 796).

P. lanatum KLOTZSCH – **NE: Nuristan:** Ashpi Pass (E. 1770, N. 1951/1052, 1054). Auf dem Wege zwischen Ashpi-Pass und dem Ort Kuschtos, 2500–3500 m (N. 1951/725). Darim-Tal ab Ort Darim aufwärts, 1900–2400 m (N. 1951/1016). Pashki, ca. 2300 m (E. 1335). Wama, im oberen Petsch-Tal, ca. 1300 m (KN. 1290). East-Nuristan (E. 1122). Südlich von Gadwol im Ramgel-Tal, ca. 1900 m (SCH. 133). Bei Puschol im oberen Ramgel-Tal, ca. 2250 m (KN. 1106-a). Auf einem Berg oberhalb Kamdesch, ca. 2800 m (G. 365). – **Pakistan: Chitral:** Madaklasht, NE of Drosh, ca. 10000 ft., stony ground (ST. 3136). **Swat:** Kalam, ca. 2200 m, substr. granit. (RECH. 19423, 19437). Ushu, ca. 2400 m, substr. granit. (RECH. 19513).

P. orientale L. C. RICH. – **SW:** Jija, südlich von Herat, ca. 900 m (K. 4267). – **SE:** Kajkai, NNW of Kandahar, ca. 1000 m (K. 2143). Germaub am Hilmennd nördlich von Kandahar, ca. 1200 m (KN. 384, 396-b). Kandahar, Steppe (V. K.-228). – **E:** Zwischen dem Heiligengrab Seh Baba und Dschegdelek, an der Strasse von Kabul nach Jallalabad, Grassteppe (KN. 614-b). Schutthalde am Fuss einer Felswand südöstlich von Sarobi, ca. 1050 m (G. 360). Zwischen Sarobi und Darunta, Felssteppe (V. 1927). Im Tal des Kabul-Flusses bei Tang-e Gharu, 1600–1800 m, auf Felschotter (KN. 562, SCH. 61-a, G. 361, HDG. & WDB. 3053). Sher Darwasa near Kabul, ca. 2100 m, steep stony slopes (HDG. & WDB. 3166). In valle Paghman prope Kabul, 2300–2800 m, Gneiss (RECH. 17170), 2700–3000 m (CH-M.). – **C:** Steiler Berghang im Saighan-Tal, linkes Seitental des Bamian-Flusses zwischen Doab und Bulola, ca. 1820 m (G. 362). – **NE:** Kataghan: In valle fluvii Kunduz inter Pul-i Khumri et Doshi, 700–800 m (RECH. 16523). Doshi, ca. 3000 m, rocky slopes (M.). **Nuristan:** Gusalak, ca. 1000 m (E. 1551, 2143). – **Pakistan: Chitral:** Arandu, SW of Drosh, ca. 4000 ft., on rocky ledges in tufts (ST. 2294). Ghairat, S of Chitral, ca. 4500 ft., on dry stony hillside (ST. 3266).

P. triflorum NEES – **NE: Nuristan:** Zwischen Wama und Tschetras im Petsch-Tal, ca. 1700 m, an Wegränder (KN. 1322).

***Setaria* P. BEAUV.**

S. glauca (L.) P. BEAUV. – **N:** Mazar-i Sharif: Mazar-i Sharif, Hotelgarten (N. 1950/207). – **NE:** Pul-e Khomri, Flussufer (N. 1950/223). – **Pakistan: Chitral:** Chitral village, ca. 5000 ft., at edge of field (ST. 3174).

S. italica (L.) P. BEAUV. – **NE: Nuristan:** Nuristan (E. 2244).

S. verticillata (L.) P. BEAUV. – **C:** Ufer des Salatin-Flusses bei Pschang, in der Nähe von Doab, ca. 1700 m (G. 359). – **NE: Nuristan:** Im Kurder-Tal bei Gusalak, Seitental des Petsch (N. 1951/817).

S. viridis (L.) P. BEAUV. – **SE:** Ghirishk, ca. 880 m, Wiesen (G. 354). – **E:** Kabul: Kartetschar, ca. 1780 m (G. 356). Zwischen Kartetschar und Gusargah, ca. 1780 m (G. 357). In collibus ad septentriones urbis Kabul, ca. 1800 m (RECH. 17039). Guzar Geh, bei Kabul (N. 1950/796). Bewässerungsgraben im Garten der Oberrealschule in Kabul, ca. 1770 m (G. 355). – **NE:** Kataghan: Imam Sayid (V. K-235). Kunduz, in horto inculto (RECH. 16017). – **C:** Bamian: Shibar Pass, WNW Kabul, ca.

2500 m (K. 2793). Hauz-i Mahiha, SW of Kabul (K. 2469). – **Pakistan: Chitral:** Yarkhun Tal: Zwischen Mastuj und Reshm an der Mündung des Turikho, 1800–2000 m (KN. K-235). Drasan, im unteren Turikho-Tal, ca. 2080 m (KN. 2059). Chitral village, ca. 5000 ft., at edge of fields (St. 3171).

S. viridis (L.) P. BEAUV. var. *maior* (GAUD.) KOCH – **NE: Nuristan:** Baschgal-Tal, zwischen Badamuk und Ningalam (SCH. 165-a).

Tricholaena SCHRAD. ex ROEM. et SCHULT.

T. Teneriffae (L. f.) LINK – **Pakistan: Peshawar:** In collibus supra Dargai, ca. 400 m (RECH. 19625).

Pooideae-Aeluropodeae

Aeluropus TRIN.

Ae. lagopoides (L.) TRIN. var. *lagopoides* – **SW:** Hamun, ca. 600 m (K. 3444). – **SE:** Kandahar (N. 1949/807).

Ae. lagopoides (L.) TRIN. var. *mesopotamicus* (NÁBĚLEK) BOR (Syn. *Aeluropus mesopotamicus* NÁBĚLEK). – **SW:** Hamun, ca. 500 m (K. 3445).

Ae. littoralis (GOUAN) PARL. – **N:** Mazar-i Sharif: In limosis salsis 10 km a Shibarghan occidentem versus, ca. 350 m (RECH. 16120). – **NW:** Maymana: 5 km outside Maymana, ca. 500 m (HDG. & WDB. 3617). – **SW:** Herat (N. 1950/42). Nördlich des Herat-College (N. 1950/269). – **SE:** Kajkai, NNW of Kandahar (K. 2179). Tshil-sina, bei Kandahar, ca. 1000 m (KN. 2238). Bei Kandahar in Richtung Kalat-i Ghilzai, ca. 1100 m (KN. 223-a, 225-b, 229-a). – **E:** Ghazni: Okak, ab altoplanitie Dasht-e Nawar (Naour) boreo-orientem versus, ca. 3000 m (RECH. 17752). Kabul: Wazirabad, bei Kabul (N. 1950/41, 1951/165). Scharenau (Tschaman Wazirabad), ca. 1750 m (G. 518). Oestlich von Tsharasiah, ca. 1740 m, sumpfige Ebene (G. 517). In planitie ad orientem urbis Kabul secus viam versus pagum Sarobi ducentem, ca. 1700 m (RECH. 16905). Zwischen Kabul und Aliabad, ca. 1780 m, auf einer Weidewiese (G. 520). Zwischen Kabul und Tang-i Gharu, ca. 1770 m, in der Salzsteppe (G. 519). In collibus a Kabul septentriones versus, ca. 1800 m (RECH. 17041). Bala Hissar, am Beginn des Logar-Tales, südlich von Kabul (N. 1951/36, 134-a, 347). Pandscheschah bei Kabul (N. 1950/818). – **C:** Bamian: Am Ufer des Kalou-Flusses, Mündungsgebiet bei Schar-e Schak, ca. 2320 m (G. 522). Doab (V. 1752). Zentraler Gebirgsstock bei Bamian (N. 1951/427). Hauz-i Mahiha to Farakulum, ca. 2900 m (K. 3051).

Ae. macrostachyus HACK. – **SE:** Kandahar: Marja, Boghra distr., S of Ghirishk (V. 1302). Zwischen Kandahar und Ghirishk am Hilmend, 900–1000 m (KN. 251). Pirzada, near Kandahar, ca. 900 m (K. 2120, 2121, 3831). Kandahar, trockener Hang (N. 1949/35).

Pooideae-Agrostideae

Agrostis L.

A. canina L. – **E:** In feuchten Felsspalten in einer Schlucht oberhalb des Nedschrah-Tales, zwischen Gulbahar und Sarobi, östlich von Kabul, ca. 3100 m (G. 441, 442). Oberhalb Beg tut, im Paghman-Gebirge, westlich von Kabul, feuchte Matten,

ca. 2900 m (G. 440). Kotal-i Kotandar, im Paghman-Gebirge, an quelligen Stellen (G. 443 – ad var. *pusillam* ASCHERS. et GRAEBN. vergens). – **C:** Bamian: Band-i Amir, Kalktuffe (V. 2266). – **NE: Nuristan:** Minjan, Ptili, ca. 2700 m (K. 2099). Unterhalb des Semenek-Passes, Westhang, ca. 3400 m (KN. 1498-a, 1511). – **Pakistan: Chitral:** Shandur Pass, SE of Mastuj, ca. 12000 ft., at edge of streams (ST. 3083).

A. canina L. var. *varians* ASCHERS. et GRAEBN. – **E:** Seitental des Panjshir-Flusses bei Basarak, bewachsener Uferstreifen an einem Nebenfluss des Porande-Flusses, ca. 2800 m (G. 444). – **C:** Bamian: Obere und mittlere Seen von Band-i Amir, Zentraler Gebirgsstock (N. 1951/457). – **NE: Nuristan:** Auf dem Wege zwischen Aschpi-Pass, ca. 3500 m, und dem Orte Kuschtos, ca. 2500 m (N. 1951/714). Zwischen Kotal-e Agok (Agok-Pass) und Alm bis Ort Waigel (N. 1951/879, N. 1951/882).

A. gigantea ROTH. – **SE:** Kandahar: Kandahar (V. K-223). – **E:** Ghazni: In monte ad occidentem jugi Sardalu inter Qarabagh et Sang-i Masha, ca. 2600 m, substr. gyps. (RECH. 17358). Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17935). Kabul: Qala-e Wazir, inter Sar-i Chashma (Tschesch-me) et jugum Unai, ca. 2900 m (RECH. 18092). – **C:** Ghorat: Qala Shahrak (Sharak), ca. 2000 m (RECH. 19138). Bamian: Band-e Amir, feuchter Moostuff (V. 2279), in ca. 2800 m (RECH. 18306, 18320). Wiesenflächen am Ufer von Band-e Amir, ca. 2900 m (G. 437). Band-e Amir, ca. 2900 m (K. 2840). Sumpfwiese im Sard darra in der Koh-i Baba Kette, ca. 3350 m (G. 438). Panjao, in der Koh-i Baba Kette, ca. 2700 m (K. 2716). Lal-i Zarjangel, ca. 2500 m (K. 3063). Shibar Pass, nordwestlich von Kabul (V. 2799). – **NE: Panjshir:** Im Porande-Tal, Seitental des Panjshir-Tales, westlich von Daolana, ca. 2350 m (G. 435). **Nuristan:** Kulam (Munui) im Kulam-Tal, ca. 2150 m, nasse Wiesen (KN. 1062-a, SCH. 105). Oberes Paschki-Tal bei Wama, Eichenwaldrand, ca. 1400 m (KN. 1285). Im Parun-Tal bei Paschki, Auewiesen, ca. 2200 m (KN. 1360). Paschki, ca. 2300 m (E. 1331). – **Pakistan:** Kalach-Gebiet: Im Brumboret-Tal unterhalb von Darasguru, 1500–1750 m (KN. 2081). Beorai Gol, ca. 6000 ft., at edge of irrigation channel (ST. 3269). Mastuj-Baroghil Track, ca. 8000 ft., at edge of fields (ST. 2936). Golen Gol, steep moist bank (B. L. 16). Shandur, ca. 12000 ft., at edge of lake (B. L. 87). **Swat:** Kalam, ca. 2200 m, 35°30'N, 72°30'E (RECH. 19409).

A. hissarica ROSHEV., Not. Syst. Herb. Hort Petrop. 4: 93 (1923). (Syn. *A. Stewartii* BOR, Kew Bull. 1956: 255 (1956), syn. nov.). – **C:** Bamian: Band-i Amir, Kalktuffe (V. 2266). – **Pakistan:** Kulam (Kalam), ca. 2500 m (STEWART 24733).

A specimen of this species, named by ROSHEVITZ himself, has been seen and matches the type of *A. Stewartii* BOR: STEWART 24733.

A. Ruprechtii (NEVSKI) NEVSKI – **C:** Bamian: In latere austro-orientali jugi Hadjigak, in montibus Koh-i Baba, ca. 3000 m (RECH. 18526).

A. stolonifera L. – **SE:** Kandahar: Kandahar (V. K-223). – **C:** Hauz-i Mahiha, WSW of Kabul, ca. 2500 m (K. 3062). Band-i Amir, Seeufer, Zentraler Gebirgsstock (N. 1951/440). – **E:** Kabul: Oberhalb Beg tut, im Paghman-Gebirge, westlich von Kabul, ca. 2900 m (G. 436). Zwischen Tschardeh und dem Logar-Tal, südlich von Kabul,

ca. 1880 m (G. 433). Dehmasang, ca. 1770 m, Sumpfwiese (G. 432). – **NE: Panjshir:** Felswand bei Schingar, Seitental des Panjshir-Tales bei Basarak, ca. 2200 m (G. 434). – **Pakistan: Chitral:** Bang Gol, W of Mastuj, ca. 8000 ft. (St. 3066).

A. subaristata AITCH. et HEMSL. – **NE: Nuristan:** Gusalak, ca. 1000 m (E. 1190).

A. tenuis SIBTH. – **NE: Panjshir:** Felswand bei Schingar, Seitental des Panjshir-Tales bei Basarak, ca. 2200 m (G. 439).

***Rhizocephalus* BOISS.**

Rh. orientalis BOISS. – **SW:** Herat, ca. 1000 m (K. 4262).

***Alopecurus* L.**

A. aequalis SOBOL. – **NE: Nuristan:** Minjan Kalha, ca. 2600 m (E. 2101). – **Pakistan: Chitral:** Shandur Pass, SE of Mastuj, ca. 12000 ft., on mud at shallow verge of lake (St. 3093).

A. apiatus OVCZ. – **NE: Panjshir:** Panjshir valley, W. side of Anjuman pass, ca. 4100 m (HDG. & WDB. 5448). – **C: Bamian:** Ad lacum Band-i Zolfikar, prope Band-i Amir, ca. 2900 m (RECH. 18447).

A. arundinaceus POIR. in LAM. – **NW:** Sauzak pass, ENE of Herat, ca. 2000 m (K. 2201). N of Sauzak pass, ca. 1400 m (K. 3954). – **SE: Kandahar:** Südlich von Kandahar, ca. 1000 m, Sumpfwiese (G. 389). Kalat-i Ghilzai, zwischen Ghazni und Kandahar, ca. 1000 m (KN. 188). – **E: Ghazni:** Okak, ab altoplanitie Dasht-e Nawar (Naour) boreo-orientem versus, ca. 3000 m (RECH. 17681, 17727). Dahan-e Barikak, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17976). Kabul: Darul-aman Ebene, östlich von Kabul, ca. 1700 m, Bewässerungsgraben (KN. 462, SCH. 44). Dehmasang, ca. 1770 m, Sumpfwiese (G. 391). Zwischen der Strasse Dehmasang nach Neu-Delhi und Gusargah, ca. 1770 m, an Entwässerungsgräben der Salzwiesen (G. 390). In einem Garten bei Kabul, ca. 1760 m, an einem Bewässerungsgraben (G. 392). – **C: Shibar Pass** (V. 2805). Inter pagum Bulola et jugum Shibar, 2600–2800 m (RECH. 16795). Unai Pass, zwischen Kabul und Bamian, ca. 3120 m, quellige Stellen (G. 394). Farakulum, W of Unai Pass, ca. 3000 m (K. 2549). In latere austro-orientali jugi Hadjigak montium Koh-i Baba, ca. 3000 m, ad rivulum (RECH. 18528). – **Pakistan: Chitral:** Luthko Bogosht, between 35°55'N, 71°18'E, and 36°06'N, 71°48'E, ca. 8000 ft., at edge of fields (B. L. 773). Oihor Gol, 36°04'N, 71°48'E, ca. 10000 ft., cornfields (B. L. 854). Baroghil Pass, ca. 12500 ft., on open slopes (St. 2983). Chitral Gol, W of Chitral village, ca. 8000 ft., in tufts (St. 2685).

A. arundinaceus POIR. in LAM. var. ***pashkiensis*** MELDERIS, var. nov.

A typo statura humiliore (10–25 cm alta), rhizomatibus brevirepentibus, caespites densos formantibus, ligulis brevioribus (0,5–1 mm longis), foliorum laminis brevioribus (1,5 cm longis) angustioribusque (1,5–2,5 mm latis), paniculis densis, brevioribus (1–2 cm longis), basi rotundatis vel cuneatis, glumis brevioribus (ad 3,5 mm longis), antheris minoribus (2–2,5 mm longis), bene differt.

NE: Nuristan: Pashki, ca. 2300 m, 9.6.1948 (EDELBERG 916, Holotypus, C).

A. glacialis C. KOCH – **NE: Nuristan:** Shtive, ca. 2900 m (E. 1037).

A. himalaicus Hook. f. – **NE: Nuristan:** Minjan, above Weran, ca. 3800 m (E. 1276). West-Seite des Mrami-Passes in Richtung Schtiwe, ca. 3000 m (KN. 1407-b). Badakhshan: Koul-Choghnan, entre Sangaou et Yeljah, Pam Darreh (L. 1960/901-b). – **Pakistan: Chitral:** Oihor Gol, 36°04'N, 71°48'E, 11000 ft., near or in running water (B. L. 824). Phargam An Gol, Laspur, ca. 14000 ft., 36°05'N, 72°16'E, dry steep slope (B. L. 71). Agram, Arkari Gol, W of Tirich Mir, ca. 10500 ft., at edge of stream (St. 2639). Shera Shing Pass, N of Drosh, ca. 14000 ft., on rocky slopes (St. 3210). Zwischen Dorah Pass und Baur, 4000–4300 m (KN. 1527-a).

A. mucronatus HACK. – **C:** Unai Pass (N. 1951/503). Koh-i Baba, ca. 3300 m (K. 3052). Hesaredschad, Baraki Nawor, Zentraler Gebirgsstock (N. 1949/908).

A. myosuroides HUDS. – **E:** Sarobi, (V. 2573). Kalat Saradj, östlich von Kabul, Ackerrand (V. 1938). – **NE: Nuristan:** Gusalak, ca. 1000 m (E. 237, 1548). – **Pakistan: Peshawar:** Agricult. Res. Farm, ca. 350 m (KN. 2172).

A. pratensis L. – **NE: Nuristan:** Parun-Tal Bei Pashki, Auewiesen in einer Mulde, ca. 2000 m (KN. 1358). Westseite des Semenek-Passes, unterste Steilstufe, flache, steinige Matten, ca. 3400 m (KN. 1507).

A. vaginatus (WILLD.) PALL. – **NE: Nuristan:** Pashki, ca. 2700 m (E. 991). East-Nuristan (E. 1071, 1093).

***Calamagrostis* ADANS.**

C. dubia BGE. – **SE:** Pirzada, near Kandahar, ca. 900 m (K. 2096).

C. Epigeios (L.) ROTH – **C:** Bamian: Am Ufer der Seen von Band-i Amir, ca. 2900 m (G. 461). Band-i Amir, ca. 3200 m, feuchter Kalksand (V. 2292).

C. gigantea ROSHEV. – **E:** Ghazni: Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17934).

C. glauca (M. B.) TRIN. – **C:** Bamian: Lal-i Zarjangel, ca. 2500 m (K. 2772).

C. pseudophragmites (HALL. f.) KOEL. – **NW:** Ardewan, ca. 1300 m (K. 2256). – **SW:** Dilaran, ESE of Farah, ca. 1100 m (K. 3065). – **E:** Kabul: Paghman, W of Kabul, ca. 2100 m (K. 2297, 2299). Sarobi, östlich von Kabul, Bachufer (V. 1224). In planitie ad orientem urbis Kabul secus viam versus Sarobi ducentem, ca. 1700 m (RECH. 16901). Tang-i Gharu, im Tal des Kabul-Flusses, 1600–1700 m (KN. 550). Kabul gegen Guzar Gah (N. 1950/155). Dehmasang bei Kabul, ca. 1770 m, Sumpfwiesen (G. 459). In einem Garten in Kabul, an Bewässerungsgräben, ca. 1800 m (G. 480, V. 728). – **C:** Farakulum, ca. 2700 m (K. 3064). Bamian: Sumpfwiese im Kamard-Tal, am rechten Ufer des Surch-Flusses, westlich von Doab, ca. 1620 m (G. 457). Doab, Flussufer (V. 1774, 1776). Inter Bamian et Band-i Amir, 2800–3000 m (RECH. 18178). Near Nayek, on road from Band-e Amir to Panjao, ca. 2600 m, on gravelly streamside (HDG. & WDB. 4822). Ghorat: In faucibus calcareis infra Parjuman (Partcheman), ca. 1850 m (RECH. 19019). – **NE:** Panjshir: Schutt- und Geröllhalde am Ufer des Porande-Flusses, Seitental des Panjshir-Flusses bei Basarak, ca. 2050 m (G. 458). **Nuristan:** Vama, ca. 1300 m (E. 1224). Weran, Nau, ca. 3000 m (E. 1472). Minjan Kachari, ca. 2300 m (E. 2085). Minjan Ptili, ca. 2700 m (E. 2098). Gadwol im oberen

Rangel-Tal, ca. 1970 m (KN. 1127). Oberhalb Kulam nach dem Pirdum Pass, 2200–2900 m, im Schutt des Bachufers (KN. 1076). Paschki, im Parun-Tal, ca. 2280 m, Aewiesen (KN. 1361). Mrami- (Papruk-) Pass, 2300–3000 m, Ostseite (KN. 1442). Vom Semenek Pass bis zum Paninger-Tal oberhalb Ahmedi Dewane, 2600–3400 m, Steinfluren (KN. 1503-a). – **Pakistan: Chitral:** Im Brumboret-Tal, unterhalb von Darasguru, 1500–1700 m, Kalash-Gebiet (KN. 2080). Yarkhun-Tal bei Mastuj, 2040–2280 m, *Hippophaë-Rosa*-Hecken und nasse Wiesen (KN. 2043). Bang Gol, N of Mastuj, ca. 9000 ft., on dry stony slopes (ST. 3067). Beorai Gol, S of Drosh, ca. 6000 ft., at edge of irrigation channel (ST. 3270). Golen Gol, ca. 6000 ft., 36°01'N, 72°10'E, stream bed (B. L. 5).

Muhlenbergia SCHREB.

M. Huegelii TRIN. – **NE: Nuristan:** Unteres Baschgal-Tal bei Kamdsch, 1800–1900 m, nasse Ruderalhänge (KN. 1454). Unteres Papruk-Tal, zwischen Papruk und der Mündung in den Baschgal-Fluss, 1500–2300 m (KN. 1428-b).

Phleum L.

Ph. alpinum L. – **C:** Bamian: Koh-i Baba, ca. 3300 m (K. 2647). – **NE:** Panjshir: valley, W. side of Anjuman Pass, ca. 3700 m, on wet slopes (HÖG. & WDB. 5494). **Nuristan:** Westseite des Semenek-Passes, unterste Steilstufe, flache, steinige Matten, ca. 3400 m (KN. 1510). Auf dem Wege zwischen Aschpi-Pass und dem Ort Kuschtos, 2500–3500 m (N. 1951/719). Entrè Sangaou et Yelgah Pam Darreh (L. 901-a). – **C:** Bamian: Koh-i Baba, in latere austro-orientali jugi Hadjigak, ca. 3800 m (RECH. 18544).

Ph. Boissieri BORNH. – **NE: Nuristan:** Chetras (E. 856). Gusalak, ca. 1000 m (E. 54, 1583, 2089).

Ph. himalaicum MEZ – **E:** Kabul: Berghang bei Sarobi, östlich von Kabul, ca. 1500 m (G. 397, V. 1894-b). Tang-i Gharu, im Tal des Kabul-Flusses, 1600–1700 m (KN. 543). – **NE: Nuristan:** Unteres Petsch-Tal zwischen Gusalak und der Mündung des Kurder-Flusses, ca. 1150 m (KN. 730). Unterhalb Wama, im oberen Petsch-Tal, ca. 1380 m (KN. 757). Zedernwald bei Kamdesch, ca. 2100 m (G. 388).

Ph. paniculatum HUDS. – **N:** Danaghosi, swamps, ca. 2400 ft. (M.). – **Pakistan: Chitral:** Arandu, SW of Drosh, ca. 4000 ft., at edge of fields (ST. 2292).

Polygonum DESF.

P. fugax NEES ex STEUD. – **SE:** Kandahar: Pirzada, near Kandahar, ca. 980 m (K. 2041). – **E:** Kabul: Zwischen Tang-i Saidan und Lallandar, Schotterbank am Ufer des Kabul-Flusses, ca. 1810 m (G. 456). Sumpfiger Graben östlich der Strasse Dehmasang nach Dar-ul-fanun, ca. 1780 m (G. 455). In faucibus Tang-e Gharru, inter Kabul et Sarobi, 1400–1500 m, substr. Gneiss (RECH. 16929, 16931). Kotsche Mullah, bei Kabul (N. 1950/156, 798). Munar Schakrie, bei Kabul (N. 1951/441-b). Guzar Gah, bei Kabul (N. 1950/799, 826). Im Garten der Nedschat-Oberrealschule in Kabul, ca. 1770 m (G. 454). – **C:** Kamard-Tal, am rechten Ufer des Surch-Flusses,

westlich von Doab, ca. 1620 m (G. 453). Zwischen Bamian und Band-i Amir (V. 2783-a). In faucibus inter Mollah Jakub et Dahan-e Siah Darreh, 4 km E Panjao, ca. 2800 m, Gneiss (RECH. 18726). – **NE:** Kataghan: Kunduz, in paludosis fluvii Kunduz ca. 400 m (RECH. 16023, 16048). **Nuristan:** Zwischen Parigel und Waigel, 1700–1800 m (KN. 1193). Am Ufer eines Bächleins bei Eschpuschta, ca. 1500 m (G. 452). – **Pakistan: Chitral:** Beorai Gol, S of Drosh, ca. 2000 ft., at edge of irrigation channel (St. 3268). Chitral village, ca. 5000 ft., at edge of fields (St. 3167).

P. maritimus WILLD. – **E:** Ghazni: In monte ad occidentem jugi Sardalu inter Qarabagh et Sang-i Masha, ca. 2600 m, substr. gyps. (RECH. 17356). Kabul: Botkhak, 20 km östlich von Kabul (N. 1951/354). – **C:** Hauz-i Mahiha, WSW of Kabul, ca. 2600 m (K. 2415). Bamian: Zwischen Bamian und Band-i Amir, am Rande der Thermen (V. 2783-b). Band-i Amir, ad lacum Band-i Panir, ca. 2800 m (RECH. 18383). Band-i Amir, Kalksinterterrasse zwischen zwei Seen, ca. 2900 m (G. 451).

P. monspeliensis (L.) DESF. – **N:** Danaghosi, ca. 2400 ft. (M.). – **SE:** Kajkai, NNW of Kandahar, ca. 1100 m (K. 3057). Girishk, westlich von Kandahar (L. 1958/311). Siason (L. 1958/300). – **E:** Kabul: Maslakh, am Ufer eines Tümpels (N. 1951/153). Guzar Gah, bei Kabul (N. 1951/159, 173). Kabul (N. 1950/814, 828). – **NE:** **Nuristan:** Gusalak, ca. 1000 m (E. 1579).

P. semiverticillatus (FORSSK.) HYLANDER (Syn. *Agrostis semiverticillata* (FORSSK.) CHRIST.). – **SE:** Kandahar: Kajkai, NNW of Kandahar, ca. 1000 m (K. 3058). Girishk, westlich von Kandahar (V. 1332). Kandahar, 1000–1200 m, feuchte Gräben (KN. 216, SCH. 73). – **E:** Ghazni: Inter jugum Kotal-e Ketschru et pagum Miradina, a Sang-i Masha boreo-occidentem versus, 2700–3200 m (RECH. 17581). Ghorband, südlich von Kabul, Tuff-Fels (V. 582-d). Khotsche Mullah bei Kabul, am Rande eines Tümpels, stark versalzen (N. 1951/181). Khotsche Mullah, an trockener Stelle (N. 1951/184-b). Zwischen Tschardeh und dem Logar-Tal, ca. 1840 m, Matte in einer Schlucht (G. 431). Zwischen Tang-i Saidan und Lallandar, ca. 1810 m (G. 430). Panjshir: In der Panjshir-Schlucht bei Gulbahar, nächst Charikar, ca. 1700 m (G. 429). – **C:** Hauz-i Mahiha, ca. 2500 m (K. 2487). Hauz-i Mahiha, ca. 2800 m, in rivulo lente fluente (RECH. 18550). Im Kamard-Tal, am rechten Ufer des Surch, westlich von Doab, ca. 1620 m (G. 423). – **NE:** Kataghan: In valle fluvii Kunduz inter Doshi et Doab, 800–1300 m (RECH. 16589). In paludosis fluvii Kunduz, ca. 400 m (RECH. 16048). **Nuristan:** Gusalak, ca. 1000 m (E. 1584). – **Pakistan: Chitral:** Shoghot, N of Chitral, ca. 6000 ft., on marshy ground (St. 2746).

Pooideae-Aristideae

Aristida L.

A. adscensionis L. – **E:** Unterhalb des Dorfes Nurgel im unteren Kunar-Tal, zwischen Tshagan-Serai und Jallalabad, 600–800 m, Gneiss-Schiefer (KN. 666). Bei Wama im oberen Petsch-Tal, ca. 1380 m, Eichenwald (KN. 1284-a). – **NE:** **Nuristan:** Gusalak, im Kurder-Tal, Seitental des Petsch-Tales (N. 1951/836). Darim-Tal ab Ort Darim aufwärts, 1900–2400 m (N. 1951/1006). – **Pakistan: Dir.:** Distr.: Panj-

kora-Tal bei Warai, ca. 1000 m (KN. 2106, 2112). Warai, ca. 1200 m (KN. 2117-a). **Quetta:** Near Quetta, ca. 1100 m (K. 3059).

A. ciliata DESF. in SCHRAD. – **E:** Jallalabad (V. 2050). Zwischen Nimla und Jallalabad, ca. 600 m (KN. 630). Nimla, an der Strasse Kabul nach Jallalabad, auf Felsschotter (SCH. 75).

A. cyanantha NEES ex STEUD. – **E:** Kabul: In glareosis supra Sarobi, ca. 1000 m, ab urbe Kabul orientem versus (RECH. 19347). Im Nedschrab-Tal oberhalb Schechan, zwischen Gulbahar und Sarobi, ca. 2600 m (G. 397). Gulbahar bei Charikar (V. 1020). Oestlich von Istalif, zwischen Kabul und Charikar, Strassenböschung, ca. 1900 m (G. 396). Südhang des Aliabader Berges bei Kabul, ca. 1860 m, in einer Schlucht (G. 395). – **C:** Ghorband, WNW of Kabul (E. 2910). – **NE: Nuristan:** Asmar Barikot, ca. 900 m (E. 1611, 1614). Unteres Petsch-Tal bei Sinsi, oberhalb Retschalam, ca. 960 m (KN. 698). Aschkun-Gebiet: Im Kotagel-Tal bei Kulatan, ca. 1500 m (KN. 1223-a). Im Tal und um den Ort Kurder, Seitental des Petsch-Tales, 1600–1700 m (N. 1951/757). – **Pakistan: Peshawar:** In collibus supra Dargai, ca. 400 m (RECH. 19627). Chitral: Shishi Gol, NE of Drosh, ca. 6000 ft., at edge of fields (St. 3149).

A. Griffithii HENR. – **E:** Kabul: Kabul, ca. 1700 m (K. 4006).

A. pennata TRIN. – **N:** Kataghan: Kunduz, zwischen Hazrat-e Eman und Kunduz (N. 1949/33). Sanddünen bei Karum Kul, nächst Ankhoi (N. 1950/208, 210). Zwischen Ankhoi und Schebergan, auf Sanddünen (N. 1950/211). – **NW:** Maymana: In arenosis mobilibus ad margines deserti Kara-Kum ca. 15–20 km ab Andkhui austro-occidentem versus, ca. 300 m (RECH. 16129). Halfway between Maymana and Andkhui, ca. 400 m, on sand dunes (HDG. & WDB. 3837).

A. plumosa L. – **SE:** Kandahar: Pirzada, near Kandahar, ca. 900 m (K. 2099). – **E:** Inter Jallalabad et Torkhan, in deserto arenoso, ca. 700 m (RECH. 19357). Jallalabad, Gneisshügel (V. 2049). Zwischen Sarobi und Darunta, östlich von Kabul, Steppe (V.). Sarobi (V. 2575). Tang-e Gharu, near Kabul, ca. 1600 m (HDG. & WDB. 5104). – **NE:** Kataghan: Zwischen Kunduz und Hazrat-e Emen (N. 1949/34).

A. pogonoptila (JAUB. et SPACH) BOISS. – **E:** Jallalabad, östlich von Kabul, Gneiss-Hügel (V. 2049). Zwischen Sarobi und Darunta, in der Steppe (V. 1966).

A. Raddiana SAVI – **SE:** Kandahar: In der Schlucht bei Germaub, nördlich von Ghirishk, auf Konglomerat (KN. 413).

Pooideae-Arundineae

***Arundo* L.**

A. Donax L. – **SE:** Kandahar: Kajkai, N of Kandahar, ca. 1000 m (K. 2171). – **E:** Kabul: Schlucht Tang-e Gharu, östlich von Kabul, Schutthalde am Ufer des Kabul-Flusses, ca. 1650 m (G. 497). – **C:** Zwischen Doab und Schibar-Pass, am Fluss (N. 1950/224).

***Phragmites* TRIN.**

Ph. communis TRIN. – **N:** Mazar-i Sharif: Südlich von Tashkurghan, am Fluss und als Unkraut in einem Baumwollfeld (N. 1950/214, 225). – **SW:** Herat: Cheshma

Obeh, ca. 1800 m, substr. granit. (RECH. 19244). Seistan, ca. 550 m (K. 3463). – **E:** Kabul: In faucibus Tang-e Gharru, inter Kabul et Sarobi, 1100–1300 m, substr. conglom. (RECH. 16958). In der Salzsteppe zwischen Kabul und Tang-e Gharru, ca. 1770 m (G. 492). Zwischen Kartetschar und Aliabad, auf einer Weidewiese, ca. 1780 m (G. 493). Am Ufer des Logar-Flusses bei Tscharasiah, südlich von Kabul, ca. 1780 m (G. 494). Pandscheschah bei Kabul, Schilfsumpf (N. 1950/37). – **C:** Am Ufer des Schumbol-Flusses bei Bulola, ca. 2280 m, Wiese (G. 495). Am Ufer des Bamian-Flusses bei Schar-e Schak, ca. 2320 m (G. 496). – **NE:** Panjshir: In der Panjshir-Schlucht bei Gulbahar, nächst Charikar, ca. 1700 m (G. 491). Badakhshan: Faizabad, bord de rivière (L.). – **Pakistan: Chitral:** Im Yarkhun-Tal bei Mastuj, 2040–2280 m, nasse Wiesen, *Hippophaë-Rosa*-Hecken (KN. 2044, 2045). Brumboret, SW of Chitral, ca. 9000 ft., damp meadow (ST. 3217).

***Avena* L.**

Pooideae-Aveneae

A. barbata POTT. ex LINK in SCHRAD. – **E:** Schlucht Tang-e Gharru, östlich von Kabul, 1600–1700 m, sehr steinig (SCH. 59-a).

A. fatua L. – **SE:** Kandahar: Tshil-sina (SCH. 20). – **E:** Sarobi (V. 2591). – **C:** Farakulum, ca. 2700 m (K. 2522). Doab, feuchter Acker (V. 2098). In der Panjshir-Schlucht bei Gulbahar, nächst Charikar, ca. 1700 m, felsiger Hang (G. 463-a). – **NE:** Badakhshan: Ishkamish, östlich von Jurm, Löss-Steppe (V. 2655). Jurm, ca. 1500 m (E. 2088). Qazi Deh (L. 1106). – **Pakistan: Chitral:** Yabur (SCH. 169). Tirich-Mir-Gebiet: Im Ojhor-Tal bei Tsusum, ca. 2800 m (KN. F-134).

A. fatua L. var. *glabrata* PETERM. – **E:** Ghazni: Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17949).

A. ludoviciana DUR. – **Pakistan: Chitral:** Arandu, SW of Drosh, ca. 4000 ft., a weed in fields of barley (ST. 2291).

A. Wiestii STEUD. – **NW:** Khwaja, NE of Herat, ca. 700 m (K. 3793). – **SE:** Kandahar: Nordlich von Ghirishk am Hilمند (KN. 409). Kajkai, NNW of Kandahar, ca. 1000 m (K. 3038). Tshil-sina bei Kandahar (SCH. 20). – **NE: Nuristan:** Gusalak, ca. 1000 m (E. 1545).

***Deschampsia* P. BEAUV.**

D. caespitosa (L.) P. BEAUV. – **Pakistan: Chitral:** Baroghil Pass, ca. 12500 ft., at edge of stream (ST. 2998).

D. koelerioides REGEL – **NE:** Minjan, above Weran, ca. 3600 m (E. 1264). – **Pakistan: Chitral:** Agram, Arkari Gol, W of Tirich Mir, ca. 10500 ft., at edge of stream (ST. 2642). Dorah Pass, Lutko valley, NW of Chitral, ca. 13500 ft., at edge of stream (ST. 3247).

***Hierochloe* R. BR.**

H. laxa R. BR. ex HOOK. – **NE: Nuristan:** Pashki to Atsni Pass, ca. 2800 m (E. 705).

H. odorata (L.) WAHLENB. – **NE: Nuristan:** Westseite des Donda-Passes (SCH. 141). Porande-Pass, zwischen Aschkun-Gebiet und Petsch-Tal, ca. 3280 m (KN. 1237).

***Koeleria* PERS.**

K. cristata (L.) PERS. (Syn. *K. gracilis* PERS.). – **E:** Ghazni: In faucibus Say Khoshkak (Nawar Kotal), inter Okak et Behzud (Diwal Kol), ca. 3150 m, in saxosis calcareis (RECH. 17847, 17848). Panjshir valley, westside of Anjuman-Pass, ca. 3700 m, on dry slopes (HDG. & WDB. 5490). – **C:** Bamian: Kotal-i Reg, ca. 3400 m (K. 3067). – **NE:** Kataghan: Passhöhe Rabatak, zwischen Haibak und Pul-i Khomri (N. 1950/222). **Nuristan:** Pashki, ca. 2300 m (E. 905). Shtive, ca. 2800 m (E. 1035). Westseite des Semenek-Passes, ca. 3400 m, flache, steinige Matten der untersten Steilstufe (KN. 1503). Pitwei-Tal, zwischen Pirdum-Pass und Kulam (Munui), 2200–2900 m, Grashang (KN. 1080). Mum-Pass, zwischen Parun- und Kantiwo-Fluss, Aufstieg von Gulnisha aus, 2500–2800 m (KN. 874-a). Dondo-Pass, Aschkun-Gebiet, 2500–3200 m, Matten (KN. 1251-a). Westseite des Semenek-Passes, ca. 3400 m, flache, steinige Matten der untersten Steilstufe (KN. 1508). – **Pakistan: Chitral:** Rosh Gol, NE of Tirich Mir, ca. 9000 ft., on stony ground (ST. 2809). Chumarkan Pass, E of Mastuj, ca. 12000 ft., on dry open slopes (ST. 2900). Rosh Gol, NE of Tirich-Mir, ca. 10000 ft., on stony ground (ST. 2805). Baroghil Pass, ca. 12500 ft., on open slopes (ST. 2985).

***Sphenopus* TRIN.**

S. divaricatus (GOUAN) REICHENB. – **SE:** Kandahar: Von Kandahar in Richtung Kalat-i Ghilzai, ca. 1100 m (KN. 224).

***Lophochloa* REICHENB.**

L. phleoides (VILL.) REICHENB. (Syn. *Festuca phleoides* VILL., *Koeleria phleoides* (VILL.) PERS.). – **N:** Mazar-i Sharif: Tacht-e Rustam prope Haibak, ca. 1200 m, in collibus calcareis (RECH. 16378). In faucibus fluvii Balkh supra Aq Kupruk, 700–800 m (RECH. 16305). – **SE:** Kandahar: Nördlich von Arghandab, zwischen Kandahar und Ghirishk, 900–1000 m, Steppe (KN. 315). Im Norden von Kandahar in der Steinsteppe, ca. 1000 m (KN. 373-b, 2218, 2219-b, SCH. 1). Tshil-sina bei Kandahar, ca. 1000 m (KN. 344). – **E:** Sarobi (V. 1894, 1894-a). Panjshir: Ufer des Panjshir-Flusses bei Gulbahar, nächst Charikar, ca. 1700 m (G. 498-b, N. 1950/827). **NE:** Kataghan: Inter Haibak et jugum Paigah-Kotal (RECH. 16419). **Nuristan:** Zwischen Asmar und Barikot, ca. 840 m (G. 498-a). Am Ufer eines Mühlbaches bei Barikot, ca. 850 m (G. 499). – **Pakistan: Chitral:** Drosh, in running water in ditch (B. L. 700).

L. pumila (DESF.) BOR (Syn. *Avena pumila* DESF., *Koeleria pumila* (DESF.) DOMIN). – **E:** Sarobi (V. 2474). Dakka, an der Strasse von Jallalabad nach Peshawar, ca. 600 m (KN. 2191).

***Trisetaria* FORSSK.**

T. Cavanillesii (TRIN.) MAIRE (Syn. *Trisetum Cavanillesii* TRIN.) – **SW:** Herat: Shin Dand, SSW of Herat, ca. 1200 m (K. 4260). – **SE:** Kandahar: Zwischen Kalat-i

Ghilzai und Kandahar, Steppe (KN. 209). – **E:** Kabul: Zwischen Kabul und Tang-i Gharu, sandige Hügel (G. 462). – **NE:** Nuristan: Gusalak, ca. 1000 m (E. 1534, 2090).

Trachynia LINK

Pooideae-Brachypodieae

T. distachya (L.) LINK (Syn. *Brachypodium distachyon* (L.) P. BEAUV.). – **N:** Mazar-i Sharif: In faucibus fluvii Balkh supra Aq Kupruk, 700–800 m (RECH. 16304). – **SE:** Kandahar: In einer Schlucht bei Germaub, am Hilmennd nördlich von Ghirishk, Konglomeratboden (KN. 409-b). Kajkai, NNW of Kandahar (K. 3040). Goldgrube im Nordwesten von Kandahar in der Steinsteppe (SCH. 3). Goldgrube im Norden von Kandahar in der Steinsteppe, ca. 1000 m (KN. 369-a). – **E:** Kabul: Schutthalde südöstlich von Sarobi, ca. 1100 m (G. 684, 685). Sarobi, *Cymbopogon*-Steppe (G. 2563-a).

Pooideae-Bromeae

Boissiera HOCHST. ex STEUD.

B. squarrosa (SOLAND.) NEVSKI (Syn. *B. bromoides* HOCHST. ex STEUD., *B. pumilio* (TRIN.) HACK.). – **N:** Mazar-i Sharif: Takht-e Rustam prope Haibak, ca. 1200 m, in collibus calcareis (RECH. 16387). – **SW:** Jija, Shin Dand to Farah, ca. 1100 m (K. 4257). – **SE:** Kandahar: In einer Schlucht bei Germaub, am Hilmennd nördlich von Ghirishk, Konglomerat (KN. 409-d). Kajkai, NNW of Kandahar, ca. 1000 m (K. 3042). Baba Wali, Argandab-Tal, nordwestlich von Kandahar, auf einem Friedhof (KN. 352, SCH. 8, 10, 11). In der Steinsteppe nordwestlich von Kandahar (SCH. 4). Nördlich von Kandahar, ca. 1070 m (G. 474). Tshil-sina bei Kandahar, ca. 1000 m (KN. 2234-b, 2235, 2244). Kalat-i Ghilzai, *Artemisia*-Steppe (KN. 167-a). Orozgan (L. 937). – **E:** Ghazni: In monte ad occidentem jugi Sardalu, inter Qarabagh et Sang-i Masha, ca. 2800 m, substr. gyps. (RECH. 17450). Dasht-e Tup, a Maidan meridiem versus, inter Ghazni et Kabul, ca. 2400 m (RECH. 17246). Alischang-Tal bei Jallalabad (ROSENSTIEL, KN. F-60). Zwischen Kabul und Tang-e Gharu, ca. 1770 m (G. 475). Darulfanum, südwestlich von Kabul, Steppe (V. 2074). Gipfelfelsen des Koh-i Tschelsotun, ca. 2210 m (G. 384). Zwischen Sher Darwasa und Koh-i Tschelsotun, ca. 2020 m (G. 482). Sher Darwasa bei Kabul, 1800–2000 m (G. 477, 478, 480-b, 481, HDG. & WDB. 2884). Gipfel im Korogh-Massiv, ca. 2800 m (G. 487). Aliabad bei Kabul (N. 1950/820, 833, 1951/147, V. 1556). Bagrami (Bagram) near Charikar, ca. 5000 ft. (CN. 29, 32). Berg NNW vom Stausee bei Chord Kabul, ca. 2280 m (G. 484). In einem Garten in Kabul, ca. 1780 m, ruderal (G. 476). – **C:** Vorberge der Koh-i Baba Kette bei Bamian, 2600–3000 m (G. 486, 488). Kalkberg nordöstlich von Bamian, ca. 3000 m (G. 489). Im Schutt der Ruinen von Gholgola bei Bamian, ca. 2550 m (G. 485). Band-e Amir, westlich von Bamian, ca. 2900 m (HDG. & WDB. 4794). – **NE:** Kataghan: In jugo Paigah Kotal inter Haibak et Pul-i Khomri (RECH. 16474). Badakhshan: Faizabad, 110–1900 m (E. 1404). Tang-e Saidan, Steppe (L. 792). **Pakistan:** In valle Kurram (AITCH. 568). **Quetta:** Near Khojak Pass, ca. 1900 m (K. 3041).

Bromus L.

B. Danthoniae TRIN. – **N:** Mazar-i Sharif: In der Steppe zwischen Aqtscha und Mazar-i Sharif (N. 1950/220). Kataghan: Ankhoi, bei Kunduz (N. 1950/219). – **SW:** Herat, ca. 1100 m (K. 4254-b). Jija, 800–1200 m (K. 4253, 4254, 4255). – **SE:** Kandahar: In einer Schlucht bei Germaub, am Hilmend nördlich von Ghirishk, Konglomerat (KN. 409-c). Nördlich von Arghandab, zwischen Ghirishk und Kandahar, 900–1000 m (KN. 316). Bei der Goldgrube nordwestlich von Kandahar, ca. 1000 m (KN. 355-c, 2255-c). Nördlich von Kandahar, ca. 1070 m (G. 642). Tshil-sina bei Kandahar, ca. 1000 m (KN. 2234-a, 2244). An Salzstellen bei Kandahar in Richtung Kalat-i Ghilzai, ca. 1100 m (KN. 222-b). Orozgan, L. 936). – **E:** Ghazni: In monte ad occidentem jugi Sardalu inter Qarabagh et Sang-i Masha, ca. 2600 m, substr. gyps. (RECH. 17418). Sang-i Masha, ca. 2500 m (RECH. 17477). Ca. 5 km a Arghandab meridiem versus, inter Ghazni et Kabul, ca. 1900 m, ad versuras et in agris incultis (RECH.). Unter dem Gipfel des Sebroderakan bei Scherwaki im Logar-Tal, ca. 2500 m (G. 655). Zwischen Sarobi und Darunta (V. 1917). Berghang bei Sarobi, ca. 1500 m, Steppe (G. 643, V. 2559). Surkhab-Damm, Kabul-Tal, *Artemisia*-Steppe (V. 122). Koh-e Tschelotun, ca. 2200 m (G. 654). Kuh-i Nanagak, S of Gulbagh, ca. 1830 m (HDG. & WDB. 3198). Unter dem Gipfel eines Berges zwischen Koh-e Asmai und dem Aliabader Berg, ca. 1920 m (G. 647). Aliabader Berg, ca. 2070 m (G. 651). Aliabad, bei Kabul (N. 1950/832, 1951/133-a). Tobfels am Scher Darwasah, ca. 1840 m (G. 646). Scher Darwasah, bei Kabul, ca. 2000 m (G. 649). In valle Paghman prope Kabul, ca. 2300 m, substr. Gneiss (RECH. 17126). Beim Königsschloss von Paghman, ca. 2160 m (G. 652, 653). Babur bei Kabul, Abhänge (V. 2024). In einem Garten in Kabul, ruderal (G. 645, N. 1951/133-b). – **C:** Bamian: Hauz-i Mahiha, WSW of Kabul, ca. 2600 m (K. 2416). Unterhalb des Unai-Passes, ca. 2900 m, steiler Schutthang (G. 658). Unai-Pass ca. 3100 m (G. 660, 661, N. 1951/536, 1951/562). Kalkberg ENE von Bamian, ca. 2800 m (G. 656). Vorberg der Koh-i Baba Kette bei Bamian, ca. 2900 m (G. 657). Auf den Hügeln und an den Ufern der Seen von Band-e Amir (N. 1951/471, 479). Band-e Amir, 2800–2900 m, in declivibus saxosis aridis (RECH. 18234). Band-i Amir, ad lacum Band-i Panir, ca. 2800 m (RECH. 18335). – **NE:** Badakhshan: Faizabad, 1100–1900 m (E. 2109). Schutthalde im Salang-Tal bei Taghma, ca. 1760 m (G. 644). **Pakistan:** Kurram Valley (AITCH. 568). **Quetta:** Near Quetta, ca. 1600 m (K. 3043).

B. fasciculatus PRESL – **SW:** Jija, Shin Dand to Farah, ca. 900 m (K. 4256).

B. gracillimus BGE. – **E:** Ghazni: Okak, ab altoplanitie Dasht-e Nawar boreo-orientem versus, ca. 3000 m (RECH. 17680). – **C:** Unai-Pass, 2800–3100 m, an Berghängen und an quelligen Stellen (G. 612, 613, V. 2142). Inter Bulola et jugum Shibar, 2600–2800 m (RECH. 16783). Ibidem, ca. 2200 m (HDG. & WDB. 4184). Band-i Amir, ad lacum Band-i Panir, ca. 2800 m (RECH. 18401). Kalkinterterrasse zwischen zwei Seen von Band-i Amir, ca. 2900 m (G. 611). – **NE:** Nuristan: Minjan, Miyan Deh, ca. 2550 m (E. 2105). – **Pakistan:** Chitral: Baroghil Pass, ca. 12500 ft., on open slopes (St. 2981).

B. intermedius Guss. – **E:** In collibus ad septentriones urbis Kabul, ca. 1800 m (RECH. 17057).

B. japonicus THUNB. – **SE:** Kandahar: In der Steinsteppe nordwestlich von Kandahar, im trockenen Geröll (SCH. 2-b). Bei Sakird südlich von Kandahar, ca. 980 m, Feldrand (G. 669). Bei Kandahar in der Richtung nach Kalat-i Ghilzai, ca. 1100 m (KN. 237-a). Kandahar, ca. 1000 m (KN. 2255-a, -b). – **E:** Unter der Kammhöhe eines Berges südöstlich von Sarobi, ca. 1430 m (G. 663, 675). Schutthalde auf einem Berg bei Sarobi, ca. 1100 m (G. 670). Sarobi, Steppe (V. 2518, 2563, 2564). Zwischen Sarobi und Lataband, Steppe (V. 1867). Kabul: Darulfanun, Weizenfeld (V. 1655). Tisin, an der Strasse von Kabul nach Jallalabad (KN. 2183). Upper part of Tang-i Gharru, very frequent beside the Kabul river, ca. 1700 m (HDG. & WDB. 2758-b). Foot of Sher Darwasah, near Kabul, ca. 1800 m, on stony slopes (HDG. & WDB. 2876). Berg NNW vom Stausee bei Chord Kabul, ca. 2280 m (G. 674-b). Scharenao bei Kabul, ruderal in einem Weizenfeld (N. 1951/167). In einem Garten in Kabul, ca. 1780 m, ruderal (G. 667). Panjshir: Panjshir-Tal (V. 254-a). Porande-Tal, Seitental des Panjshir-Tales bei Basarak, Wiese am rechten Porande-Ufer östlich von Daolana, ca. 2350 m (G. 668). – **C:** Im Kamard-Tal westlich von Doab, ca. 1640 m, Schutthalde am Fuss einer Felswand (G. 665). Doab (V. 1799-a). – **Nuristan:** Gusalak, ca. 1000 m (E. 1582). Nishei, ca. 1300 m (E. 827). Vama, ca. 1400 m (E. 488). Kulam (Munui), im Kulam-Tal, auf Wiesen (SCH. 98). Parigel-Tal, linkes Seitental des unteren Kulam-Tales beim Dorf Parigel, ca. 1800 m, trockener Hang (KN. F-75). Parun-Tal, zwischen Schtive und Paschki, 2300–2500 m, auf Felsen (KN. 1385-b). Oberes Petsch-Tal, Felshänge bei Wama, ca. 1400 m (KN. 777). An einem Mühlbach bei Barikot, ca. 850 m (G. 662). East-Nuristan (E. 1123). – **Pakistan:** **Chitral:** Madakhlasht, NE of Drosh, ca. 10000 ft., on stony ground (ST. 3141). Bashgalian, Kafirstan, SW of Chitral, ca. 9500 ft. (ST. 2700).

B. japonicus THUNB. var. *acutidens* MELDERIS, var. nov.

A typo spiculis velutinis, glumis 3–5-nerviis, lemmate longiore, 11–12 mm longo, lemmatis lobis acuminatis, differt. – Appropinquat ad *B. oxydontem* SCHRENK, sed spiculis velutinis, glumis brevioribus, inferioribus 5–7 mm longis, 1–3-nerviis, superioribus 8–10 mm longis, 3–5-nerviis, marginibus non distincte angulatis, diversa.

NE: **Nuristan:** Kantivo, ca. 2300 m (EDELBERG 731, Holotypus, C). Vama, ca. 1400 m (EDELBERG 508). Gusalak, ca. 1000 m (EDELBERG 1558).

B. japonicus THUNB. var. *velutinus* (NOCCA et BALBIS) ASCHERS. et GRAEBN. f. *humilis* GILLI – **E:** Im Kabul-Tal südöstlich von Sarobi, ca. 1050 m, Schutthalde (G. 673-a). Unter dem Gipfel eines Berges zwischen dem Scher Darwasah bei Kabul und dem Kuh-e Tschelotun, ca. 2020 m (G. 678). Unter dem Gipfel des Sebroderakan bei Scherwaki im Logar-Tal, südlich von Kabul, ca. 2500 m (G. 680). Gipfelregion eines Berges bei Paghman, westlich von Kabul, ca. 2870 m (G. 672). Panjshir: In der Panjshir-Schlucht bei Gulbahar, nächst Charikar, ca. 1700 m (G. 676).



Fig. 3. *Bromus Koeianus* MELDERIS (K. 2631, Holotypus, C).

***Bromus Koeianus* MELDERIS, sp. nov.** Fig. 3, 4.

Gramen perenne, 20–35 cm altum, dense caespitosum. Culmi graciles, 2–3-nodi, basi ascendentes vel geniculati, vaginis emarcedis brunneis integris tecti, teretes, striati, glabri, laeves. Folia viridia; vaginae inferiores glabrae vel brevissime setulosae, superiores glabrae laeves; ligulae 1–4 mm longae, hyalinae, laceratae; auriculae absentes; laminae 3–10 cm longae, 1–2 mm latae, planae, tenuiter nerviae, utrinque ± breviter pubescentes. Panicula 5–8 cm longa, erecta, laxa, effusa, pauci-spiculata, rhachidi scabriuscula, ramis 1,5–4 cm longis, suberectis, solitariis vel binis, scabriusculis, 1–2-spiculatis. Spiculae 1,2–1,8 cm longae, 3–4,5 mm latae, anguste lanceolatae, 5–7-florae, virides vel leviter purpureo-tinctae. Glumae persistentes, leviter carinatae, hyalino-marginatae, nervis glabris, inaequilongae, sensim acuminatae; gluma inferior 5,5 mm longa, linearis, 1–3-nervia, gluma superior 8–12 mm longa, anguste lanceolata,



Fig. 4. *Bromus Koeieanus* MELDERIS, a part of the panicle (K. 2631, Holotypus, C) 4.5/1.

3–5-nervia, mucronata, mucrone usque ad 1 mm longo. Lemma 8–12 mm longum, firmum, oblongo-lanceolatum, brevissime setulosum, 7-nerve, apice leviter bidentatum, breviaristatum, arista usque ad 4 mm longa, erecta. Palea lemmati subaequilonga, anguste lanceolata, bicarinata, carinis apicem versus breviciliatis. Rhachilla 2 mm longa, strigosa. Antherae 4,5–5 mm longae, luteae. – Affinis *B. tytholepidi* NEVSKI, a quo statura minore, culmis glabris, foliorum laminis angustioribus, paniculis effusis pauci-spiculatis, rhachidi scabriuscula, spiculis minoribus, lemmate longiore, differt. *B. frigido* BOISS. et HAUSSKN. similis, sed foliorum laminis utrinque vulgo breviter pubescentibus, glumis distincte nervatis, sensim acuminatis, lemmate brevissime setuloso, differt.

C: Bamian: Koh-i Baba, ca. 3600 m (K01E 2631, Holotypus, C). – **E:** Kabul: Oberes Paghman-Tal (NEUBAUER 1950/789).

B. lanceolatus ROTH – **E:** Kabul: In valle Paghman, ab urbe Kabul occidentem versus, 2300–2800 m, substr. Gneiss (RECH. 17171). – **NE:** Kataghan: In jugo Paigah Kotal, inter Haibak et Pul-i Khumri, ca. 1400 m (RECH. 16488). Mirza Abtili Pass, SE of Samangan, ca. 1380 m, roadside (HDG. & WDB. 4037-a). Surkhab-Damm, östlich von Kabul, *Artemisia*-Steppe (V. 122). – **NE:** Khanabad: Khanabad (M.). **Nuristan:** Kulam (Munui) im Kulam-Tal, trockene Wiesen (SCH. 96). Parigel-Tal, Seitental des unteren Kulam-Tales beim Dorf Parigel, ca. 1800 m (KN. W-53).

B. madritensis L. – **E:** In der Tang-e Gharu, Kabul-Schlucht bei Sarobi, ca. 1050 m (G. 637). Kabul, am Gipfel des Koh-e Tschelotun, ca. 2210 m, in Felsritzen (G. 640). Im Salang-Tal bei Taghma, ca. 1760 m, Schutthalde (G. 666). Tobfels am Scher Darwasah bei Kabul, ca. 1840 m (G. 677). Im Paghman-Tal, westlich von Kabul, ca. 2750 m, in Felsritzen (G. 679). Berg am linken Ufer des Paghman-Tales, ca. 2750 m (G. 671, 681). Berg NNW vom Stausee bei Chord Kabul, ca. 2280 m (G. 674-a). Panjshir: In der Panjshir-Schlucht bei Gulbahar, nächst Charikar, ca. 1700 m (G. 638). – **C:** Inter Bulola et jugum Shibar, ab urbe Kabul boreo-occidentem versus, 2600–2800 m (RECH. 16808).

B. madritensis L. var. *ciliatus* GUSS. – **SW:** Jija, Shin Dand to Farah, ca. 900 m (K. 4257).

B. oxyodon SCHRENK – **SE:** Kandahar: Von Kandahar in der Richtung nach Kalat-i Ghilzai, ca. 1100 m (KN. 236). – **E:** In der Schlucht des Kabul-Flusses bei Tang-e Gharu, 1600–1700 m (SCH. 59-b). Tisin, an der Strasse von Kabul nach Jallalabad, in einem Weizenfeld (KN. 592, SCH. 70). Panjshir: Ca. 2 km above Gulbahar, near Charikar, Panjshir valley, ca. 1700 m, stony slopes (HDG. & WDB. W-2980). **N:** Doshi, ca. 2750 ft. (M.). **Nuristan:** Pistalik, ca. 1300 m (K. 3866, 3957). Oberes Petsch-Tal, an Felshängen bei Wama, ca. 1400 m, lichter Eichenwald (KN. 776, SCH. 87). Kulam (Munui) im Kulam-Tal, auf Wiesen (SCH. 97). Oberes Ramgel-Tal bei Gadwol, ca. 1970 m, trockene Hänge (KN. F-114).

B. ramosus HUDS. – **Pakistan: Chitral:** Yarkhun, ca. 8500 ft. (B. L. 943).

B. scoparius L. – **SE:** Kandahar: Bei Kandahar in Richtung Kalat-i Ghilzai, ca. 1100 m (KN. 222-a). – **E:** Sarobi, Steppe (V. 1915). Kabul, Maslakh, Schlachthaus (N. 1951/141). – **NE:** Kataghan: Bala Hissar, prope Kunduz, in declivibus siccis, ca. 400 m, substr. Loess (RECH. 16070). Kunduz, in horto inculto (RECH. 16026). – **NW:** Maymana: 30 km W of Maymana, ca. 500 m, on dry slopes (HDG. & WDB. 3643-b).

B. sericeus DROBOV – **SW:** Herat, ca. 900 m (K. 3746). – **SE:** Kandahar: Baba Wali, bei Kandahar, auf einem Friedhof (SCH. 7). Tshil-sina, bei Kandahar, ca. 1000 m, steiniger Felshang (KN. 2236). Am Tschui bei Kalat-i Ghilzai (KN. 199). Kalat-i Ghilzai, *Artemisia*-Steppe (KN. 152). – **E:** Koh-i Asmai, nördlich von Kabul, ca. 1700 m (KN. 426). Sandige Hügel zwischen Tang-e Gharu und Kabul, ca. 1770 m (G. 619). SSW-Hang des Scher Darwasah bei Kabul, ca. 1790 m (G. 682). Tobfels am Scher Darwasah, ca. 1840 m (G. 624). Begram, near Charikar (CN. 30). – **C:** Farakulum, ca. 2700 m (K. 3045). Near Ghorband, ca. 3000 m (E. 2371).

B. stenostachys Boiss. – **NE: Nuristan:** Mrami- (Papruk-) Pass, Ostseite des Papruk, 3000–3400 m (KN. 1440). Westseite des Papruk-Passes, in Richtung Shtive, 3000–4200 m (KN. 1411). – **Pakistan: Chitral:** Zwischen Dorah-Pass und Gabur, 3300–4000 m (KN. 1523). Khot An, N of Mastuj, between Turikho and Mastuj River, ca. 10000 ft. (ST. 2862). Shah Jinali, Yarkhun River area, 10500 ft. (B. L. 1021). Tirich Gol, ca. 10500 ft. (B. L. 1071). Chumarkhan Pass, E of Mastuj, ca. 12000 ft., dry open slopes (ST. 2901).

B. tectorum L. – **NW:** Nördlich von Herat, *Artemisia*-Steppe, ca. 940 m (G. 641). Herat (AMSEL). – **SE: Kandahar:** In der Steinsteppe nordwestlich von Kandahar, trockenes Geröll (SCH. 4). Kalat-i Ghilzai, Steppe (L. 325). – **E: Ghazni:** Sang-i Masha, ca. 2500 m (RECH. 17469). In monte ad occidentem jugi Sardalu, inter Qarabagh et Sang-i Masha, ca. 2600 m (RECH. 17398). Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17953). Darulaman-Ebene, östlich von Kabul, ca. 1700 m, Bewässerungsfelder (KN. 453-a, SCH. 40). Sarobi (V. 2020, 2517). Schlucht des Kabul-Flusses bei Tang-i Gharu, 1600–1700 m (KN. 551). Kabul, Gipfel im Korogh-Massiv, ca. 2800 m (G. 632). Unter dem Gipfel eines Berges zwischen dem Scher Darwasah und dem Koh-e Tschelotun, ca. 2020 m (G. 630). Unter dem Grabmal Chodsche Safa am Scher Darwasah, 1820–1840 m, (G. 625, 626). Tobfels am Scher Darwasah, ca. 1840 m (G. 623, 624). Am Scher Darwasah bei Kabul, 1900–2000 m (G. 627, 629, N. 1951/68). In valle Paghman ab urbe Kabul occidentem versus, 2300–2800 m (RECH. 17099). Istalif, nördlich von Kabul, ca. 1840 m (G. 621). Berg NNW vom Stausee bei Chord Kabul, ca. 2280 m (G. 631). Südhang des Aliabader Berges bei Kabul, ca. 1860 m (G. 622). An einer Berglehne bei Aliabad, nächst Kabul, südexponiert (N. 1951/148). Berg westlich vom Koh-i Asmai, ca. 1920 m (G. 628). Beim Dorf Babur bei Kabul, ca. 1700 m (KN. 104). W of Kabul, ca. 1800 m, in *Medicago* field (HDG. & WDB. 3247). Ruderal in einem Garten bei Kabul, ca. 1780 m (G. 620, N. 130-a, 131). – **C:** Unai-Pass, westlich von Kabul (N. 1951/553, 563). In valle Ajar "Königstal" a Doab occidentem versus, 1400–1500 m (RECH. 16599). Im Kamard-Tal westlich von Doab, ca. 1630 m, auf Kalkschutt am Fuss einer Felswand (G. 616). Im Uferschutt des Salatin-Baches bei Pschang unweit Doab, ca. 1700 m (G. 617). In valle ca. 16 km a Doab meridiem versus, ca. 1600 m (RECH. 16697). In valle Dare Shikar (Darra-i Shikari), inter Doab et Bulola, 1600–2000 m (RECH. 16701). Inter pagum Bulola et jugum Shibar, 2600–2800 m (RECH. 16784). Kalkberg ENE Bamian, ca. 2800 m (G. 633). Gipfelregion eines Kalkberges bei Bamian, ca. 3140 m (G. 636). Vorberg der Koh-i Baba Kette bei Bamian, ca. 2900 m (G. 634). Band-i Amir: Ad lacum Band-i Pamir, prope Band-i Amir, ca. 2800 m (RECH. 18400). Kalksinterterrasse zwischen zwei Seen von Band-i Amir, ca. 2900 m (G. 635-b). Sandbank am Seeufer bei Band-i Amir (G. 635-a). In declivibus saxosis aridis prope Band-i Amir, 2800–2900 m (RECH. 18281). Ghorat: A Naourak austro-occidentem versus, ca. 2480 m (RECH. 18959). – **NE: Doshi,** ca. 2750 ft. (M.). **Nuristan:** Oberes Ramgel-Tal bei Gadwol, ca. 1970 m, trockene Hänge (KN. F-115). Aqtscha, Flusssau (N. 1950/212). Kouh Khvadjah Ghar, coteau (L. 1959/504). – **Pakistan: Chitral:** Arkari Gol, W of Tirich Mir, ca. 8500 ft., on stony ground (ST. 2602).

B. tectorum L. var. *hirsutus* REGEL – **NE: Nuristan:** Pashki, ca. 2300 m (E. 1178). – Minjan, Miyan Deh, ca. 2550 m (E. 1450). Minjan, Ptili, ca. 2700 m (E. 2096).

B. tomentosus TRIN. – **C:** Bamian: Band-i Amir, 2800–2900 m, in declivibus saxosis aridis (RECH. 18237). Band-i Amir, ca. 3200 m, Igelsteppe (V. 2751). – **E:** Panjshir: Panjshir valley, W. side of Ajuman Pass, ca. 3700 m, on dry stony slopes (HDG. & WDB. W-5499).

B. variegatus M. B. – **E:** Aufstieg vom Schakhdarre zum Hauz-e chaz, 2800–2900 m im Paghman-Gebirge, westlich von Kabul (G. 610).

Pooideae-Chlorideae

Cynodon RICH. in PERS.

C. Dactylon (L.) PERS. – **SE:** Kandahar: Pirzada, near Kandahar, ca. 900 m (K. 2001). Kandahar (V. 1347). – **E:** Schutthalde am Ufer des Kabul-Flusses bei Tang-e Gharru, östlich von Kabul, ca. 1650 m (G. 467). Damm zwischen Reisfeldern bei Gulbagh, ca. 1800 m (G. 469). Oestlich von Tscharasiah, ca. 1740 m (G. 470). Zwischen Kartetschar und Aliabad bei Kabul, ca. 1780 m (G. 468). Aliabad bei Kabul, Salzwiesen (V. 896). Wazirabad bei Kabul, trockener Beckenboden (N. 1950/43), Wardak, südwestlich von Kabul, Wiesen (V. 807). In den Bergen zwischen Tschardeh und dem Logar-Tal, ca. 1880 m (G. 471). Kabul, allgemein verbreitet (N. 1950/810). Panjshir: Gulbahar bei Charikar (V. 205, 258-a). Kataghan: Baghlan, Brache (V. 686). – **C:** Im Kamard-Tal westlich von Doab, ca. 1550 m, Weideflächen (G. 466). Doab, oberhalb des Hotels, ca. 1500 m (V. 314, 1753). – **NE:** Taliqan, bei Khanabad, Gräben (V. 610). **Nuristan:** Gusalak, ca. 1000 m (E. 1187). Vaigel, ca. 1500 m (E. 884). Zwischen Asmar und Barikot, ca. 840 m, *Quercus Baloot*-Bestand (G. 464). Barikot, ca. 850 m (G. 465). Oberes Ramgel-Tal bei Gadwol, ca. 1970 m (KN. 1129). Unteres Papruk-Tal, zwischen Papruk und der Mündung in den Baschgal, 1500–2300 m (KN. 1429). – **Pakistan: Chitral:** Shishi Gol, NE of Drosh, ca. 7000 ft., at edge of fields (ST. 3155).

Tetrapogon DESF.

T. villosus DESF. (Syn. *Chloris villosa* (DESF.) PERS.). – **E:** Hills 30 miles E of Kabul, ca. 2800 m (M.). Unteres Kunar-Tal zwischen Tschaghan-Serai und Jallalabad, 600–800 m, Gneiss-Schiefer (KN. 664-a). Jallalabad (SCH. 77-a). Zwischen dem Heiligengrab Seh-Baba und Nimla, an der Strasse von Kabul nach Jallalabad, auf Schotter (KN. 621). Tisin, an der Strasse von Kabul nach Jallalabad (KN. 2188). – **NE: Nuristan:** Zwischen Asmar und Barikot, ca. 840 m, *Quercus Baloot*-Wald (G. 472). Nishei, ca. 1300 m (E. 816, 826). Kulatan im oberen Medschegel-Tal, ca. 1460 m (KN. K-56). Spuk-Pass, Südseite bei Bardadesch, ca. 1700 m (KN. F-88). – **Pakistan: Quetta:** Near Quetta, ca. 1600 m (K. 3068).

Pooideae-Danthonieae

Danthonia DC. in LAM. et DC.

D. cachemyriana JAUB. et SPACH – **NE: Nuristan:** Pashki, ca. 2300 m (E. 656, 1024). Spuk-Pass, zwischen Parigel und Waigelek, ca. 2760 m (KN. 1199).

Schismus P. BEAUV.

Sch. arabicus NEES – **SW**: Shin-Dand, ca. 1200 m (K. 4258). – **SE**: Kandahar: Ruderal um Ghirishk, ca. 880 m (G. 524). Kajkai, NNW of Kandahar, ca. 1000 m (K. 3050). Pirzada, near Kandahar, ca. 900 m (K. 2015). Goldgrube im Norden von Kandahar in der Steinsteppe, ca. 1000 m (G. 525, KN. 373-a, 2203-a). – **E**: Ghazni: Zwischen Kabul und Gardez, Brachfeld (V. 100). Dakka, an der Strasse von Jallalabad nach Peshawar, ca. 600 m (KN. 2192). Tisin, an der Strasse von Kabul nach Jallalabad (KN. 597). Im Nedschrah-Tal oberhalb Schechan, zwischen Gulbahar und Sarobi, *Pinus Gerardiana*-Wald, ca. 2580 m (G. 531). Sarobi, Steppe (V. 1908, 2475). Scher Darwasah bei Kabul, 1790–1840 m (G. 528, 529, 530). In einem Garten in Kabul, ruderal (G. 527-a). – **C**: Am Ufer des Salatin-Baches bei Pshang, unweit Doab, ca. 1700 m (G. 526-a). – **NE**: **Nuristan**: Gusalak, ca. 1000 m (E. 135). – **Pakistan**: **Balouchistan**: Kila Abdulla (LACE 3006). Balouchistan (STOCKS).

Sch. barbatus (L.) THELL. – **E**: Kabul: Sarobi, östlich von Kabul, Steppe (V. 1908, 2475). Aliabad bei Kabul (N. 1950/824). Bagrami bei Charikar, nördlich von Kabul, trockener Hang (N. 1951/289). Gulbahar bei Charikar (N. 1950/829). Kabul (N. 1950/834).

*Pooideae-Eragrosteae***Cleistogenes** KENG

C. Gatacrei (STAPF) BOR (Syn. *Diplachne Gatacrei* STAPF) – **NE**: **Nuristan**: Kurder-Tal, Seitental des Petsch-Tales (N. 1951/806). – **Pakistan**: **Chitral**: (GATACRE 17626). **Swat**: (STEWART 24516).

Desmostachya STAPF

D. bipinnata (L.) STAPF (Syn. *Briza bipinnata* L., *Uniola bipinnata* L., *Cynosurus durus* FORSSK., *Poa cynosuroides* RETZ., *Eragrostis cynosuroides* (RETZ.) P. BEAUV.). – **SW**: Jija inter Shin Dand et Farah, ca. 900 m (K. 4271, L. 111, RECH. 19269). Farah, champs (L. 308). Dahlah, dans sable (L. 344). – **SE**: Kandahar: Am Hilmennd bei Germaub, nördlich von Ghirishk, ca. 1200 m (KN. 399). Ghirishk (V. 1322). Kajkai, NNW of Kandahar, ca. 1000 m (K. 2175). – **E**: Kabul: Hills 30 miles E of Kabul, 8000 ft. (M.). Jallalabad, ca. 580 m (G. 507). Khost Distr.: Dergai bei Matun (N. 1949/806). Ebene von Khost (V. 1086, 1199). – **Pakistan**: Peshawar, Agricult. Reserv. Farm, ca. 350 m (KN. 2170).

Eleusine GAERTN.

E. compressa (FORSSK.) ASCHERS. et SCHWEINF. ex C. CHRISTENSEN (Syn. *E. flagellifera* NEES) – **E**: Zwischen Nimla und Jallalabad, auf Schotter (SCH. 76). Jallalabad, Geröllhang (V. 2001).

Eragrostis P. BEAUV.

E. Barrelieri DAV. in MOROT – **E**: Khost Distr.: Jadji (V. 1104-b). – **Pakistan**: Dir: Panjkova-Tal bei Warai, ca. 1000 m (KN. 2108-b, 2113).

E. cilianensis (ALL.) VIGN.-LUTAT. – **SE**: Kandahar: Boghra, südlich von Ghirishk (V. 1344). – **E**: Kurram: Patan, Kurram-Tal (V. 1124). – **N**: Kataghan: Baghlan, Brache (V. 686-a).

E. pilosa (L.) P. BEAUV. – **E**: Kabul: Zwischen Kartetschar und Gusargah ca. 1780 m, auf einem Möhrenfeld (G. 506). Kartetschar, ca. 1780 m, Gartenbeet (G. 505). Ad stagnum Band-e Kharghak, inter Kabul et Paghman, ca. 2000 m, in limosis exsiccatis (RECH. 19328).

E. poaeoides P. BEAUV. – **N**: Mazar-i Sharif: In faucibus fluvii Balkh supra Aq Kupruk, 700–800 m (RECH. 16312). Aq Kupruk, ca. 750 m, on cliff ledges (HDG. & WDB. 3923). Between Samangan (Aybak) and Mirza Abtili Pass, ca. 1250 m, steppic vegetation (HDG. & WDB. 3997). – **SE**: Kandahar: Boghra, südlich von Ghirishk (V. 1344). – **E**: Am Ufer des Kabul-Flusses bei Jallalabad, ca. 600 m (G. 501-a). Am Ufer des Kabul-Flusses zwischen Tang-i Saidan und Lallandar, ca. 1810 m (G. 503). Guzar Gah bei Kabul, Gartenunkraut (N. 1950/830). Garten der Nedschat-Oberrealschule in Kabul, ca. 1770 m (G. 502). Kurram: Patan, Kurram Valley (V. 1124). Panjshir: Porande-Tal, Seitental des Panjshir-Tales bei Basarak, feuchte Felswände bei Schingar, ca. 2220 m (G. 504). – **NE**: Kataghan: Inter Haibak et jugum Paigah-Kotal, 1300–1400 m (RECH. 16415). **Nuristan**: Wama im Petsch-Tal, ca. 1380 m, Stoppelfeld von Winterweizen (KN. 1235). Unteres Papruk-Tal zwischen Papruk und der Mündung in den Baschgal, 1500–2300 m (KN. 1431). – **C**: Ufer des Salatin-Flusses bei Pshang, nächst Doab, ca. 1700 m (G. 501). – **Pakistan**: **Chitral**: Yarkhun-Tal bei Mastuj, 2040–2280 m, Brachen, Felder, Ruderalstellen (KN. 2042). Chitral village, ca. 5000 ft., at edge of fields (ST. 3173). **Swat**: Inter Madyan et Kulam, ca. 1700 m, substr. granit. (RECH. 19375). **Peshawar**: Ad confluentes fluvios Kabul et Indus prope Attok, ca. 200 m (RECH. 19649).

Tripogon ROEM. et SCHULT.

T. Hookerianus BOR (Syn. *T. abyssinicus* HOOK. f., Fl. Brit. Ind. 7 (1896) pr. pte., non NEES ex STEUD.). – **E**: Sarobi, (V. 1912, 2561). – **NE**: **Nuristan**: Shtive, ca. 2600 m (E. 1032). Above Derin (E. 1747).

T. purpurascens DUTHIE (Syn. *T. abyssinicus* HOOK. f., Fl. Brit. Ind. 7 (1896) pr. pte., non NEES ex STEUD.). – **E**: Kurram: Patan, Kurram Valley, Felsspalten (V. 1287). – **NE**: **Nuristan**: Madschegel-Tal, zwischen Gultscheilam und Kulatam, 1500–1600 m, lichter Eichenbusch am Hang (KN. 1269).

Catabrosa P. BEAUV.

Pooideae-Festuceae

C. aquatica (L.) P. BEAUV. – **SW**: Herat: 50 km S of Herat, ca. 1600 m (K. 2281). – **E**: Ghazni: Ad lacum Sabzab inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17900, 17915). Dahan-e Barikak, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17982). Kabul: Entwässerungsgraben der Salzwiesen zwischen der Strasse Dehmasang nach Darulfanun und Gusargah, ca. 1770 m (G. 500). Unteres Paghman-Tal, nasse Wiese (N. 1950/819). Qala-e Wazir, inter Sar-i Chashma et jugum Unai,

ca. 2900 m (RECH. 18075). – **C:** Bamian: Koh-i Baba, in latere austro-orientali jugi Hadjigak, ca. 3000 m (RECH. 18535). Ghorat: A Naourak austro-occidentem versus, ca. 2480 m, in humidis (RECH. 18957). – **Pakistan: Balouchistan:** (DUTHIE).

***Colpodium* TRIN.**

C. humile (M. B.) GRISEB. (Syn. *Aira humilis* M. B., *Catabrosa humilis* (M. B.) TRIN.). – **NW:** Sauzak, E of Herat (K. 3970). – **NE: Nuristan:** Parun to Minjan Pass, ca. 4000 m (E. 1274).

***Dactylis* L.**

D. glomerata L. – **NE: Nuristan:** Nishei, ca. 1300 m (E. 809). Auf dem Wege zwischen Aschpi-Pass und dem Ort Kuschtos, 2500–3500 m (N. 1951/699).

D. glomerata L. var. *himalensis* DOMIN – **Pakistan: Chitral:** Golen Gol, ca. 7000 ft. (B. L. 26).

D. glomerata L. var. *hispanica* (ROTH) BOISS. – **E:** Panjshir: Porande-Tal, Seitental des Panjshir-Tales bei Basarak, östlich von Daolana, ca. 2350 m (G. 523). **Swat:** Kalam, ca. 2200 m, substr. granit. (RECH. 19451, 19459).

***Eremopoa* ROSHEV.**

E. bellula (RGL.) ROSHEV. (Syn. *Festuca bellula* REGEL). – **E:** Ghazni: Ad margine orientalem altoplanitiei Dasht-e Nawar, ca. 3000 m, in limosis salsis exsiccatis (RECH. 17802). – **C:** Hauz-i Mahiha to Farakulum, ca. 2900 m (K. 2508). Unai-Pass, ca. 3120 m (G. 566, N. 1951/561). Oberhalb Sard-darra in der Koh-i Baba Kette, ca. 4000 m (G. 567). – **NE: Nuristan:** Aoband Kotal, ca. 3000 m (E. 1814).

E. persica (TRIN.) ROSHEV. (Syn. *Poa persica* TRIN.). – **E:** Ghazni: In monte ad occidentem jugi Sardalu inter Qarabagh et Sang-i Masha, ca. 2600 m, substr. gyps. (RECH. 17354). Distr. Bezud: Dahan-e Abdila, 35 km a Sar-i Chashma orientem versus, ca. 2800 m, ad rivulum (RECH. 18594). Tisin, an der Strasse von Kabul nach Jallalabad, Felshang (KN. 600). Dar-ul Aman Ebene bei Kabul, ca. 1700 m, Flusschotter (KN. 443). Schutthalde in der Tang-e Gharru, 1600–1700 m (G. 559, KN. 502-b). Zwischen Kabul und der Tang-e Gharu, ca. 1770 m (G. 560). Paghman-Tal bei Kabul, 2300–2800 m, substr. Gneiss (G. 564, RECH. 17180-a, -b). Oberhalb Paghman, ca. 2470 m, in Felsspalten (G. 568). Koh-i Asmai bei Kabul, ca. 1700 m (KN. 498). Kabul (V. 1288). – **C:** Qala-e Wazir inter Sar-i Chashma et jugum Unai, ca. 2900 m (RECH. 18102). Kalkberg ENE von Bamian, ca. 2800 m (G. 570).

E. persica (TRIN.) ROSHEV. var. *oxyglumis* (BOISS.) BOR, comb. nov. (Syn. *Poa persica* TRIN. var. *oxyglumis* BOISS., Fl. Or. 5: 610 (1884), *E. oxyglumis* (BOISS.) ROSHEV., Fl. SSSR. 2: 430 (1934).). – **E:** Kabul: Südhang des Aliabader Berges bei Kabul, ca. 1860 m (G. 562). Vorberg des Korogh-Massivs bei Kabul, ca. 1950 m (G. 563). – **C:** Unai-Pass ca. 3120 m, an quelligen Stellen (G. 565).

E. persica (TRIN.) ROSHEV. var. *songarica* (SCHRENK) BOR, The Grasses of Burma, Ceylon, India and Pakistan 532 (1960). (Syn. *Glyceria songarica* SCHRENK, *E. songarica* (SCHRENK) ROSHEV., Fl. SSSR. 2: 431 (1934).). – **E:** Kabul: Scher Darwasah bei Kabul,

ca. 1790 m (G. 561). Oberhalb Beg tut, ca. 2900 m, im Paghman-Gebirge, feuchte Matten (G. 574). – **C:** Hauz-i Mahiha to Farakulum, ca. 2900 m (E. 611). Hauz-i Mahiha, ca. 2600 m (K. 2448). – **NE: Nuristan:** Netshingel, ca. 3500 m (E. 1564). Pashki, ca. 2350 m (E. 611).

As far as the genus *Eremopoa* ROSHEV. is concerned we are prepared to accept two species only *E. persica* (TRIN.) ROSHEV. and *E. bellula* (RGL.) ROSHEV. *E. songarica*, *E. multiradiata* and *E. oxyglumis* are in our opinion only worthy of varietal rank.

***Festuca* L.**

F. arundinacea SCHREB. – **NW:** Sauzak, E of Herat, ca. 2000 m (K. 3039).

F. gigantea (L.) VILL. – **NE: Nuristan:** Oberes Petsch-Tal bei Wama, ca. 1380 m (KN. 1324). Oberes Badschinel-Tal (Sadel-Tal) bei Gwarnar, ca. 1900 m, Feldränder (KN. 1201-b). Oberes Petsch-Tal beim Weideplatz Tschetras, ca. 2090 m (KN. 1304). Unteres Paschgal-Tal bei Kamdesch, 1800–1900 m (KN. 1455). – **Pakistan: Swat:** Ushu, ca. 2400 m, substr. granit. (RECH. 19516).

F. ovina L. – **E:** Oberhalb des Nedschrab-Tales, zwischen Gulbahar und Sarobi, ca. 3310 m, Berghang (G. 590). Aufstieg vom Schakar-darra zum Hauz-e chaz im Paghmangebirge, ca. 3730 m (G. 591). – **Pakistan: Chitral:** Chumarkhan Pass, ca. 12000 ft., on dry open slopes (ST. 2899). Jingeret Gol, W of Drosh, ca. 12000 ft., on rocky slopes (ST. 3201). Siru Gol, S of Shah Jinali Pass, ca. 14500 ft., on stony slopes (ST. 3056). Golen (Krui Uts), ca. 13500 ft., dry position on cliff (B. L. 120). Ghutbar Gol, ca. 14000 ft., steep slopes (B. L. 46).

F. ovina L. ssp. *Kotschyi* (HACK.) ST. YVES – **C:** Bamian: In der Kammregion der Koh-i Baba Kette oberhalb Sard-darra, 4000–4300 m (G. 593, 594). Kammregion der Koh-i Baba, ca. 3780 m (G. 592).

F. ovina L. ssp. *sulcata* HACK. – **C:** Bamian: Nil Kotal, ca. 3200 m (K. 2865). Koh-i Baba, ca. 3900 m (K. 2634). – **NE: Nuristan:** Elason (E. 1683).

F. pratensis HUDS. – **E:** Kabul: In valle Paghman prope Kabul, 2300–2800 m, substr. Gneiss (G. 598, RECH. 17132). – **C:** Hauz-i Mahiha, Kabul, ca. 2600 m (K. 2436). Qala-e Wazir inter Sar-i Chashma et jugum Unai, ca. 2900 m (RECH. 18079). Im Kamard-Tal westlich von Doab, Weidewiese, ca. 1580 m (G. 597).

F. rubra L. – **C:** Unai-Pass, ca. 3120 m, an quelligen Stellen (G. 595). Ad lacum Band-i Panir, prope Band-i Amir, ca. 2800 m (RECH. 18381). Am Seeufer von Band-e Amir, ca. 2800–2900 m (G. 589, RECH. 18317). – **E:** Panjshir: Porande-Tal, Seitental des Panjshir-Tales bei Baserak, ca. 2800 m (G. 595). **Nuristan:** Kulam, im Kulam-(Munui-) -Tal, ca. 2150 m (KN. 1038, SCH. 108). Oberes Ramgel-Tal in der Nähe von Puschol, ca. 2300 m (KN. 1104-b). – **Pakistan: Chitral:** Owir, SE of Tirich Mir, ca. 9000 ft., in irrigated meadow (ST. 2770). Baroghil Pass, ca. 12500 ft., at edge of stream (ST. 2997). Shower Shun, E of Baroghil Pass, ca. 13000 ft. (ST. 3007).

F. rubra L. var. *lachnantha* Ovcz. – **C:** Hauz-i Mahiha to Farakulum, ca. 2900 m (K. 2511). Band-i Amir, ca. 2800 m (K. 2841). – **NE: Nuristan:** Kantivo, ca. 2200 m (E. 669). Pashki, ca. 2300 m (E. 904). – Minjan, Miyan Deh, ca. 2500 m (E. 2083).

Lamarckia MOENCH

L. aurea (L.) MOENCH – **E**: Tisin, an der Strasse von Kabul nach Jallalabad, (KN. 2187). Dakka, an der Strasse von Jallalabad nach Peshawar (KN. 2193).

Leucopoa GRISEB.

L. albida (TURCZ.) V. KREZ. et BORR., Fl. SSSR. 2: 495 (1934). (Syn. *Poa albida* TURCZ. ex TRIN., *Leucopoa sibirica* GRISEB., *Festuca sibirica* HACK. ex BOISS.). – **NW**: Chrisht, ca. 2100 m (K. 3620). – **C**: Deh Kundi to Sar-i-Nil, ca. 3000 m (E. 1962). – **Pakistan: Chitral**: Chumarkhan Pass, E of Mastuj, ca. 13000 ft., on dry open slopes (St. 2896). Ghutbar, ca. 14000 ft., on dry steep slopes (B. L. 51).

L. karatavica (BGE.) V. KREZ. et BOBR., Fl. SSSR. 2: 496 (1934). (Syn. *Poa karatavica* BGE., *Festuca karatavica* (BGE.) FEDTSCH., *F. subspicata* (RGL.) LIPSKY var. *griffithiana* ST. YVES, *Festuca griffithiana* (ST. YVES) KRIV., *Leucopoa griffithiana* (ST. YVES) OVCZ.). – **E**: Ghazni: Sar-Ab, 40 km a Ghazni boreo-occidentem versus, ca. 2500 m (RECH. 17673). In jugo Kotal Shaghanak, inter Okak et Ghazni, 3400–3500 m (RECH. 17820). Gulbahar bei Charikar (N. 1950/803). Oberhalb Schechan im Nedschrah-Tal, zwischen Gulbahar und Sarobi, ca. 2590 m (G. 599). Gipfel im Korogh-Massiv bei Kabul, ca. 2800 m (G. 601). Mittleres Paghman-Tal, westlich von Kabul (N. 1950/812), 3000–3500 m (N. 1950/239). Ghorband valley, ca. 8900 ft., rocky slopes (M.). Panjshir: Panjshir Valley, W-side of Ajuman pass, ca. 3700 m (HDG. & WDB. 5505). Porande-Tal, Seitental des Panjshir-Tales bei Basarak, ca. 2800 m (G. 602). – **C**: Hauz-i Mahiha, ca. 2500 m (K. 2400). Qala-e Wazir, inter Sar-i Chashma et jugum Unai, ca. 2900 m (RECH. 18100). Unai-Pass, ca. 3150 m (G. 604, N. 1951/517, 551). Inter Bulola et jugum Shibar, 2600–2800 m (RECH. 16842). Kotal-e Nargiz, inter Panjao et Lal, ca. 3000 m (RECH. 18784). Zwischen Bamian und der Koh-i Baba Kette, ca. 3150 m (G. 603). Sar-i Chashma, Koh-i-Baba Range, ca. 2700 m (E. 1835). Koh-i-Baba, ca. 3400 m (K. 3047). – **Nuristan**: Pirdum-Tal, nördlich des Pirdum-Passes, zwischen dem Pass und Puschol, 2300–3000 m (KN. 1147). Tschitur-Tal, zwischen dem Tschitur-Pass und dem Ramgel-Tal, 2300–3000 m (KN. 1147).

According to RECHINGER this tufted grass is very common on hillslopes in the high mountain areas of Central Afghanistan, and that it is avoided by cattle in an area where the latter are numerous and every type of vegetable matter is greedily consumed. The dull yellow inflorescences suggested that this grass might be an aluminium-accumulator. Specimens sent to the Government Chemist confirms that this is so and were found to contain 5800 pp. m. aluminium. This is a possible explanation why this grass is not acceptable to grazing animals.

L. Olgae (REGEL) V. KREZ. et BOBR., Fl. SSSR. 2: 495 (1934). (Syn. *Molinia Olgae* REGEL, Act. Hort. Petrop. 7, 2: 625 (1881)). – **C**: In the vicinity of Panjao, ca. 2000 m, limestone slopes (HDG. & WDB. 4925).

Lolium L.

L. perenne L. – **C**: Doab, Felder (V. K-232).

Identification somewhat doubtful (BOR).

L. persicum BOISS. et HOHEN. – **SE:** Kandahar, ca. 1020 m (KN. 218). – **E:** Kabul: Darulfanum, südwestlich von Kabul (V. 326). Scharenau (Tschaman Wasi-rabad), ca. 1750 m (G. 716). In einem Garten in Kabul, ruderal, ca. 1780 m (G. 717, 718). – **C:** Bamian: Zwischen Doab und Bulola, Weizenfelder (V. 2097). Doab (V. 1799-b). – **NE:** Panjshir: In der Panjshir-Schlucht bei Gulbahar, nächst Charikar, ca. 1700 m (G. 715). – **Pakistan:** Kurram Valley (AITCH. 280, 1261). Quetta (STOCKS). **Balouchistan:** Balouchistan (MONRO).

L. rigidum GAUD. – **C:** Doab, Felder (V. K-232). – **E:** Kotsche Mullah near Kabul (N. 1950/338).

L. temulentum L. – **SE:** Bei Kandahar in einem Weizenfeld (SCH. 26). – **NE:** Kataghan: Kunduz, in paludosis fluvii Kunduz, ca. 400 m (RECH. 16043). Kunduz, in declivibus siccis ad aerodromum, ca. 450 m, Loess (RECH. 16085). Doshi, Weizenfelder (V. 547). – **N:** Mazar-i Sharif: Inter Chashma-e Shafal et Aq Kupruk, ca. 800–1000 m (RECH. 16288). – **C:** Ghorat: A Naourak austro-occidentem versus, ca. 2480 m (RECH. 18958). – **Pakistan:** **Chitral:** Mirkhani, SW of Drosh, ca. 4500 ft., at edge of fields (ST. 2285). Chitral village, ca. 5000 ft., at edge of fields (ST. 2150).

Nardurus (Bluff, Nees et Schau.). REICHENB. ex GODRON

N. Krausei (REGEL) V. KREZ. et BOBR., Fl. SSSR. 2: 540 (1934). (Syn. *Festuca Krausei* REGEL.). – **E:** Auf einem Berg am rechten Kabul-Ufer südwestlich von Sarobi, ca. 1100 m (G. 607). – **NE:** **Nuristan:** Kammhöhe eines Berges bei Kamdesch, ca. 3300 m (E. PROCHAZKA sub G. 607).

N. maritimus (L.) MURBECK (Syn. *Festuca maritima* L., *Nardurus tenuiflorus* (SCHR.D.) BOISS.). – **Pakistan:** Quetta (NORRIS 63).

Nardurus subulatus (BANKS & SOLAND.) BOR, comb. nov. (Syn. *Triticum subulatum* BANKS et SOLAND. in RUSSELL, Nat. History Aleppo 2: 244 (1794), *Lolium subulatum* (BANKS et SOLAND.) EIG, *Nardurus orientalis* BOISS., *Festuca aleppica* STEUD., *Lolium orientale* (BOISS.) KREZ. et BOBR.). – **SW:** Herat: Shin Dand, S of Herat, ca. 1400 m (K. 3585). – **SE:** Kandahar: Goldgrube im Norden von Kandahar in der Steinsteppe, ca. 1000 m (KN. 2223). – **Pakistan:** Quetta (NORRIS 63).

***Poa* L.**

P. afghanica BOR, Kew Bull. 1954: 501 (1955). Fig. 5, 6. – **NE:** **Nuristan:** Chitras, ca. 3100 m, 30.5.1948 (EDELBERG 851, Holotypus, C).

P. Aitchisonii BOISS. – **NE:** **Nuristan:** Above Netshingel (E. 1692). – **Pakistan:** Kurram Valley (GRIFF. 206, HARSUKH 14934).

P. alpigena (BLYTT) LINDM. (Syn. *P. pratensis* L. var. *alpigena* BLYTT). – **Pakistan:** **Chitral:** Shost, Mastuj to Baroghil Track, ca. 10000 ft., on stony ground (ST. 2957).

P. alpina L. – **NE:** **Nuristan:** Auf dem Wege zwischen Aschpi-Pass nach dem Ort Kuschtos, ca. 2500 m (N. 1951/655). – Minjan, above Weran, ca. 3800 m (E.



Fig. 5. *Poa afghanica* BOR (E. 851, Holotypus, C).

1255). **C:** Schutthalde in der Koh-i Baba Kette am Beginn des Sard-darra, ca. 4320 m (G. 541). – **Pakistan: Chitral:** Rosh Gol, NE of Tirrich Mir, ca. 11000 ft., on stony ground (St. 2795). Shah Jinali Pass, N of Mastuj, ca. 14500 ft., on open slopes (St. 3044). Oihor Gol, ca. 11000 ft., moist soil among large boulders (B. L. 1054).

P. angustifolia L. (Syn. *P. pratensis* L. var. *angustifolia* WAHL. (1812)). – **E:** Ghazni: Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17943). Qala-e Wazir, inter Sar-i Chashma (Tscheschme) et jugum Unai, ca. 2900 m (RECH. 18097). Panjshir: Porande-Tal, Seitental des Panjshir-Tales bei Basarak: Ufer eines Nebenflusses des Porande-Flusses, ca. 2800 m (G. 536). – **C:** Bulola, ca. 2200 m, in pratis humidis (RECH. 16739). – **Pakistan: Chitral:** Arkari Gol, W of Tirich Mir, ca. 8500 ft., at edge of field (St. 2611).

P. annua L. – **N:** Kataghan: Kunduz, in horto inculto (RECH. 16025). – **E:** Sarobi, Maulbeerhaine (V. 2466). – **C:** Unai-Pass, westlich von Kabul, ca. 2800 m



Fig. 6. *Poa afghanica* BOR, a part of the panicle (K. 851, Holotypus, C) 4.5/1.

(V. 2129). – **NE: Nuristan:** Gusalak, ca. 1000 m (E. 32, 154, 289). – **Pakistan:** **Chitral:** Drosh, ca. 4500 ft., at edge of irrigation channel (St. 2273).

P. araratica TRAUTV. – **E:** Oberes Nedschrab-Tal, zwischen Gulbahar bei Charikar und Sarobi, ca. 3310 m (G. 554). An einer Dolomitfelswand am Ostabhang des Korogh-Massivs, ca. 2550 m (G. 552). Paghman, W of Kabul, ca. 1900 m (K. 2314). Paghman, ca. 2500 m, an Gräben und auf Feldern (V. 964). In valle Paghman, 2300–2800 m, substr. Gneiss (RECH. 17114). Paghman Valley, ca. 2900 m, streamside (HDG. & WDB. 5059). – **C:** Qala-e Wazir, inter Sar-i Chashma (Tscheschme) et jugum Unai, ca. 2900 m (RECH. 18078). Shibar Pass (V. 2810). Gipfelregion eines Kalkberges nordöstlich von Bamian, ca. 3140 m (G. 557). Kammregion in der Koh-i Baba Kette, ca. 3780 m (G. 555). Band-i Amir, nördlich der Koh-i Baba Kette, ca. 2800 m (K. 2836). – **NE: Nuristan:** Parun-Tal bei Pashki, Westhang, ca. 2300 m

(KN. 1337-b). Pashki, ca. 2500 m (K. 738). Unteres Petsch-Tal zwischen Gusalak und der Einmündung des Kurder-Flusses, ca. 1150 m (KN. 731-a). Oberes Petsch-Tal bei Wama, ca. 1380 m (KN. 811-b). Beim Ort Kantiwo im Kantiwo-Tal, ca. 2200 m, Westhang, lichter Eichenwald (KN. 914). – **Pakistan: Chitral:** Chumarkhan Pass, E of Mastuj, ca. 10000 ft., on rock ledges in tufts (St. 2893). Chumarkhan Pass, E of Mastuj, ca. 12000 ft., on dry open slopes (St. 2904). Ishporili Gol, S of Mastuj, ca. 12500 ft., on stony ground (St. 3105). Rumbour, ca. 8500 ft., dry cliff facing South (B. L. 673).

P. bactriana ROSHEV. – **E:** Kabul: Tang-e Gharu, Schlucht des Kabul-Flusses, östlich von Kabul, 1600–1700 m, sehr steinig (KN. 561). Scher Darwasa bei Kabul, ca. 1700 m, Nordhang (KN. 489). – **Pakistan: Chitral:** Birmogh Lasht, ca. 8700 ft., moist bank on dry hillside among *Artemisia* (B. L. 722). Mastuj Track, Barenis, ca. 6000 ft., on rock ledges (St. 2433). Shoghot, N of Chitral, ca. 9500 ft., on stony slopes (St. 2656).

P. bulbosa L. – **N:** Ankhoi, Steppe (N. 1950/218). Haibak, ca. 3900 ft. (M.). – **C:** Doshi, ca. 2700 m, rocky slopes (M.). – **NW:** Chisht, ca. 1900 m (K. 3619). Murghab, ca. 600 m (K. 3517). – **SW:** Jija, ca. 900 m (K. 4247). Herat, ca. 900 m (AMSEL, K. 3745). – **E:** Kabul: Surkhhab-Damm, Ebene von Darulfanun, E von Kabul, Geröllhang (V. 135). In collibus ad septentriones urbis Kabul, ca. 1800 m (RECH. 17036). Scher Darwasa bei Kabul, 1840–1850 m (G. 542, HDG. & WDB. 2919). Zwischen Dorf Barbur und Barburgarten bei Kabul, ca. 1700 m (KN. 18). Oberhalb Beg-tut, im Paghman-Gebirge, westlich von Kabul, ca. 2900 m, feuchte Matte (G. 549). Paghman, 17 miles W of Kabul, 8000–9000 ft. (CH.-M.). Kabul, ca. 7000 ft., rocky hills (M.). – **C:** Unai-Pass, westlich von Kabul (N. 1951/540). Farakulum, (K. 2560). Bamian: Koh-i Baba Range, ca. 3400 m (K. 2645), 3037). Band-i Amir, nördlich der Koh-i Baba Kette, ca. 3300 m, Igelsteppe (V. 2722). Aoband Kotal, ca. 3000 m (E. 1815). – **NE: Nuristan:** Gusalak, ca. 1000 m (E. 288, 2091). Vama, ca. 1600 m (E. 636). Pashki, ca. 2300 m (E. 495). *Cedrus deodora*-Wald bei Kamdesch, ca. 2100 m (G. 545). Mum-Pass, zwischen Parun- und Kantiwo-Fluss, Aufstieg von Gulnisha aus, 2500–2800 m (KN. 873). – **Pakistan: Chitral:** Oihor Gol, ca. 10000 ft., cornfields (B. L. 855). Chitral village, ca. 5000 ft., at edge of fields (St. 2177).

P. bulbosa L. var. *vivipara* KOEL. – **NW:** Herat: Nördlich von Herat, ca. 940 m (G. 543). – **SE:** Kandahar: Kalat-i Ghilzai, *Artemisia*-Steppe (KN. 146, 153-b). – **E:** Kabul: Darulaman-Ebene östlich von Kabul, ca. 1700 m (SCH. 61-b). Oberhalb des Nedschrah-Tales bei Schechan, zwischen Gulbahar und Sarobi, östlich von Kabul, ca. 2750 m (G. 547). Pandscheschah bei Kabul, trockene, sandige Berglehne (N. 1951/44). Scher Darwasa bei Kabul, ca. 1700 m (KN. 489-b, 490-b, N. 1950/805, 1951/66). Scher Darwasa, zwischen der Brücke und dem Top-Berg (KN. 96). Oberes Paghman-Tal, westlich von Kabul (N. 1950/794). Paghman, ca. 2470 m, in Felsspalten (G. 546). An der Strasse zwischen der Darulaman- und der Paghman-Ebene, ca. 1700 m (KN. 128, SCH. 32). Panjshir: In der Panjshir-Schlucht bei Gulbahar, nächst Charikar, 1700–2000 m, am Dorfweg und in Felsen (G. 544, KN. 73). – **C:** Unai-Pass,

ca. 3120 m, an quelligen Stellen (G. 548). Koh-i Baba: In latere austro-orientali jugi Hadjigak, ca. 3000 m (RECH. 18545). – **Nuristan:** Bagrami, Nedjerau-Tal, 2500–3000 m (N. 1951/203). – **Pakistan: Chitral:** Shishi Gol, Madaghlasht, E of Drosh, ca. 7000 ft., in tufts on rock ledges (St. 2351). Bromboret, ca. 8000 ft., dry cliff face (B. L. 655).

P. dzhilgensis ROSHEV., Act. Inst. Bot. Acad. Sc. URSS. 1, 2: 98 (1936). – **C:** Koh-i-Baba Kette, oberhalb des Sard-Darra, ca. 4000 m (G. 558).

P. glabriflora ROSHEV., Act. Inst. Bot. Acad. Ac. URSS. 1, 2: 99 (1936). – **E:** Kabul: Lataband-Pass, Berghang, ca. 2030 m (G. 550).

P. nemoralis L. – **C:** Hauz-i-Mahiha, ca. 2600 m (K. 2434). – **NE: Nuristan:** Pashki, ca. 2300 m (E. 602). *Cedrus deodora*-Wald bei Kamdesch, ca. 2100 m (G. 551). Aterschuker im Schuk-Tal, ca. 2300 m, in Felsen (KN. 1017). East-Nuristan (E. 1132). – **Pakistan: Chitral:** Barum, SE of Tirich Mir, ca. 8000 ft., beneath trees (St. 2771). **Swat:** Kalam, ca. 2200 m (RECH. 19403).

P. polycolea STAPF – **NE: Nuristan:** Pashki, 2300–2500 m (E. 559, 629, 741, 750).

P. pratensis L. – **C:** In declivibus orientalibus jugi Shibar, 2500–2600 m (RECH. 16871). Shibar Pass (V. 2806). – **E:** Kabul: Darulaman-Ebene, ca. 1700 m, an Bewässerungsgräben (KN. 441). Gulbahar bei Charikar, nördlich von Kabul (V. 201-E). In einem Garten in Kabul, ca. 1780 m, Bewässerungsgräben (G. 535). – **NE:** Minjan, Miyan Deh, ca. 2550 m (E. 2106). – **Nuristan:** Gusalak, ca. 1000 m (E. 1546, 1576). Kulam (Munui) im Kulam-Tal, ca. 2200 m, feuchter Schutt (KN. 1048). Inter Kotal-e Agok et pagum Waigel (N. 1951/872, 876, 943). Auf der Westseite des Donda-Passes, Aschkun-Gebiet, 2500–3200 m, auf Matten (KN. 1251-b). – **Pakistan: Chitral:** Chumarkhan Pass, E of Mastuj, ca. 10000 ft., at edge of stream beneath willows (St. 2894). Shandur, ca. 12220 ft. (B. L. 84).

P. sinaica STEUD. – **SE:** Kandahar: Nördlich von Arghendab, zwischen Kandahar und Ghirishk am Hilmend, 900–1000 m (KN. 312). Zwischen Kandahar und Ghirishk am Hilmend, 900–1000 m (KN. 252). – **SW:** Shin Dand, SSW of Herat, ca. 1220 m (K. 3589, 4248).

P. sterilis M. B. – **E:** Oberhalb des Nedschrab-Tales bei Schechan, zwischen Charikar und Sarobi, ca. 2580 m, *Pinus Gerardiana*-Wald (G. 553). Paghman-Tal, ca. 2480 m, an einer steilen Felswand (G. 556, V. 964). – **C:** Inter Bulola et jugum Shibar, 2600–2800 m (RECH. 16766). In valle Darre Shikar, inter Doab et Bulola, 1600–2000 m (RECH. 16723). Kammregion der Koh-i-Baba Kette, ca. 3780 m (G. 555). – **NE: Nuristan:** Oberes Petsch-Tal bei Vama, ca. 1350 m, Flussufer (KN. 747). Zwischen Kotal-e Agok (Agok-Pass) und Alm bis Ort Waigel (N. 1951/938). Bagrami, im Nedjerau-Tal, ca. 2500 m (N. 1951/222). – **Pakistan: Chitral:** Chumarkhan Pass, E of Mastuj, ca. 12000 ft., on dry open slopes (St. 2898). Golen (Krui Uts), ca. 13000 ft., moist soil among large boulders (B. L. 135).

P. supina SCHRAD. – **SE:** Kandahar: In Weizenfeldern bei Kandahar, ca. 1020 m (G. 532). – **E:** Kabul: Zwischen Schakardarra und Hauz-i Chaz, ca. 2850 m, im Paghman-Gebirge (G. 534). Panjshir: Porande-Tal, Seitental des Panjshir-Tales bei Basarak, ca. 2800 m (G. 533). – **NE: Nuristan:** Kantivo, ca. 2200 m (E. 686). –

Pakistan: Chitral: Shishi Gol, E of Drosh, ca. 7000 ft., on marshy ground (St. 2380). Owir An, SE of Tirich Mir, ca. 11000 ft., at edge of stream (St. 2764)

P. trivialis L. – **NW:** Sauzak, NE of Herat (K. 2200). – **E:** Kabul: Darulaman-Ebene, ca. 1700 m, Bewässerungsfelder (KN. 442). Sumpfwiese bei Dehmasang, ca. 1770 m (G. 538). In valle Paghman, 2300–2800 m, substr. Gneiss (G. 539, 540, RECH. 17137). Im Garten der Nedschat-Oberrealschule in Kabul, ca. 1770 m, an Bewässerungsgräben (G. 537). Kabul, ca. 1800 m, side of ditch (HDG. & WDB. 3226). – **C:** Farakulum, ca. 2800 m (K. 2559). – **Pakistan: Chitral:** Chitral village, ca. 5000 ft., at edge of irrigation channel (St. 2393).

P. Vvedenskyi DROB., Fl. Usbekist. 1: 239, 538 (1941). – **C:** Shibar Pass, sterile slope (M.).

Psilurus TRIN.

P. incurvus (GOUAN) SCHINZ et THELL. – **SW:** Herat: Jija, Farah to Shin Dand, S of Herat, ca. 900 m (K. 4251). – **NE:** Nuristan: Gusalak, ca. 1000 m (E. 2093). **SE:** Kandahar: Goldgrube im Norden von Kandahar in der Steinsteppe, ca. 1000 m (KN. 380).

Puccinellia PARL.

P. gigantea (GROSSH.) GROSSH., Fl. Kauk. 1: 114 (1928). (Syn. *Atropis gigantea* GROSSH.). – **NW:** Ghorat: Qala Shahrak, ca. 2000 m (RECH. 19148). – **E:** Ghazni: Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17942). Kabul: Salzwiese hinter Scharenau (Tschaman Wasirabad), ca. 1750 m (G. 580). Bala Hissar prope Kabul, ca. 1800 m, in stagno (RECH. 16008). In planitie ad orientem urbis Kabul secus viam versus Sarobi ducentem, ca. 1700 m (RECH. 16902). – **C:** Inter Bulola et jugum Shibar, 2600–2800 m (RECH. 16767). Ghorat: Qala Qansi (Tschaktscharan), ad ripas fluvii Hari-rud, ca. 2200 m (RECH. 18835).

P. himalaica TZVELEV, Not. Syst. Inst. Bot. Sc. URSS. 17: 66 (1955).

– – var. *scabrida* MELDERIS, var. nov.

A typo ligulis brevioribus (ad 1 mm longis), paniculae ramis scabridis, fructificatione ± reflexis, glumis brevioribus: gluma inferiore 0,7–0,9 mm, superiore 1,3 mm longa, differt.

C: Hauz-i Mahiha to Farakulum, ca. 2900 m, 17.7.1948 (KØIE 2495, Holotypus, C). Panjao, ca. 2700 m (K. 2697).

Puccinellia Koeieana MELDERIS, spec. nov. – Fig. 7, 8.

Gramen perenne, 25–30 cm altum, caespites laxos formans, innovationibus intravaginalibus. Culmi erecti, basi ascendentes vel geniculati, 3–4-nodes, teretes, striati, glabri, laeves. Folia glauco-viridia; vaginae glabrae laeves, infimae luteo-brunnescentes; ligulae 2–2,5 mm longae, acutae, hyalinae; laminae 2–5 cm longae, 1,5–2,5 mm latae, planae vel ± convolutae, supra nervis scabrae, subtus glabrae laeves. Panicula 7–8 cm longa, basi 5,5 cm lata, anguste ovata, ad temporem florendi

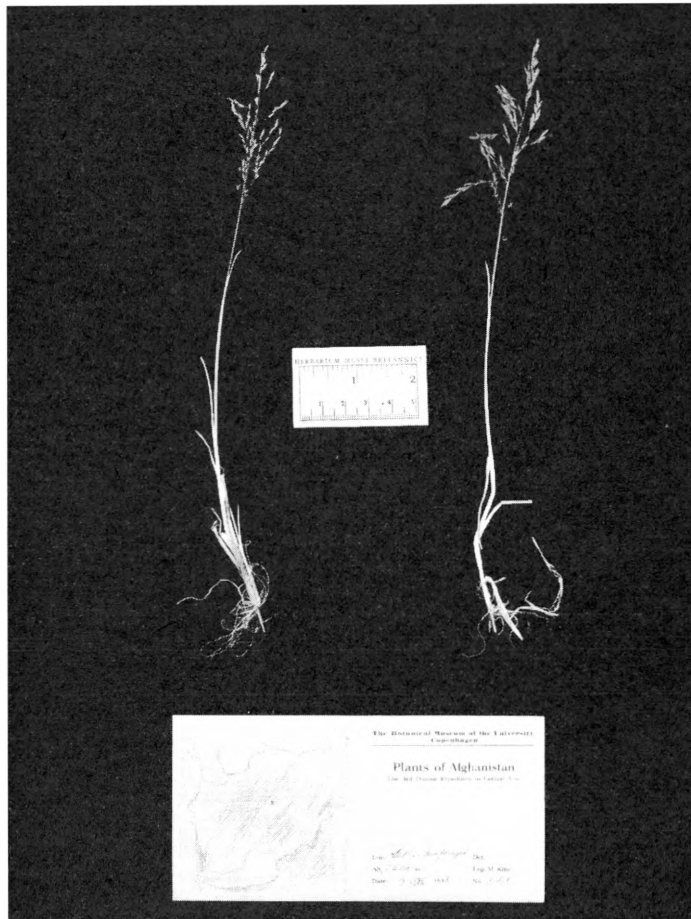


Fig. 7. *Puccinellia Koeieana* MELDERIS (K. 3061, Holotypus, C).

compacta, demum diffusa, ramis ad rhachidis nodos vulgo binis, ad 3,5 cm longis, tenuibus, scabriusculis, fructificatione saepe reflexis. Spiculae 4–5 mm longae, anguste oblongae, 3–7-florae, saepe purpureo-tinctae. Glumae persistentes, late lanceolatae vel ovatae, acutae vel obtusiusculae, inaequilongae, gluma inferior 0,8–1 mm longa, 1-nervia, gluma superior 1,5–1,6 mm longa, 1–3-nervia, marginibus late scariosae, erose ciliatae. Lemma 1,5–2 mm longum, late oblongum vel ellipticum, apice obtusiusculum, 5-nervium, basi tantum in callo minute pubescens, nervo medio sat prominente et apice plerumque in mucronem brevem abeunte, late hyalinomarginatum, apice aureo-tinctum. Palea lemmati subaequilonga, bicarinata, carinis minute ciliatis, dorso glabra. Antherae 1–1,2 mm longae, ellipticae. – A *P. glauca* (REGEL) KREZ. in statura minore, paniculis brevioribus, spiculis 4–5 mm longis, saepe variegatis, glumis brevioribus, lemmate late oblongo vel elliptico, basi minute



Fig. 8. *Puccinellia Koeiana* MELDERIS, a part of the panicle (K. 3061, Holotypus, C) 4.5/1.

pubescenti, antheris longioribus, differt. *P. Hackeliana* KREZ. affinis, sed paniculis brevioribus, glumis acutis vel obtusiusculis, brevioribus, lemmate late oblongo vel elliptico, breviori, marginibus non ciliolato, differt.

C: Bamian: Lal-i Zarjangel, Koh-i Baba Range, ca. 2500 m, 3.8.1948 (KØIE 3061, Holotypus, C).

P. sevangensis GROSSH. (Syn. *Atropis sevangensis* (GROSSH.) V. KREZ.). – **E:** Ghazni: In jugo Sardalu a Qarabagh occidentem versus, 2300–2500 m (RECH. 17340). Okak, a altoplanitie Dasht-e Nawar (Naour) boreo-orientem versus, ca. 3000 m (RECH. 17728). Ad lacum Djalgeh-Shahr-Kawat, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17866). – **E:** Kabul: Salzsteppe zwischen Kabul und Tang-e Gharu, ca. 1770 m (G. 582). Salzwiese westlich von Budchak, ca. 1740 m (G. 579-a). Sumpfwiese bei Dehmasang, ca. 1770 m (G. 581). Weidewiese zwischen Kabul und

Aliabad, ca. 1780 m (G. 585). Bala Hissar prope Kabul, ca. 1800 m (RECH. 16007). Am Ufer des Logar-Flusses bei Tscharasiah, ca. 1780 m (G. 579-b, 583, 1740). In einem Garten in Kabul, ca. 1780 m (G. 584). – **C:** Bamian: Am Ufer des Bamian-Flusses bei Schar-e-Schak, ca. 2320 m (G. 586, 587). Inter Bamian et Band-i Amir, 2800–3000 m (RECH. 18198). Band-i Amir, in ripa lacus, ca. 2800 m (RECH. 18318, 18325). Inter jugum Kotal Deraz Kol et Panjao prope pagum Mandigak, 2800–3280 m (RECH. 18721). Ghorat: Qala Sharak, ca. 2000 m (RECH. 19137).

Sclerochloa P. BEAUV.

S. dura (L.) P. BEAUV. – **N:** Kataghan: Bala Hissar prope Kunduz, in declivibus siccis, ca. 400 m, substr. Loess (RECH. 16074). – **E:** Kabul: Im Garten der Nedschat-Oberrealschule in Kabul, ca. 1770 m (G. 609).

S. Woronowii (HACK.) TZVELEV, Not. Syst. Herb. Inst. Bot. Acad. Sc. URSS. 18: 27 (1957). – **SE:** Von Kandahar in Richtung Kalat-i Ghilzai, ca. 1100 m (KN. 225-a).

Vulpia C. C. GMEL.

V. ciliata LINK – **N:** Mazar-i Sharif: In faucibus fluvii Balkh supra Aq Kupruk, 700–800 m (RECH. 16291). – **Pakistan:** Quetta (J. J. NORRIS 45).

V. myurus (L.) C. C. GMEL. – **SW:** Jija, ca. 1200 m (K. 4248). – **E:** Panjshir: In der Panjshir-Schlucht bei Gulbahar, nächst Charikar (G. 605). **Nuristan:** Gusalak, ca. 1000 m (E. 1568). Bagrami, im Nedjerau-Tal, an einer nassen Bachwiese (N. 1951/251). – **Pakistan: Chitral:** Shishi Gol, E of Drosh, ca. 5500 ft., at edge of fields (St. 2384). Kaghosi, Chitral-Mastuj track, ca. 5000 ft., on stony ground (St. 2399).

V. persica (BOISS. et BUHSE) V. KREZ. et BOBR., Fl. SSSR. 2: 535 (1934). – **NW:** Qala Nau (K. 3960). – **SE:** Kandahar: Zwischen Kandahar und Kuschki-Nahod, ca. 1000 m, Steppenrand (KN. 307). – **E:** Kabul: Tisin, an der Strasse Kabul von nach Jallalabad, Felsrinne (KN. 593). – **NE: Nuristan:** Gusalak, ca. 1000 m (E. 2092). – **N:** Mazar-i Sharif: Takht-e Rustam prope Haibak, ca. 1200 m (RECH. 16375).

Glyceria ENDL.

Pooideae-Glycerieae

G. plicata FRIES – **E:** Ghazni: Bei Gardez, Bewässerungsgräben (V. 1035). Dahan-e Barikak, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17978). Kabul: Zwischen der Strasse von Dehmasang nach Darulfanun und Gusargah, ca. 1770 m (G. 576). In der Sumpfebene östlich von Tscharasiah, an Wassergräben, ca. 1740 m (G. 575). Bala Hissar prope Kabul, ca. 1800 m (RECH. 16010). Wardak, südwestlich von Kabul (V. 823). Versumpftes Ufer eines Bächleins im Paghman-Tal, ca. 2480 m (G. 577). Am Ufer des Paghman-Flusses, ca. 2540 m (G. 578). In valle Paghman, 2300–2800 m, substr. Gneiss (RECH. 17131). – **C:** Hauz-i Mahiha, W of Kabul, ca. 2500 m (K. 2480).

Melica L.*Pooideae-Melicaeae*

M. canescens (REGEL) LAVRENKO, Fl. SSSR. 2: 752 (1934). (Syn. *M. Cupani* GUSS. var. *canescens* REGEL). – **N**: Mazar-i Sharif: In faucibus a Taschkurghan austro-orientem versus, 600–700 m (RECH. 16351). – **E**: Ghazni: In valle fluvii Arghandab prope Sang-i Masha, ca. 2400 m, in declivibus saxosis gneissaceis (RECH. 17520). Bozghalak, in collibus graniticis prope Shashgao, 24 km a Ghazni boreo-orientem versus, ca. 2400 m (RECH. 17293). Scher Darwasa bei Kabul, ca. 1840 m (G. 516). – **C**: In valle Ajar “Königsthal” a Doab occidentem versus, 1400–1500 m (RECH. 16618). Panjao, ca. 2700 m, on limestone rocks (HDG. & WDB. 4883). – **Pakistan: Chitral**: Arkari Gol, W of Tirich Mir, ca. 10000 ft., on stony ground in tufts (St. 2618, 2619).

M. Hohenackeri BOISS. (Syn. *M. Cupani* Guss. var. *Hohenackeri* Boiss.). – **E**: Kabul: Djaouz, in declivibus borealibus montium Kuh Qorogh prope Kabul, ca. 2000 m (RECH. 18014). Afghanistan. (GRIFF. 6676).

M. inaequiglumis BOISS. (Syn. *M. Cupani* Guss. var. *inaequiglumis* Boiss.). – **N**: Mazar-i Sharif: In faucibus ab Haibak austro-orientem versus, 600–700 m (RECH. 16352). Maymana: Balcheragh, Darrah Balcheragh, ca. 1200 m, on stony slopes (HDG. & WDB. 3775). – **E**: Ghazni: Sang-i Masha, ca. 2500 m (RECH. 17462). Kabul: Tang-e Gharru bei Kabul, 1600–1700 m (KN.). In faucibus Tang-e Gharru, inter Kabul et Sarobi, 1100–1300 m (RECH. 16934). Sarobi, steinige, Steppe (V. 1612). Koh-i Asmai, Berg im Norden von Kabul, ca. 1700 m (KN. 428, Sch. 56). Felshang am Westhang des Scher Darwasah, ca. 1800 m (G. 510). Berghang am linken Ufer des Paghman-Flusses, ca. 2750 m (G. 513). – **C**: Unai Pass, ca. 3000 m (HDG. & WDB. 4532). – **Pakistan: Chitral**: Arandu, SW of Drosh, ca. 4000 ft., on rock ledges in tufts (St. 2293). Mirjhani, SW of Drosh, ca. 4500 ft., on dry cliffs in tufts (St. 2282).

M. jacquemontii DECNE. in JACQ. (Syn. *M. Cupani* Guss. var. *breviflora* Boiss.). – **E**: Ghazni: Inter Miradina et jugum Ghoutch Kol, a Sang-i Masha septentriones versus, ca. 3300 m (RECH. 17614). Kabul: Schlucht Tang-e Gharu nächst dem Maipar, ca. 1720 m, unter dem Gipfel eines steilen Berges, ca. 1720–1730 m (G. 509). Scher Darwasa bei Kabul, ca. 1700 m, Nordhang (KN. 491). Dolomitfelswand am Osthang des Korogh-Massivs, ca. 2550 m (G. 512). Gipfel im Korogh-Massiv, ca. 2800 m (G. 514). An einer steilen Gneissfelswand im Paghman-Tal, ca. 2480 m (G. 511). In valle Paghman prope Kabul, 2300–2800 m (RECH. 17175). – **Pakistan: Chitral**: Turkho Valley, between 36°25' N, 72°22' E, and 36°45' N, 72°37' E, ca. 9000 ft., dry hillside (B. L. 1057). Tirich Mir Gebiet: Oberhalb von Bomosto, 3100–3500 m (KN. 1566).

M. persica KUNTH (Syn. *M. Cupani* Guss. var. *vestita* Boiss.). – **E**: Tang-e Saidan, östlich von Kabul, Steppe (L. 778). Bozghalak, Steppe (L. 1960/808). Paghman, 17 miles W of Kabul, 8000–9000 ft. (Ch.-M.). – **NE: Nuristan**: Oberhalb Papruk im Papruk-Tal, Ostseite des Mrami- (Papruk-) Passes, 2500–3500 m (KN. K-30).

*Pooideae-Monermeae****Parapholis*** C. E. HUBBARD

P. incurva (L.) C. E. HUBBARD, Blumea, Suppl. 3: 14 (1946). (Syn. *Aegilops incurva* L., *Lepturus incurvatus* (L.) TRIN.). – **SW**: Herat, ca. 900 m (K. 3073). – **SE**: Kandahar: An nassen Sandstellen bei Kandahar in Richtung Kalat-i Ghilzai, ca. 1100 m (KN. 223-a).

*Pooideae-Oryzaceae****Oryza*** L.

O. sativa L. – **E**: Kabul: Gulbagh bei Kabul, ca. 1800 m (G. 379). – **Pakistan**: **Chitral**: Lutkuh- (Lutkho-) Tal bei Shoghor, ca. 1510 m, kultiviert (KN. 1597, 1598). Zwischen Reshun und Koghozi im Yarkhun-Tal, 1650–1800 m, angebaut (KN. 2010-a, -b).

*Pooideae-Pappophoreae****Enneapogon*** DESV. ex P. BEAUV.

E. persicus BOISS. (Syn. *Pappophorum persicum* (BOISS.) STEUD.). – **N**: Mazar-i Sharif: In faucibus fluvii Balkh supra Aq Kupruk, 700–800 m (RECH. 16314). Aq Kupruk, in crevices of rocks, ca. 750 m (HDG. & WDB. 3922). Kataghan: In valle fluvii Kunduz inter Doshi et Doab, 800–1300 m (RECH. 16367). E of Pul-i Khomri, limestone rocks, ca. 750 m (HDG. & WDB. 4041). Pul-i Khomri, in valle fluvii Kunduz, ca. 700 m, in collibus aridis calcareis (RECH. 16498). – **SE**: Pirzada, near Kandahar, ca. 1000 m (K. 2092). – **E**: Tisin, an der Strasse von Kabul nach Jallalabad (KN. 2184). Hills 30 miles E of Kabul, ca. 7800 ft. (M.). In der Kabul-Schlucht westlich von Jallalabad, ca. 600 m, Granit (KN. 657-b). Südhang des Aliabader Berges bei Kabul, ca. 1860 m (G. 473-a). Scher Darwasa, Nordhang, ca. 1700 m (KN. 387-a). Berg NNW vom Stausee bei Chord Kabul, ca. 2280 m (G. 473-b). In collibus ad septentriones urbis Kabul, ca. 1800 m (RECH. 17085). Fels bei Aliabad (N. 1951/105). – **C**: In valle Ajar “Königsthal” a Doab occidentem versus, 1400–1500 m (RECH. 16616). A Naourak austro-occidentem versus, ca. 2480 m (RECH. 18922). – **Pakistan**: **Peshawar**: In collibus supra Dargai, ca. 400 m (RECH. 19626).

*Pooideae-Phalarideae****Phalaris*** L.

Ph. arundinacea L. – **E**: Kabul: Gusargah bei Kabul, an einem Bewässerungsgraben in einem Garten, ca. 1700 m (G. 380). – **C**: Shibar Pass, ca. 2500 m (K. 3053). Shibar Pass, Wiesengraben (V. 2807).

Ph. minor RETZ. – **N**: Kataghan: Kunduz, in horto inculto (RECH. 16032). Pul-i Khomri (V. 710, 2048). – **NW**: Maymana: Between Belcheragh and Maymana, ca. 1000 m, in the side of a ditch (HDG. & WDB. 3800). – **SW**: Herat, ca. 1000 m (K. 4263). – **SE**: Kajkai, NNW of Kandahar, ca. 1000 m (K. 3053).

Crypsis AIT.*Pooideae-Sporoboleae*

C. aculeata (L.) AITON – **E:** Ghazni: Ad marginem orientalem altoplanitiei Dasht-e-Nawar (Naour), ca. 3000 m (RECH. 17806). Kabul: Auf einer Weidewiese zwischen Kartetschar und Aliabad bei Kabul, ca. 1780 m (G. 384). Wazirabad, bei Kabul (N. 1950/38, 39).

C. schoenoides (L.) LAM. (Syn. *Phleum schoenoides* L., *Heleochloa schoenoides* (L.) HOST). – **N:** Aqtscha, Flussaue (N. 1950/213). – **SE:** Kandahar: Boghra, südlich von Ghirishk, am Rande salziger Tümpel (V. 1308). – **E:** Kabul: Schotterbank am Ufer des Kabul-Flusses zwischen Tang-i-Saidan und Lallandar, ca. 1810 m (G. 386). Kartetschar, ca. 1780 m, Graben (G. 381). Pandscheschah bei Kabul (N. 1950/831). Ad stagnum Band-e Kharghak, inter Paghman et Kabul, ca. 2000 m (RECH. 386). In einem Garten in Kabul, ruderal, ca. 1780 m (G. 382, 383).

Oryzopsis MICHX.*Pooideae-Stipeae*

Oryzopsis barbellata (MEZ) BOR, comb. nov. (Syn. *Piptatherum barbellatum* MEZ in FEDDES Repert. spec. nov. 17: 211 (1921). – **E:** Sarobi, östlich von Kabul (V. K-231). Berg am linken Ufer des Paghman-Flusses, ca. 2750 m (G. 421). – **C:** Unai-Pass, ca. 3150 m (G. 425). Kalkberg nordöstlich von Bamian, ca. 3000 m (G. 424). Zwischen Bamian und Band-i Amir, Steppe (V. 2785). In der Koh-i Baba Kette oberhalb Sard darra, ca. 4000 m (G. 427-b). An steinigen Hängen bei Band-i Amir, 2800–2900 m (RECH. 18239). Band-i Amir, Igelsteppe (V. 2761). – **Pakistan:** Kurram Valley (GRIFF. 6583).

– – var. *effusa* BOR, var. nov.

A typo ramis brevibus patentibus recedit.

E: Ghazni: Okak, ab altoplanitiei Dasht-e Nawar (Naour) boreo-orientem versus, ca. 3000 m (RECH. 17757). – **C:** Bulola, zwischen Kabul und Bamian, ca. 2780 m (G. 422-a).

The peculiar sausage-shaped hairs at the tip of the lemma distinguish this species from all others, in particular, from *O. songarica* in which the apical tuft consists of silky, narrow, golden hairs.

O. caerulescens (DESF.) RCHT. (Syn. *Milium caerulescens* DESF., *Piptatherum caerulescens* (DESF.) P. BEAUV.). – **E:** Kabul: Fels bei Aliabad bei Kabul, südexponiert (N. 1951/115).

O. fasciculata HACK. – **E:** Kabul: Kotal-i Reg, ca. 3400 m (K. 3049). – **NE:** Nuristan: Gwarnar im oberen Badschajel-Tal, ca. 1920 m, Feldränder (KN. 1201-a).

O. gracilis (MEZ) PILGER, Notizbl. Bot. Gart. u. Mus. Berl.-Dahl. 14: 347 (1939). (Syn. *Piptatherum gracile* MEZ in FEDDE, Repert. spec. nov. 17: 211 (1921)). – **Pakistan:** Balouchistan (LAGE 3857).

O. holciformis (M. B.) HACK. (Syn. *Agrostis holciformis* M. B., *Piptatherum holciforme* (M. B.) ROEM. et SCHULT.). – **E:** Kabul: Unter dem Gipfel des Koh Gaworgin, südlich vom Stausee, ca. 2950 m, *Artemisia-Stipa*-Steppe (G. 423). – **C:** Ad lacum Band-i Zolfikar prope Band-i Amir, ca. 2900 m (RECH. 18412).

O. lateralis (REGEL) STAPF ap. HOOK. f. (Syn. *Milium laterale* REGEL, *Piptatherum laterale* (REGEL) MUNRO ex AITCH.). – **E:** Ghazni: Inter Miradina et jugum Ghoutch Kol, a Sang-i Masha septentriones versus, ca. 3300 m (RECH. 17608). In jugo Ghoutch Kol, NNE Sang-i Masha, ca. 3300 m (RECH. 17651). Mittleres Paghman-Tal, westlich von Kabul (N. 1950/816). Im Paghman-Gebirge östlich von Kotal-i Kotandar, ca. 3730 m (G. 426). – **C:** Farakulum, ca. 2700 m (K. 2536). Band-i Amir, Igelsteppe (V. 2761). – **NE: Nuristan:** Shtive, ca. 2900 m (E. 1042). – Minjan, Miyan Deh, ca. 2850 m (E. 2081). – **Pakistan: Chitral:** Laspur Gol, SE of Mastuj, ca. 11000 ft., on dry slopes (St. 3103). Rosh Gol, NE of Tirich Mir, 11000–13000 ft., on stony ground (St. 2717, 2791). Baroghil Pass, ca. 12500 ft., on open slopes (St. 2986). **Swat:** Kalam, ca. 2200 m, substr. granit. (RECH. 19452). Above Ushu, 9000–10000 ft. (STEWART 25326).

O. microcarpa PILGER, Notizbl. Bot. Gart. u. Mus. Berl.-Dahl. 14: 346 (1939). – **N:** In faucibus a Tashkurghan austro-orientem versus ad Haibak, 600–700 m (RECH. 16350). – **NW:** Maymana: Darrah Abdullah, ca. 1200 m, dry rocky slopes (HDG. & WDB. 3712). – **E:** Baozghalak, 24 km NE Ghazni, ca. 2400 m, in collibus graniticis prope Shashgao (RECH. 17274). Upper part of Tang-i Gharu, Kabul to Sarobi, ca. 1800 m (HDG. & WDB. 3068). Scher Darwasa bei Kabul, Nordhang, ca. 1700 m (KN. 493-b). Tob-Fels am Scher Darwasa, ca. 1840 m (G. 118). Gipfel im Korogh-Massif, ca. 2800 m, auf Schutt zwischen Felsen, Kalk und Hornblendeschiefer (G. 420). Sanglakht supra Jalrez, ca. 2400 m, in saxosis umbrosis cilic. (RECH. 18042). Koh-i Asmai, im Norden von Kabul, ca. 1700 m (KN. 427, SCH. 55). Zwischen Botkhak und Kord-Kabul (N. 1951/370). Paghman, W of Kabul, ca. 1900 m (K. 2298). In Spalten einer steilen Felswand im Paghman-Tal, ca. 2480 m (G. 419). In valle Paghman prope Kabul, 2300–2800 m (RECH. 17094-a, -b). – **C:** Bamian: Inter Bulola et jugum Shibar, W Kabul, 2600–2800 m (RECH. 16827). In valle Ajar “Königsthal” a Doab occidentem versus, 1400–1500 m (RECH. 16617). Inter Bamian et Band-i Amir (V. 2785). – **NE: Nuristan:** Bagrami, im Nedjerau-Tal, ca. 2800 m, über der Baumgrenze (N. 1951/230). – **Pakistan: Chitral:** Bomboret, dry cliff sandstone, ca. 6800 ft. (B. L. 639). Buni, dry barren steep hillside facing West, ca. 6500 ft. (B. L. 902). Mastuj Track, Barenis, on rock ledges, ca. 6000 ft. (St. 2435). Ziarat (Lowarai Pass), ca. 7000 ft., in tufts (St. 2549).

O. Munroi STAPF ex HOOK. f. – **E:** Ghazni: Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17944). – **C:** Bamian: In declivibus saxosis aridis prope Band-i Amir, 2800–2900 m (RECH. 18299). – **NE:** Panjshir: Darrah Rastagal, Panjshir Valley, ca. 3200 m (HDG. & WDB. 5226). **Nuristan:** Ahmedi Dewane im oberen Paschgal-Tal, ca. 2590 m (KN. 1482-b). Mum-Pass, zwischen Parun- und Kantiwo-Fluss, Aufstieg von Gulnisha, 2200–2800 m (KN. 877-a). – **Pakistan: Chitral:**

Beorai Gol, S of Drosh, ca. 5000 ft., at edge of irrigation channel (ST. 3217). W of Gahirat, 35°40' N, 71°46' E, ca. 9000 ft., on dry slopes facing South (B. L. 695). **Chitral:** (HARRIS 16790). **Swat:** Madian, ca. 4500 ft. (STEWART 24423). Bahrein, ca. 5000 ft. (RAHMAN 220, STEWART 25072). Bishigram, 5000–7000 ft. (STEWART 24919). Inter Madyan et Kalam, ca. 1700 m, substr. granit. (RECH. 19384). Kalam, ca. 2200 m, substr. granit., 35° 30' N, 72°30' E (RECH. 19408, 19431, 19452).

O. pamiroalaica GRIGORJ. ex DROBOV, Fl. Uzbekist., ed. SCHREDER, 1: 190 (1941). – **NE: Nuristan:** Pashki, ca. 2500 m (A. 740). Derin, East-Nuristan (E. 1721).

O. pubiflora HACK. – **SW:** Herat: Herat to Shin Dand, ca. 1400 m (K. 3940). – **E:** Ghazni: Okak, ab altoplanitiei Dasht-e Nawar (Naour) boreo-orientem versus, ca. 3000 m (RECH. 17758). **Panjshir:** Darrah Rastagal, Panjshir Valley, ca. 3800 m (HDG. & WDB. 5175). – **C:** Unai-Pass, ca. 2800 m, felsige Halde (V. 2114). Farakulum, ca. 2700 m (K. 3048). In latere occidentali jugi Unai, 3000–3250 m (RECH. 18108). Bamian: Koh-i-Baba Range, 3400–3600 m (K. 2632, 2644). Kammregion in der Koh-i-Baba Kette, ca. 6780 m (G. 427-a). Panjao, Koh-i Baba Range, ca. 2700 m (K. 2704). – **NE: Nuristan:** An der Westseite des Semenek-Passes unterhalb der Passhöhe, ca. 3410 m, flache, steinige Matten (KN. 1513-a). Minjan, Miyan Deh, ca. 2550 m (E. 1452).

O. Wendelboi BOR, Nytt. Mag. Bot., Oslo, 1: 16 (1952). – **NE: Nuristan:** Pashki, 2300–2600 m, 9.10.6.1948 (E. 920, 948). Kantiwo im Kantiwo-Tal, ca. 2200 m, lichter Eichenwald (KN. 912-c). – **Pakistan: Chitral:** Südabfall des Tirich-Mir oberhalb von Bomosto, 3500–4200 m (KN. 1556).

Stipa L.

St. capensis THUNB. – **SW:** Jija, between Shin Dand and Farah, ca. 900 m (K. 4265). – **SE:** Kandahar: Germaub, nördlich von Ghirishk, ca. 1200 m (KN. 385). – **E:** Nidjrao, nordöstlich von Sarobi, östlich von Kabul, ca. 2500 m (V. 2345). Im Kabul-Tal zwischen Sarobi und Darunta (V. 1967). In der Grassteppe zwischen Nimla und Jallalabad, ca. 600 m, auf Diluvialschotter (KN. 629). Zwischen Tisin und dem Heiligen-grab Seh Baba, an der Strasse von Kabul nach Jallalabad, auf Diluvialschotter (SCH. 68). – **Pakistan: Waziristan** (STEWART).

St. caragana TRIN. (Syn. *Lasiagrostis caragana* (TRIN.) TRIN.). – **Pakistan:** Kurram Valley (AITCH. 890).

St. glareosa P. SMIRN. in FEDDES Repert. spec. nov. 26: 266 (1929). – **E:** Ghazni: In faucibus Say Khoshkak (Nawar Kotal), inter Okak et Behzud, ca. 3150 m (RECH. 17863).

St. Hohenackeriana TRIN. et RUPR. – **SW:** Herat, ca. 1000 m (K. 4268). – **E:** Ghazni: Ghazni, ca. 2400 m (K. 3069). – **Pakistan: Quetta:** Chaman, ca. 1000 m (K. 3070).

St. Jacquemontii JAUB. et SPACH (Syn. *Lasiagrostis Jacquemontii* (JAUB. et SPACH) MUNRO). – **Pakistan:** Mount Ilam, ca. 8000 ft. (STEWART 24395).

St. khirghisorum P. SMIRN. in FEDDE, Repert. spec. nov. 21: 232 (1925). – **NE: Nuristan:** Vaigel (E. 2034).

St. lingua JUNGE – **SW:** Herat: Zwischen Herat und Farah, ca. 1500 m, Gebirgssteppe (G. 413). – **E:** Kabul: Logar-Tal, südlich von Kabul, Felssteppe (V. 1726). – **C:** Ghorat: In jugo Kotal Chorzakh inter Qala Sharak et Chischt, ca. 2450 m (RECH. 19182). Dolaini, Darreh Garmak, inter Qala Shahrak et Naourak, ca. 2540 m (RECH. 18898).

St. munroana BOR, Kew Bull. 1954: 500 (1954). – **Pakistan:** Siah Kuh (GRIFF. 1066).

St. orientalis TRIN. – **E:** Oberhalb Schechan im Nedschrab-Tal, ca. 2750 m (G. 412). – **C:** Bamian: Kalkberg bei Bulola, ca. 2780 m (G. 411, V. 2256, 2257, 2277).

St. pennata L. – **N:** Kataghan: In jugo Paigah Kotal, inter Haibak et Pul-i Khomri, ca. 1500 m (RECH. 16447). – **E:** Ghazni: In jugo Kotal-e Ketschru NW Sang-i Masha, Jaghuri Distr., ca. 2880 m, substr. granit. (RECH. 17521). Okak, NE altoplanitiei Dasht-e Nawar (Naour), ca. 3000 m (RECH. 17748). Inter Miradina et jugum Ghoutch Kol, N Sang-i Masha, ca. 3300 m, distr. Malestan (RECH. 17627). – **E:** Kabul: Aliabad bei Kabul, Felssteppe (V. 1555). – **C:** Bamian: Band-i Amir, in der Koh-i-Baba Kette, ca. 3200 m, *Artemisia*-Steppe (V. 2251, 2773). – **NE: Nuristan:** Zwischen Waigelek und Bardadesch, am Spuk-Pass, Nordseite, ca. 2500 m (KN. 1197). Westseite des Semenek-Passes, ca. 3410 m, flache steinige Matten (KN. 1509).

Stipa platypoda BOR, sp. nov.

Ab aliis speciebus huius generis callo glabro, basi expanso distincta. – Gramen perenne usque 60 cm altum. Culmi caespitosi, erecti, teretes, simplices, infra nodos dense puberuli; internodia inferiora retrorse hispida. Foliorum laminae involutae, supra ad nervos marginesque scabrae, infra laeves glabraeque, in apicem pungentem productae; vaginae striatae, laxe pilosae, superiores arcte complectentes, inferne a culmis solutae; ligula ad seriem pilorum redactae. Panicula in vagina superiore abscondita; spiculae superiores demum emergentes. Glumae aequales, ca. 6 cm longae, acuminatissimae, hyalinae, 3-nerviae. Lemma 10–10,5 mm longum, teres, 5-nerviium, inter nervos lineari-pilosum, ad marginem usque apicem ciliatum, apice pilis 1,5 mm longis coronatum; callus 1–2 mm longus, glaber, apice in pedem ambitu elliptico expansus; palea lemmati aequilonga, 2-nervia; stamina 3; antherae 6 mm longae, haud barbatae; lodiculae 2, lanceolato-acuminatae, 3 mm longae; styli 2; stigmata plumosa; arista usque 16 cm longa; columna 2 cm longa, glabra vel sparsissime pilis longis oblecta, valde torta; aristula inferne pilis densis 1 mm longis, apicem versus brevioribus instructa.

Afghanistan, Hari-rud valley, profuse over the whole plain, 26.5.1885, (ATCHISON 1137, Holotypus, K).

This species is easily distinguished from all others in the area by the tip of the basal callus of the fruit, being expanded into an easily observed foot.

St. sibirica (L.) LAM. – **NW**: Maymana: Belcheragh, Darrah Belcheragh, ca. 1200 m, on stony slopes (HDG. & WDB. 3776). – **NE**: **Nuristan**: Aschpi-Pass (N. 1951/1042). – **Pakistan**: Kurram Valley (HARSUKH 15504). Bahrein, ca. 8000 ft. (STEWART 24496).

St. splendens TRIN. in SPRENG. (Syn. *Lasiagrostis splendens* (TRIN.) TRIN.). – **C**: Bulola, ca. 2250 m, am Wegrund (G. 414). Inter Bamian et Band-i Amir, 2800–3000 m (RECH. 18157). Bamian, Ackerraine (V. 2243). – **Pakistan**: **Chitral**: Mastuj-Baroghil Track, ca. 8000 ft., on river banks and at edge of fields (St. 2888, 2889). Yarkhun, between 36°30' N, 72°40' E, and 36°48' N, 73°05' E, ca. 8000 ft., roadside hedgerow (B. L. 83).

St. Szowitsiana TRIN. ex HOHEN. – **N**: Mazar-i Sharif: Inter Chashma-e Shafal et Aq Kupruk, 800–1000 m (RECH. 16285). Maymana: Ca. 5 km outside of Maymana, ca. 500 m (HDG. & WDB. 3598). – **E**: Ghazni: Bozghalak, in collibus graniticis prope Shashgao, 24 km NE Ghazni, ca. 2400 m (RECH. 17301). Dahan-e Abdila, 35 km E Sar-i Chashma, ca. 2800 m, in saxosis serpentinicis (RECH. 18608). In jugo Ghoutch Kol, NNE Sang-i Masha, ca. 3300 m (RECH. 17650). In monte ad occidentem jugi Sardalu, inter Qarabagh et Sang-i Masha, ca. 2600 m (RECH. 17364). Berg südöstlich von Sarobi, östlich von Kabul, ca. 1430 m (G. 398). Usman Kehl, unfern Sarobi, steinige Steppe (V. 1047, 1604). Tisin, beim Stausee an der Strasse von Kabul nach Jallalabad, Südhang (KN. 584). Unter einem Berggipfel in der Tang-e Gharu östlich von Kabul, 1600–1700 m (KN. 526, SCH. 67). In der Tang-e Gharu nächst dem Maipar, ca. 1720 m (G. 399). Scher Darwasa bei Kabul, Nordhang, ca. 1700 m (KN. 490-a). In declivibus borealibus montis Scher Darwasa, 1800–1900 m, substr. Gneiss (RECH. 17008). Tobfels am Scher Darwasa, ca. 1840 m (G. 400). Grabmoschee Chodsche Safa am Scher Darwasa, ca. 1880 m (G. 401). NNW vom Stausee bei Chord Kabul, ca. 2280 m (G. 402). Gipfel im Korogh-Massif bei Kabul, 2880–2800 m (G. 404, 416). Koh Gaworgin bei Tschakewardak, ca. 2950 m, südlich vom Stausee (G. 405). Wardak, ca. 2800 m, Steinhalde (V. 796). Aliabad bei Kabul (V. 907, 1561). Logar-Tal, südlich von Kabul, ca. 2500 m, Felssteppe (V. 1725). In valle Paghman, W Kabul, 2300–2800 m, substr. Gneiss (G. 403, RECH. 17100). Kabul, ca. 1700 m (K. 4005). – **C**: Hauz-i Mahiha, ca. 2500 m (K. 2389). Kalkberg nordöstlich von Bamian, ca. 3000 m (G. 408, 409). Oberhalb Doab, Felssteppe (V. 467, 1769). Vorberg der Koh-i Baba Kette, 2600–2800 m (G. 406, 407). Zwischen Bamian und Band-i Amir, Steppe (V. 2786). In declivibus saxosis aridis prope Band-i Amir, 2800–2900 m (RECH. 18207). Hochfläche oberhalb der Seen von Band-i Amir, ca. 2950 m (G. 410). Ad lacum Band-i Gholoman, prope Band-i Amir, ca. 2800 m (RECH. 18484). Band-i Amir, ca. 2800 m (K. 2851). Ghorat: Qala Sharak, ca. 2000 m (RECH. 19142). Dolaini, Darreh Germak, inter Qala Sharak et Naourak, ca. 2540 m (RECH. 18899).

St. trichoides P. SMIRN. – **E**: Kabul: Unter dem Gipfel des Sebroderakan bei Scherwaki im Logar-Tal, ca. 2400 m (G. 415). Gipfel im Korogh-Massif bei Kabul, ca. 2800 m (G. 404, 417). – **Pakistan**: **Chitral**: Rosh Gol, NE of Tirich Mir, ca. 10000 ft. (St. 2806).

Pooideae-Triticeae

***Aegilops* L.**

Ae. Kotschyi Boiss. (Syn. *Ae. triuncialis* L. var. *Kotschyi* (Boiss.) Boiss.). – **SW:** Herat: Herat, ca. 1100 m (K. 4249). – **E:** Kabul: Sarobi, östlich von Kabul, steinige Steppe (V. 1864 pr. pte.). – **Pakistan:** (GRIFF. 549).

Ae. Tauschii Coss. – **N:** Kataghan: In jugo Argana, ca. 20 km W Kunduz, ca. 600 m (RECH. 16112). Kunduz, in declivibus siccis ad aerodromum, ca. 450 m, substr. Loess (RECH. 16084). Pul-e Khomri, in valle fluvii Kunduz, ca. 700 m, in collibus aridis calc. (RECH. 16434, 16497). Inter Haibak et jugum Paigah Kotal, 1300–1500 m (RECH. 16408). Haibak, ca. 3000 ft. (M.). – **NW:** Khuraja, ca. 700 m (K. 3794). – **SW:** Herat, ca. 1700 m (K. 3824). Pirzada near Kandahar, ca. 980 m (K. 2072). – **E:** Kabul: Ca. 5 km S Arghandab, inter Kabul et Ghazni, ca. 1900 m (RECH. 17210). Sarobi, Steppe (V. 2574). Khinjuk-Berg südlich Kabul (N. 1950/811). Schlucht des Kabul-Flusses: Gang-i Gharu, 1600–1700 m (KN. 522-b, SCH. 60). Tisin, an der Strasse von Kabul nach Jallalabad (KN. 591). Beim Königsschloss von Paghman, ca. 2160 m (G. 709).

Ae. triuncialis L. – **N:** Kataghan: In jugo Argana, ca. 20 km W Qunduz, ca. 600 m (RECH. 16113). In jugo Paigah Kotal inter Haibak et Pul-i Khumri, ca. 1500 m (RECH. 16480). Halfway between Pul-i-Khumri and Samangan (Aybak), ca. 900 m, on low hills (HDG. & WDB. 3522). Mazar-i Sharif: In faucibus fluvii Balkh supra Aq Kupruk, 700–800 m (RECH. 16322). Inter Chashma-e Shafal et Aq Kupruk, 800–1000 m (RECH. 16257). – **NW:** Maymana: 30 km W Maymana, ca. 500 m, near stream bed (HDG. & WDB. 3644). – **SW:** Herat, 1100–1600 m (K. 2275, 4250). Herat, Steppe (AMSEL). – **E:** Lataband, bei Kabul (V. K-224). Sarobi, östlich von Kabul (V. 1864 pr. pte). Jagdalak, ca. 5000 ft. (Kz. 8248). An der Strasse von Kabul nach Jallalabad zwischen dem Heiligengrab Seh-Baba und Nimla (KN. 615, SCH. 69, 77-b). – **NE:** Badakhshan: Faizabad, 1100–1900 m (E. 2108).

***Agropyron* GAERTN.**

A. afghanicum MELDERIS in BOR, The Grasses of Burma, Ceylon, India, and Pakistan 689 (1960). – **Persia:** Khorasan (AITCH. 1145 pr. pte.).

A. Borianum MELDERIS in BOR, The Grasses of Burma, Ceylon, India and Pakistan 690 (1960). – **Pakistan:** **Chitral:** (TOPPIN 584). **Swat:** Kalam (RAHMAN 229). Sho Nala (RAHMAN 239).

A. canaliculatum NEVSKI, Bull. Jard. Bot. Acad. Sc. URSS. 30: 509 (1932). (Syn. *A. longae-aristatum* (BOISS.) BOISS. var. *Aitchisonii* Boiss.). – **NE: Nuristan:** Above Netshingel (E. 1691). Auf dem Wege zwischen Aschpi-Pass, ca. 3400 m, und dem Ort Kuschtos, ca. 2500 m (N. 1951/695, 720). Zwischen Kotal-e Agok (Agok-Pass) und Alm bis Ort Waigel (N. 1951/873, 875, 920). W. Nuristan: Pitwei-Tal zwischen Pirdum Pass und Kulam (Munui), ca. 2200–2900 m (KN. 1075). C.-Nuristan: Donda-Pass, Ostseite in Richtung Aschenu, ca. 2000–3000 m (KN. 1241). E.-Nuristan: Mrami- (Papruk-) -Pass, Ostseite bis Papruk, trockene Hänge im Graman-Tal, ca.



Fig. 10. *Agropyron colorans* MELDERIS, a part of the spike (G. 698, Holotypus, W).

Waigelek zu, 2500–2700 m (KN. 1198-a). – E: Kabul: Oberes Paghman-Tal (N. 1950/792).

Agropyron colorans MELDERIS, sp. nov. – Fig. 9, 10.

Gramen perenne, 35–60 cm altum, caespitosum. Culmi graciles, 4–5-nodi, basi ascendentes vel geniculati, teretes, striati, sub nodis brevissime pubescentes ceterum glabri laeves. Folia glauco-viridia; vaginae inferiores pilis brevissimis tectae, vaginae superiores glabrae laeves; ligulae ca. 0,2 mm longae, hyalinae, laceratae; auriculae glabrae laeves, breves, angustae, patentes; laminae 5–19 cm longae, 2–6 mm latae, planae, supra nervis marginibusque scabrae, interdum nervis sparse longipilosae, subtus glabrae laeves. Spica 6–8 cm longa, densiuscula, erecta, purpureo-tincta; rhachis glabra laevis, sed marginibus breviciliata. Spiculae 12–13

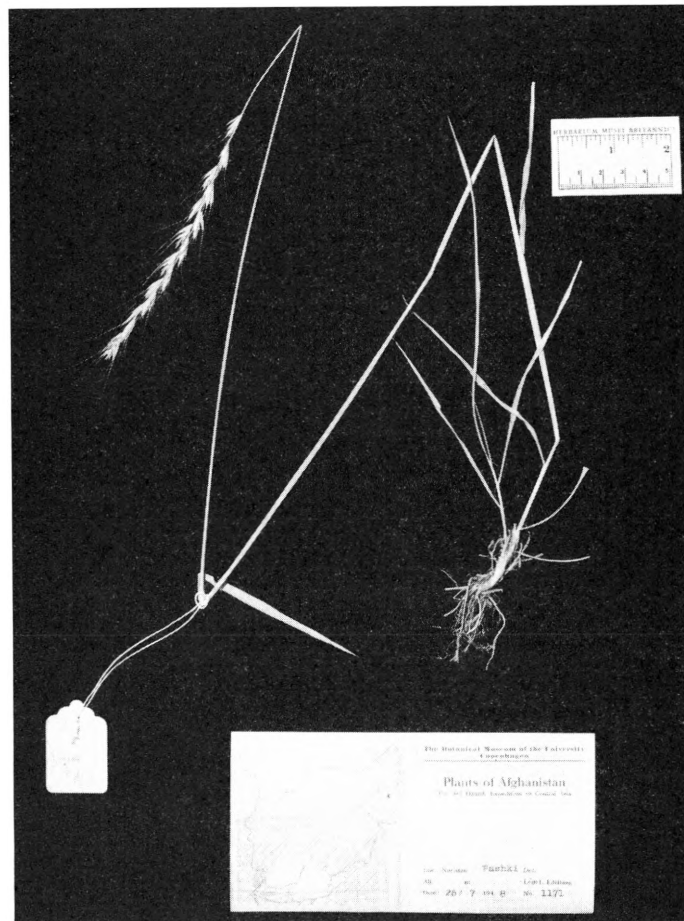


Fig. 11. *Agropyron Edelbergii* MELDERIS (E. 1171, Holotypus, C).

mm longae (aristis exclusis), anguste lanceolatae, circiter 3-florae. Glumae inaequilongae, gluma inferior 6,5–7,5 mm, gluma superior 7,5–9 mm longa, lanceolatae vel anguste oblongae, apicem versus \pm hyalino-marginatae, apice abrupte acuminatae vel brevistaristatae, arista usque ad 1,5 mm longa, 3–5-nerviae, leviter scabrae. Lemma 8,5–10 mm longum, lanceolatum, appresso-pilosum, nervis apicem versus conspicuis, brevistaristatum, arista usque usque ad 1,5 mm longa. Palea lemmati subaequilonga, anguste lanceolata, apice acuto-emarginata, bicarinata, carinis brevissime ciliata, dorso brevisetulosa. Rhachilla 1,5–2 mm longa, strigosa. Antherae ca. 2,5 mm longae. – Affinis *A. mutabili* DROB. sed spiculis non unilateralibus, glumis brevioribus, apicem versus \pm late hyalino-marginatis, apice abrupte acuminatis vel brevistaristatis, lemmate appresso-piloso, arista brevior, rhachilla strigosa, differt.

NE: Panjshir: Porande-Tal, Seitental des Panjshir-Tales bei Basarak, ca. 2800 m, 25.8.1950 (GILLI 698, Holotypus, W).



Fig. 12. *Agropyron Edelbergii* MELDERIS, a part of the spike (E. 1171, Holotypus, C) 4.5/1.

A. curvatiforme NEVSKI, Bull. Jard. Bot. Acad. Sc. URSS. 30: 633 (1932), in adnot. – **Pakistan:** Kurram Valley (AITCH. 903).

***Agropyron Edelbergii* MELDERIS, sp. nov.** – Fig. 11, 12.

Gramen perenne, 30–90 cm altum, caespitosum. Culmi graciles, 3–4-nodi, teretes, striati, sub et in nodis dense brevissime pubescentes ceterum glabri laeves. Folia viridia; vaginae inferiores saepe pilis brevissimis tectae, superiores plerumque glabrae laeves; ligulae 0,2–1 mm longae, hyalinae, apice laceratae; auriculae glabrae laeves, angustae, falcatae; laminae 6,5–11 cm longae, 2,5–4 mm latae, planae, utrinque nervis marginibusque scabrae, supra interdum plerumque nervis marginibusque scabrae, supra interdum plerumque nervis sparse longipilosae. Spica 8–12,5 cm longa (aristis inclusis), erecta vel subnutans; rhachis plerumque costis scabridula, marginibus breviciliata. Spiculae 0,8–1,4 cm longae (aristis exclusis), anguste

lanceolatae, virides, 3–4-florae. Glumae inaequilongae, gluma inferior 6–8,5 mm, superior 7,5–10 mm longa, lanceolatae vel anguste lanceolatae, hyalino-marginatae, apice sensim acuminatae vel breviaristatae, arista usque ad 3 mm longa, 3–5-nerviae, nervis conspicuis, scabris. Lemma 7–9,5 mm longum, oblongo-lanceolatum, brevisetulosum, nervis apicem versus conspicuis, aristatum, arista 1–3 cm longa, erecta vel leviter curvata. Palea lemmati aequilonga vel subaequilonga, anguste lanceolata, apice obtusa vel emarginata, bicarinata, carinis breviciliata dorso brevisetulosa. Rhachilla strigosa. Antherae ca. 2,5 mm longae, flavae. – Ab *A. kuramensi* MELDERIS foliorum vaginarum marginibus glabris, glumis longioribus, lanceolatis vel anguste lanceolatis, marginibus hyalinis latioribus, apice saepe breviaristatis, lemmate brevisetuloso, arista longiore, differt.

– – var. ***Edelbergii***.

Culmi 60–90 cm alti. Foliorum laminae supra plerumque sparse longipilosae; ligulae ca. 0,2 mm longae; gluma inferior 6–8,5 mm, gluma superior 7,5–10 mm longa, uterque saepe breviaristatae, arista usque ad 1,5 mm longa; lemma 7–8 mm longum, arista 1–2,5 cm longa, erecta vel subcurvata.

NE: Nuristan: Pashki, 25.7.1948 (EDELBERG 1171, Holotypus, C). Ibidem, ca. 2300 m, 25.7.1948 (E. 1179).

– – var. ***Kerstani*** MELDERIS, var. nov.

Culmi 30–45 cm alti. Foliorum laminae supra non longipilosae; ligulae 0,3–1 mm longae; gluma inferior 6–6,5 mm, gluma superior 7–8 mm longa, utraque saepe breviaristata, arista 1,5–3 mm longa; lemma 9–9,5 mm longum, arista 2,5–3,5 cm longa, curvata.

NE: Nuristan: Aschkun-Gebiet, Donaa-Pass, Matten auf der Westseite des Passes, ca. 2500–3200 m, 20.7.1935 (KERSTAN 1251-b, Holotypus, W, Isotypus, Bm).

A. elongatiforme DROB. – **NW:** Obeh, E of Herat, ca. 1700 m (K. 3773).

A. × interjacens MELDERIS in BOR, The Grasses of Burma, Ceylon, India, and Pakistan 691 (1960). – **Pakistan:** I' Ishkuman Aghost (SCHMID 2430).

A. intermedium (HOST) P. BEAUV. – **Pakistan: Balouchistan:** Spin Karez (NASIR 28476).

A. kuramense MELDERIS in BOR, The Grasses of Burma, Ceylon, India, and Pakistan 691 (1960). – **Pakistan:** Kurrum Valley, fields near Kaiwas (AITCH. 709).

A. macrolepis DROB. **NE: Nuristan:** Donda-Pass, Ostseite in der Richtung Atschenu, 2000–3000 m, Felsen in der Hochwaldregion (KN. 1241-a). Aschkun-Gebiet: Donda-Pass, Matten auf der Westseite des Passes, 2500–3200 m (KN. 1251-d).

A. pectiniforme ROEM. et SCHULT. – **NW:** Ardewan, N of Herat, ca. 1500 m (K. 2248). NW Afghanistan (AITCH. 511).

A. repens (L.) P. BEAUV. – **Persia: Khorasan** (AITCH. 1145 pr. pte.), Aoi Khurak, ca. 9000 ft. (Kz. 13787-a), Biankhel (AITCH. 886), Zabardastkalla (AITCH. 1259). – **E:** Ghazni: Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17940-a). Scharenau (Tschaman Wazirabad), ca. 1750 m, Weizenfeld (G. 694). Garten der Nedschat-Schule in Kabul, Bewässerungsgraben (G. 695, 696). Beim

Königsschloss von Paghman, westlich von Kabul, ca. 2160 m, buschiger Hang (G. 697). – **C:** Qala-e Wazir, inter Sar-i Chashma et jugum Unai, ca. 2900 m (RECH. 18051). Lal-i Zarjangel, ca. 2500 m (K. 2760). Zwischen Bulola und Doab (V. 433). Ghorat: Qala Sharak, ca. 2000 m (RECH. 19147).

A. semicostatum NEES ex STEUD. (Syn. *A. striatum* NEES ex STEUD., *Roegneria nuristanica* OHWI). – **NW:** Ca. 65 miles NE of Herat, ca. 2500 m (STUTZ 645). – **E:** Panjshir: Porande-Tal, Seitental des Panjshir-Tales bei Basarak, Wiese am rechten Porande-Ufer östlich von Daolana, ca. 2350 m (G. 691). **Nuristan:** Gusalak, Kurdertal, Seitental des Petsch (N. 822). Zwischen Kotal-e Agok (Agok-Pass) und Alm bis Ort Waigel (N. 1951/874, 884, 933). Darim-Tal ab Ort Darim aufwärts, ca. 1900–2400 m (N. 1951/1012). East-Nuristan (E. 1157). C.-Nuristan: Oberes Petsch-Tal: Felshänge bei Wama, ca. 1400 m (KN. 756). W.-Nuristan: Kulam (Munui) im Kulam-Tal, ca. 2150 m (KN. 1046). Pitwei-Tal zwischen Pirdum-Pass und Kulam (Munui), ca. 2200–2900 m (KN. 1075). Wurertschitur im Tschitur-Tal, ca. 2000–3000 m (SCH. 130). Im Ramgel-Tal südlich von Gadwol, auf Trockenschotter (SCH. 125). NW.-Nuristan: Oberes Ramgel-Tal oberhalb Puschol, ca. 2250 m (KN. 1114). – **E:** Kabul: Zwischen abgestürzten Felsblöcken und in Felsspalten einer steilen Wand im Paghman-Tal, 2500–2560 m (G. 691, 692). Paghman, W of Kabul, ca. 1900 m (K. 2318). – **Pakistan:** Kurram Valley, near Shalizan, Shendtoi, and Sikaram (AITCH. 803, 903). **Chitral:** (HASSAN-UD-DIN 36). BRIT (SIDDIQUI & RAHMAN 26749, 26758). **Swat:** Kalam, ca. 2200 m, substr. granit. (RECH. 19430).

× *Elyhordeum* MANSFELD 1955 (Syn. x *Elymordeum* Lepage 1957).

× *Elyhordeum* Schmidii (MELDERIS) MELDERIS, comb. nov. (Syn. x *Elymordeum schmidii* MELDERIS in BOR, The Grasses of Burma, Ceylon, India and Pakistan, 696 (1960)). – **Pakistan: Chitral:** Upper Yarkhun Valley (SCHMID 2334).

Elymus L.

E. dahuricus TURCZ. (Syn. *Clinelymus dahuricus* (TURCZ.) NEVSKI). – **C:** Zwischen Bulola et Doab, feuchte Wiesen (V. 2100). – **NE: Nuristan:** Pashki, ca. 2300 m (E. 1330). Parun-Tal bei Pashki, Aue-Wiesen am Uferrand, ca. 2200 m (KN. 1357-a).

E. dasystachys TRIN. (Syn. *Aneurolepidium dasystachys* (TRIN.) NEVSKI). – **NE:** Minjan, Miyan Deh, ca. 2500 m (E. 2082, 2107). – **Pakistan: Chitral:** Tirich-Mir-Gebiet: Ojhor-Tal bei Tsusum, nach Bomosto zu, ca. 2800 m (KN. 1577).

E. multicaulis KAR. et KIR. (Syn. *Aneurolepidium multicaule* (KAR. et KIR.) NEVSKI). – **C:** Der-i Shikari, feuchter, ansalziger Boden (V. 2094).

E. nutans GRISEB. (Syn. *Clinelymus nutans* (GRISEB.) NEVSKI). – **NE: Nuristan:** Gusalak, ca. 1000 m (E. 1523).

E. Paboanus CLAUS (Syn. *Aneurolepidium Paboanum* (CLAUS) NEVSKI).

– – var. *Paboanus* – **E:** Ghazni: Okak, ab altoplanitiei Dasht-e Nawar (Naour) boreo-orientem versus, ca. 3000 m (RECH. 17733). Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17940).

– – var. *saxatilis* MELDERIS, var. nov.

A typo rhachidi glabra, sub spiculis strigosa, marginibus longiciliata, spiculis binis, glumis in parte basali glabris laevibus, apice scabris, lemmate sparse appressolongipiloso, palea lemmati vulgo longiore, differt.

C: Bamian: Band-i Amir, in declivibus saxosis aridis, 2800–2900 m (RECHINGER 18244-a, Holotypus, W). Band-i Amir, ca. 2800 m (K. 2849). Band-i Amir, *Artemisia*-Steppe, an sandigen Stellen, ca. 3200 m (V. 2255). Band-i Amir, Seeufer (N. 1951/439). Obere und mittlere Seen von Band-i Amir (N. 1951/454). Band-i Amir, am untersten See (N. 1951/461).

– – var. *scabridus* MELDERIS, var. nov.

Affinis *E. paboano* var. *saxatili* sed foliorum vaginarum marginibus non longiciliatis, glumis scabris, lemmate in parte basali et apicem versus scabrido pilis brevissimis tecto, dorso ± glabro, differt.

C: Bamian: Beim “Kleinen Drachen” (VOLK 2787, Holotypus, W, Isotypus, BM).

Eremopyrum (LEDEB.) JAUB. et SPACH

E. Bonaepartis (SPRENG.) NEVSKI (Syn. *Triticum Bonaepartis* SPRENG., *T. squarrosus* ROTH). – **SE:** Kandahar: Kalat-i Ghilzai, zwischen Kandahar und Kabul, *Artemisia*-Steppe beim Hotel (KN. 152-a, 169). *Artemisia-Papaver*-Steppe zwischen Kalat-i Ghilzai und Kandahar (KN. 196-b). Kandahar-Umgebung, in Richtung Kalat-i Ghilzai, ca. 1100 m (KN. 246-a). Goldgrube im Norden von Kandahar in der Steinsteppe, ca. 1000 m (KN. 2225). – **E:** Ghazni: In monte ad occidentem jugi Sardalu, inter Qarabagh et Sang-i-Masha, ca. 2600 m, substr. gyps. (RECH. 17355). Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17945). Im Kabul-Tal, zwischen Tangi Gharu und Kabul, ca. 1770 m (G. 699, 702). Gulbagh bei Kabul, ca. 1840 m (G. 703). Koh-i Asmai, Berg im Norden von Kabul, ca. 1700 m (KN. 430-a). – **C:** In valle ca. 16 km a Doab meridiem versus, ca. 1600 m (RECH. 16691). Am Fuss einer steilen Felswand im Kamard-Tal, westlich von Doab, ca. 1630 m (G. 701). – **N:** Haibak, ca. 3900 ft. (M.). Doshi, ca. 2700 ft. (M.). – **Pakistan: Quetta:** Quetta (NORRIS 65). **Balouchistan:** Killa Abdulla (DUTHIE).

E. Bonaepartis (SPRENG.) NEVSKI var. *sublanuginosum* (DROB.) MELDERIS (Syn. *Agropyron orientale* (L.) JAUB. et SPACH var. *sublanuginosum* DROB., *Hordeum hirsutum* BERTOL., *Eremopyrum hirsutum* (BERTOL.) NEVSKI). – **SW:** Herat: Jija, between Shin Dand and Farah, ca. 900 m (K. 4266). – **SE:** Kandahar: Pirzada near Kandahar, ca. 900 m (K. 2014). Goldgrube in der Steinsteppe im Norden von Kandahar, ca. 1000 m (KN. 369-b), 2239 pr. pt.). – **C:** In den Ruinen von Gholghola bei Bamian, ca. 2550 m (G. 700). – **N:** Mazar-i Sharif: Haibak, ca. 3900 ft. (M.). – **E:** Kurram Valley, Alikhel, amongst stones (AITCH. 561). **Pakistan: Quetta** (DUTHIE 8740). **Balouchistan:** Killa Abdulla (AITCH. 561).

E. Bonaepartis (SPRENG.) NEVSKI var. *pakistanicum* MELDERIS – **Pakistan: Quetta:** Quetta (NORRIS 75-a).

E. distans (C. KOCH) NEVSKI, Fl. SSSR. 2: 665 (1934). – **E:** Kabul: Tobfels am Sher Darwasa bei Kabul, ca. 1840 m (G. 704). Schutthalde am Sher Darwasa, ca. 1900 m (G. 705). Berg beim Stausee Chord Kabul, ca. 2280 m (G. 706). Aliabad bei Kabul (N. 1951/102). Koh-i Asmai, Berg im Norden von Kabul, ca. 1700 m (KN. 430-b, Sch. 57). – **SE:** Kandahar: Goldgrube im Norden von Kandahar, ca. 1000 m (KN. 2239 pr. pte.). *Artemisia-Papaver*-Steppe zwischen Kalat-i Ghilzai und Kandahar (KN. 197-b). – **NE:** Badakhshan: Ishkashim (GILES). – **Pakistan:** Quetta (NORRIS 67). Fort Sandeman (HARSUKH 20672).

Henrardia C. E. HUBBARD

H. persica (BOISS.) C. E. HUBBARD, Blumea, Suppl. 3: 17 (1946).

– – var. *persica*. (Syn. *Lepturus persicus* (BOISS.). – **SW** Herat: Herat, ca. 1100 m (K. 4252). “Afghanistan” (AITCH. 409). – **Pakistan:** Balouchistan (STOCKS).

– – var. *glaberrima* (HAUSSKN.) C. E. HUBBARD (Syn. *Lepturus persicus* BOISS. var. *glaberrimus* HAUSSKN. ex BORNM.). – **E:** Sarobi, östlich von Kabul, steinige Steppe (V. 1863). Tobfels am Scher Darwasah bei Kabul, ca. 1840 m (G. 719). **Pakistan:** (GRIFF. 514 pr. pte.).

Heteranthelium HOCHST.

H. piliferum (BANKS et SOLAND.) HOCHST. ap. KOTSCHY (Syn. *Elymus pilifer* BANKS et SOLAND. ex RUSSELL). – **N:** Kataghan: Inter Haibak et jugum Paigah-Kotal, S Kunduz, 1300–1400 m (RECH. 16412). – **NW:** Herat: Qala Nau to Sauzak, ca. 1400 m (K. 3927). – **E:** Kabul: Babur bei Kabul (V. 2039). An der Strasse von Kabul nach Jallalabad zwischen dem Heiligengrab Seh-Baba und Nimla (KN. 627). Tal des Kabul-Flusses, in der Tangi Gharu, 1600–1700 m (KN. 548). – **SE:** Kandahar: In der Steinsteppe nordwestlich von Kandahar (SCH. 5). Baba Wali nordwestlich von Kandahar, auf einem Friedhof (SCH. 9). Schlucht des Hilmend bei Germaub, nördlich von Ghirishk, ca. 1200 m (KN. 405).

Hordeum L.

H. bogdaniü WILENSKY, Izv. Saratovsk. Op. Stan. 1: 13 (1918). – **E:** Ghazni: Ad lacum Sabzab, inter Okak et Behzud (Diwal Kol), ca. 2800 m (RECH. 17902). Kabul: Sumpfwiese bei Dehmasang bei Kabul, ca. 1770 m (G. 726). Darulfanun bei Kabul (V. 994). Am Ufer des Logar-Flusses bei Tscharasiah, südlich von Kabul, ca. 1780 m (G. 724). Guzar Geh bei Kabul, in einem Brachfeld nahe am Flussufer (N. 1951/178). Khotsche Mullah bei Kabul, im Wasser (N. 1951/184-a). Kabul, Allee, nach Darelfanun, in einem Bewässerungsgraben (N. 1950/790). – **C:** Farakulum, ca. 2800 m (K. 2613). Bamian: Inter Bamian et Band-i Amir, 2800–3000 m (RECH. 18158). Kamard-Tal westlich von Doab, ca. 1550 m (G. 725). Doab (V. 1799-b). Band-i Amir, nasse Kalktuffe (V. 2266-a). Band-i Amir, ca. 3000 m (V. 2784). Panjao, S of Koh-i Baba Range, ca. 2700 m (K. 3077).

H. bulbosum L. – **NE:** Badakhshan: Tschal-Ischkamisch, ca. 1200 m, Löss-Steppe (V. 2653).

H. geniculatum ALL. (Syn. *H. Hystrix* ROTH, *H. Gussoneanum* PARL., *H. maritimum* WITH. ssp. *Gussoneanum* (PARL.) ASCHERS. et GRAEBN., *H. marinum* HUDS. ssp. *Gussoneanum* (PARL.) THELL., *H. marinum* HUDS. var. *Gussoneanum* (PARL.) HYL.). – **SE:** Kandahar: Goldgrube im Norden von Kandahar, in der Steinsteppe, ca. 1000 m (KN. 356-b). – **E:** Kabul: Maslakh, am Schlachthaus (N. 1951/141-b). – **N:** Kataghan: In paludosis fluvii Kunduz prope Kunduz, ca. 400 m, in limosis (RECH. 16051).

H. glaucum STEUD. (Syn. *H. Stebbinsii* COVAS). – **SW:** Jija, between Shin Dand and Farah, ca. 900 m (K. 4364). – **SE:** Kajkai, NNW of Kandahar, ca. 1000 m (K. 3078). Kandahar, in Richtung Kalat-i Ghilzai (KN. 247-a). Pirzada near Kandahar, ca. 900 m (K. 2019). In einem Garten in Kandahar, ca. 1020 m (G. 721). – **E:** Kabul: Sarobi, östlich von Kabul (V. K-269). Kabul, ca. 1780 m, an einem Gartenweg (G. 723). Jallalabad bei Kabul, ca. 600 m (E. 2338). Kabul, Unkraut im Hausgarten (N. 1951/132). Schlucht des Kabul-Flusses Tang-i Gharu, 1600–1700 m (KN. 516-a). Bagram (Begrami) near Charikar, ca. 5000 ft. (CN. 25). Panjshir, ca. 2000 m (K. 3993). **Nuristan:** Between Parundal and Bashgaldal (E. 1153). Gusalak, ca. 1000 m (E. 1571). Am Ufer eines Mühlbaches bei Barikot, ca. 850 m (G. 720). – **Pakistan:** Chitral (HARRIS 16830).

H. leporinum LINK – **N:** Mazar-i Sharif: In faucibus fluvii Balkh supra Aq Kupruk, 700–800 m (RECH. 16630). – **E:** In einem Garten in Kabul, ca. 1780 m (G. 722). – **C:** In valle ca. 16 km a Doab meridie versus, ca. 1600 m (RECH. 16674).

H. spontaneum C. KOCH (Syn. *H. ithaburense* BOISS.). – **E:** Kabul: Schlucht des Kabul-Flusses Tangi Gharu, 1600–1700 m (KN. 516-c). – **SE:** Kandahar, einheimisch auf Feldern (SCH. 73). Kandahar, ca. 1020 m (KN. 215). Schlucht des Hilmend bei Germaub, nördlich von Ghirishk, ca. 1020 m (KN. 408). – **SW:** Herat, ca. 1700 m (K. 3823). – **NW:** Khwaja, NE of Herat, ca. 700 m (K. 3795). – 'Afghanistan' (AITCH. 465). – **Pakistan:** Quetta (STOCKS 1062).

H. turkestanicum NEVSKI, Act. Univ. As. Med. Ser. VIII-b, Fasc. 17: 45 (1934) et Act. Inst. Bot. Acad. Sc. URSS. 1, 2: 61 (1936), dign. lat. – **NW:** Afghanistan (AITCH. 465). – **C:** Unai-Pass, ca. 3120 m (G. 729). Unai-Pass (N. 1951/544, 550). Inter Bulola et jugum Schibar, 2600–2800 m (RECH. 16782). Am Ufer des Schumbol-Flusses bei Bulola, ca. 2280 m (G. 728). Im Sard-Darra in der Koh-i Baba Kette, ca. 3350 m, Sumpfwiese (G. 730). In latere boreo-occidentali jugi Hadjigak montium Koh-i Baba, 3000–3200 m (RECH. 18496). – **NE:** Minjan, Miyan Deh, ca. 2500 m (E. 2110). **Nuristan:** Urura-Passhöhe, beiderseits oberhalb der Waldgrenze, ca. 3900 m (N. 1951/586).

H. violaceum BOISS. et HOHEN. – **NE:** **Nuristan:** Mrami- (Papruk-) -Pass, Westseite in Richtung Shtiwe, 3000–4200 m, über der Waldgrenze (KN. 1407-a).

H. vulgare L. – **SE:** Kandahar: Einheimisch auf Feldern bei Kandahar (SCH. 74). Kandahar, ca. 1020 m (KN. 214). – **NE:** **Nuristan:** Parun-Tal, zwischen Shtiweh und Pashki, 2500–2550 m (KN. 1391). – **N:** Der-i Shikari, kultiviert (V. K-233, 1791).

***Psathyrostachys* NEVSKI**

***Psathyrostachys caduca* (BOISS.) MELDERIS, comb. nov.** (Syn. *Elymus caducus* Boiss., Fl. Or. 5: 691 (1884), *Hordeum caducum* MUNRO ex AITCH. Cat. in Journ. Linn. Soc. 18: 110 (1880), nomen nudum). – **Nuristan:** Weran, Nau, ca. 3000 m (E. 1473). Nedjerau-Tal, oberhalb der Steinsteppe, ca. 3000 m (N. 1951/207). Oberes Kantiwo-Tal bei Brubruts, ca. 2460 m (KN. 946). Parun-Tal, oberhalb Schtiwe, ca. 2600 m (KN. F-108). Ptsigela-Tal, ca. 15 km N von Kantiwo, ca. 2400 m, *Ferula*-Fluren (KN. 923). Nordseite des Pirdum-Passes zwischen Puschol und Pirdum-Tal, 2200–2700 m (SCH. 117). W.-Nuristan: Kulam-Tal, trockene Felshänge zwischen Kulam (Munui) und der Mündung des Tales, 1800–2100 m (SCH. 110). E.-Nuristan (E. 1473). – **E:** Panjshir: Panjshir, ca. 2100 m (K. 4000). Porande-Tal, Seitental des Panjshir-Tales bei Basarak, ca. 2800 m (G. 753). Ghazni: Inter Miradina et jugum Ghoutch Kol, N Sang-i Masha, Malestan distr., ca. 3300 m (RECH. 17632). In jugo Ghoutch Kol NNE Sang-i-Masha, ca. 3300 m (RECH. 17656). Okak, ab altoplanitie Dasht-e Nawar (Naour) boreo-orientem versus, ca. 3000 m (RECH. 17730). Berg oberhalb des Nedschrab-Tales, zwischen Gulbahar und Sarobi, östlich von Kabul, ca. 3310 m (G. 735). Sebroderakan bei Scherwaki im Logar-Tal, ca. 2400 m, Nordhang (G. 731). Berg am linken Ufer des Paghman-Flusses, ca. 2760 m (G. 732). Oberhalb Beg tut, Paghman-Gebirge, Hang unterhalb der Kammhöhe, ca. 3300 m (G. 734). Oestlich von Kotal-i Kotander, Paghman-Gebirge, ca. 3740 m (G. 736). Oberes Paghman Tal (N. 1950/793). – **C:** Hauz-i Mahiha, ca. 2500 m (K. 2367). Farakulum, ca. 3000 m, (K. 3074). Deh Kundi, ca. 3000 m (E. 1960). In declivibus saxosis aridis montium Koh-i Baba prope Band-i-Amir, 2700–2900 m (RECH. 18243). Koh-i Baba, ca. 3400 m (K. 3075). Kammregion der Koh-i Baba Kette, ca. 3780 m (G. 737). Band-i Amir, Igelsteppe (V. 2739). Band-i Amir (N. 1951/486). Unai-Pass (N. 1951/497).

P. juncea (FISCH.) NEVSKI (Syn. *Elymus junceus* FISCH.). – **C:** Bamian: Band-i Amir, ca. 2200 m (V. 2282).

P. lanuginosa (TRIN.) NEVSKI (Syn. *Elymus lanuginosus* TRIN.). – **C:** Bamian: Kalkberg nordöstlich von Bamian, ca. 3000 m (G. 741).

***Secale* L.**

S. afghanicum (VAVILOV) ROSHEV., Act. Inst. Bot. Acad. Sc. URSS. 1, 6: 139 (1947). (Syn. *S. cereale* L. var. *afghanicum* VAVILOV). – **NW:** Afghanistan (AITCH. 442). – **E:** Kabul: Darulaman-Ebene, ca. 1700 m, Bewässerungsfelder (KN. 461-b). – **NE:** E. Nuristan (E. 1131-a).

S. cereale L. – **E:** Kabul: Scharenau (Tschaman Wazirabad), ca. 1750 m, Weizenfeld (G. 706). In einem Garten in Kabul, ca. 1800 m, ruderal (G. 708). – **NE:** **Nuristan:** Vaigel, ca. 1500 m (E. 889). Im Parigel-Tal, linkes Seitental des unteren Kulam-Tales, ca. 1800 m, verwildert im Bachschutt (KN. 1161).

S. montanum GUSS. – **Pakistan:** Chitral (HARRIS).

S. segetale (ZHUK.) ROSHEV., Act. Inst. Bot. Acad. Sc. URSS. 1, 6: 143 (1947).

(Syn. *S. cereale* L. ssp. *segetale* ZHUK.). – **E:** Kabul: Darulaman-Ebene, ca. 1700 m, Bewässerungsfelder (KN. 461-a).

***Taeniatherum* NEVSKI**

T. crinitum (SCHREB.) NEVSKI (Syn. *Elymus crinitus* SCHREB., *Hordeum crinitum* (SCHREB.) DESF., *Elymus intermedius* M. B., *E. caput-medusae* BOISS., non L.). – **N:** Takht-e Rustam prope Haibak, in collibus calcareis, ca. 1200 m (RECH. 16397). Doshi, ca. 2750 ft., shingle (M.). – **E:** Tob-Fels am Scher Darwasah bei Kabul, ca. 2000 m, on stony slopes (HDG. & WDB. 3155). Berg beim Stausee von Chord Kabul, ca. 2280 m (G. 740). Sarobi, Steppe, zwischen *Cymbopogon* (V. 2563). Tang-i Gharu, Schlucht des Kabul-Flusses, 1600–1700 m (KN. 504). Ebendort, im Schotter (SCH. 65). Aliabad bei Kabul, auf Felsen, südexponiert (N. 1951/117). Darulfanun, zwischen Felsen (V. 1548). Panjshir: Im Panjshir-Tal zwischen Gulbahar und Anoba, ca. 1720 m, *Quercus Baloot*-Bestand (G. 738). – **SE:** Kandahar: Schlucht des Hilمند bei Germaub, nördlich von Ghirishk (KN. 409-a). – **Nuristan:** W. Nuristan: Parigel-Tal, linkes Seitental des unteren Kulam-Tales beim Dorf Parigel, aus Samen kult. in Bot. Garten Halle (KN. F-100). Maweni-Tal, rechtes Seitental des unteren Kulam-Tales bei Mawe (KN. F-201). Oberes Ramgel-Tal zwischen Puschol und Gadwol, *Quercus*-Wald in einer Seitenschlucht oberhalb von Gadwol, 1900–2000 m (KN. 1118). Oberes Ramgel-Tal bei Gadwol, ca. 1970 m, an trockenen Hängen (KN. 1125). Im Ramgel-Tal zwischen Gadwol und der Einmündung des Tschitur, ca. 1900 m (SCH. 132). Ramgel-Tal, zwischen Gadwol und der Einmündung des Tschitur, Trockenhänge, 1900–2000 m (SCH. 129). – **Pakistan: Quetta:** Khojak, ca. 1900 m (K. 3076). Quetta (NORRIS 62).

***Triticum* L.**

T. aestivum L. (Syn. *T. hybernum* L., *T. compositum* L., *T. sativum* LAM., *T. vulgare* VILL.). – **N:** Mazar-i Sharif: Inter Chashma-e Shafal et Aq Kupruk, 800–1000 m (RECH. 16286). – **SE:** Kandahar: Pirzada near Kandahar, ca. 900 m (K. 2118). – **E:** Jallalabad, ca. 600 m (E. 13). Scharenau (Tschaman Wazirabad), ca. 1750 m (G. 710). An einem Gartenweg in Kabul, ca. 1780 m (G. 711, 712).

T. compactum HOST – **E:** Kabul: In einem Garten in Kabul, ruderal (G. 712-b).

Pooideae-Zoysieae

***Tragus* (HALL.) SCOP.**

T. biflorus SCHULT. – **Pakistan: Peshawar:** Panjkora-Tal bei Warai, Dir Distr., ca. 1000 m (KN. 2110).

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