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On the names of the Andean species of *Poa* L. *(Poaceae)* described by Pilger

Abstract

Anton, A. M. & Negritto, M. A.: On the names of the Andean species of *Poa* L. *(Poaceae)* described by Pilger. – Willdenowia 27: 235–247. 1997. – ISSN 0511–9618.

Lectotypes are designated for the names of nine Andean *Poa* species described by Pilger. No holotype was indicated by the author for both *Poa gymnantha* and *P. humillima*, and the holotypes of *P. candamoana, P. carazensis*, *P. chamaeclinos, P. fibrifera*, *P. gilgiana*, *P. horridula*, and *P. pardoana* at B were destroyed in 1943. Analytical drawings based on the lectotypes are presented for all nine species.

Extensive studies of South American species of *Poa* for the treatment of this genus in the "Flora of Argentina" revealed the necessity to typify the names of various species.

The majority of the Andean species of *Poa*, which are widely distributed in the high Andes of Peru, Bolivia and NW Argentina, have been described on the basis of material collected by August Weberbauer, a German botanist and explorer, in Peru in 1901–1905. His abundant collections were distributed among European and South American herbaria, mainly B, MOL and USM (Stafleu & Cowan 1988).

According to "Index kewensis" (CD-ROM edition 1994) there are nine *Poa* species published by Robert Pilger on the basis of plants from Peru, all collected by Weberbauer, viz. *Poa candamoana* Pilg., *P. carazensis* Pilg., *P. chamaeclinos* Pilg., *P. fibrifera* Pilg., *P. gilgiana* Pilg., *P. gymnantha* Pilg., *P. horridula* Pilg., *P. humillima* Pilg., and *P. pardoana* Pilg.

In the corresponding protologues, Pilger cited just one collection except for *Poa gymnantha* and *P. humillima.* In all cases, precise collection data including collector, collection number, collecting locality and date are provided, but neither an indication of the type ("typus" or "holotypus") nor of the herbarium where the material is deposited are given. However, according to ICBN Art. 37.4 and 37.5 (Greuter & al. 1994) it was not compulsory to fulfil these requirements before 1 January 1990, and Recommendation 9A.4 clearly states that in case a single collection is cited in the protologue but no institution housing this is designated, it should be assumed that the holotype is the specimen housed in the institution where the author worked. Thus, the collections cited by Pilger refer to material deposited in the Berlin herbarium (B).

As is well known (Sleumer 1949, Pilger 1957a,b, Hiepko 1987), the majority of the holdings at B was destroyed in 1943. In 1990, one of us (A.M.A.) visited B and confirmed that no original material is extant for any of these names. Searching for duplicates in other herbaria (BAA, CORD, F, K, LIL, MOL, S, SI, US, and USM; herbarium abbreviations after Holmgren

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& al. 1990), we have located in the Parodi Herbarium (BAA) fragments of the original material, which Parodi apparently obtained from Pilger when he visited Berlin (Parodi 1935; most of the material has annotations indicating its origin). We received the confirmation that there are fragments also at US, probably of the same origin, but we have, unfortunately, been unable to get them on loan. Particularly representative and well preserved duplicates for most of the names are deposited in S; this material was also received from B and was thus, with some certainty, studied by Pilger. Further duplicate material has been traced at MOL and USM.

It may be interesting to note that most of these species are gynomonoecious, viz. *Poa candamoana*, *P. carazensis*, *P. fibrifera*, *P. gilgiana*, *P. horridula*, *P. humillima* and *P. pardoana*. The presence of both perfect and pistillate flowers in the same spikelet has already been recorded by Pilger (1906, 1920). According to Anton & Connor (1995), gynomonoecism in Andean *Poa* is reflected in the 1–2 basal florets of the 2–3(4)-flowered spikelets being perfect and the upper pistillate with short staminodes; caryopses are regularly formed in all fertile florets.

Poa chamaeclinos and *P. gymnantha*, on the other hand, are composed exclusively of plants with pistillate florets. However, the possible extent of apomixis and its nature in South American *Poa* species are still unknown (Anton & Connor 1995).

According to ICBN Art. 9.9 (Greuter & al. 1994) lectotypes have been designated for the following two species among the syntypes cited.

Poa gymnantha Pilg. in Bot. Jahrb. Syst. 56: 28. 1920. – Syntypes: Peru, südlich von Sumbay (Station der Eisenbahn Arequipa-Puno), 4000 m, 3.4.1914, *Weberbauer 6905* (B†, MOL!, S!, USM!, fragments at BAA! and US); ibid., between Pisco and Ayacucho, *Weberbauer 5440* (B†, S!). – Lectotype (designated here): *Weberbauer 6905* (S! (Fig. 1); isolectotypes: USM!, MOL!, fragments at BAA! and US).

We have selected *Weberbauer 6905* at S as the lectotype because we consider it to be a good example of the material seen by Pilger at the time the description was prepared. The collection is cited in the protologue as "Peru, 15°50–16° s. Br., südl. von Sumbay (Eisenbahn Arequipa-Puno), Tola-Heide, 4000 m ü. M. (Weberbauer n. 6905. – 4.1914)". The specimens at S and BAA are labelled "Ex Museo botanico Berolinensi"; the ecological observation "Tola-Heide" and the position "15°50–16° Sud" are missing on the label of the specimen at S. Whereas the labels of the specimens that Weberbauer sent to B were written in German, the specimens at MOL and USM have labels written in Spanish ("Al sur de Sumbay, Departamento y Provincia Arequipa, 4000 m, Abril 3 de 1914, Tolares").

Poa humillima Pilg. in Bot. Jahrb. Syst. 37: 378. 1906. – Syntypes: Peru, Dep. Junin, La Oroya, 4300 m, 2.1903, *Weberbauer 2602* (B†, S!, fragments at BAA!, US); ibid., Hochanden über Lima bei 4500 m, 2./3.1904, *Weberbauer 5113* (B†, S!, fragment at US). – Lectotype (designated here): *Weberbauer 2602* (S! (Fig. 2); isolectotypes: fragments at BAA!, US).

The collection *Weberbauer 2602* is cited in the protologue as "Peru, Dep. Junin, prope la Oroya, in planitie montana, plantas pulvinares et plantas rosulatas gignescentes, 4300 m.s.m. (Weberbauer 2602 – florens mense Februario 1903)". The specimens at S and BAA are labelled "Ex Museo botanico Berolinensi"; the ecological observation is missing on the label of the lectotype.

According to ICBN Art. 9.9 (Greuter & al. 1994) lectotypes have been designated for the names of the following seven species, of which the holotypes are destroyed. Even though the fragments at BAA could suffice as lectotypes, the isotypes housed at MOL, S or USM allow for a better understanding of the taxa. In each case we have chosen the material we consider the most instructive.

Poa candamoana Pilg. in Bot. Jahrb. Syst. 37: 381. 1906. – Holotype: "Peru, Depart. Puno, ad Azangaro, in rupestribus calcareis 4000 m.s.m., *Weberbauer 472*, florens mense Februario 1902" (B†). – Lectotype (designated here): *Weberbauer 472* (S! (Fig. 3); isolectotypes: frag-

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ments at BAA!, US).

The lectotype is labelled "Ex Museo botanico Berolinensi". Thus, we assume that the plants were subject of Pilger's description. The same inscription appears in Parodi's handwriting on the fragment at BAA.

Poa carazensis Pilg. in Bot. Jahrb. Syst. 37: 380. 1906. – Holotype: "Peru, Depart. Ancash, in Cordillera negra supra Caraz, in planitie montana, plantas pulvinares et rosulatas gignescente, 4200 m.s.m., *Weberbauer 3073,* florens mense Majo 1903" (B†). – Lectotype (designated here): *Weberbauer 3073* (S! (Fig. 4); isolectotypes MOL!, fragments at BAA!, US).

The specimens at S and MOL are very similar, and we have chosen the one at S as the lectotype because it is part of the material once deposited in Berlin (labelled "Ex Museo botanico Berolinensi"). The fragment at BAA has the same quotation.

Poa chamaeclinos Pilg. in Bot. Jahrb. Syst. 37: 380. 1906. – Holotype: "Peru, in andibus elevatis supra Lima ad 4500 m.s.m., *Weberbauer 5118,* florens mense Martio 1904" (B†). – Lectotype (designated here): *Weberbauer 5118* (USM! (Fig. 5); isolectotypes: fragments at BAA!, US).

Poa chamaeclinos is a dwarf caespitose perennial, only a few centimetres tall. The specimens at USM and BAA are remnants of the original material, both represented by only one plant. The material at BAA has a label in Parodi's handwriting indicating that it was received from "Museum Botan. Berolinense"; unfortunately it is insufficient because the panicle is lost, leaving a trace on the sheet. The specimen at USM (probably ex US?) is annotated only with the collection number and the quotation "Type" in Tovar's handwriting but is a complete plant and has therefore been designated as the lectotype.

Poa fibrifera Pilg. in Bot. Jahrb. Syst. 37: 380. 1906. – Holotype: "Peru, Dep. Ancash, in provincia Cajatambo prope Ocros, in graminosis, ubi numerosi intermixti sunt, 3200–3400 m.s.m. *Weberbauer 2662,* florens mense Martio 1903" (B†). – Lectotype (designated here): *Weberbauer 2662* (MOL! (Fig. 6); isolectotypes: S!; fragments at BAA!, US).

The specimen at MOL is incomplete since the basal part of the plant is lacking; it is, however, more instructive than the ones at BAA, S and US, which are only fragments.

Poa gilgiana Pilg. in Bot. Jahrb. Syst. 37: 507. 1906. – Holotype: "Peru, Dpto. Puno, ad Azangaro, in calcareis ad 4000 m.s.m. *Weberbauer 477,* mense Februario 1902" (B†). – Lectotype (designated here): *Weberbauer 477* (S! (Fig. 7); isolectotypes: fragments at BAA!, US).

Only three fragments exist that are part of the original material. The specimen at S is the best of them, consisting of part of the basal foliage (Fig. 7I) and one branch of the panicle (Fig. 7B), and has thus been selected as the lectotype. The label information "Ex Museo botanico Berolinensi" implies that the specimen is part of the material studied by Pilger.

Poa horridula Pilg. in Bot. Jahrb. Syst. 37: 506. 1906. – Holotype: "Peru, Dep. Ancash, inter Samanco et Caraz, infra Hacienda Cajambamba, in formatione plantis herbaceis et fruticibus mixta, 3000–3500 m.s.m., *Weberbauer 3113,* florens et fructifera mense Majo 1903" (B†). – Lectotype (designated here): *Weberbauer 3113* (MOL! (Fig. 8); isolectotypes: fragments at BAA!, S!, US).

The selected specimen at MOL is a plant lacking the basal part, but is more complete than the ones at BAA, S and US, which are mere fragments.

Poa pardoana Pilg. in Bot. Jahrb. Syst. 37: 379. 1906. – Holotype: "Peru, Depart. Cajamarca, in jugo Coymolache supra Hualgayoc, in graminosis altis densis, ubi cactaceae et frutices desunt, 4000–4100 m.s.m. *Weberbauer 3975,* florens mense Majo 1904" (B†). – Lectotype (designated here): *Weberbauer 3975* (S! (Fig. 9); isolectotypes: fragments at BAA!, US, USM!).

There are duplicates in several herbaria whose labels read "ex B". We have chosen the specimen at S, which is the most representative one.

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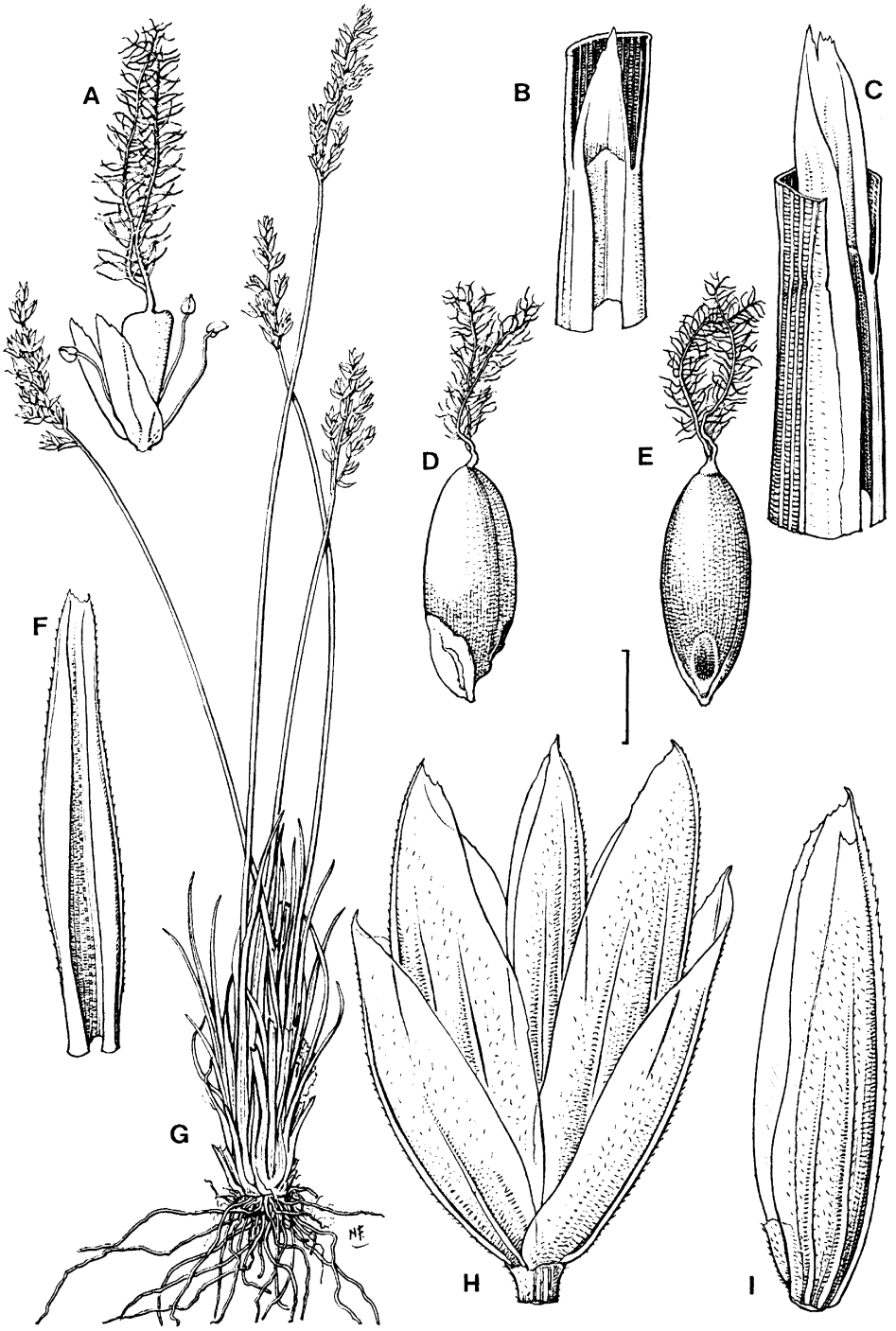


Fig. 1. *Poa gymnantha* Pilg. – A: pistillate flower with 3 staminodes and lodicules, B-C: ligules, D-E: mature caryopsis with remaining stigmata, F: palea, G: plant, H: spikelet, I: basal floret. – Drawings after the lectotype (*Weberbauer 6905,* S) by Nidia Flury; scale bar = 1 mm in A, D-F, H-I; 2 mm in B-C; 20 mm in G.

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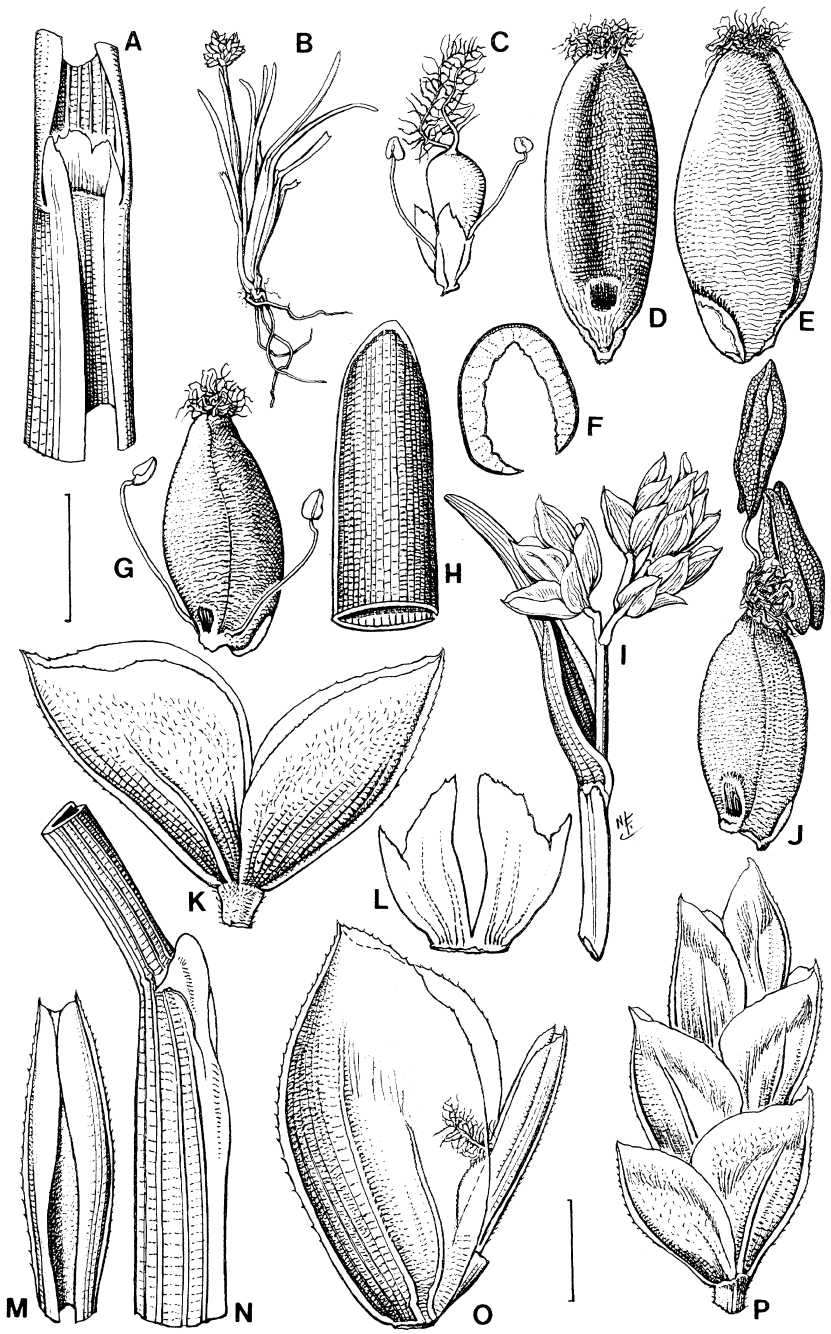


Fig. 2. *Poa humillima* Pilg. – A: ligule, B: plant, C: pistillate flower with three staminodes and lodicules, D-E: caryopsis, F: transverse section of the leaf, G: caryopsis from a pistillate flower with remaining staminodes, H: apex of the leaf, I: inflorescence, J: caryopsis from a perfect flower with remaining anthers on the top, K: glumes, L: lodicules, M: palea, N: ligule, O: basal floret, P: spikelet. – Drawings after the lectotype (*Weberbauer 2602,* S) by Nidia Flury; upper bar = 1 mm in C-H, J, L; lower bar = 2 mm in A, I, N; 1 mm in P; 0.5 mm in K, M, O.

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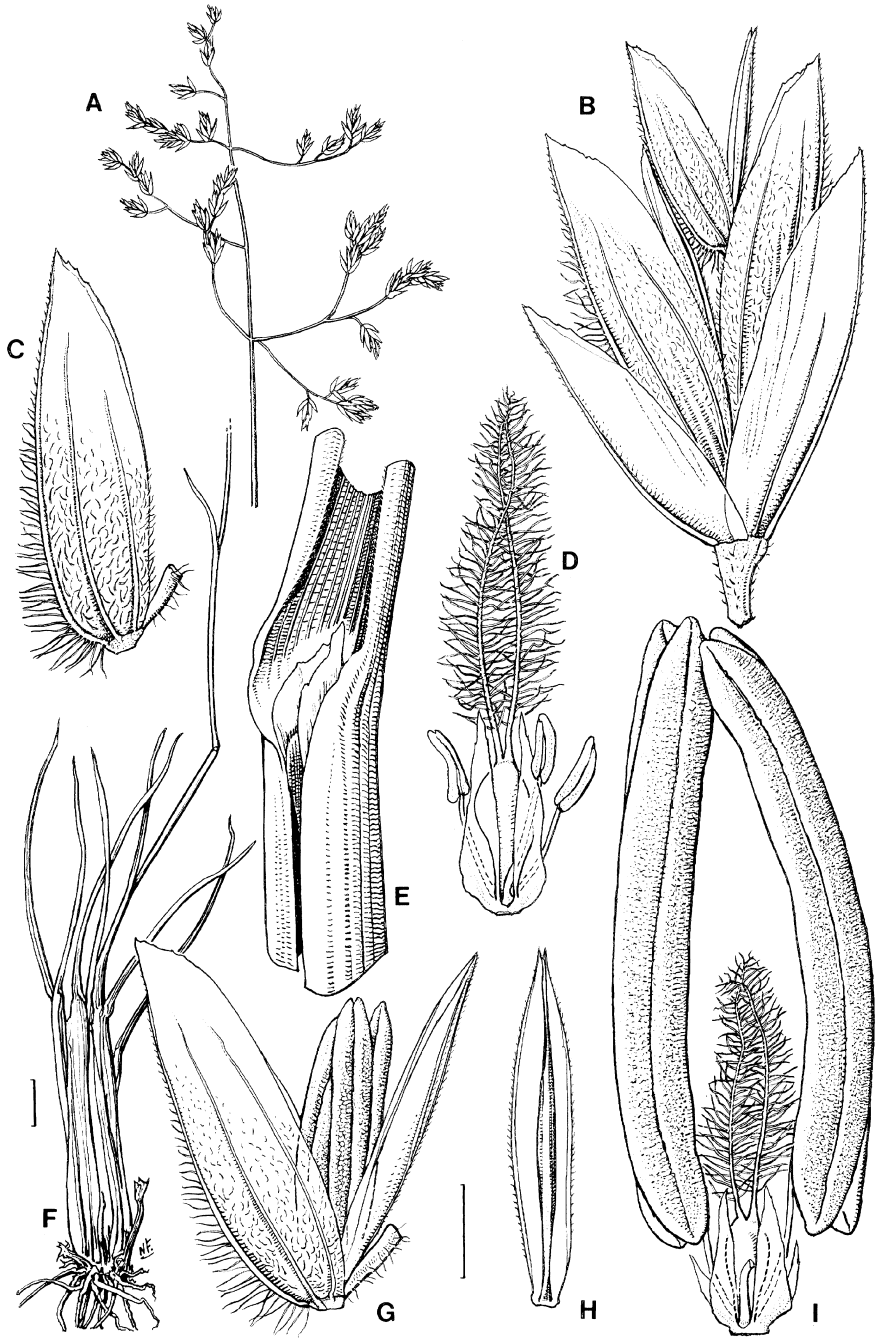


Fig. 3. *Poa candamoana* Pilg. – A: panicle, B: spikelet, C: basal floret, D: pistillate flower with lodicules and three staminodes, E: ligule, F: plant, G: floret with perfect flower, H: palea, I: perfect flower with lodicules (the frontal anther sectioned to show the pistil). – A: Copy of a drawing (mounted on the sheet with the isolectotype at BAA) by Parodi after the holotype at B; B-I after the lectotype (*Weberbauer 472*, S); drawings by Nidia Flury; scale bar = 20 mm in A, F; 1 mm in B, C, G, H; 0.5 mm in D, I; 2 mm in E.

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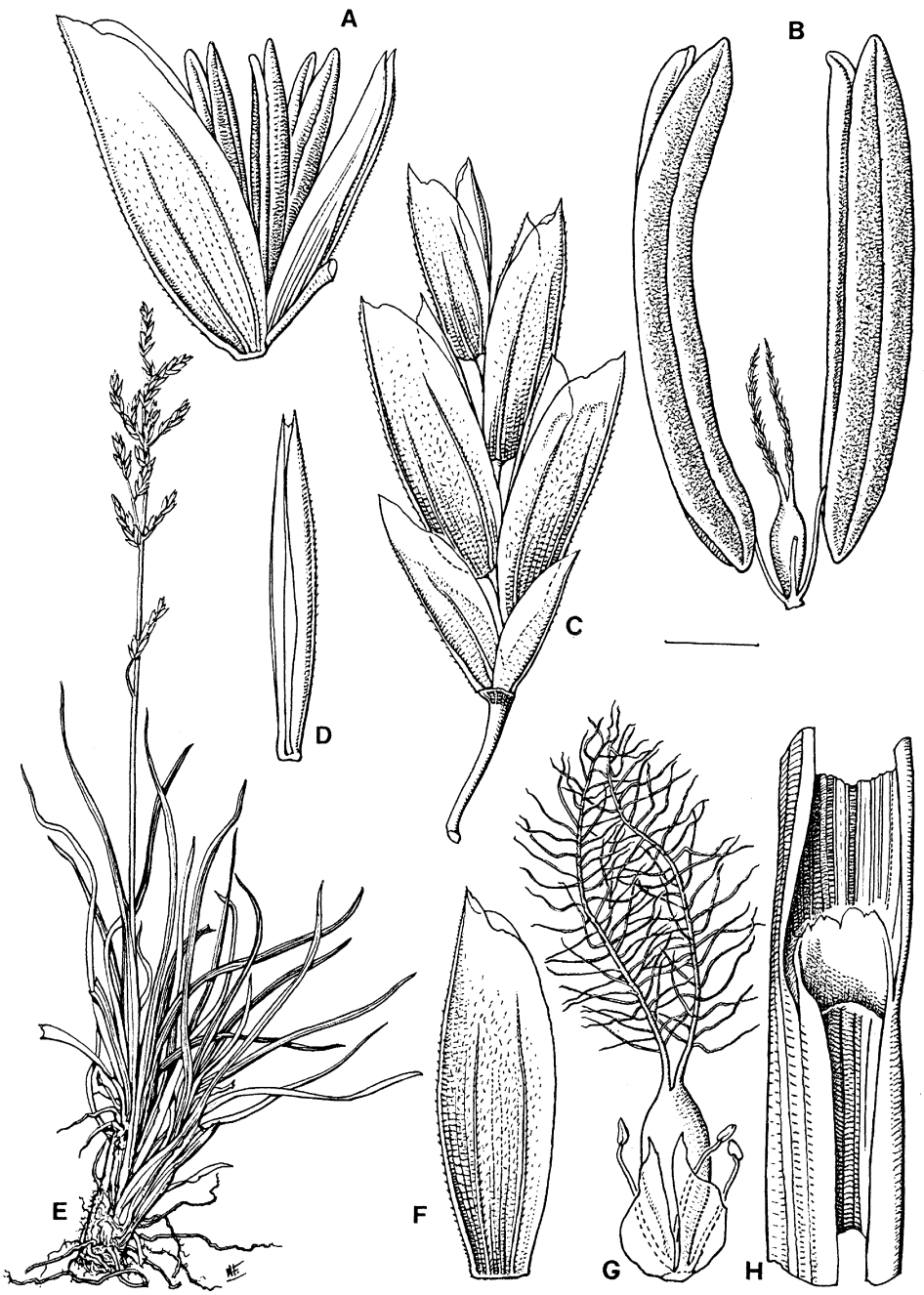


Fig. 4. *Poa carazensis* Pilg. – A: basal floret with perfect flower, B: perfect flower (the frontal anther and the lodicules sectioned to show the pistil), C: spikelet, D: palea, E: plant, F: lemma, G: pistillate flower with three staminodes and lodicules, H: ligule. – Drawings after the lectotype (*Weberbauer 3073,* S) by Nidia Flury; scale bar = 20 mm in E; 0.5 mm in B, G; 1 mm in A, C, D, F; 2 mm in H.

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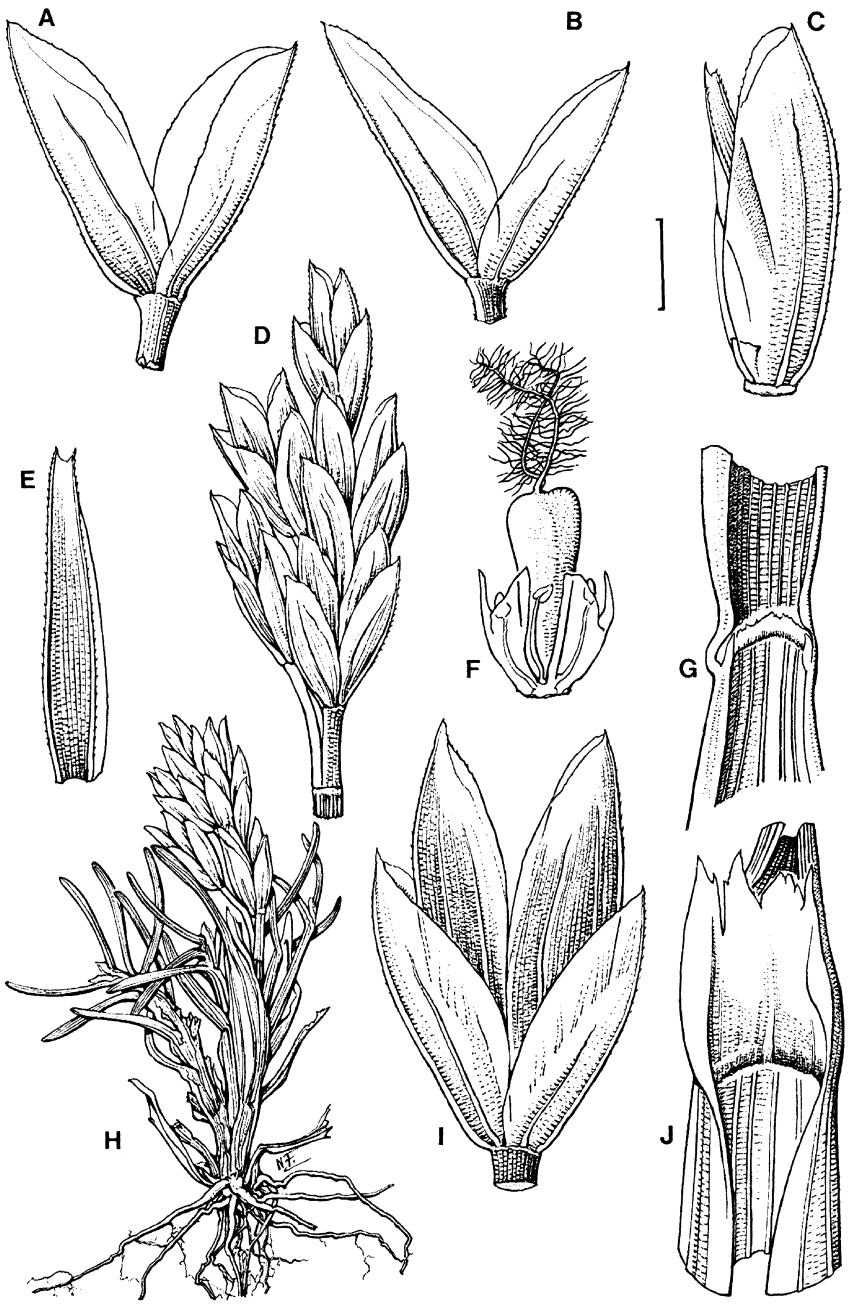


Fig. 5. *Poa chamaeclinos* Pilg. – A-B: glumes, C: basal floret, D: panicle, E: palea, F: pistillate flower with lodicules, G+J: ligules, H: plant, I: spikelet. – Drawings after the lectotype (*Weberbauer 5118,* USM) by Nidia Flury; scale bar = 1 mm in A-C, E, G, I, J; 2 mm in D; 0.5 mm in F; 5 mm in H.

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Fig. 6. *Poa fibrifera* Pilg. – A: ligule, B: pistillate flower (the lodicules sectioned), C: palea, D: perfect flower with lodicules, E: flowering shoot, F: basal floret, G: spikelet. – Drawings after the lectotype (*Weberbauer 2662,* MOL) by Nidia Flury; scale bar = 2 mm in A, G; 0.5 mm in B, D; 1 mm in C, F; 20 mm in E.

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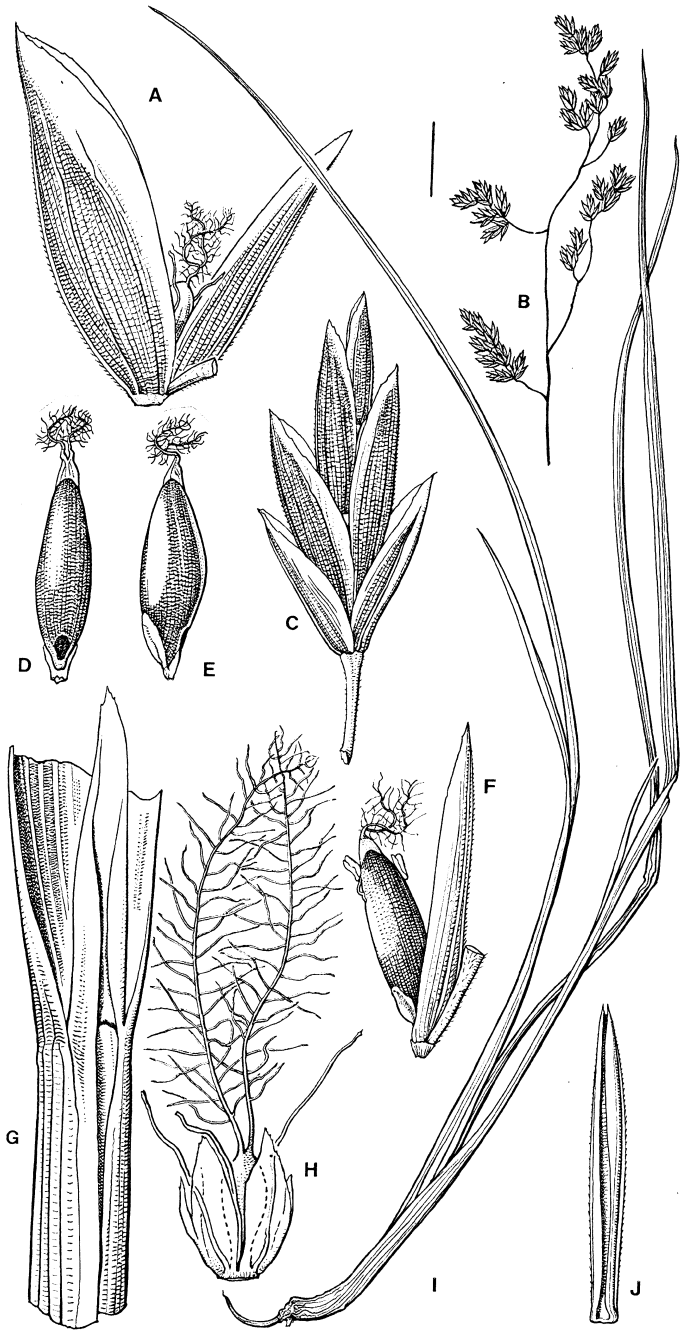


Fig. 7. *Poa gilgiana* Pilg. – A: basal hermaphrodite floret after anthesis (the rest of the androecium represented by two filaments), B: inflorescence branch, C: spikelet, D-E: caryopsis, F: female floret with mature caryopsis (two staminodes remains near the apex), G: ligule, H: hermaphrodite flower with lodicules, I: basal portion of a plant, J: palea. – Drawings after the lectotype (*Weberbauer 477,* S) by Nidia Flury; scale bar = 1 mm in A, D-F, J; 20 mm in B, I; 2 mm in C, G; 0.5 mm in H.

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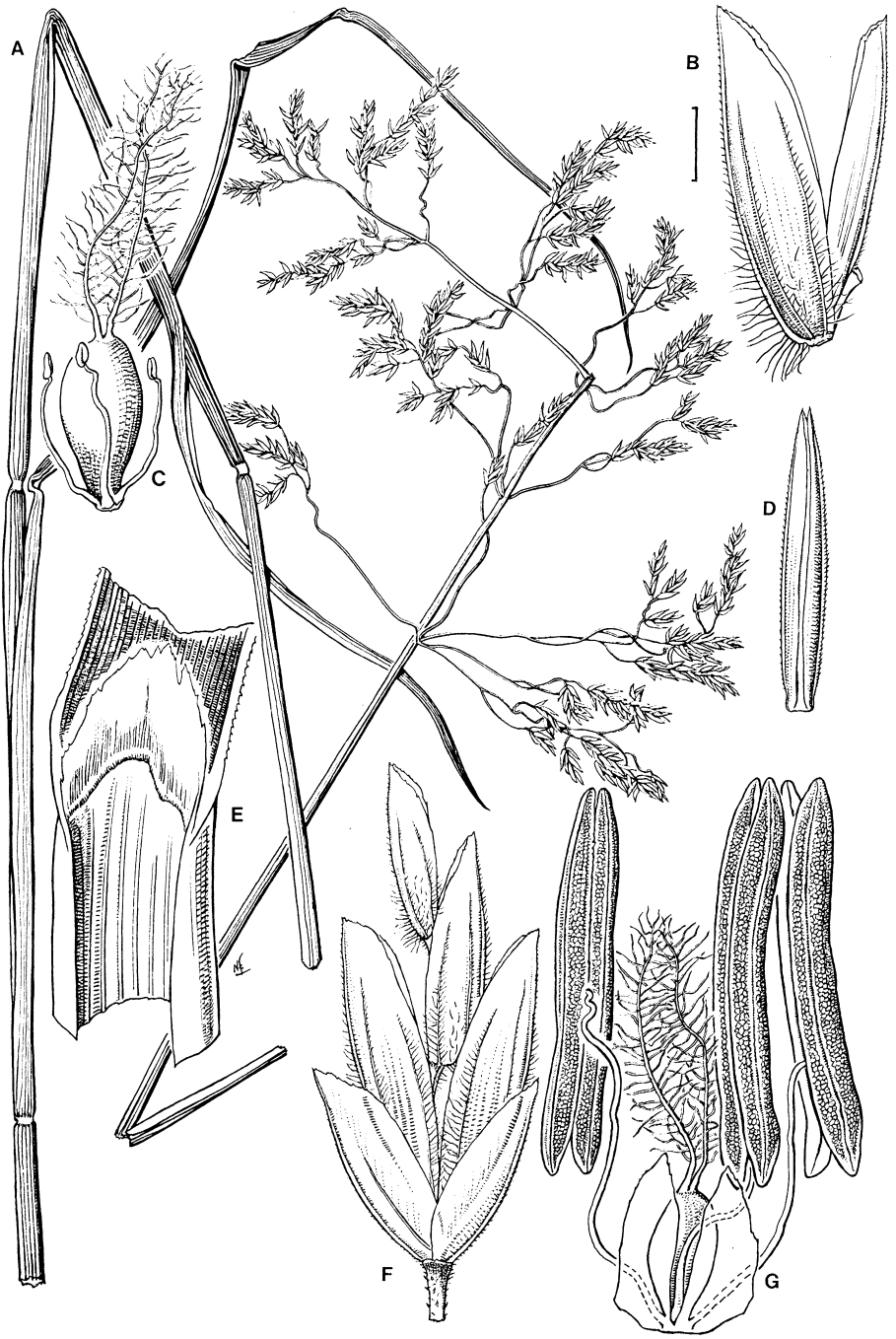


Fig. 8. *Poa horridula* Pilg. – A: flowering shoot, B: basal floret, C: pistillate flower with small staminodes (the lodicules sectioned), D: palea, E: ligule, F: spikelet, G: perfect flower with lodicules. – Drawings after the lectotype (*Weberbauer 3113,* MOL) by Nidia Flury; scale bar = 20 mm in A; 1 mm in B, D, F; 2 mm in E; 0.5 mm in C, G.

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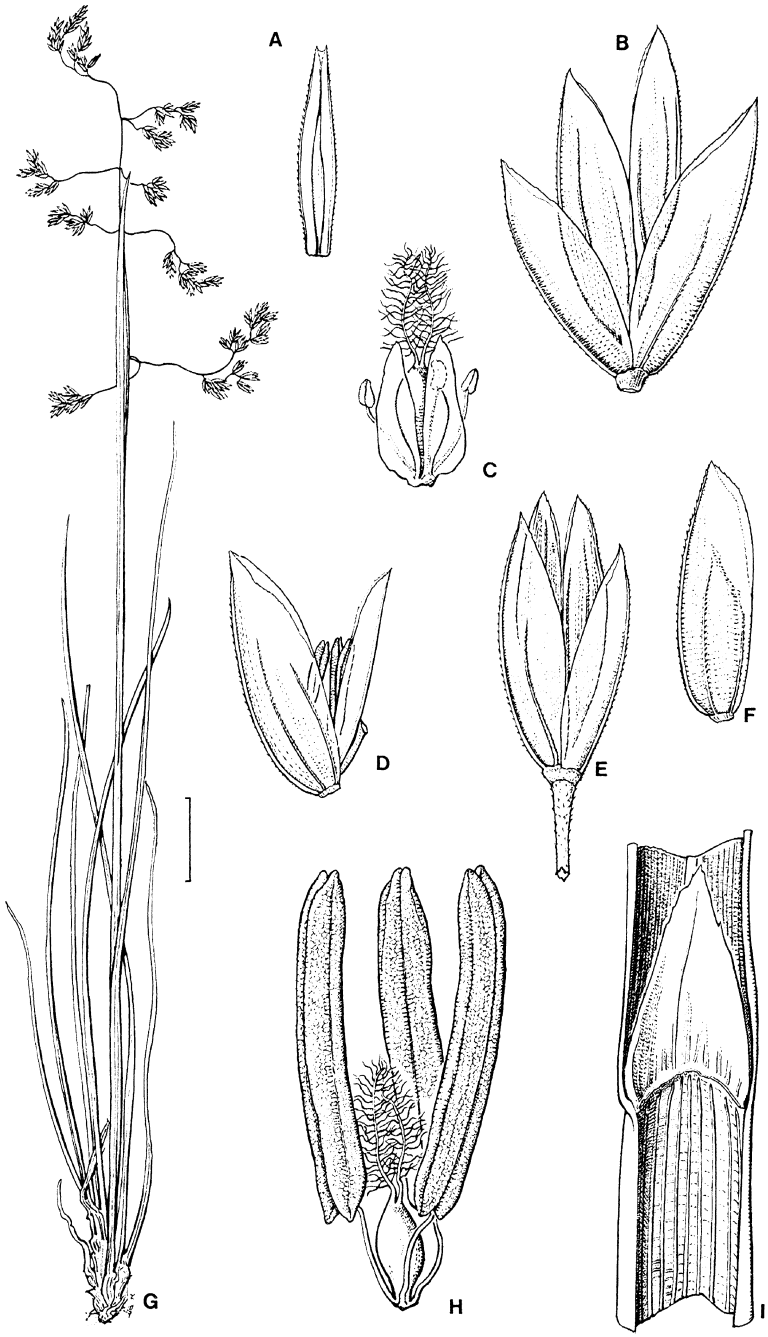


Fig. 9. *Poa pardoana* Pilg. – A: palea, B & E: spikelets, C: pistillate flower with lodicules, D: basal floret with perfect flower, F: lemma, G: plant, H: perfect flower (the lodicules sectioned), I: ligule. – Drawings after the lectotype (*Weberbauer 3975,* S) by Nidia Flury; scale bar = 1 mm in A, B, D-F; 20 mm in G; 2 mm in I; 0.5 mm in C, H.

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