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NEW GRASSES FROM MEXICO
CENTRAL AMERICA, AND SURINAM

By JASON R. SWALLEN



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PREFACE

IN THE present paper, by Jason R. Swallen, curator of the division of grasses, United States National Herbarium, 48 new species are described and 2 new names proposed. They are based mainly on recent collections from Mexico and Guatemala, the types being deposited in either the National Herbarium or the Chicago Natural History Museum.

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III

NEW GRASSES FROM MEXICO, CENTRAL AMERICA, AND SURINAM

By JASON R. SWALLEN

Most of the following new species are from Guatemala and are described from the collections of Julian A. Steyermark, Paul C. Standley, A. F. Skutch, S. F. Blake, H. Pittier, and Paul Weatherwax. The rest were collected by F. G. Meyer and D. J. Rogers, Efraim Hernández X. and J. A. Jenkins, George B. Hinton, William C. Leavenworth, A. J. Sharp, and H. E. Moore in Mexico; C. L. Lundell in British Honduras; Louis O. Williams and Antonio Molino R. in Honduras; and Bassett Maguire in Surinam. There are 48 new species and 2 new names proposed.

BROMUS MEYERI Swallen, sp. nov.

Perennis; culmi graciles, erecti, basi decumbentes, 70–115 cm. alti, 3- vel 4-nodosi, infra nodos pubescentes; vaginae internodiis longiores, dense pilosae, auriculatae; ligula membranacea, 0.4 mm. longa; laminae 15–25 cm. longae, 2–3 mm. latae, dense pubescentes; paniculae 10–15 cm. longae, pendulae, ramis fasciculatis, distantibus, reflexis, paucifloris; spiculae 1.5–2 cm. longae, 3- vel 4-florae; gluma prima 5–6 mm. longa, angusta, 1-nervis, in carina scabra; gluma secunda 6.5–8 mm. longa, obtusa, 3-nervis, in carina scabra; lemma 8–9.5 mm. longum, 5-nerve, obtusum, in parte inferiore pubescens; arista scabra, 1–3 mm. longa; palea lemmate paulo brevior, in carinis scabra.

Perennial; culms slender, erect from an ascending base, 70–115 cm. tall, with 3 or 4 nodes, pubescent below the nodes, otherwise glabrous; sheaths mostly longer than the internodes, densely pilose with spreading or retrorse hairs, with small but distinct auricles at the mouth; ligule membranaceous, brown, 0.4 mm. long; blades 15–25 cm. long, 2–3 mm. wide, rather densely pubescent on both surfaces; panicle 10–15 cm. long, nodding, the branches in rather distant fascicles, few-flowered, becoming reflexed; spikelets 1.5–2 cm. long, 3- or 4-flowered; first glume 5–6 mm. long, narrow, acuminate, 1-nerved, scabrous on the keel; second glume 6.5–8 mm. long, obtuse, strongly 3-nerved, scabrous on the keel; lemmas 8–9.5 mm. long, 5-nerved, obtuse,

pubescent at least on the lower half, bearing a scabrous awn 1–3 mm. long; palea shorter than the lemma, scabrous on the keels.

Type in the U. S. National Herbarium, No. 1962983, collected among low thorny shrubs on north hillside, 1½ miles northeast of Dulces Nombres, Nuevo León, Mexico, altitude 1,850 meters, June 18, 1948, by F. G. Meyer and D. J. Rogers (No. 2561).

Only one other known species of *Bromus*, *B. latiglumis* (Shear) Hitchc., has auricles at the mouth of the sheaths. This species is very distinct from the one described in the many-noded culm, broad blades, and the very densely and conspicuously pubescent lemmas. The auricles are also much larger.

BROMUS DENSUS Swallen, sp. nov.

Perennis; culmi densissime caespitosi, erecti, 110 cm. alti, infra nodos scabri; vaginae internodiis elongatis multo breviores, scabrae, inferiores fibrosae; ligula membranacea, erosa, 0.5 mm. longa; laminae lineares, attenuatae, scaberrimae, inferiores usque ad 25 cm. longae, 2–3 mm. latae, basi marginibus prominente pilosae, eae culmorum 13–17 cm. longae, basi plus minusve ciliatae; panicula 9.5 cm. longa, 2 cm. lata, densa, ramis scaberrimis, appressis; spiculae 2 cm. longae, 4-florae; rachilla dense hirsuta; gluma prima 6–7 mm. longa, angusta, acuminata, 1-nervis, in carina scabra; gluma secunda 9–11 mm. longa, 3-nervis, acuminata, scabra; lemma 12–13.5 mm. longum, acuminatum, 3-nervis, in parte inferiore dense hirsutum, in parte superiore subglabrum; arista 1–1.5 mm. longa; palea acuminata, lemma subaequans, marginibus hirsuta, in carinis dense breviter ciliata.

Perennial; culms very densely tufted, erect, 110 cm. tall, soft, scabrous below the nodes; sheaths, except the basal ones, all much shorter than the elongate internodes, scabrous, the old basal sheaths becoming conspicuously fibrous; ligule an erose membrane 0.5 mm. long; blades linear, attenuate, very scabrous, the basal ones as much as 25 cm. long, 2–3 mm. wide, rather prominently pilose near the margins toward the base, those of the culm 13–17 cm. long, more or less ciliate near the base; panicle 9.5 cm. long, 2 cm. wide, dense, the very scabrous branches appressed; spikelets about 2 cm. long, 4-flowered, the rachilla segments densely hirsute; first glume 6–7 mm. long, narrow, acuminate, 1-nerved, scabrous on the keel; second glume 9–11 mm. long, 3-nerved, acuminate, scabrous; lemma 12–13.5 mm. long, acuminate, 3-nerved, densely hirsute on the lower half, the upper glabrous or nearly so, bearing an awn 1–1.5 mm. long; palea acuminate, about as long as the lemma, the margins hirsute, the keels shortly but rather densely ciliate.

Type in the U. S. National Herbarium, No. 1962994, collected in open pine forest, Cerro del Viejo, 15 miles west of Dulces Nombres, Municipality Zaragoza, Nuevo León, Mexico, altitude 3,330 meters, August 18, 1948, by F. G. Meyer and D. J. Rogers (No. 2976).

BROMUS ATTENUATUS Swallen, sp. nov.

Perennis; culmi caespitiosi, erecti, 1 m. alti, glabri; vaginae superiores glabrae val scabrae, in ore pilosae, internodiis breviores, inferiores dense pubescentes, internodiis longiores; ligula membranacea, 0.4 mm. longa; laminae usque ad 60 cm. longae, 8–16 mm. latae, tenues, attenuatae, basi angustae, scabrae; paniculae 18 cm. longae, pendulae ramis gracilibus, scabris, 1- vel 2-spiculatis; spiculae 2–2.8 mm. longae, 5- vel 6-florae; gluma prima 6.5–7.5 mm. longa, 1-nervis, acuminata, in carina scabra; gluma secunda prima paulo longior, 3-nervis, obtusa, in carina scabra; lemma 12–13 mm. longum, 3-nerve, acutum, glabrum, arista scabra 2–3 mm. longa praeditum; palea lemmate paulo brevior.

Perennial; culms tufted, erect, 1 m. tall, glabrous; sheaths glabrous, or scabrous, or the lower ones densely pubescent, somewhat hairy at the mouth, the lower longer, the upper shorter than the internodes; ligule membranaceous, 0.4 mm. long; blades as much as 60 cm. long, 8–16 mm. wide at the middle, thin, attenuate, gradually narrowed to the base, scabrous especially on the margins; panicle drooping, 18 cm. long, the slender scabrous branches bearing 1 or 2 spikelets; spikelets 2–2.8 mm. long, 5- or 6-flowered; first glume 6.5–7.5 mm. long, 1-nerved, acuminate, scabrous on the keel; second glume a little longer than the first, 3-nerved, obtuse, scabrous on the keel; lemmas 12–13 mm. long, 3-nerved, acute, glabrous, with a scabrous awn 2–3 mm. long; palea a little shorter than the lemma.

Type in the U. S. National Herbarium, No. 1962991, collected in rich humus on ledges above dry stream in canyon on east side of Cerro Linadero, Dulces Nombres, Neuvo León, Mexico, altitude 1,900 meters, August 11, 1948, by F. G. Meyer and D. J. Rogers (No. 2937).

Both *Bromus densus* and *B. attenuatus* are exceptional in having 3-nerved lemmas.

FESTUCA PINETORUM Swallen, sp. nov.

Perennis; culmi dense caespitiosi, erecti, 38–55 cm. alti, glabri, uninodiosi; vaginae scaberulae, eae culmorum elongatae, breviter auriculatae; ligula 0.4 mm. longa; laminae convolutae, 5–10 cm. longae, scaberulae; paniculae 6–12 cm. longae, ramis distantibus appressis, inferioribus usque ad 4.5 cm. longis; spiculae breviter pedicellatae, appressae, 2- vel 3-florae; glumae acutae, 1-nerve, prima 2.4–2.5 mm. longa, secunda latior, 3 mm. longa; lemmata 4.5–5 mm. longa, acuta, summo scabra, exaristata vel arista 1 mm. longa praedita; palea lemma aequans, in carinis sparse scabra; antherae 2 mm. longae.

Perennial; culms densely tufted, erect, 38–55 cm. tall, glabrous, 1-noded; leaves mostly crowded at the base; sheaths scaberulous, those of the culm elongate, extending into small lobes at the summit; ligule 0.4 mm. long between the lobes of the sheath; blades convolute, 5–10 cm.

long, scaberulous; panicles 6–12 cm. long, the branches rather distant, appressed, the lower as much as 4.5 cm. long; spikelets short-pedicellate, appressed, 2- or 3-flowered; glumes acute, 1-nerved, the first 2.4–2.5 mm. long, the second broader, 3 mm. long; lemmas 4.5–5 mm. long, acute, scabrous toward the summit, bearing an awn about 1 mm. long, or rarely awnless; palea as long as the lemma, sparsely scabrous on the keels; anthers 2 mm. long.

Type in the U. S. National Herbarium, No. 1962995, collected in open pine forest, Cerro del Viejo, 15 miles west of Dulces Nombres, Municipality Zaragoza, Nuevo León, Mexico, altitude 3,330 meters, August 18, 1948, by F. G. Meyer and D. J. Rogers (No. 2977).

FESTUCA BREVIGLUMIS Swallen, sp. nov.

Perennis; culmi erecti, 55 cm. alti; vaginae glabrae, inferiores fibrosae; ligula membranacea, 0.1 mm. longa; laminae planae, elongatae, attenuatae, 5–8 mm. latae, marginibus scabrae; panicula 21 cm. longa, laxa, ramis binis distantibus, plus minusve flexuosis; spiculae 2 cm. longae, 4-florae; glumae acutae vel subacuminatae, prima 3–5 mm. longa, 1-nervis, secunda 4–9 mm. longa, 3-nervis; lemma primum 14–17 mm. longum, attenuatum, scabrum, arista 8–13 mm. longa, scabra praeditum; palea ca. 1 cm. longa, scabra; rachilla hirsuta.

Perennial; culms erect, 55 cm. tall; sheaths glabrous, the lowermost becoming fibrous with age; ligule a very short membrane less than 0.1 mm. long; blades flat, attenuate, 5–8 mm. wide, scabrous on the margins, otherwise glabrous; panicles 21 cm. long, lax, drooping, the branches somewhat flexuous, paired, the pairs distant; spikelets mostly 4-flowered, 2 cm. long, excluding the awns; glumes acute or subacuminate, the first 3–5 mm. long, 1-nerved, the second 4–9 mm. long, 3-nerved; lowest lemma 14–17 mm. long, attenuate, scabrous, the awn 8–13 mm. long; palea about 1 cm. long, finely scabrous; rachilla appressed hirsute.

Type in the U. S. National Herbarium, No. 1307123, collected in dense oak and bamboo forest near Laguna de la Escuadra, northeast of El Copey, altitude 2,000–2,200 meters, Provincia de San José, Costa Rica, December 16, 1925, by Paul C. Standley (No. 41998).

This species is related to *Festuca chiriquiensis* Swallen, which differs in having longer subequal glumes and short-awned lemmas, the awns 1–3 mm. long.

Also collected in Guatemala, above Las Calderas, region of Los Positos, Department of Chimaltenango, *Standley* 80130. In this collection the first glumes are somewhat shorter than those of the type, and some of the culms are as much as a meter high with an inflorescence as much as 30 cm. long.

POA VENOSA Swallen, *sp. nov.*

Perennis; culmi erecti, 50–70 cm. alti; vaginae glabrae, internodiis breviores; ligula 1 mm. longa; laminae 3–8 cm. longae, 2–4 mm. latae, glabrae; paniculae 10–13 cm. longae, ramis binis anguste adscendentibus vel inferioribus patentibus, plus minusve flexuosis, in parte inferiore nudis, infimo usque ad 5 cm. longo; spiculae 2- vel 3-florae, 4–5 mm. longae, viridi-purpureae; glumae acutae, prima 2–3 mm. longa, 1-nervis, secunda latior, 2.5–3 mm. longa, 3-nervis; lemma primum 3.5 mm. longum, acutum, in parte inferiore dense pubescens.

Perennial; culms erect, 50–70 cm. high; sheaths mostly shorter than the internodes, glabrous; ligule 1 mm. long; blades 3–8 cm. long, 2–4 mm. wide, glabrous; panicle 10–13 cm. long, the scabrous branches usually in pairs, rather narrowly ascending or the lower ones spreading, more or less flexuous, naked below, the lowermost as much as 5 cm. long; spikelets 2- or 3-flowered, 4–5 mm. long, greenish-purple; glumes acute, the first 2–3 mm. long, 1-nerved, the second a little broader, 2.5–3 mm. long, 3-nerved; first lemma 3.5 mm. long, acute, densely pubescent on the lower half, with a prominent cobweb at the base.

Type in the U. S. National Herbarium, No. 1935067, collected in alpine meadow, vicinity of Chémal, summit of Sierra de los Cuchumatanes, altitude 3,700–3,750 meters, Department of Huehuetenango, Guatemala, August 8, 1942, by Julian A. Steyermark (No. 50310).

POA TACANAE Swallen, *sp. nov.*

Perennis, rhizomatosa; culmi erecti, ca. 30 cm. alti; vaginae internodiis longiores, laeves, lucidae; ligula truncata, 1 mm. longa; laminae planae, laxae, 10–15 cm. longae, 1–2 mm. latae, summo scabrae; panicula ca. 9 cm. longa, ramis gracilibus, subglabris, paucifloris, in parte inferiore nudis; spiculae 2-florae; glumae angustae, acuminatae vel subacuminatae, prima 1.8–2 mm. longa, secunda 2.5 mm. longa; lemma primum 4 mm. longum, acutum, summo nervis scabrum.

Perennial with creeping rhizomes; culms erect, about 30 cm. high; sheaths all longer than the internodes, smooth and shining; ligule truncate, not more than 1 mm. long; blades flat, lax, mostly 10–15 cm. long, 1–2 mm. wide, scabrous toward the tip, especially on the underside of the midnerve and on the margins; panicle about 9 cm. long, the slender nearly glabrous branches flexuous, few-flowered, naked below; spikelets 2-flowered; glumes narrow, acuminate or subacuminate, lunate, the first 1.8–2 mm. long, the second 2.5 mm. long; first lemma 4 mm. long, gradually narrowed from the base, acute, scabrous at least on the nerves at the tip, otherwise glabrous.

Type in the Chicago Natural History Museum, No. 1059917, collected on wooded lower slopes, between Sibinal and summit of Volcán Tacana, altitude 2,500–4,400 meters, Department of San Marcos, Guatemala, February 19, 1940, by Julian A. Steyermark (No. 36083).

Related to *Poa seleri* Pilger, which differs in having subobtuse lemmas not more than 3 mm. long, shorter and broader glumes, a rather prominent ligule mostly 2–3 mm. long, and scabrous panicle branches.

POA SHARPII Swallen, sp. nov.

Perennis; culmi erecti basi adscendentes, 45 cm. alti, compressi, scaberuli; vaginae internodiis breviores, compressae, carinatae, glabrae; ligula brevissima; culmorum laminae 5–8 cm. longae, 2 mm. latae, glabrae, eae innovationum elongatae; panicula 11 cm. longa, laxa, ramis solitariis vel binatis, distantibus, flexuosis, in parte inferiore nudis; spiculae 4 mm. longae, 3-florae; glumae acutae, prima angusta, 1.7 mm. longa, 1-nervis, secunda 2.3 mm. longa, 3-nervis; lemma primum 2.8 mm. longum, subobtusum, in carina et nervis lateralibus basin versus pubescens, basi lanatum.

Perennial; culms erect from a slender ascending base, 45 cm. high, distinctly flattened, scaberulous; sheaths shorter than the internodes, compressed, keeled, glabrous; ligule very short; culm blades 5–8 cm. long, 2 mm. wide, glabrous, those of the innovations elongate; panicle 11 cm. long, lax, the slender, distant, flexuous branches solitary or in pairs, naked below; spikelets 4 mm. long, 3-flowered; glumes acute, the first narrow, 1-nerved, 1.7 mm. long, the second broader, 3-nerved, 2.3 mm. long; first lemma 2.8 mm. long, subobtuse, pubescent on the keel and marginal nerves toward the base, with a rather prominent cobweb.

Type in the U. S. National Herbarium, No. 1939432, collected on moist shaded soil near El Puerto, Veracruz, Mexico, altitude 7,700 feet, September 6, 1944, by A. J. Sharp (No. 44688).

Apparently allied to *Poa saltuensis* Fern. & Wieg. of the Eastern United States, this species differs in having smaller spikelets and the lemmas pubescent on the keel and lateral nerves below.

POA FILICULMIS Swallen, sp. nov.

Perennis; culmi erecti, dense caespitosi, gracillimi, glabri, uninodosi; vaginae aggregatae, glabrae; ligula tenuis, 0.3 mm. longa; laminae 4–8 cm. longae, involutae, firmae, scabrae; paniculae 2.5–3 cm. longae, ramis inferioribus binatis, divaricatis, gracilibus, scaberulis, 1- vel 2-spiculatis; spiculae 2-florae; glumae latae, acutae vel subacutae, prima 2 mm. longa, 1-nervis, secunda 2.5 mm. longa, 3-nervis; lemmata 1.8 mm. longa, acuta, nervis minute scabra.

Perennial; culms erect in very dense tufts, 20–22 cm. high, very slender, glabrous, with 1 culm node near the base; sheaths crowded, glabrous; ligule thin, 0.3 mm. long; blades mostly 4–8 cm. long, involute, firm, scabrous; panicles 2.5–3 cm. long, the lower branches paired, horizontally spreading, slender, scaberulous, bearing 1 or 2 spikelets at the tip; spikelets 2-flowered; glumes broad, acute or subacute, the first 2 mm. long, 1-nerved, the second 2.5 mm. long, 3-nerved; lemmas 1.8 mm. long, acute, minutely scabrous on the nerves.

Type in the U. S. National Herbarium, No. 1815803, collected on valley floor sparsely covered by *Yucca* and *Larrea*, 15 kilometers west of Concepción del Ora, just within the border of Coahuila, Mexico, altitude 2,300 meters, July 19, 1941, by L. R. Stanford, K. L. Retherford, and R. D. Northcraft (No. 477).

This species is apparently most closely related to *Poa involuta* Hitchc. It is easily recognized by the short dense tufts and very slender culms with small few-flowered panicles.

BOUTELOUA DISTANS Swallen, sp. nov.

Perennis; culmi erecti, 38–60 cm. alti, glabri; vaginae internodiis longiores, sparse vel dense papilloso-villosae; ligula ciliata, ca. 1 mm. longa; laminae 7–15 cm. longae, 1.5–3.5 mm. latae, planae, attenuatae, marginibus scabrae; inflorescentiae 12–19 cm. longae; racemi 20–±50, 8–15 mm. longi, purpurei, reflexi, 1–3-spiculati; spiculae 8–9 mm. longae, distantes; glumae 1-nerves, in carina scabrae, prima acuminata spicula $\frac{1}{2}$ brevior, secunda latior, subacuminata, spiculam subaequans; lemma angustum, acuminatum, exaristatum, glabrum; rudimentum 2 mm. longum, angustum, lemma subaequans.

Perennial; culms erect, 38–60 cm. tall, glabrous; sheaths all longer than the internodes, sparsely to densely papillose-villous; ligule ciliate, about 1 mm. long; blades 7–15 cm. long, 1.5–3.5 mm. wide, flat, attenuate, becoming curled with age, finely scabrous on the margins; inflorescence 12–19 cm. long, the axis attenuate pointed beyond the uppermost raceme; racemes 20 to about 50; 8–15 mm. long, purple, reflexed, bearing 1–3 relatively distant spikelets, the rachis narrow, scabrous, produced beyond the spikelets; spikelets 8–9 mm. long; glumes 1-nerved, finely scabrous on the keel, the first narrow, acuminate, half as long as the spikelet, the second broader, subacuminate, nearly as long as the spikelet; lemma narrow, acuminate, awnless, glabrous; rudiment 2 mm. long, narrow, glabrous, the awns equaling or somewhat exceeding the lemma.

Type in the U. S. National Herbarium, No. 1961989, collected about 170 kilometers north of Oaxaca, Oaxaca, Mexico, December 13, 1945, by E. Hernández X. and J. A. Jenkins (No. X-808).

The aspect of this species is similar to *Bouteloua curtispindula* (Michx.) Torr., but it is readily distinguished by the more slender, fewer-flowered racemes, narrower rachis, and the distant spikelets.

AGROSTIS VINOSA Swallen, sp. nov.

Perennis; culmi caespitosi, erecti, 9–26 cm. alti, uninodosi; laminae basi aggregatae, firmae, rigidae, arcuatae, involutae, scabrae, 1–4 cm. longae; ligula 1–2 mm. longa, decurrens; paniculae 3–10 cm. longae, purpureae, ramis gracilibus, appressis, 2–4 fasciculatis, supra medium floriferis, inferioribus usque ad 4 cm. longis; spiculae 2.5–3 mm. longae; glumae inaequales, acutae vel acuminatae, in carina scabrae; lemma 1.6–1.8 mm. longum, truncatum, arista 2 mm. longa, recta, scabra, supra basin $\frac{1}{4}$ inserta praeditum, calli marginibus breve barbatum; palea obsoleta; antherae 1.2–1.3 mm. longae.

Perennial; culms tufted, erect, 9–26 cm. high, with only one node evident above the base; leaves mostly crowded at the base, the blades firm, stiff, mostly arcuate, 1–4 cm. long, involute, scabrous; ligule 1–2 mm. long, decurrent; panicles 3–10 cm. long, dark purple, the slender scabrous branches appressed, in fascicles of 2–4, rarely with short branches intermixed, usually spikelet-bearing well above the middle, the lower ones as much as 4 cm. long; spikelets 2.5–3 mm. long; glumes unequal, acute or acuminate, scabrous on the keel; lemma 1.6–1.8 mm. long, truncate, awned, the awn inserted one-fourth above the base, about 2 mm. long, scabrous, straight or nearly so, the callus bearded on the sides with short hairs; palea wanting; anthers 1.2–1.3 mm. long.

Type in the U. S. National Herbarium, No. 1914772, collected in alpine meadow, vicinity of Chémal, summit of Sierra de los Cuchumatanes, altitude 3,700–3,750 meters, Department of Huehuetenango, Guatemala, August 8, 1942, by Julian A. Steyermark (No. 50290).

This species is clearly closely related to *A. toluensis* H. B. K., which differs in having a dense panicle, most of the branches spikelet-bearing nearly to the base with short branches intermixed, slightly smaller spikelets, glabrous callus, and shorter anthers about 0.8 mm. long.

AGROSTIS LAXISSIMA Swallen, sp. nov.

Perennis; culmi graciles, debiles, decumbentes, 50–60 cm. longi; vaginae internodia aequantes, glabrae; ligula 3–4 mm. longa, decurrens; laminae planae, laxae, 8–15 cm. longae, 1–3 mm. latae, glabrae; paniculae 7–8 cm. longae, pauciflorae, ramis gracilibus, scabris, adscendentibus vel divergentibus, flexuosis, in parte inferiore nudis; spiculae 2 mm. longae; glumae aequales, acutae, in carina scabrae; lemma 1.5 mm. longum, tenue, truncatum, arista 3 mm. long, supra basin $\frac{1}{3}$ inserta, curvata praeditum, calli marginibus breve barbatum; palea minuta; antherae 0.5 mm. longae.

Perennial; culms slender, weak, apparently decumbent spreading, 50–60 cm. long; sheaths about as long as the internodes or a little shorter, glabrous; ligule 3–4 mm. long, decurrent; blades flat, lax, mostly 8–15 cm. long, 1–3 mm. wide, glabrous; panicles 7–8 cm. long, open, relatively few-flowered, the slender, sparsely scabrous branches ascending or spreading, somewhat flexuous, naked in the lower half; spikelets 2 mm. long; glumes equal, acute, scabrous on the keel; lemma 1.5 mm. long, thin, truncate, the nerves minutely excurrent, awned, the awn inserted one-third from the base, 3 mm. long, curved, scarcely twisted below, the callus with short hairs on the sides; palea minute; anthers 0.5 mm. long.

Type in the U. S. National Herbarium, No. 1910715, collected in dense *Abies-Cupressus* forest, along road between San Marcos and Serchil, altitude 2,700–3,150 meters, Department of San Marcos, Guatemala, January 30, 1941, by Paul C. Standley (No. 85379).

Probably most closely related to *A. toluensis* H. B. K., differing in having lax culms and foliage, and open panicles, the branches naked below. *Standley* 83813, collected in the region of Boxantín, Department of Quezaltenango, differs from the type in having panicles 12–15 cm. long.

AGROSTIS ABIETORUM Swallen, sp. nov.

Perennis; culmi erecti, caespitiosi, 25–45 cm. alti; vaginae internodiis paulo breviores, glabrae; ligula 2–4 mm. longa, decurrens; laminae 4–7 cm. longae, 1–1.5 mm. latae, planae, firmae, scabrae; paniculae 7–12 cm. longae, diffusae, ramis solitariis vel binatis, sparse scabris, basi nudis, ramulis et pedicellis rigide divaricatis; spiculae 2.3–2.5 mm. longae; glumae acutae, aequales, vel prima secunda longior, in carina scabrae; lemma 2 mm. longum, in nervis scabrum, arista 3 mm. longa supra basin $\frac{1}{4}$ inserta, geniculata, infra geniculam contorta praeditum, calli marginibus sparse barbato pilis brevibus; antherae 1 mm. longae.

Perennial; culms tufted, erect, 25–45 cm. high; sheaths a little shorter than the internodes, glabrous; ligule 2–4 mm. long, decurrent; blades 4–7 cm. long, 1–1.5 mm. wide, flat or becoming involute, rather firm, scabrous; panicles 7–12 cm. long, diffuse, the branches solitary or in pairs, sparsely scabrous, naked at the base, the branchlets and usually the pedicels stiffly divaricate with a pulvinus in the axils; spikelets 2.3–2.5 mm. long; glumes acute, equal or the first a little longer, scabrous on the keel; lemma 2 mm. long, scabrous on the nerves, these slightly excurrent, the awn 3 mm. long inserted about one-fourth above the base, geniculate, tightly twisted below the bend, the callus sparsely bearded on the sides, the hairs short; anthers 1 mm. long.

Type in the Chicago Natural History Museum, No. 1046517, collected on dry banks in *Cupressus-Abies* forest, along road between San Sebastián at Km. 21 and Km. 8, 8–18 miles northwest of San Marcos, Volcán Tajumulco, altitude 2,700–3,800 meters, Department of San Marcos, Guatemala, February 15, 1940, by Julian A. Steyermark (No. 35652).

Related to the preceding species but differs in the stiff habit, the stiffly divaricate panicle branchlets, the longer lemma and anthers, and the tightly twisted awn.

AGROSTIS EXSERTA Swallen, sp. nov.

Perennis; culmi dense caespitiosi, 10–20 cm. alti, graciles, erecti vel adscendentes, glabri, enodosi; vaginae glabrae, brevissimae, suprema usque ad 5.5 cm. longa; ligula 1.5–2 mm. longa; laminae firmatae, involutae, glabrae, curvatae, 1–4 cm. longae; paniculae 1–5 cm. longae, pauciflorae, purpureae, ramis brevibus glabris, rigide adscendentibus, supra medium ramosis, ramulis 1–2-spiculatis; spiculae 1.5–1.6 mm. longae; glumae aequales, plus minusve cucullatae, subacutae, in carina minute scabrae; lemma glumas subaequans, obtusissimum, minute erosum, exaristatum vel arista brevi, recta, gracili, supra basin $\frac{1}{2}$ inserta praeditum; palea lemmate paulo brevior; rachilla lemmate $\frac{2}{3}$ brevior.

Perennial; culms slender, densely tufted, 10–20 cm. high, erect or ascending, glabrous, without culm nodes; sheaths glabrous, those of the innovations very short, the single culm sheath as much as 5.5 cm. long; ligule 1.5–2 mm. long; blades firm, involute, glabrous, curved, 1–4 cm. long; panicles 1–5 cm. long, few-flowered, purple, the short, smooth branches stiffly ascending, branching above the middle, the branchlets bearing one or two spikelets; spikelets 1.5–1.6 mm. long; glumes equal, somewhat cucullate, subacute, minutely scabrous on the keel; lemma about as long as the glumes, very obtuse, minutely erose, awnless or with a short, straight, slender awn from the middle of the back; palea a little shorter than the lemma; rachilla joint one-third as long as the floret.

Type in the U. S. National Herbarium, No. 1914768, collected in alpine area, vicinity of Tojquia, Sierra de los Cuchumatanes, altitude 3,700 meters, Department of Huehuetenango, Guatemala, August 5, 1942, by Julian A. Steyermark (No. 50119).

This species is related to *A. bacillata* Hack., which differs in having culms with one or two nodes, longer, finer, and softer blades, more slender, flexuous, implicate panicle branches, and a much longer rachilla.

AGROSTIS ARCTA Swallen, sp. nov.

Perennis; culmi dense caespitosi, erecti, basi decumbentes, 5–10 cm. alti; vaginae glabrae, plus minusve carinatae; ligula 1–2 mm. longa, decurrens; laminae firmae, conduplicatae vel involutae, curvatae, 2–6 cm. longae, subtus laeves, supra scabrae, marginibus scabrae; paniculae 2–3.5 cm. longae, ramis appressis basi nudis; spiculae 2.1–2.3 mm. longae; glumae aequales, acutae, in carina scabrae; lemma 1.5–1.7 mm. longum, truncatum, minute scabrum, summo nervosum, exaristatum vel arista brevi supra basin $\frac{1}{2}$ inserta praeditum; palea minuta; antherae 0.6 mm. longae.

Perennial; culms rather densely tufted, erect from a decumbent, rhizomelike base, 5–10 cm. high; sheaths glabrous, somewhat keeled; ligule 1–2 mm. long, decurrent; blades firm, folded or involute, curved, blunt, 2–6 cm. long, smooth below, scabrous above and on the margins; panicles 2–3.5 cm. long, the more or less scabrous branches appressed, naked at the base; spikelets 2.1–2.3 mm. long; glumes equal, acute, rather strongly scabrous on the keel; lemma 1.5–1.7 mm. long, truncate, minutely scabrous in lines, the nerves rather prominent at the summit, awnless or with a very slender short awn from the middle of the back; palea minute; anthers 0.6 mm. long.

Type in the U. S. National Herbarium, No. 1586052, collected on open moist roadside at Santa Elena, altitude 2,400–2,700 meters, Department of Chimaltenango, Guatemala, July 17, 1933, by A. F. Skutch (No. 422).

AGROSTIS VESCA Swallen, sp. nov.

Perennis; culmi gracillimi, erecti, basi decumbentes, 20–30 cm. alti; vaginae internodiis paulo brevior, glabrae; ligula truncata, erosa, 0.5–1 mm. longa; culmorum laminae 5–9 cm. longae, 1 mm. latae, planae, subtus laeves, supra scaberulae, eae innovationum involutae, filiformes; paniculae 4–8 cm. longae, purpureae, ramis gracilibus, subglabris, adscendentibus, supra medium ramosis, ramulis paucifloris; spiculae 1.6–1.8 mm. longae; glumae aequales, acutae; lemma 1.3–1.4 mm. longum, truncatum, minute erosum, exaristatum; palea minuta; antherae 0.8 mm. longae.

Perennial; culms very slender, erect from a decumbent base, 20–30 cm. high; sheaths about as long as the internodes, glabrous; ligule truncate, erose, 0.5–1 mm. long; culm blades mostly 5–9 cm. long, about 1 mm. wide, flat, smooth below, scaberulous above, those of the innovations involute, filiform, sometimes elongate; panicle 4–8 cm. long, purple, the slender nearly glabrous branches ascending, branching above the middle, the branchlets few-flowered; spikelets 1.6–1.8 mm.

long; glumes equal or nearly so, rather broadly acute; lemma 1.3–1.4 mm. long, truncate, minutely erose, awnless; palea minute; anthers 0.8 mm. long.

Type in the U. S. National Herbarium, No. 1586050, collected on open, moist roadside at Santa Elena, Department of Chimaltenango, Guatemala, altitude 2,400–2,700 meters, July 17, 1933, by A. F. Skutch (No. 420).

CALAMAGROSTIS PINETORUM Swallen, sp. nov.

Perennis; culmi erecti, 120 cm. alti, glabri; vaginae scaberulae, inferiores internodiis longiores, superiores internodiis breviores; ligula 4.5 mm. longa, obtusa, decurrens; laminae 26–33 cm. longae, 5–6 mm. latae, scabrae, suprema reducta; panícula 16 cm. longa, 3 cm. lata, densa, in parte inferiore interrupta, ramis anguste adscendentibus; spiculae 5.5–6 mm. longae; glumae acutae, subaequales, 3-nerves, scabrae; lemma 4 mm. longum, scabrum, nervis excurrentibus, arista 3 mm. longa praeditum, hac supra basin 1 mm. inserta, geniculata, infra geniculam contorta, calli marginibus breviter barbatur; palea lemmate paulo brevior; rachilla 1 mm. longa, pilosa pilis 0.5 mm. longis.

Perennial; culms erect from a rhizomelike base, 120 cm. high, glabrous; sheaths scaberulous, the lower ones longer, the upper ones much shorter than the internodes; ligule 4.5 mm. long, obtuse, decurrent; blades 26–33 cm. long, 5–6 mm. wide, scabrous, the uppermost much shorter and narrower; panicle 16 cm. long, about 3 cm. wide, dense, interrupted below, the branches narrowly ascending, long and short ones intermixed; spikelets 5.5–6 mm. long; glumes subequal, 3-nerved, scabrous; lemma 4 mm. long, scabrous, the nerves excurrent as short awns, the awn inserted 1 mm. above the base, 3 mm. long, geniculate, tightly twisted below the bend, the callus sparsely bearded on the sides with short hairs; palea a little shorter than the lemma; rachilla 1 mm. long, bearded with appressed hairs 0.5 mm. long, bearing a rudimentary second floret reduced to a bristle 2 mm. long.

Type in the U. S. National Herbarium, No. 1914760, collected on dry pine slopes between Finca Piamonte and slope southwest of Finca Piamonte, altitude 2,400–2,500 meters, Department of El Progreso, Guatemala, February 4, 1942, by Julian A. Steyermark (No. 43454).

Another specimen, *Standley* 42502, collected along Río Repollal, Department of Zacapa, is referable to this species but differs in wanting a reduced second floret.

MUHLENBERGIA VAGINATA Swallen, sp. nov.

Annua; culmi gracillimi, decumbentes, ramosissimi, ramis brevibus fasciculatis; vaginae breves, aggregatae, glabrae; ligula 1.2–2 mm. longa, tenuis, decurrens; laminae 6–14 mm. longae, 0.6–1 mm. latae,

planae, firmae, nervosae, acutae, naviculares, subtus glabrae, supra scabrae, marginibus scarbrae; paniculae usque ad 1.5 cm. longae, angustae, pauciflorae; spiculae 1.8 mm. longae; glumae subaequales, spicula $\frac{2}{3}$ – $\frac{1}{2}$ breviores, obtusae, plus minusve irregulares; lemma acutum, nervosum, basi sparse pubescens.

Annual; culms very slender, decumbent spreading with ascending ends, rather freely branching, the branches short with very short fasciculate branchlets; sheaths short, crowded, glabrous; ligule 1.2–2 mm. long, thin, decurrent; blades 6–14 mm. long, 0.6–1 mm. wide, flat, firm, strongly nerved, acute, the tip navicular, smooth beneath, scabrous above and on the margins; panicles not more than 1.5 cm. long, usually much less, narrow, few-flowered; spikelets 1.8 mm. long; glumes one-third to nearly one-half as long as the spikelet, subequal, irregularly obtuse, the first sometimes notched; lemma acute, strongly nerved, sparsely pubescent at the base.

Type in the Chicago Natural History Museum, No. 1046643, collected in spring-fed meadow along quebrada, 4 kilometers from San Sebastián, northwest of San Marcos, Department of San Marcos, Guatemala, February 15, 1940, by Julian A. Steyermark (No. 35598).

Related to *M. filiformis* (Thurb.) Rydb. which differs in the much more erect habit, simple culms, or branching only at the lower nodes, without fascicled branchlets, longer blades and the usually long exerted, much longer panicles.

MUHLENBERGIA CALCICOLA Swallen, sp. nov.

Perennis; culmi densissime caespitosi, erecti, basi decumbentes, 4–7 cm. alti, nodis inferioribus ramosi, ramis brevibus laminas breves fasciculatas gerentibus; vaginae breves, approximatae, glabrae; ligula hyalina, truncata, decurrens, usque ad 0.6 mm. longa; laminae crassae, firmae, 6–15 mm. longae, 1–1.5 mm. latae, planae vel incurvae, subtus laeves, supra et marginibus scabrae; paniculae 1–1.5 cm. longae, angustae, pauciflorae, ramis brevibus, rigidis, appressis vel anguste adscendentibus, minute hispidulis; spiculae 2 mm. longae; glumae aequales, obtusae, lemmate ca. $\frac{1}{2}$ breviores; lemma acuminatum, mucronatum, glabrum.

Perennial; culms in very dense tufts, erect from a decumbent base, 4–7 cm. tall, bearing short branches with short fascicled blades from the lower nodes; sheaths short, crowded, glabrous; ligule hyaline, truncate, decurrent, as much as 0.6 mm long; blades thick, firm, 6–15 mm. long, 1–1.5 mm. wide, flat or the margins incurved toward the blunt tip, smooth below, more or less scabrous above and on the margins; panicles 1–1.5 cm. long, narrow, few-flowered, the short, stiff, relatively stout branches appressed or narrowly ascending, minutely hispidulous, bearing one or two spikelets; spikelets about 2 mm. long, the glumes obtuse,

a little more than half as long as the lemma, the lemma acuminate, mucronate, glabrous.

Type in the U. S. National Herbarium, No. 1910686, collected in open limestone *Juniperus* forest, along road in region of Chémal, altitude about 3,300 meters, Sierra de los Chuchumatanes, Department of Huehuetenango, Guatemala, December 31, 1940, by Paul C. Stanley (No. 81703).

MUHLENBERGIA BREVICULMIS Swallen, sp. nov.

Annual; culmi graciles, erecti vel basi decumbentes, 8–12 cm. alti, ramosi, glabri; vaginae internodiis breviores, glabrae; ligula 0.8–1 mm. longa; laminae 6–17 mm. longae, 1 mm. latae, planae, firmae, nervosae, scaberulae; paniculae longe exsertae, 1.5–2.5 cm. longae, ramis gracilibus rigide adscendentibus, paucifloris, inferioribus 8–10 mm. longis; spiculae 2.5–2.8 mm. longae, appressae; glumae obtusae spicula $\frac{1}{2}$ brevior; lemma acutum vel mucronatum, glabrum.

Annual; culms slender, erect, or decumbent at the base, mostly 8–12 cm. high, branching, glabrous; sheaths mostly shorter than the internodes, rounded, glabrous; ligule 0.8–1 mm. long; blades 6–17 long, 1 mm. wide, flat, firm, strongly nerved, scaberulous; panicles usually long-exserted, mostly 1.5–2.5 cm. long, the relatively slender branches stiffly ascending, few-flowered, the lower ones 8–10 mm. long; spikelets 2.5–2.8 mm. long, appressed, lead-colored; glumes obtuse, about half as long as the spikelet; lemma acute or mucronate, glabrous.

Type in the U. S. National Herbarium, No. 1935054, collected on the top of Cerro Chemalito, Sierra de los Cuchumatanes, $3\frac{1}{2}$ miles west of Santa Eulalia, Department of Huehuetenango, Guatemala, altitude 3,100–3,150 meters, August 2, 1942, by Julian A. Steyermark (No. 49905).

MUHLENBERGIA OROPHILA Swallen, sp. nov.

Perennis; culmi densissime caespitosi, erecti, 12–25 cm. alti; vaginae internodiis longiores, glabrae; ligula truncata, ca. 0.5 mm. longa; laminae 6–8 cm. longae, 1–1.5 mm. latae, subattenuatae, glabrae, marginibus scabrae; paniculae 5–8 cm. longae, ramis gracilibus, scabris, in parte inferiore nudis; spiculae purpureae, 3–3.5 mm. longae; glumae subaequales vel prima secunda paulo brevior, 1.5–2 mm. longae, acutae; lemma glabrum, subacuminatum, arista scabra, 0.5–1 mm. longa praeditum.

Perennial; culms very densely tufted, erect, 12–25 cm. tall; sheaths all longer than the internodes, glabrous; ligule truncate, about 0.5 mm. long; blades 6–8 cm. long, 1–1.5 mm. wide, subattenuate, glabrous, or finely scabrous toward the tip and on the margins; panicles 5–8 cm. long, partly enclosed in the sheath, the slender scabrous branches

naked below bearing a few spikelets at the ends of the branchlets; spikelets dark purple, 3–3.5 mm. long not including the awn; glumes subequal or the first a little shorter, 1.5–2 mm. long, acute; lemma glabrous, gradually tapering into the short scabrous awn, the awn 0.5–1 mm. long.

Type in Chicago Natural History Museum, No. 1202399, collected in alpine meadow, summit of Sierra de los Cuchumantanes, altitude 3,700–3,800 meters, Cerro Chémal, Department of Huehuetenango, Guatemala, August 8, 1942, by Julian A. Steyermark (No. 50309).

MUHLENBERGIA HINTONI Swallen, sp. nov.

Perennis; culmi graciles, dense caespitosi, erecti, 27–50 cm. alti; vaginae basi aggregatae, ecarinatae, glabrae; ligula ca. 1 mm. longa, obtusa vel truncata, decurrens; laminae involutae, 9–30 cm. longae, supra minute pubescentes, subtus glabrae, marginibus scabrae; paniculae 4–12 cm. longae, ramis distantibus gracilibus, scabris, rigide adscendentibus vel divergentibus, infimo usque ad 4.5 cm. longo, ramulis adscendentibus; spiculae 2.6–2.8 mm. longae, breve pedicellatae, divergentes; glumae obtusae, bilobatae, exaristatae vel inter lobos brevistaristatae, prima 1 mm. longa, secunda 1.2–1.5 mm. longa; lemma marginibus in parte inferiore et costa basi dense pubescens; arista 3.5–5 mm. longa, scabra; palea lemmate paulo brevior, acuta, inter carinas in parte inferiore dense pubescens; antherae 2 mm. longae.

Perennial; culms slender, densely tufted, erect, 27–50 cm. high; sheaths mostly crowded toward the base, rounded, glabrous; ligule about 1 mm. long, obtuse or truncate, decurrent; blades involute, 9–30 cm. long, glabrous below, minutely pubescent above at least toward the base, the margins scabrous; panicles 4–12 cm. long, the branches distant, slender, scabrous, finally stiffly ascending or spreading, the lowermost as much as 4.5 cm. long, the branchlets stiffly ascending spikelets 2.6–2.8 mm. long, short-pedicellate, stiffly spreading; glumes obtuse, usually 2-lobed, awnless or usually short-awned from between the lobes, the first 1 mm. long, the second 1.2–1.5 mm. long; lemma densely pubescent on the margins in the lower half and on the mid-nerve at the base, bearing a slender scabrous awn 3.5–5 mm. long; palea a little shorter than the lemma, acute, densely pubescent between the keels in the lower half; anthers 2 mm. long.

Type in the U. S. National Herbarium, No. 1840838, collected in meadow, Crucero, Temascaltepec, State of Mexico, Mexico, altitude 2,880 meters, December 30, 1932, by George B. Hinton (No. 3059).

MUHLENBERGIA ERIOPHYLLA Swallen, sp. nov.

Perennis; culmi caespitosi, erecti, 17–22 cm. alti; vaginae internodiis longiores, ecarinatae, inferiores scabrae, fibrosae; ligula 5–9 mm.

longa, tenuis, decurrens; laminae planae, firmae, demum crispatae, supra dense lanatae pilis appressis, subtus et marginibus scabrae, 10–20 cm. longae, 1.2–1.5 mm. latae, suprema reducta; paniculae 4–8 cm. longae, ca. 5 mm. latae, densae, ramis appressis; spiculae 3.5–4 mm. longae, pedicellis scabris; glumae acutae, prima 3–3.5 mm. longa, secunda 3.5–4 mm. longa; lemma 3.5 mm. longum, in carina et marginibus in parte inferiore dense pilosum; palea lemmate paulo brevior, tenuis, inter carinas pilosa; antherae 1.5 mm. longae.

Perennial; culms tufted, erect, 17–22 cm. high; sheaths longer than the internodes, rounded, at least the lower ones scabrous, the lowermost becoming fibrous with age; ligule thin, decurrent, 5–9 mm. long; blades flat, firm, becoming curled with age, densely lanate on the upper surface with appressed hairs, scabrous on the lower surface and on the margins, the lower ones 10–20 cm. long, 1.2–1.5 mm. wide, the uppermost reduced; panicles 4–8 cm. long, about 5 mm. wide, rather dense, the branches appressed; spikelets 3.5–4 mm. long, the pedicels scabrous; glumes acute, the first 3–3.5 mm. long, the second 3.5–4 mm. long; lemma 3.5 mm. long, gradually narrowed into the awn, the awn 2 cm. long, densely pilose on the midnerve and margins in the lower half; palea a little shorter than the lemma, thin, pilose between the obscure keels; anthers 1.5 mm. long.

Type in the U. S. National Herbarium, No. 1840917, collected in oak woods at Luvianos, Temascaltepec, State of Mexico, Mexico, altitude 1,100 meters, May 12, 1933, by George B. Hinton (No. 5307).

MUHLENBERGIA CURVULA Swallen, sp. nov.

Perennis; culmi graciles, erecti, 60 cm. alti; vaginae internodiis multo longiores, inferiores aggregatae, carinatae, glabrae, superiores elongatae, scabrae; ligula usque ad 11 mm. longa, tenuis, attenuata; laminae 10–20 cm. longae, firmae, involutae, nervosae, scabrae, curvatae vel flexuosae; panicula 15 cm. longa, ramis distantibus, adscendentibus, infimo 5 cm. longo; spiculae 3.8–4.2 mm. longae; glumae bidentatae, glabrae, prima 2.8–3 mm. longa, 1-nervis, secunda 3.8–4.2 mm. longa, 3-nervis; lemma 3.5 mm. longum, dense villosum, arista gracilis, attenuata, flexuosa, scabra, 14–17 mm. longa praeditum; palea lemmate brevior, obtusa, marginibus hyalinis, in parte inferiore dense villosa.

Perennial; culms slender, erect, 60 cm. high; sheaths all much longer than the internodes, the lower ones crowded, rather short, compressed, keeled, glabrous, the upper ones elongate, rounded, scabrous; ligule as much as 11 mm. long, thin, attenuate; blades mostly 10–20 cm. long, firm, involute, strongly nerved, scabrous, curved or flexuous; panicle 15 cm. long, open, the branches somewhat distant, ascending, the lowermost 5 cm. long; spikelets 3.8–4.2 mm. long; glumes glabrous, unequal, notched, the first 2.8–3 mm. long, 1-nerved, the second 3.8–4.2

mm. long, 3-nerved; lemma 3.5 mm. long, densely villous, narrowed into a slender, attenuate, flexuous, scabrous awn 14–17 mm. long; palea shorter than the lemma, obtuse, with hyaline margins, densely villous on the lower half.

Type in the U. S. National Herbarium, No. 1963089, collected in dry oak-wooded slopes about 12 miles from Guanajuato on road to Santa Rosa, Guanajuato, Mexico, September 30, 1946, by H. E. Moore, Jr. (No. 1353).

MUHLENBERGIA AUREA Swallen, sp. nov.

Perennis; culmi erecti, 75 cm. alti; vaginae compressae, carinatae, 5 mm. latae, auriculatae, inferiores subequitantes ca. 20 cm. longae; ligula hyalina, 2 mm. longa; laminae ca. 75 cm. longae, 4–5 mm. latae, basi conduplicatae, scaberrimae, marginibus scabro-serratae; panícula 35 cm. longa, aurea, densa, ramis gracilibus, flexuosis, scabris, in parte inferiore nudis, inferioribus ca. 12 cm. longis; spiculae 2–2.2 mm. longae; glumae acuminatae, subaequales, carina scabrae, lemmate paulo breviores; lemma acuminatum, scabrum, in parte inferiore sparse pilosum, in callo dense barbatum, pilis 0.5 mm. longis; arista gracilis flexuosa, scabra, 13–17 mm. longa.

Perennial; culms erect about 75 cm. tall; sheaths conspicuously flattened and keeled, about 5 mm. wide as folded, scabrous, auriculate, with a rather definite ridge at the junction of the sheath and blade, the lower ones about 20 cm. long, subequitant; ligule hyaline, inconspicuous, about 2 mm. long; blades about 75 cm. long, 4–5 mm. wide, conduplicate at the base, flat above, very scabrous, the margins strongly scabrous-serrate; panicle 35 cm. long, golden, dense, the slender, scabrous, somewhat flexuous branches naked in the lower half, the lower ones about 12 cm. long; spikelets 2–2.2 mm. long; glumes acuminate, subequal, scabrous on the keel, a little shorter than the floret; lemma acuminate, scabrous, sparsely pilose below, the callus rather densely bearded on the sides, the hairs about 0.5 mm. long, the awn slender, flexuous, scabrous, 13–17 mm. long.

Type in the Chicago Natural History Museum, No. 1057948, collected in thickets at base of vertical slopes along railroad, Finca Pirineos, lower south-facing slopes of Volcán Santa María, between Santa María de Jesús and Calahuaché, altitude 1,300–1,500 meters, Department of Quexaltenango, Guatemala, December 31, 1939, by Julian A. Steyermark (No. 33175).

Muhlenbergia aurea is probably most closely related to *M. scoparia* Vasey, which differs in having much narrower sheaths and blades, an elongate ligule, a narrow, less densely flowered, purple panicle, and longer awns.

MUHLENBERGIA VERSICOLOR Swallen, sp. nov.

Perennis; culmi erecti, 1 m. alti, infra paniculam scabri; vaginae compressae, carinatae, internodiis multo longiores, inferiores dense minute pubescentes; ligula tenuis, decurrens, 5–10 mm. longa; laminae 25–40 cm. longae, 2–2.5 mm. latae, firmae, scabrae, suprema reducta; paniculae 18–20 cm. longae, 2–3 cm. latae, densae, ramis numerosis anguste adscendentibus, purpureis, scabris; spiculae 3–3.5 mm. longae, pallidae; glumae subaequales, acutae vel sub-acuminatae, lemma aequantes, dense pubescentes; lemma 3 mm. longum, in parte inferiore et summo marginibus dense villosum; arista gracilis, flexuosa, 15–25 mm. longa; palea lemma aequans, acuta, in parte inferiore villosa.

Perennial; culms erect, 1 m. tall, scabrous below the panicle; sheaths compressed, keeled, much longer than the internodes, the lower ones minutely, but densely pubescent; ligule thin, decurrent, 5–10 mm. long; blades 25–40 cm. long, 2–2.5 mm. wide, firm, scabrous, the uppermost reduced; panicles 18–20 cm. long, 2–3 cm. wide, dense, the numerous slender branches narrowly ascending, purple, scabrous; spikelets 3–3.5 mm. long, pale; glumes subequal, acute or subacuminate, about as long as the floret, densely pubescent; lemma 3 mm. long, densely villous on the back in the lower half, and on the margins nearly to the summit; narrowed into a slender flexuous awn 15–25 mm. long; palea as long as the lemma, acute, appressed villous below.

Type in the U. S. National Herbarium, No. 1961991, collected about 170 kilometers north of Oaxaca, Oaxaca, Mexico, December 13, 1945, by E. Hernández X. and J. A. Jenkins (No. X-810).

This species is probably most closely related to *Muhlenbergia speciosa* Vasey which has much larger panicles of smaller spikelets.

MESOSETUM STOLONIFERUM Swallen, sp. nov.

Perenne: culmi erecti, 26–47 cm. alti, glabri, nodis barbatis; vaginae internodiis longiores vel breviores, glabrae, summo plus minusve ciliatae; ligula dense ciliata, 0.5 mm. longa; laminae 8–15 cm. longae, 3–4 mm. latae, planae, firmae, glabrae, marginibus crassis, albidis, scabris, sparse hispido-ciliatis; stolones usque ad 1 m. longi, purpurei, internodiis 2.5–4 cm. longis, nodis barbatis, vaginis brevibus papilloso-pilosis, dense ciliatis, laminis reductis; racemi 3.5–7.5 cm. longi; rachis anguste alata, marginibus scabra; spiculae 5 mm. longae, breviter pedicellatae; glumae et lemma sterile subaequalia; gluma prima 3-nervis, basi angusta, scabra, abrupte cuspidata; gluma secunda 5-nervis, nervis lateralibus approximatis, marginibus in parte inferiore dense ciliata; lemma sterile obtusum, marginibus villosum; lemma fertile subacuminatum, bifariam longe pilosum.

Stoloniferous perennial; culms erect, 26–47 cm. high, glabrous, more or less bearded at the nodes; sheaths longer or somewhat shorter than

the internodes, glabrous, more or less ciliate toward the summit; ligule densely ciliate, 0.5 mm. long; blades 8–15 cm. long, 3–4 mm. wide, flat, firm, glabrous, the margins thickened, whitish, scabrous, sparsely hispid-ciliate; stolons as much as 1 m. long, purple, the internodes mostly 2.5–4 cm. long, the nodes bearded, the sheaths about half as long as the internodes, papillose-pilose, the margins densely ciliate, the blades reduced; raceme 3.5–7.5 cm. long, the rachis narrowly winged, the margins scabrous; spikelets 5 mm. long, short-pedicellate, the glumes and sterile lemma subequal; first glume 3-nerved, narrowed at the base, scabrous, abruptly pointed; second glume 5-nerved, the lateral nerves approximate, the margins densely ciliate in the lower half; sterile lemma obtuse, appressed villous on the margins nearly to the summit; fertile lemma subacuminate, with a line of long hairs on each side.

Type in the Chicago Natural History Museum No. 1061061, collected on dry rocky slopes of open glade, Montaña Castilla, vicinity of Montaña Cebollas, along Río Lucía Saso, 3 miles southeast of Quezaltepeque, Department Chiquimula, Guatemala, altitude 1,200–1,500 meters, November 6, 1939, by Julian A. Steyermark (No. 31266).

AXONOPUS RAMOSUS Swallen, sp. nov.

Perennis; culmi graciles, erecti, ramosi, 45 cm. alti, glabri, nodis sparse pilosis; vaginae internodiis longiores, carinatae, glabrae, marginibus ciliatae; laminae 2.5–8 cm. longae, 1.5 mm. latae, glabrae, marginibus basi sparse hispidae; inflorescentiae terminales et axillares; racemi 1–3, digitati, graciles, 3–4 cm. longi; spiculae 1.3–1.4 mm. longae, oblongae, subacutae, glabrae; gluma secunda et lemma sterile tenuia, aequalia, nervo medio obsoleto, nervis lateralibus approximatis; fructus 1.3 mm. longus, minute papillosus.

Perennial; culms slender, tufted, erect, wiry, usually branching from the middle nodes, 45 cm. high, glabrous, the nodes sparsely pilose; sheaths mostly longer than the internodes, keeled but not compressed, glabrous on the back, the margins rather densely papillose-ciliate; ligule a very short ciliate rim; blades mostly 2.5–5 cm., sometimes as much as 8 cm. long, about 1.5 mm. wide, glabrous, with a few long stiff hairs on the margins at the base; inflorescences terminal and axillary from the uppermost sheath bearing 1–3 slender digitate racemes 3–4 cm. long; spikelets 1.3–1.4 mm. long, oblong, subacute, light brown, glabrous; second glume and sterile lemma thin, equal, covering the fruit, the midnerve suppressed, the lateral nerves marginal; fruit 1.3 mm. long, minutely roughened, light brown.

Type in the New York Botanical Garden, No. 2940, collected in joints in bed rock, Savanna I, Table Mountain, Surinam, altitude 565 meters September 19, 1944, by Bassett Maguire (No. 24816).

In habit this species is very similar to *Axonopus caulescens* Mez,

which differs in having larger pubescent spikelets 2.3–2.4 mm. long, and coarser foliage.

AXONOPUS ELONGATUS Swallen, sp. nov.

Perennis; culmi erecti, ca. 1 m. alti, glabri; vaginae internodiis longiores, compressae, carinatae, summo marginibus pilosae vel subglabrae, suprema elongata; ligula membranacea, ciliata, 0.5–1 mm. longa; laminae 23–24 cm. longae, 3.5–4.5 mm. latae, planae, firmae, marginibus scabrae basi papilloso-ciliatae; inflorescentiae terminales et axillares, longe exsertae; racemi 2–6, 8–13 cm. longi, adscendentes; rachis 0.6 mm. lata, marginibus scabra; spiculae 3.6–4.2 mm. longae, 1.2 mm. latae, pedicellis 0.5 mm. longis; gluma secunda et lemma sterile aequalia, acuta, fructum superantia, inter nervos sparse pilosa vel subglabra, nervo mediali prominente; fructus 3.2 mm. longus, subobtusus, pallidus, glaber.

Perennial, probably with rhizomes; culms erect, about 1 m. tall, glabrous; sheaths longer than the internodes, compressed, keeled, appressed pilose on the margins toward the summit or nearly glabrous, the uppermost elongate, about 40 cm. long; ligule a ciliate membrane 0.5–1 mm. long; blades 23–24 cm. long, 3.5–4.5 mm. wide, flat, firm, scabrous at least on the margins, more or less papillose-ciliate at the base; inflorescences terminal and axillary, long-exserted; racemes 2–6, 8–13 cm. long, stiffly ascending, the rachis 0.6 mm. wide, scabrous on the margins; spikelets 3.6–4.2 mm. long, 1.2 mm. wide, the pedicels 0.5 mm. long; second glume and sterile lemma equal, acute, exceeding the fruit, sparsely pilose between the nerves or nearly glabrous, the midnerve of the glume rather prominent; fruit 3.2 mm. long, subobtuse, pale, glabrous.

Type in the Chicago Natural History Museum, No. 1041051, collected in pine forest, Sierra de las Minas, near summit of ridge below Finca Alejandria, Department of Zacapa, Guatemala, altitude 1,700–2,000 meters, October 12, 1939, by Julian A. Steyermark (No. 29781).

This species is probably most closely related to *Axonopus rosei* (Scribn. & Merr.) Chase, which differs in being densely caespitose with narrower blades, fewer and shorter racemes, and only terminal inflorescences. The spikelets are very similar, but the fruit of *A. elongatus* does not have a tuft of hairs at the tip.

PASPALUM HISPIDUM Swallen, sp. nov.

Perenne; culmi erecti vel geniculati, 45–55 cm. longi, ramosi, glabri, nodis barbatis; vaginae internodiis longiores, carinatae, sparse vel dense papilloso-hispidae; ligula membranacea, 2 mm. longa; laminae 10–15 cm. longae, 1–1.8 cm. latae, acuminatae, sparse vel dense papilloso-hispidae; racemi 9, 6–9 cm. longi, adscendentes vel divergentes,

basi pilosi et hispidi; rachis anguste altata, 1 mm. lata, scabra; spiculae 2.3–2.4 mm. longae, 1.1 mm. latae, acutae; gluma secunda 3-nervis, pilosa, marginibus dense ciliata; lemma sterile glabrum vel sparse pilosum; fructus ovato-ellipticus, 2 mm. longus, 1 mm. latus, subacutus, pallidus, minute striatus.

Perennial; culms erect or geniculate-ascending, 45–55 cm. or more long, branching, glabrous, the nodes bearded with ascending hairs; sheaths longer than the internodes, keeled but not compressed, sparsely to densely papillose-hispid, especially toward the summit, the hairs ascending or spreading; ligule membranaceous, brown, 2 mm. long; blades mostly 10–15 cm. long, 1–1.8 cm. wide, acuminate, somewhat narrowed to the rounded base, sparsely to densely papillose-hispid; inflorescence composed of 9 ascending or spreading racemes, the axis 8 cm. long; racemes 6–9 cm. long, pilose and hispid at the base, the rachis narrowly winged, 1 mm. wide, scabrous; spikelets 2.3–2.4 mm. long, 1.1 mm. wide, acute; second glume 3-nerved, pilose on the back, the margins rather densely ciliate-fringed; sterile lemma glabrous or sparsely pilose; fruit ovate-elliptic, 2 mm. long, 1 mm. wide, subacute, pale, minutely striate.

Type in the U. S. National Herbarium, No. 1935050, collected on flat, sandy, gravelly plain along Río Amelco, Sierra de los Cuchumatanes, below Finca San Rafael, Department of Huehuetenango, Guatemala, altitude 400 meters, July 27, 1942, by Julian A. Steyermark (No. 49670).

Another specimen, *Steyermark* 49709, has blades as much as 24 cm. long, 2.5 cm. wide, and racemes 10 cm. long.

Paspalum hispidum is related to *P. nelsoni* Chase, which has larger panicles, more racemes which are ciliate with long stiff hairs, and somewhat shorter and broader spikelets.

PANICUM VENOSUM Swallen, sp. nov.

Annua; culmi erecti vel geniculati, 35–40 cm. alti, glabri, nodis barbatis; vaginae internodiis longiores; glabrae, marginibus ciliatae; ligula membranacea, ciliata, 1 mm. longa; laminae 4–9 cm. longae, 5–8 mm. latae, glabrae, marginibus basi sparse ciliatae; paniculae 12–14 cm. longae, 4 cm. latae, ramis adscendentibus, in parte inferiore nudis, infimo 10 cm. longo, ramulis appressis; spiculae 2.5–2.6 mm. longae, ovatae, glabrae, appressae; gluma prima 1.3–1.7 mm. longa, acuta, 5-nervis; gluma secunda et lemma sterile aequalia, hiulca, 7–9 nervia, fructu longiora; fructus 2 mm. longus, 1 mm. latus, acutus, rugosus.

Annual; culms erect or somewhat geniculate, 35–40 cm. high, glabrous, the nodes appressed pilose; sheaths mostly longer than the internodes, glabrous, the margins ciliate; ligule a ciliate membrane

1 mm. long, including the hairs; blades 4–9 cm. long, 5–8 mm. wide, glabrous, the margins sparsely ciliate at the rounded base; panicles 12–14 cm. long, 4 cm. wide, the branches stiffly ascending, naked below, rather densely flowered above, the lowermost 10 cm. long, the branchlets appressed; spikelets 2.5–2.6 mm. long, ovate, glabrous, appressed; first glume 1.3–1.7 mm. long, acute, 5-nerved, clasping; second glume and sterile lemma equal, longer than the fruit, gaping, strongly 7–9 nerved; fruit 2 mm. long, 1 mm. wide, acute, straw-colored, rugose.

Type in the U. S. National Herbarium, No. 1764850, collected near irrigation ditch 1 mile southwest of Apatzingán, Michoacán, Mexico, August 5, 1940, by William C. Leavenworth (No. 481).

PANICUM FURVUM Swallen, sp. nov.

Perenne; culmi dense caespitiosi, erecti, 10–21 cm. alti, glabri vel sparse pilosi, nodis barbatis; folia basi aggregata; vaginae glabrae vel basi sparse pilosae; ligula ciliata, ca. 0.5 mm. longa; laminae 2–6.5 cm. longae, 2–4 mm. latae, glabrae, marginibus basi sparse papilloso-ciliatae; paniculae 3.5–6 cm. longae, longe exsertae, ramis anguste adscendentibus infimis ca. 3 cm. longis; spiculae 1.5–1.6 mm. longae, glabrae; gluma prima 1.3–1.5 mm. longa, acuta, triangularis, 5-nervis; gluma secunda et lemma sterile subaequalia, hiulca, 5-nervia; fructus 1.6 mm. longus, ellipticus, acutus, furvus, laevis, lucidus.

Perennial; culms densely tufted, erect, 10–21 cm. high, glabrous, or sparsely pilose near the bearded nodes; leaves mostly crowded at the base, one on the mid-culm; sheaths rounded, glabrous, or with a few long hairs toward the base; ligule ciliate, about 0.5 mm. long; blades 2–6.5 cm. long, 2–4 mm. wide, glabrous, sparsely papillose-ciliate toward the base; panicles 3.5–6 cm. long, long-exserted, the branches narrowly ascending, the lowermost about 3 cm. long; spikelets 1.5–1.6 mm. long, glabrous, pale tinged with purple; first glume 1.3–1.5 mm. long, acute, broadly triangular, clasping, strongly 5-nerved; second glume and sterile lemma subequal or the sterile lemma a little longer, gaping, strongly 5-nerved; fruit 1.6 mm. long, elliptic, acute, dark brown, smooth and shining.

Type in the U. S. National Herbarium, No. 1935086, collected between Nentón and Las Palmas, via Yalisjao, Rincón Chiquite, Chiquial, Guaxacaná, in Sierra de los Cuchumatanes, Department of Huehuetenango, Guatemala, altitude 800–1,200 meters, August 30, 1942, by Julian A. Steyermark (No. 51627).

This species is allied with *Panicum filipes* Scribn., which differs in having elongate blades which usually equal or exceed the panicle, larger panicles with more crowded or grouped spikelets, and pale rather than dark brown fruits.

PANICUM PAUCIFOLIUM Swallen, sp. nov.

Perenne; culmi graciles, erecti, bulbosi, 120 cm. alti, glabri, 2-3-foliati; vaginae internodiis longiores, dense papilloso-pilosae; ligula membranacea, eroso-ciliata, 0.5 mm. longa; laminae 18-20 cm. longae, 3-5 mm. latae, firmae, acuminatae, glabrae, vel supra papilloso-pilosae; paniculae 9-23 cm. longae, angustae, pauciflorae, ramis adscendentibus inferioribus distantibus usque ad 8 cm. longis; spiculae 4.5-5 mm. longae, glabrae, purpureae; gluma prima 1.5-2 mm. longa, obtusa, 3-nervis; gluma secunda 3-3.5 mm. longa, fructu multo brevior; lemma sterile fructu paulo brevius, obtusum, 5-nerve; fructus 4.2 mm. longus, acutus, minute rugosus.

Perennial; culms slender, erect from a bulbous base, 120 cm. tall, glabrous, with two or three leaves on the lower part, the upper two-thirds naked; sheaths overlapping, densely papillose-pilose; ligule an erose-ciliate membrane 0.5 mm. long; blades 18-20 cm. long, 3-5 mm. wide, firm, acuminate, glabrous, or papillose-pilose on the upper surface; panicle 9-23 cm. long, narrow, few-flowered, the branches stiffly ascending, the lowermost distant, as much as 8 cm. long, the uppermost much reduced, somewhat crowded; spikelets 4.5-5 mm. long, glabrous, purple; first glume 1.5-2 mm. long, obtuse, 3-nerved; second glume 3-3.5 mm. long, much shorter than the fruit; sterile lemma a little shorter than the fruit, obtuse, 5-nerved, with a well developed palea slightly exceeding it; fruit 4.2 mm. long, acute, minutely rugose.

Type in the U. S. National Herbarium, No. 1935372, collected on rocks in pine forest, Santa Inés, Department of Morazán, Honduras, altitude 900 meters, July 19, 1947, by Antonio Molina R. (No. 348).

Related to *Panicum bulbosum* H. B. K., differing in having nearly naked culms, narrow inflorescence of larger spikelets, and densely papillose-pilose sheaths.

PANICUM INCUMBENS Swallen, sp. nov.

Perenne; culmi 85 cm. longi, decumbentes, ramosi, sparse pilosi, pilis appressis; vaginae internodiis longiores, papillosae vel papilloso-hispidae, pilis divergentibus; ligula membranacea, ciliata, ca. 0.5 mm. longa; laminae 13-22 cm. longae, 9-18 mm. latae, acuminatae, supra scabrae, subtus subglabrae, marginibus crassis, albis, scabris; panicula 6 cm. longa, pauciflora, ramis abscedentibus, scabris et pilosis; spiculae 2.9-3 mm. longae, ellipticae, acutae, glabrae; gluma prima spicula $\frac{1}{6}$ - $\frac{1}{3}$ brevior, subacuta, enervis; gluma secunda et lemma sterile aequalia, 5-7-nervia, fructu paulo longiora; fructus 2.6 mm. longus, striatus, minute transverse nervosus, villosus.

Perennial; culms 85 cm. long, decumbent spreading, sparingly

branching, rather sparsely appressed pilose; sheaths all longer than the internodes, papillose or papillose-hispid with spreading hairs; ligule membranaceous, ciliate, about 0.5 mm. long; blades 13–22 cm. long, 9–18 mm. wide, acuminate, scabrous above, nearly smooth beneath, with thickened, white, sharply serrate-scabrous margins; panicle 6 cm. long, few-flowered, the branches stiffly ascending, the axis and branches scabrous and pilose; spikelets 2.9–3 mm. long, elliptic, acute, glabrous; first glume one-sixth to one-third as long as the spikelet, subacute, nerveless; second glume and sterile lemma equal, 5–7 nerved, slightly longer than the fruit; fruit 2.6 mm. long, striate, very minutely transversely veined, rather densely silky-villous.

Type in the Chicago Natural History Museum, No. 1039524, collected in cloud forest on top of Cerro Tixixí, 3–5 miles north of Jocotán, altitude 500–1,500 meters, Department of Chiquimula, Guatemala, November 10, 1939, by Julian A. Steyermark (No. 31573).

Panicum incumbens belongs in the *Parviglumia* group, having larger spikelets than any other species known so far in the group. It is most closely allied to *P. parviglume* Hack., which differs in having usually shorter and broader blades, mostly 2–3 cm. wide, and spikelets 2.5 mm. long. The panicle axis and branches are scabrous only, and the sheaths are glabrous or only sparsely papillose-hispid.

PANICUM CAYOENSE Swallen, sp. nov.

Perenne; culmi erecti, 105 cm. alti, ramosi, dense villosi; vaginae dense hispidulae vel papilloso-hispidae, suprema glabra, inferiores internodiis longiores, superiores breviores; ligula membranacea, ciliata, 0.5 mm. longa; laminae 10–16 cm. longae, 15–21 mm. latae, acuminatae, pubescentes, subvelutinae; paniculae ca. 21 cm. longae, ramis rigide adscendentibus, scabris, basi ramulis brevibus appressis; spiculae 2.3–2.5 mm. longae, glabrae; gluma prima spicula $\frac{3}{4}$ brevior, acuta, enervis; gluma secunda et lemma sterile subaequalia, fructu longiora; fructus 2 mm. longus, 1 mm. latus, subacutus; lemma marginibus dense villosum; palea dense villosa.

Perennial; culms apparently erect, 105 cm. high, sparingly branching, densely villous; sheaths densely hispidulous to papillose-hispid, the uppermost smooth, the lower ones longer, the upper ones shorter than the internodes; ligule a ciliate membrane 0.5 mm. long; blades 10–16 cm. long, 15–21 mm. wide, acuminate, softly pubescent, almost velvety, on both surfaces; panicles about 21 cm. long, partly enclosed in the sheath, the branches stiffly ascending, scabrous, bearing short appressed branchlets from near the base; spikelets 2.3–2.5 mm. long, evenly spaced on the branches, not clustered, glabrous; first glume one-fourth as long as the spikelet, broadly acute, nerveless; second glume and sterile lemma subequal, pointed beyond the fruit; fruit 2 mm. long,

1 mm. wide, acutish, densely villous with silky hairs on the palea and margins of the lemma, the back of the lemma glabrous or nearly so.

Type in the U. S. National Herbarium, No. 1722487, collected on top of limestone hill at San Agustín, Mountain Pine Ridge, El Cayo District, British Honduras, July–August 1936, by C. L. Lundell (No. 6809).

PANICUM BREVIRAMOSUM Swallen, sp. nov.

Perenne (?); culmi graciles, ramosi, decumbentes, ca. 75 cm. longi, glabri; vaginae internodiis breviores, glabrae, collo dense pubescentes; ligula membranacea, erosa, 0.2 mm. longa; laminae 4–10 cm. longae, 4–9 mm. latae, acuminatae, sparse papilloso-hispidae, marginibus scabris; paniculae 4.5–5.5 cm. longae, ramis brevibus dense spiculatis; spiculae 2 mm. longae, glabrae; gluma prima 0.5–1 mm. longa; gluma secunda et lemma sterile aequalia, obtusa; fructus 1.9 mm. longus, 1.2 mm. latus, ellipticus, sparse pilosus.

Perennial (?); culms slender, straggling, branching, about 75 cm. long, glabrous; sheaths mostly shorter than the internodes, glabrous, the collar densely pubescent; ligule an erose membrane 0.2 mm. long; blades 4–10 cm. long, 4–9 mm. wide, acuminate, sparsely papilloso-hispid with a tuft of long hairs just above the ligule, the margins scabrous; panicles 4.5–5.5 cm. long, with a few ascending, densely flowered branches, the lowermost 1–1.5 cm. long, scabrous; spikelets 2 mm. long, glabrous; first glume 0.5–1 mm. long; second glume and sterile lemma equal, obtuse, covering the fruit; fruit 1.9 mm. long, 1.2 mm. wide, elliptic, straw-colored, sparsely pilose.

Type in the U. S. National Herbarium, No. 1935038, collected on pine-clad slope along stream, vicinity of Nucapuxlac, Department of Huehuetenango, Guatemala, altitude 2,500 meters, July 17, 1942, by Julian A. Steyermark (No. 48948).

PANICUM HINTONI Swallen, sp. nov.

Perenne (?); culmi decumbentes, nodis inferioribus radicanes, papilloso-vel papilloso-pilosi; vaginae, suprema excludens, internodiis multo breviores, glabrae, in collo dense pubescentes; ligula membranacea, 0.2 mm. longa; laminae 10–14 cm. longae, 9–17 mm. latae, suprema reducta, acuminatae, scabrae; paniculae 9–16 cm. longae, 5–9 cm. latae, ramis gracilibus adscendentibus vel divergentibus, ramulis divergentibus implicatis; spiculae 2.2–2.4 mm. longae, 0.9–1 mm. latae, glabrae; gluma prima 0.8–1.3 mm. longa, acuta vel subobtusa, enervis; gluma secunda et lemma sterile aequalia, obtusa, 9-nervia; fructus 2.1 mm. longus, ellipticus, apiculatus, laevis, lucidus.

Perennial (?); culms decumbent spreading, rooting at the lower nodes, papillose or papilloso-pilose; sheaths, except the upper ones, much shorter than the internodes, glabrous, the collar densely pubes-

cent; ligule a membrane 0.2 mm. long; blades 10–14 cm. long, 9–17 mm. wide, the uppermost usually reduced, acuminate, scabrous; panicles 9–16 cm. long, 5–9 cm. wide, the slender branches ascending or spreading, the branchlets divergent, implicate; spikelets 2.2–2.4 mm. long, 0.9–1 mm. wide, glabrous; first glume 0.8–1.3 mm. long, acute or subobtuse, nerveless; second glume and sterile lemma equal, covering the fruit, obtuse, 9-nerved; fruit 2.1 mm. long, elliptic, apiculate, smooth and shining.

Type in the U. S. National Herbarium, No. 1867697, collected at Bejucos, Temascaltepec, State of Mexico, Mexico, altitude 610 meters, November 8, 1932, by George B. Hinton (No. 2527).

Closely allied to *Panicum albomaculatum* Scribn., which has larger, pubescent spikelets 2.8 mm. long and firmer, usually hairy blades.

PANICUM UMBONULATUM Swallen, sp. nov.

Perenne; culmi decumbentes, ca. 1 m. longi, ramosi, nodis inferioribus radicantes, papilloso-pilosi, vel subglabri; vaginae internodiis longiores, papillosae vel papilloso-pilosae, collo dense pubescentes; ligula membranacea, ciliata, ca. 0.5 mm. longa; laminae 5–10 cm. longae, 3–8 mm. latae, subglabrae, supra basin sparse pilosae, marginibus basi papilloso-ciliatae; paniculae ca. 11 cm. longae, 5–6 cm. latae, purpureae, ramis rigide adscendentibus, glabris, viscidis; spiculae 2.4–2.5 mm. longae, glabrae; gluma prima acuta vel subobtusa, spicula ca. $\frac{1}{2}$ brevior; gluma secunda et lemma sterile aequalia, fructu paulo longiora; fructus umbonulatus, 2.1 mm. longus, ellipticus, acutus, lucidus.

Perennial; culms decumbent spreading, probably about 1 m. long, branching and rebranching, rooting at the lower nodes, papillose or papillose-pilose to nearly glabrous; sheaths usually longer than the internodes, papillose or papillose-pilose, rather densely pubescent across the back on the collar; ligule a very short ciliate membrane about 0.5 mm. long; blades 5–10 cm. long, 3–8 mm. wide, nearly glabrous, with a few long hairs on the upper surface at the base, the margins papillose-ciliate toward the base; panicles about 11 cm. long, 5–6 cm. wide, purple, the branches rather stiffly ascending, more or less viscid-spotted, glabrous; spikelets 2.4–2.5 mm. long, glabrous; first glume acute or subobtuse, about half as long as the spikelet; second glume and sterile lemma equal, slightly pointed beyond the fruit; fruit 2.1 mm. long, elliptic, acute, shining.

Type in the U. S. National Herbarium, No. 1935002, collected on upper slopes of Sierra de Las Minas, along Río Repollal, altitude 2,100–2,400 meters, Department of Zacapa, Guatemala, January 12–13, 1942, by Julian A. Steyermark (No. 42469).

Resembling and probably closely allied to *Panicum viscidellum* Scribn., which differs in having smaller spikelets mostly 1.8 mm. long, the first glume one-third as long as the spikelet, and broader, subcordate, pubescent blades.

This species was also collected on Mount Uyuca, Department of Morazán, Honduras, by Louis O. Williams and Antonio Molino R. (Nos. 12076 and 12142a).

PANICUM FURTIVUM Swallen, sp. nov.

Perenne (?); culmi erecti basi decumbentes, ca. 30 cm. longi, papilloso-pilosi, internodiis in parte superiore glabris; vaginae internodiis longiores vel breviores, pilosae vel papilloso-pilosae, suprema elongata; ligula ciliata ca. 0.5 mm. longa; laminae 3.5–4.5 cm. longae, 6–12 mm. latae, ovato-lanceolatae, acutae, pubescentes, marginibus scabrae, basi papilloso-ciliatae, subcordatae; panicula 5 cm. longa, 4 cm. lata, ramis adscendentibus, glabris, glandulosis; spiculae 2–2.1 mm. longae, 1 mm. latae, glabrae vel sparse pilosae; gluma prima spicula $\frac{2}{3}$ brevior, triangularis, acuta vel subobtusa; gluma secunda et lemma sterile obtusa, fructum aequantia vel gluma fructu paulo brevior; fructus 1.8 mm. longus, 1 mm. latus, ellipticus, subacutus, minute striatus.

Perennial (?); culms erect from a decumbent base, about 30 cm. long, papillose-pilose, the upper part of the internodes glabrous or nearly so; sheaths longer or shorter than the internodes, pilose or papillose-pilose, especially along the margins and on the collar; ligule ciliate, about 0.5 mm. long; blades 3.5–4.5 cm. long, rarely less, 6–12 mm. wide, ovate-lanceolate, acute, softly pubescent on both surfaces, the whitish margins finely scabrous, papillose-ciliate toward the rounded subcordate base; panicle 5 cm. long, about 4 cm. wide, partly enclosed in the elongate upper sheath, the branches rather widely ascending, glabrous, more or less glandular spotted; spikelets 2–2.1 mm. long, 1 mm. wide, glabrous or very sparsely pilose, tinged with purple; first glume one-third as long as the spikelet, triangular, broadly acute or subobtuse; second glume and sterile lemma obtuse, as long as the fruit or the glume a little shorter exposing the tip of the fruit; fruit 1.8 mm. long, 1 mm. wide, broadly elliptic, subacute, minutely striate.

Type in the U. S. National Herbarium, No. 1935043, collected in thickets, between Quetzal and Barillas, Sierra de los Cuchumatanes, altitude 1,600–2,000 meters, Department of Huehuetenango, Guatemala, July 18, 1942, by Julian A. Steyermark (No. 49123).

Related to *Panicum viscidellum* Scribn., which has relatively longer, narrower blades, and smaller, more pointed spikelets mostly 1.8 mm. long. The axis of the panicle is pilose, and the branches implicate, the spikelets thus appearing to be crowded along the axis.

PANICUM ALSOPHILUM Swallen, sp. nov.

Perenne (?); culmi divergentes, ca. 50 cm. longi, papilloso-pilosi, nodis barbatis, internodiis plus minusve aequalibus; vaginae internodia aequantes vel superantes, papilloso-pilosae, in collo dense pubescentes; ligula ciliata, 0.3 mm. longa; laminae 5-10 cm. longae, 4-9 mm. latae, acuminatae, subtus papilloso-pilosae, supra papilloso-hispidae, marginibus scabris et papilloso-hispido-ciliatis; panicula 8 cm. longa, ramis divergentibus, paucifloris; spiculae 2.5 mm. longae, glabrae, vel gluma secunda sparse pilosa; gluma prima 0.5-1 mm. longa, enervis; gluma secunda et lemma sterile aequalia, fructu paulo longiora; fructus 2 mm. longus, ellipticus, subacutus, lucidus.

Perennial (?); culms spreading, about 50 cm. long, with nearly equal internodes, papillose-pilose with appressed or spreading hairs, the nodes more or less bearded; sheaths about as long as or longer than the internodes, papillose-pilose, densely pilose on the collar; ligule ciliate, 0.3 mm. long; blades 5-10 cm. long, 4-9 mm. wide, acuminate, rather conspicuously papillose-pilose below, papillose-hispid above, the margins scabrous and papillose-hispid-ciliate; panicle 8 cm. long, about as broad, the slender branches spreading, few-flowered; spikelets 2.4 mm. long, glabrous, or the second glume sparsely pilose; first glume 0.5-1 mm. long, nerveless; second glume and sterile lemma equal, covering the fruit; fruit 2 mm. long, elliptic, subacute, pale, shining.

Type in the Chicago Natural History Museum, No. 1043333, collected in oak woods around the top of Cerro Alcoba, just east of Jalapa, Department of Jalapa, Guatemala, altitude 1,700 meters, December 2, 1939, by Julian A. Steyermark (No. 32513).

PANICUM BLAKEI Swallen, sp. nov.

Annum (?); culmi basi decumbentes, 15-28 cm. longi, pilosi, pilis divergentibus, nodis retrorse barbatis; vaginae internodiis subaequalibus breviores, papilloso-pilosae, in collo dense pilosae; ligula ciliata, 0.2-0.4 mm. longa; laminae 2.5-4.3 cm. longae, 5-10 mm. latae, lanceolatae, subcordatae, sparse pubescentes, marginibus ciliatae, suprema et eae ramorum paulo reductae; panicula 3.3 cm. longa, ramis gracilibus, rigide adscendentibus vel divergentibus, axillis pilosis; spiculae 1.5-1.6 mm. longae, 0.8 mm. latae, sparse pilosae; gluma prima 0.5 mm. longa, triangularis, 1-nervis; gluma secunda et lemma sterile aequalia fructum aequantia; fructus 1.4 mm. longus, 0.7 mm. latus, ellipticus, acutus, lucidus, minute striatus.

Annual (?); culms more or less decumbent spreading, 15-28 cm. long, pilose with spreading hairs, the nodes retrorsely bearded; sheaths mostly shorter than the nearly equal internodes, papillose-pilose, densely pilose on the collar; ligule ciliate, 0.2-0.4 mm. long; blades

2.5–4.3 cm. long, 5–10 mm. wide, lanceolate, clasping, sparsely pubescent, the margins ciliate nearly to the tip, the uppermost and those of the branches somewhat reduced; panicle 3.3 cm. long, nearly as wide, the slender branches stiffly ascending or spreading, the axis and axils pilose; spikelets 1.5–1.6 mm. long, 0.8 mm. wide, sparsely pilose; first glume 0.5 mm. long, triangular, 1-nerved; second glume and sterile lemma equal, just covering the fruit; fruit 1.4 mm. long, 0.7 mm. wide, elliptic, acute, straw-colored, shining, minutely striate.

Type in the U. S. National Herbarium, No. 1163068, collected along trail from Los Amates to Izabal, Cerro de Las Minas, Department of Izabal, Guatemala, May 31, 1919, by S. F. Blake (No. 7817).

PANICUM ALCOBENSE Swallen, sp. nov.

Annum (?); culmi ca. 80 cm. longi, ramosi, pilosi, nodiis pubescentibus; vaginae internodiis paulo breviores, glabrae, marginibus dense papilloso-ciliatae; ligula membranacea, ciliata, ca. 1 mm. longa; laminae 4–7.5 cm. longae, 5–8 mm. latae, subacuminatae, glabrae, marginibus scabris basi sparse papilloso-hispido-ciliatis; paniculae 4–6 cm. longae, 2–3 cm. latae, ramis adscendentibus, glabris vel scabris, inferioribus 1–2 cm. longis; spiculae 2.7 mm. longae, 1 mm. latae, sparse pubescentes; gluma prima 1–1.3 mm. longa, enervis; gluma secunda et lemma sterile aequalia, obtusa, fructu paulo breviora, gluma 7-nervis, lemma 5-nerve; fructus 2.2 mm. longus, 1 mm. latus, ovatus, laevis, lucidus.

Annual (?); culms about 80 cm. long, straggling, branching, pilose with appressed hairs, the nodes pubescent; sheaths mostly a little shorter than the internodes, glabrous, the margins densely papillose-ciliate; ligule a ciliate membrane about 1 mm. long including the hairs, blades 4–7.5 cm. long, 5–8 mm. wide, subacuminate, glabrous, the margins scabrous, sparsely papillose-hispid-ciliate at the base; panicles 4–6 cm. long, 2–3 cm. wide, the branches ascending, glabrous or scabrous, the lower ones 1–2 cm. long; spikelets 2.7 mm. long, 1 mm. wide, sparsely pubescent; first glume 1–1.3 mm. long, nerveless; second glume and sterile lemma equal, a little shorter than the fruit, obtuse, the glume 7-nerved, the lemma 5-nerved; fruit 2.2 mm. long, about 1 mm. wide, ovate, pale, smooth and shining.

Type in the Chicago Natural History Museum, No. 1040005, collected in oak wood around top of Cerro Alcoba, just east of Jalapa, Department of Jalapa, Guatemala, altitude 1,700 meters, December 2, 1939, by Julian A. Steyermark (No. 32515).

PANICUM RAMIPARUM Swallen, sp. nov.

Perenne; culmi erecti vel decumbentes, 55–60 cm. alti, sparse vel dense pilosi vel papilloso-pilosi, nodis barbatis; vaginae internodiis

breviores, dense pilosae, pilis divergentibus; ligula ciliata, 0.5 mm. longa; laminae 5-9 cm. longae, 7-13 mm. latae, lanceolato-acuminatae, sparse pubescentes, basi supra longe pilosae; paniculae 7-9 cm. longae, 3-6 cm. latae, ramis adscendentibus vel superioribus divergentibus, glabris, sparse glandulosis; spiculae 2.2-2.4 mm. longae, glabrae; gluma prima ca. 0.8 mm. longa; gluma secunda et lemma sterile obtusa, gluma fructum aequans, lemma sterile fructu paulo brevius; fructus 1.8 mm. longus, 1 mm. latus, ellipticus, subacutus, albus, minute striatus.

Perennial; culms erect, or decumbent at the base, 55-60 cm. tall, sparsely to rather densely pilose or papillose-pilose, the nodes bearded; sheaths mostly shorter than the internodes, densely pilose with spreading hairs, the margins rather conspicuously ciliate; ligule ciliate, 0.5 mm. long; blades mostly 5-9 cm. long, 7-13 mm. wide, lanceolate-acuminate, sparsely pubescent on both surfaces with long hairs on the upper surface at the base; panicles 7-9 cm. long, 3-6 cm. wide, the branches stiffly ascending, or the upper spreading, glabrous, very sparsely and obscurely glandular spotted; spikelets 2.2-2.4 mm. long, glabrous; first glume about 0.8 mm. long; second glume and sterile lemma obtuse, the glume as long as the fruit, the sterile lemma a little shorter; fruit 1.8 mm. long, 1 mm. wide, elliptic, acutish, white, minutely striate.

Type in the U. S. National Herbarium, No. 1914983, collected in mountains near Santa María, south of Quezaltenango, Department of Quezaltenango, Guatemala, March 25, 1932, by Paul Weatherwax (No. 160).

The four preceding species are decumbent or straggling, branching, annuals or perennials, apparently related to the subgenus *Dichanthellium*. They do not have, however, a winter rosette, and the leaves of the branches are not much reduced.

PANICUM HISPIDIFOLIUM Swallen, nom. nov.

Panicum hispidum Swallen, Contr. U. S. Nat. Herb. 29: 269. 1949. Not *P. hispidum* Forst. 1786.

PANICUM SUBLAEVE Swallen, nom. nov.

Panicum rigidum Swallen, Ann. Missouri Bot. Gard. 30: 215. 1943. Not *P. rigidum* Balif. 1884.

ICHNANTHUS SCABERRIMUS Swallen, sp. nov.

Perennis; culmi suberecti vel decumbentes, ca. 65 cm. longi, ramosi, glabri; vaginae internodiis multo breviores, margines versus papiloso-pilosae, collo pilosae; ligula 0.4 mm. longa, truncata, plus minusve ciliata; laminae 6-12 cm. longae, 7-14 mm. latae, lanceolatae, acumi-

natae, nervosae, subtus glabrae, supra et marginibus scaberrimae; paniculae 6–11 cm. longae, 4–5 cm. latae, ramis rigide adscendentibus vel divergentibus, ramulis divaricatis; spiculae 3–3.4 mm. longae, appressae; gluma prima acuminata vel attenuata spiculam aequans vel paulo brevior, 3-nervis, in carina scabra; gluma secunda et lemma sterile subaequalia, 5-nervia, gluma abrupte acuta vel acuminata, lemma plus minusve cucullatum; fructus 2.2 mm. longus, 1.2 mm. latus, ovatus, subacutus, alis cicatricibus 0.5 mm. longis reductis.

Perennial; culms somewhat woody, suberect or decumbent, about 65 cm. long, branching, glabrous; sheaths much shorter than the internodes, papillose-pilose near the margins, the collar pilose; ligule 0.4 mm. long, truncate, more or less ciliate; blades 6–12 cm. long, 7–14 mm. wide, lanceolate, acuminate, strongly nerved, the nerves approximate, glabrous or somewhat scabrous beneath, prominently scabrous above and on the margins; panicles 6–11 cm. long, 4–5 cm. wide, the branches stiffly ascending or spreading, the branchlets divaricate; spikelets 3–3.4 mm. long, appressed; first glume acuminate or attenuate, as long as the spikelet or somewhat shorter, 3-nerved, scabrous on the keel; second glume and sterile lemma subequal, 5-nerved, the glume abruptly acute or acuminate, the lemma blunt somewhat cucullate; fruit 2.2 mm. long, 1.2 mm. wide, ovate, subacute, straw-colored, the wings reduced to scars, the scars 0.5 mm. long.

Type in the U. S. National Herbarium, No. 1764414, collected in damp thicket, Finca Pirineos, below Santa María de Jesús, Department of Quezaltenango, Guatemala, March 11, 1939, by Paul C. Standley (No. 68296).

In spikelet characters, this species resembles *Ichnanthus nemorosus* (Swartz) Doell but is readily distinguished by the much coarser plants and the lanceolate, firm, very scabrous blades.

ICHNANTHUS NUBIGENUS Swallen, sp. nov.

Perennis; culmi graciles, procumbentes, ramosi, radicantes, sparse pilosi; vaginae internodia aequantes, sparse vel dense pilosae; ligula membranacea, ciliata, 0.5 mm. longa; laminae lanceolatae, 3–5.5 cm. longae, 4–6 mm. latae, glabrae vel sparse pilosae; inflorescentia 3–5 cm. longa, breviter exserta; racemi 3–5, usque ad 1.8 cm. longi, rigide adscendentes, pauciflori, in axilla pilosi; spiculae 4.5 mm. longae, solitariae vel binae, appressae; glumae subaequales, prima attenuata, 3–5-nervis, secunda acuminata, 5-nervis; lemma sterile glumis paulo brevior, cucullatum, 5-nerve; fructus 2.5 mm. longus, ellipticus, subobtusus, alis reductis.

Perennial; culms slender, straggling, branching, rooting at the nodes, sparsely pilose, the ascending ends about 15 cm. high; sheaths about as long as the internodes, sparsely to rather densely pilose, espe-

cially along the margins; ligule a minutely ciliate membrane 0.5 mm. long; blades lanceolate, 3-5.5 cm. long, 4-6 mm. wide, glabrous or sparsely pilose; inflorescence 3-5 cm. long, short exserted, composed of 3-5 stiffly ascending few-flowered racemes, the axis pilose, the lowermost raceme as much as 1.8 cm. long, pilose in the axils; spikelets 4.5 mm. long, solitary or paired, rather distant, appressed, pale or purple; glumes nearly equal, the first attenuate, 3-5-nerved, the second acuminate, 5-nerved; sterile lemma a little shorter than the glumes, cucullate, 5-nerved; fruit 2.5 mm. long, elliptic, blunt, smooth and shining, the wings reduced to scars.

Type in the U. S. National Herbarium, No. 1935397, collected in cloud forest on Mount Uyuca, Department of Morazán, Honduras, altitude 2,000 meters, March 2, 1947, by Louis O. Williams and Antonio Molina R. (No. 12143).

This species resembles and is related to *Ichnanthus tenuis* (Presl) Hitchc. & Chase, which differs in having smaller and narrower spikelets mostly 3-3.5 mm. long and long-exserted terminal and axillary, glabrous racemes.

ISACHNE PUBESCENS Swallen, sp. nov.

Perenne (?); culmi scandentes, ramosi, infra paniculam pubescentes; vaginae internodia subaequantes, papilloso-pilosae, marginibus ciliatae; ligula ciliata, 2-3 mm. longa; laminae 7-16 cm. longae, 10-14 mm. latae, acuminatae, subtus velutinae, supra papilloso-pilosae; paniculae 11-12 cm. longae, 4 cm. latae, axis et rami dense pilosi pilis appressis, rami adscendentes, e basi ramosi; spiculis nonaggregatis; spiculae 1.9-2 mm. longae; glumae aequales flore primo breviores et angustiores, summo pilosae pilis appressis; flos inferior 1.8 mm. longus, marginibus sparse pilosus; flos superior 1 mm. longus subglobularis; rachilla summo breviter pilosa.

Perennial (?); culms scandent or clambering, branching, pubescent below the panicle; sheaths about as long as the internodes, rather densely papillose-pilose, the margins conspicuously ciliate; ligule composed of hairs 2-3 mm. long; blades 7-16 cm. long, mostly 10-14 mm. wide, acuminate, velvety pubescent, papillose-pilose above; panicles 11-12 cm. long, about 4 cm. wide, the axis and branches rather densely appressed-pilose, the branches ascending, branching from near the base, rather evenly flowered, the spikelets not clustered toward the ends of the branchlets; spikelets 1.9-2 mm. long, the glumes equal, shorter and narrower than the first floret, sparsely appressed-pilose toward the summit; first floret 1.8 mm. long, sparsely pilose on the margins; second floret 1 mm. long, subhemispheric, the rachilla joint short-pilose at the summit.

Type in the U. S. National Herbarium, No. 472909, collected in the vicinity of Secanquim, altitude 550 meters, Department of Alta Verapaz, Guatemala, May 6, 1905, by H. Pittier (No. 252).

The type specimen has been referred previously to *I. arundinacea* (Swartz) Griseb., which differs in having nearly glabrous foliage, glabrous panicle branches, smaller spikelets 1.5–1.8 mm. long clustered toward the ends of the branches, and a short inconspicuous ligule.

ANDROPOGON SEMITECTUS Swallen, sp. nov.

Annuus; culmi erecti, 21–55 cm. alti, glabri, nodis superioribus ramosi, internodiis aequalibus; vaginae internodiis $\frac{1}{2}$ breviores, carinatae, glabrae; ligula 0.5 mm. longa, minute ciliata; laminae 4–9 cm. longae, 1.5–3 mm. latae, planae vel conduplicatae, supra ad basin papilloso-pilosae, marginibus scabrae; spathae 2.5–3.5 cm. longae; racemi solitarii, breve pedunculati, vaginati; rachis et pedicelli steriles lati, tenues, in parte inferiore villosi; spicula sessilis 6 mm. longa, angusta; glumae acuminatae, prima in parte inferiore dense villosa; lemma fertile 2.5 mm. longum, arista 14 mm. longa, praeditum, hac supra basin $\frac{1}{3}$ inserta, geniculata, infra geniculam contorta; spicula pedicellata multum reducta, arista recta, scabra, 3–5 mm. longa praedita.

Annual; culms erect, 21–55 cm. high, glabrous, with flowering branches from the middle and upper nodes, all the internodes of about equal length; sheaths about half as long as the internodes, keeled, glabrous; ligule 0.5 mm. long, minutely ciliate; blades mostly 4–9 cm. long, 1.5–3 mm. wide, flat or folded, papillose-pilose on the upper surface toward the base with long hairs, the margins scabrous; spathes 2.5–3.5 cm. long; racemes solitary, mostly included, only the uppermost spikelets exerted from the spathe, the peduncle very short; rachis joints and sterile pedicels broad but rather thin, lunate in cross sections, densely villous on the lower part of the back, the upper part glabrous, the rachis joint somewhat widened at the summit with thin almost wing-like margins, the tip cup-shaped; sessile spikelet 6 mm. long, narrow, the glumes acuminate, the first densely villous in the lower half; lemma 2.5 mm. long, awned, the awn inserted one-third from the base, 14 mm. long, tightly twisted below, geniculate, the twisted part dark brown, 6 mm. long; pedicellate spikelet greatly reduced, scabrous, bearing a slender straight scabrous awn 3–5 mm. long.

Type in the U. S. National Herbarium, No. 1910596, collected in arenal, Baños de Santa Marta, north of Zacapa, altitude about 200 meters, Department of Zacapa, Guatemala, October 10, 1910, by Paul C. Standley (No. 73919).

Rather closely allied to *Andropogon malacostachys* Presl, which differs in being usually shorter and not so slender and having more conspicuously villous racemes, the rachis joints and sterile pedicels

villous throughout with shorter hairs, and the pedicellate spikelets mostly narrower, 2–3 mm. long. The blades also lack the long hairs on the upper surface.

SORGHASTRUM BRUNNEUM Swallen, sp. nov.

Perenne; culmi erecti, 115 cm. alti, glabri, nodis dense breviter barbatis; vaginae elongatae, internodiis longiores, glabrae vel marginibus sparse pilosae; ligula 3–3.5 mm. longa, ciliata, decurrens; laminae 15–30 cm. longae, 5–6 mm. latae, scabrae; paniculae 20 cm. longae, ramis flexuosis, fasciculatis, distantibus, glabris vel plus minusve scabris, inferioribus usque ad 7 cm. longis; spiculae 5–6 mm. longae, brunneae, sparse vel dense hispidae pilis albis; glumae obtusae, prima secunda paulo brevior, apice ciliatae; lemma fertile bifidum, glabrum, eciliatum, inter dentes aristatum; arista 13–16 mm. longa, bigeniculata, infra geniculam secundam contorta, hispida, supra recta, scabra; antherae 2 mm. longae.

Perennial; culms erect, 115 cm. high, glabrous, the nodes densely short-bearded; sheaths elongate, mostly longer than the internodes, glabrous, or sparsely pilose on the margins; ligule 3–3.5 mm. long, ciliate, decurrent; blades 15–30 cm. long, 5–6 mm. wide, scabrous; panicle 20 cm. long, the flexuous branches in distant fascicles, the lowermost as much as 7 cm. long, with short ones intermixed, pilose in the axils, glabrous or somewhat scabrous; spikelets 5–6 mm. long, chestnut brown, sparsely to rather densely hispid with white hairs; glumes obtuse, the first a little shorter than the second, the tip ciliate; fertile lemma awned from between the teeth of the rather deeply bifid apex, glabrous, not ciliate, the awn 13–16 mm. long, twice geniculate, tightly twisted below the second bend, hispid, the terminal segment straight or nearly so, scabrous; anthers 2 mm. long.

Type in the U. S. National Herbarium, No. 1910682, collected in oak forest, in mountains west of Aguacatán, on road to Huehuetenango, Department of Huehuetenango, Guatemala, altitude 1,950 meters, December 27, 1940, by Paul C. Standley (No. 81290).

This species is probably most closely related to *Sorghastrum elliottii* (Mohr) Nash, which has larger spikelets, 7–8 mm. long, and longer awns, 25–30 mm. long.