

A
CRITICAL REVISION OF
THE GENUS ARISTIDA

BEING A PRELIMINARY STUDY

AND

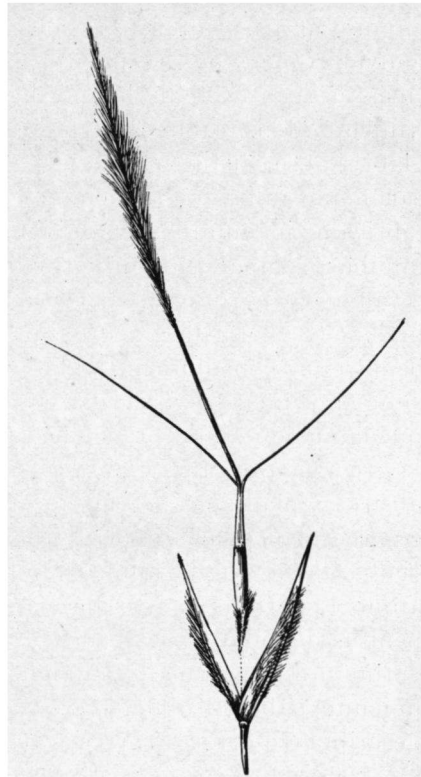
AN INTRODUCTION TO THE MONOGRAPH

BY

J. TH. HENRARD.

Habitat frequens in collinis arenosis siccissimis Distr. Mossamedes, ex Giraul usque ad Cabo negro, inprimis locis sabulosis oceano proximis, v. gr. ad „Praia da Amelia”, denso agmine crescens, per totum fere annum florens et fructificans (Junio, Julio et Sept. 1859 legi). *Exsic.* Welw. Iter Angol. no. 2000.

Rhizoma abbreviatum, mox in fibras descendentes solutum; fibrae perplures, elongatae, cylindraceae, simplices, pennae corvinae crassiores, villo albedo, velutino, viscido undique obtectae et subsucculentae. Caespites pro soli et expositionis ratione nunc angusti et depressi, pauciculmes, nunc ampliores et altiores, culmos 8—10 et plures emittentes. *Folia* radicalia dense congesta, in macrioribus arcuato-ascendentia, 1—2-pollicaria, in robustioribus erectiuscula, 3—5 pollices longa, angustissima, arcte plicata sive convoluta, subulatim acuminata, rigidula, cinereo-glauescentia, sub lente sulcato-striata et subtiliter scabrido-puberula, successive evoluta atque longe perennantia. *Culmi* simplices, a basi ascendentem erecti, inferne nodosi, nunc 1—1½-pedales, gracillimi et debiles, nunc (in solo humidiusculo vel minus sterili) 2—3-pedales, pennae corvinae fere crassitudine et firmiores, parce foliosi; nodi 2—4, constricti, glabri, fusco-purpurascens, 1—3 pollices inter se distantes; folia culmi radicalibus quoad figuram et indumentum similia, sed longe vaginata; vaginae glaucescentes, tenuiter puberulae, ad oram pilis albidis fasciculatis prompte deciduis barbulatae, medio parum tumentes, inferiores nodos denudantes, suprema longissima, lamina abbreviata, culmum non raro ad paniculae basim usque vestiens. *Panicula* erecta, nunc vix 4-pollicaris, laxior et rariflora, sed plerumque elongata, 6—12-pollicaris, densior et multiflora, rachi compresso-angulata glabra, ramis 2—5 fasciculatis levigatis, erecto-patulis, parce ramulosis. *Spiculae* graciles, absque arista 3—4 lin. longae, pedicellis gracillimis, ipsis aequilongis vel longioribus, apice incrassatis suffultae. *Glumae* fere aequales, concavae, carinatae, constanter acutae, basi semper, rarius omnino violaceae, dorso undique vel solum juxta carinam hirsutae (nunc penitus glabratae), basi prominenter trinerves. *Palea inferior* coriacea, glaberrima, trinervis; aristae seta intermedia 1—1½ poll. longa, a medio ad apicem pilis hyalinis, tenuissimis, eleganter plumosa, laterales ea dimidio saltem breviores, nudaе, divergentes, tenuissime capillares; *palea superior* abbreviata, obtusa, membranacea; *squamulae* integrae, acutiusculae, in diversis ejusdem paniculae flosculis diversae magnitudinis, quondam parum evolutae. *Ovarium* oblongo-ovoideum, stipitatum, glabrum, stigmatibus intense flavis, pilis simplicibus hyalinis plumosis, mucro copioso involutis. *Caryopsis* cylindracea, vertice obtuso stylo rudimentis



× 3⅓

ARISTIDA PRODIGIOSA Welwitsch.

From type specimen.

biapiculata, basin versus obconico-attenuata, longitudine lineam parum excedens, glaberrima, longitudinaliter unisulcata.

Observatio. — Gramen elegans sed sat polymorphum, uti in stirpe sub variis solis et expositionis conditionibus vigente expectandum. Formae hyemales, *i. e.* a Junio ad Septembris initium florentes, uti et illae in macrioribus et siccioribus obviae, foliis angustioribus et brevioribus nec non varie curvis vel arcuatis, panicula laxiore glumisque basi intensius violaceis et *dorso hirsutis* gaudent, dum individua mensibus vernis vel in solo minus arido aut juxta rivorum ripas crescentiâ foliis longioribus, erectiusculis vel leviter arcuatis, paniculis densioribus ac glumis pallidioribus et non raro *omnino* glabris sese distinguunt; ast glumarum magnitudinem et figuram, earumque inter se et cum flosculo relationem nec non aristae fabricam, in omnibus et quidem numerosis a me examinatis specimenibus semper easdem et constantes observavi. Proxima quidem et affinis haec praesens species videtur *Aristidae ciliatae* Desf., a qua tamen ex auctoritate acutissimi Agrostologi clar. Guill. Munro, cujus benevolum consilium in stabilienda et definienda hac specie secutus sum, inprimis *glumis acutis* differt; ab *Aristida plumosa* Lin., etiam quodammodo affini, praecipue *aristae basi conica intus cava* distinguitur.

Prodigosam hanc *Aristidae* speciem vocavi, quoniam illa, etiamsi ob totius plantae gracilitatem et foliorum culmorumque indumentum cinereo-glaucescens, solo arenoso quasi concolor, peregrinatoris oculis facile fugit, nihilo minus multitudini Zebrarum, Antilopum atque Leporum, in istis desertis ab omni reliqua vegetatione fere penitus denudatis vagantium, et imo pecorum domesticorum gregibus, optimum laetumque, et quidem durante hyemis siccissimo tempore unicum pabulum offert, et ita non minus ac *Acanthosicyos* supra descripta desertorum Africae calidae prodigiis adnumerari meretur.

A portion of the type in the British Museum, was kindly received from Dr. A. B. RENDLE. In the diagnosis the glumes are described as hirsutae vel glabratae, in the description following the diagnosis, WELWITSCH says: „glumae dorso undique vel solum juxta carinam hirsutae (nunc penitus glabratae).” In his observation he tells us that there occur specimens with quite glabrous glumes. The plant with hairy glumes is accepted by me as the typical *A. prodigiosa*, because in the portion received from the British Museum, the glumes are hairy and this character is also given in WELWITSCH's figure 3 and 4. The species is very characteristic, it belongs to the section *Schistachne*, having a lemma with an articulation just above the middle of the glume, the column is scarcely developed.

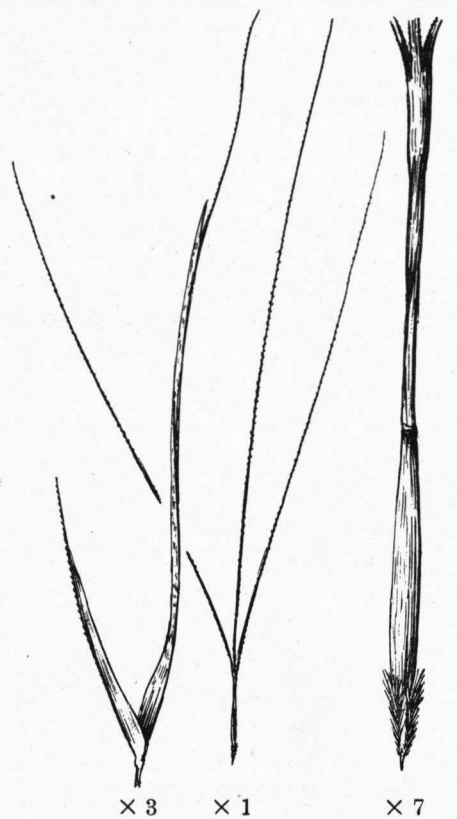
Aristida prodigiosa* Welwitsch.*var. *calva* Henrard****nov. var.**

Differt a planta typica, glumis omnino glaberrimis.

South Angola: Desert at Caulao on the Mossamedes Railway, Percy Sladen Memorial Expedition 1908—1909, 27. 4. 1909, leg. H. H. W. PEARSON no. 2881 (p.p.). Typus in Herb. Kew.

Aristida protensa* Henrard*nov. spec.**

(Sectio *Arthratherum*). Perennis, densissime caespitosa, innovationibus intravaginalibus; *culmi* cum paniculis circa 30 cm. alti, erecti, vel ad nodos parum geniculati, teretes, glaberrimi, simplices, infra paniculam scaberuli, internodio imo abbreviato; *vaginae* foliorum culmeorum arctae vel parum hiantes, internodiis longiores, teretiusculae, striatae, summa paniculae basin cingens, glaberrimae vel subscaberulae; *ligula* minutissime ciliolata, auriculae pubescentes; *laminae* angustissimae, complicatae, explanatae vix 1 mm. latae, subtus laeves, supra hirtellae, marginibus scaberulis incrassatis, in sicco fere cylindratae, 20 cm. vel plus longae, innovationum multo longiores, paniculam superantes; *inflorescentia* basi vaginata, panicula pallida, nitens, densissime spiciformis cum aristis longissimis plusquam 15 cm. longa, sine aristis 5—7 cm. longa, cuneata, ambitu ovalis, ad 3 cm. lata; *rhachi* glaberrima, ramis appressis valde abbreviatis, a basi spiculiferis, spiculis dense aggregatis, pedicellis scaberrimis brevissimis, 2—3 mm. longis; *spiculae*



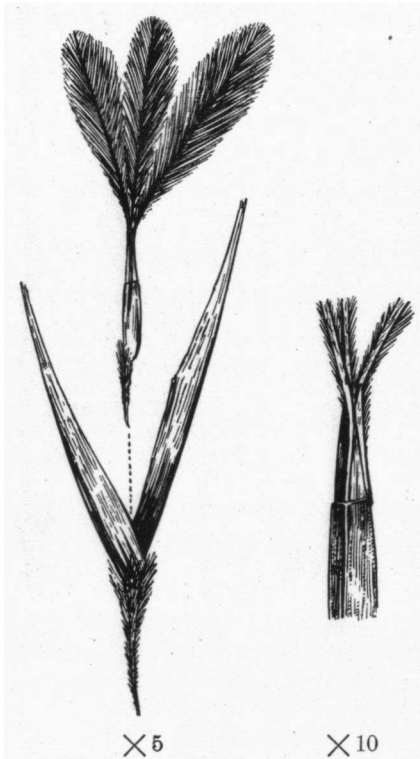
ARISTIDA PROTENSA Henrard.

From type specimen.

flavidae, *glumae* valde inaequilongae, uninerves, *inferior* minute scaberula, in aristam sensim abiens, cum arista circa 3 mm. longa, ad 12 mm. longa. carina superne scabra, *gluma superior* glaberrima, carina laevis, superne valde angustata, quasi caudiformis, sine arista circa 25 mm. longa, apice bifida, inter dentes circa 1 mm. longis, longe aristata, arista 9—10 mm. longa, *gluma fertilis* fusiformis, fusca, laevis vel superne minutissime scaberula, circa 5 mm. longa, callo acutissimo dense barbato circa 1,5 mm. longo, 6,5 mm. longa, cum stipite articulata, columna recta, laevis, leviter torta, circa 6 mm. longa, superne parum sed distincte dilatata, *aristae* subinaequilongae ad 8 cm., vel centralis ad 9 cm. metiens.

Somaliland: Gharabwin prope Obbia (Harajab Mts.), leg. Dr. R. E. DRAKE-BROCKMAN no. 950, 952 et 957. Typus speciei in Herb. Kew, Drake-Brockman no. 957.

A very characteristic species, distinguished by the curious habit and by the peculiar form of the second glume.



ARISTIDA PROXIMA Steudel.

From type specimen.

Aristida proxima Steudel.

E. G. STEUDEL; Synopsis Plantarum Glumacearum [1855] p. 145!

Culmis basi lignescentibus ramosis ($\frac{1}{2}$ —1-pedalibus) glaucescentibus pubescentibus; nodis dense pilosotomentosis; foliis convuluto-filiformibus rigidis subpungentibus vaginisque brevi-pubescentibus, (1—3' longis); ligula ciliata brevi; paniculae subcontractae (3—4-pollicaris) radiis subgeminis erectis simplicibus vel divis- dense praesertim ad basin spicularum pubescentibus; glumis parum inaequalibus lanceolatis obtusiusculis apice bidentatis glabris; superiore 4-lineali inferiorem linea superante, flosculo apice truncato (vix 2-lineali) basi piloso; stipite aristae deciduae brevi conico-triquetro intus cavo basi glabro, setis erectis parum

inaequalibus a basi ad apicem patenti pennatis, Hrbr. *Eckl. Zeyher*.
 ♀ Afr. austr.

The type in the herbarium of DRAKE DE CASTILLO, now in the Jardin des Plantes at Paris was examined through the courtesy of Prof. H. LECOMTE. This very rare and very characteristic species (see my figure!) was collected by Ecklon c. b. spei no. 104, according to the data given on the authentic label, which bears in STEUDEL's handwriting the name: „proxima st. sc. Aristidae namaquensi Nees” *). Duplicates of the type in different European Herbaria, distributed by REICHENBACH.

Aristida pruinosa Domin.

Bibl. Bot. Heft 85^I [1915] loc. cit. p. 345!

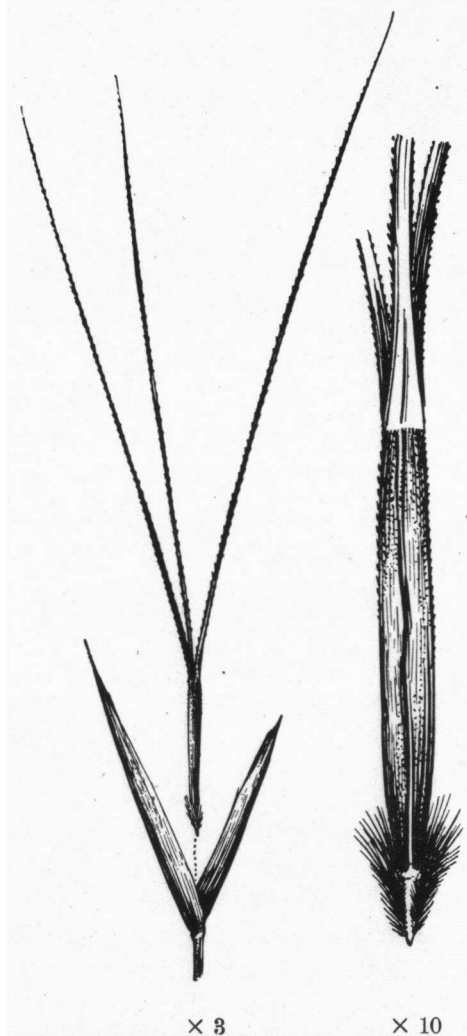
Dense caespitosa, glauca, robusta, valde elata; *culmi* cum paniculis plus 8 dm alti, robusti, glabri, foliati, glauco-pruinosi; *folia* rigida, elongata, glaberrima, unacum vaginis glauco-pruinosa (strato pruinoso facile deterrenti); *vaginae* internodiis breviores; *laminae* valde elongatae, rigidae, planae et circa 3 mm latae sed nonnullae partim vel fere totae convolutae, erectae, subtus laeves, in pagina superiore prominule costatae et scaberulae; *ligula* brevis in ciliis dissoluta; *panicula* erecta, elongata (haud raro 4 dm longa), angusta, basi subinterrupta insuper subdensa, pallida; *paniculae rami* infimi elongati (usque 15 cm longi), medii vix 10 cm longi, superiores breves, omnes stricte erecti et *paniculae rhachi* tereti et laevi subappressi; *spiculae* glabrae, longiuscule pedicellatae, erectae; *glumae* manifeste inaequales, omnino scariosae, praeter carinam enerves, tenuissime submucronatae, circa 15—16 mm, altera 10—11.5 mm longae; *glumella* anguste convoluta, laevis, glumis brevior, cum stipite brevi hirsuto 8—9 mm longa; *aristae* cum *glumella* continuae, capillares, rectae, una sublongior (3—3.5 cm), duo breviores (2.5—3 cm).

West-Queensland: dürre, grasige und buschige Stellen bei Cloncurry (DOMIN, II. 1910), häufig.

Diese neue Art ist im Vergleiche mit *A. calycina* schon durch die schmale, blasse Rispe mit zu jeder Zeit aufrechten Rispenästen gekennzeichnet. Überdies sind die Hüllspelzen ungleich lang und

*) Probably abbreviation for „proxima st(rixtim) sc(ilicet) Aristidae namaquensi”.

länger als die Deckspelze; auch ist diese Art viel robuster als *A. calycina* und in der typischen Form stark blau bereift. Bei Cloncurry wächst auch eine Form mit noch etwas breiteren, flachen und ganz glatten Blättern.



ARISTIDA PRUINOSA Domin.
From type specimen.

The examination of Prof. DOMIN's beautiful material of this species has proved that the species has an inverse position of the glumes, unfortunately Prof. DOMIN has not given so much importance to this character, although, from his herbarium-notes and sketches he correctly saw the longer glume as the lower one, in his description this is not indicated clearly enough.

The species is most allied to *Aristida inaequiglumis* DOMIN and differs not so very much from it, the glumes are however somewhat shorter and especially the lemma is much shorter than in *A. inaequiglumis*. *Aristida pruinosa* differs moreover in the very glaucous colour of the whole plant and in the densely pruinose internodes, the lemmas have the same inrolled margins which are however not provided with the characteristic rows of stout spines as in *A. inaequiglumis*, they are smooth in *A. pruinosa* or they have only an indication of short tubercles.

Aristida pseudohystrix (Trin. et Rupr.) Steudel.

E. G. STEUDEL; Synopsis Plantarum Glumacearum, [1855] p. 142!
= *Aristida vestita* THUNBERG var. *Pseudo-Hystrix* TRINIUS et RUPRECHT; Species Graminum Stipaceorum. Act. Acad. Imp. sc. Petrop. Ser. VI. Tom. V. [1842] p. 158!

Description given by Trinius and Ruprecht l. c. p. 158,
 paniculae bipollicaris, contractae, depauperatae, basi longissime
 exsertae radiis a basi mox floriferis, multiradiolosis, adpressis; gluma
 superiore $4\frac{1}{2}$ lineali, inferiorem triplo superante; flosculo 4 lineali,
 apice cum stipite aristae non torto, $\frac{1}{4}$ lineali distinctius articulado;
 setis patentibus, pollicaribus; culmo simplici, fere pedali, basi geni-
 culato; foliis bipollicaribus, curvulis; vaginis radicalibus junioribus
 lanatis.

The same description is given in STEUDEL'S Synopsis loc. cit.
 p. 142.!

Culmo simplici (subpedali) basi geniculato; foliis curvulis (bipol-
 licaribus); vaginis radicalibus junioribus lanatis; paniculae coarctatae
 (bipollicaris) depauperatae basi longissime exsertae radiis fere a
 basi floriferis multiradiolosis adpressis; gluma superiore $4\frac{1}{2}$ -lineali
 inferiorem triplo superante; flosculo 4-lineali apice cum stipite
 aristae $\frac{1}{4}$ -lineali non torto distinctius articulado; setis patentibus
 pollicaribus. Afr. austr.

Note: = *Aristida diffusa* Trin. var. *pseudohystrix* Henrard.

No type or type locality is indicated by the Russian authors.
 STEUDEL, who has not seen the plant, copied the description of
 TRINIUS and RUPRECHT, and indicated the locality as South Africa,
 the locality is correct, all the varieties mentioned by TRINIUS and
 RUPRECHT under their *A. vestita* are from South Africa.

Aristida vestita as described by THUNBERG is a species with
 woolly internodes and accepted in my work as a distinct species;
 what is generally called *A. vestita* is the species with glabrous,
 smooth internodes, described in the year 1829 by TRINIUS as
A. diffusa. See also this revision pag. 142 and 182. The true
A. vestita was not studied by TRINIUS. NEES observed in the year
 1844 that THUNBERG'S species has woolly sheaths, he says: „lana,
 quam dicit culmi Thunbergius, vaginalium est integumentum”,
 but THUNBERG'S type has not only woolly sheaths but also lanate
 internodes and probably, on account of NEES'S statement, the
 Russian monographers united *A. diffusa* and *A. vestita*; they des-
 cribed 7 varieties. See afterwards under *A. vestita*. All the different
 varieties have glabrous internodes, some varieties have quite smooth
 sheaths, others have densely woolly ones. The length of the column
 is variable, in most of the varieties 3—7 mm. long. In the var.

pseudohystrix the length of the column is only $\frac{1}{4}$ line (= 0,6 mm.) and there is thus only a very short beak, the glumes are shorter than in any of the other forms, gl. I. = 4—5, gl. II. = 11, gl. III. = 10 mm., and the awns are 25 mm. long. The different characters are so striking that it is to understand that STEUDEL accepted the plant as a species. The variety is very rare and known to me only from a few specimens.

Aristida pseudospadicea Hubbard.

F. TRACY HUBBARD; On the gramineae collected by Prof. Morton E. Peck in British Honduras, 1905—07. Contributions from the Gray Herbarium of Harvard University, in Proceedings of the American Academy of Arts and Sciences, Vol. XLIX. no. 8. [1913] p. 500!

Perennis, dense caespitosa, circa 80 cm. altitudine, radicibus fibrosis. Culmi erecti, tenues sed rigidi, basin versus aliquid ramosi, supra simplices, albo-virides, ad nodos purpurascens, omnino glabri. Vaginae e basi imbricata tumidiuscula paullum angustatae, in parte superiori culmos laxissime includentae vel patentes, quam internodia multo breviores, glabrae, ad folii junctionem angulo recto abruptissime contractae et cum annulo atro-brunneo cinctae. Ligula annularis brevis hispida in auriculas vaginae procurrens, circa 0.2 mm. longa. Folia baseos superioribus similia, erecta, plana vel conduplicata, longe setaceo-acuminata, 8—30 cm. longa, 1—2 mm. lata; lamina subtus glabra, supra sparse longe tenuiterque pilosa basin versus pilis crebrioribus instructa. Inflorescentia panicula simplex, gracilis; 20—26 cm. longa, 2—4 cm. diametro; radiis in axillis solitariis (per occasionem secundo brevioribus), adpresso-ascendentibus vel paullo patentibus, inferioribus remotis; axe radiisque glabris. Spiculae glabrae, albo-virides vel paullum albo-violaceae, 9—11 mm. longae, circa 1 mm. diametro, callo obconico in summa parte barbato, circa 1 mm. longo; glumae carinatae, 1-nervatae, gluma prima in nervo scabra, acuminata, quam secunda aliquanto breviori, gluma secunda aristato-acuminata vel paullum bifida cum arista brevi; lemma quam gluma secunda longius, ad apicem aliquid tortum, scabrum, partibus tribus aristae divaricatis, subaequantibus vel lateralibus multo brevioribus, parti media ad 35 mm. longa; palea circa 1 mm. longa. — Type (in the Gray Herb.) and only specimen seen, pine ridge near Manatee Lagoon, June 11, 1905, M. E. Peck, no. 31. *A. pseudospadicea* is most nearly allied to

A. spadicea HBK. from which it differs in its more slender habit, absence of flat curled basal leaves, long-pilose upper leaf-surface and smaller spikelets. Similiar differences separate it from *A. arizonica* Vasey. The comparatively long callus separates it at once from *A. tinctoria* Trin. & Rupr. which has a very short one. I wish to thank Mrs. Chase for comparing the material with that at Washington.

Note: = *Aristida orizabensis* Fourn. var. *pseudospadicea* (Hubb.) Henrard.

If we read carefully the long description, we find the following important characters: the flat setaceous acuminate blades, the erect or ascendent panicle branches, the 9–11 mm. long spikelets, the glumes about equal, the lower acuminate, slightly shorter than the acute upper one, the latter shortly awned from the bifid apex, the lemma, with the 1 mm long callus, slightly longer than the upper glume, scaberulous and with a distinct but short column.

Comparing these characters with the type of *A. orizabensis* and with the figure given on p. 396 of this Revision, we find a great resemblance. The awns of *A. pseudospadicea* are given in the description as subequal or the lateral ones much shorter than the central one, which is about 35 mm. long. In the type of *A. orizabensis* the awns are also subequal, but the central awn is only 12 mm. long. From the characters given here, *A. pseudospadicea* is therefore only a longer-awned variety of *A. orizabensis*.

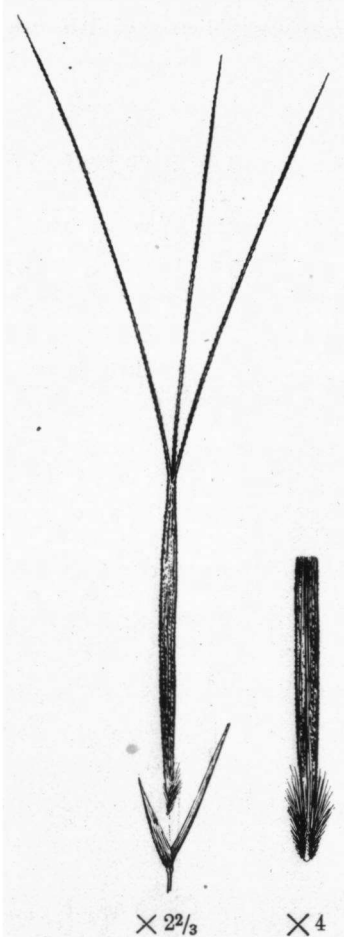
HUBBARD'S species agrees in the spikelet-characters somewhat with *A. appressa* and its var. *brevior*, but these have a characteristic pubescence and a different shape of the panicle. The sparingly long-hairy surface of the blades also occurs in *A. orizabensis*. HUBBARD'S plant is not at all allied to the very different *A. arizonica* and *A. tinctoria*. *Aristida spadicea* as supposed to be the most nearly allied species is at once distinguished by the long, spreading panicle-branches, naked in the lower part.

Through the courtesy of Dr. B. L. ROBINSON, Curator of the Gray Herbarium, Harvard University, Cambridge, Massachusetts, I received the type of *A. pseudospadicea* for study. In habit, in vegetative and in panicle characters it agrees perfectly with *A. orizabensis*. The characters of the undamaged spikelets are: gl. I = $8\frac{1}{2}$ mm., gl. II. = $9-9\frac{1}{2}$ mm., callus = 1 mm., lemma including callus and short twisted scabrous beak = 10 mm., the central awn is 30 mm., the lateral awns are about 25 mm. long. All the awns are distinctly contorted at the base, a character not mentioned in the description

and not found in *A. orizabensis*. For these reasons I have taken up HUBBARD'S plant as a variety of *A. orizabensis*.

***Aristida pumila* Decaisne.**

. JOSEPH DECAISNE; Observations sur quelques nouveaux genres et espèces de plantes de l'Arabie-Heureuse, Annales des Sciences naturelles; Seconde Série, Tome IV. Botanique, Paris, [1835] p. 85!



ARISTIDA PUMILA Decaisne.
From type specimen.

. *A. annua*; culmis gracilibus basi subgeniculatis glabriusculis; foliis setaceis involutis suprâ scabris; vaginâ ciliatâ; florum pedicellis pilosis; glumis inaequalibus, inferiori acuminatâ, superiori lineari duplò longiori; paleâ infer. 3-aristatâ, aristis denticulato-scabris. Hab. l'Hedjas.

GRAMEN annuum, $1\frac{1}{2}$ —4 poll. RADICELLAE fibrosae, pilosae. CULMI plures, filiformes, striati, deflexi, glaberrimi, nodosi nodis fuscis. FOLIA setacea involuta, acuta, suprâ praesertim denticulato-aspera, pallidè viridia, glaucescentia, subarcuata: VAGINA fissa, striata, scabriuscula, margine membranacea, ore ciliata. PANICULA subcontracta, culmo longitudine subaequalis. SPICULAE uniflorae, pedunculatae, scabrae. GLUMA bivalvis inaequalis, linearis: inferior mucronato-aristata; superior duplò longior, acuta, glabra. FLOS breviter pedicellatus, pedicello piloso. PALEA inferior linearis, elongata, involuta, subcarinata, carinâ asperâ trinerviâ, nervis apice in tres aristas filiformes denticulato-scabras inaequales (lâteral. breviores) desinentibus. PALEA inferior *) brevissima, inferiori multoties brevior, inclusa, ovata, obtusa, membranacea. SQUAMULAE hypogynae binae, lanceolato-ovatae, longitudinaliter venosae, paleae superiori subaequales. STAMINA terna, paleam superiorem aequantia, erecta. ANTHERAE lineari-oblongae. STYLI filiformes, breves. STIGMATA fibrillosa stamina vix superantia. OVARIVM ovato-oblongum.

Note: = *Aristida adscensionis* L. var. *pumila* (Dene) Coss. et Dur.

The type in the Herbarium of the Jardin des Plantes at Paris

*) Error for palea superior.

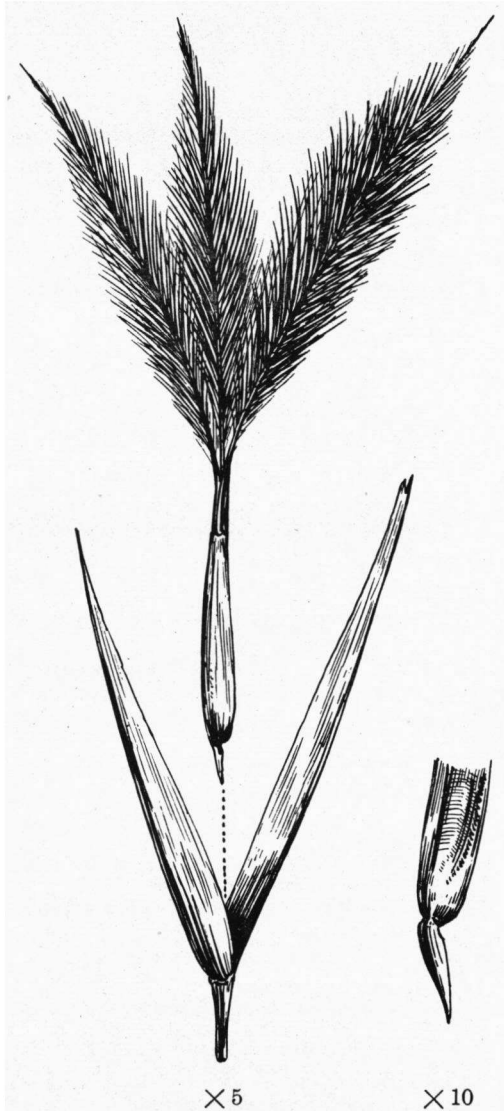
was studied through the courtesy of Prof. H. LECOMTE. It bears a label in DECAISNE'S hand, the locality on the label is given as Hedjas, près la ville de Yembo. There are duplicates in several other European Herbaria. The type is an annual, about 10 cm. high plant with extraordinarily long lemmas about 17 mm. long, more than twice as long as the upper glume, the glumes agree with those of the *A. adscensionis*, the lemmas however with *A. festucoides*. In the latter the body of the lemma is quite smooth, in *A. pumila* slightly scaberrulous upwards. This is the only difference and it is probably better to unite *A. festucoides* and *A. pumila*.

***Aristida pungens*
Desfontaines.**

R. L. DESFONTAINES; Flora atlantica etc. loc. cit. [1798] Tom. I. p. 109! Tab. 35!

ARISTIDA culmo perennante; foliis subulatis, rigidis, pungentibus; panicula laxa; aristis tribus plumosis, subaequalibus.

CULMUS fruticosus, erectus, 6—13 decimetr., glaber, laevis, inferne ramosus. Folia glabra, rigida, subulata, acutissima, patentia, canaliculata, pungentia, 1—3 decimetr. longa. Flores paniculati; paniculâ patente. Pedunculi capillares, ramosi. Calyx exterior biglumis, uniflorus. Glumae membranaceae, acutae, concavae, subaequales, 13—18 millimetr. longae Calyx interior uniglumis; glumâ coriaceâ,



ARISTIDA PUNGENS Desfontaines.
From type specimen.

acutâ, hinc longitudinaliter fissâ. Arista terminalis, tripartita, articulata; setis omnibus plumosis, subaequalibus, spiculâ duplo triplove longioribus. Semen gracile, elongatum.

HABITAT in arenis humidis prope Sfax et in deserto. h.

A pair of spikelets, taken from the type, were found in BALANSA'S Herbarium at Leyden. An authentic specimen was studied in the Delessert Herbarium (Herbier De Candolle), kindly received from Dr. J. BRIQUET. This plant is labeled: „*Aristida pungens*. fl. Atl. t. 35.” (original de Desfontaines!).

Aristida pungens belongs to the group of the „*pungentes*” and is allied to *A. pennata*, *A. scoparia* and *A. vulnerans*; the species of this group are desert-plants much resembling each other, they are characterized by the very curious shape of the sparingly hairy or quite glabrous callus.

Aristida pungens differs distinctly from *A. pennata*, not only in the different way of articulation of the awns but also in the not inverse position of the glumes and in the less hairy or glabrous callus. *Aristida scoparia* differs in the inverse position of the glumes. *Aristida pungens* is most related to *A. vulnerans*, an endemic species from Egypt, which is distinguished by a somewhat differently shaped panicle and by the prominent tuft of hairs in the axils of the panicle-branches.

***Aristida pungens* Desfontaines.**

subsp. ***Peyeri* Henrard.**

nov. subsp.

Differt a typo, in Africa boreali nascente, foliis multo brevioribus, 1½—4 cm. longis, panícula graciliore, ramis pedicellisque tenuioribus, flexuoso-curvatis. Glumae angustiores, inferior obtusior, ambae carina superne infra apicem ciliata.

Africa austro-occidentalis: Gross-Namaland, in arenosis inter Lüderitzbucht et I Aus, leg. Dr. H. PEYER, 1906—09. Typus in Herb. Zürich.

Aristida pungens was hitherto only known from North Africa. The presence of the species on the downs along the railway, 23—25 km. from Lüderitzbucht is plant-geographically very interesting. The habit is quite the same as in the typical *A. pungens* from the sandy deserts of North Africa, but it differs in some

distinct characters. In the North African plants the blades are 8 cm. long or longer, the panicles are coarser, the branches, branchlets and pedicels are stiffer and the glumes quite glabrous, not ciliate below the tips. On account of these differences and the geographical distribution, I have accepted the plant from Namaqualand as a subspecies of *A. pungens*. The plants I have seen in the Zürich Herb. are not quite mature and more material may prove that it is a distinct species. The plant was also studied by Prof. HACKEL, who indicated it in the herbarium as a forma *brevifolia*. The short stiff blades give the plants indeed a very distinct habit, but they differ moreover in other characters of the panicles and the spikelets, so that it is certainly more than a short-leaved form of *A. pungens*.

***Aristida pungens* Desfontaines.**

var. pubescens Henrard.

nov. var.

Differt a typo vaginis praesertim inferioribus pubescentibus.

Algeria: Bords du Chott-el-Chergui, à Khrider, 25 V. 1852, leg. B. BALANSA, Pl. d'Algérie no. 265. Typus in Herb. Lugd. Bat. sub no. 908.83—1246.

***Aristida pungens* Savi.**

GAETANO SAVI; Memorie di Matematica e di Fisica della Societa Italiana delle Scienze etc. Tomo XXI. Modena [1837] p. 198.

Aristida pungens foliis convolutis rigidis pungentibus, vaginis culmoque glabris, panicula patente, valvis subaequalibus acuminatis, arista articulata tripartita, laciniis plumosis subaequalibus calyce paulo longioribus. Nob. Desfont. Flor. atlant. tab. 35.

Note: = *Aristida vulnerans* Trin. et Ruprecht.

Among the complete set of RADDI'S *Aristidas* at Florence, I had at my disposal through the courtesy of Prof. E. CHIOVENDA, I found the plants SAVI named *A. pungens*. Duplicates of RADDI'S plant I saw in different other European herbaria. The description given by SAVI is too imperfect to recognize his plants at once. SAVI however misapplied DESFONTAINES'S name for his plant, which is indeed the Egyptian *A. vulnerans*. In the Florence Herbarium I studied a

double-sheet, labeled: „*Aristida pungens* Raddi-Egitto. Da Gaetano Savi". The well-developed plants on both sheets are *A. vulnerans* and TRINIUS and RUPRECHT correctly referred *A. pungens* SAVI to their new species *A. vulnerans*. In the Florence Herbarium I found also a sheet with a printed label: „Herbarium Orthi Pisani. *Aristida pungens* legit in Aegypto Jos. Raddi. communicavit Cajet. Savi. Da Gaetano Savi in Guigno 1843." This plant is *A. scoparia*, once more an endemic Egyptian species, readily recognized by the very distinct inverse position of the glumes and by the glabrous axils of the panicle-branches. On account of SAVI'S „*valvis subaequalibus*", this plant cannot be the plant he described as *A. pungens*. *Aristida vulnerans* has indeed subequal glumes, whereas in *A. scoparia* the lower glume is much longer than the upper one.

***Aristida pungens* Trinius. *)**

C. B. TRINIUS; De Graminibus unifloris et sesquifloris. Dissertatio botanica. [1824] p. 181!; Act. Petrop. [1829] p. 89! exclus. synonym. *Arthratherum pungens* BEAUV. R. et S. II. p. 398.

= *Aristida pungens* SIEBER ap. TRINIUS et RUPRECHT; Species Graminum Stipaceorum, loc. cit. [1842] p. 175! non DESFONTAINES.

Description given by Trinius in the year 1824:

Panicula patula (stricta); Glumis subaequalibus acutiusculis perianthio duplo longioribus; Arista (caduca) supra basin divisa: laciniis (semipollicaribus) plumosis: media paullo longiori; (Foliis strictis, pungentibus).

V. spp. Egypt.

Description given by Trinius in the year 1829:

Panicula patula (stricta); Glumis acutiusculis, subaequalibus, perianthio ultrabilineali duplo longioribus; Arista supra basin divisa: laciniis 5-linealibus, plumosis: media paulo longiori; (Foliis rigidis, pungentibus).

V. spp. Egypt.

Erecta, stricta, ramosa, alboglauescens. Folia patula, teretia, rigida, pungentia. Panicula spithamaea, densiuscula, stricta.

*) *Aristida pungens* SIEBER ex. TRIN. Gram. Unifl. Diss. I. 181 is given in the Kew Index. There is however on p. 181 no *Aristida pungens* SIEBER, although TRINIUS made his description from SIEBER'S plant.

In the Kew Index there is also an *Aristida pungens* STEUDEL, Syn. Plant. Gram. 145. In STEUDEL'S work there is only a description of *Aristida scoparia* TRIN. et RUPR. with the locality: *A. pungens* Hrbr. un. it. aeg. nr. 36. Aegypt.

Note: = *Aristida vulnerans* Trinius et Ruprecht.

The plant, collected by SIEBER in Egypt, issued in exsiccatae with a printed label: „*Aristida pungens* Desf. Syene”, was accepted by TRINIUS as the species described by DESFONTAINES; in their monograph of the Stipeae the Russian authors recognized in the year 1842 SIEBER'S plant as distinctly different from the species described by DESFONTAINES from Tunis and they based on SIEBER'S plant a new species, they named *Aristida vulnerans*. I have unconditionally accepted their opinion after having studied the types and a large herbarium material from Egypt See also my observations under *A. pungens* SAVI and *Aristida vulnerans* TR. et RUPR..

Aristida purpurascens Poiret.

J. L. M. POIRET; Encyclopédie Méthodique; Botanique par M. LAMARCK, de l'Institut de France; Supplément, Tome I. [1810] p. 452!

11. ARISTIDE purpurine. *Aristida purpurascens*.

Aristida foliis angusto-subulatis, striatis; paniculâ longè spicatâ; aristis subaequalibus. (N.)

Ses tiges sont glabres, filiformes, un peu comprimées; les feuilles étroites, striées, droites, presque planes, subulées à leur partie supérieure; les fleurs disposées en une panicule en forme d'un long épi grêle; les ramifications courtes, presque simples, distantes, serrées contre les tiges;



× 3 1/3 × 8
ARISTIDA PURPURASCENS Poiret.
From duplicate type specimen.

les fleurs supérieures sessiles. Le calice est composé de deux valves inégales, étroites, aiguës, purpurines, uniflores; la corolle à une seule valve alongée, très-étroite, terminée par trois arêtes presque égales, une fois plus longues que la corolle, qui renferme une semence grêle.

Cette plante m'a été communiquée par M. Bosc, qui l'a recueillie dans la Caroline. (*V. s.*)

The plant collected by Bosc in South Carolina I examined in different herbaria, but it is unknown to me which plant is the actual type. The species has a distinct inverse position of the glumes, a narrow panicle with laxly appressed branches and about equal awns, the central one a little longer and horizontally spreading at maturity.

***Aristida purpurascens* Poiret.**

var. *alabamensis* Trin. et Ruprecht.

Species Graminum Stipaceorum, loc. cit. pag. 102!

Culmo tereti; vaginis glabris; panicula subcontinua, pallida; gluma superiore 4—4½ lineali, inferiorem et flosculum paullo superante. Alabama. (*V. com. ab ill. Fischer et Meyer.*)

Note: = *Aristida palustris* (Chapm.) Vasey.

This variety is a distinct species as already pointed out by VASEY and by HITCHCOCK, it is identical with *Aristida palustris*, a species allied to *A. purpurascens* POIR. and *A. virgata* TRINIUS and thus it is to understand that the Russian monographers placed the plant under *A. purpurascens*. *Aristida palustris* is a stout tall species with rather broad blades and a long, narrow and virgate panicle, the central awn at maturity horizontally spreading, the lateral ones erect and about three-fourths as long. See also my observations under *A. palustris* on p. 415 of this Revision.

***Aristida purpurascens* Poiret.**

var. *depauperata* Vasey.

G. VASEY, ap. W. J. BEAL; Grasses of North America, Vol. II. [1896] p. 201.

Panicle slender; first and second glumes 7 and 5 mm. long, respectively; floret 4 mm. long.

Mississippi, *Tracy*.

Note: = *Aristida virgata* Trinius.

As the type is accepted by Prof. HITCHCOCK a specimen collected by S. M. Tracy no. 107 near Ocean Springs, in the U. S. Nat. Herbarium, labeled by VASEY: „*A. purpurascens* variety”. This specimen belongs, as to the fragment I have seen, indeed to *A. virgata* TRINIUS. The glumes are equal and about 7 mm. long and the spikelets agree in the other characters perfectly with those of the type of *A. virgata*. See afterwards the figure under *A. virgata* in this Revision.

***Aristida purpurascens* Poiret.**

var. *glaucissima* Kearney.

ap. F. LAMSON-SCRIBNER and CARLETON R. BALL, loc. cit. [1901] p. 45!

Whole plant very glaucous, otherwise like typical *A. purpurascens*. Conspicuous in the field on account of its bluish-white color.

Type collected by T. H. Kearney, jr., No. 321, in very dry, sterile soil in an opening in the pine forest, 6 miles above Biloxi, Mississippi, October 7. 1896.

Distinguished from the typical *A. purpurascens* only by the very striking glaucous colour. Herbarium specimens still have this colour. Accepted as a variety in my work. A portion of the type was kindly received from Prof. HITCHCOCK.

***Aristida purpurascens* Poiret.**

var. *minor* Vasey.

GEORGE VASEY; Monograph of the Grasses of the United States and British America. Part I., in Contributions from the U. S. National Herbarium. Vol. III. [1892] p. 46!

Culms more branching, panicle thinner and more flexuous, flowers and awns rather shorter. — Southern States to Texas.

In the U. S. Nat. Herbarium there are several specimens labeled with the varietal name in VASEY'S hand. Prof. HITCHCOCK has accepted as the type a specimen collected by S. M. TRACY in the year 1891 on Horn Island, Mississippi (no. 1564). This number has 3 single culms, 30—40 cm. tall, the panicles are immature. From a fragment of this type I give the following data; gl. I. = 9 mm.,

gl. II. = 8 mm., lemma = 6 mm., central awn = 22 mm., lateral awns = 16—18 mm.. In the type of *A. purpurascens* these characters are: gl. I. = 10,5 mm., gl. II = 7,5 mm., lemma = 7,5 mm., central awn = 21 mm., lateral awns = 16,5 mm.. Thus we see that there are but slight differences probably because the spikelets of the var. *minor* are not quite mature.

Aristida purpurea Nuttall.

THOMAS NUTTALL; Collections towards a Flora of the Territory of Arkansas, in Transactions of the American Philosophical Society, held at Philadelphia, Vol. V. New Series [1837] p. 145!

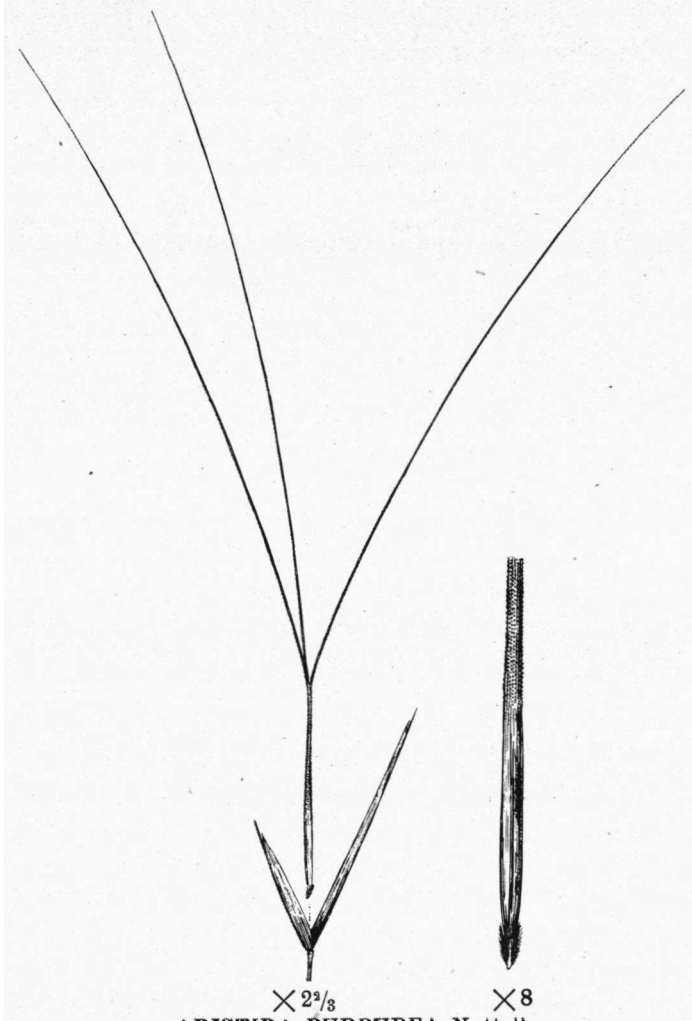
Panicula erectiuscula gracili; cal. valvulis remotis aristulatis apice bifidis; aristas capillaribus longissimis; foliis brevibus scabris. — *Hab.* On the grassy plains of Red river, in arid situations. Flowering in May. — *Obs.* Perennial; leaves narrow, short and scabrous; ligula pilose; culm about one foot high; panicle many flowered, a little spreading, branches capillary; flowers commonly in pairs (after the manner of the genus), bluish purple; one valve of the calyx nearly double the length of the other, both bifid at the summit and shortly awned, the longer valve exceeding the corolla; awns equal, capillary, nearly three times the length of the corolla and scabrous; corolla minutely stipitate.

The specimen in the Academy of the Natural Sciences at Philadelphia, on which NUTTALL based his species was studied by SCRIBNER and MERRILL (U. S. Dep. of Agriculture. Circular 34. (1901) p. 6! The following description of spikelet characters drawn entirely from the type specimen was given by them:

„Spikelets pale or purplish; empty glumes unequal, the first lanceolate, 6 mm. long, cleft at the apex; the teeth acute, about 1 mm. long, bearing between them a scabrous awn about 1.5 mm. long. Second glume 12 mm. long, exceeding the flowering glume, cleft at the apex; the teeth 1.5 mm. long, the awn 2 mm. long. Flowering glume 10 mm. long, smooth below, tuberculate roughened above; callus bearded, about 0.5 mm. long. Awns equal, purplish, 2 to 4 cm. long.”

As a distinct character to distinguish the species from its congenials I will call attention to the lemma, gradually tapering to the scarcely beaked summit, the surface tuberculate-scabrous

in lines from below the middle to the summit, the raised parts whitish, the background usually dark. The awns are variable in length, mostly 3 to 5 cm. long, in the type they are 3.5 to 4.5 cm. long, the shorter ones appear to be broken.



ARISTIDA PURPUREA Nuttall.
From Texas, *El Sordo*. Griffiths 6438.

***Aristida purpurea* Nuttall.**

var. *californica* Vasey.

GEORGE VASEY; Monograph of the Grasses of the United States and British America. Part I., in Contrib. U. S. National Herbarium, Vol. III. [1892] p. 47!

Culms tall, 2 to 2½ feet high, with long leaves (often 1 foot long), panicle flexuous, 5 to 7 inches long, lower branches often 5 to 7 at the nodes, 1 to 3 inches long, spreading, capillary, and naked below, empty glumes 3 to 6 lines respectively, awns about 2 inches long. — Western Texas to California.

The type of this variety was collected by J. G. LEMMON (no. 5474), Yolo County, Capay Valley in the year 1891. It bears the name in VASEY'S hand. The spikelets are overmature and agree with the typical *A. purpurea*.

***Aristida purpurea* Nuttall.**

var. *capillarifolia* Scribn. et Merr.

F. LAMSON-SCRIBNER and ELMER D. MERRILL; *Aristida purpurea* Nutt., and its allies in Circular no. 34, United States Department of Agriculture, May 24, [1901] p. 8!

A pale glaucous form about 4 dm. high, with lax, few-flowered panicles and numerous involute basal and culm leaves 2 to 3 dm. long. First glume 6 mm. long, the second about 14 mm. long, mucronate and slightly exceeding the scabrous flowering glume. Awns 3 to 4 cm. long.

Type specimen collected in Texas by G. C. Nealley. No locality given.

This variety is characterized by its pale glaucous colour and by the numerous, very long involute blades, these as much as 30 cm. long. The type is in the U. S. National Herbarium, it consists of two poor immature plants, the spikelets agree with those of the typical *A. purpurea*, they are not quite mature but they have the characteristic scabrous lemmas.

***Aristida purpurea* Nuttall.**

var. *Hookeri* Trinius et Ruprecht.

C. B. TRINIUS et F. J. RUPRECHT; *Species Graminum Stipaceorum*, loc. cit. pag. 107!

Robustior, saepe bipedalis; verticillis radiorum longiorum remotioribus; glumis apice integris l. brevissime denticulatis.

Texas. (a Drummond. n. 293. lect. com. ill. Hooker.)

This is according to Prof. HITCHCOCK, the typical form of *Aristida*

purpurea. From the duplicates of the type seen by me, I must affirm this opinion. The other variety described by TRINIUS and RUPRECHT as var. *Berlandieri* agrees with the type of *A. purpurea* but differs in the shorter panicle branches and in the shorter-awned glumes. This variety was formerly accepted by HITCHCOCK as a species but it agrees so well with the typical *A. purpurea* that it is only a slight variety, connected with the genuine *A. purpurea* by intermediate forms.

See my figure of var. *Berlandieri* on p. 53 of this Revision.

Aristida purpurea Nuttall.

var. *laxiflora* Scribn. et Merr.

F. LAMSON-SCRIBNER and ELMER D. MERRILL; *Aristida purpurea* Nutt., and its allies in Circular no. 34, United States Department of Agriculture, May 24, [1901] p. 81

A lax, tufted form 3 to 6 dm. high, with open, few-flowered panicles. Panicle branches mostly solitary, flexuous, capillary, 1 to 3 flowered. Spikelets as in the species.

Type specimen collected in Texas, no locality, No. 12 J. Reverchon, May, 1881; No. 13 Reverchon, same date, is identical with No. 12. A specimen from Texas, no locality, collected by G. C. Nealley, in 1887, is referred here and also a specimen collected at Tucson, Arizona, by J. W. Toumey, in 1893.

This variety is very closely related to var. *aequiramea*, and is only distinguished by its very lax, open, few-flowered panicles.

The variety, treated by HITCHCOCK as a subspecies, agrees in the spikelet-characters with the typical *A. purpurea*, but the shape of the panicle, with the few-flowered, solitary, curved, capillary branches, is very striking. I received a fragment from the type, Reverchon no. 12 and a duplicate of the cotype, Reverchon no. 13, labeled in MERRILL'S handwriting: „*A. aequiramea laxiflora* S + M.” The var. *laxiflora* is rather rare and hitherto known from a few localities in Texas, New Mexico and Arizona. The vegetative parts and the morphological characters of the spikelets agree with typical *A. purpurea*, and I have accepted Prof. HITCHCOCK'S opinion.

A. longiseta rariflora which has the same aspect, differs from *A. purpurea laxiflora* however in the perfectly smooth and shining lemmas. See my observations on p. 314 of this Revision.

***Aristida Purpusiana* Hitchcock.**

A. S. HITCHCOCK; Mexican Grasses in the United States National Herbarium, in Contributions from the U. S. Nat. Herb. XVII. [1913] p. 276!

Perennial; culms erect, slender, rigid, glabrous, 50—60 cm. high, the branches stiffly ascending; sheaths glabrous, pilose at the throat; blades 1 to 2 mm. wide, 5 to 10 cm. long, becoming involute; panicle narrowly pyramidal, 15 to 25 cm. long; branches few, short, few-flowered, finally spreading or reflexed, the lower 5—6 cm. long, the branchlets and pedicels stiffly ascending; glumes somewhat unequal, the lower about 6 mm., the upper 8 mm. long, smooth, 1-nerved, slightly notched at the apex; lemma conspicuously pilose at the base, about 1 cm. long to base of awns, straight, minutely scabrous on the short beak; lateral awns scarcely 1 mm. long; terminal awn about 8 mm. long, recurved by a semicircular bend.



× 10
ARISTIDA PURPUSIANA
Hitchcock.
From type specimen.

Type in the U. S. National Herbarium, no. 470407, collected at San José del Cabo, Lower California, Mexico, in 1901 by C. A. Purpus (no. 394).

The only other specimen observed was collected at the same place in 1890 by T. S. Brandegee.

A fragment of the type was received through the courtesy of Prof. A. S. HITCHCOCK. The very rare species is known only from the type locality, it is allied to the Mexican *A. geminiflora* FOURNIER (see this Revision p. 193) but distinguished by the shorter glumes, the lower about 6 mm., the upper about 8 mm. long. In FOURNIER's species the glumes have an inverse position, the lower is 12 mm. long, the upper is only 10 mm. long. Both species belong to the section *Streptachne* DOMIN, a section characterized by the suppressed or wanting lateral awns. Prof. DOMIN has already pointed out that the Australian *Streptachne stipoides* is an *Aristida*. HUMBOLDT, BONPLAND, and KUNTH correctly applied the name *Streptachne*, given by

R. BROWN, to the three species they described. Allied to the Australian *Streptachne stipoides* (= *Aristida Streptachne* DOMIN) we find in Australia DOMIN's *Aristida spuria* with spikelets scarcely to distinguish from those of *Streptachne stipoides*. This *A. spuria* has in the same panicle, spikelets quite as *Streptachne stipoides* and others with developed lateral awns. Both Australian species have no line of demarcation between the body of the lemma and the column. *Streptachne* is not a distinct genus and I cannot accept the conclusions of Mss. HUGHES in Kew Bulletin (1923) p. 301. See afterwards my critical observations under *A. spuria* DOMIN and *A. Streptachne* DOMIN. See also my notes under *A. ramosissima* ENGELMANN.

Aristida pusilla Trinius et Ruprecht.

Species Graminum Stipaceorum, loc. cit. pag. 140!

Paniculae $\frac{1}{2}$ —1 pollicaris, simplicissimae, racemosae, linearis, basi vaginatae radiis brevissimis unifloris, solitariis binisve, adpressis; glumis obtusis inaequalibus, superiore bilineali inferiorem lineâ dimidiâ superante; flosculo $2\frac{1}{2}$ —3 lineali, glabro, apice non torto neque articulato; setis subaequalibus, erecto-patentibus, trilinealibus.

Chaetaria mauritiana β . *nana* Drege! pl. exs. (spec. b.); an etiam N. E. Gram. Afr. aust. p. 188? planta enim benevole missa, fors ex commutatione quadam in herb., varietas pygmaea *A. vulgaris* erat.

Inter Kussie et Zilverfontein in collibus saxosis alt. 1500—2000 ped. et in editoribus siccis inter Natvoet et Gariep fluvium altit. 500—1000 ped. Augusto m. (Drege)

Valde affinis *A. mauritiana*, sed praeter notas indicatas adhuc culmis caespitosis numquam ultra 2 pollices longis, valde condensatis et foliis semipollicaribus recedit.

Note: = *Aristida curvata* (Nees) Trin. et Rupr.

var. *nana* (Nees) Henrard.

The plants collected by DRÈGE (with his label: „spec. b.") were described by NEES in the year 1841 in Fl. Afr. austral. I. p. 188 as a variety of KUNTH's *Aristida mauritiana*, the type of the latter he saw in KUNTH's collection. NEES described KUNTH's plant as *Chaetaria mauritiana* and accepted DRÈGE's plant as a variety β . *Nana*, culmis caespitosis biuncialibus.

Var. β . praeter magnitudinem adeo congruit cum specie Kunthiana, ut varietatem non existimare non possim. Panicula $\frac{1}{2}$ — $\frac{3}{4}$ poll. longa, racemosa, simplex. Glumae purpureae. — An *Chaetariae curvatae* var.?

Aristida mauritiana agrees indeed somewhat with DRÈGE's plants, the spikelets are however a little shorter and glabrous, the vegetative parts are quite different. *A. mauritiana* is a very distinct species from Mauritius as already observed in this Revision on p. 338. NEES, who was a very accurate observer, supposed already that his variety belonged to his *Chaetaria curvata* and DRÈGE's plants differ from *A. curvata* only in the dwarf habit and in the smaller spikelets with shorter glumes. The spikelets agree for the rest with the figure of *A. curvata*, given on p. 125 of this Revision.

The Russian authors accepted the plants as a distinct species, allied to *A. mauritiana* KUNTH. Their opinion is correct but they overlooked the affinity with *Chaetaria curvata* NEES, a species they placed as a „small species” under their *Aristida vulgaris*.

Aristida pygmaea Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. p. 133!

Bipollicaris; foliis complicatis; gluma superiore 3 lineali inferiorem linea dimidia superante; ceterum ab *A. mongholica* non diversa nisi glumis obtusioribus emarginatis ut in *A. strictiflora*, cui fortasse affinior. — Africa australis. (N. E!)

Note: = *Aristida curvata* (Nees) Trin. et Rupr.
var. *nana* (Nees) Henrard.

Aristida pygmaea, described as a „small species” under the collective species *Aristida vulgaris*, is identical with their *A. pusilla*. The Russian monographer's noted the affinity with *A. strictiflora*, which is the same as *A. curvata* (NEES) TRIN. et RUPR., it is very curious that they described quite the same plant afterwards in the same work as a new species. See *Aristida pusilla*.

Aristida queenslandica Henrard

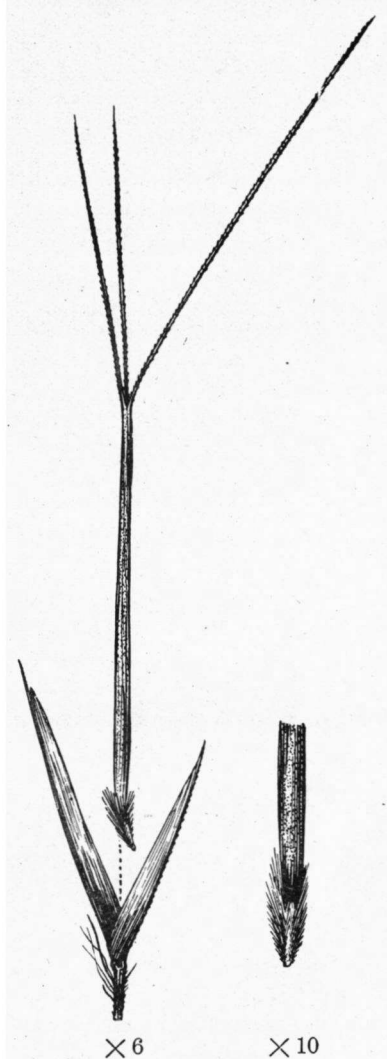
nov. spec.

(Sectio *Chaetaria*). Perennis, dense caespitosa. Culmi erecti, circa 50 cm. alti, parce ramosi; internodia dense lanato-tomentosa, summa glaberrima, sed infra paniculam plus minusve hirsutula; vaginae teretes, arctae, internodiis breviores, praesertim superne pilosae, margine villosae; ligula brevissima, minute ciliolulata, auriculae vix pubescentes; laminae lineares, circa 20 cm. longae, planae vel superiores convolutae, 1—1½ mm. latae, flexuosae vel curvatae, multinerves, longe setaceo-acuminatae, subtus laeves, supra scabe-

ruiae; *panicula* longe exserta, angusta, circa 15 cm. longa, interrupta, rhachi ramisque scaberulis, his binis, appressis vel erecto-patulis, primario circa 4 cm. lg. in $\frac{1}{2}$ — $\frac{1}{3}$ inferiore nudo, superne 4—5-spiculato, secundario basi breviter nudo, 1—2 cm. longo, 1—2-spiculato, spiculis subaggregatis, breve pedicellatis, pedicellis apice fasciculo pilorum spiculam quadruplo brevioribus munitis; *spiculae* lanceolatae, glabrae, uninerves; *glumae* inaequales: I. $5\frac{1}{2}$ mm. longa, acuta, carina scabra; II. carina laevis, apice bidentata, ex emarginatura breviter aristata, cum arista circa 1 mm. longa, 7 mm. longa, *gluma* III. *fertilis* leviter punctulata, callo dense sericeo-piloso, circa 1 mm. longo, 10 mm. longa; *aristae* inaequales, media circa 10 mm. longa, erecto-patula, laterales erectae, 6— $6\frac{1}{2}$ mm. longae.

Queensland: On ridges near Cometville, anno 1879, leg. O'SHANESY. (Typus speciei in Herb. Lugd. Bat. sub no. 925.125—52, ex National Herbarium Victoria, Melbourne, comm. P. JANSEN.)

Very distinct by the woolly internodes, the only other Australian *Aristida* with such internodes belongs to the section *Streptachne*. Allied to the New-Caledonian *A. pilosa* LAB., but distinguished by the not bearded auricles of the sheaths, the glabrous and smooth lower surface of the blades, the 1-nerved glumes and the long lemma.



ARISTIDA QUEENSLANDICA
Henrard.

From type specimen.

Aristida quinqueseta Steudel.

E. G. STEUDEL; Synopsis Plantarum Glumacearum Pars I. [1855] p. 420! no. 80b.

Radice valida fibrosa; culmo erecto simplici (ultra pedali) cum

tota planta glabro glaucescente; vaginis tenui-striatis nodos glabros plerumque tegentibus; ligula brevissima membranacea, foliis tereti convolutis laevibus curvato-patentibus (usque 7" longis); panicula contracta ($\frac{1}{2}$ -pedali) coerulescente; radiis subfasciculatis inaequalibus a basi floriferis; glumis inaequalibus, inferiore paulo brevior flosculo neque torto neque articulado, superiore eum aequante, utraque (sub-4-lineali) apice bidenticulata et nervum carinalem in setulam aristaeformem 1— $1\frac{1}{2}$ -linealem exserente. *Boivin* legit in Ins. Mauritii.

Note: = *Aristida setacea* Retzius.

The actual type I could not find in the different herbaria studied by me but I saw *Boivin*'s plant from Mauritius in some collections. These plants agree perfectly with the description given by *Stuebel* and with the type of *Aristida setacea* in the Herbarium at Lund in Sweden. The species was described by *Baker* in his Flora of Mauritius as *Aristida Hystrix*, which is a totally different species.

Aristida racemosa Muhlenberg.

Henricus Muhlenberg; Descriptio uberior Graminum et Plantarum Calamariarum Americae Septentrionalis indigenarum et cicurum. Philadelphiae, [1817] p. 172!

Culmo erecto sesquipedali quadrangulo nodoso, nodis glabris. Foliis linearibus striatis basi pilosis apice scabris. Ligula brevissime retusa. Vagina subpilosa. Panicula contracta subracemosa. Ramis paniculae geminis scabris, uno unifloro, altero 2—3-floro, vel solitariis unifloris, basi nudis nec villosis, pedicellis angulatis sub calice articulatis. Cal. 2-valvis uniflorus, valvulis inaequalibus carinatis scabris *mucronatis*, corolla paulo majoribus. Cor. 1-valvis basi pubescens pedicellata atro-maculata scabra, aristis 3 terminalibus hispidis patulis nec geniculatis inaequalibus *elongatis*. Stam. Pist. Semen. Radix fibrosa.

Habitat in glareosis, floret Sept. Oct.

Note: = *Aristida purpurascens* Poir.

The actual type is in the Muhlenberg Herbarium at the Academy of Natural Sciences of Philadelphia (American Philosophical Society).*)

*) According to *Scribner* and *Merrill*; The Grasses in the Herbarium of Dr. H. Muhlenberg, United States Department of Agriculture. Circular No. 27. (1900) p. 5, the plant published by *Muhlenberg* as *Aristida racemosa* is *A. purpurascens* Poir., but the cover is labeled *Aristida oligantha*. They observe that *Aristida oligantha* Muhl. Descr. 173, is not represented in this herbarium.

I examined a duplicate in the Willdenow Herbarium at Berlin, received by Willdenow from Muhlenberg. See this revision p. 22 and p. 164.

***Aristida racemosa* Sprengel.**

KURT SPRENGEL; Mantissa prima Florae Halensis, addita novarum plantarum Centuria. [1807] p. 35!

Panicula contracta cylindrica spicaeformi, aristis aequalibus calyce triplo longioribus.

Folia glabra, involuta, longissima, linearia, ligula nulla, vagina glabra. Ex insula St. Helenae.

ROEMER et SCHULTES; Syst. Vegetab. Vol. II. [1817] p. 396!
Under no. 23, SPRENGEL's description is exactly copied.

TRINIUS et RUPRECHT; Species Gram. Stipaceorum [1842] l. c. p. 139!
The Russian monographers mentioned SPRENGEL's species and copied his description but they gave the „aristis aequalibus calyce „*triplo minoribus*” in stead of „*triplo longioribus*”. They had not seen the plant and observed only: „In systemate Sprengelii ommissa et quoad collocationem valde ambigua”.

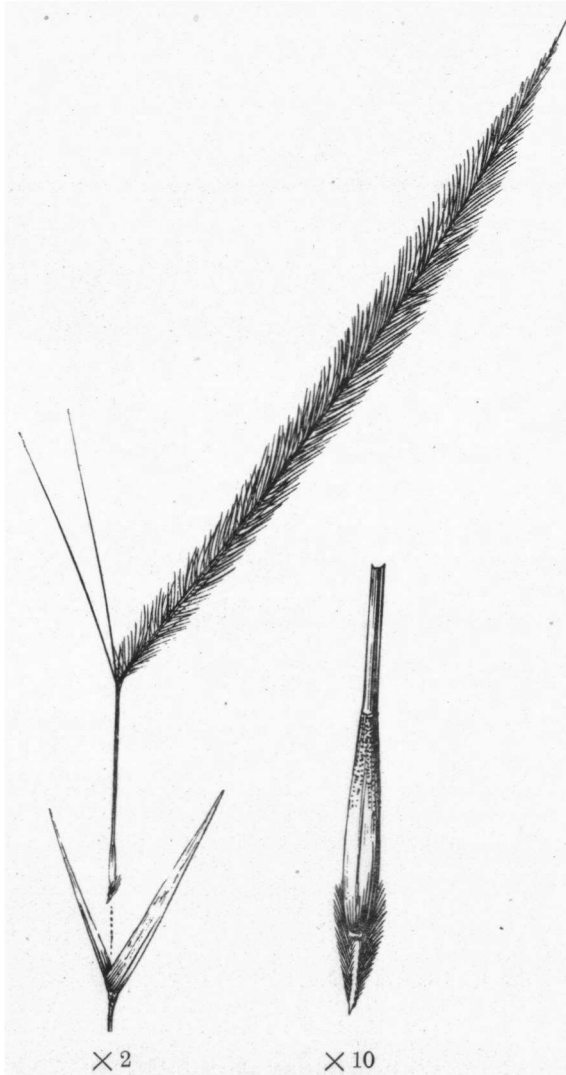
No specimen was found among the *Aristidas* of the Herbarium at Halle and at Berlin. Probably the type is lost, SPRENGEL omitted his own species in a latter work. The description given by him is too short to recognize the species; from the characters given, it may be that the plant he described as a new species, belongs to the common *A. adscensionis*, it is also possible that his plant was only a variety of the *A. coerulescens*.

***Aristida Raddiana* Savi.**

GAETANO SAVI; Descrizione di una specie di *Elaeagnus* e di varie altre piante, Modena nella tipografia Camerale [1836] p. 26!, estratto dal Memorie di Matematica e di Fisica della Societa Italiana delle Scienze residente in Modena, Tomo XXI Fisica, Modena [1837] p. 198!

Foliis convolutis recurvis rigidis ad faucem vaginae ciliatis, culmo pilosiusculo, panicula racemosa, valvis inaequalibus acuminatis, arista articulata tripartita, lacinia media majore unica plumosa apice nulla, calycis longitudinem quadruplam vix subaequante. Nobis.

The type bears a label: „Herbarium Horti Pisani” and the name in SAVI's handwriting: „Aristida Raddiana Savi, legit in Aegypto



ARISTIDA RADDIANA Savi.
From type specimen.

Jos. Raddi.” The species belongs to the section *Stipagrostis* and is characterized by the narrow, contracted panicle, densely tomentose lowermost internode, inverse position of the glumes and very long central awn, regularly plumose from the branching point of the awns, the acute tip scabrous. See my observations under *A. decorata* STEUD. on p. 134 and also the notes under *A. caloptila* BOISS. on p. 70 of this work. An allied species is *A. paradisea* EDGEW., see my observations on p. 423.

Aristida ramifera
Pilger.

ROB. PILGER; Gramineae africanae. VI, in ENGLER, Botanische Jahrbücher XXXIII. [1907] p. 599!

Perennis, culmi satis elati complures, erecti, e nodis saepe ramificati, ramis mox e vaginis

liberatis, basi foliis squamiformibus circumdatis, culmi vaginis quam internodia brevioribus magna pro parte nudi, glaberrimi, parum compressi; foliorum lamina angustissima, satis elongata, filiformi-involuta, erecta, pungenti-acuta, praeter marginem \pm scaberulam laevis, ligula brevissima truncata, brevissime dense ciliolulata, vagina glaberrima laevis, primo culmum arctius amplectens, demum latere

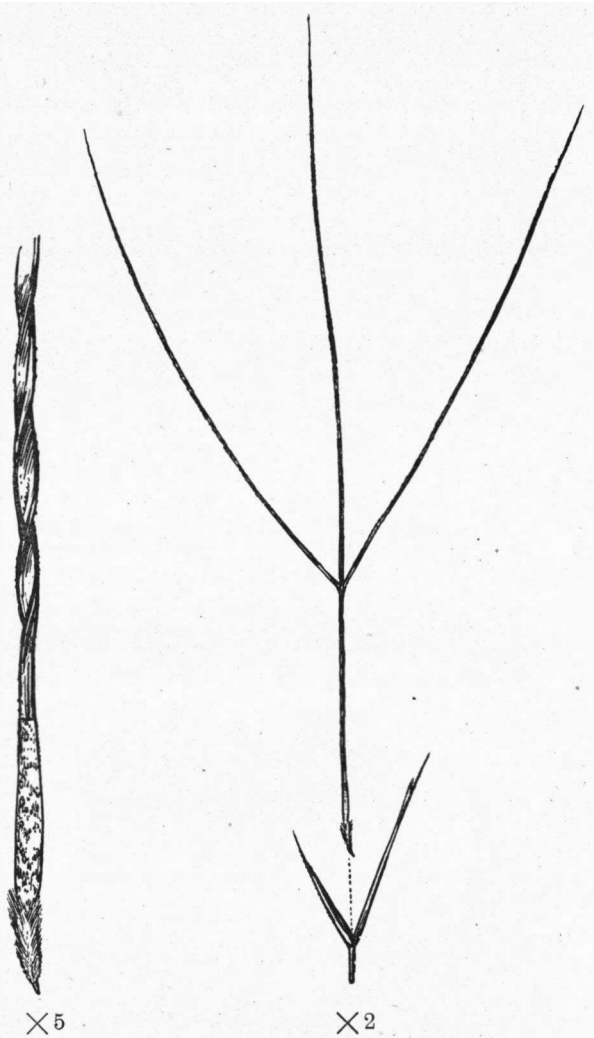
folio opposito latius aperta; panicula angusta, spiciformis, vis exserta vel basi inclusa, rami tenues distantes erecti, a basi parum divisi et spiculigeri; glumae vacuae angustae, inaequilongae, breviter subaristatae, ad carinam scabrae; arista cum gluma florifera facile articulata, infra ramos pluries torta, rami aristae subaequilongi, tenues, scaberulae; callus elongatus acutissimus, albo-sericeus.

Der Halm des starren Grases wird ca. 70—80 cm hoch, die einzelnen Internodien sind von ziemlich gleicher Länge; die Blattspreite ist bis 30 cm lang; die Rispe, die bei anliegenden Ästen sehr schmal, ährenförmig ist, ist 20—25 cm lang; die Hüllspelzen sind 7—10 und 12—15 mm lang; die Granne ist unterhalb der Verzweigungsstelle 1 cm ca. lang und löst sich leicht von der 0,5 cm langen Deckspelze ab, der Callus ist 2 mm lang, die zarten zuletzt ± ausspreizenden Äste der Granne sind ungefähr 4 cm lang.

Mossambik: Delagoa-Bay, im Gebüsch 100' ü. M. (SCHLECHTER n. 11966. — Blühend im Dezember 1896).

Eine gut charakterisierte Art der Sektion *Arthraterum*, die mit *Aristida Sieberiana* Trin. verwandt ist, aber unterschieden durch höheren Wuchs, durchgehend bedeutend kürzere, fast unbegrenzte Hüllspelzen, kürzere Grannenzweige, sowie durch kürzere, weniger straffe Behaarung des Callus.

The type in the Berlin Herbarium was received for study from Prof. PILGER. The species belongs to the section *Arthraterum* as



ARISTIDA RAMIFERA Pilger.

From type specimen.

already indicated by PILGER; in this section there is a group of species where the glumes are awned, the second one from a distinctly bifid apex. Among the species of this group, *A. ramifera* is most allied to the North African *Aristida longiflora* SCHUMACH., which extends from Southern Tunis and Senegambia to Togo, Kamerun and Damaraland. *Aristida ramifera* is limited to Eastern South Africa. Both species have glabrous smooth glumes and a column always shorter than 2 cm.. *Aristida longiflora* has a broad, long-awned lower glume, about 13 mm. long, including the 4 mm. long awn, the upper glume is deeply bifid, up to 17 mm. long including the 4 mm. long awn with well-developed lateral setae, 2½ mm. long, the lemma is about 10 mm. long and the awns are 4½—5 cm. long. In *A. ramifera* all the parts of the spikelets are much shorter, the lemma but 7 mm. long and the awns less than 4 cm. long. Compare my figure of *A. longiflora* on p. 308 of this Revision.

Aristida ramifera is also allied to *A. graciliflora* PILGER from the same region (Transvaal to Delagoa-Bay), which differs however in habit and vegetative characters, moreover in the very shortly bifid upper glume with a scarcely 1 mm. long awn from the sinus. *Aristida Sieberiana* is an endemic species from Palaestine, with an upper glume, pilose with long scattered white hairs.

***Aristida ramosa* Rob. Brown.**

· Prodrromus. Florae Novae Hollandiae et Insulae Van-Diemen, London, Vol. I. [1810] p. 173!

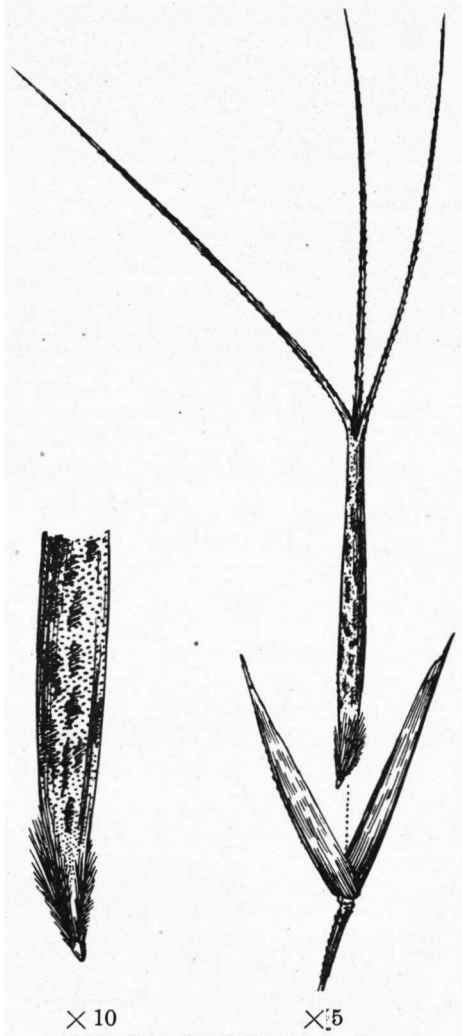
1. *Arista tripartita, cum valvula inarticulata.*

2. *A. ramosa, panicula subsimplici coarctata, glumis coloratis inaequalibus perianthio 1/3 brevioribus, aristis longitudine florum, culmo erecto ramoso. (J.) v. v.*

The type in the Kew Herbarium, is labeled: „R. Brown, Iter Australiense, no. 6199”, it was received for study from Dr. A. W. HILL. The sheet bears some specimens and different branches, lacking the bases.

On p. 73 I have already observed that it is difficult to distinguish *A. calycina* and *A. ramosa* by the length of the glumes and lemmas. In *A. ramosa* the glumes are about equal and 7 mm. long, the lemma is slightly longer, up to 9 mm. long. The awns are subequal, the lateral ones are 11 mm. long, the central one is 13 mm. long.

Aristida ramosa thus generally has shorter glumes and awns but longer lemmas than *A. calycina*. There are however other characters to distinguish *A. ramosa*. The habit is very distinct, the culms are branched from all the nodes, the rather short branches sometimes in fascicles, the sheaths below the branches are very short, slipping from the stems and they bear rather short stiff blades, the glumes are awned, the upper rather abruptly narrowed into the awn, (compare the different glume of *A. calycina* on p. 71). The callus of *A. ramosa* is acute-conical, long-hairy upwards, the hairs surpassing the base of the lemma, in *A. calycina*, the callus is not conical, shortly hairy upwards, the hairs not surpassing the base of the lemma, which is slightly constricted there (compare the figure on p. 71). In *A. ramosa* the lemma regularly passes into the awns and there is no pseudo-articulation. An articulation is always caused by a special tissue, this tissue is wanting in the species belonging to this group, although at first sight an articulation seems often to be present.



ARISTIDA RAMOSA Rob. Brown.
From type specimen.

***Aristida ramosa* Rob. Brown.**

var. *leptathiera* Benth.

GEORGE BENTHAM; *Flora australiensis*. London, Vol. VII. [1878] p. 563!

Description of A. ramosa R. Br. given by Bentham:

Very nearly allied to *A. calycina*, and almost intermediate between that and *A. vagans*. Panicle narrow, with erect or scarcely spreading

branches and the outer glumes as long as the flowering ones or nearly so as in *A. calycina*, but the spikelets much smaller, the glumes scarcely above 3 lines and the awns under $\frac{1}{2}$ in. long.

Queensland. Brisbane River, Moreton Bay, *F. Mueller, Bailey*; Rockhampton, *O'Shanesy*; Herbert's Creek, *Bowman*; Darling Downs, *Law*.

N. S. Wales. Port Jackson, *R. Brown*; Liverpool Plains, *A. Cunningham*; New England, *C. Stuart*; Clarence River, *Beckler*; also in *Leichhardt's* collection.

Var. ? *leptathera*. Panicle spreading, awns 1 in. long, but the spikelets of *A. ramosa*. — Dry-Beef Creek, *Leichhardt*.

Note: = *Aristida Leichhardtiana* Domin.

See DOMIN'S description and the observations under *A. Leichhardtiana* on p. 292—293 of this Revision.

***Aristida ramosa* Rob. Brown.**

var. *compacta* Benth.

GEORGE BENTHAM; *Flora australiensis*. London, Vol. VII. [1878] p. 563!

Var. *compacta*. Panicle short and dense. — Gracemere, *O'Shanesy*.

Note: = *Aristida caput-medusae* Domin.

The type is in the Kew Herbarium and consists of a long-peduncled panicle and a specimen, lacking the base. Because the specimen is much branched from all the nodes, BENTHAM probably placed it under *A. ramosa*, although the spikelets are quite different from that species. The glumes are unequal, the lower is 3—3 $\frac{1}{2}$ mm. long, the upper 4 $\frac{1}{2}$ —5 mm. long, the lemma is longer than the glumes, the keel is provided upwards with rather long spiny hairs, the body of the lemma is 5—6 mm. long, there is no articulation and the awns are about equal and 10 mm. long. In all these characters the spikelets agree with the figure given on p. 82 of this Revision and the habit and the shape of the panicle are the same as in the type of *Aristida caput-medusae* I could examine in the herbarium of Prof. K. DOMIN at Prague.

***Aristida ramosissima* Engelmann.**

GEORGE ENGELMANN, in ASA GRAY; *Manual of the Botany of the northern United States, including the district east of the Mississippi and North of North Carolina and Tennessee*, New York, Ed. V. [1867] p. 618!

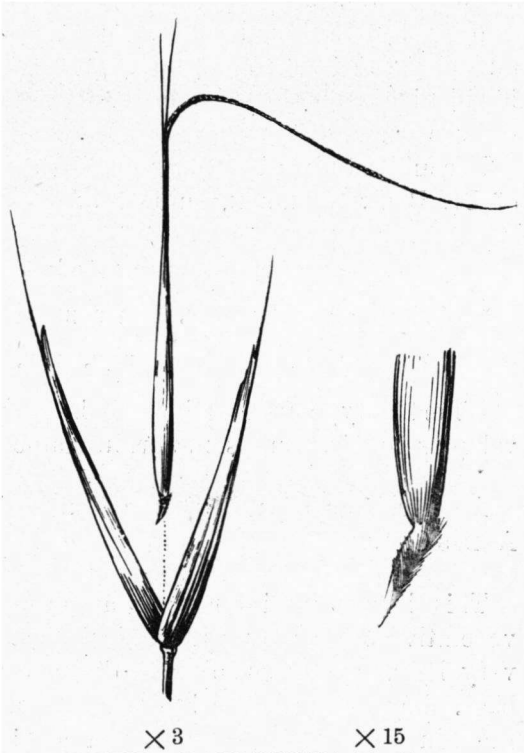
Awns separate to the base, not jointed with the palet, very unequal; the much shorter or minute lateral ones erect; the elongated middle one horizontal or turned downwards: glumes equal or the upper one longer: low (5'—18' high) and branching, mostly tufted annual. Spikelets few in loose simple spikes or racemes: glumes 3—5 nerved.

Culms diffusely much branched; glumes (9"—10" long) rather shorter than the flower; middle awn 1' long, soon abruptly hooked-recurved, the lateral ones hardly 2" long; ligule truncate, bearded. — Dry prairies of Illinois (*Engelmann, Vasey*) and Kentucky (*Michaux*).

— var. *uniaristata*, with lateral awns wanting. Odin, S. Illinois, *Vasey*.

The species was already described in the second edition of GRAY'S Manual in the year 1856 p. 550, a description I have not seen. The type in the Gray Herbarium is labeled: „Dry slopes, St. Clair Co, Illinois, Engelmann”.

The variety *uniaristata* A. GRAY, was described in the 5th edition in the year 1867. GRAY received the plant from VASEY. The species is very characteristic and well-known. On account of the var. *uniaristata* the species is not easy to place in one of the sections of the genus. The column is wanting, there is only a short beak and no articulation between lemma and awns. I have placed the species in the section *Chaetaria* as an anomalous species. Such species with so short lateral awns are rare in the section *Chaetaria* and the var. *uniaristata*, where the lateral awns are reduced to short points, is still more anomalous.



× 3 × 15
ARISTIDA RAMOSISSIMA Engelmann.
From type specimen.

In HITCHCOCK'S North American Species of *Aristida* we find a section *Uniseta* for the species with minute or wanting lateral awns. This name however was superfluous because there is already a name for this group, the section *Streptachne* established by DOMIN. See also my observations under *A. Purpusiana* in this Revision p. 486. Miss HUGHES was wrong in accepting ROB. BROWN'S *Streptachne* as a distinct genus, Prof. DOMIN'S opinion is correct and there is not a single character to separate *Streptachne* and *Aristida*, the lateral awns are wanting in the type of *Streptachne stipoides* but they are also totally wanting in the species described in the Nova Genera under *Streptachne*, species placed by HITCHCOCK in his section *Uniseta*. I will give afterwards in my work a more extensive discussion of the section *Streptachne*.

I could study the types of both plants, through the kindness of Dr. B. L. ROBINSON, curator of the Gray Herbarium.

***Aristida ramosissima* Engelm.**

var. *Chaseana* Henrard

nov. var.

Differt a typo praesertim aristis lateralibus bene evolutis, 10 mm. vel plus longis, glumis minoribus, apice profunde bifidis.

America borealis: Louisiana, Lake Charles, 10 Oct. 1907, leg. Mrs. AGNES CHASE, no. 4411. Typus in Herb. Lugd. Bat. sub no. 922.320—726.

This is a very interesting annual plant, agreeing in habit and vegetative characters with *A. ramosissima*, but the lateral awns are very long, nearly as long as the central one and contorted at the base, they are more or less spreading, the central awn is recurved, the glumes are much shorter than in typical *A. ramosissima*, the lower is 10—12 mm. long, the upper only 14—15 mm., they are moreover more deeply bifid than in *A. ramosissima*. The lemma is about half as long as in typical *A. ramosissima* and is scarcely more than 10 mm. long.

***Aristida Rangel* Pilger.**

ROB. PILGER; Gramineae africanae. XI, in ENGLER, Botanische Jahrbücher für Systematik etc. XLVIII. [27 Aug. 1912] p. 344!

Annua, valde humilis, culmi complures floriferi. Folia sub panicula 2 approximata, internodium infra folia illa magis elongatum, quam

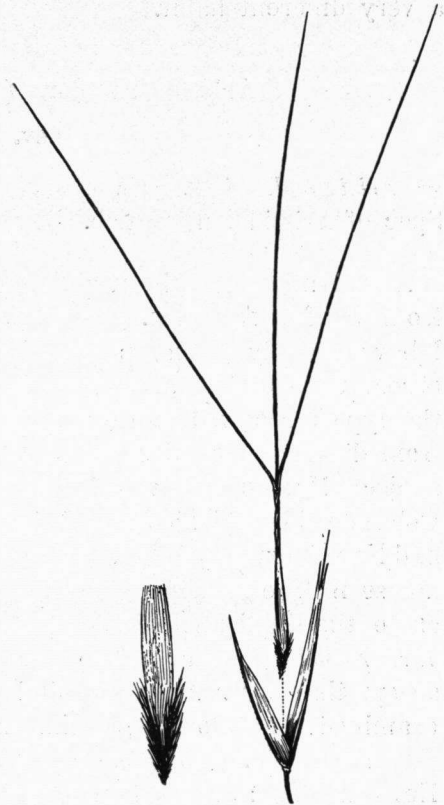
vagina a basi culmi surgens longius, folia superiora paniculam aequantia; foliorum lamina anguste linearis, patens vel patula, plicato-involuta, crasse sulcato-striata, parum scaberula intus breviter hirtula vagina latiuscula, sulcato-striata, laevis, ore barba albida longa circumdata, ligula corona pilorum longiore formata. Panicula basi vaginis circumdata, parva, densissima, ambitu ovalis, ramis abbreviatis; glumae vacuae satis inaequales (inferiore $\frac{2}{3}$ vel $\frac{3}{4}$ superioris aequante), anguste lanceolatae, e mediano bene conspicuo prominulo aristato-acutatae; gluma florifera callo acutiusculo parum albido-barbato instructa, aristae rami tenues, scabrae, subaequales, arista ad divisionem ipsam articulata.

Die Halme des niedrigen einjährigen Grases sind mit der Rispe 7—8 cm hoch, wovon die Hälfte ungefähr auf die Rispe kommt; unter der Rispe, sie am Grunde einhüllend, stehen 2 Blätter durch ein kurzes Internodium getrennt, dann folgt ein längeres Internodium bis zur Halmbasis, das von der Basis aufsteigenden Scheide nur teilweise gedeckt wird; am Grunde stehen dann noch ein bis mehrere Blätter am Halm, die Achselsprosse hervorbringen, die noch nicht zur Blüte gelangt sind; die Blattspreiten der unteren Halmsblätter sind 4 bis gegen 6 cm lang, die der oberen etwas kürzer, die Breite beträgt, wenn man die Blätter ausbreitet, ca. 2 mm; die Hüllspelzen sind 6—7 und 9—10 mm lang, die Deckspelze bis zur Teilungsstelle der Granne 7 mm, die Grannenäste 2 cm; die Granne wird direkt unter der Teilungsstelle abgegliedert, so dass häufig die einzelnen Grannenäste abfallen, doch ist die Gliederungsstelle deutlich und scharf umschrieben.

Deutsch-Südwestafrika, Grosz-Namaqualand: Kuibis auf Quarzitfelsen bei 1400 m ü. M. (RANGE n. 647. — Blühend im Mai 1909).

Aus der Verwandtschaft von *Aristida congesta* R. et Sch.

The type in the Berlin Herbarium was received for study from Prof. R. PILGER. Upon PILGER's authentic label, Prof. MEZ has written: = *Aristida congesta* R. et S., but this identification is



$\times 6\frac{2}{3}$ $\times 3\frac{1}{3}$
ARISTIDA RANGEI Pilger.

From type specimen.

certainly wrong. PILGER's species is very characteristic in habit and an annual. I have nothing to add to the very accurate description, especially in the German text, PILGER has given the remarkable characters of the species, which belongs to the section *Pseudarthratherum* CHIOVENDA. *Aristida congesta* is a perennial species with a very different habit.

***Aristida rariflora* (Hitchcock) Henrard**

nov. spec.

= *Aristida longiseta* STEUD. *subsp. rariflora* HITCHCOCK; The N. A. Spec. of *Aristida*, in Contrib. U. S. Nat. Herb. Vol. XXII. [1924] p. 565!

A fragment of the type of the subsp. *rariflora*, I received from Prof. HITCHCOCK. The characters to distinguish this plant I have already given on pag. 314 of this Revision. See also some observations under var. *robusta* on pag. 316. Since the time I studied the type I received more material from the U. S. Nat. Herbarium from different localities and I can give more information on this subject. HITCHCOCK gives the distribution of his subspecies as Texas, Colorado, New Mexico and Arizona. The few plants from Colorado and New Mexico (without locality!), mentioned by HITCHCOCK, I have not seen. The specimens collected by GRIFFITHS in Arizona belong as to the duplicates received from Prof. HITCHCOCK, to *A. longiseta* var. *robusta*. So far as to the specimens I saw hitherto, I must accept that *A. rariflora* is limited to Texas, from that region I examined the following specimens:

San Antonio, near Lake Mitchell. leg. HITCHCOCK, Amer. Gr. Nat. Herb. no. 779; San Antonio, HITCHCOCK, no. 5182; Sarita, HITCHCOCK, no. 5460; Austin, B. C. THARP, no. 4017; De Wit Co., B. C. THARP, no. 3316; San Antonio, E. R. BOGUSCH, no. 491; Austin, E. R. BOGUSCH, no. 494; Travis Co. Brackenridge Estate, E. R. BOGUSCH, no. 495; Tom Green County, May 1880, leg. F. TWEEDY, U. S. Nat. Herb. no. 745501 (type!)

***Aristida recta* Franchet.**

A. FRANCHET; Contributions à la Flore du Congo français. Famille des graminées. Bulletin de la Soc. d'Histoire naturelle d'Autun, Tom. VIII. [1896] p. 365!

Cespitosa, multiculmis, glabra; culmi dense aggregati, 20—50 cent.

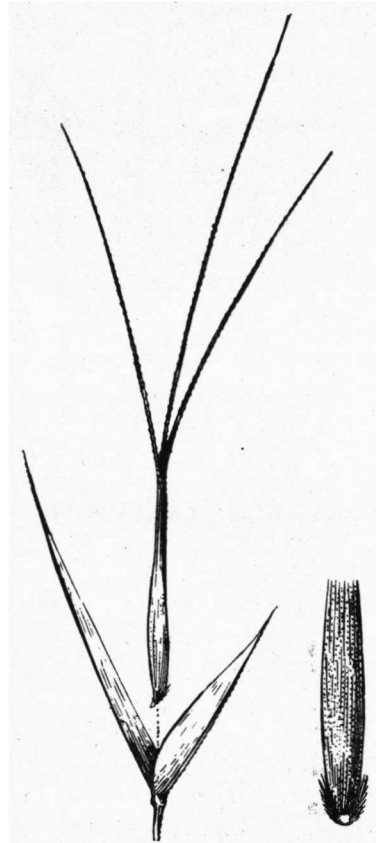
alti, basi vaginis aphyllis et subaphyllis cincti, graciles, leves, recti, inferne tantum foliati, superne longe nudi; vaginae ore barbatae; lamina filiformis subulata, dimidium culmi tantum attingens; racemi in paniculam brevem, 6—8 cent. longam, ovatam dispositi; rami tenues 4—5 semiverticillati, primum erecti, demum patentes; ramuli et pedicelli proprii capillares; gluma inferior rubro-violacea, lanceolata tenuiter cuspidata, 3 mm. longa; gluma superior anguste lanceolata, 5 mm. longa in setam tenuissimam longe attenuata; glumella inferior membranacea albida, obtusa gluma superiore paulo brevior; aristae inaequales, scabrae, lateralibus glumellas aequantibus, media duplo longiore, 8—10 mill. aequante.

Hab. — Congo, aux environs de Franceville (J. de Brazza et Thollon, n. 226).

Très élégante espèce, rappelant l'*A. delicatula* Hochst., mais plus robuste et formant des touffes serrées; feuilles plus fines et plus raides.

The type in the Herbarium of the Jardin des Plantes at Paris was received for study from Prof. H. LECOMTE. The sheet bears a printed label: „HERB. MUS. PARIS. Mission P. Savorgnan de Brazza. Afrique Occidentale (Congo et Ogdoué). Plantes recueillies par M. Jacques de Brazza.” and the data in ink: „Terres fortes et arides Franceville, nell ultima meta di Settembre e nei prima d'Ottobre 1883 no. 226.”

The name *Aristida recta* in FRANCHET'S handwriting. The species resembles somewhat the *A. delicatula* HOCHST. (= *A. Cumingiana* TRIN. et RUPR.) especially as to the shape of the panicle and the small spikelets, but it is an unbranched perennial species. FRANCHET'S species was not recognized by authors who had to identify the species and the same species was described by HACKEL, PILGER and DEWILDEMAN, as *A. atroviolacea*, *A. Gossweileri* and *A. Hockii*.



× 10 × 20
ARISTIDA RECTA Franchet.

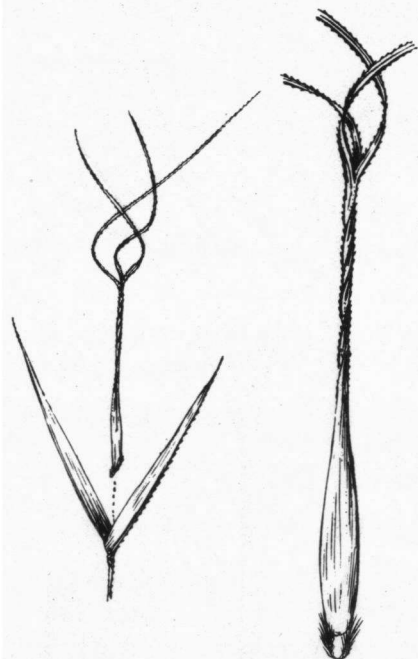
From type specimen.

Aristida recurvata H. B. K.

A. DE HUMBOLDT, A. BONPLAND et C. S. KUNTH; Nova Genera et Species Plantarum. Tom. I. [1815] p. 123!

A. culmo simplici; foliis convolutis, margine scabris; panicula ramosa, subverticillata, coarctata; glumis subaristatis; aristis subaequalibus.

Crescit in planitie Orinocensi, amoeno gramine tecta, prope Santo Thomas de la Angostura. 24 Floret Majo.



× 4 × 10
ARISTIDA RECURVATA H. B. K.

From type specimen.

RADIX fibrosa. CULMI caespitiosi, erecti, sesquipedales, simplices, glabri. NODI glabri. FOLIA convolutosetacea, rigida, striata, glabra, margine scabra. VAGINAE striatae, glabrae, valde approximatae, inferiores marcescentes et revolutae. PANICULA tripollicaris, ramosa, subverticillata, coarctata, ramis approximatis, abbreviatis, adpressis, rachique scabris. GLUMAE subaequales, paleam inferiorem superantes, lineari-subulatae, subaristatae, glabrae, dorso scabrae, purpurascens. PALEAE glabrae, basi pilis brevissimis cinctae, albidae, inaequales, inferior triaristata, aristis subaequalibus, glumam subaequantibus.

The type in the Paris Herbarium was studied through the courtesy of Prof. H. LECOMTE. It bears a small label: „Aristida recurvata.

hab. Angostura.” A second printed label: „Herb. MUS. PARIS. AMÉR. MÉRID. M. BONPLAND. 1833”, *) bears the data: *Aristida recurvata* Kth *Chaetaria* Röm. & Schult. In planitie Orinocensi. The dimensions of the spikelets are: gluma I. = 7½ mm. (awn ½ mm.), gluma II. = 8½ mm. (awn ½ mm.), both 1-nerved, callus very obtuse, 0.35 mm., glume III. as long as the densely twisted scabrous column, 3 mm. long, awns spirally curved at the base, the central ± 10 mm., the lateral ones ± 8 mm. long. In the Willdenow Herbarium there is a good specimen of this species, received from HUMBOLDT.

*) In the year 1833, the Bonpland Herbarium has been acquired by the Museum of the Jardin des Plantes at Paris.

The cover bears the number 1801 and a label with a diagnosis in WILLDENOW'S hand, reading: *Aristida recurvata*, panicula ramosa elongata, aristis recurvatis, foliis convolutis. Habitat in America meridionali. The sheet bears a well-developed specimen, there is no label but upon the sheet is written: „Humboldt. (W).” This duplicate type perfectly agrees with the specimen at Paris.

Aristida redacta Stapf.

Decades Kewenses. Plantarum Novarum in Herbario Horti Regii conservatarum. Kew Bulletin. London. [1892] p. 85!

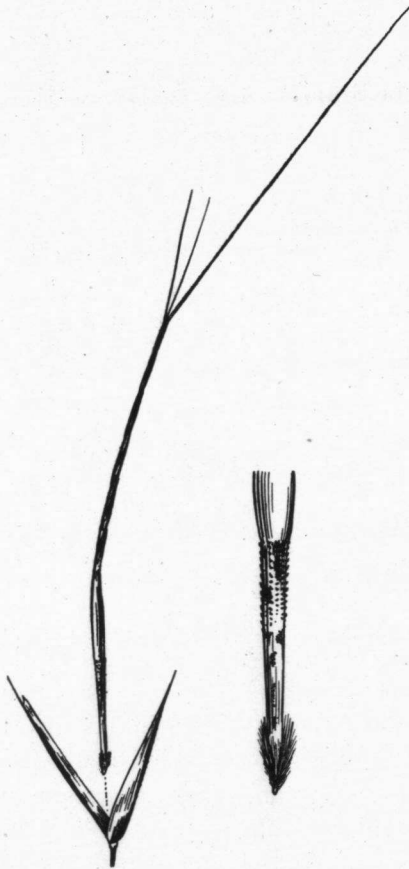
Gluma vacua inferiore plerumque sola persistente, florente parte inferiore ovarium fovente sub anthesi membranacea tubuloso-involuta demum chartacea, superne indurata subdilatata et sensim in aristam abeunte supra semen facile secedente sed non vere articulata, arista usque ad geniculationem contorta, hic setis brevibus vel brevissimis tenuibus aucta vel simplice.

Annua, interdum perennans et tunc robustior culmis inferne parce ramosis et laxius vaginatis, 1—2 ped. alta. *Folia* vaginis glabris, ligula angusta breviter denseque ciliata, lamina plus minusve setaceo-convoluta, culmorum ad $5\frac{1}{2}$ poll. longa, innovationum multo breviorum, sparse longeque pilosa supra et in marginibus asperula infra laevi. *Panicula* laxa, demum expansa, ad $9\frac{1}{2}$ poll. longa, ad $7\frac{1}{2}$ poll. lata, ramis plerumque geminatis remotis demum patulis, pedicellis inaequilongis, glumis semper brevioribus. *Glumae* vacuae subaequales anguste lanceolatae, subulato-acuminatae, breviter aristatae, 5—7 lin. longae; florens callo piloso insidens plerumque purpurascens cum arista 13—17 lin. longa. *Aristae* laterales setiformes, ut media scabriusculae $\frac{1}{3}$ — $1\frac{1}{2}$, rarius ad 3 lin. longae vel nullae. *Palea* hyalina, oblonga, obtusa vel erosa, enervis, ovario subaequilonga. Lodiculae 2, ovatae vel oblongae, 7—9 nerves, nervis tenuissimis. *Caryopsis* subcilindrica, teres, glaberrima.

Hab. — India from the Western Ghats to Eastern Chuttanagpur: Bombay Presidency, *Lisboa*, G. M. Woodrow; Central Provinces: Nagpur District, *Duthie*, 10,605; Bengal Presidency, Burdwan District, near Burrakur, C. B. Clarke, 21,115.

This species is very remarkable on account of the occasional complete suppression at the lateral awns and the imperfect articulation in the upper part of the flowering glume. Intermediary forms may be found from awns with lateral setae $1\frac{1}{2}$ — $2\frac{1}{2}$ lines long to awns without any. Such glumes are especially, if the articulation

is more distinct, exceedingly similar to those of certain *Stipas*, and I was indeed first inclined to regard the present plant as a *Stipa*. But as I said the articulation is imperfect, and, as far as my investigation goes, not caused by the forming of a special tissue within which the disarticulation takes place. The tender tissue of the lower part of



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

$\times 6\frac{2}{3}$

ARISTIDA REDACTA, Stapf.

From type specimen.

the glume passes more or less suddenly into a considerable thickening just above the ovary or the caryopsis, and here it is that the upper part with the awn comes off in a mature state, sometimes with a smooth sometimes with a rough margin. Besides, there are invariably only two lodicules, and the palea is also of the same character as in the allied species of *Aristida*, of which *A. funiculata*, Trin., is the nearest. There are a few Central American species of *Aristida* which are said to have reduced or entirely suppressed lateral awns. They were originally referred to *Streptachne* by Kunth (H. B. et K. Nov. Gen. et Sp., I. 124, t. 40) and to the section *Chaetaria* of *Aristida* by Bentham in the Gen. Plant. But as far as I can see from the material in the Kew Herbarium, the lateral awns are entirely absent in these specimens, and there is no trace of articulation, not even of the imperfect form as in *Aristida reducta*. This variation in the development of

the lateral awns shows once more the comparative inconstancy of one of the very few characters upon which the distinction between *Aristida* and *Stipa* is founded. On the other hand, it is a very remarkable fact that in India both genera inhabit almost separate areas, the *Stipas* belonging to the Himalaya, the Punjab and Sind, representing elements of the Mediterranean and Central Asian flora, whilst the *Aristidas* are mostly restricted to the Deccan Peninsula and Ceylon, and only a few of them reach the Punjab and the

upper Gangetic Plain, and only one is found in a limited part of the Himalaya.

Dr. STAFF has accurately studied this species. The lateral awns are mostly well-developed but always very thin and we have thus to place the species in the section *Streptachne* (see afterwards under *Aristida Streptachne* DOMIN). The species is allied to *Aristida abnormis* CHIOV.; both species are annual and in both, the body of the lemma consists of a fertile lower part and a sterile broader but thinner upper part, gradually passing into the twisted column, so that the upper part of the lemma is inflated. Both species have however striking differences in the characters of the lemmas, in *A. redacta* the fertile part of the lemma is narrow, very scabrous and tuberculate-hispid upwards, the sterile part is glabrous and breaks off very easily at maturity together with the column and the awns. There is however no articulation as already observed by Dr. STAFF and microscopically I could not find a trace of an articulation. The rupture is caused by the different texture of the indurate lower part and the papery or chartaceous sterile upper part, and the rupture we find, is always artificial.

In the allied species *A. abnormis*, the fertile part of the lemma is only slightly hairy upwards and not tuberculate, the sterile part not breaking off at maturity.

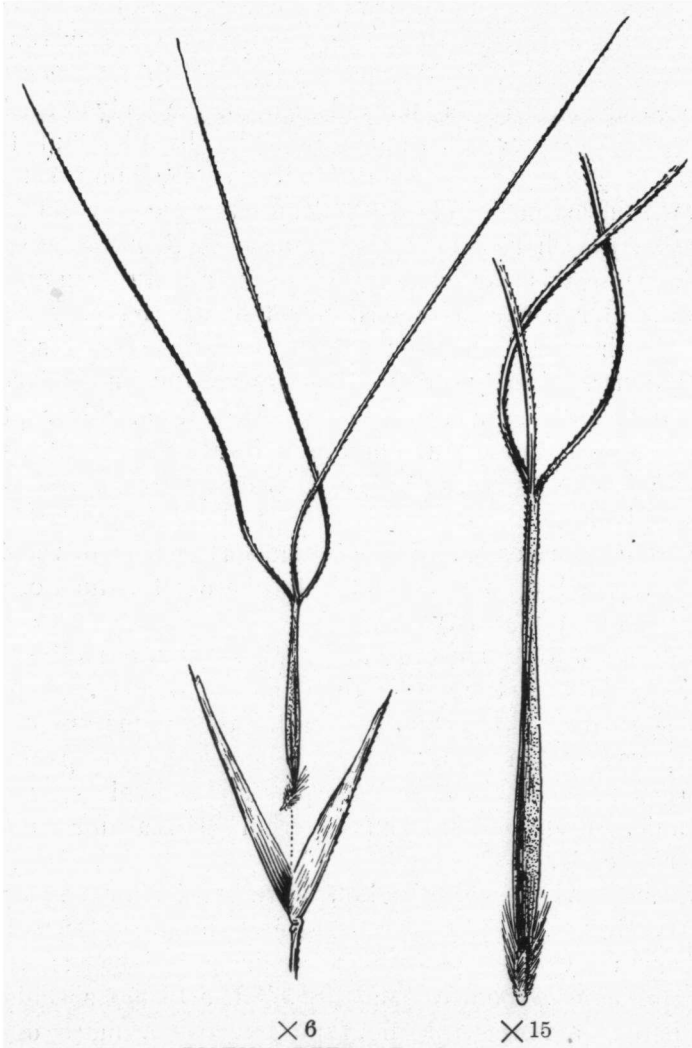
Aristida redacta has only a shortly pilose mouth of the sheaths and sparingly branched culms with a narrow panicle. *A. abnormis* has a long-bearded mouth of the sheaths, the culms are branched from the lower and most of the upper nodes and the panicles are more effuse and loose. *Aristida redacta* is an endemic species from British India, *A. abnormis* is known from Eritrea and Somaliland to Southern Persia.

The types in the Kew Herbarium were received for study from Dr. A. W. HILL, the Woodrow specimens numbered 19=124 are accepted as the type, there are two sheets both labeled: „Deccan, India. From G. M. Woodrow. May 1880". The Lisboa specimen was also studied, it agrees with the type but has a more open and effuse panicle.

Aristida refracta Grisebach.

A. GRISEBACH; Catalogus Plantarum Cubensium exhibens collectionem Wrightianam aliasque minores ex insula Cuba missas. Lipsiae [1866] p. 228!

Chaetaria, culmo gracili (vix 1' alto), foliis setaceo-filiformibus: ligula ciliata, panícula angusta interrupta: ramis solitariis v. geminis, glumis sterilibus mucronato-acuminatis, inferiori ad carinam scabra, superiori longiori (3''' longa) glumam fertilem paullo excedente,



ARISTIDA REFRACTA Grisebach.

From duplicate type specimen.

arista cum gluma continua tripartita: segmentis supra basin refractortortis subaequalibus florem 3—4plo superantibus (8''' longis). — Cuba occ. (Wright. 3431). E.

This species belongs to a group of *Aristidas* with convolute blades,

where the about equal awns are spirally contorted in the lower part at maturity. *Aristida gyrans* CHAPM. is very different on account of the long very slender callus ($1\frac{1}{2}$ mm.), the very unequal glumes, the upper narrower and very acute without lateral setae, both glumes nearly quite smooth on the keels. More allied are *A. brittonorum* HITCHC. and *A. rosei* HITCHC., the former only known from a single collection has also distinctly unequal glumes but the first one is not only scabrous on the keel but also on the back and both glumes are acute without lateral setae.

Aristida rosei and *A. refracta* are much allied, they both have less unequal glumes, in *A. rosei* the glumes are acute only and the keels are smooth, the lemma is smooth and glabrous throughout, only the obtuse callus is sparingly pilose. *Aristida refracta* differs in the lower glume having a scabrous keel, the upper one is bifid with an awn from the sinus (lateral setae well-developed), the keel of the lemma is scabrous and the callus has longer hairs and is more acute.

Aristida refracta is a densely caespitose perennial with numerous filiform innovations but in most of the old herbarium specimens there are no basal tufts of leaves because the bunches are divided too much for preparing herbarium specimens. Immature specimens have not yet the contorted base of the awns, if they are perfectly developed the contortion is very conspicuous.

The type is in the Grisebach Herbarium at Göttingen, duplicates of the type (Wright no. 3431) I saw in many European collections.

***Aristida repens* Trinius.**

C B TRINIUS; Graminum Genera, in Mémoires de l'Académie Impériale des Sciences de St. Petersburg. VI^me Série. Tome I. [1829] p. 87!

Panicula lineari-contracta; Glumis subbidentatis, inter dentes brevissime cuspidatis, subaequalibus, perianthio sesquilineali tertiam partem longioribus; Arista a basi divisa: laciniis aequalibus, ultratrilinealibus.

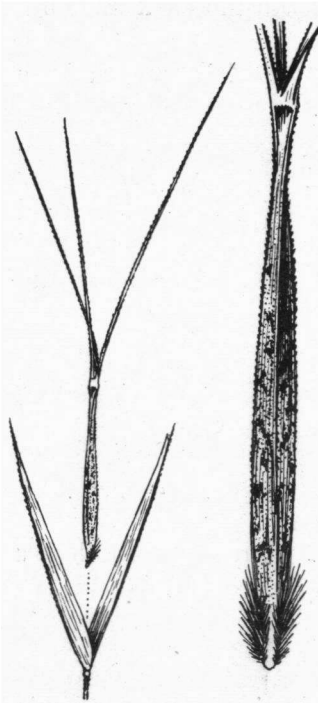
V. ssp. ex Ind. occ. ins. Gallapago.

Culmus prostratus, repens, per intervalla brevia emittens foliorum fasciculos et ramos floriferos, erectos, spithamaeos — Folia angusta, plana. Panicula digitalis, subracemiformis, lucida, pallens.

TRINIUS et RUPRECHT; Species Graminum Stipaceorum in Act. Academ. Imp. Sér. VI. Tome V. [1842] p. 128!

Paniculae 3—4 pollicaris, (junioris) basi vaginatae, contractiusculae, linearis, flexuosae, subsecundae radiis solitariis, erectis, a basi fere floriferis, inferioribus pollicem longis; glumis *obtusis l. erosis et breve mucronatis*, subaequalibus, bilinealibus; flosculo subglabro, apice cum arista *obscure articulato*; infra *articulum semel (?) torto, sesquilineali*; setis patentibus, subaequalibus, trilinealibus.

Insulae Gallopagonum. (Douglas!)



× 5
ARISTIDA REPENS Trinius.
From Albemarle Island.
Stewart no. 1209.

Culmus tenuis, prostratus, stolonifer, per intervalla pollicaria et minora e nodis radículas et foliorum fasciculos steriles aut culmos floriferos semipedales erectos emittens. *Vaginae* inferiores internodiis breviores, striatae, glabrae. *Ligulae* loco fasciculus pilorum. *Folia* linearia, angustissima, vix lineam dimidiam lata, plana, viridia, subtus glabra, supra densissime et minutissime pubescentia, superiora 4 pollicaria; inferiora breviora, omnia flaccida. Proxima A. setifoliae, sed hujus radix in omni statu fibrosa l. subrepens tantum et folia fere semper convoluta-setacea, nec supra tam dense setulis minutis exasperata.

In the Trinius Herbarium at the Academy of Leningrad there is a specimen labeled: „Aristida repens m. In Ins. Gallapago. Ind. occ. am. Prescottt. Galapago Douglass com. 1828”. TRINIUS gives „Douglas” as the collector in his publication of the year 1842. In the Trinius Herb. „Douglass” has been scratched out and replaced by: „Macrae leg.” in litt. correctit 1844. In TRINIUS’ own copy at the top of p. 128: „Douglas” is scratched and „Macrae” written in. The type is an immature decumbent and branching plant. Among the *Aristidas* of the Galapagos Islands received for study from Dr. B. L. ROBINSON, Director of the Gray Herb., I found good specimens from Iguana Cove, Albemarle Island, collected by STEWART and named *A. subspicata*.

Aristida repens is a very interesting species, the characteristic habit is already given in the description of TRINIUS. The lemma has only a short beak which is but very slightly twisted, and an articulation just below the branching point of the

awns, the species is placed therefore in the section *Pseudarthra-therum*.

Aristida repens differs from all the other Galapagos species of this section in the equal, about 5 mm. long glumes, which are mucronate or very shortly awned, in the other endemic species the glumes are provided with long awns and the upper glumes manifestly bifid with a well-developed awn from the sinus.

Aristida Reverchonii Vasey.

GEORGE VASEY; New American Grasses, in Bulletin of the Torrey Botanical Club. Vol. XIII. [1886] p. 52!

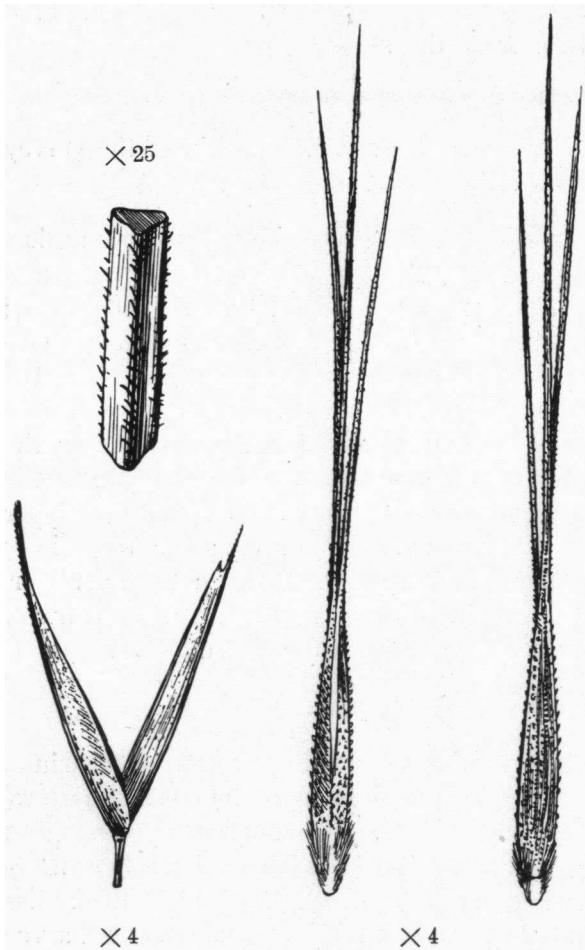
Culms slender, 1 to 2 feet high, unbranched, smooth; radical leaves 3 to 6 inches long, involute filiform, straight or curved; culm leaves about 3, rigid, erect, filiform and involute, 3 to 6 inches long; ligule a ciliate line; sheaths smooth, close, shorter than the internodes; panicle erect, spike-like, slender, 4 to 6 inches long; the branches appressed and sessile, single and alternate, the lower ones 1 to 1½ inches long, all closely flowered, and longer than the internodes; glumes narrow, acute, purplish, the lower 4 lines, the upper 5 to 5½ lines long; flowering glume as long as the upper empty glume, or slightly longer; awns about equal, 7 to 8 lines long, spreading. Differs from *A. purpurca*, Nutt., in the narrower, denser panicle, with sessile branches, smaller flowers and shorter awns. Collected by Reverchon on rocky hills in Crocket County, Texas.

Note: = *Aristida glauca* (Nees) Walpers.

The type, labeled in VASEY'S hand, is in the U. S. Nat Herbarium, it differs slightly from the type of *A. glauca* in the narrower, few-flowered, more interrupted panicles, somewhat larger spikelets and longer awns, about 2½ cm. long. *Aristida glauca* is rather intermediate between *A. Reverchonii* and *A. Nealleyi*, the latter has still smaller spikelets and shorter, about 1½ cm. long awns. I agree with Prof. A. S. HITCHCOCK, who accepted the two types of VASEY as slight varieties of the somewhat variable *A. glauca*, which is characterized by the very distinct, 5—6 mm. long, slender, more or less twisted column of the lemma; all the other members of the group of the „*purpureae*” have no trace of a column or sometimes only a very short beak. *Aristida glauca* is widely distributed from Texas to Southern Mexico and a rather common species. From Prof. HITCHCOCK I received abundant material to study this species, which is rather poorly represented in European collections.

Aristida rhiniochloa Hochstetter.

Ch. F. HOCHSTETTER; Plantas novas africanas proponit et describit in Flora oder Allgemeine Botanische Zeitung. Regensburg. Jahrg. XXXVIII. [1855] p. 200!



ARISTIDA RHINIOCHLOA Hochstetter.

From type specimen.

(Hb. abyss. Buch. nr. 1229.) Radice fibrosa, culmis circiter $1\frac{1}{2}$ -pedalibus scabridis, vaginis foliisque planis scaberrimis, illis ore piloso-barbato; panicula 5—6-pollicari, rhacheos scabrae nodis distantibus radios binos vel superne solitarios emittentibus, spiculis ad radium 3—5 scaberrimis, glumis subaequalibus, minutule scabris, inferiore cuspidata, superiore bifida cum setula ex divisione, flosculi stipite barbato, valvula inferiore subcoriacea convoluta demtis aristas glumas subaequante tota extus aculeolis in limae modum et lineatim exasperata, apice sine articulatione in aristas tres rigidas scaberrimas

erectas, quarum intermedia paulo major, divisa, superiore minima $\frac{1}{2}$ -lineali, ovario stipitato.

A very distinct and characteristic species, easily recognized by the curious characters given in HOCHSTETTER'S description. The lemmas are provided with longitudinal rows of aculeolate spines, the awns are very peculiar and triangular in cross-section with

concave sides, very scabrous along the margins (see the figure magnified 25 times). The type was collected by SCHIMPER and distributed as no. 1229 by BUCHINGER. It may be that the actual type was not among the specimens of the number 1229, I have studied in different herbaria. The species was omitted in the Index Kewensis.

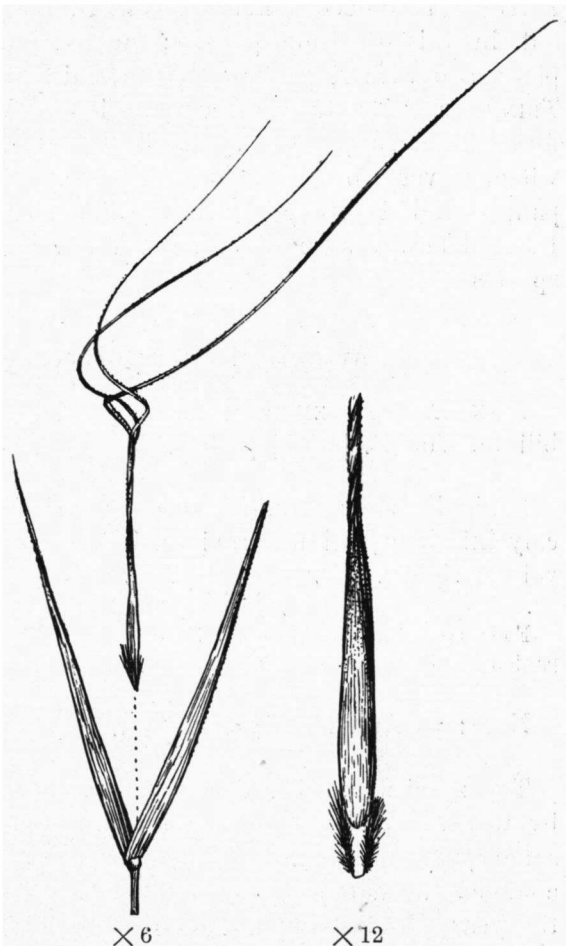
***Aristida Riedeliana* Trinius et Ruprecht.**

Species Graminum Stipaceorum. loc. cit. pag. 113!

Paniculae fere *pedalis*, *basi vaginatae*, *fasciculatae* radiis geminis ternisve, *elongatis*, *erecto-patentibus*, *basi nudis*, *superne floriferis*; glumis subaequalibus, apice attenuatis, acuminato-cuspidatis, sub 5 linealibus; flosculo glabro, nigromaculato, apice scabro, *vix torto*, $2\frac{1}{2}$ lineali; setis divaricato-patentibus, (junioribus erectis et vix) *basi recurvato-intortis*, *superne strictis vel parum arcuatis*: *media subquinquelineali* lateralibus quidpiam longiore.

In campis prope Ypanéma. Martio mense. (Riedel! in coll. Hort. Imp. Petrop. com. ab ill. Fischer et Meyer.)

Radix fibrosa, perennis? *Culmi* computata panicula ultrabipedales, stricte erecti, simplices, compressi; nodis omnibus obtectis. *Vaginae* glabrae, suprema paniculam jam explicatam basi amplectens. *Ligula* subnulla. *Folia* inferiora plana, lineam lata, glabrescentia, emarcida, superiora stricte erecta, satis rigida, filiformi-convoluta, $\frac{1}{4}$ lineae lata,



ARISTIDA RIEDELIANA Trinius et Ruprecht.

From type specimen.

fere pedem longa, etiam intus glabra et laevia. Valde affinis *A. Neesiana*, sed inflorescentia satis distincta; a simili *A. gibbosa* setis intortis et glumis longioribus, etiam culmis crassioribus, magis compressis recedit.

Note: = *Aristida recurvata* H. B. K.

The type is Riedel in the Trinius Herbarium at the Academy of Leningrad. A beautiful series was studied in the Herbarium of the Botanical Garden at Leningrad, kindly received from Prof. B. FEDTSCHENKO. Duplicates I found in most of the larger European Herbaria, distributed by the Herbarium of Leningrad. *Aristida Neesiana* is indeed different from *A. Riedeliana* as already pointed out in this Revision p 374; the Russian authors compared their plant also with *A. gibbosa*, also a quite distinct species. Although TRINIUS saw the true *A. recurvata* in the Willdenow Herbarium, he found Riedel's plant very striking, indeed it differs in the panicle, which is very long with long branches, whereas in *A. recurvata* the panicle and its branches are much shorter, in the spikelet characters I found however no differences. We must therefore unite the two species.

Aristida rigescens Roemer et Schultes.

JOAN JACOB ROEMER et JOS. AUGUST SCHULTES; *Systema Vegetabilium*. Vol. II. [1817] p. 400!

Paniculâ subcontractâ, corollae aristâ infra divisuram glumis calycinis inaequalibus brevior, culmo flexuoso ramoso, foliis convolutis rigidis. *A. rigida* Heyne Roth nov. plant. spec. Ms.

Folia convoluto-subteretia, striato-angulosa, glabra, margine argute serrulata; panicula palmaris et longior, vix e vagina summa egrediens. In *India orient.*

Note: = *Aristida Hystrix* L. f.

The species was based on a plant collected by HEYNE and named by ROTH, *Aristida rigida*, a manuscript name, which was published some years afterwards by ROTH (1821). ROEMER and SCHULTES changed the name on account of the homonym of CAVANILLES from the year 1799. The plant described and figured by CAVANILLES is a quite different species. HEYNE's plant is the same as *A. Hystrix*, published in the year 1781, see this revision pag. 251.

***Aristida rigida* Cavanilles.**

ANT. JOSEPHUS CAVANILLES; *Icones et Descriptiones Plantarum*, quae aut sponte in Hispania crescunt, aut in hortis hospitantur. Matritum, Vol. V. [1799] p. 44! Tab. 469. Fig. 2!

ARISTIDA panicula contracta; foliis rigidis subulatis, culmo parallelis: aristarum media duplo longiore.

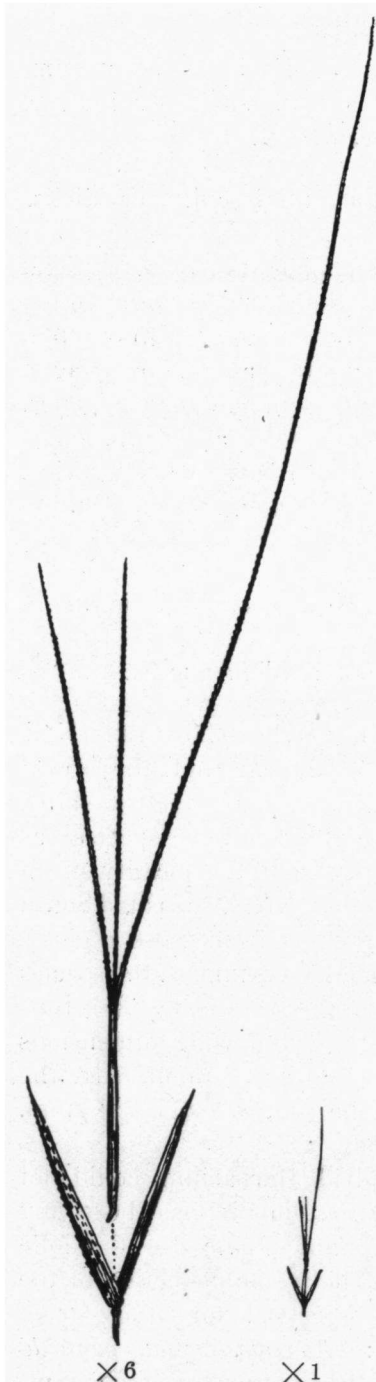
Culmus tripedalis, glaber, usque ad paniculam foliosus. Folia rigida, disticha, subulato-canaliculata, acumine subspinoso, culmo parallela, adproximata, tres quattuorve pollices longa, vagina excepta, quae pollicaris est et striata. Flores paniculati, panicula contracta, saepe semipedali: rami alternatim plures ex eodem puncto, inaequales, iterum ramosi, multiflori. Calicis valvulae violaceae, acutissimae, subaequales, sesquilineam longae. Corollae valvula calice brevior, terminata aristis tribus, intermedia duplo longiore. Reliqua ut in praecedentibus.

Habitat in insulis Philippicis floretque Novembri. Vidi siccam in eodem herbario.

Explic. tab. A Flos magnitudine naturali. B Idem auctus.

The species was described from a plant collected by LUIS NÉE, the botanist of the celebrated Spanish voyage around the world under the navigator MALASPINA, during the years 1789 to 1794. CAVANILLES gave the locality as the Philippines, but the species was never found there and it is for a certainty that the locality given in the publication is an error. We know that NÉE also visited South America and Panama and the plant was probably from those regions. From the description and the plate given by CAVANILLES, the species is a very distinct one. Fig. A. is the natural size and fig. B. is thus about 6 times magnified. We have thus the following dimensions of the spikelets: the glumes are about equal and 5 mm. long, the lemma is slightly shorter, $4\frac{1}{2}$ mm. long, the central awn is $22\frac{1}{2}$ mm. long and the lateral ones are 10 mm. long.

Prof. HITCHCOCK, who visited the Madrid Herbarium, could not find a specimen so-named by CAVANILLES, but it has been my good fortune to find an authentic specimen in the De Candolle Herbarium (Herb. Delessert) at Geneva. The whole collection of the genus *Aristida* in that herbarium was received for study from Dr. J. BRIQUET. The specimen is labeled: „*Aristida rigida. paniculâ contractâ; fol: rigidis subulatis, culmo parallelis; aristarum mediâ duplo longiore Cav: icon: 469. f. 2. Hab: in insulis Philippicis.*” DE CANDOLLE



ARISTIDA RIGIDA Cavanilles.
From duplicate type specimen.

received the plant from GAUDICHAUD, upon the label he has written: „Herb. Ch. Gaud. 1815.” The label is probably in CAVANILLES’S hand, the diagnosis on the label is exactly the same as given in the description. The specimen, although not the type, is the most authentic one we have at the moment, it agrees perfectly with the description and the plate. The specimen lacks the base, but the basal portions were also omitted by CAVANILLES. The glumes are equal, acute and shortly awned, the lower is distinctly pubescent on keel and back, the lemma has no column and the awns are very unequal, the central about twice as long as the 10 mm. long lateral ones.

I have not found in herbaria a single specimen I could refer to this plant and thus the locality still remains uncertain. The species resembles in habit the *A. sorzogonensis* PRESL, also erroneously described from the Philippines, but PRESL’S species differs in the narrower and slender glumes, twice as long as in *A. rigida*, *A. sorzogonensis* has moreover a distinctly twisted column and about equal awns.

In the section *Chaetaria*, *Aristida rigida* belongs to that group of species where the column is wanting. Because no basal portions of the plant are present, it is not known whether the species is annual or perennial, although it is probable that the species is perennial. Among the allied species we have to look for species with equal glumes and very unequal awns and thus we have to place *A. rigida* near *Aristida torta* KUNTH and *A. tinctoria* TRIN. et RUPR., both species have however a different shape of the panicle and much longer glumes.

A. torta has moreover a strongly curved semicircular central awn. See afterwards my figures and observations under *A. tincta* and *A. torta*.

***Aristida rigida* Roth.**

ALB. GUIL. ROTH; *Novae Plantarum Species praesertim Indiae orientalis ex collectione Doct. Benj. Heynii*. Halberstadt. [1821] p. 42!

A. panicula subcontracta, corollae arista infra divisuram glumis calycinis inaequalibus brevior, culmo flexuoso ramoso, cum foliis convolutis, rigido.

In collectione veneratiss. BENJ. HEYNE innominata aderat.

Culmus bipedalis, adscendens, teres, glaber, crassitie culmi secalini, ramosus articulatus, flexuosus, rigidus. *Nodi* glabri ad ramos valde incrassati. *Rami* alterni et oppositi, erecti, rigidi. *Folia* erecto-patentia, linearia, convuluto-subteretia, striato-angulosa, subulata, rigida, vaginis multo longiora, glabra, margine argute serrulata. *Vaginae* internodiis paulo breviores, glabrae, margine membranaceae, ad oras pilorum, barba densa cinctae. *Panicula* palmaris et longior, oblonga, subcontracta, vix plane e vagina summi foli egrediens, ramosa. *Rami* plerumque biflori, compressi, angulis oppositis, scabris. *Calyx* bivalvis. *Glumae* lineari-lanceolatae compressae, corollam arcte includentes, carinatae, costa dorsali aspera, terminatae in aristam sesquilinearem rectam, asperam, valde inaequales: *interiore* dimidio brevior. *Corollae Valvula* basi pilis brevissimis adpressis obvallata, linearis, terminata. *Arista* tripartita, recta, infra divisuram in calyce latitante, *aristis partialibus* erectis, scabriusculis; *duabus lateralibus* aequalibus, sesquiuncialibus; *intermedia* parum longiore, biunciali.

Observ. Proxime accedit haec species ad *Aristidam*, quam pro *stipoide* Cel. BROWN in Prodr. Flor. Nov. Holland. pag. 178. habeo. At in *A. stipoide* folia breviora, minus rigida minusque convoluta, supra pilis longis adspersa, et vaginarum barba longior et rarior observantur; *Panicula* simpliciore et *Calyce* subaequali longius aristato gaudet. *Corollae arista* porro infra divisuram calyce dimidio longior et torta est; *aristis partialibus* subaequalibus, patulis, fere triuncialibus.

Note: = *Aristida Hystrix* L. f.

HEYNE'S plants which come into consideration, I saw in different herbaria. They belong to two different species, *A. setacea* RETZ. and

A. Hystrix L. f. Although both species are easy to recognize, it is rather difficult to clear up the long, but insufficient description of ROTH. The Australian species, compared by ROTH is not at all allied. ROTH mentioned in his description some characters which belong to *A. Hystrix*, he described the bearded auricles of the sheaths. I have therefore identified his species with *A. Hystrix*. In *A. setacea* the auricles are not bearded. See also my observations under *A. rigescens*.

Aristida rigidiseta Pilger.

ROBERT PILGER; Gramineae africanae. XII, in ENGLER, Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie. Band CL. [1914] p. 413!

Annua, culmi complures floriferi fasciculati, erecti vel rarius inferne ± adscendentes et geniculati, hic illic florifero-ramosi, 2—3-nodi, satis elati, imprimis infra nodos scaberuli, pro parte nudi, parum vel longius apice exserti; foliorum lamina ± erecta, anguste linearis, sensim angustata, in sicco plerumque plicata, scabra, subtus nervis 5 prominentibus, albidulis instructa, vagina nervoso-striata, ore pilis longis albido-barbata, ligula corona pilorum albidorum formata; panícula satis elongata, laxiflora, angusta vel magis expansa, rami distantes, a basi ramulosi, parum divisi, erecti vel demum ± patentes et flexuosi; spiculae breviter pedicellatae, majores; glumae vacuae ± violaceo-variegatae, lanceolatae, scabrido-setulosae, subaequilongae vel inferior parum longior, inferior acutissima, superior breviter bidentata et inter dentes acutata, glumae semper basin aristae superantes; gluma florifera angusta scabra vel scabrido-setulosa, callo brevi albido-barbato instructa, apice sine articulatione in aristam rigidam tripartitam transiens, rami aristae subaequilongi, rigidi, scabro-setulosi.

Die ziemlich starren Halme sind bis 65 cm hoch, wobei die Rispe bis 27 cm an Länge erreicht; die schmalen Blattspreiten sind 13—25 cm lang; die Hüllspelzen, die in Länge an den einzelnen Ährchen recht variieren, sind 12—17 mm lang; die Deckspelze bis zum Teilungspunkt der Granne ist 11,5—13 mm lang, die Grannenäste 2,5—4,5 cm, wobei der Mittelast oft etwas länger als die Seitenäste ist.

Deutsch-Südwestafrika: Zwischen Okahandja und Otjisaru, auf Gneisboden (DINTER n. 2535! — März 1912); Okahandja, einzeln auf festem rotem Boden nicht sehr häufig (GROSSERT, coll. DINTER n. 1551); Omuramba und Omataka, Nordkalahari, Welle tiefen graubraunen Sandes, lichter Trockenwald (SEINER n. 691a. — März 1912).

Die neue Art ist mit *A. adscensionis* L. verwandt, ist aber schon leicht durch

die behaarte Scheidenmündung zu unterscheiden, sowie dadurch, dass die Teilungsstelle der Granne immer unterhalb der Hüllspelzenspitzen bleibt.

Note: = *Aristida rhiniochloa* Hochstetter.

Dinter 2535, the first specimen mentioned, in the Berlin Herbarium, labeled in Prof. PILGER'S handwriting, is accepted as the type. Upon the label the collector has written: „*sehr distincte Art*“, indeed, the species is very characteristic and easy to recognize. The type perfectly agrees with the characters of HOCHSTETTER'S *Aristida rhiniochloa*. See the characteristic figure of the spikelets on p. 510 of this Revision.

***Aristida riparia* Trinius.**

C. B. TRINIUS; Graminum Supplementa, in Mém. de l'Ac. Imp. d. sc. de St.-Pét. Tom. IV. [1836] p. 48!

Paniculae contractae radiis 2—4nis, plerisque a basi floriferis; Glumis acuminatis: inferiore, superiore paulo l. $\frac{1}{4}$ longiori, flosculo ad divisionem usque torto et (demum) 7-lineali circ. $\frac{1}{3}$ breviori; Setis patentibus, flosculo sesqui-longioribus: media paulo majori; Foliis plerumque convolutis, laevibus.

V. spp. Bras.

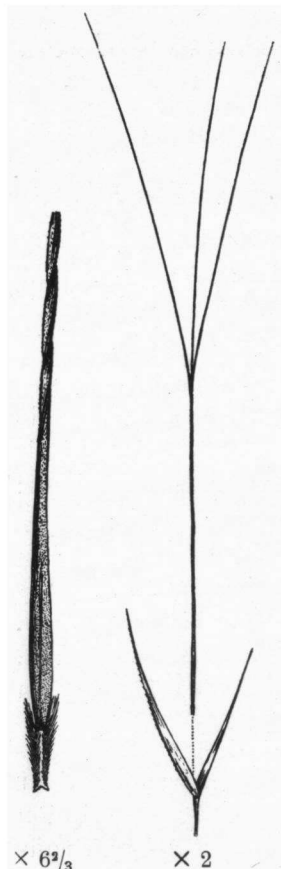
Culmus 2-pedalis, inferne erecto-ramosus. *Vaginae* glabrae. *Ligulae* juniores longo-ciliares, adultae tomentosae. *Folia*, ubi complanata, circiter lineam lata, inferiora pedalia. *Panicula* subsimplex, angustata, inferne subinterrupta, dodrantalis. *Glumae* 1-nerves. *Flosculi* in junioribus non nisi 4-lineales.

In the year 1842 TRINIUS and RUPRECHT have given in their Species Graminum Stipaceorum p. 125 a supplementary description of the species and they mentioned the type. Their description runs as follows:

Paniculae subseptempollicaris exsertae, contractae, linearis, fasciculiflorae, *interruptae* radiis pluribus l. solitariis ad basin usque divisis et densifloris, adpressis, brevibus; glumis parum inaequalibus, pallidis, apice attenuatis et cuspidatis, inferiore quidpiam longiore 5 lineali; flosculo apicem versus scabriusculo, in stipitem tortum attenuato, 6—7 lineali; setis erecto-patentibus, a basi jam strictis, media subpollicari lateralibus quidpiam longiore.

In arenosis ripae rivuli Jacaré pr. Parana. Decembri. (Riedel!)

Radix perennis, fibrosa. *Culmus* cum panicula bipedalis, inferne ramosus, nodis tumidis, fusco-nigricantibus. *Vaginae* glabrae, internodiis quidem longiores, sed nodos non obvolventes. *Ligulae* juniores longe ciliato-barbatae, adultae tomentosae. *Folia* pleraque convolutofiliformia, caulina interdum complanata, lineam lata, pedalia et longiora, glabra. *Panicula* pallens, luci obversa non solum inferne, sed et superne interrupta, e fasciculis 8—10 brevibus ovatis composita. Affinis *A. implexae*.



ARISTIDA RIPARIA
Trinius.

From type specimen.

This very characteristic species was a stumbling-block for nearly all the botanists who had to deal with it and even TRINIUS never observed the very striking character to recognize his species. As already observed in this Revision we have here the only American species of the genus with a so-called „bifid callus”. The species has moreover a very distinct inverse position of the glumes, which are narrow and awned.

In the first description the type was not indicated but this was done in the year 1842 by the Russian monographers. If we compare the different plants named by TRINIUS himself, *Aristida riparia*, we find that he formerly confounded two different plants, both were collected by RIEDEL „in arenosis ripae rivuli Jacaré prope Parana”. From the description given in the year 1836 we see however clearly that it belongs to RIEDEL’s plant with inverse position of the glumes and a long, twisted column. This specimen is therefore the type. A better description of this specimen was given in the year 1842, other specimens determined by TRINIUS as *A. riparia* (Riedel no. 1142, Dec. 1824) do not agree with the descriptions, we find these

specimens on p. 127 of the Species Graminum Stipaceorum under *Aristida setifolia arenaria*. TRINIUS, who was a very accurate observer, recognized these plants and identified them as *Aristida arenaria*, already described by him in the year 1826. The type of his *A. arenaria* was also collected by RIEDEL near Cuyaba and agrees with the plants from Jacaré in the Herb. of the Bot. Garden at Leningrad, named in his handwriting as *A. riparia*. These so-called *A. riparia*

specimens I could examine through the courtesy of Prof. B. FEDTSCHENKO. See afterwards my critical observations under *A. setifolia* var. *arenaria*, and *A. sabulosa*.

DOELL has given a figure of the true *A. riparia*, but the curious callus was overlooked and not mentioned in the description, the specimens named by him *A. riparia* belong but partly to that species. Since the year 1842 the type of *A. riparia* was not accurately studied and the different authors used DOELL's description and his plate. So it is to understand that the determinations of EKMAN, HACKEL and HITCHCOCK were not always a basis for the knowledge of this species and in the different herbaria *A. riparia* was nearly always a mixtum of different things.

Fortunately Prof. HITCHCOCK visited the Trinius Herbarium at the Academy of Leningrad, he saw the actual type and got permission to take a fragment, which I received from him for study. I had already found that there occurs in South America a curious species with a bifid callus, collected by BURCHELL (no. 8750) and accepted by me as a very distinct species. From Prof. HITCHCOCK's portion of the type, I immediately recognized BURCHELL's plant as the true *A. riparia* and by this discovery the species is now accurately established.

We cannot distinguish the different species belonging to the group of the „*ripariae*” without examining the spikelet-characters and the shape of the callus. *Aristida riparia* is a uniform species, only the length of the twisted column is somewhat variable, even in the same specimen, I therefore have given up attempts to describe varieties.

***Aristida riparia* Trinius.**

var. *oligospira* Hackel.

E. HACKEL ap. R. CHODAT et E. HASSLER; *Plantae Hasslerianae* in Bulletin de l'Herbier Boissier, Seconde Série, Tome IV. [1904] p. 277!

Differt a typo praesertim aristae stipite brevior (0,6—1 cm. in typo 2—3 cm. longo) gyris paucioribus (4—6 nec 10 v. pluribus) torto, aristae setis brevioribus (2 cm. nec 3—4 cm. longis), panicula densissima minime interrupta, foliis scabris.

Herba 1—1,5 m. In palude Tucanguà, Jan.; n. 3825; in campis in regione cursus superioris fluminis Apa, Dec., n. 8321.

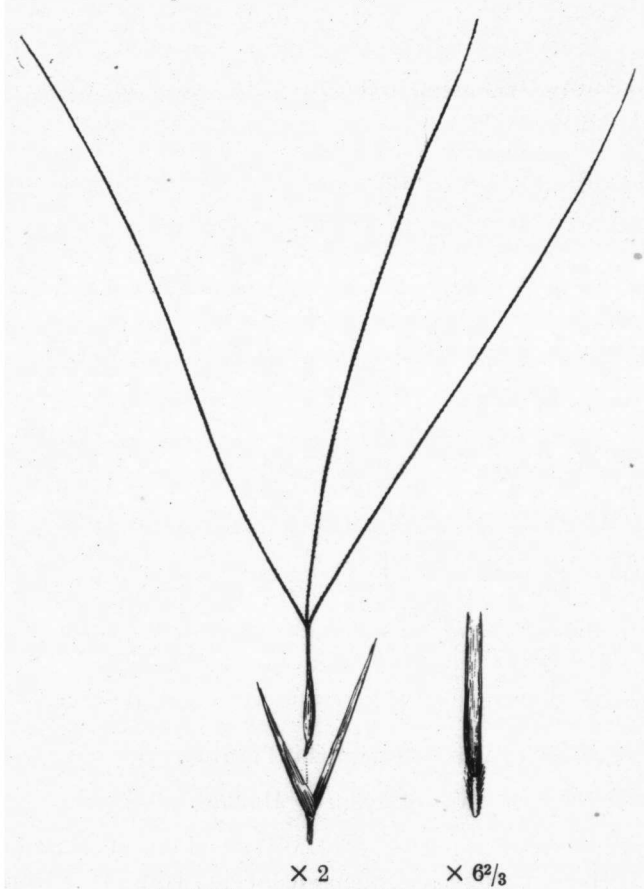
Note: = *Aristida oligospira* Henrard.

See my observations on p. 160 and the description of *A. oligospira* on p. 391 of this Revision.

Aristida Roemeriana Scheele.

ADOLF SCHEELE; Beiträge zur Flor von Texas, in *Linnaea* XXII.
[1849] p. 343—344!

Radix fibrosa caespitosa. Culmi glauci erecti graciles simplices



ARISTIDA ROEMERIANA Scheele.

From type specimen.

glabri superne trigoni. Folia convoluto-setacea glauca laevia scabra culmo breviora.

Panicula racemosa interrupta subsecunda flaccida, rami 1-flori, infimi bini, superiores solitarii, inferiores interdum biflori. Rachis glabra laevis filiformis, pedunculi capillares vix scabriusculi. Spiculae 1-florae. Glumae lineari-lanceolatae membranaceae purpurascens 1-nerves inaequales carina virides scabriusculae, inferior truncata v. apice breviter 2-dentata paleas aequans gluma superiori dimidia v. tertia parte brevior, superior bidentata paleas superans. Flosculus

(glumella) stipitatus subulatus glaber 4-lineatus gluma superiori brevior, stipes sericeus.

Arista tripartita haud articulata, rami subaequales patentes scabriusculi paleis triplo longiores.

Prope Neubraunfels leg. Römer.

The type I found in the Herbarium at Upsala, it consists of a single specimen with 3 culms, flexuous, rather short branches and rather small spikelets, it agrees in habit and in important characters with the types of *A. micrantha* and *A. muhlenbergioides*. See this Revision p. 348 and p. 360, where I have already compared the different types.

HITCHCOCK treated the species as a subspecies and accepted the name *Aristida purpurea micrantha* VASEY, but there are constant differences with *A. purpurea*, intermediate forms may be hybrids, sothat we cannot unite these species. The name *A. Roemeriana* has priority. From the U. S. Nat. Herbarium I received through the kindness of Prof. A. S. HITCHCOCK and Mrs. A. CHASE a very beautiful set of the species, which is rather easy to recognize.

As already explained on p. 361 the types of *A. muhlenbergioides*, *A. micrantha* and *A. Roemeriana* although perfectly agreeing in habit, are somewhat variable in the spikelet-characters, the different types are however connected by intermediate forms, sothat it is not advisable to distinguish varieties.

Aristida rosacea Mez.

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 151!

Perennis, gracillima. Vaginae culmi internodia subaequant, glabrae; ligulae breviter pilosae margine pilis nonnullis rectis barbatae; laminae tenuissime filiformes, supra ad basin parce longeque pilosae. Culmi glabri. Inflorescentia submultiflora, anguste 2—3-pinnatim panniculata, subspiciformis vel subpyramidata; ramulis usque ad 50 mm longis; pedicellis lateralibus usque ad 5 mm metientibus. Glumae 1-nerviae setula terminali manifesta apice bene auriculatae, inferior ad 11,5, superior ad 10,5 mm longa. Paleae unguis vix 0,5 mm longus, obtusiusculus, breviter pilosus; articulatio deest; rostrum manifestius nullum: setae nuda, media ad 33, laterales ad 27 mm longae. — Argentina, Sierra de Cordoba (Hieronymus).

Note: = *Aristida circinalis* Lindman.

The type in the Berlin Herbarium, was received for study from Prof. R. PILGER. It bears a printed label: „FLORA ARGENTINA. LEG. G. HIERONYMUS,” upon which is written: „367. Bei Tanti (ouchi) del Rosario; Sierra de Córdoba. 12. II. 1876.” This label bears the name *Aristida rosacea* n. sp. in the handwriting of MEZ. The specimen has the habit and the curled blades of *A. circinalis*, the panicles are shorter and more contracted, but the specimen is not complete and the longer culm is broken off. The spikelets agree in nearly all characters with those of the *A. circinalis*, they have acute, awned glumes with an inverse position, the lower somewhat longer than the upper, but they have lateral setae and the tip is thus bifid with an awn from the sinus. In this character they agree with HACKEL'S *Aristida leptochaeta*. See my observations under *A. leptochaeta* on p. 297 of this Revision. The character of the lateral setae of the glumes is however not very constant as already observed in this work under *Aristida misionum* MEZ on p. 351. The lemmas of *A. rosacea* have the same deeply furrowed ventral side and the awns are slightly contorted at base as in *A. circinalis*.

A second sheet in the Berlin Herbarium, also labeled by MEZ, was collected by Dr. P. G. LORENTZ, 15 Feb. 1876 no. 700 as *Aristida riparia* TR. at Palmar near Concordia, it agrees perfectly with the type in all the characters.

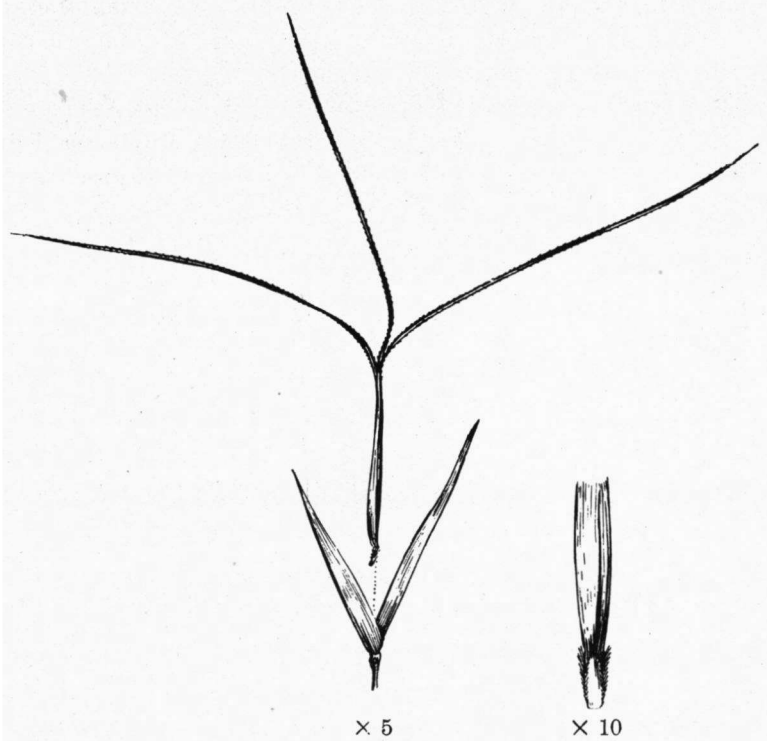
There is in the same herbarium also a sheet with a specimen collected by G. HIERONYMUS, entre San Rogue y San Antonio, Provincia de Córdoba. 1. XII. 1878, labeled by MEZ as *A. rosacea*, it differs from the two other specimens in the very unequal glumes, both awned with minute lateral setae, the lower glume about 15—16 mm. long, the upper about 10—11 mm. long, moreover in the longer lemmas with longer awns. This specimen belongs to *Aristida Spegazzinii* ARECH. var. *abbreviata* HACKEL and agrees with the type of HACKEL'S variety in the Vienna Herbarium.

***Aristida rosei* Hitchcock.**

A. S. HITCHCOCK; The North American species of *Aristida*, in Contributions from the United States National Herbarium. Vol. XXII. [1924] p. 584!

Plants perennial; culms cespitose, slender, wiry, glabrous, erect, or somewhat spreading at base, 30 to 50 cm. tall; sheaths glabrous, much shorter than the internodes, villous at the throat; ligule a very short ciliate membrane, less than 0.5 mm. long; blades involute, ascending or spreading, scabrous on the upper surface, glabrous

beneath, mostly less than 5 cm. long, sometimes as much as 10 cm. long; panicle narrow, rather lax, 5 to 15 cm. long, the branches and pedicels delicate, somewhat lax or flexuous, ascending or appressed, few-flowered, the lower distant; glumes unequal, 1-nerved, glabrous, even the keels scarcely scaberulous, the first about 5 mm. long, acuminate, the second 1 to 2 mm. longer than the first, acuminate and more or less mucronate; lemma about 6 mm. long, terete, glabrous, the callus rather sparingly short-pilose, 0.5 mm.



ARISTIDA ROSEI Hitchcock.

From type specimen.

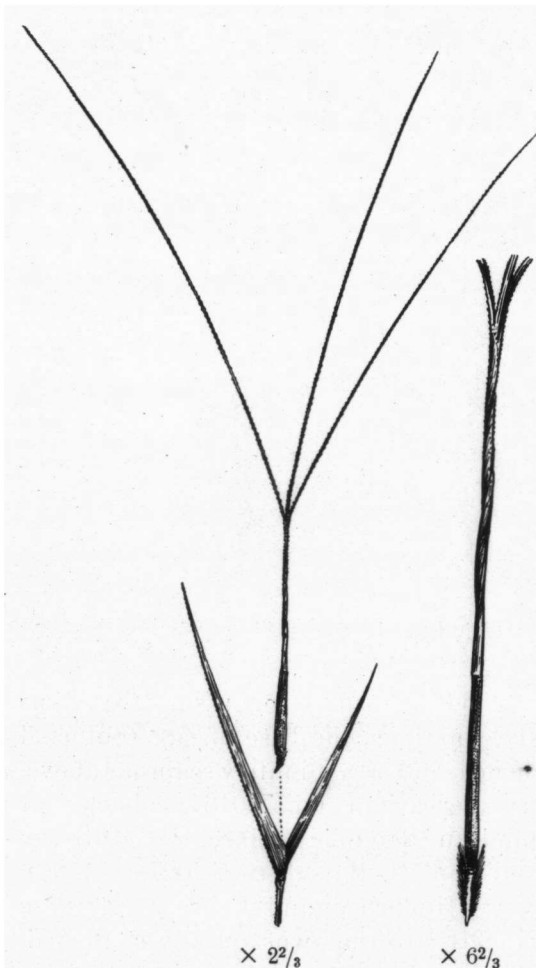
long, rather blunt, the beak about 0.5 mm. long, smooth; awns about equal, divergent, about 1 cm. long, the base of each contorted in a loose spiral, scarcely roughened, and only minutely scabrous above.

Type in the U. S. National Herbarium, no. 760164, collected at Azua, Santo Domingo [Dominican Republic], March 1, 1913, by J. N. Rose, Wm. R. Fitch, and Paul G. Russell (no. 4027).

This species was referred by Hitchcock and Chase to *Aristida gyrans* Chapm. which also has the base of the awns spirally contorted, but which has a much longer callus and a scaberulous beak. *Aristida rosei* is allied to *A. refracta*, from which it differs in the glabrous

first glume and glabrous summit of the lemma. The habit is different, there being no basal tuft of leaves, and the culms are more spreading. Further collections may connect the two species.

A fragment of the type in the U. S. Nat. Herbarium was received from Prof. HITCHCOCK. The species is not very characteristic, it differs from the allied *A. refracta*, especially in the quite smooth glumes and lemma, and in the different habit. *Aristida refracta* has a second glume, bifid at the apex, with an awn from the sinus. In *A. rosei* the second glume is acute and not awned. I have accepted the species as a valid one in my monograph.



ARISTIDA ROYLEANA Trinius et Ruprecht.
From duplicate type specimen.

**Aristida Royleana Trinius
et Ruprecht.**

Species Graminum Stipa-
ceorum, loc. cit. pag. 160!

Paniculae 3 pollicaris
contractae, linearis, *con-*
fertiflorae, basi *longissime*
exsertae radiis subgeminis:
altero brevioris subsessili,
paucifloro, altero pollicari,
patulo l. erecto, paullo
supra basin *multifloro*; glu-
mis *subaequalibus* (inferiore
parum brevioris l. longioris),
longe acuminato-subulatis,
semipollicaribus; flosculo
2—3 lineali, maculato, apice
asperulo, non torto, sed
cum stipite aristae deciduae
6—12 lineali contorto arti-
culatim conjuncto; setis
aequalibus, patentibus, 1—
1 $\frac{1}{2}$, pollicaribus.

Chaetaria murina N. E. !
in Royle Hb. Ind. mont
India orientalis sup.
(Royle.)

Radix repens? *Culmi*
8—11 pollicares, inferne

ramosi et ad nodos geniculati, pallentes ut tota planta. *Vaginae* paucae, infimae internodiis longiores, e subsequentibus panicula ad interstitium 4—6 pollicare exserta *Ligula* brevissime ciliolata. *Folia* pollicem longa et breviora, planiuscula, lineam dimidiam lata, erecta. Proxima *A. funiculatae*.

Placed by HOOKER in Fl. Brit. India, Vol. VII. p. 227, as a variety under *Aristida funiculata*; it is however a distinct species. Belonging to the section *Arthratherum*, it is an annual species of the group of the „*funiculatae*”, with inverse position of the glumes. The true *A. funiculata* does not occur in British India. The Indian specimens placed by HOOKER under *A. funiculata* differ constantly from the typical *A. funiculata* in the characters of the spikelets; the plants were described by EDGEWORTH as *Aristida mallica*, which is a very distinct variety or probably a subspecies of *A. funiculata*. See the observations already given on p. 329 of this Revision under *A. mallica*.

Aristida Royleana is distinguished in the group of the *funiculatae* by the less unequal glumes, the short column, only 5—10 mm. long, the very scabrous branches and branchlets, lacking the long white hairs in the axils and on the pedicels (a character of *A. funiculata*!) and the shorter awns, about 2,5 cm. long.

***Aristida rufescens* Steudel.**

E. G. STEUDEL; Synopsis Plantarum Glumacearum. [1854] *) p. 421!

Culmo erecto rigido stricto glabro simplici (cum panicula 1—2-pedali et ultra); vaginis arctis striatis inferioribus hirto-pilosis, superioribus apice pilosis caeterum glabris; ligula pilorum series; foliis inferioribus basi plus minus planis mox cum superioribus canaliculato-convolutis rigidis vel flexuosis acuminatis glabris (4—8-pollicaribus); panicula recta contracta (subpedali, rufescenti-straminea); radiorum fasciculis inaequilongis subalternis erectis striatis; glumis anguste lanceolatis inaequalibus setaceo-acuminatis 2 et 3''' longis, flosculum subaequantibus, hoc tenuissimo apice cum aristae stipite non torto, setis

*) STEUDEL'S Synopsis Plantarum Glumacearum bears a titlepage with the year 1855. This work was however in reality published in the year 1854, not as a whole volume, but in parts. The first part, p. 1—80 was issued in the month of January. See SCHLECHTENDAL, in Bot. Zeitung, XII. no. 4. (27 Jan. 1854), where a critical review of the first part is given.

erecto-patentibus parum inaequalibus 7—9'' longis. *Boivin* legit in Ins. Nossibé et Maynote.

The type in the Paris Herbarium was received for study from Prof. H. LECOMTE. Duplicates in some other Herbaria, a beautiful

series also in the Vienna Herbarium. The species has villous sheaths and is allied to *Aristida multicaulis* BAKER from Madagascar, which differs in the longer and narrower panicle, in the different shape of the callus, in the twisted well-developed column and in the unequal awns. Compare my figure of the spikelet of *A. multicaulis* on p. 362 of this Revision.

Aristida sabulicola Pilger.

Gramineae africanae. VII, in Engler, Botanische Jahrbücher XL. [1908] p. 81!

Perennis, culmi validi, e nodis crebre, saepe fasciculato-ramosi, foliis et ramis stricte erectis; foliorum lamina rigida, stricte erecta, elongata, angusta, crassa, tereti-involuta, extus glabra, intus pilosula, pungenti-acuta, vagina glabra, arcte amplexens, ligula corona densa pilorum brevium; panícula a foliis superata, angusta, spiciformis, densa, ramis brevibus, a basi ramulosis



× 12

× 5

ARISTIDA RUFESCENS Steudel.

From type specimen.

et spiculigeris; glumae vacuae membranaceae, glabrae, acutae, inferior parum brevior; gluma florifera glabra, callus satis elongatus, acutissimus, breviter albido-barbatus, arista cum gluma articulata, infra ramos brevissima, rami divaricantes brevissimi aequales, sparse plumosi, glumas vacuas vix excedentes.

Das kräftige Gras ist dünenbewohnend und demgemäß im vegetativen Aufbau solchen Sandgräsern entsprechend; man sieht an den Exemplaren teilweise nackte Internodien, deren umhüllende Scheiden ganz verschwunden sind; an den Knoten

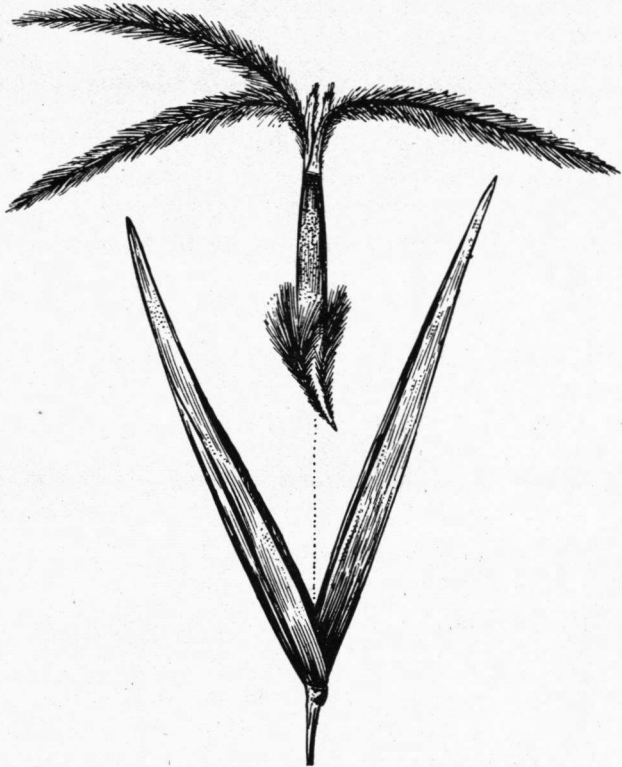
brechen Büschel von kurzen mit Blütenständen abschließenden Zweigen hervor, die von der Scheide umhüllt waren, die nun allmählich obliteriert und die Zweige frei werden lässt. Daneben treten höhere Halme auf, deren Scheiden noch den Halm fest umhüllen, so dass die in ihnen entstehenden Zweige mit langen Blättern fest dem Halm angepreszt sind; die oberen Blätter überragen immer die Blütenstände, ihre starren, aufrechten fast drehrunden Spreiten sind 25—40 cm lang, erreichen auch wohl noch eine grössere Länge, da die längeren in den Exemplaren nicht vollständig erhalten sind; die schmale ährenförmige Rispe ist 10—30 cm lang; die Hüllspelzen sind 8—9 und 9—11 mm lang; der Callus der Deckspelze ist 1,5 mm lang, die Deckspelze bis zur Abbruchstelle 2,5 mm, der Fusz der Granne bis zur Verzweigungsstelle ist kaum 1 mm lang, die Äste der Granne sind ziemlich gleichlang oder der mittlere etwas länger, 7—9 mm.

Südwestafrika: Dünen bei Roebank hinter Walfischbai (Dr. SCHULTZE n. 379. — Blühend im April 1905!); Dünen am Kuisib (Dr. GÜRICH n. 119 und 122).

Die charakteristische neue Art zeigt besonders im Bau des Ährchens und der Granne Verwandtschaft mit *A. pungens* Desf.

The type of this very characteristic species in the Berlin Herbarium, was received through the kindness of

Prof. ROB PILGER. In the vegetative characters it much resembles other grasses from the sandy coast regions and downs; the panicle, dense and spike-like, resembles the panicle of an *Ammophila*, especially when the flowers are fallen, the blades are very long and overtop the panicle. The spikelets are very characteristic and unique in the whole genus. The glumes are about equal and much longer than the lemmas, which are articulated without a column with the



× 6

ARISTIDA SABULICOLA Pilger.

From type specimen.

feathery awns, the branching point of the awns is produced into two hairy appendages, bearing at the subobtuse tip a pencil of hairs. This very curious character is not mentioned in the description, which is for the rest very accurate.

***Aristida sabulosa* Kunth.**

CARL SIGISMUND KUNTH; *Agrostographia Synoptica*. Tom. I. [1833] p. 196!

= *Aristida arenaria* TRIN. Diss. II. [1826] p. 25! et Act. Petrop. [1829] p. 87! non GAUDICHAUD in FREYC. Itin. bot. [1826] p. 407!

Panicula contracta, sublineari; glumis acutiusculis; inferiore tertiam partem brevior, perianthium ultrabilineale subaequante; arista paulo supra basim divisa; laciniis subaequalibus, 7—8-linealibus. TRIN.

Note: = *Aristida setifolia* H. B. K. var. *arenaria* Trin. et Rupr.

KUNTH changed the name of *Aristida arenaria* on account of GAUDICHAUD's name, given in the same year, he copied the description of TRINIUS from the year 1829. See this Revision p. 37. The type of *Aristida arenaria* TRIN. was collected by RIEDEL in arenosis lapidosis prope Cuyaba. In the year 1842 the Russian monographers recognized the affinity with *Aristida setifolia* and placed their species as a variety under *A. setifolia*.

The variety differs from the typical *A. setifolia*, as described in the *Nova Genera*, in the strictly erect and more contracted panicle and in the longer glumes, lemmas and awns.

***Aristida sahelica* Trabut.**

L. TRABUT; *Additions à la flore d'Algérie* (Graminées, Cypéracées, Joncées), in *Bulletin de la Société Botanique de France*, Vol. XXXIV. [1887] p. 392!

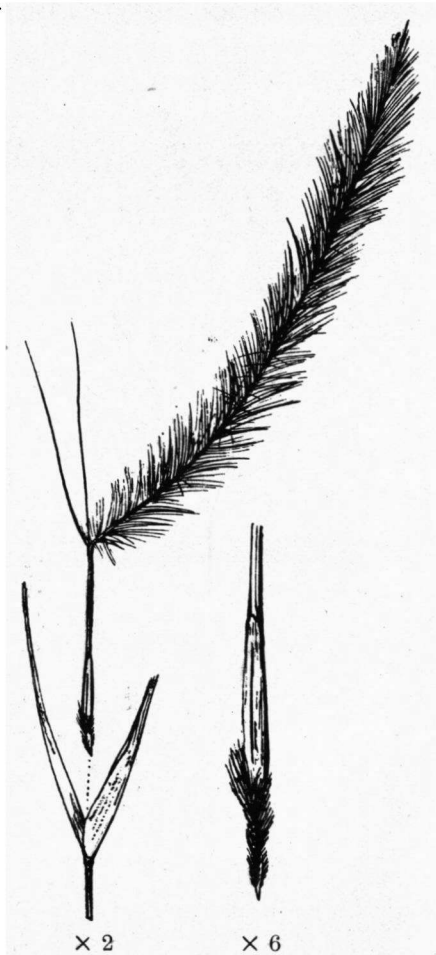
A. caespitosa, caulibus floriferis pluribus, cauliculis sterilibus elongatis. Caulibus basi ramosis ascendentibus internodiis inferioribus scabris; foliis rigidis arcuato-patulis vel flexuosis, convolutis, apice subulatis, laevibus, *vaginis* internodiis brevioribus *glabris*, marginibus scabris, ligula obsoleta ad barbulam brevem annularem redacta; paniculis strictis angustis racemiformibus; glumis inaequalibus, inf. 10 millim., apice acuminato-truncata, sup. 18 millim. involucone

subulata. Flore longiuscule stipitato, glumella inf. 4—5 millim. laevigata, glabra immediatim apice cum arista articulata, callo dense sericeo-piloso, glumellae inferioris dimidiam partem subaequante; aristae parte indivisa 6 millim. longa recta glabra, *lacinia media a basi patule plumosa* 40 millim. longa, laciniis lateralibus tenuiter capillaribus nudis 15 millim. longis. Caryopsi oblongo-fusiforimi 4 millim. long, usque ad apicem macula hilari notato. — Fl. jun. jul.

HAB. In alluviis *oued Sahel* ad Adjiba, Maillot, ubi copiose crescit, ab amico et socio Battandier primo immatura lecta maio ineunte 1887. (Battandier et Trabut, *Plantes d'Algérie*, no 295.)

Cette espèce se place près de l'*Aristida plumosa* L., mais en diffère par les glumes et glumelles plus grandes, la soie moyenne recouverte jusqu' à la base de poils soyeux épars et non distiques comme les barbes d'une plume, le caryopse deux fois plus volumineux, moins obtus supérieurement. L'épiderme est aussi fort différent, les stomates sont remarquables par leur situation dans une dépression bordée de quatre petits tubercules saillants.

The species described by TRABUT was edited by him in *exsiccatae* under the number 295. The species is very characteristic and not closely allied to *A. plumosa* as supposed by TRABUT. It has perfectly glabrous internodes and a very different central awn, plumose from the branching point of the awns, the hairs are very long and spreading, the tip of the central awn is acute in outline and slightly exserted. Compare the figure of the spikelet given here.

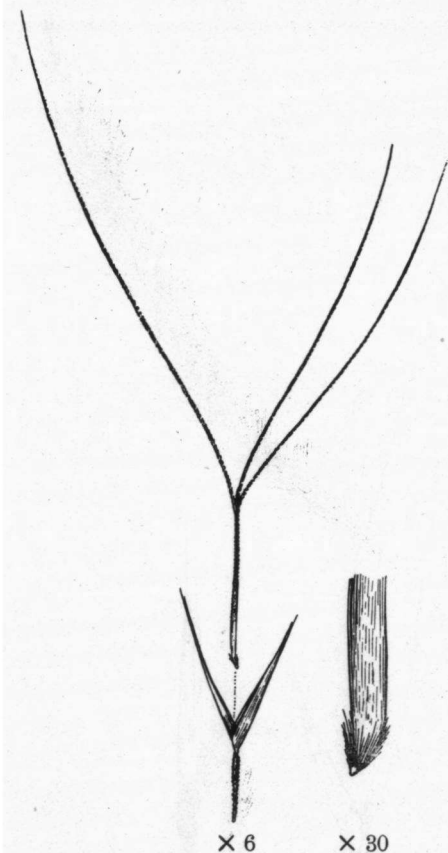


ARISTIDA SAHELICA Trabut.
From type specimen.

Aristida Sanctae Luciae Trinius.

C. B. TRINIUS; De Graminibus paniceis. Dissertatio botanica altera. Petropol. [1826] p. 25!

Panicula subpatula; Glumis bidentatis brevisetigeris: superiore $\frac{1}{3}$ -longiore perianthium aequante; setis valvula fere triplo longioribus (semipollicaribus): media paulo majori.



ARISTIDA SANCTAE LUCIAE Trinius.

From type specimen.

V. spp. Brasil. — Ab *Arist. adscensionis* differt glumis, floribus minoribus, perianthio superne hispido. — An *Arist. bromoides* Kunth?

C. B. TRINIUS; Mémoires de L'Acad. Imp. de St. Pet. VI^{me} série T. I. [1829] p. 83!

Panicula subpatula; Glumis bidentatis, brevisetigeris: superiore tertiam partem longiori, perianthium bilineale aequante; Aristae laciniis valvula fere triplo longioribus: media paulo longiori.

V. spp. Brasil. An *Arist. bromoides* Kunth?

Palmaris-spithamaea. Folia brevia, falcata. Panicula sesquipollicaris, strictiuscula, purpurascens.

C. B. TRINIUS; Species graminum iconibus et descriptionibus illustravit. Petrop. Vol. III. [1832] pl. 315!

Descriptio: RADIX e caespitis basi fibrae plures, tenues, fasciculatae, flexuosae, simpliciusculae. CULMI erecti, digitales — spithamaei, pertenues et subfiliformes, compressiusculi, laeves, ad nodos (2—3, glabros) subaequi, simplices, tandem sub panícula pl. min. longe nudi. VAGINAE totae fissae, laxiusculae, inferiores internodio laminaeque

breviores, compressae, striatae, glabrae, plerumque purpurascens, utrinque ad *LIGULAM* brevissimam, obsolete fimbriatam obtuse et brevi-auriculatae. *FOLIA* perangusto-linearum, acuta, subinvolutocompressa, striata, glabra, glaucescens-viridia: fasciculorum et radicalia pl. min. incurva cum culmeis inferioribus erectis pollicaria vel sesquipollicaria; culmeum supremum paulo brevius. *PANICULA* erecta, saepe subsecunda, contractiuscula, multiflora, sesqui-bi-pollicaris, e purpureo viridique varia. *Axis communis* tenuissimis, subaequus, subangulatus, laeviusculus, pluriparus: *radiis* subbinis, inferne adpressis, fere capillaribus, subangulatis: inferioribus pl. min. longe supra basin-, superioribus a basi divisus et floriferis. *PEDICELLI* subspicula paulo incrassati, laeviusculi. *SPICULAE* angustissimae, suberectae, cum setis circiter lineas 7 longae. *GLUMAE* membranaceae, lanceolato-lineares, uninerves, compressiusculae, glabrae, purpureae, apice brevissime et angustissime bidentatae, inter dentes munitae setula brevi, scabra: *inferior* perianthio glumaque superiori tertiam partem brevior; *superior* perianthium aequans. *PERIANTHIUM* chartaceum, stipiti brevi, conico, barbato insidens, cylindraceum, angustissimum, viride: *Valvula inferior* involuta, expansa linearis, trinervis, ad setas usque lineas fere duas longa, a medio superne scabra, apice divisa in setas 3, tenuissimas, divergentes, scabras, ipsa fere triplo longiores: dorsali lateralibus parum longiori. *Valvula superior* perparva, lanceolato-oblonga, concava. *LODICULAE* squamarum non nisi duas distinxi, minutas, valvulae superiori oppositas, lineari-lanceolatas. *GENITALIA* non vidi. *SEMEN* angustissimum, cylindricum.

FIGURA AD SPECIMEN BRASILIANUM.

C. B. TRINIUS et F. J. RUPRECHT; *Species Graminum Stipaceorum* loc. cit. [1842] p. 111!

Semipedalis et humilior; paniculae oblongae $1\frac{1}{2}$ —2 pollicaris, *confertiflorae* radiis 3—4-nis, tenuissimis, adpressis, plurifloris; glumis *erectis, subaequalibus*, flosculum cum stipite aristae *semel* tortum sesquilinealem aequantibus; setis divaricato-patentibus, intermedia 4 lineali, lateralibus paulo brevioribus.

Brasilia (Martius hb. Fl. Bras. n. 850!): in declivibus prope St. Luzia et in collibus pr. Saborá. (Riedel!) Octobr. ☉.

The type, in the Trinius Herbarium, was collected by RIEDEL. In the year 1826 TRINIUS already indicated a distinct character of the

species. The glumes are bifid with an awn from the sinus. A longer description was given by him together with a plate in the *Icones*.

In HITCHCOCK'S North American species of *Aristida*, the species was placed under *A. capillacea* LAM., and he gives the type as Martius 850. Although this is the first specimen mentioned in the year 1842, it is not the type, because the first description in the year 1826 was taken from RIEDEL'S plants, collected in declivibus prope Santa Luzia. Duplicates of Martius 850 and Riedel's specimens are present in many European collections.

The species described by TRINIUS is different from, but allied to *A. capillacea*. *Aristida capillacea* has acute glumes without lateral setae, the lower glume is slightly hairy towards the tip and about 2 mm. long, the upper glume is 3 mm. long, and the awns are about equal, 5 and 6 mm. long. *A. capillacea* is widely distributed from Mexico to Venezuela and from Guiana to Bolivia and Brazil. Besides the characters given above, *A. Sanctae Luciae* has moreover longer glumes; the lower, glabrous throughout, is 3 mm. long or slightly longer, the upper 4 mm. long and the awns are very unequal, the central one 12 mm., the lateral ones about 9 mm. long. The species is limited to Brazil, it has generally a different habit on account of the narrow, contracted panicle with the strictly erect branches.

Aristida scabra (H. B. K.) Kunth.

CHARLES SIGISMOND KUNTH; Révision des Graminées publiées dans les *Nova Genera et Species Plantarum* de Humboldt et Bonpland, Paris. [1829] Tom. I. p. 62!

= *Streptachne scabra* H. B. K., *Nova Genera et Species Plantarum*. Tom. I. [1815] p. 124! Tab. XL.

S. panicula subsimplici, diffusa, ramis ternis, rhachique scabris.

Crescit in frigidis, montanis regni Mexicani juxta Toluca et Islahuaca, altit. 1340 hexap. ♀ Floret Septembri.

CULMUS erectus, bi- aut tripedalis, simplex, teres, scabriusculus. FOLIA linearia, sicca convoluta, striata, externe margineque scabra, interne pilosiuscula. VAGINAE striatae, glabrae. LIGULA brevissima, fimbriato-ciliata. PANICULA subsimplex, subbipedalis, diffusa, ramis ternis, triquetris, patentibus, angulis scabris. RHACHIS triquetra, scabra. SPICULAE (fig. 2.) uniflorae. GLUMAE (fig. 4. — fig. 5. gluma

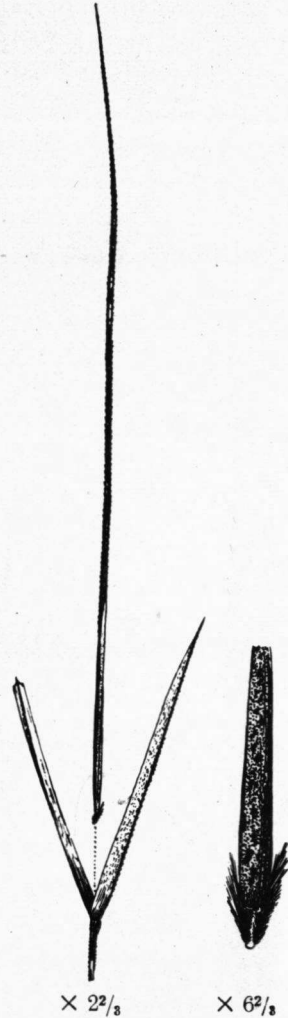
inferior. fig. 6. *gluma superior*.) lineares, acutae, carinatae, membranaceae, brevissime aristatae, glabrae, dorso scabrae, purpurascens, subaequales. PALEAE (fig. 1. *paleae convolutae*. fig. 2. *evolutae cum partibus fructificationis*.) duae, inferior lineari-subulata, longissime aristata, convoluta, coriacea, scabra, purpurascens, superior minima, glabra, tenuissime membranacea, mutica. STIGMATA tria. ANTHERAE lineares. STIGMATA penicilli-formia.

Differt a sequente*), cui valde affinis: statura majore, foliis scabrioribus, vaginis glabris, nec ciliatis, ramis paniculae et glumis scabris, nec pilis sparsis obsitis.

Note: = *Aristida ternipes* Cavanilles.

The type in the Herbarium at Paris, received for study from Prof. H. LECOMTE, bears a printed label: „Herbier de l'Amérique équatoriale, donné par M. A. BONPLAND,” upon which is written: „Toluca, Islahuaca Novo hispanio”, an accompanying small label bears the name *Streptachne pilosa* scabra. ! in frigid. Toluca. The name „*pilosa*” is erased. The specimens are well-developed and have the following spikelet-characters: the glumes are narrow, the lower scabrous on the keel and on the back, shortly awned, longer than the upper one and about 16 mm. long, the upper glume is glabrous with a smooth keel, mucronate and shortly bifid at the apex, about 13 mm. long, the lemma is narrow, slightly scabrous upward, about 10—11 mm. long and passes regularly into the straight, very scabrous, slightly twisted, 13—14 mm. long column, which bears a single, straight, 17—18 mm. long awn, the lateral awns are wanting or indicated only as very small rudiments.

Prof. HITCHCOCK has identified the species, generally known as



× $2\frac{2}{3}$ × $6\frac{2}{3}$
ARISTIDA SCABRA
(H. B. K.) Kunth.
From type specimen.

*) i.e. *Streptachne pilosa* H. B. K. (= *Aristida jorullensis* KUNTH).

A. scabra KUNTH, with the *Aristida ternipes*, described by CAVANILLES. The description agrees rather well with KUNTH's plants, but CAVANILLES gives the lower glume as the shorter one and describes the lemma with 3 awns, the lateral ones short. In *A. scabra*, short lateral awns are not rarely observed and HITCHCOCK's opinion is so convincing, that I had to accept his identification. See afterwards under *A. ternipes*.

***Aristida scabrivalvis* Hackel.**

ED. HACKEL, ap. HANS SCHINZ; Beiträge zur Kenntnis der Afrikanischen Flora in Bull. de l'Herb. Boissier, 2me série, Tom. VI. [1906] p. 708!



× 10
ARISTIDA SCABRIVALVIS
Hackel.

From type specimen.

(Sect. Chaetaria.) Annuæ. Culmi ascendentes, graciles, 20—30 cm (sine panicula) longi, teretes, glaberrimi, circ. 3-nodes, e nodis 1—2 inferioribus, raro ex omnibus, ramosi. Vaginae arctae v. laxiusculae, inferiores saepe a culmo solutae, teretiusculae, glabrae, scaberulae; ligulae brevissimae, in cilia solutae. Laminae lineares, sensim acutatae, 6—16 cm lg., 15—25 mm lt., virides, rigidulae, subtus glaberrimae, superne scabro-puberulae margine scabrae, crassinerves. Panicula terminalis 16—30 cm lg. (culmo parum brevior), laterales minores, late ovata, patens, laxiflora, rhachi ramisque scabris tenui-filiformibus, subflexuosis, his binis elongatis, inferioribus dimidiam paniculam aequantibus vel superantibus, in $\frac{1}{3}$ inferiore indivisis, superne ramulos secundarios paucos basi nudos superne iterum ramulosos procreantibus, ramulis tertianis 1—2-spiculatis in apice ramorum plus minus confertis, subterminalibus brevissime pedicellatis. Spiculae lineares, 6—7 mm lg., purpurascentes. Glumae steriles lineari-lanceolatae, obtusiusculae, carina serrulato-scaberrimae, in lateribus scabrae, I. circ. 5 mm lg. ex apice integro aristulam 2 mm longam exserens, II. 7 mm lg., apice bilobulato breviter

mucronata. Gluma fertilis linearis, tubulosa, 6 mm lg., dorso praesertim in $\frac{1}{2}$ superiore aculeolis scaberrima, callo vix 1 mm longo breviter barbata, griseo-viridula saepe violaceo- vel nigromaculata, apice haud articulata neque torta, aristis patulis, media 12—15 mm longa lateralibus parum longior. Palea minuta. Antherae 1,5 mm longae.

Transvaalkolonie: in arenosis prope Makapans-Poort (1600 m) leg. Schlechter n. 4689 ann. 1894; in graminosis prope Pienaarsrivier-Brug (1430 m) Schlecht. n. 4217 ann. 1894.

In der Form der Rispe und im Bau der Aehrchen verwandt mit *A. bipartita* Tr. Rupr.; diese aber besitzt ein Rhizom, kurze, am Grunde des Halms gehäufte Blätter, einen unverzweigten Halm; ihre Hüllspelzen sind auf dem Kiele glatt, ebenso die Deckspelze oder sie ist höchstens mit sehr feinen Rauigkeiten versehen; ihre Grannen sind kürzer.

The types in HACKEL'S hand I saw in the Zürich Herbarium through the kindness of Prof. H. SCHINZ, duplicates also in HACKEL'S own herbarium at Vienna. A beautiful annual species, easily recognized by the very scabrous lemmas and the curious tips of the glumes, characters demonstrated in my figure. The species agrees in habit with the annual *A. effusa* HENRARD, which has longer lemmas, scabrous only on the keel and acute unawned glumes without lateral setae. *Aristida effusa* is known only from Damaraland. Here we find a third allied species in grassy plains near Grootfontein, See afterwards under *A. Waibeliana* HENRARD.

Aristida Schaeferi Mez.

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 152!

Perennis, subpulvinatim caespitosa, semimetralis. Vaginae foliorum rosulae dorso dense albo-lanatae; culminae quam internodia multo breviores, non nisi obscure pilosulae; ligulae breviter pilosae; laminae recurvae, crassiuscule subulatae, in valleculis pilosulae. Culmi cum nodis glaberrimi. Inflorescentia submultiflora, 2-pinnatim panniculata, subthyrsoidea; ramulis usque ad 80 mm longis subfiliformibus; pedicellis gracillimis, spiculas subaequantibus. Glumae ellipticae apice anguste rotundatae nec ciliolatae, 3-nerviae, inferior ad 10, superior ad 11 mm longa. Paleae unguis ad 2 mm longus; articulatio in $\frac{3}{4}$ paleae longit. posita; rostrum nullum; seta media ad 35 mm longa in parte inferiore glabra tunc breviter alutaceo-plumosa;

laterales nudae, ad 19 mm longae. — Südwest-Afrika, bei Pomona (Schäfer).

The type in the Berlin Herbarium, bears the collector's label: Pomona auf gneis, 10. 1913. no. 549, and the determination *Aristida Schaeferi* n. spec. Typus! by Prof. MEZ. Upon the sheet is written by PILGER in lead-pencil: „*A. ciliata*, aber knoten kahl.“ The 3 well-



ARISTIDA SCHAEFERI Mez.

From type specimen.

developed plants much resemble indeed the *A. ciliata*, especially in the shape of the panicle and in the spikelets, the nodes are however quite glabrous, without the glutinous ring below the nodes, the vegetative parts are very characteristic on account of the densely lanate sheaths of the innovations and the very short, pungent blades, the glumes are not pubescent at the apex as in *A. ciliata*. For the moment I have accepted the plants as a distinct species. *Aristida*

ciliata is a rather uniform species in North Africa but it is very interesting that in South Africa and especially in the South Western part (Namaqualand) the *A. ciliata* is very variable. There we find varieties with hairy glumes and others with lanate sheaths and blades. Probably there are among them some distinct species, but the material at hand is not abundant enough to establish them.

Aristida Schaffneri Fournier.

EUG. FOURNIER; Mexic. Plant. etc. Pars II. Gramineae, Paris, [1881] p. 78!

Culmo gracili cum panicula 1—1½ pedali, glabro, foliis linearibus convolutis longis, basi amplexicaulibus; paniculae laxioris 5-pollicaris radiis geminis compositis fere a basi floriferis, primum erecto-appressis, dein partim flexuosis subpatulis; glumis inaequalibus violaceis secus carinam scabris, superiore obtusa setigera flosculum aequante v. superante; flosculo juniore maculato paulum torto, secus dorsum tantum scabro, setis scabris, inter se et cum flosculo aequilongis.

Absque loco (LIEBM. n. 661); *Mirador* (SCHAFFN.); *Orizaba* (SCHAFFN. n. 181 in herb. FRANQ.); *San Luis de Potosi* (VIRL. n. 1416).

Note: = *Aristida adscensionis* L.

Through the courtesy of Prof. H. LECOMTE I could examine the types in the Paris Herbarium. SCHAFFNER's plant from *Mirador*, ed. R. F. Hohenacker, bearing the name *Schaffneri* in FOURNIER's script is accepted as the type. It agrees perfectly with the specimen from San Luis, collected by VIRLET D'AOUST, no. 1416 in the year 1851. LIEBMANN no. 661, without locality, I saw in the Copenhagen Herbarium, it bears the name in FOURNIER's hand.

All the specimens belong to *A. adscensionis*, the best-developed ones have a somewhat loose and interrupted panicle, a common form in Mexico, described by CAVANILLES as *A. interrupta* and connected with *A. adscensionis* by innumerable intermediate forms, so that it is impossible to distinguish FOURNIER's species even as a variety.

Aristida schebehliensis Henrard

nov. spec.

(Sectio *Arthratherum*). Perennis, laxe caespitosa, innovationibus extramet intravaginalibus. Culmi stricte erecti, simplices, cum paniculis circ. 50 cm. alti, laeves, striati, paucinodes, nodis fuscescentibus glabris. *Vaginae* internodiis plerumque breviores, glaberrimae, striatae, marginibus hyalinis; *ligulae* brevissimae, dense ciliolatae, auriculae longe barbatae, *laminae* e basi aequilata lineares, 1,5—2 mm. latae, sensim longe acuminatae, ad 30 cm. longae, erectae, subtus scabriusculae, supra marginibusque scaberrimae, multinerves; innovationum angustiores, convolutae, fere setaceae, vix ½ mm. latae, vi explanatae tantum 1 mm. latae. *Panicula* elongata, angusta sed haud densa, subinterrupta, ramis scabriusculis binis, vel superne solitariis, elongatis, appressis, inferne nudis, 6—7 cm. longis vel secundariis minoribus, paucispiculatis, a basi

floriferis, spiculis secus ramos subimbricatis, terminalibus longissime (ad 10 mm.), lateralibus brevissime pedicellatis, pedicellis superne clavatis. *Spiculae* angustae, glaberrimae, *glumae steriles* inaequales, lanceolatae, sensim longe acuminato-aristatae, uninerves, inferior 12—13 mm. longa, in aristam 8—9 mm. longam abiens, carina scaberrula; superior carina laevis, 18—19 mm. longa, in aristam 13—14 mm. longam producta; *gluma florifera* (in statu juvenili tantum cognita) cum

stipite articulata; columna recta, torta, haud evoluta, saltem 10 mm. longa, aristae erectae, subaequilongae, intermedia circa 6,5 cm., laterales circa 5 cm. longae.

Somaliland: lungo lo Uebi Scebeli, fra Giabadgèh e Muccoiddère, 26 Nov. 1913, leg. G. PAOLI no. 1327. Typus speciei in Herb. Mus. Florentini.

Unfortunately the lemmas of the plants I could study, are immature and therefore it was impossible to give a figure of the lemma and the callus. There is however a distinct articulation (studied microscopically) and a twisted column, the glumes are perfectly developed, and they bear a very long awn. From the characters given here and from the type specimens the species is to recognize afterwards, if we have mature material at our disposal. The specimens in the Florence Herbarium bear the determination of Prof. CHIOVENDA as *A. somalensis* STAFF with the addition: „est *A. stipoides* LAM.”, but these are quite different species. *A. stipoides*, also a member of the section *Arthratherum*, has a different panicle, and very different vegetative characters (few innovations, coarser leaves, a flake of wool at the junction of the blades and the sheaths, etc.), *A. somalensis* is however a member of the section *Chaetaria* and belongs there to the group *Schoenatheron*. See that species afterwards in this Revision.



ARISTIDA SCHEBEHLIENSIS
Henrard.

From type specimen.

Our new species is however most allied to a group of African

species such as *A. longiflora*, *A. pallida*, *A. ramifera* and *A. graciliflora*, which differ in the distinctly bifid apex of the upper glume and in the mostly shorter awn from the sinus. In habit and vegetative characters *A. schebehliensis* somewhat resembles the *Aristida stenophylla* HENR, from Somaliland, which however widely differs in the much shorter, very unequal and obtuse glumes.

Aristida Schiedeana Trinius et Ruprecht.

Species Graminum Stipaceorum, loc. cit. pag. 120!

Paniculae $\frac{1}{2}$ —1 pedalis, depauperatae, exsertae radiis solitariis, suberectis, firmulis, remotis, subsecundis, a medio circiter flori-feris; glumis subaequalibus, coloratis, 4—5 linealibus; flosculo colorato, (sub lente) minutissime punctato-exasperato, *apice longestipitato et torto*, 6—7 lineali; setis lateralibus erectis minutis media quinquelineali patente *decies brevioribus*.

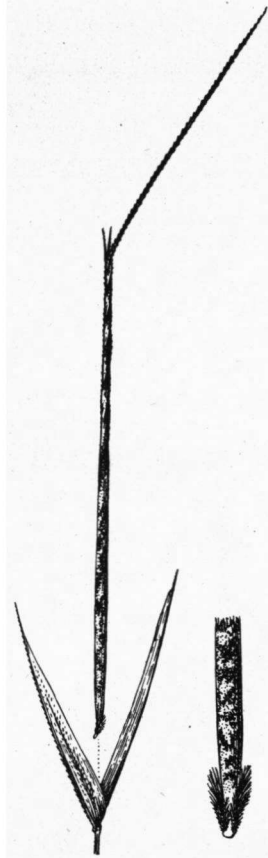
Podosauemum stipoides Chamisso! et Schlecht. Linnaea 1831. p. 36. non H B K, cujus arista intra lacinias valvulae non stipitatae neque tortae inserta.

Mexico: prope Jalapam. Augusto. (Schiede n. 909!)

Radix perennis. *Culmus* $2\frac{1}{2}$ pedalis et major, basi pennam passerinam crassus, simplex, ad nodos 2—3 glabros levissime geniculatus. *Vaginae* internodiis fere semipedalibus duplo l. triplo breviores, etiam ore glabrae. *Ligula* nulla vel interdum pilis aliquot stipata. *Folia* patentia, pedalia et breviora, filiformia, convoluta, glabra. *Panicula* fusco-purpurascens.

The type is in the Trinius Herbarium at the Academy of Leningrad, a good duplicate in the Herbarium of the Botanical Garden at Leningrad was received for study from Prof. B. FEDTSCHENKO.

The species belongs to the section *Streptachne* DOMIN, which is characterized by the much reduced lateral awns, sometimes very minute or totally wanting. See afterwards my observations under



× 4 × 10
ARISTIDA SCHIEDEANA
Trinius et Ruprecht.
From type specimen.

A. Streptachne DOMIN. In the type of *A. Schiedeana* the column is strongly developed and twisted, the glumes are subequal or the lower slightly shorter than the upper and the lower one is distinctly pubescent all over. For the differences with the allied *A. Orcuttiana* VASEY, see this Revision p. 394. This species was mentioned by SCHLECHTENDAL and CHAMISSO in a list of Mexican plants collected by Schiede and Deppe, in *Linnaea* Vol. VI. (1831) p. 36 as *Podosaemum stipoides* H. B. K.; *Stipa patens* HW. no. 1777 from Jalapa. The species described as *Podosaemum stipoides* in the *Nova Genera*, is the same as *Muhlenbergia stipoides* KUNTH, which belongs to the genus *Triniochloa* HITCHCOCK. This genus is characterized by the lemma which is firm and coreaceous in texture as in *Stipa* and *Aristida*, but with a stout geniculate dorsal awn, attached above the middle, the apex of the lemma is 2-toothed, from both genera it differs in the undeveloped callus.

***Aristida Schiedeana* Trin. et Ruprecht.**

var. minor Vasey.

GEORGE VASEY; *New American Grasses*, in *Bulletin of the Torrey Botanical Club*. Vol. XIII. [1886] p. 28!

Culms 12 to 18 inches high, rather slender, sometimes branching at the lower nodes; leaves of the culm three or four, longer than the sheaths (4 to 8 inches long). Panicle 5 to 7 inches long, at first narrow, and the base enclosed by the upper sheath, becoming divaricate; branches capillary, alternate, single, but most of them dividing immediately into two to four long and nearly equal branchlets from 2 to 3 inches long, which are again divided about the middle, each into two or three smaller branchlets bearing few spikelets; outer glumes nearly equal, about 4 lines long, not awned; flowering glume about 5 lines, hispid-scabrous above, becoming somewhat twisted in age; lateral awns absent; terminal awn about 4 lines long.

This plant is much smaller and less robust than the type, and has not the very long naked branches of that species, in fact the aspect is so different that it might be considered a different species.

Collected in Arizona by Pringle, in 1884, and distributed as *A. Schiedeana*; and by M. E. Jones at Bowie, Arizona, 1884.

The typical *A. Schiedeana*, as we regard it, (No. 745 C. Wright, 1849, 2012 and 2070 C. Wright, 1851—2, No. 27 Havard, Texas, No. 385, Lemmon, Arizona), perhaps runs into *A. divaricata*, Willd,

the lateral awns wanting in some specimens, in others occurring of various lengths and otherwise hardly separable.

Note: = *Aristida divergens* Vasey.

See my observations under *Aristida divergens* on p. 152 of this Revision.

Aristida Schimper Hochstetter et Steudel.

In Sched. (1835) no. 161!

Ab *A. ciliata* Desf. calycibus obtusis glaberrimis nec ciliatis, aliisque notis differt. In rupibus montis Sinai d. 1. May leg. *W. Schimper*.

TRIN. et RUPR.; Spec. Gram. Stip. loc. cit. pag. 164!

Panacula demum exserta; gluma superiore $4\frac{1}{2}$ lineali; flosculo $2\frac{1}{2}$ lineali, stipite aristae $2\frac{1}{2}$ lin.; mucronulo apicali nudo. — Aegyptus (Aucher-Eloy!); in rupibus montis Sinai m. Majo. (Schimper! Un. it. n. 161.) Arabice „Nassje.” (Bove.)

Note: = *Aristida ciliata* Desfontainès.

The plant was edited in exsiccatae with a short diagnosis printed on the label. TRINIUS and RUPRECHT have given in the year 1842 a better description of the plant. The type, Schimper 161, differs but slightly from the typical *A. ciliata*, in the somewhat shorter glumes, lemma and column, but the dimensions of the spikelets are variable in the very common *A. ciliata* and I have omitted the *A. Schimper* in my work. *Aristida ciliata* is rather uniform in North Africa but it is curious that in South Africa and especially in the South Western parts (Namaqualand) the species is very variable. In these regions there occur varieties with villous sheaths and blades and others with hairy spikelets.

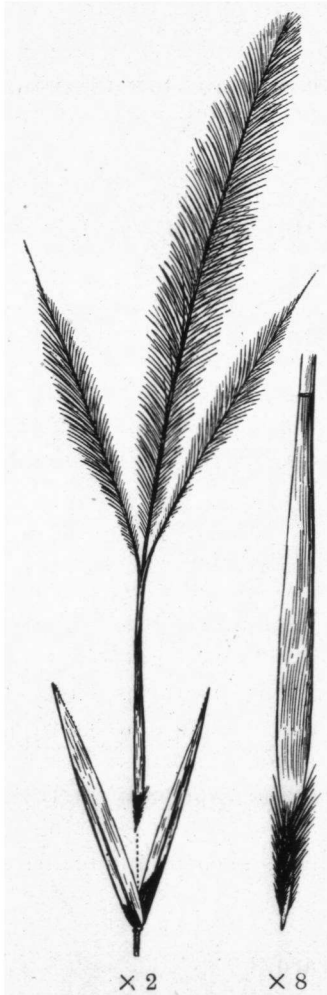
Aristida Schlechter Henrard.

Proles hybrida (*Aristida capensis* THUNB. \times *Aristida ciliata* DESF.)

Habitu et characteribus principalibus medium fere tenet inter *A. capensem* et *A. ciliatam*, cum illa specie convenit spiculis longis, angustis, et praesertim aristis omnibus plumosis; recedit tamen aristis lateralibus multo minoribus, arista intermedia apice rotundata, obtusa, haud exserta, glumis apice distincte ciliolatis et nodis barbatis; cum hac specie convenit apicibus obtusis aristarum centralium, glumis superne ad margines et ad apicem ciliolatis,

insuper nodis barbatis. *Aristida ciliata* recedit arista centrali in parte inferiore nuda et aristis lateralibus omnino nudis; praeterea glumis multo minoribus.

Africa austro-occidentalis: Klein Namaqualand prope Windhoek, 400 ped. alt.. 31 Julio anno 1896, legit R. SCHLECHTER. (Plantae Schlechterianae, Iter secundum, no. 8338, sub nom. *Aristida* aff. *Schimperi* Nees). Typus in Herb. Lugd. Bat. sub no. 908 83—622.



ARISTIDA SCHLECHTERI.

Henrard.

From type specimen.

Both species, *A. capensis* and *A. ciliata*, although rather variable, are always readily distinguished and in the different characters well-limited. Both species are few-noded and have about the same length, in the vegetative characters there are not so many differences and both have the same xerophitic structure. In *A. capensis* the nodes are, without exception, quite glabrous, in *A. ciliata* the nodes are in the typical form always densely bearded, in the hybrid, indicated here, this character of the bearded nodes is very striking and important to recognize the hybrid at once from *A. capensis*. In *A. ciliata*, the glumes are shorter and equal, in *A. capensis* the glumes are much longer, narrower and distinctly unequal, in the hybrid, the glumes are equal but much longer than in *A. ciliata* and the ciliolate tip of the glumes of *A. ciliata* is clearly indicated in the hybrid, the variety *macropus* of *A. capensis* has also such minutely ciliolate glumes. The hybrid differs from *A. ciliata* at first sight in the awns of the lemmas. *A. ciliata* has naked lateral awns, half as long as the

central one, which is naked or minutely pubescent only in the lower half, and in the upper part densely plumose to the very tip. In *A. capensis* the three awns are feathery and the lateral ones but slightly shorter than the central one, in the hybrid all the awns are plumose, but the feathers are longer than in *A. capensis* and

more spreading and those of the lateral awns rather scattered, especially towards the base and the tips of the awns.

SCHLECHTER'S number 8338 in the Herb. at Leyden consists of two well-developed specimens, which are not identical, one of them has less plumose lateral awns and more approaches the *A. ciliata*, the left-hand specimen on the sheet is rather intermediate between the parents. Both specimens differ moreover in the way of articulation of the column.

Aristida capensis belongs to the section *Stipagrostis*, which is characterized by the plumose awns and a true articulation between the lemma and the column, so that at maturity only the column with the awns breaks off. *Aristida ciliata* however, belongs to the section *Schistachne*, having a plumose awn but the articulation is placed here in the central part of the lemma, so that at maturity the column and the awns fall off together with the upper half of the fertile valve (lemma).

We may expect that in the hybrid between two species, belonging to two different sections of a genus, the characters of the sections are manifestly indicated, and indeed, the two specimens of SCHLECHTER'S no. 8338 mentioned here, are differently articulated. The first specimen, from which is taken my figure, approaches in some characters the *A. capensis* and the articulation is placed at the summit of the lemma, in the second specimen, which in some characters more approaches the *A. ciliata*, the articulation is placed at about one-fourth below the summit.

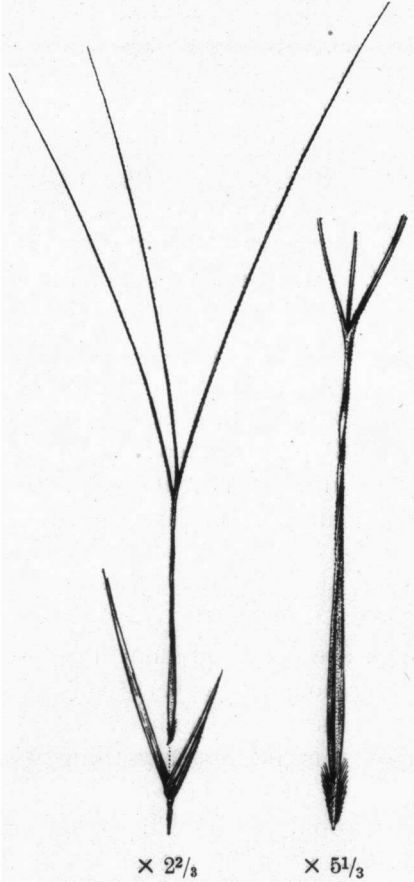
Both species *A. capensis* and *A. ciliata* are very common in South Africa, they are well-known and easy to recognize by very constant and well-marked characters. So far as is to conclude from the different morphological characters, and this is the only thing we can do for the moment, the intermediate plants between two so very different species belong either to a distinct new species, or they are hybrids between the two species taken here into consideration. As a species we cannot accept these intermediate plants, the characters of the articulation are here so variable and inconstant that we cannot place the plants in one of the sections of the genus, all the characters, taken together point clearly to hybrids between the two species and I am convinced that nothing can be opposed against this opinion.

Aristida Schultzii Mez.

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 149!

Perennis, gracillima. Vaginae culmi quam internodia breviores,

glabrae; ligulae brevissime nec emergenter pilosulae nec margine barbatae; laminae convolutae tenuiter setaceae. Culmi glabri. Inflorescentia per laxam 3-pinnatim panniculatam, basi interrupta; ramulis erectis, usque ad 70 mm longis. Pedicelli laterales vix ultra 2 mm longi. Glumae lanceolatae, inferior ad 6,5 mm longa bene 3-nervia, sensim filiformi-acutissima; superior ad 11,5 mm longa 1-nervia, apice



$\times 2\frac{2}{3}$ $\times 5\frac{1}{3}$
ARISTIDA SCHULTZII Mez.
From duplicate type specimen.

setacea auriculataque. Paleae unguis ad 1 mm longus, longiuscule pilosus; articulatio deest; rostrum elegans, bene tortum; setae nudaе, media ad 28, laterales ad 15 mm longae. — Tropisches Australien (Schultz).

The actual type has not been studied. Prof. MEZ has not indicated the herbarium where the specimen is preserved; although probably belonging to the Berlin Herbarium, it was not found there. Fortunately I found duplicates in other herbaria, one in the Florence Herbarium, one in the Leningrad Herbarium and a very good specimen in the Kew Herbarium. The specimens have a well-developed, twisted column and the species is allied to *A. latifolia* DOMIN and *A. holathera* DOMIN, from both it differs in the 3-nerved lower glume, from *A. latifolia* in the very unequal glumes and in the fine, convolute blades, from *A. holathera* which has also unequal glumes it differs

in habit and in the upper glume which is bifid with an awn from the sinus.

The specimen in the Kew Herbarium, from which the figure is given here, is labeled: „Port Darwin, coll. Schultz, no. 765, com. R. Schomburgk”. Upon the sheet BENTHAM has written: „*A. calycina* Br.”, and we find the specimen indeed mentioned in BENTHAM'S *Flora australiensis*, Vol. VII. p. 563. BENTHAM'S *A. calycina* is however a mixtum of very different things, among them we find f. i. MUELLER'S

Upper Victoria River plant, which is *A. latifolia*, and BURKITT'S specimens from Peak Downs, which are partly *A. Schultzii* and partly true *A. calycina*. The well-developed, twisted column with the finer awns, at once distinguishes *A. Schultzii* from the true *A. calycina*; BENTHAM overlooked the striking differences. In the duplicate type the 3-nerved lower glume is 6—6½ mm. long, the upper one is 11½—12 mm. long and the central awn is about 3 cm. long, all these characters agree perfectly with those given in the description.

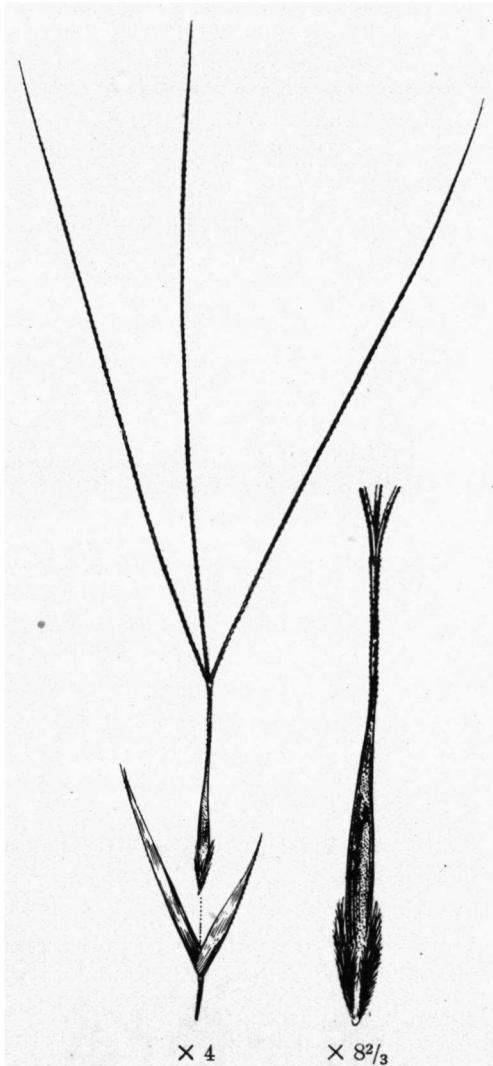
***Aristida Schweinfurthii*
Boissier.**

EDMOND BOISSIER; *Flora Orientalis* etc. Genève et Basel. Vol. V. [1884] p. 493!

Annua multicaulis, culmis pumilis stricte ramosissimis, foliis tenuissime linearibus convolutis, ligulâ ad pilorum coronam reductâ, paniculâ confertâ ramis 1—2-nis strictis, glumis lanceolatis valde inaequilongis inferiore brevior longius cuspidatâ, glumellâ inferiore glumis multo brevior stipite longo glabro, insidente, aristâ ex apice glumellae inferne simplici tortâ glumellae aequilongâ in setas tres parte simplici multoties longiores tenuiter capillares divergentes aequilongas divisâ ☉.

Hab. in littore Aegyptiaco-Arabico inter Kossier et Ras Benass (Schweinf. no. 2517!), in arenosis graniticis Zabara (Husson!).

Culmi 1—3-pollicares, aristae pars inferior indivisa 2 lineas longa, ejus rami pollicem longi. Ab *A. fasciculatâ* spiculis multo minoribus, aristae



ARISTIDA SCHWEINFURTHII Boissier.
From type specimen.

partium proportione diversa. Planta affinis ex Abyssiniâ Schimp. 2198 sub nomine falso *Ar. barbicollis* Trin. (quae sectionis *Chaetaria* est) distributa fuit vaginae oris longe barbatis, glumâ superiore apice breviter tridentatâ, etc., tamen discrepans.

Note: = *Aristida meccana* Hochstetter.

BOISSIER described the same species already described in the year 1842 by TRINIUS and RUPRECHT under the name of *A. meccana* HOCHSTETTER. The species was neglected and a different species was edited in exsiccatae under this name. So it is to understand that BOISSIER described the species once more. See my observations under *A. meccana* on p 339 of this Revision. The species belongs to the section *Pseudarthratherum* CHIOVENDA and has a characteristic habit, the panicle is dense and contracted with strict short branches, spikelets bearing from the base.

***Aristida Schweinfurthii* Boissier.**

var. *Boissieri* Schweinfurth.

G. SCHWEINFURTH; Sammlung arabisch-aethiopischer Pflanzen, Ergebnisse von Reisen in den Jahren 1881, 88, 89, 91 und 92, in Bulletin de l'Herbier Boissier, Tom. II. [1894] Appendix II. p. 28!

Vaginis ore longe ciliato-barbatis, gluma superiore apice breviter tridentata, paniculis laxè dispositis pedunculis secundariis elongatis (2-4 cm. longis), aristae setis parte indivisa ter, quater (non multoties) longioribus.

ARAB. Südküste. Schugra 94, coll. 1881.

Loc.: Zwischen Geröll und Steinen des Rinnsales der ausgetrockneten Bäche.

AETH., COL. ERITREA. Samhar-Küstenebene in West von Massaua, bei Scheqat-Qieh (80 m.) 1774, coll. 1891.

Loc.: Im trockenen Rinnsal zwischen den Kiesen.

Die obenbezeichnete Form findet sich auch im Südlichen Nubien und in Dar Fur. W. Schimper sammelte sie 1854 bei Golleb (N° 119).

Note: = *Aristida Cassanellii* Terracciano.

Through the courtesy of Prof. R. PILGER, I could study the type in the Berlin Herbarium, the first specimen mentioned in the description. It was collected during the Riebeck expedition in Southern Arabia at Schugra, east of Aden, 19 march 1881. The type consists of two different plants, one plant is exactly the same as *A. meccana* HOCHST., ap. TRIN. et RUPR. (= *A. Schweinfurthii* BOISS.), a plant already mentioned by me on p. 339 of this Revision. This specimen

cannot be accepted as the type because it does not agree with SCHWEINFURTH'S description. The second specimen has the lax panicles with the elongate branches, mentioned in the description and is accepted as the type of SCHWEINFURTH'S var. *Boissieri*. This plant is the same as *Aristida tenuis* HOCHST., described in the year 1855. See afterwards under *A. tenuis* HOCHST. in this Revision. The same species was described by TERRACCIANO in 1892 as *A. Cassanellii*. Because *A. tenuis* HOCHST. is antedated by *A. tenuis* (H. B. K.) KUNTH from the year 1829, we have to take up TERRACCIANO'S name for the species.

On p. 84 of this Revision I have already indicated the identity of *A. Cassanellii* with HOCHSTETTER'S *A. tenuis* and I placed the plant as a variety *tenuis* under *A. mutabilis* TRIN. et RUPRECHT. Having studied more material I found the spikelet-characters very constant, the column is always very long (2—3 times as long as the body of the lemma) and the lemma is always shorter and thicker than in *A. mutabilis* and the shape thus more ovoid, so that it is better to take up this characteristic plant as a distinct species.

Aristida sciuroides Domin.

Bibl. Bot. Heft 85^I [1915] loc. cit. p. 347!

Robusta, glaucescens, valde elata; *culmi* duri, copiose ramosi usque fere ad apicem foliati, glaberrimi, cum paniculis saepe 15 dm et ultra alti; *folia* culmea distantia, rigidiuscula; vaginae glabrae, internodiis breviores, ad orificium minute ciliatae (nec barbatae) glabraeve; laminae saepe elongatae, planae et fere 3 mm latae, glaucae, glaberrimae sed supra minute scaberulae, subtus laeves, interdum quoque plus minusve convolutae; *panicula* longissima, plus 5 dm longa sed perangusta, pallida, haud densa. sed paniculae ramis erectis et rhachi appressis, infimis usque 8 cm longis; *spiculae* glabrae, erectae; *glumae* subaequales, scariosae, uninerves, perangustae, longe acuminatae et brevissime mucronatae, circa 12—13 mm longae; *glumella* cum stipite circa 9 mm longa; *aristae* a *glumella* articulatae, capillares, 15—20 mm longae.

Queensland: sandige Grastriften in sehr schütteren Eucalyptus-Wäldern bei Barcaldine (DOMIN, III, 1910). — Bei Jericho (DOMIN, III, 1910).

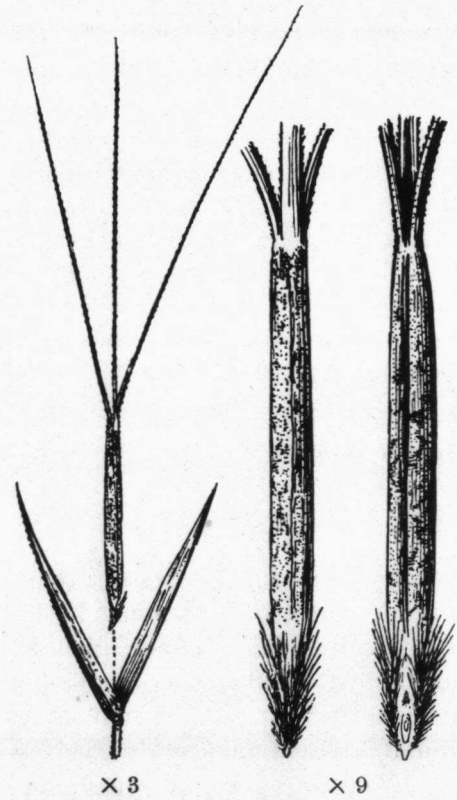
Diese Art steht der *A. ingrata* sehr nahe, unterscheidet sich jedoch durch den viel stattlicheren Wuchs (sie wird bis volle 2 m hoch),

die ziemlich reich verzweigten Halme, den kahlen oder nur kurz gewimperten Scheidenrand, die schmalere und längere Rispe, die bedeutend längeren Hüllspelzen und die längere Deckspelze.

One of the species placed by Prof. DOMIN in his section *Arthrochaetaria*, characterized by him as follows: „*Ut Chaetaria sed aristae e glumellae conspicue articulatae*”.

All the species described by DOMIN, belonging to his section, have however no trace of an articulation between the body of the lemma and the awns, as was already indicated by me in this Revision on p. 259 and 260. The species is thus a member of the section *Chaetaria*.

It is as to the morphological characters, most allied to *A. ingrata* and *A. jerichoensis*, but differs in the very different habit and the much longer 'glumes. The beautiful type specimens were studied in Prof. DOMIN's herbarium.



ARISTIDA SCIUROIDES Domin.

From type specimen.

Aristida Sciurus Stapf.

O. STAPF ap. WILLIAM T. THISELTON DYER; Flora Capensis etc., London. Vol. VII. [1899] p. 557!

Culms rather stout, over 3 ft. long, with a fugacious snow-white adpressed woolly indumentum below the nodes; sheaths long, tight, glabrous except for some wool near the mouth, striate; ligule a flake of fine wool; blades linear, acute, involute or setaceously convolute above, over 1 ft. long, 2 lin. broad near the base, smooth below, asperulous above; panicle contracted, dense, 1—1½ ft. by 1—1½ in., erect; rhachis rather stout, smooth; branches fascicled, the lowest up to ½ ft. long, erect, remotely and repeatedly branched; branchlets filiform to capillary, scaberulous; lateral pedicels short; spikelets 2—3 at the tips of the branchlets, yellowish, 5—6 lin. long, very slender; glumes very unequal, rather thin, minutely

truncate or 2-toothed (when expanded), the lower lanceolate-oblong, acute, $2\frac{1}{2}$ lin. long, the upper linear-oblong, 5—6 lin. long; valve linear, 4—5 lin. long, obscurely beaked, beak straight; callus very short; awns continuous with the valve, fine, scaberulous, 7—8 lin. long; pale $\frac{2}{3}$ lin. long; lodicules few-nerved, $\frac{3}{4}$ lin. long; anthers 3 lin. long, cells minutely apiculate.

KALAHARI REGION: Transvaal; Zebedelis Kraal, near the Inkumpi River, *Nelson*, 26!

EASTERN REGION: Natal; without precise locality, *Gerrard*, 471!

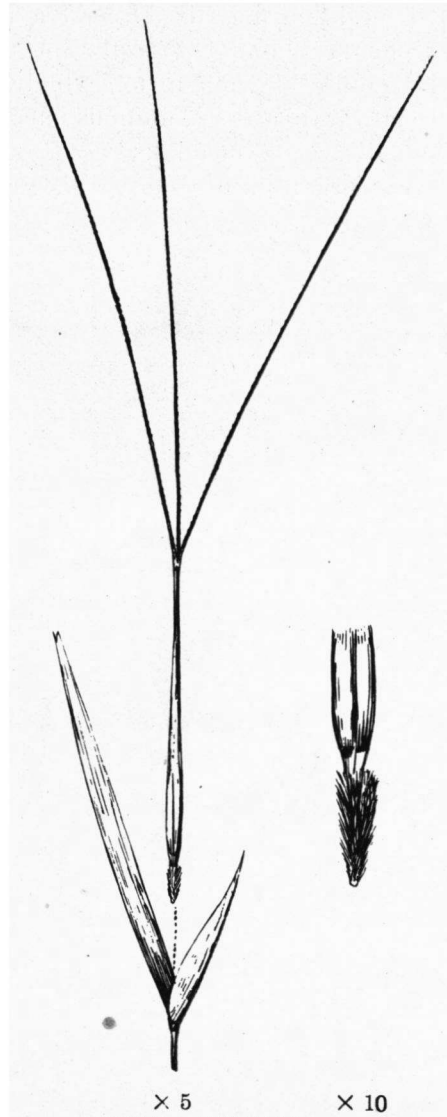
Similar to *A. setacea*, Retz., and *A. multicaulis*, Baker, but differing from both in the woolly, rather stout, not wiry and apparently simple culms and in the woolly ligules.

The type in the Kew Herbarium was received for study from Dr. A. W. HILL, it was collected by W. NELSON, Zoutpansberg Div. in Transvaal in the year 1880 with the number 26. The species is very characteristic by the white indumentum of the internodes, the very unequal glumes, the smooth lemma with the untwisted beak and the very peculiar callus.

***Aristida scoparia* Trinius et
Ruprecht.**

TRINIUS et RUPRECHT; Species Graminum Stipaceorum, loc. cit. [1842] p. 176!

Culmo, nodis vaginisque glabris; ligulis brevissime ciliatis; paniculae oblongae, strictiusculae, apice subcernuae, lucidae, rariflorae, semipedalis basi exsertae radiis solitariis, erecto-patentibus, a basi

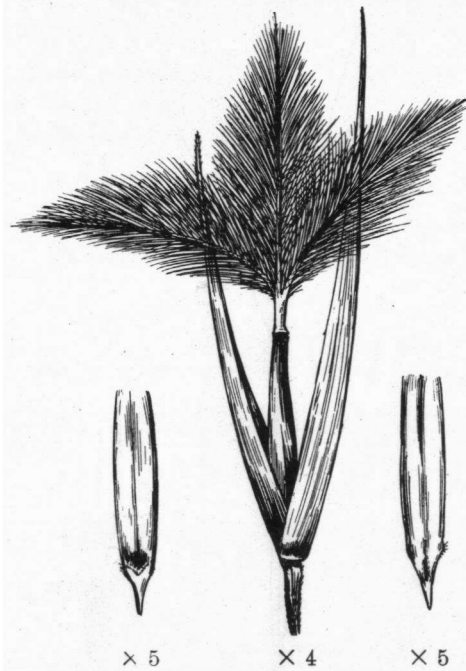


ARISTIDA SCIURUS Stapf.

From type specimen.

jam divisis et superne ramosulis; ramificationibus intra axillas callosis et glabris; glumis *inaequalibus*, glabris, lanceolatis, apice attenuatis et acutatis: superiore 7—9 *lineali* inferiorem lineâ 1—1½ excedente; flosculo 3 *lineali*, apice articulado; stipite aristae deciduae vix semilineali, non torto, cylindrico, intus cavo, extus glabro; setis arcuato-divaricatis, omnibus aequaliter a basi *usque ad apicem* pennatis, 4—6 linealibus.

Aegyptus: in deserto ad Pyramides (Aucher-Eloy n. 2988!); in deserto prope Abu Zabel Aegypt. inf. m. Januar. (Schimper! Un. it. n. 36.)



ARISTIDA SCOPARIA Trinius,
et Ruprecht.
From type specimen.

Rhizoma stoloniferum, sublignosum, ramosissimum. *Culmi* 1—3 pedales, in primis versus basin flavescens. *Vaginae* culmeae internodiis longiores. *Folia* longa, flexuosa l. arcuato-recurvata, nec stricta, rigida tamen et pungentia. *Callus* flosculorum ut in *A. vulnerans* subnudus. Ab *A. pungente* Desf. differt: panicula multo lucidiore et glumis *inaequalibus*; ab *A. pennata*, cui maxime affinis: internodiis culmi inferioribus numquam rubentibus, foliis rigidis, crassioribus, flavescens, spiculis paullo minoribus, flosculo rarissime apice denticulato, mucronulo apicali setarum longius ciliato.

Both specimens mentioned by the Russian monographers are identical and Schimper no. 36, edited in exsiccatae is accepted as the type. This endemic Egyptian species differs from *A. pennata* in the characters already given in this Revision on p. 434. The species is allied to *A. pungens* and *A. vulnerans* but it differs in the very distinct inverse position of the glumes, compare the figure of the spikelet of *A. pungens* on p. 475 of this Revision.

Treated by different authors as a variety of *A. pungens*, but it is certainly a very distinct species and always easy to recognize.

***Aristida Scribneriana* Hitchcock.**

A. S. HITCHCOCK; The North American species of *Aristida*, in Contributions from the U. S. Nat. Herbarium. Vol. XXII. [1924] p. 566!
 = *Aristida lanuginosa* SCRIBNER ap. HITCHCOCK, Contr. U. S. Nat. Herb. XVII. [1913] p. 278! non BURCHELL.

Plants perennial; culms cespitose, about 1 meter tall, erect, lanate-pubescent except in the region of the nodes, scabrous below the panicle; leaves mostly basal, the sheaths lanate-pubescent except above the nodes, this portion glabrous; blades 10 to 25 cm. long, 1 to 2 mm. wide, ending in a long fine point, sparsely lanate-pubescent, the older culm blades flat and curled, the upper culm blades and those of the innovations involute; panicle 10 to 25 cm. long, narrow, the branches appressed, the lowermost as much as 10 cm. long, naked below, a short branchlet at base; spikelets on short appressed pedicels; glumes 1-nerved, acuminate or short-awned, sparsely lanate, scabrous on the keels, the first 6 to 7 mm. long, the second about 1 to 2 mm. longer; lemma smooth below except the short-pilose callus, scabrous above, tapering into a scabrous, slightly twisted beak, the entire length, including the beak, about 11 mm.; awns subequal, somewhat spreading, the central one about 15 mm. long, the lateral about 12 mm. long.

Griffiths' no. 8131 is only slightly lanate on the culms and sheaths, but the glumes are beset with long flexuous hairs.

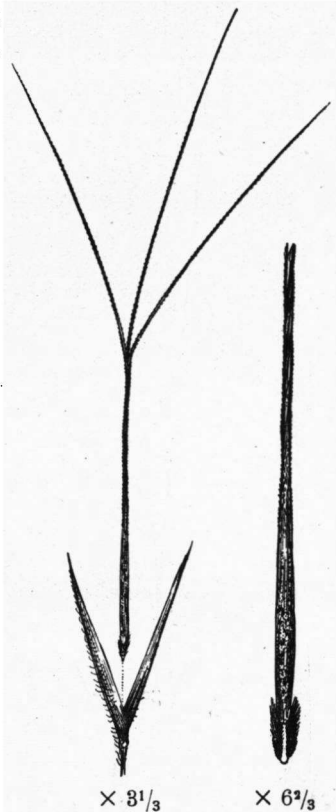
DISTRIBUTION. Rocky hills and gravelly plains, Pacific slope of Mexico.

DURANGO: Durango, *Hitchcock* 7649.

JALISCO: Guadalajara, *Pringle* 2375, 11734, *Hitchcock* 7324, *Griffiths* 8131.

MICHOACÁN: Morelia, *Arsène* 2631.

See my observations under *Aristida lanuginosa* SCRIBNER, on p. 289 of this Revision.



ARISTIDA SCRIBNERIANA
 Hitchcock.
 From type specimen.

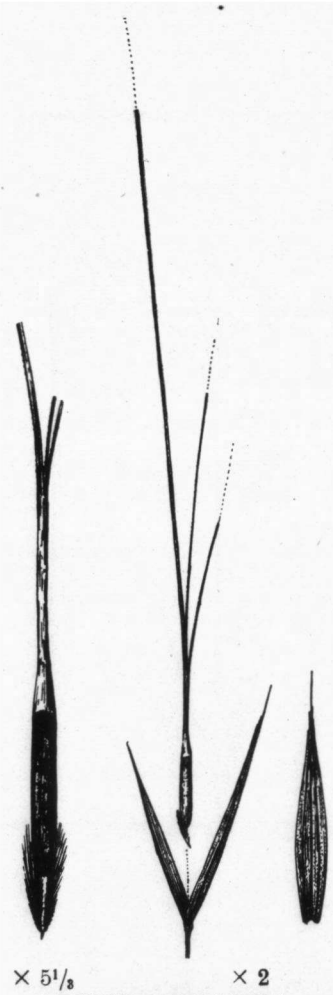
Aristida secalina Henrard

nov. spec.

Panicula densa, spiciformis, cylindrica, 6—7 cm. longa, 1 cm. circa lata, rhachi glabra. Vaginae superiores et internodia glabrae. Spiculae breviter pedicellatae, pedicellis glaberrimis. Gluma I. 3-nervis, scaberula, aristata, 17 mm. longa, gluma II. 1-nervis, laevis, 13 mm. longa; gluma III. fertilis, in $\frac{1}{4}$ superiore articulata, cum callo acuto dense barbato, $1\frac{1}{2}$ mm. longo, plus minusve 6 mm. longa, leviter punctulata, in stipitem haud tortum 4 mm. longum abiens. Arista media firma, lateralibus multo minoribus et tenuioribus.

Africa austro-occid.: Walfishbay to Okahandya, Oct. 1885, leg. AUG. LÜDERITZ no. 72. (Herb. Mus. Berolin.); Hereroland, annis 1885—86, leg. LÜDERITZ no. 43. (id.).

The specimens of the species here described are in a very imperfect condition, all the plants without basal portions. Because the place of the articulation is above the middle of the lemma and not at the summit, this species must be placed in the section *Schistachne*. Unfortunately all the awns are damaged and therefore it is not known whether the central awn is plumose or not, although it may be that the upper part of the central awn is feathery. If indeed the central awn is naked all along, this species is the only one with such a character in the section *Schistachne*. *Aristida secalina* has some so striking characters that it is possible to



ARISTIDA SECALINA
Henrard.

From type specimen.

recognize the species if afterwards we have better developed specimens. The most remarkable character is the inverse position of the glumes, the lower one longer than the upper. Our species is to compare with *Aristida Hochstetteriana*, although totally different in the glabrous, 3-nerved, lower glume longer than the upper, the

shorter untwisted column of awns, and the firm, at least 38 mm. long, naked, lower part of the central awn, the lateral very fine bristles at least 18 mm. long. As already stated, Prof. MEZ, describing his *A. elymoides*, has taken the characters of the fertile valve from one of the two specimens collected by LÜDERITZ but *A. elymoides* does not agree in other respects with these specimens, the type of *A. elymoides* being the Kalahari specimen, collected by Dr. SCHULTZE. See my critical observations under *A. elymoides* on p. 167 and 168 of this Revision.

Aristida Sellowii Mez.

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 148!

Perennis, valida. Vaginae culmi internodia optime superantes, glabrae; ligulae in pilorum brevissimorum callum mutatae ad folii marginem pilis nonnullis longe exsertis auctae; laminae stipitiformi-convolutae, glabrae vel supra ad basin parce longae pilosae. Culmi glabri. Inflorescentia myriantha, densissime subracemosa alopecuroides, cylindrica; ramulis strictissime erectis, vix ultra 25 mm longis. Pedicelli laterales vix ultra 1 mm longi. Glumae lanceolatae, persensim in setam apicalem longam angustatae nec auriculatae, 1-nerviae, I. = 12—16 mm longa superiorem 10—13.5 mm metientem constanter superans. Paleae unguis ad 0.5 mm longus, obtusiusculus, breviter pilosus; articulatio nulla; rostrum elongatum, tortum; setae nudae, media 25—30, laterales ad 22 mm longae. — Brasilien (Sellow).

Note: = *Aristida megapotamica* Sprengel.

The specimen collected by SELLOW in Brazil, the only specimen mentioned in the publication must be accepted as the type. The sheet in the Berlin Herbarium bears a printed label: „Reliquiae d. Sello. Brasilia". Upon this label MEZ has written: „*Aristida Sellowiana* nov. spec. Carl Mez IX. 20", but he published the species as *A. Sellowii*. On the sheet there are two specimens, the left-hand one is the best-developed one, both belong to *A. megapotamica* which is the same species as *A. implexa*. Other plants in the Berlin Herbarium named by MEZ *Aristida Sellowiana* belong to the quite different species *A. oligospira*. Most of the characters mentioned in the description given above are taken from the Sellow plant but the characters of the spikelets are taken from specimens belonging

to *A. oligospira* where the lower glume is 13 mm., the upper 9 mm., the central awn 25—30 mm. and the lateral ones 20—25 mm., compare the description of *A. oligospira* on p. 391 of this Revision.

***Aristida senegalensis* Trin. et Ruprecht.**

Species Graminum Stipaceorum, loc cit. p. 135!

Gluma superiore $3\frac{1}{2}$ —4 lineali, inferiorem lineâ superante; flosculo 5 lineali, scabro; seta media sub 9 lineali. — Senegal (Perrottet!). Huc pertinere videtur *Aristida festucoides* Poir. Encycl. suppl. 1. (1810) p. 453. (*Chaetaria festucoides* P. B. Agrost. 1812. p. 30. R. S. Syst. 2. p. 394.) in Senegalia à Dupuis lecta, quamvis folia „brevia” et glumae „acutissimae” a Poirerio designentur; reliqua, imprimis „panicula fere Festucae bromoides” potius in hanc quam in *A. mutabilem* aut *A. Kunthianam* quadrant.

Note: = *Aristida adscensionis* L.
var. *aethiopica* Hook. f.

In North Africa there occur many varieties of the common *A. adscensionis*, most of them were described by TRINIUS and RUPRECHT. The variety *festucoides*, described as a species, by POIRET (see this Revision p. 177) has a smooth lemma with a scaberulous keel only, the variety *Ehrenbergii* is very different on account of the curious tuberculate-scabrous lemma. See this Revision p. 159. Other plants, described as *abyssinica*, *aethiopica*, *pumila* and *senegalensis* are rather intermediate between the two extreme forms *festucoides* and *Ehrenbergii*, they all have more or less scabrous upper parts of the lemmas. Among them *A. pumila* has extraordinarily long lemmas.

In TRINIUS and RUPRECHT'S work we find *A. abyssinica*, *aethiopica* and *senegalensis* placed together as „small species”, the differences are very minute and the Russian authors distinguished these plants probably only on account of the different localities. These 3 plants have however a wider range and there are no morphological characters to distinguish them sharply; we must therefore unite them.

I have accepted for the variety with asperulous or scabrous, rather long-exserted lemmas, the name of *aethiopica* as given already by HOOKER in the Flora of British India.

***Aristida sericans* Hackel.**

EDUARD HACKEL ap. HANS SCHINZ; Beiträge zur Kenntnis der Afrikanischen Flora, in Bulletin de l'Herbier Boissier. Tome III. No. 8. [1895] p. 381!

Subgen. *ARTHATHERUM*.

Perennis, dense caespitosa. Culmi erecti, teretes, stricti, circ. 30–40 cm. longi, graciles, simplices, sericeo-pilosi. Vaginae arctae, internodiis longiores, sericeo-pilosulae. Ligula ciliaris. Laminae tenui-filiformes, erectae, culmum subaequantur (circ. 20 cm. lg.), inferne saepius pubescentes, superne glaberrimae, convolutae (diam. 0,5 mm.), crassinerves. Panicula spiciformis, lineari-oblonga, densa, 5–8 cm. lg., ramis inferioribus 2nis–3nis, primario 2–5-spiculato. reliquis 1-spiculatis, omnibus rhachique sericeo-hirtulis. Spiculae breviter pedicellatae (pedicello spicula 3–5-plo brevior), arrectae, lineares, livide purpurascens, albo-villosulae: glumae steriles subaequales (10 : 12 mm. longae), linearilanceolatae, tenui-membranaceae, hyalino-acuminatae, 3-nerves, villosulae; gluma florifera 6 mm. longa, linearis, violascens, callo brevibarbato, ceterum glabra, laeviuscula, stipite aristae 2 mm. longo sericeo non torto neque articulado, divisionibus a basi ad apicem usque (excepto mucronulo nudo) sericeoplumis erecto-patentibus, media circ. 15 mm., lateralibus 10 mm. longis.

Transvaal: Hogge Veld pr. Barberton (Rehm. 6793), Pretoria pr. Aapies Poort (Rehm. 4046).

Species peculiaris, nulli arctius affinis, indumento sericeo culmi vaginarum, glumarumque etc. insignis.



× 4 × 10
ARISTIDA SERICANS Hackel.
 From type specimen.

A beautiful and very peculiar species, placed by HACKEL in the subgenus *Arthratherum*. Although all the awns are plumose, a character of the sections *Stipagrostis* and *Schistachne*, the species cannot be placed in these sections because the column is not

articulated with the lemma and I could not find a special tissue or a trace of an articulation. Thus we cannot place the species in the section *Arthratherum* and taking the articulation as a basis for the different sections we have to place the species in the section *Chaetaria* where it is the only species known with a hairy column and plumose awns. The type in HACKEL'S Herbarium, stamped with the Vienna number 22459, bearing his handwriting, is Rehmann no. 6793, the locality on the label is Hogge Veld, Standarlon (in the publication given as Barberton). In the Zürich Herbarium I saw the same number and also Rehmann's no. 4046 from Pretoria.

***Aristida serrulata* Chiovenda.**

E. CHIOVENDA; Contributo alla conoscenza della Flora del Paese dei Cunama (Eritrea), in L'Agricoltura Coloniale di Firenze anno XVIII, no. 10, [1924] p. 350! (p. 11 dell estratto).

Panicula laxissima, erecta, ramis remotis patentibus, divaricatis, 1—5 spiculiferis. Palea rigida complicata, 10—12 mm. larga, dorso secus costam serrato-ciliata, caeterum glabra; aristae vix paleam superantes rigidae parum divaricatae. Affinis *A. rhiniochloae* sed diversissima. Um Ager, 17—3—1923. Camp. for. 3.

The type, in the Herbarium at Florence, was not studied by me, although I examined all the other types of the species described by CHIOVENDA. I am informed by Prof. CHIOVENDA that *A. serrulata* is probably but a variety of *A. rhiniochloa*, an opinion I could not verify. The description of *A. serrulata* is too short to compare the characters with those of the *A. rhiniochloa*, nothing is said about the form and the dimensions of the glumes. Prof. R. PAMPANINI of the Florence Herb. has promised to send me the type of *A. serrulata* for study, as soon as he has found the specimen.

***Aristida setacea* Retzius.**

ANDREAE JOHANNIS RETZII; Observationes Botanicae, Lipsiae Fasc. IV. [1786] pag. 22!

62. ARISTIDA *setacea* culmo erecto, aristis scabriusculis.

In aridis sterilioribus Malabariae Cel. KÖNIG, unde sub nomine Aristidae arundinaceae misit. Ab hac vero certe diversa.

Culmi stricti, simplices uti ex nostro exemplari videtur.

Panicula contracta.

Calyx uniflorus: *valvula interiore* longiore tenuiore fere aristaeformi: *exteriore* parum brevior carinata, acuminata.

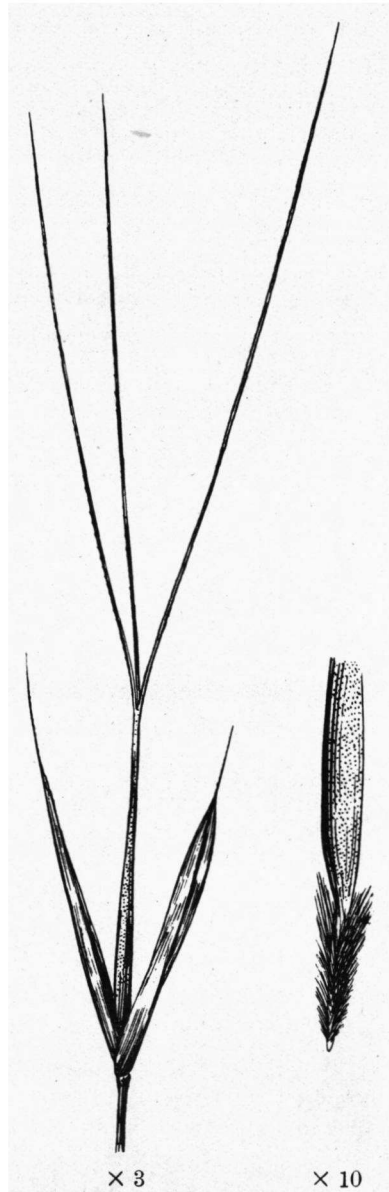
Corolla basi lanata, ceterum nuda.

Aristae scabriusculae.

Inter utilissima Indorum gramina. *Scopae* inde conficiuntur, ad dentes pectinum textorum adhibentur; chartae confectores loco filii Orichalcei illo utuntur; acum vices subit ad Templam floribus ornanda, ad patinas e foliis conficiendas etc. *Cel. KÖNIG* in litt.

Through the courtesy of Prof. S. MURBECK, I could study the type in the Retzius Herb. at Lund (Sweden). There is also a good specimen in the Willdenow Herb. at Berlin, received by WILLDENOW from KLEIN, this specimen was studied by TRINIUS. The cover with the number 1808 bears a label: „*Aristida setacea* culmo erecto, aristis scabriusculis Sp. pl. 1. p. 460. Habitat in Malabar.” There are two sheets in the cover, one is labeled: „*Aristida setacea* Retz. Fasc. IV p. 22 574 (Klein)”. Upon the sheet is written: „Klein Ind. 1798. W.” This is the same species as described by RETZIUS. The second sheet bears a panicle only and is labeled: „*Aristida* Buenos Ayres culmo 3 pollicari (W). This fragment belongs to *Aristida circinalis* (glume I. longer than II. etc.) The panicle agrees with a specimen from Buenos Aires in BALANSA'S Herbarium at Leyden (sub no. 908.84—417).

In the work of TRINIUS and RUPRECHT, *Species Graminum Stipa-ceorum*, we find as a synonym under *Aristida Hystrix* L. F., THUNBERG'S *Aristida tripilis*, *Florula Ceylan. Diss.* (1825) p. 2., a nomen nudum.



ARISTIDA SETACEA Retzius.
From type specimen.

In the Thunberg Herbarium at Upsala, received for study from Prof. O. JUEL, I studied two sheets, one is labeled by THUNBERG: „*Aristida tripilis*. α . ex insula Bourbonna Commerson”, the second sheet is labeled: „*Aristida tripilis*. β . e Ceilona Thunberg. Both plants are typical *Aristida setacea* RETZIUS. *Aristida Hystrix* is not known from Ceylon and the plant so-named by BAKER in his Flora of Mauritius is quite the same as *A. setacea*. In THUNBERG's Herb. there is also a sheet labeled: „*Aristida setacea* e Coromandela Rottler”, which bears the species of RETZIUS. In HOOKER's Flora of British India, *A. tripilis* is placed also under *A. Hystrix*, although HOOKER observed that he has not seen Ceylon specimens.

***Aristida setacea* Trinius.**

C. B. TRINIUS; Graminum Genera etc. in Mémoires de l'Acad. Imp. d. Sc. de St. Petersburg, VI^me Série. Tom. I. [1829] p. 84! non RETZIUS.

Panicula contracta, subsecunda; Glumis acutissimis: superiore subduplo longiori, perianthium 4-lineale subaequante; Aristae laciniis subaequalibus, valvula parum longioribus.

Chaetaria setacea Pal. R. et S. II. p. 391.

Aristida depressa Tr. Diss. I. p. 175.

V. sp. Ind. or.

Note: = *Aristida depressa* Retzius.

The two species described by RETZIUS as *A. depressa* and *A. setacea* were misunderstood by TRINIUS and what he accepted in the year 1829 as *A. setacea* is indeed the *A. depressa*. The true *A. setacea*, TRINIUS studied afterwards in the Herbaria of SCHUMACHER and WILLDENOW and in the year 1842 the name *A. setacea* of RETZIUS was correctly applied by him.

Aristida setacea and *depressa* are quite different species, the former is a robust perennial with a dense, contracted panicle, interrupted at the base only and the glumes are very acute and long-awned, their tips surpassing the base of the awns, the latter is not stout, more elegant with much shorter, unawned glumes.

***Aristida setifolia* H. B. K.**

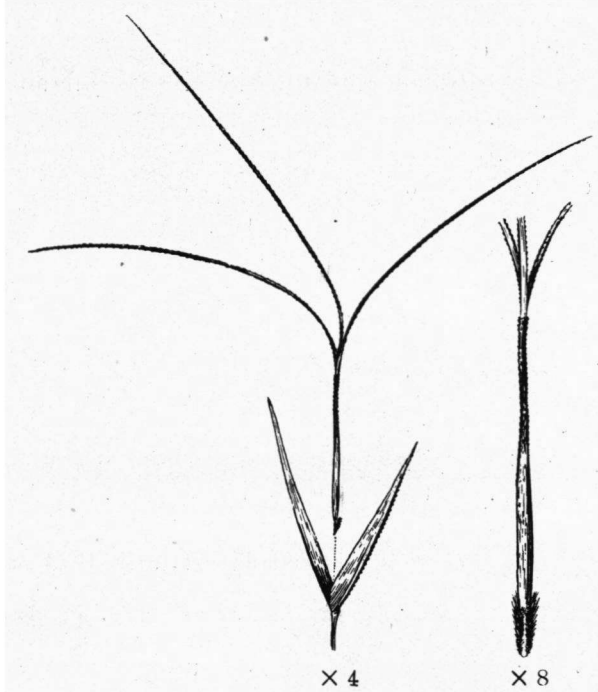
ALEX. DE HUMBOLDT, A. BONPLAND et C. S. KUNTH; Nova Genera et Species Plantarum. Tom. I. Paris. [1815] p. 122!

A. culmo ramoso; foliis convoluto-setaceis, margine scabriusculis,

pilosiusculis; panícula ramosa, secunda, subnutans, verticillata; glumis subaristatis; aristis subaequalibus.

Crescit in apricis Novae Andalusiae, inter Bordones et Cumana. 24 Floret Septembri.

RADIX fibrosa. CULMI caespitosi, erecti, sesquipedales, ramosi, striati, glabri. NODI glabri. FOLIA convoluto-setacea, striata, glabra, margine scabriuscula et pilis paucissimis, albis, sparsis obsita. VAGINAE striatae, glabrae. Ligula brevissima, longe ciliata. PANICULA ramosa, secunda, subnutans, gracilis, ramis subverticillatis, distantibus, patulis, secundis, rhachique scabris. GLUMAE lineares, apice subulatae et breviter aristatae, glabrae, dorso ciliato-scabrae, flavae, inaequales, inferior brevior, paleam inferiorem subaequans. PALEAE convolutae, albae, glabrae, basi pilis cinctae, inferior major, apice triaristata, aristis subaequalibus, palea duplo longioribus.



ARISTIDA SETIFOLIA H. B. K.

From type specimen.

A very characteristic species and although easy to recognize, it is often wrongly determined in the different herbaria I have studied. The type in the Paris Herb. was received for study from Prof. H. LECOMTE. The species is a perennial, flowering already in the first year, such specimens have a faint root-system and appear to be annual but there are mostly few innovation-shoots and the plants develop flowering-branches in the next season. The species is rather widely distributed and especially in Brazil rather common. It is the only American continent-species hitherto known, belonging to the section *Pseudarthratherum* CHIOVENDA, the lemma has a strongly twisted column and a true articulation just below the branching-point of the awns. Nothing is said about

this twisted column in the description, but TRINIUS and RUPRECHT, the accurate observers have already in the year 1842 indicated this character of the lemma. In their celebrated work: *Species Graminum Stipaceorum*, they say on p. 126: „*flosculo apicem versus scabro et cum arista mediante nodulo pl. min. distincte articulato, infra eum bis terve torto, trilineati*”. Although this character was so accurately indicated by the Russian monographers, authors never have given much attention to it. There are some American species with a faint nodule below the branching-point of the awns, such species belong to the group of the „*cognatae*”, but they have never a true articulation, caused by a special tissue.

On p. 191 of this Revision I have already pointed out that the same species was described by STEUDEL as *A. Gardneriana*. In the Willdenow Herb. there is a cover 1803 labeled in his hand: „*Aristida setifolia panicula ramosa contracta aristis patentibus, foliis setosis Habitat in America meridionali*”, in this cover there is a specimen without a label, but upon the sheet is written: „Humboldt W.”, it is certainly a duplicate type and exactly agrees with the actual type.

NEES has seen this specimen, but his synonymy given in his *Agrostologia Brasiliensis* (1829) p. 382 is wrong, because he included in his *Chaeturia setifolia* the very different *A. bromoides* and *A. coarctata*, described in the *Nova Genera* of HUMB. BONPL. and KUNTH; he has not mentioned the twisted column. See also my observations under the varieties of *A. setifolia*.

***Aristida setifolia* H. B. K.**

var. *arenaria* Trin. et Rupr.

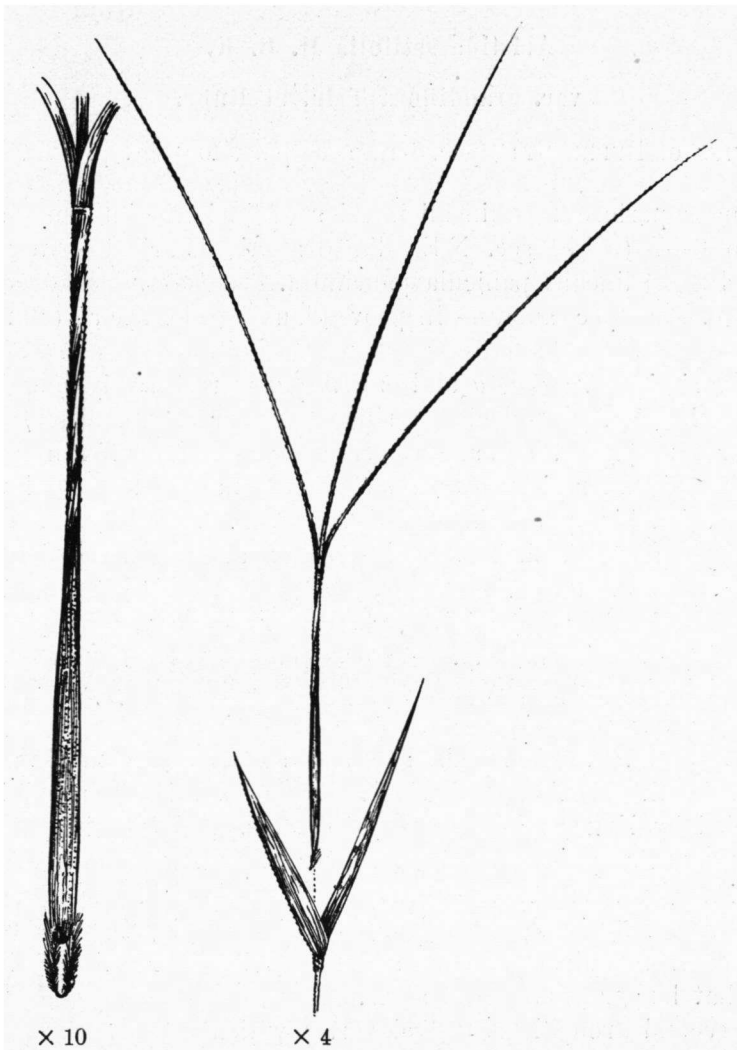
Species Graminum Stipaceorum, loc. cit. [1842] p. 126!

= *Aristida arenaria* TRINIUS, *De Gram. paniceis*. Diss. bot. altera, [1826] p. 25! non GAUDICHAUD.

= *Aristida sabulosa* KUNTH, *Agrost. Synoptica*. Tom. I. [1833] p. 196!

The different descriptions of TRINIUS are already given in this Revision on p. 36—37, compare also the description of *A. sabulosa* KUNTH on p. 528 of this work. As the type I have already indicated the specimen collected by RIEDEL near Cuyaba. *Aristida setifolia*, although in the vegetative parts and in the characters of the spikelets, easy to recognize, is a very variable species as to the dimensions of the glumes and awns and differs moreover in the shape of the panicle, therefore I will give here at first the data of the spikelets of the genuine *A. setifolia*, taken from the type. Glume

I. = ± 6 mm., gl. II. = $7\frac{1}{2}$ mm., gl. III. (lemma) including callus and column = 5–6 mm, the callus $\pm 0,8$ mm., the column ± 2 mm.; the central awn is 14–15 mm., the lateral awns are ± 12 mm.



ARISTIDA SETIFOLIA H. B. K.

var. *arenaria* Tr. et Rupr.

From type specimen.

long. The panicle is in the typical *A. setifolia* somewhat open and rather loose.

All the other varieties of *A. setifolia* have longer glumes and awns and the variety *arenaria* has the following dimensions of the spikelets: gl. I. = $7\frac{1}{2}$ mm., gl. II. = 10 mm., gl. III. including callus and

column = 10—11 mm., the callus 0,7 mm., the column 4 mm. long, the awns are subequal and about 20 mm. long, all the specimens of var. *arenaria* have a longer and more contracted panicle.

Aristida setifolia H. B. K.

var. grandiflora Trin. et Rupr.

TRINIUS et RUPRECHT; Spec. Gram. Stipac., loc. cit. p. 127!

Gluma superiore 7—8 lineali inferiorem lineis duabus superante; flosculo 6—7 (— 10 sec. N.E.) lineali; setis divaricato-patentibus, media 12—16 lineali; panicula pauciflora. — *Chaetaria setifolia* N.E. β . 1. l. c. sec. spec. auct. — In prov. Piaui et ad Joazeiro. (Martius.)

The varieties *grandiflora* and *intermedia* were already mentioned by NEES in his *Agrostologia Brasiliensis* under *Chaetaria setifolia*, in the year 1829 p. 382. To have a correct idea of the different plants, NEES placed under his *Chaetaria setifolia*, we must note the following: NEES divided his species into two groups, according to the length of the spikelets. His first group he called var. α with the diagnosis: „*spiculis trilinearibus, foliis setaceis, culmo laxo gracili, paniculae ramis paucifloris, glumis totis flavicantibus*”. Under the var. α he cited on p. 383 three specimens, e.g. the specimen from HUMBOLDT, he saw in the Willdenow Herb., and the plants collected by MARTIUS „*in campis prov. Piauiensis et in arenosis praeruptis ad fluvium S. Francisci pone Salgado prov. Minarum*”. The two specimens from MARTIUS I studied in the Munich Herbarium, the first specimen from Piaui is labeled by NEES: *Chaetaria setifolia*. $V. \alpha$., and is quite the same as HUMBOLDT's specimen, it is moreover annual, without innovations and with a very faint root-system. We know that such annual plants (flowering in the first year) are common in *A. setifolia*. The specimen from Salgado is also an annual, it differs slightly in the somewhat longer glumes and awns.

The second group NEES called var. β , with the diagnosis: „*spiculis 5-linearibus interdum purpurascens, foliis setaceis linearibusve plerumque convolutis, culmo fortiore*.” This group NEES divided once more into four divisions, he indicated by asterisks.

β .^{*} *foliis setaceis glaucis, panicula laxa pauciflora*. NEES cited on p. 383 under this β ': *cum var. α . in prov. Piauhiana et ad Joazeiro*. Both specimens are in the Martius Herb. at Munich, the first is labeled by NEES. These two specimens are mentioned by the Russian monographers and accepted as the types of the var. *grandiflora*.

The glumes are broader and longer than in variety α , the lower 10—11 mm., the upper 13—15 mm. long, the awns are about 30 mm. long. This variety *grandiflora* has usually a rather few-flowered inflorescence and spikelets with long pedicels.

β^{**} *foliis linearibus convolutis, culmo brevi ramosissimo, paniculae ramis brevioribus, spiculis latiusculis magis confertis*. NEES cited: β^{**} *cum praecedente*, his specimens in the Munich Herb. with the Munich number 4858 are a mixture of two different forms, one of them is very interesting on account of the more condensed panicle (a character cited by NEES) and the very short, but slightly twisted column, a character TRINIUS mentioned under his var. *intermedia* as „*flosculo infra articulum semel torto*”. This specimen is therefore the type of the variety *intermedia*.

β^{***} *foliis linearibus convolutis, culmo longiore, paniculae ramis alternis fasciculato-divisis multifloris, glumis interdum purpurascensibus*. NEES cited under β^{***} : *in provincia Bahiensi (Martius)*, he cited moreover *Aristida bromoides* H. et K. which is however a quite different plant and a true *Chaetaria*. The specimen collected by MARTIUS, in the Munich Herb. (no. 4860) bears a label by NEES: „*Chaetaria setifolia β^{***} Aristida bromoides H. et K. Bahia*.” This specimen was placed by TRINIUS under his var. *arenaria*, it is not quite typical *arenaria* and has longer awns. There are so many intermediary forms between the different varieties described hitherto, that it is impossible to place each specimen in one of them.

β^{****} *foliis linearibus planiusculis nudis (praeter basin), culmo stricto ramoso, panicula contracta, ramis erectis*. NEES cited: *in ripa fluminis S. Francisci ad Joazeiro provinciae Bahiensis (Martius)* and as a synonym *Aristida coarctata* H. et K., which is wrong. See this Revision p. 98—99. The cited specimen belongs however to *Aristida setifolia* var. *grandiflora*, but is distinguished by the long column, together with the lemma and callus, 15 mm. long. NEES gives for his variety β . the length of the lemma with the column as 4—10 lin., a character also given by TRINIUS, but this is probably an error and in all the specimens I studied in the Nees Herb. at Munich, there is not a single plant with such extraordinarily long lemmas.

To distinguish the different varieties of *Aristida setifolia* we can use the length of the column together with the dimensions of the spikelets.

***Aristida setifolia* H. B. K.**

var. *intermedia* Trin. et Rupr.

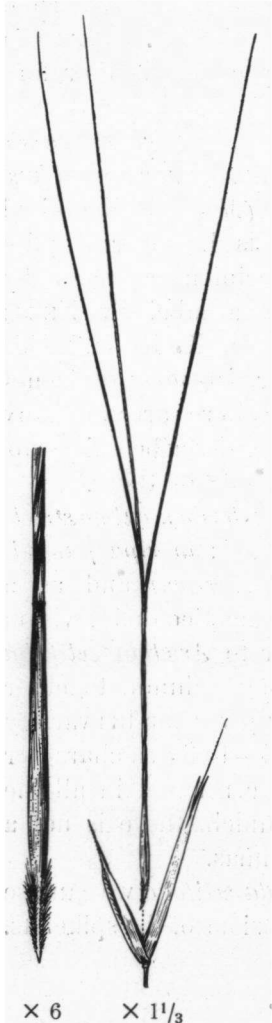
loc. cit. pag. 127!

Gluma superiore 5 lineali, inferiorem lineâ *superante*; flosculo vix 4 lineali, infra articulum semel torto; setis divaricatis, vix strictis, media subpollicari. — *Chaetaria setifolia* N. E. *β.* 2. l. c. sec. sp. auth. — In prov. Piauhi et ad Joazeiro. (Martius).

See for this variety my observations given under var. *grandiflora*.

Aristida Sieberiana Trinius.

C. B. TRINIUS; Agrostographische Beyträge ap. K. SPRENGEL, Neue Entdeckungen im ganzen Umfang der Pflanzenkunde. Zweyter Band. Leipzig. [1821] p. 61!



ARISTIDA SIEBERIANA
Trinius.

From type specimen.

Radix fibrae validae, flexuosae. *Culmus* bipedalis, erectus, plus minus geniculatus, teres, glaber, tenuissime striatus, pennae corvinae crassitie, ad articulos 2—3 inferiores nodoso-tumidos ramosus, e glauco et amethystino varius. *Vaginae* internodio multo breviores, *culmum* ab ipso earum ortu linquentes ramosque arctiuscule ambeutes, striatae, glabrae, fauce utrinque brevissime calloso-auriculatae et (plerumque) barbatae. *Ligula* brevissima. *Folia involuto-setacea*, erecta, subflexuosa, firma, glabra, glaucescentia. *Panicula* spithamea, paullum nutans, primo contracta, dein patula, subsecunda, basi interrupta, colore culmi. *Rachis* aequa, scabriuscula. *Rami* solitarii (circiter 5—7), alterni, demum pl. min. patentes, statim supra basin ramosi: ramulis brevibus appressis. *Locustae*, computatis aristis, palmares. *Calyx* corollam (demta arista) superans, chartaceus: glumae lineari-lanceolatae, carinatae, ad carinam scabrae, apice attenuato *bidentatae setamque* brevem rectam emittentes: gluma inferior *duplo minor*. *Corolla* acuminato-stipitata, stipite villosa, chartacea, cylindrica, semi-pollicaris: *arista* recta, *longissima*, *inferne contorta*, scabriuscula: laciniis patulis *subaequalibus*, setaceo-capillaribus, strictis; valv. superior parva, oblonga, acuta, *lodicularum* squamis duplo longior.

Hab. in Palaestina.

(Im Herbario Palaestino des Herrn Sieber unter dem Namen *Ar. coeruleascens* Desf., mit welcher sie, wie aus der Beschreibung der (übrigens dreymal grössern) Blumen erhellt, gar nicht verwechselt werden kann.)

This species belongs to the section *Arthratherum* and is placed there in the group of the „*longiflorae*”, a group characterized by the contracted but not spike-like panicle, the strongly twisted column, the conical callus and the awned glumes, the upper deeply bifid, with long very narrow lateral lobes and a long awn from the sinus. The three most allied species of this group have a different geographical distribution. *Aristida longiflora* SCHUMACH. is the most common one, it has glabrous spikelets, perfectly smooth all over and is found from Southern Tunis and Senegambia to Togo and Kamerun. The two other species *A. pallida* STEUD. and *A. Sieberiana* TRIN. have scabrous glumes, the upper with long spreading scattered white hairs on the central part of the back or only near the margins, a character easily overlooked if we do not open the spikelets, the hairs are hidden by the overlapping margins of the lower glume.

In *A. pallida*, which extends from Nubia to the French Sahara, both glumes are bifid, it differs moreover in the longer, long-awned glumes, with longer and finer lateral setae and a longer column.

Aristida Sieberiana is an endemic species from Palaestine, only known from the collections of SIEBER, issued in exsiccatae under the name of *A. coeruleascens*. In the figure of the spikelet given here, the hairs of the upper glume are not indicated, the spikelet is figured as seen from the front or nearly so and thus we see only the back of the lower glume and the inner smooth part of the upper one.

Aristida Sieberiana Trinius.

var. *nubica* Trin. et Ruprecht.

Species Graminum Stipaceorum, loc. cit. pag. 161!

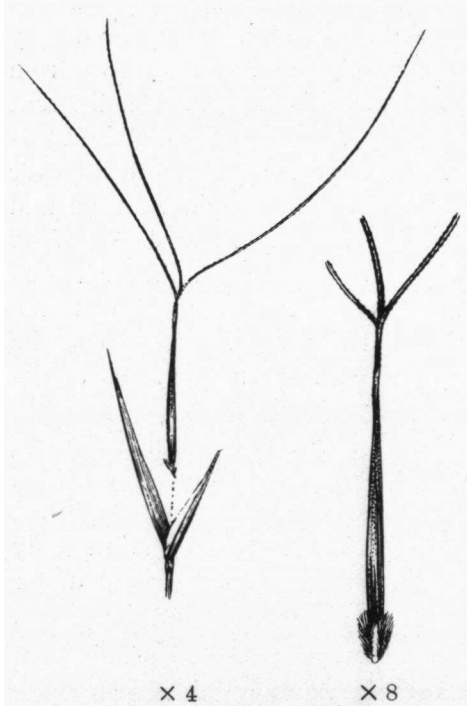
β. Nubica. Pallida; radiis paniculae longioribus: inferioribus geminis, superioribus solitariis, basi nudis; gluma superiore 9 lineali; stipite aristae pollicari, laxissime l. non torto; setis 3—3½ pollicaribus.— Ad pagum Cordofanum Abu-Gerad in sabulosis elatioribus m. Septemb. (Kotschy! Un. it. n. 55.)

Note: = *Aristida pallida* Steudel.

See my observations under *Aristida pallida* on p. 412 and the figure on p. 413 of this Revision.

***Aristida similis* Steudel.**

E. G. STEUDEL; Synopsis Plantarum Glumacearum Pars I. [1854] p. 420! no. 113 b.



ARISTIDA SIMILIS Steudel.

From type specimen.

Radice fibrosa caespitifera; culmis rectis simplicibus vel ramosis striatulis laevibus (cum panícula $1\frac{1}{2}$ -pedalibus) uti tota planta glabris; vaginis adpressis internodio brevioribus; ligula margo brevissimus; foliis e basi vix plana angustissima plus minus convolutis rigidulis rectis (2—4-pollicaribus); paniculae angustae rectae (3—4-pollicaris rufescentis) radiis fasciculatis inaequalibus erectis vel erectopatulis paucispiculatis; spiculis tenuibus parvis; glumis lineari-lanceolatis acuminatis, inferiore flosculum (2-linealem), aequante superiore parum longiore; flosculo tenui sursum scabriusculo non torto nec cum arista articulato; aristae setis inaequalibus brevibus, media longiore $2\frac{1}{2}$ -

lineali. *Aristidae vestitae Thunb* quidem similis sed jam glumarum varia constructione facile dignoscenda. *Boivin* coll. nr. 1630. St. Maria Madagasc.

The type, in STEUDEL'S handwriting, is in the Paris Herbarium and was received for study from Prof. H. LECOMTE. Beautiful duplicates I saw in the Florence Herbarium and in the collections at Vienna. *Aristida similis* is a distinct species, although it is not so very characteristic. The species is not allied to the other *Aristidas* from Madagascar or the African continent and it agrees in habit and in spikelet-characters better with American species such as the

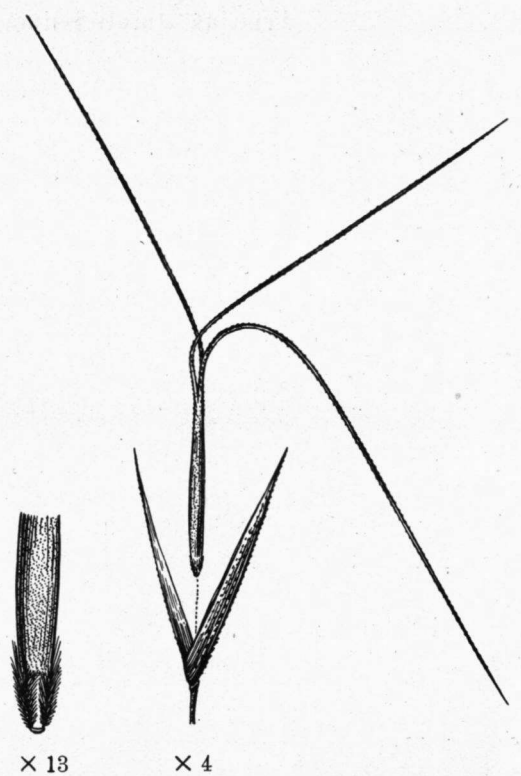
Mexican *A. orizabensis* or the Cuban *A. neglecta* and *A. refracta*, or even with the *A. gyrans* from Florida. We know that there is another grass from Madagascar which is related to an American one, a fact stated by Mss. A. CAMUS.*)

The type of *A. similis* agrees with the description given by STEUDEL but he overlooked the distinctly twisted well-developed column.

Aristida simpliciflora Chapman.

A. W. CHAPMAN; An Enumeratio of some Plants chiefly from the semitropical Regions of Florida, which are either new or which have hitherto not been recorded as belonging to the Flora of the Southern States, in COULTER, Botanical Gazette, Vol. III. [1878] p. 18!

Culms filiform, erect (2 feet high), sparingly branched; leaves narrow-linear; racemes simple, very slender, straight (6—9 inches long); flowers scattered, on short pedicels, single, or the lower ones by pairs; glumes nearly equal, awn-pointed ($3\frac{1}{2}$ lines long), the outer one longer than the paleae; awns widely spreading, the lateral ones as long as the glumes, straight, the middle one curving in a semicircle at base. — Damp pine barrens, West Florida.



ARISTIDA SIMPLICIFLORA Chapman.
From duplicate type specimen.

This rare species, only known from a few localities in Florida, has a very distinct habit on account of the very slender and narrow,

*) A. CAMUS; Le genre *Redfieldia* à Madagascar, Bulletin de la Société Botanique de France. Tom. 73, Cinquième série. Tom. II. [1926] p. 1028!

almost racemose panicle and the divergent awns of the spikelets. The glumes are about equal, the lower distinctly shortly pubescent or hairy all over, the lemma is somewhat shorter than the glumes, not beaked and the central awn has a strong bent and is reflexed. In HACKEL'S Herbarium at Vienna there is a good specimen, the sheet is stamped with the Vienna number 15065, the specimen is numbered 86 and the label bears the data: „*Aristida simpliciflora* Chapm. Suppl. Florida, 1884 misit Dr. Chapman.” This specimen has been accepted by me as a duplicate type. From Prof. HITCHCOCK, I received a part of the type collection in the U. S. Nat. Herbarium.

***Aristida simplicissima* Steudel.**

E. G. STEUDEL; Synopsis Plantarum Glumacearum Pars I. [1854] p. 139!

Caespitosa rigidula 4—6-pollicaris; radice fibrosa tenuicula; culmus simplicissimis vaginisque et foliis striatis laevibus glabris; foliis convoluto-setaceis, ligula candida oblonga apice setulosa; panícula simplicissima racemosa; radiis brevissimis solitariis vel binis subunispiculatis; glumis subcoloratis inaequalibus obtusiusculis, inferiore flosculo parum vel vix superiore fere duplo brevior; flosculo basi setulis cincto, setis scaberrimis flosculum sub 2-linealem parum longitudine superantibus. St. mauritiana. *Kunth.* var.? Ins. Borbon.

Note: = *Aristida mauritiana* Kunth.

The type in the Rijks-Herbarium at Leyden, sub no. 908.83—1003, bears a label: „EX HERB. MUS. PARIS. Ile de france. Commerson no. 152” and an accompanying label in STEUDEL'S handwriting: „*Aristida simplicissima*. Steud. synops. mpt. An *A. mauritiana* Kunth. var? Ins. Borbon.”

The specimens of *A. simplicissima* are exactly the same as the type of *A. mauritiana* in the Kunth Herbarium at Berlin.

***Aristida Sokotrana* Vierhapper.**

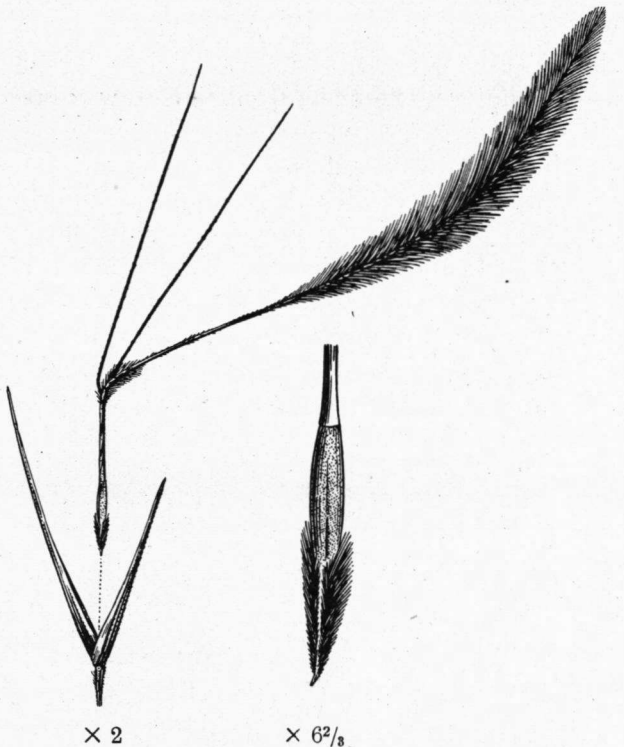
FRITZ VIERHAPPER; Beiträge zur Kenntnis der Flora Südarabiens und der Inseln Sokótra, Sémha und 'Abd el Kûri, in Denkschriften der Kaiserlichen Akademie der Wissenschaften. Wien. Bd. 71 [1907] p. 327! Taf. 1, Fig. 1.

= *Aristida plumosa* L. subsp. *Sokotrana* VIERHAPPER.

Neue Pflanzen aus Sokótra, Abdal Kuri und Semhah, in Österreichische Botanische Zeitschrift, LIII. [1903] p. 433!

Perennis, dense caespitosa, internodiis omnibus glabris. Culmi floriferi 5—15 cm longi, teretes. Foliorum vaginae fissae, in oris auriculati margine et ligulae loco lanato-ciliatae, laminae innovatione conduplicata, arcte convolutae, strictae, ca. 1.5 mm latae, arcuatae, acutae, pungentes, glaucae, 13-nerves, sulcatae, supra et in margine scabriusculae, infra glabrae, inferiores 1—3, superiores 1—2 cm. longae.

Spiculae breviter stipitatae paniculam compositam, contractam formantes. Glumae steriles inaequales — inferior cum cus-
pide 10—12 mm, superior 20 mm longa — lanceolato-oblongae, e parte basali virescente, rarius violacescente, membranaceo-marginata, quinque-nervi, in cuspidem uninervem, ipsa longiorem sensim attenuatae, nervis scabridis exceptis glabrae. Gluma fertilis callo stipitiformi, ca. 1.5 mm longo, in superiore parte albide piloso suffulta, involu-
tione fusiformis, 3 mm longa, laevis,



ARISTIDA SOKOTRANA Vierhapper.
From type specimen.

glabra, paleam includens, aristata; arista parte inferiore ca. 4.7 mm longa, torta, exiens in setas tres, quarum media 35—40 mm longa, basi geniculato-arcuata, pilis plus minus patentibus, iis infimae tertiae partis quam superiores, qui 2 mm longi, multo brevioribus, plumosa, laterales binae ca 14—15 mm longae, tenuiores, fere capillares, scabriusculae, non plumosae. Caryopsis gluma fertili inclusa, lineari-oblonga, glaberrima, per totam longitudinem hilo lineari, castaneo percursa, 2.5 mm longa, 0.6 mm lata.

Sokótra. Küstengebiet von Gubbet Ni an steinigen Stellen (Paulay). 27. Jänner 1899.

Abdal Kuri. Ebene nordöstlich vom Hafen (Paulay). 19 Jänner 1899.

Four years after the publication of his description, VIERHAPPER gives a new description (Denkschriften Wien loc. cit p. 327!) and a critical review of the allied species.

Die einzige *Aristida* aus der Section *Stipagrostis*, welche bisher von Sokótra bekannt wurde. Vom Typus der *A. plumosa* unterscheidet sie sich vor allem durch das Fehlen der dichtfilzigen Bekleidung an den unteren Stengelinternodien, sowie durch die von der Achse unter einem grösseren Winkel abstehenden Haare der Mittelgranne, ein Merkmal, welches *A. Sokotrana* auch von manchmal vorkommenden verkahlten Formen der *A. plumosa* zu unterscheiden gestattet, und durch die wenig oder gar nicht über die Haare hinausragende Spitze der Mittelgranne. Mit den als Formen der *A. plumosa* beschriebenen Typen: *A. Eichwaldiana* Trin. (Fund. Agrost. p. 165 [1820]) aus Persien und *A. plumosa* L., var. *floccosa* Batt. et Trab. (Flor. Alg. Monocot. p. 159 [1895]) aus Nordwestafrika ist *A. Sokotrana* ebenso wie mit der typischen *A. plumosa* wegen ihrer kahlen unteren Internodien, mit var. *floccosa* auch wegen der kahlen Blattspreiten nicht zu verwechseln. Nicht geringer sind die Differenzen zwischen *A. Sokotrana* und *A. Sahelica* (Trabut in Batt. et Trab. Plant. d'Alg., Nr. 295, sec. Trab. in Bull. soc. bot. Franc. tom. XXXIV, p. 392 [1887]), welche ebenfalls kahle Stengelglieder besitzt. Sie ist aber eine viel kräftigere Pflanze mit höheren, stärkeren Halmen, längeren Innovationssprossen, bedeutend (5—10 mal) längeren Innovationsblättern, längeren Spelzen, welche gleich der Achse der Mittelgranne zumeist violett gefärbt sind, und einem der ganzen Länge nach behaarten Callus. Überdies sind ihre Blattspreiten 11 nervig — *A. Sokotrana* hat 13 nervige Blätter — und weisen bedeutend kleinere und engerlumige Epidermiszellen auf als diese. Ob alle diese Merkmale constant sind, könnte allerdings nur an einem grösseren Herbarmateriale geprüft werden. Von *A. brachypoda* Tausch (Flora XIX, 2, p. 506 [1836]) ist unsere Pflanze durch die kürzere Mittelgranne, welche nicht wie bei dieser und auch gewöhnlich bei *A. plumosa* im untersten Drittel kahl und dann erst stark behaart, sondern schon von der Basis an mit allmählich gegen die Spitze an Länge zunehmenden und erst gegen die Mitte zu eine constante Länge erreichenden Haaren zweizeilig besetzt ist, von *A. ciliata* (Desfontaines in Schrader, Neues Journal III, p. 255

[1809]) und *A. Forskalii* Tausch l. c., endlich durch die relativ (im Vergleich zur Mittelgranne) viel kürzeren Seitengrannen, welche überdies bei ersterer immer, bei letzterer zumeist gleich der Mittelgranne federig behaart sind, sehr leicht auseinanderzuhalten.

Ascherson machte mich auf die Ähnlichkeit der *A. Sokotrana* mit der ägyptischen *A. obtusa* Delile (Flor. d'Égypte, p. 174, tab. 13, fig. 2. [1824]) aufmerksam. Die beiden Arten haben die kahlen Blattspreiten gemeinsam. Durch die „nicht gelappten“ Deckspelzen und die kürzer behaarte, nicht abgerundete Mittelgranne (das heisst: die äusserste Spitze der Mittelgranne ist mehr minder verkahlt und überragt die obersten Enden der Haare), ist aber jene schon auf den ersten Anblick von dieser zu unterscheiden.

A. Zittellii Ascherson (in: Verh. Ver. Prov. Brand., XXI, p. 70 [1880]), gleichfalls aus Ägypten, ist ausser durch „abgerundete“ Mittelgrannen auch durch die Kürze der Grannen und durch weitläufigeren Wuchs von *A. Sokotrana* verschieden.

The type I saw in the Vienna Herbarium and I have nothing to add to the accurate description and to the observations given by VIERHAPPER. The species has the habit of the common *A. plumosa* but differs at once in the quite glabrous internodes and in the spikelet-characters, the plumose part of the central awn is obtuse in outline and there is a curious tuft of short hairs at the branching point of the three awns. The plant although first accepted as a variety of *A. plumosa* by Dr. VIERHAPPER is certainly very characteristic and treated as a distinct species in my work.

***Aristida somalensis* Stapf.**

OTTO STAPF; The Grasses of British Somaliland, in Kew Bulletin. [1907] p. 216!

Affinis *A. vestitae*, Thunb., sed dimensionibus glumarum et arista haud cum valva articulata distincta.

Perennial, densely caespitose, light green. *Culms* up to 1 m. long, erect, simple, about 4-noded, with the uppermost internode finally by far the longest, wiry, glabrous, smooth. *Leaf-sheaths* tight, smooth, scarcely striate, glabrous, the lowest bearded at the mouth; ligule a fringe of short hairs; blade convolute-setaceous, up to 20 cm. long, up to 2.5 mm. broad when expanded, rigid, curved, glabrous, smooth below, scaberulous above and along the margins. *Panicle* erect, effuse or slightly contracted, 20—30 cm. long, up to 15 cm. wide; rhachis strict; branches 2—3-nate, up to 15 cm. long, the longest undivided for 5—6 cm., then sparingly branched;

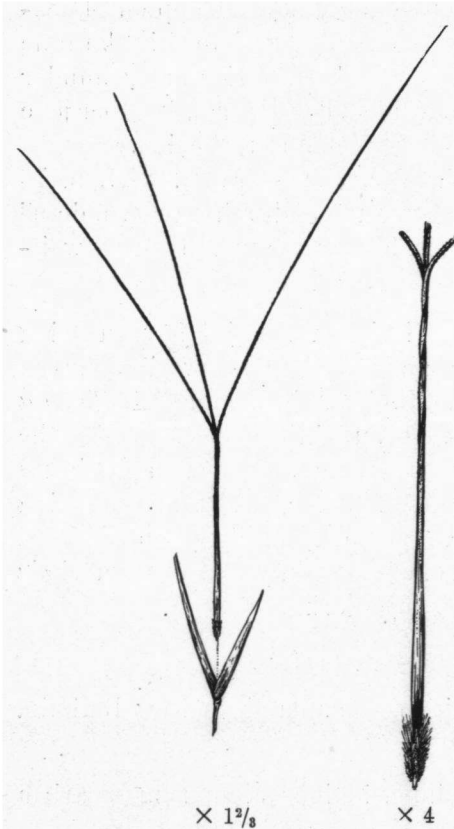
branchlets flexuose or straight, filiform, like the branches scabrid; pedicels 1–10 mm. long. *Spikelets* yellowish or brownish, 12–14 mm. long. *Glumes* scarious, rounded at the back, linear-acute, with a long fine point, 1-nerved, the lower lanceolate, 9–12 mm. long, flattened out 3 mm. broad, upper linear, 15–18 mm. long, 2 mm. wide. *Valve* linear produced into a twisted scaberulous beak, 16–18 mm. long (of which 8–10 mm. go to the beak), smooth

below the beak; callus 1 mm. long; awn continuous with the valve, bristles divaricate, the lateral 25–30 mm., the middle 35–40 mm. long. *Palea* elliptic, subtruncate, 15 mm. long. *Lodicules* obovate-oblong, 2 mm. long, finely nerved. *Anthers* purple, 6 mm. long.

Golis Range, *Drake-Brockman*, 10,124,127; without precise locality, *Lort-Phillips*.

VERN. *Saddeh Eli* (*Drake-Brockman*).

Through the courtesy of Dr. A. W. HILL, director of the Kew Herbarium, I could study the type which was collected by Dr. DRAKE-BROCKMAN. No. 124 is a panicle only, no. 127 a well-developed specimen and a panicle, both numbers are mounted upon the same sheet, which bears the name in Dr. STAPF's handwriting. The species has the habit of *A. stipoides*, a name



× 1 1/2
ARISTIDA SOMALENSIS Stapf.
From type specimen.

given on the label in lead-pencil, but it is a quite different species if we examine the plant exactly. The differences were already accurately indicated by Dr. STAPF. Compare my figure. The species, having the habit of species belonging to the section *Arthratherum*, must be placed in the section *Chaetaria* on account of the wanting articulation between the lemma and the column. In the section *Chaetaria* the species is allied, as to the technical characters, to the Australian *A. holathera* DOMIN and to the South American group of

the „*ripariae*” especially to *A. Ekmaniana* HENR., but in any other respects it differs abundantly.

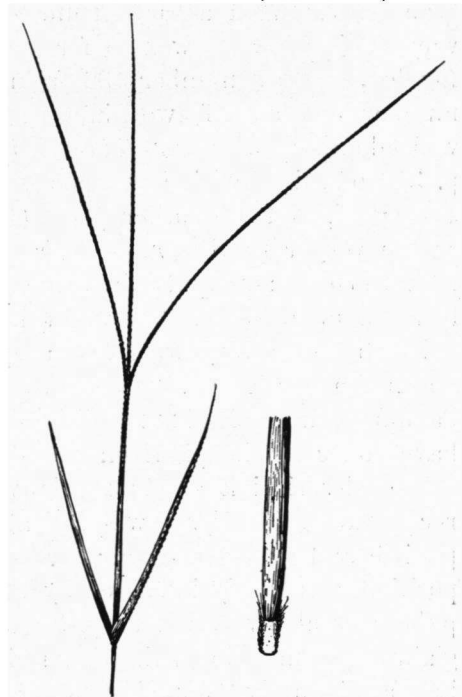
***Aristida sorzogonensis* Presl.**

J. S. PRESL; *Reliquiae Haenkeanae*, Vol. I. Praga. [1830] p. 224!

A. culmo erecto simplici glabro tereti, ligula brevissima pilosa, foliis convoluto-setaceis, margine scabris, paniculae simplicis contractae ramis verticillatis, glumis uninerviis aristatis, aequalibus, inferiore dorso pubescente, palea inferiore scabra, glumas excedente, aristis stipitatis gluma longioribus, inaequilongis.

Hab. in Luzonia ad Sorzogon.

Culmus erectus 6-pollicaris, teres, crassicie pennae columbinae, strictiusculus, glaberrimus laevissime striatus, totus obiectus vaginis teretibus profundius striatis, superne fere angulatis, longioribus internodio proprio. Ligula margo pilosus. Folia superiora culmum excedentia, arcuata, rigida, convoluto-setacea, intus glaberrima, margine scabra. Panicula basi vagina folii supremi inclusa octopollicaris, contracta, simplex. Rhachis obtuse triquetra scabra, rami plures 3—5, fasciculati, subverticillati, inaequilongi, uni-pauci-multiflori, longiores 2-pollicares, triquetri, scabri. Locustae in minimis ramis solitariae, in longioribus binatae, pedunculatae, pedunculis inaequilongis angulatis scabris. Glumae lanceolatae aequilongae, stramineae, purpurascenti infectae, uninerviae, inferior superiorem basi amplexans, nervo toto scabra, extus pubescens, pube demum evanida, apice seta scabra tertiam partem glumae aequante terminata, superior conformis, nervo apice scabra, glaberrima, seta terminata, quae brevior gluma inferiore, ideo quoad primum aspectum gluma haec brevior inferiore. Palea inferior subulata, flavescens, glabra, longitudine



× 3 1/3 × 12
ARISTIDA SORZOGONENSIS Presl.
From type specimen.

glumarum, excedens in stipitem tortilem scabrum suffulcientem aristas tres, scabras, glumis longiores, media longiori.

The species was described by PRESL from the Philippines, but a species with the characters given in the accurate description was never observed there, and it is quite sure that the locality is an error. I received a portion of the type specimen in the Prague Herbarium through the kindness of Dr. MERRILL, who asked me to clear up the species. I had already found a good duplicate of the type in the Vienna Herbarium and I recognized the species as a very distinct one. I was so fortunate to find in the Herbarium at Leyden, SMITH'S number 136 from Santa Marta in Columbia. This number consists of two different species one of them (no. 136 B.) was identical with *Aristida Moritzii* HENR. described by me on p. 356 of this Revision, a species belonging to the group of the „*cognatae*”, but the other plant (136 A.), I immediately recognized as the very rare *A. sorzogonensis* PRESL. Smith no. 136 in the U. S. Nat. Herb. is also quite the same plant as PRESL'S species, according to a fragment received from Prof. HITCHCOCK for identification.

By this discovery we know at present that PRESL'S species is a South American one, known from Columbia, probably also from Panama where HAENKE collected plants and he certainly cannot have collected the plant on the island of Luzon.

The description of PRESL is very good, for the characters to recognize the species I will call attention to the rather dense strict panicle and to the characters of the glumes. They have an inverse position, as already indicated by PRESL, the lower is awned, distinctly pubescent all over, 1-nerved, up to 11 mm., the upper is shorter, glabrous, 9 mm. long, the lemma is 10 mm. long, narrowed upwards into a distinctly twisted column, the spikelets are very narrow, linear and the awns are 15—18 mm. long. It is a pity that the species must bear a name taken from a false locality but it is not permitted to reject names on account of an erroneous indication of a locality and we have to accept the name *A. sorzogonensis* for the species.

The species has somewhat the habit of *A. rigida* CAV. also erroneously described from the Philippines but *Aristida rigida* differs in the equal, not awned much shorter glumes, about 5 mm. long, in the absence of a twisted column and in the unequal awns, the lateral half as long as the central one. See my figure on p. 514 of this Revision.

Among the *Aristidas* of the Herb. at Brussels, kindly received

from Prof. DEWILDEMAN, I found good specimens of *A. sorzogonensis* from Costa Rica (H. Pittier & Th. Durand *Plantae costaricensis exsiccatae*) Savanes de Boruca XI. '91 no. 4462, collected by PITTIER. The species has thus a wider range and is probably not so very rare.

Aristida spadicea H. B. K.

ALEX. DE HUMBOLDT, A. BONPLAND et C. S. KUNTH; *Nova Genera et Species Plantarum*. Tom. I. Paris. [1815] p. 123!

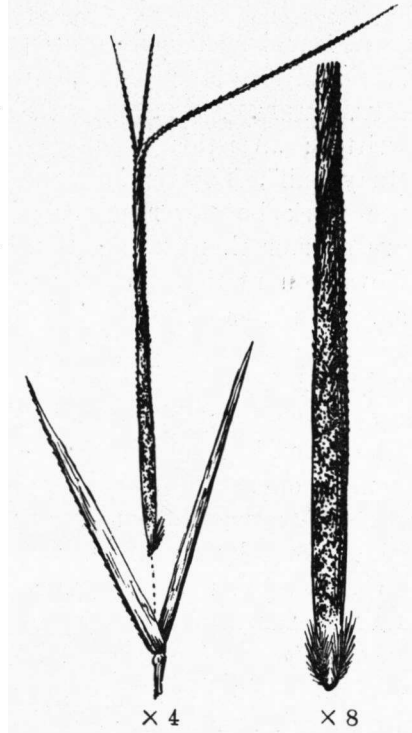
A. culmo simplici; foliis planis, margine scabriusculis; panicula ramosa, secunda, subnutante; glumis brevissime aristatis; aristis inaequalibus.

Crescit locis apricis, subfrigidis juxta Guanaxuato et Mina de Belgrado, alt. 1200 hexapodarum; item regione calida, in ripa Orinocensi prope Carichana et in inundatis fluminis Guayaquilensis, alt. 40—100 hexap. ☉ Floret Majo. Septembri.

CULMUS erectus, sesquipedalis, simplex, substriatus, glaber. NODI glabri. FOLIA linearia, plana, sicca convoluta, rigida, striata, glabra, margine scabriuscula. VAGINAE striatae, glabrae, ore pilosae. LIGULA brevissima, glabriuscula. PANICULA ramosa, secunda, subnutans, gracilis, octo- aut novempollicaris, ramis laxis, alternis, longissimis, patulis, secundis, compressis, rhachique subtrigona scabris. GLUMAE lineares, subulatae, brevissime aristatae, glabrae, dorso ciliato-scabrae, purpurascens, aetate fuscescentes, inferior brevior. PALEAE scabrae, basi pilosiusculae, superior minima, inferior gluma superiore multo longior, apice spiraliter convoluta, triaristata; aristis inaequalibus, intermedia palea duplo longiore, lateralibus dimidio brevioribus.

Praecedenti affinis. (*i.e.* *Aristida divaricata*).

Note: = *Aristida laxa* Cavanilles.



ARISTIDA SPADICEA H. B. K.

From type specimen.

Through the courtesy of Prof. LECOMTE, I received the authentic specimens in the Paris Herbarium for study. One specimen, without data, bears only the name in KUNTH's handwriting and a number. This specimen is the first specimen, mentioned in the description, from Mexico, the label was probably lost. In this specimen the lateral awns are about half as long as the central one, as given in the description. On account of the wanting authentic label, this specimen is not accepted as the type, although it perfectly agrees with the description.

A second specimen is accepted as the type, it bears HUMBOLDT's label: „*Aristida spadicea*, Guayaquil” and a second label: „HERB. MUS. PARIS. AMER. MERID. M. BONPLAND. 1833”, upon which is written: „*Aristida spadicea* Kth. *Chaetaria* ——— Röm. & Sch. Guayaquil”. This is also the specimen accepted by WEDDELL for the work he never published. In this specimen the lateral awns are shorter than in the Mexican specimen. The indication in the *Nova Genera* that the species is an annual is wrong. An authentic specimen was also studied in the Willdenow Herbarium, kindly received from Prof. PILGER. This specimen (no. 1805) is labeled only: „*Aristida spadicea* (W.)” and was received from HUMBOLDT, upon the inner side of the cover is written „H. K. nov. gen. et sp.” The lateral awns are well-developed and half as long as the central one.

Aristida spadicea agrees so well with the description and with the plate given by CAVANILLES under *Aristida laxa* that we are obliged to accept them as the same species and the localities given by CAVANILLES are certainly erroneous. *Aristida spadicea* has the habit of *Aristida Schiedeana* and the long twisted column of that species but differs in the glabrous glumes, in the longer lateral awns and in the shorter central awn. Although both species belong to two different sections of the genus *Aristida*, they are certainly much allied and intermediate forms (hybrids) although very rare in herbaria may be found in the field. The two species are distributed from Southern Mexico to Columbia, Venezuela and Ecuador, a region not sufficiently explored and the material of the two species is rather scantily represented in the different herbaria of the world.

Aristida spadicea Trinius.

C. B. TRINIUS; *Graminum Supplementa*, in *Mém. Acad. Imp. St. Pétersb. Tom. IV. [1836] p. 43!*

Paniculae subpatulae radiis subbinis: inferioribus superne floriferis;

Gluma superiore brevi-rostrata inferiore flosculoque bilineali parum longiori; Setis patulis: lateralibus flosculo bis-, media eodem ter longioribus; Foliis plerumque convolutis, glabris.

Aristida spadicea Kth. Agr. syn. p. 189.

Chaetaria spadicea R. et S. II. p. 379. N. ab Es! Agr. bras. p. 385. V. spp. Bras.

Culmus 1—2-pedalis. *Ligula* brevissima, obsolete limbriata. *Folia* modo plana, modo compressa, modo convoluta: inferiora pl. min. dodrantalia. *Panicula* 4—9-pollicaris, subsecunda, junior e glumis fuscis et flosculis flaventibus varia. *Glumae* 1-nerves. *Flosculus* dorso superne scaber.

Note: = *Aristida tinctoria* Trin. et Ruprecht.

The true *Aristida spadicea* as described by the authors of the *Nova Genera* was never seen by TRINIUS but he accepted that the *Chaetaria spadicea* described by NEES in the year 1829 was the same as the plant described by HUMBOLDT, although NEES did not study Humboldt's plant. The type of *A. spadicea* TRINIUS is therefore the same as the type of NEES, collected by MARTIUS in Brazil, in *praeruptis ripae fluvii Solimoes provinciae fluminis Nigri*. This specimen in the Munich Herbarium is labeled by NEES. He compared his species with *Aristida torta* KUNTH. TRINIUS found afterwards that the description of the *Aristida spadicea* H. B. K. was quite different from his own plant and he therefore described it as a new species under the name of *A. tinctoria* in the year 1842. The type of *A. tinctoria* is thus the Martius specimen, mentioned above and not the first specimen mentioned in 1842 under the description of *A. tinctoria*. The first specimen was from French Guiana, collected by LEPRIEUR and is indeed the same as the Martius plant. *Aristida torta* and *Aristida tinctoria* are accepted by different authors as the same species and although they are allied, they are in my opinion sufficiently distinct. See my observations afterwards under *A. tinctoria* and *A. torta*.

Aristida spectabilis Hackel.

EDUARD HACKEL, ap. HANS SCHINZ; Beiträge zur Kenntnis der Afrikanischen Flora in Bulletin de l'Herbier Boissier, Tome III. No. 8, [1895] p. 380!

Sect. CHAETARIA.

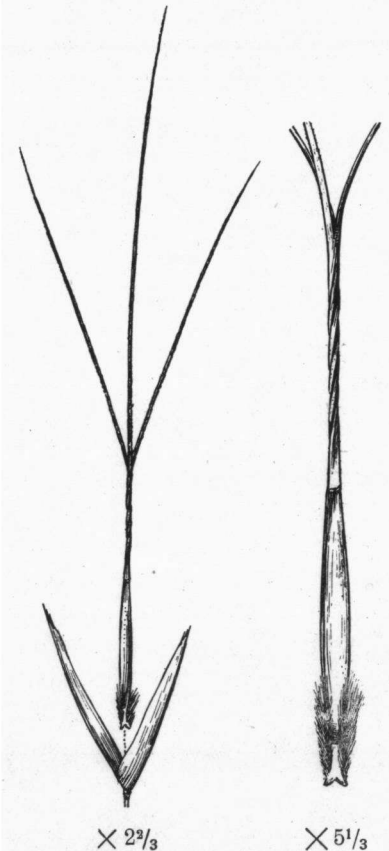
Perennis, caespitosa, robusta fere arundinacea, tota glaberrima. Culmi circ. 1,5 m. alti, teretes, simplices. Vaginae in culmi basi

dense flabellato-aggregatae, teretes, arctae, internodia superantes. Ligula ciliaris, brevis. Laminae elongato-lineares, setaceo-acuminatae, ad 60 cm. longae, basi 4—5 mm. latae sed siccitate involutae, glaucae, supra crassinerves. Panícula spectabilis, circ. 35 cm. longa, oblonga, v. ovata, nutans (?), laxiuscula, patens, rhachi laevi, ramis binis ad 20 cm. usque longis mox supra basin repetite ramulosis,

ramulis multispiculatis, scaberulis ultimis capillaribus flexuosis. Spiculae pedicello ipsas aequanti v. superanti capillari valde curvato fultae, lineares, stramineae: glumae steriles subaequales, 10 mm. longae, lineari-lanceolatae, acutissimae, apice hyalino saepius irregulariter lacinulatae, 1-nerves, laeves; gluma florifera linearis, circ. 7 mm. longa, basi breviter barbata, ceterum scaberula, cum aristae stipite 5—6 mm. longo pluribus gyris torto articulata, aristae divisiones capillares, patulae, scaberulae, media 2,5—3 cm. laterales 2 cm. longae.

Transvaal: Pretoria, Kuduspoort (Rehm. 4695).

Affinis *A. vestitae* Thunb., quae vero differt gluma sterili inferiore quam superior duplo breviori obtusa, panícula multo minore, foliis saepius lanatis. Eadem ratione (sed gluma ima adhuc breviori), differt *A. amplissima* Rupr.



ARISTIDA SPECTABILIS Hackel.

From type specimen.

A very distinct species, belonging to the section *Arthratherum* and not to the section *Chaetaria* as indicated

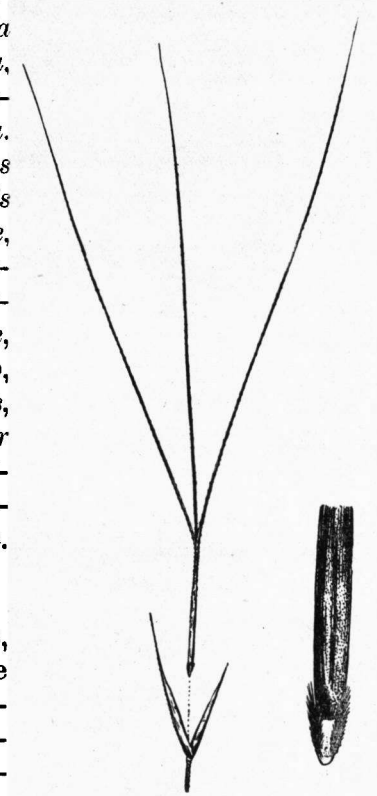
by HACKEL. It is a member of the group of the „diffusae”, having a bifid callus, it differs from all the allied perennial species of this group in the slightly unequal glumes, the lower but 1 mm. shorter than the upper. The type, Rehmman 4695, in HACKEL'S handwriting in his herbarium at Vienna, and in the Zurich Herbarium, kindly received for study from Prof. H. SCHINZ. The species is only known from the type collection.

***Aristida Spegazzinii* Arechavaleta.**

J. ARECHAULETA; Cuatro gramíneas nuevas y una conocida de la República Uruguaya, in *Anales del Museo Nacional de Buenos Aires*. Tom. IV. [1895] p. 177! et 178 fig. 1.

Culmi caespitosi 15—20 cm alti, erecti, subvaginati, striati, teretiusculi, graciles, glabri. Foliorum vagina arctiuscula, striata, glabra, apice hiante. Ligula brevis, ciliolata. Lamina 5—10 cm longa, subfiliformis, supra striata, scaberula, subtus laevis. Panicula erecta 8—10 cm alta. Axis striatus, scaber; ramis filiformibus vel subcapillaribus applicatis; pedicellis incrassatis. Spiculae 14—16 mm longae, sine arista, non computatae, lanceolato-subulatae, purpurascens. Glumae papyraceo-membranaceae, lanceolato-subulatae, Ia 1—3-nervis, nervo carinali scabro, secundam satis superans; IIa 1-nervis, prima 2,5 mm humilior. Valvula superior papyracea, filiformis, arista supra divisionem non torta, ramis 6—8 cm subaequalibus. Valvula inferior diminuta hyalina. — Perennis.

Cespitosa, de rizomas multicaules, pajas simples erectas de 15—20 cm de altura, subenvainadas, estriadas, lampiñas, delgadas. Vainas foliares superiormente un tanto abiertas, estriadas, lampiñas. Ligula breve pestañosa. Lámina foliar de 5—10 cm, convolutada, filiforme, cara superior estriada, escabrosilla, la inferior casi lisa. Panojas de 8—10 cm, erectas. Eje estriado, escabroso; ramas filiformes ó subcapilares recostadas contra el eje; pedúnculos subclaviformes y cortos. Espiguillas de 14—16 mm de largo, sin la arista, estrechas, puntiagudas, rojo-violáceas ó purpurescentes. Glumas papiráceo-membranosas, lanceolado-subuladas: primera 1—3-nerviada, más larga que la segunda, con dientecillos menudísimos en las nervaduras, sobre todo en la mediana; segunda 1-nerviada, rara vez 3-nerviada, 2—2,5 mm más corta que la primera. Palleta inferior apegaminada, pálida,



× 1 1/3 × 10
ARISTIDA SPEGAZZINII

Arechavaleta.

From type specimen.

tubulosa, estrecha, 1—3-nerviada, poco visible; pie, raquilla, breve, con pelos blancos cortitos, arista no torcida abajo de las ramas, las cuales miden 6—7 cm y son subiguales, capilares, ásperas, rectas. Palleta superior diminuta, hialina, estrecha, puntiaguda. Estigmas breves.

Se encuentra en campos gramínicos, de terrenos áridos pedregosos. Forma matas densas, cuyas panojas se destacan por su coloración roja del fondo verde del campo. Lo he recogido en terrenos con sienita descompuesta de Independencia.

Florece en Octubre y Noviembre.

El Sr. Hackel, á quien envié esta planta, la determinó, dándole mi nombre; pero no describiéndola él, lo hago yo ahora y la dedico al Dr. Carlos Spegazzini, renombrado micólogo, actualmente profesor en La Plata.

Prof. HACKEL received a plant from ARECHA VALETA for identification and recognized it as a new species. The plant in HACKEL'S herb. (Vienna number 15971) is a good specimen, it bears a label in ARECHA VALETA'S hand: „Monte Noybre 1891 campis gramínosis 34" with HACKEL'S determination: „*Aristida Arechavaletae* Hack. mss, valde affinis *A. complanatae*, sed diff. foliis filiformibus, lig. ciliari, aristae ramis 2 pollicaribus". HACKEL wrote upon this label afterwards: „*A. Spegazzinii* Arech." There is in HACKEL'S herb. another sheet (Vienna no. 15974) with two specimens, they were received by HACKEL afterwards, with ARECHA VALETA'S authentic printed label: „Collección del Profesor Arechavaleta", bearing in his hand the data: „*Aristida Arechavaletae* Hack. in litt. Campos gramínicos del Uruguay, terrenos pedregosos, sienita de Independencia Noybre 1891. Enviada con el no. 34 y det. *A. Arechavaletae* por el Sr. Hackel".

ARECHA VALETA published the species however under another name and HACKEL wrote afterwards upon the label: „*A. Spegazzinii* Arech." and: „(Original Stand.)". These specimens are accepted by me as the type, although they do not bear the name in ARECHA VALETA'S hand. HACKEL'S name was never published and I therefore could use it for a quite different species, also described by ARECHA VALETA. See this Revision p. 35 and p. 261—263.

Aristida Spegazzinii is allied to *A. circinalis* LINDM., it has the same inverse position of the glumes, the curious lemma with the deeply furrowed ventral side and the narrow blades, it differs from *A. circinalis* however in the shorter and more compact panicle, in the not or scarcely curled blades, in the much longer awns of the lemmas and in the very unequal length of the glumes. It was from

the specimens mentioned here that HACKEL described the var. *genuina*; see the variety afterwards in this work.

***Aristida Spegazzinii* Arechavaleta.**

var. *abbreviata* Hackel

ap. T. STUCKERT; Contribución al conocimiento de las Gramináceas Argentinas. [1904] loc. cit. pag. 94!

Culmus superne longe denudatus, paniculae circ. 10 cm. longae, rami 2—3ni valde abbreviati, primarius vix ad 1 cm. supra basim nudus, 2-spiculatus, secundarii brevissimi, unispiculati. Spiculae stramineo-viridis v. leviter rufescenti-suffusae, gluma I 14 mm. long., bidentula, mutica, II, 11 mm. long., minute bidentula, inter dentes mucronulata, III. 12 mm. long., aristae rami 3,5—4 cm. long.

Stuckert: Herb. arg. no 12,415 (31. XII. 1902). Alturas al Oeste de Calera, Dep. Punilla, Prov. de Córdoba á 1000 m. de altura sobre el nivel del mar.

The type is in HACKEL'S herb., bearing the Vienna no. 15981. It consists of two well-developed specimens and differs from typical *A. Spegazzinii* in habit and in some spikelet-characters. The panicles are long-exserted (culms naked upwards) and they are not so dense, the characters of the spikelets are intermediate between those of the typical *A. Spegazzinii* and the *A. circinalis*, the minutely bidentate glumes are characteristic, but we know that such glumes also occur in *A. circinalis*, so that it is not impossible that this variety *abbreviata* is a hybrid between the two species. Both are rather widely distributed in Argentina and grow often in the same localities. This is an interesting object for field study.

***Aristida Spegazzinii* Arechavaleta.**

var. *genuina* Hackel

ap. T. STUCKERT; Contribución al conocimiento de las Gramináceas Argentinas. [1904] loc. cit. p. 93!

Culmus superne breviter nudus. Paniculae circ. 12—14 cm. longae, rami 2—3ni, primarii longiusculi. basi 2—3 cm. nudi, apice 2—3 spiculati.

Spiculae purpureo-violaceae, gluma I. 15—16 mm long., mucronata; II, 11—12 mm. long. subito mucronato-acuminata, nec bidentata; III. 12 mm. long., aristae rami 6—7 cm. longi.

Speg. Fl. Vent. p. 52 no 305 y Fl. Tandil p. 53 no 321.

Hasta ahora era sólo conocida de la Argentina, de la Prov. de Buenos Aires, siendo descrita originariamente del Uruguay.

See for this variety my observations already given on p. 580 of this Revision.

Aristida Spegazzinii Arechavaleta.

var. pallescens Hackel

ap. T. STUCKERT; Contribución al conocimiento de las Gramináceas Argentinas. [1904] loc cit. p 94!

Culmus ad apicem usque vaginatus. Paniculae circ. 20 cm. long. rami bini, primarius satis longus ramulosus 5—6-spiculatus. Spiculae pallescentes, raro aristae leviter violascentes. Gluma I. 16—18 mm. long., acutissima mucronata; II. 10 mm. long., bidentula, mucronata; III. 10 mm. long., aristae rami 8—9 cm. longi.

Stuckert: Herb. arg. nos 12,022, 12,047, 14,049, 12,050 (10—13. XI. 1902). Colonia Ruiz Videla, pedanía Matorrales, Dep. Río II, Prov. de Córdoba.

NOTA: Las dos variedades α y β son habitualmente bien distintas, pero la construcción de las espiguillas, sólo demuestra una diferencia insignificante, quedando la *Aristida Spegazzinii tipica* próximamente en medio de ambos.

El carácter más importante de esta variedad consiste en que la gluma I es más larga que la gluma II, mientras que en todas las otras especies argentinas sucede lo contrario. — Hackel.

On p. 407 of this Revision I have already observed that HACKEL'S *Aristida pallens* var. *tenuicula*, described in STUCKERT'S Segunda Contribución, belonged for the greater part to *A. Spegazzinii* and that this correction was afterwards given by HACKEL himself in STUCKERT'S Tercera Contribución p. 70.

The type of var. *pallescens* is Stuckert no. 12022 in HACKEL'S herb. at Vienna. This var. also occurs with purple awns, it was mentioned as forma *colorata* HACK., without description, in Tercera Contribución. STUCKERT says only: „La designación *pallescens* ha sido aplicada para la variedad con cierta impericia, pero el no 19,396, excepto la coloración, concuerda con ella.” The var. *pallescens* is better characterized however by the very unequal glumes, the lower 16—18 mm. long and the upper only 10 mm. long, and the

very long awns, 8—9 cm. long. From the different dimensions of the glumes and awns we have, beginning with the *Aristida circinalis*, the following climax: *A. circinalis* ➤ *A. Spegazzinii* var. *abbreviata* ➤ *A. Speg.* var. *genuina* ➤ *A. Speg.* var. *pallescens*.

The var. *abbreviata* is probably an *A. circinalis* × *A. Spegazzinii*, interesting specimens, received from Dr. PARODI (no. 7657) and placed by me under this variety, have still shorter awns and distinctly curled blades, they more approach the *A. circinalis* and constitute the hybrid so far as we may deduce a hybrid from the morphological characters (according to my opinion allowed).

Such extreme forms as var. *pallescens* do not invalidate the hybridous character, we know at present that there are documental hybrids, where the dimensions of different organs surpass those of the parents.

Aristida spiciformis Elliott.

STEPHEN ELLIOTT; A sketch of the botany of South-Carolina and Georgia. Charleston. Vol. I. [1816] p. 141! ¹⁾

A. floribus confertis, subspicatis; arista intermedia basi villosa. Flowers crowded, somewhat spiked, the middle awn villous at base.

Root perennial. Stem 1—3 feet high, simple, slightly compressed. Leaves linear, glabrous, the upper surface and margins scabrous; sheaths shorter than the joints, with the throat glabrous. Flowers in compound racemes, so much appressed as to resemble a cylindrical spike. Calyx much shorter than the corolla, slightly compressed, both valves terminating in awns. Corolla, exterior valve involute, terminating in 3 awns, about as long as the valve; the intermediate awn longest, and slightly villous at base; inner valve very short, membranous. Filaments short. Anthers purple. Styles short. Stigmas plumose, purple. Grows in wet pine barrens.

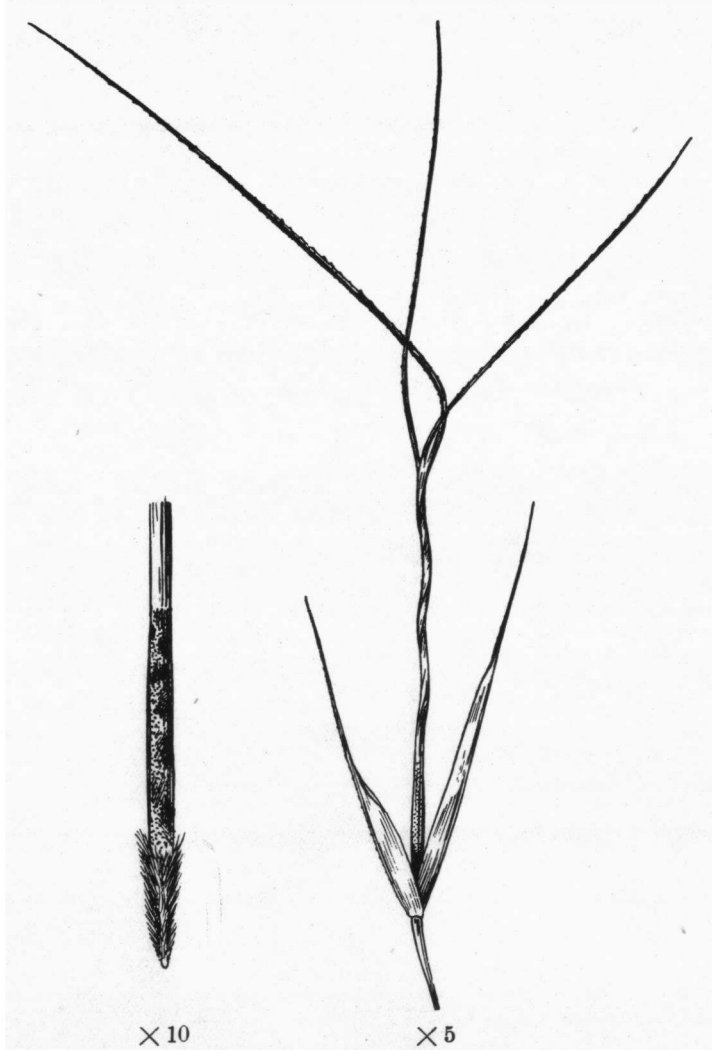
Flowers September—October. Spike flowered *Aristida*.

All the species of this genus grow in poor, sandy soils, and form tufts of dry, coarse grass.

The type, in the Charleston Museum, was not studied by me, from the description we can recognize the species which is very characteristic among all the North American species of the genus.

¹⁾ For a discussion of the dates of issue of the parts of Elliott's Botany see: JOHN HENDLEY BARNHART, Dates of Elliott's Sketch in Bulletin of the Torrey Botanical Club, Vol. XXVIII. [1901] p. 680—688!

ELLIOTT gives no dimensions of the spikelets, this is a pity, because the species occurs in two different forms, one with short and one with long spikelets. I have figured here the form with short spikelets, having the following dimensions: lower glume 4—5 mm. with a



ARISTIDA SPICIFORMIS Elliott.

From Florida, Vero, J. B. Thompson no. 13.

4 mm. long awn, upper glume 7 mm. with a 4 mm. long awn, lemma 5 mm., the column 6 mm. long, central awn 18 mm., lateral awns 12 mm. long.

The form with long spikelets has the following dimensions: lower glume 4 mm. with a 10 mm. long awn, upper glume 8—10 mm.

with an awn about 10 mm. long, lemma about 6 mm. with a densely twisted up to 3 cm. long column, the awns equal or subequal, 2½—3 cm. long. This is also the form TRINIUS and RUPRECHT described in the year 1842 as *A. spiciformis*, they also mentioned the form with short spikelets, a form they received from NUTTALL as *A. spiciformis* ELL..

***Aristida spicigera* Trinius et Ruprecht.**

Species Graminum Stipaceorum loc. cit. [1842] p. 136!

ut *A. Ehrenbergii*, sed paniculae fere spicatae, interruptae, pallidae radii 1—2 adpressi, subuniflori; flosculi glabri et seta media 5—6 linealis. — Flora Sinaïtica. (Ehrenberg!)

Note: = *Aristida adscensionis* L. var. *spicigera* (Tr. et Rupr.) Henr.

In the spikelet-characters there are no differences with the common *Aristida adscensionis*, a species which is very variable as to the shape of the panicle. Between the forms with a narrow contracted panicle and the forms with an open and diffuse panicle, described as *A. interrupta*, there are many intermediary forms, even in the same specimen we find sometimes differently shaped panicles. I have therefore accepted this plant only as a slight variety of *A. adscensionis*.

***Aristida spuria* Domin.**

Bibl. Bot. Heft 85¹ [1915] loc. cit. p. 341!

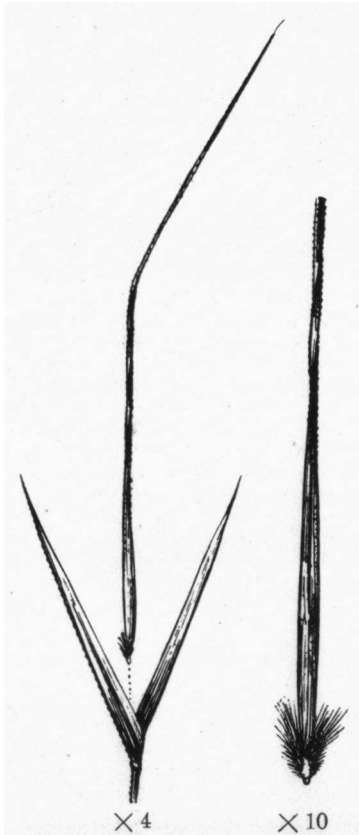
Habitu *A. arenariae* haud absimilis; annua, fasciculato-caespitosa, gracillima, circa 20—35 cm alta; *culmi* gracillimi, foliati, glaberrimi, erecti, basi subgeniculati, simplices vel subsimplices, *folia* perangusta, convoluta, setacea, subglauescentia, saepe curvula, unacum vaginis glaberrima; *panicula* erecta, circa 12—18 cm longa, angustissima, fere linearis, laxa, inferne interrupta, ramis brevibus, paucispiculatis, stricte erectis, haud flexuosis, scaberulis; rhachis vix scabra; *spiculae* erectae, pallidae, nonnullae longe, aliae brevius pedicellatae; *glumae* subaequales, lineari-lanceolatae, subscariosae, glaberrimae, 6—8 mm longae, acuminatae vel tantum gluma longior submucronatula, nervis lateralibus obsoletis; *glumella* anguste convoluta, linearis, glabra, cum stipite perbrevis hirsuto circa 6.5—7 mm longa; *arista* cum glumella continua (nec articulata); *aristae* columna spiraliter contorta, circa 3.5 usque fere 4 mm longa; *aristae* ramus medius linearis,

parum scaberulus, circa 7—9.5 mm longus; subulae laterales tenuissimae usque 2 mm longae sed haud raro una vel utraque haud evoluta.

Queensland: Castle Hill bei Townsville (DOMIN, II. 1910).

Von den beiden anderen australischen *Streptache*-Arten durch die angegebenen Merkmale und den Habitus sofort zu unterscheiden.

The type was not found among the Australian *Aristidas*, I received from Prof. DOMIN for study; I was however so fortunate to find among the *Aristidas* received from the Kew Herbarium, through the liberality of Dr. A. W. HILL, a sheet from the Queensland Herbarium Botanic Gardens, Brisbane, labeled: „*Streptachne stipoides* R. Br. Common on slopes of Castle Hill, Townsville. N. Q.” with 4 good specimens, collected by C. T. WHITE no. (1614) 3. 1922. These specimens agree perfectly with the description of Prof. DOMIN. At the type locality the species is said to be common. The specimens are important, because the lateral awns of the lemma are partly totally wanting, partly well-developed. The species is allied to *Streptache stipoides* R. Br., a species insufficiently known and hitherto only known from the type collection.



× 4
ARISTIDA SPURIA Domin.
From type locality.

Aristida squarrosa Trinius.

C. B. TRINIUS; Agrostographische Beyträge ap. K. SPRENGEL, Neue Entdeckungen im ganzen Umfang der Pflanzenkunde. Bd. II. [1821] loc. cit. pag. 62!

Rad. fibrae flexuosae, simplices. *Culmus* bipedalis, erectus, *strictus*, teres, glaber, tenuissime striatus, inferne pennae corvinae crassitie, superne nudus medio *ramosus*, ad ramorum ortum tumidus. *Vaginae* internodio duplo breviores, arctae, glaberrimae. *Ligula* obsoleta, aut pili aliquot. *Folia involuto-setacea*, erecta, firma, dorso angulo

compressionis scabra, ceterum glabra, glaucescentia. *Panicula oblonga*, spithamea, *stricta*, multiflora, ob aristas refractas squarrosissima. *Rachis* teres, glabra. *Rami* solitarii, (inferiores dissiti, paniculam interruptam reddentes, adpressi, statim supra basin ramosi: ramulis demum patentibus, brevibus. *Locustae* ex stramineo et spadiceo variae, ad divisionem aristae usque pollicem circiter longae, angustissimae. *Calyx* chartaceus: glumae lanceolatae, longe subulato-setigerae: inferior fere *duplo brevior*, ad carinam scabra; superior cum seta sua divisionem aristae superans: setae tenuissimae, rectae. *Corolla* cylindrica, coriacea, acuminato-pedicellata, basi nudiuscula, superne elongata in *aristam inferne tortilem*, medio tripartitam: laciniis lateralibus patentibus ultrapollicaribus, media *longiore* (sesquipollicari), *crassiore*, hispidiore, horizontaliter *refracta*. Reliqua generis.

Hab. in America boreali.

Note: = *Aristida spiciformis* Elliott.

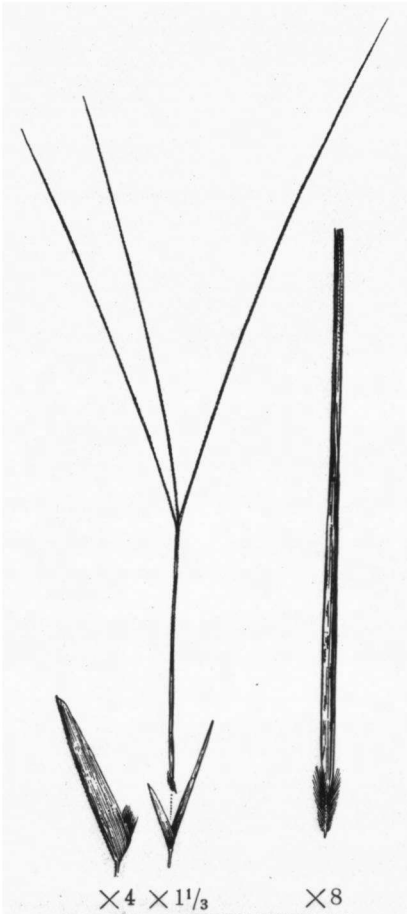
TRINIUS described the species from a specimen which was probably immature. In the *Species Graminum Stipaceorum* he cites this specimen and gives the „flosculo (ut videtur juvenili) cum stipite aristae 5 lineas tantum longo”. He received his specimen from the Vienna Herb. as *Aristida oligantha* MICHX. with the locality as Am. bor. only.

Aristida stenophylla Henrard

nov. spec.

(Sect. *Arthratherum*). Perennis, caespitosa; *culmi* graciles, adscendentes, glaberrimi, laeves, parce florifero-ramosi, toti vaginati; *vaginae* glaberrimae, internodiis breviores, inferiores latiores, marginibus hyalinis, superiores angustiores; *ligula* brevissima, minute ciliolata; *auriculae* breviter pubescentes; *laminae* e basi aequilata, anguste lineares, arcte setaceo-involutae, versus apicem longe acuminatae, expansae vix $\frac{1}{2}$ mm. latae, circa 10 cm. longae, extus glabrae, intus scaberulae vel breviter pubescentes; *panicula* circa 10 cm. longa, lineari-lanceolata, contracta, sed laxiuscula, subinterrupta, breviter exserta vel basi saepissime vagina summa obvoluta, rhachi ramisque tenuibus laevibus, his solitariis vel binis, erectis, paucispiculatis; *spiculae* breviter pedicellatae. glabrae, pedicellis puberulis, angulosis, apice subclavatis; *glumae* glabrae, valde inaequales, lineari-lanceolatae, obtusae, gluma I. 6—7 mm. longa, 1-nervis, breviter et abrupte acuminata, mucronata, dorso carinata, carina scabra, gluma II.

1-nervis, ca. 13—14 mm. longa, dorso haud carinata, laevis, apice minutissime bidentata; gluma III. fertilis laevis, callo acuto dense barbato, circa $1\frac{1}{2}$ mm. longo, 6 mm. longa, columna inferne glabra, superne scabra, circa 2 cm. longa, manifeste contorta, cum glumella articulata, aristae subaequales vel inaequales, centralis circa 55 mm. longa, laterales 45 mm. longae.



ARISTIDA STENOPHYLLA
Henrard.

From type specimen.

Somaliland: Da Obbia a Wuarandi, VII—VIII, 1891, leg. ROBECCI BRICCHETTI, vulgo „Birre” (Herb. Hort. Romani, nunc Herb. Florentini).

A very distinct species easy to recognize from *A. Sieberiana* TRIN., and *A. pallida* STEUD., by the different characters of the glumes.

Aristida Stuedeliana Trinius et Ruprecht.

Species Graminum Stipaceorum, loc. cit. pag. 155!

Paniculae 2—3 pollicaris, contractae, densiflorae, thyrsiformis, oblongae, basi exsertae radiis pluribus, semipollicaribus, sessilibus, jam a basi dense floriferis; glumis setosis, (seta $1-1\frac{1}{2}$ lineali computata) subaequalibus, 4

linealibus, puberulis, superiore apice *profunde bidentata*; flosculo 2— $2\frac{1}{2}$ lineali, dorso undique scabro, apice obsolete articulado, non torto; setis subaequalibus, strictis, erecto-patentibus, *sub 10 linealibus*.

Ad pagum Cordofanum Abu-Gerad locis demissis graminosis. Septembri (Kotschy! Un. itin. n. 33.); Abyssinia: prope Gapdia locis siccis umbrosis ad rupes. 30. Sept. (Schimper Un. it. n. 804!)

Aristidae hordeaceae nimis fortasse affinis, differt tamen: culmis simplicibus, compressis, cum nodis dense pubescentibus; foliis (inprimis culmeis) planis, $1\frac{1}{2}$ lineam latis, membranaceis, 3 poll. longis; glumis subpurpurascens, superiore profundius bidentata,

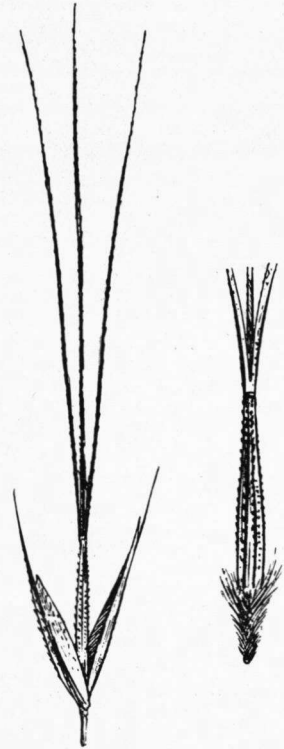
dentibus $\frac{1}{4}$ lineam longis; setis longioribus. *Culmi* 8 pollicares — pedales, caespitiosi; *radix* fibrosa, probabiliter annua.

Note: = *Aristida hordeacea* Kunth.

The Russian authors based their new species on the two plants Kotschy 33 and Schimper 804, edited in exsiccatae under the name of *Aristida hordeacea* KUNTH. They compared these plants with the type of *A. hordeacea* in KUNTH'S Herbarium and they described the differences. Under *A. hordeacea* on p. 243 of this Revision I have indicated why different authors accepted both species as valid ones and I have given there the reasons why we have to unite both species.

On p. 135 of this work, I could not give the exact interpretation of STEUDEL'S *A. densispica*, based on a plant collected by LEPRIEUR in Senegal. In the Herbarium of the University at Caen (Calvados), received for study from Prof. R. VIGUIER, I was so fortunate to find the type of *A. densispica* in STEUDEL'S handwriting. These specimens are dwarf plants, exactly agreeing in habit with dwarf specimens of *A. hordeacea*, they have quite the same glumes and the papillose-tuberculate lemmas with an articulation between the body and the awns, there is no column. STEUDEL'S description as to the lemmas is incorrect and he overlooked the articulation, from his description the species was not to recognize and one is inclined to place the species in the section *Chaetaria*. The discovery of the type has at once cleared up STEUDEL'S species.

The same species was named but not described by BATTANDIER and TRABUT as *Aristida papillosa* in Contribution à la Flore du pays des Touareggs; Bull. Soc. Bot. France. Vol. LVIII. (1911) p. 628. The type of this *A. papillosa* is in HACKEL'S Herbarium at Vienna. The specimens are faded and overmature and therefore they have a different aspect, but they agree in all the characters with *A. hordeacea*.



×4 ×6
ARISTIDA STEUDELIANA
Trinius et Ruprecht.
From type specimen.

Aristida stipiformis Lamark.**var. Paoliana Chiovenda.**

E. CHIOVENDA; *Plantae novae vel minus notae e Regione Aethiopica*, in *Annali di Botanica*. Vol. XIII. [1915] p. 371!

Gluma inferior dimidium superioris aequans.

Benadir: Boscaglia di Mogadiscio lungo la strada di Afgoi fra il 4° e il 5° km. (Paoli 1913, n. 115).

Osservazione: Nel tipo la gluma inferiore è manifestamente più breve della metà della superiore.

Note: = *Aristida Paoliana* Henrard.

This plant is not at all a variety of *A. stipoides* LAM. and accepted by me as a distinct species, already described on p. 420—421 of this Revision.

Aristida stipitata Hackel.

E. HACKEL ap. H. SCHINZ; *Beiträge zur Kenntnis der Flora von Deutsch-Südwest-Afrika und der angrenzenden Gebiete*. II., in *Verhandlungen des Botanischen Vereins der Provinz Brandenburg*. Berlin. XXX. [1888] p. 143!

(Sect. *Chaetaria*). Perennis, caespitosa. Culmi circ. 1 m alti, glabri, simplices. Folia glabra: vaginae breves; ligula brevissima, ciliolata; laminae lineares, acutae, 10—16 cm longae, 2—3 mm latae, siccando subconvolutae, margine scabrae, subtus laeves, supra scaberulae, glauco-viridulae. Panicula 20—25 cm longa, linearis, contracta, densiuscula, ramis binis a basi ramulosis 1—2-spiculatis. Spiculae 12 mm longae longioresve, lineares, pallide virides: glumae steriles membranaceae, lineares, 1-nerves, carina scabra, inferior 10 mm longa, acuminata, mucronata; superior 12 mm longa, infra apicem bidentulum breviter setigera; gluma florifera cum callo acutissimo 3 mm longo breviter denseque barbato 10 mm longa, linearis, superne glabra scaberula; aristae caducae stipes gracilis 4 cm longus multispirus scaber, divisiones aequales subcapillares 6 cm longae.

Ex affinitate *A. Sieberianae* Trin. Rupr.

Standort: Omatope, Ondonga Stamm (Amboland).

A characteristic species of the section *Arthratherum*, allied to *Aristida graciliflora* PILG. and *A. Paoliana* HENR. but differing from both in the very long column, always more than $3\frac{1}{2}$ cm. long. The three species have very unequal glumes and the upper one is only shortly bifid, the lateral lobes slightly developed with a short awn from the sinus. They have a different geographical range, *A. stipitata* is the South Western species, *A. graciliflora* the South Eastern one, *A. Paoliana* is only known from Somaliland.

Dr. STAPF mentioned the species in *Flora Capensis* vol. VII. p. 560 in a note under *A. Sieberiana* as a variety with longer foot to the awn, but *A. Sieberiana* is a quite different species that does not occur in South Africa.

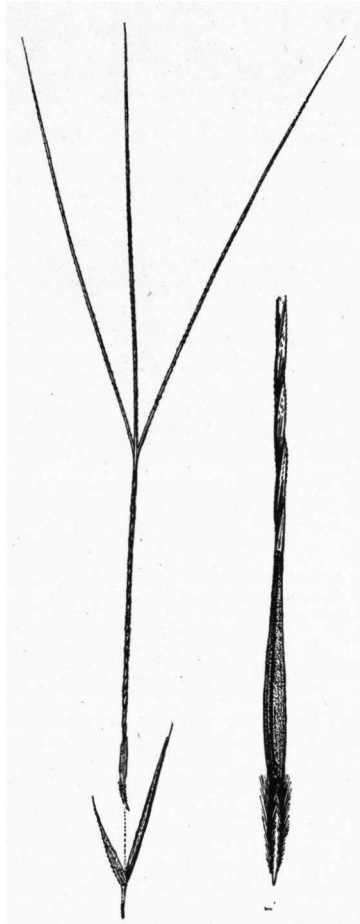
Aristida stipoides Lamark.

CHEVALIER DE LA MARK; Tableau Encyclopédique et Méthodique des trois règnes de la nature. Illustration des Genres. Paris. [1791] p. 157. n. 781!

A. panicula composita effusa capillacea, calycibus unifloris, arista trifida prae-longa laevi.

E Senegal. D. Roussillon. *Panicula stipae junceae*.

The type in the Lamark Herbarium (Museum d'Histoire Naturelle at Paris) is identical with the plant collected by DUPUIS, mentioned by TRINIUS and RUPRECHT under their *A. amplissima* and with KOTSCHY's no. 142 from Kordofan. LAMARK's specimen agrees perfectly with these specimens, it has the same curious bifid callus as given in my figure on p. 25 of this Revision. See also my observations under *A. Lamarckii* STEUDEL on p. 283 of the Revision. The species is distributed from Senegal and the French Sahara to Kordofan and Uganda.



× 1 × $\frac{4}{3}$
ARISTIDA STIPITATA Hackel.
From type specimen.

Aristida stipoides Lamark.**var. meridionalis Stapf.**

OTTO STAPF, in THISELTON-DYER; *Flora Capensis*. Vol. VII. [1899] p. 562!

Perennial, compactly tufted with numerous innovation shoots; culms erect, 3 ft. or more long, simple or sparingly branched, terete, glabrous, smooth, 2—3-noded; sheaths tight or loose, the lowest more or less slipping from the culm, glabrous, smooth, often black at the mouth, shiny; ligule a dense line of long soft hairs, surrounding the mouth of the sheath like a flake of wool; blades narrow, linear, up to $1\frac{1}{2}$ ft. by $1-2\frac{1}{2}$ lin., setaceously convolute, flexuous, subglaucescent, smooth below, scabrid above; panicle effuse, very lax, $1-1\frac{1}{2}$ ft. by $\frac{1}{2}-1$ ft.; rhachis strict or flexuous, smooth; branches 2—3-nate, spreading, the lower 4—8 in. long, repeatedly and remotely branched; branchlets filiform to capillary, flexuous; pedicels capillary, as long as the spikelets or longer; spikelets very scattered, yellowish; 4—5 lin. long; glumes very unequal, rather firm, rounded at the back, the lower linear-oblong, obtuse or emarginate, about $\frac{1}{2}-\frac{1}{3}$ as long as the upper, the latter lanceolate-linear, 2-toothed; valve linear, not beaked, $\frac{1}{3}$ shorter than the upper glume, smooth, mottled with purple; callus $\frac{1}{2}-\frac{3}{4}$ lin. long; awn disarticulating, stipitate, foot $2\frac{1}{2}-6$ lin. long, slender, twisted, bristles up to 1 in. long, fine; pale broad, over $\frac{1}{2}$ lin. long; lodicules finely nerved; anthers 2 lin. long; grain fusiform, 3—4 lin. long.

KALAHARI REGION: Griqualand West; Hunernerst Kloof, *Rehmann*, 3386! Orange Free State, *Buchanan*, 56! 68! between Kimberley and Bloemfontein, *Buchanan*, 281! Bechuanaland; between Kuruman and Matlareen River, *Burchell*, 2188! Also in Northern Bechuanaland.

Note: = *Aristida meridionalis* (Stapf) Henrard.

A latin description of the species was given by me in this Revision on p. 344. See also my observations on p. 345.

Aristida stipoides Rob. Brown.

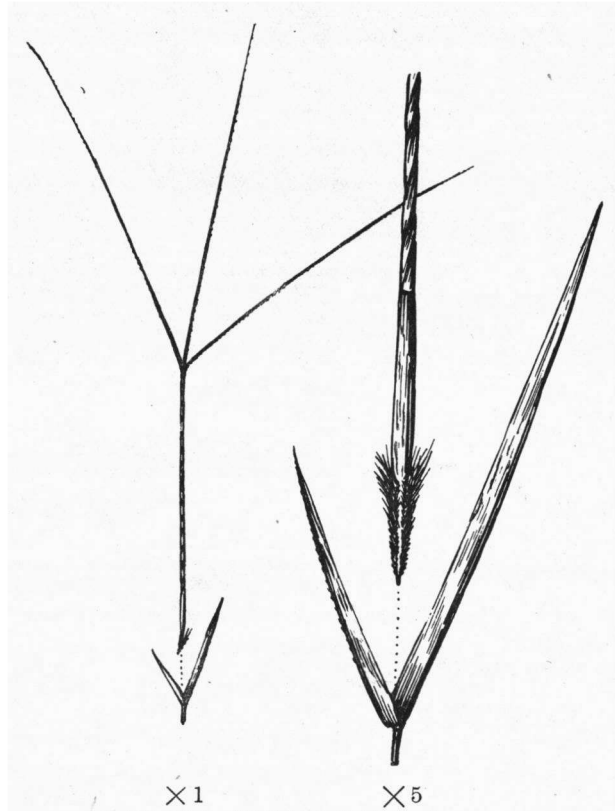
Prodromus Florae Novae Hollandiae et Insulae Van-Diemen, Vol. I. [1810] p. 174!

Arista trifida cum valvula articulata.

4. *A. stipoides*, racemo parùm diviso: ramis inferioribus subtrifloris, aristis 3-pollicaribus infra divisuram perianthio longioribus. (T.) v. v.

Note: = *Aristida Browniana* Henrard.

See for this plant my observations under *A. Browniana* on p. 63 of this Revision, where I supposed that R. BROWN'S plant is a hybrid between *A. arenaria* and *A. Muellerei*. On p. 359 I have given a review of *A. arenaria*, *A. Muellerei* and BROWN'S *A. stipoides*. The type of *A. stipoides* R. BR. in the Kew Herbarium bears a label: „R. Brown, Iter Australiense, 1802—5.” and the number „6197”, it was studied through the liberality of Dr. A. W. HILL.



ARISTIDA STIPOIDES Rob. Brown.

From type specimen.

***Aristida stipoides* R. Br.**

var. *brachyathera* Domin.

Bibl. Bot. Heft 85! [1915] p. 337!

b) var. *brachyathera* v. n.

Aristae columna tantum circa 20—26 mm, rami circa 44—46 mm longi.

Queensland: dürre Hügel und Savannenwälder bei Cloncurry mehrfach (DOMIN, II. 1910) (die Grannen messen im Durchschnitt 23—24 mm: 43—44 mm); bei Barcaldine minder typisch (DOMIN, III. 1910)

(20 mm : 40 mm, aber einzelne Grannen auch bis 30 mm : 50 mm). Auch bei Pentland habe ich eine Übergangsform gesammelt (26 mm : 50 mm, aber auch bis 32 mm : 55 mm).

Note: = **Aristida Browniana** Henrard.

Prof. DOMIN has figured on Pl. XIV. fig. 9 a spikelet of *A. stipoides* R. BR. (ein Ahrchen einer Form mit kürzerer Grannensäule. (Nat. Gr.). If we compare this figure with my figure, taken from the type, in the Kew Herbarium, given on p. 593 of this Revision, we see that both agree perfectly, what Prof. DOMIN called var. *brachyathera* is indeed quite the same form, BROWN described and we can therefore omit the variety *brachyathera*.

Aristida stipoides R. Br.

var. normalis Domin.

Bibl. Bot. Heft 85I [1915] l. c. p. 337!

Nach der Grannenlänge kann man zwei Varietäten unterscheiden
a) var. **normalis**.

Aristae columna fere 4 cm, rami 5 cm et ultra longi.

Eine dementsprechende Form habe ich bei Barcaldine (Grannensäule durchschnittlich 37 mm, Grannennäste 52 mm lang) und eine stark graugrüne Form am Fusse des Black Mount bei Cloncurry (Grannensäule ebenfalls ca. 37 mm, Äste 55—60 mm lang) gesammelt.

Note: = **Aristida Muelleri** Henrard.

Prof. DOMIN accepted the plant he called var. *normalis* as the typical *A. stipoides* of R. BR., but this is not in accordance with the type specimen. His var. *normalis* is indeed a different species, already described by me as *A. Muelleri* on p. 358 of this Revision, where a figure of the spikelet is given. Prof. DOMIN figured a spikelet of his var. *normalis* on Pl. XIV. f. 12. (ein Ahrchen einer Form mit längerer Grannensäule. (Nat. Gr.). Comparing the two figures we see that they agree very well.

Aristida stipoides Rob. Brown.

var. tenuisetulosa Pilger

ap. J. PERKINS; Fragmenta Florae Philippinae, Contributions to the Flora of the Philippine Islands, Fasc. II. [1904] p. 146!

Gluma vacua inferiore 19—22 mm longa, subulata, longe acutissime attenuata, 1-nervia praeter nervos 2 breves ad basin glumae, in medianum confluentes, dorso imprimis ad nervum scabro, superiore subulata, 24 mm longa, praeter nervum in setam excurrentem setulis 2 tenuissimis lateralibus instructa.

Luzon Isl., Prov. Zambales, Iba (MERRILL no. 329).

Die neue Varietät unterscheidet sich von der australischen Form durch die Natur der Hüllspelzen, deren Verschiedenheit aber wohl nicht zur Abtrennung einer eigenen Art berechtigt. Der Callus der Deckspelze ist spitz, 2 mm lang, weisz glänzend behaart; die Granne ist unterhalb der Verzweigungsstelle von ihrer Abbruchstelle gerechnet ungefähr 2,5 cm lang, mehrmals gedreht, die Äste der Granne sind 6—7,2 cm lang, wenig ungleich, rauh.

Note: = *Aristida tenuisetulosa* (Pilger) Mez.

The plant, described as a variety of the Australian *A. stipoides* R. BR., is however in some characters quite different and Prof. PILGER has already exactly indicated the differences. On account of these important differences we cannot unite the plants. I have accepted PILGER'S variety as a species, as did already Prof. MEZ.

The glumes of *A. tenuisetulosa* are much longer than those of the *A. stipoides* (*Browniana*), the lower is mostly 12—15 mm. long, sometimes even 19—22 mm., it has a strong midnerve and two short, but very distinct lateral ones, anastomosing with the midnerve. The lower glume of *A. Browniana* is always 1-nerved. The upper glume of *A. tenuisetulosa* is 18—22 mm., sometimes up to 24 mm. long, very acute, bifid at the apex, with a well-developed awn from the sinus, the lateral setae very distinct; the upper glume of *A. Browniana* is acute only without lateral setae. The lemma and column of both species do not differ in their characters but the awns of *A. tenuisetulosa* are much longer, 6—7 cm. long. See the figure of the spikelet afterwards in this Revision under *A. tenuisetulosa* MEZ.

Aristida Stocksii (Hook. f.) Domin.

Bibl. Bot. Heft 85 [1915] loc. cit. p. 338!

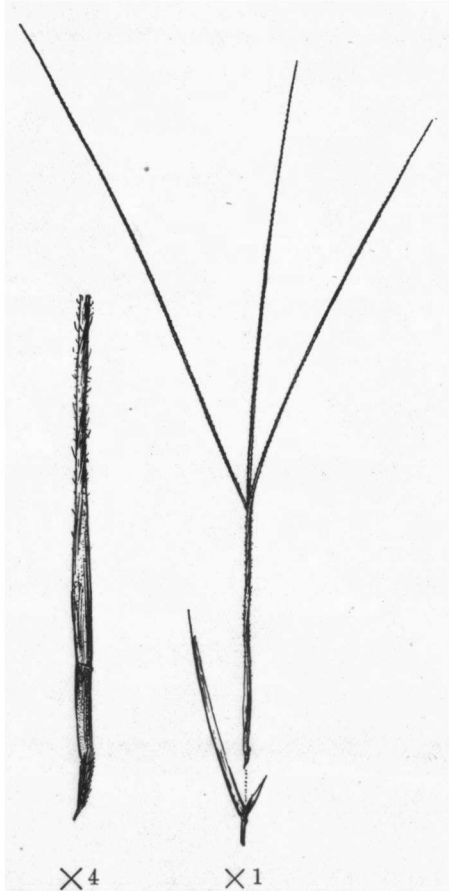
= *A. funiculata* var.? *Stocksii* Hook. f.; J. D. HOOKER; Flora of British India. Vol. VII. [1897] p. 227!

gl. I = $\frac{1}{4}$ II. — Concan? Herb. *Stocks*.

DOMIN says on p. 338:

Bei dieser Gelegenheit möchte ich noch eine andere, höchst merkwürdige Art erwähnen, welche HOOKER f. als eine zweifelhafte Varietät von *A. funiculata* mit wenigen Worten beschreibt und deren Original Exemplare ich untersucht habe. Es ist dies die:

A. Stocksii n. sp.



ARISTIDA STOCKSII (Hook. f.) Domin.
From type specimen.

Annua, culmis numerosis, geniculatim ascendentibus, cum panícula tantum circa 2 dm altis, foliatis; folia basi longe ciliata, vaginæ foliorum summorum panículam angustam fulcrantes; panícula brevis; glumæ quam maxime inæquales, I. tantum 6 mm, II. 25 mm longa; aristæ columna contorta, a glumella articulata, 25—30 mm longa; aristæ rami usque 70 mm longi.

Concan (?), Herb. STOCKS (in herb. Kew.).

A very curious annual species, belonging to the section *Arthratherum*. HOOKER says in his very short description that the first glume is $\frac{1}{4}$ the length of the second glume and DOMIN gives the same character: „gluma I. tantum 6, II. 25 mm. longa”. Both authors overlooked however the very curious inverse position of the glumes, the lower one is indeed the longer one and the

very short upper one is often hidden by the first glume. Because the plant was described as a variety of *A. funiculata*, an annual species with inverse position of the glumes, and all the species of the group of the „*funiculatae*” have such an inverse position, I supposed that *A. Stocksii* would not be an exception and indeed the type in the Kew Herbarium, kindly received for study from Dr. A. W. HILL, showed clearly the inverse position of the glumes,

Species with such a small upper glume are rare in the genus *Aristida*; the South American species with this character are perennials and belong to a different section of the genus.

***Aristida Streptachne* (F. v. Muell.) Domin.**

Bibl. Bot. Heft 85^I [1915] loc. cit. p. 342!

= *Stipa Streptachne* F. v. MUELLER, Journ. R. Soc. of N. S. W. [1881] p. 237; Systematic Census of Australian Plants, Part I. Vasculares. Melbourne [1882] p. 133!; Second Census [1889] p. 223!; F. M. BAILEY, Syn. Queensl. Flora [1883] p. 650; id. Catal. Plants Queensland [1890] p. 56.

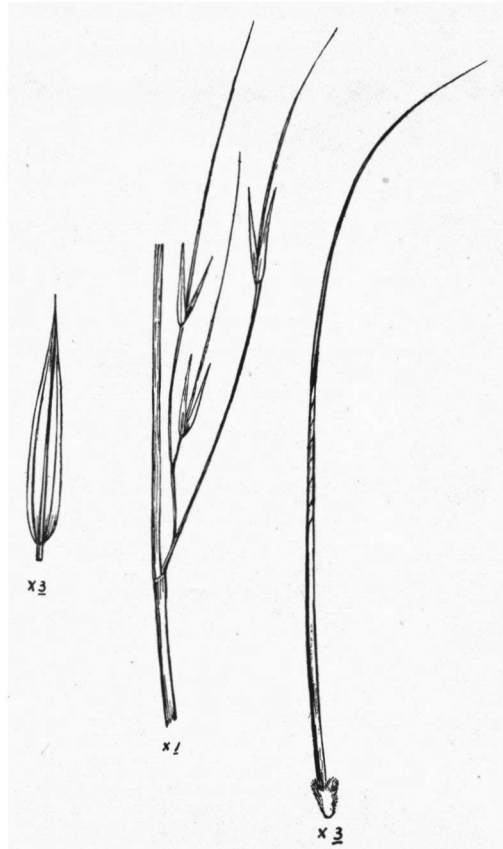
= *Streptachne stipoides* ROB. BROWN; Prodrum Florae Novae Hollandiae et Insulae Van-Diemen. Vol. I. [1810] p. 174!; BENTHAM, Fl. Austral. VII. [1878] p. 572!; F. M. BAILEY, Queensl. Flora VI. [1902] p. 1878; Compreh. Catal. [1913] p. 623, non *Aristida stipoides* R. BR.

Description given by Brown, l. c. p. 174!

Gluma uniflora, bivalvis, laxa, mutica. *Perianthium* pedicellatum, bivalve; valvula exterior cylindraceo-involuta, aristâ terminali simplici inarticulatâ infrâ tortili: interior inclusa, mutica. *Stamina* 3. *Styli* 2. *Stigmata* plumosa.

OBS. Gramen facie Aristidae v. Stipae ab hac diversum aristâ cum valvulâ inarticulatâ.

S. stipoides (T.) B. v. s.



ARISTIDA STREPTACHNE (F. v. Muell.)
Domin.

From type specimen.

ROB. BROWN'S genus *Streptachne* was accepted by HUMBOLDT,

BONPLAND and KUNTH. Although the New World species were united afterwards with the genus *Aristida*, the only Australian species was accepted as distinct and recently studied again by Mss. D. K. HUGHES (Kew Bulletin (1923) p. 301.) She studied the type of ROB. BROWN in the British Museum and her conclusion was that *Streptachne* is to accept as a genus. She gives the differences between *Stipa* and *Streptachne*, but nothing is said about the differences between *Aristida* and *Streptachne*. In *Streptachne* the awn is continuous with the lemma without a trace of an articulation, but this character is also found in the species of the section *Chaetaria* of *Aristida*; two lodicules and a reduced valvule are a common phenomenon in the genus *Aristida* and we have to accept Prof. DOMIN's opinion that *Streptachne* is only a section of *Aristida*, there is not a single character to separate *Aristida* and *Streptachne*. Accepted as a section, it is characterized by the suppressed or sometimes totally wanting lateral awns; if the lateral awns are better developed, they are however always very thin and differ in structure from the central awn, the section *Streptachne* as accepted in my work, is thus somewhat modified.

See also my observations under *Aristida Purpusiana* on p. 486 of this Revision and my remarks under *A. ramosissima* on p. 498.

Aristida Streptachne is a very imperfectly known species, hitherto only known from the type specimen, lacking the base and the leaves, collected by BANKS at the Endeavour River in N. O. Queensland.

Dr. A. B. RENDLE was so kind to give me valuable information on the type.

***Aristida stricta* Michaux.**

ANDREAS MICHAUX; Flora Boreali-Americana, Parisiis et Argentorati, Tom. I. [1803] p. 41!

A. culmis folisque stricte erectis: foliis pubescentibus: racemo in spicam longam, angustam, non ita confertam coarctato: aristis gluma longioribus.

Obs. Variat foliis planiusculis et convoluto-filiformibus.

HAB. in Carolina inferiore.

A perennial species, belonging to the section *Chaetaria*, with a narrow panicle, appressed branchlets and about equal glumes, there is no column, the lemma is scarcely beaked, the awns are

slightly unequal and at maturity one of them or all are horizontally spreading. The species is common and ranges from Carolina to Florida and Mississippi. It is very characteristic, the blades are closely involute, firm and somewhat flexuous, with a curious white woolly indumentum or a tuft of villous hairs, just above the mouth of the sheaths.

The type is in the Michaux Herb. at Paris, I examined a duplicate, collected by MICHAUX, in the Richard Herbarium at Paris.

***Aristida stricta*
Muhlenberg.**

Descriptio uberior Graminum loc. cit. [1817] p. 174! non MICHAUX.

Culmo bipedali tereti glabro.

Foliis linearibus elongatis, apice convolutis, pubescentibus. Ligula. Vagina. Panicula contracta densa.

Ramis paniculae solitariis alternis approximatis.

Cal. 2-valvis inaequalis carinatus, corolla multum brevior, valvula utraque *aristata*.

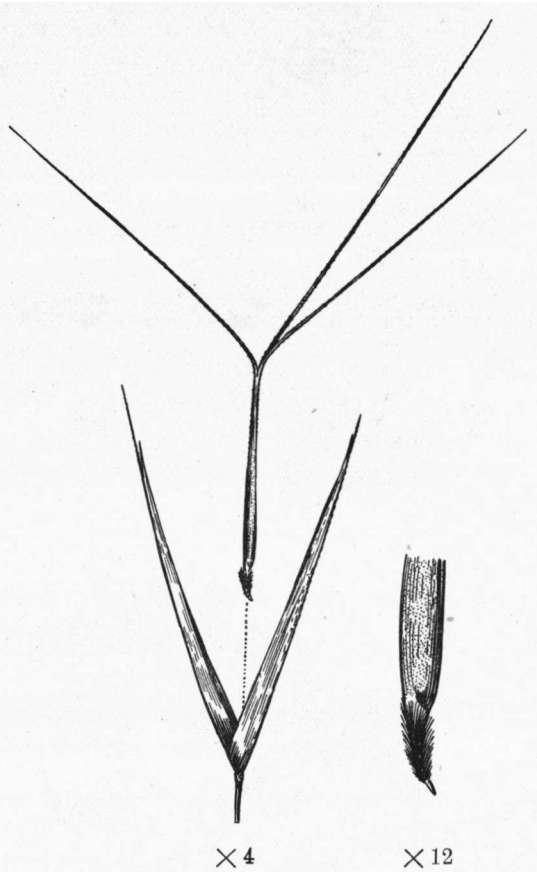
Cor. 1-valvis, aristis 3 terminalibus, intermedia longissima.

Stam. Pist. Semen. Radix.

Habitat in Georgia.

Note: = *Aristida spiciformis* Elliott.

MUHLENBERG describes the awned glumes, which are much shorter than the lemma (the body of the lemma, including the column). These characters identify the species as *Aristida spiciformis*. SCRIBNER



× 4 × 12
ARISTIDA STRICTA Michaux.
From duplicate type specimen.

and MERRILL do not mention the species in their account of the grasses of the Muhlenberg Herbarium. (U. S. Dep. Agric. Div. Agrost. Circular 27. (1900)).

In the Index Kewensis there is a citation: *Aristida stricta*, Auct. ex Steud. Nom. ed. II. 1. 132 = *virgata*. This being a nomen nudum, we can neglect it. There is in the Index Kewensis also a citation: *Aristida stricta*, Steud. Syn. Pl. Gram. 133 = *purpurascens*. Here, the Index Kewensis is incorrect, in STEUDEL'S work, cited here, he gives on p. 133 no. 6: ARISTIDA STRICTA. *Michx.* (Fl. I. 41.), with the synonym *Chaetaria stricta Beauv. Agr. t. VIII. fig. 5.* This is indeed the true *A. stricta* MICHX.; STEUDEL correctly interpreted MUHLENBERG'S *A. stricta* and we find in his work on p. 133 under no. 14. A. SPICIFORMIS. *Ell.* (Carol. I. 141.), the synonym *A. stricta. Mhlbrg. desc. p. 174*

Under no 10, STEUDEL describes the *Aristida stricta* of the Herbarium of CH. A. GEYER (sec. spec. a *Kampmannio* communicatum) from Illinois as a new species: ARISTIDA GEYERIANA, which is however the same as *Aristida purpurascens* POIRET. See this Revision p. 197.

ELLIOTT'S *Aristida stricta* (Fl. Car. 142.) was recognized as different from MICHAUX'S species and therefore described by STEUDEL as A. ELLIOTIANA (Steud. l. c. p. 133 no. 8.) This species is however also the same as *A. purpurascens*. See this Revision p. 164.

***Aristida strictiflora* Trinius et Ruprecht.**

Species Graminum Stipaceorum in Act. Acad. Imp. scient. Petrop. Ser. VI. Tom. V. [1842] p. 134!

= *Chaetaria curvata* β . *minor* NEES ab Es.; Florae Africae australioris, I. Gramineae. [1841] p. 187!

Description given by Nees, l. c. p. 187!

β . *Minor*, foliis paniculaeque strictioribus angustioribus, setula glumae superioris brevissima.

Var. β . in collibus ad Zondagrivier fluvium (Uitenhage) alt. 1500—2000' et at Zwartbulletje iuxta Garip fluvium alt. 2500', (Drège).

Var. β . statura strictiore humilioreque, spiculis quicquam minoribus, setulis glumarum brevioribus in superiori gluma lacinulas apicis raro superante differt, sed adeo congruit universo adspectu, ut varietatem, nec speciem propriam esse non dubitem.

Trinius et Ruprecht, loc. cit. pag. 134!

Culmo 8—10 pollicari, strictiori; foliis complicatis, minus curvatis;

panicula contractissima, *angustiore, lineari, strictissima*; flosculo 3—4½ lineali. versus apicem *undique scabro*; seta media 6—7 lineali. Reliqua ut in *A. curvata*. — *Chaetaria curvata* β. *minor* N. E. ! Gram. Afr. aust. (1841.) p. 187. In collibus ad Zondagsrivier fluvium prov. Uitenhage altit. 1500—2000 ped. et ad Zwartbulletje juxta Gariep fluvium altit. 2500 ped. Mart. et Apr. (Drege pl. exs. specc. a! non b. quae cum loco natali alterutro hic citato ad sequentem pertinent.) *)

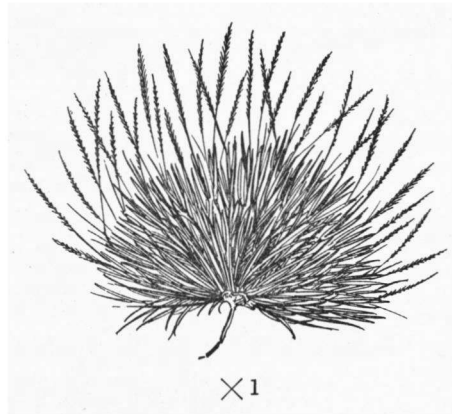
Note: = *Aristida curvata* (Nees) Trinius et Rupr.

See for this species my explications and observations already given under *Aristida confusa* on p. 112—113 and under *Aristida curvata* on p. 125 of this Revision.

Aristida subacaulis (Nees) Steudel.

E. T. STEUDEL; Nomenclator Botanicus. Stuttgart, Ed. II. Pars I. [1842] p. 132!

= *Arthratherum subacaule* NEES
AB ESENBECK; Florae Africae
australioris, I. Gramineae. [1841]
p. 180!



Racemulo basi oligostachyo denso subsimplici basi vaginato, aristae lacinia media subpollicari apicem versus plumosa, laterali-bus triplo brevioribus nudis, stipite convoluto valvula breviori, glumis flosculo subtriplo longioribus membranaceis, altera quarta parte breviori, culmis brevissimis in caespitem aggregatis pubescenti-scabris, vaginis nervosis margine late membranaceis, foliis setaceis scabris.

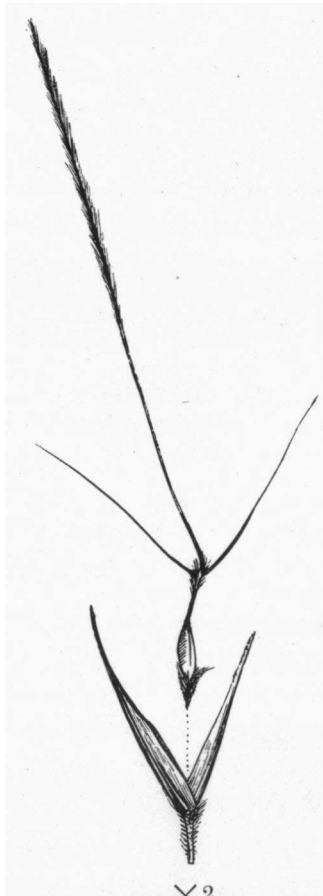
In editioribus circa Garip fluvium solo arenoso-argillaceo (Kl. Namaqualand) 300' alt., (Drège).

Floret Septembri. 2.

Arthrathero plumoso (*Aristidae*) Delile peraffine, sed longe diversa statura. Culmi cum inflorescentia ½—¾ poll. longi, e radice fibrosa crassa tomentosaque plurimi in globum compacti, tenues, setulis

*) *Aristida confusa* TRIN. et RUPR.

minutis hirti, uninodes, toti vaginati, vagina altera baseos, altera e medio spiculas involucran- te laxiusculis nervoso-striatis scabris ore



× 2
ARISTIDA SUBACAU- LIS
(Nees) Steudel.
From type specimen.

lanuginosis viridibus margine late membranaceis albis; accedit una et altera vaginula inferior minima, tota membranacea, acuta, squamiformis. Folia canaliculato-complicata, setacea, striata, scabra; inferior 4 lin. longum, superius 3 lin. longum. Ligula truncata, ciliata. Glumae angustae, longe acuminatae, albo-membranaceae, glabrae; inferior $3\frac{3}{4}$ - superior $4\frac{3}{4}$ lin. longa. Flosculus subcylindricus, laevis, cum strigoso suo stipite $1\frac{1}{3}$ lin. longus. Aristae stipes lin. 1 longus, ad divisuram barbatus; lacinia media 10—11 lineas longa, 5 linearum spatio a basi plumosa, fine obtuso; setae laterales patulo-erectae, capillares, nudae, 4 lineas longae.

Arthratherum plumosum differt in primis statura multo maiore, culmo ramoso villos, foliis longioribus filiformibus, vaginis angustioribus minus nervosis, panícula longa angusta, arista paulo breviori, glumis chartaceis.

An var. nana *Arthratheri obtusi*?

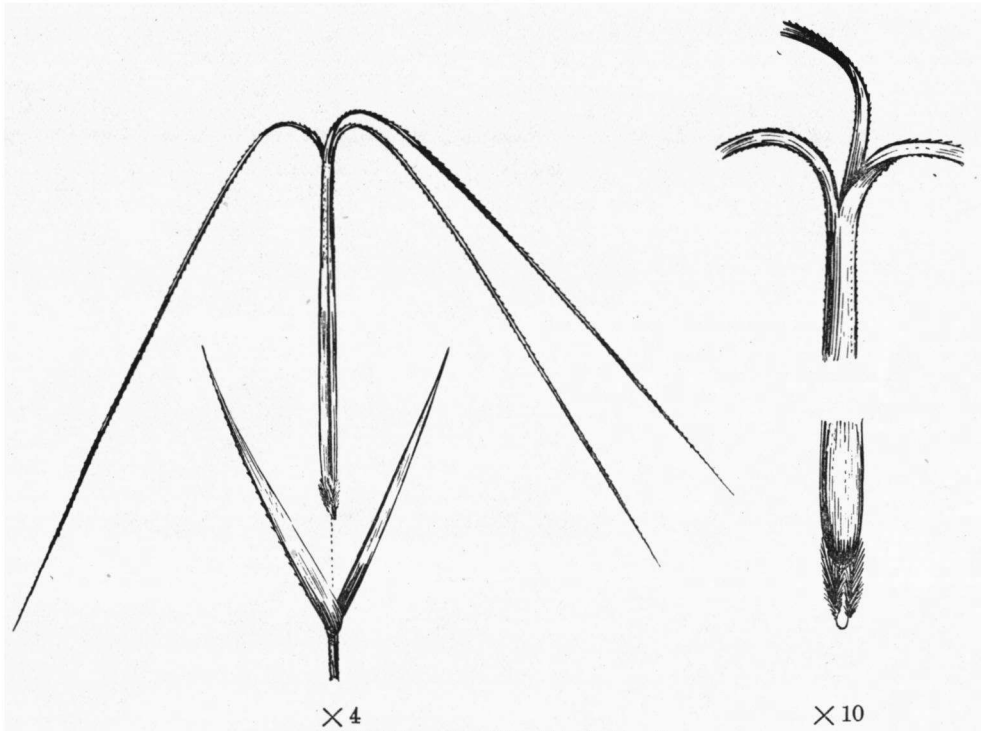
A very characteristic annual species, forming small tufts, it is endemic in South West Africa. The type in the Nees Herbarium at Berlin was received for study from Prof. PILGER, duplicates in nearly all the European collections.

Aristida subaequans Doell.

J. C. DOELL, in *Flora Brasiliensis, Enumeratio Plantarum in Brasilia hactenus detectarum ediderunt C. F. PH. DE MARTIUS et A. G. EICHLER. Vol. II. Pars III. Gramineae. II. [1878] p. 19!*

Culmus erectus, teres, laeviusculus. Foliorum vagina striata, glabra, internodium superans, superne hians; ligula brevissima, papyracea, transversa, brevissime ciliolata; lamina subpapyracea, linearis, tenui-acuminata, supra nervosa, brevissime scabriusculo-subvelutina,

basi pilosa, subtus laevis, margine laeviusculo. Inflorescentia paniculata, erecta, contracta, axe primario subangulato scabriusculo, striato, ramis subsingulis, stricte erectis, compositis, interstitia superantibus, prope basin divisis, ramulis erectis, scabris, pedicellis subincrassatis, lateralibus extremis spiculâ brevioribus. *Glumae* subaequilongae, subulato-lineares, 1-nerves, *acutae* (inermes), *aristae* *divisionem aequantes vel subaequantes*. Valvula inferior scabriuscula,



ARISTIDA SUBAEQUANS Doell.

From type specimen.

arista firmiore, non torta vel vix paululum torta, ramis deflexis vel reflexis, spicula sublongioribus. ♀.

Tabula nostra IV.

CULMUS 2—3-pedalis, paene pennae anserinae crassitudine, nodis pallidis, glabris. **FOLIA** 1—1½-pedalia, planiuscula, juniora convoluta. **PANICULA** semipedalis, longior. **GLUMAE** 6—7-lineales. **VALVULA** inferior sordide plumbeo-substraminea, aristae ramis subpollicaribus, intermedio pollicari.

Aristida recurvata et *A. Riedeliana* imprimis culmo subcompresso, spiculis minoribus, glumis aristae divisionem superantibus atque aristâ vix paululum tortâ

differunt; nihilominus *A. subaequans* fortasse *Aristidae recurvatae* varietas; adhuc vero formas intermedias non vidi.

Habitat in prov. S. Paulo (Burchell n. 5025 ex parte).

This very characteristic species is hitherto unfortunately only known from BURCHELL'S specimens. DOELL gives a good description and a plate. Because the species is very rare and the herbarium specimens are very scanty, I give here the plants I could study. In BURCHELL'S own herbarium at Kew, not studied by DOELL, there is a sheet with a complete plant with two panicles, the panicles are spike-like, interrupted at the base, the glumes are awned and about equal, the plant is overmature and all the lemmas with the awns are fallen off. Upon the sheet MUNRO has written: „*Aristida Neesiana* Trin.” The specimen agrees in habit with *Aristida riparia*, but the glumes have no inverse position, it agrees also perfectly with the type in the Martius Herbarium at Brussels (the species is not present in the Martius Herb. at Munich).

The type at Brussels bears BURCHELL'S printed label: „Catalogus Geographicus Plantarum *Brasiliae* Tropicae. No. 5025”. The authentic label of MARTIUS bears the data: „Prov. St. Pauli. Legit Burchell 1869 no. 5025”, and the determination: „*Aristida subaequans* Döll” in DOELL'S handwriting. The specimen, only a leaf and the upper part of the panicle, is overmature and lacks the lemmas with the awns. The figure given by DOELL cannot be prepared from this specimen and DOELL has seen probably also the specimen in the Vienna Herbarium (Vienna number 9691); there is also a duplicate in HACKEL'S Herbarium. I was so fortunate to find one complete spikelet, perfectly agreeing with DOELL'S figure.

Aristida subaequans is a true *Chaetaria*, there is no column and the lemma, which is deeply furrowed on the ventral side, immediately passes into the about equal awns, which are suddenly reflexed and not curled at the base. The species is, as to the characters of the glumes and lemmas, allied to *Aristida circinalis* LINDM., but differs abundantly in the vegetative parts, in the shape of the panicle and in the not inverse position of the glumes.

***Aristida subarticulata* Mez.**

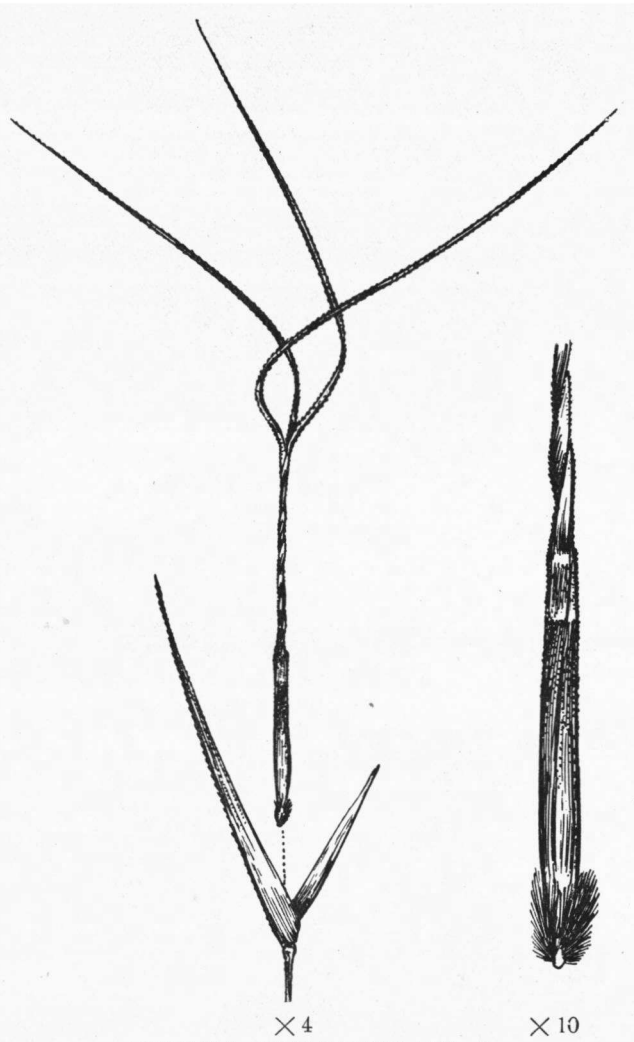
CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 148!

Perennis, gracilis. Vaginae culmi quam internodia longiores, glabrae; ligulae breviter pilosae margineque pilis longis erectis flaccidis barbatae; laminae convolutae crassiuscule setaceae, rigidulae. Culmi

glabri. Inflorescentia laxiuscula vel contractior, fusiformis; ramulis e basi geminatis, usque ad 70 mm longis. Pedicelli tenues. laterales usque ad 7 mm longae. Glumae lanceolatae, inferior ad 15 mm longa, praeter nervum medium validissimum basi nervillis 2 lateralibus praedita; gluma II. ad 8 mm longa, breviter necauriculatim acuta. Paleae unguis ad 0,75 mm longus, breviter pilosus; articulatio subobscura; rostrum ad 8 mm longum, valde tortum; setae nudae, terminalis ad 23, laterales ad 18 mm longae. — Argentina, Misiones bei San Carlos (Niederlein).

Note: = *Aristida macrophylla* Hackel.

On pag. 223 of this Revision, I have already indicated why Prof. MEZ described this plant as having an „*articulatio subobscura*”, in reality a special tissue is not present and the column is continuous with the lemma.



ARISTIDA SUBARTICULATA Mez.

From type specimen.

The type of *A. subarticulata* is in the Berlin Herbarium, it was kindly received for study from Prof. R. PILGER. On the sheet there is a rather depauperate mature specimen, with very long leaves overtopping the panicle. The specimen belonged to the herbarium

of HIERONYMUS and was collected by GUSTAV NIEDERLEIN: „entre San Carlos y el arroyo Pindapoi, Territorio de Misiones, 12. X. 86. no. 2057". Upon the label is written the determination by Prof. MEZ.

The authentic specimens of *A. macrophylla* are not quite mature and the awns not yet curled at the base (see my fig. on p. 326 of this Revision), when mature they are contorted at base in a loose spiral as given in the figure here.

***Aristida subinterrupta* Arechavaleta.**

J. ARECHAVALETA; NUEVAS *Aristidas* del Uruguay, in Anales del Museo Nacional de Montevideo. Tom. IV. [1903] p. 77! Lám. III!

Rizomas breves. Pajas juntas apretadas, entrenudos cortísimos, paja de la panoja de 45—60 cm de largo, finamente estriada, cilíndrica. Vainas abiertas en su ápice, estriadas, lisas, de 7—20 cm de largo, lígula apergamínada, estrechísima; lámina apergamínada, más estrecha que la vaina, prolongada en punta, estriada, algo más en la haz que en el envés, lisa, las inferiores planas, convolutadas las demás y alcanzando escasamente á la base de la panoja las largas. Panojas erectas de 10—20 cm de largo, estrechas, eje estriado, liso; ramificaciones bastante distantes, recostadas contra el eje, cubriendo los espacios que las separan, acompañadas de sus espiguillas subfasciculadas, algunas de las cuales, casi sentadas, y las que siguen en cortos pedúnculos. Glumas violadas oscuras, desiguales: I^{ra} de 13 mm ±, 1-nerviada, alesnada; II^{da} de 18 mm ±, 1-nerviada y alesnada también y ambas lisas ó imperceptiblemente dentadas en su nervio medio; III^{ra} pálida, comprimida, lisa, de 10 mm ±; arista de ramas subiguales, rectas, poco extendidas, amarillentas, capilares.

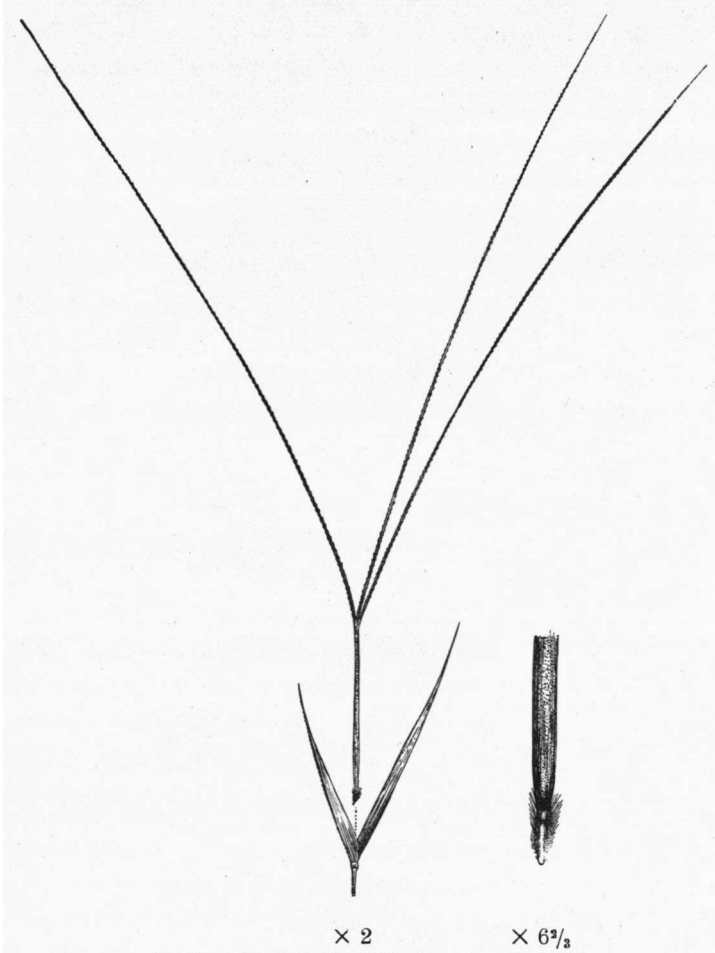
Campos de Tacuarembó. Florece en noviembre; lo que distingue mejor á este *Aristida* son sus hojas basales, planas y las panojas, violadas oscuras en su pié largo, rígido.

La bautizamos con el nombre de *heterophylla* en nuestra colección. En efecto, las primeras hojas son bien planas y las siguientes convolutadas, pero sucede que aquéllas desaparecen frecuentemente y no es constante hallarlas en todas las muestras.

Note: = *Aristida laevis* (Nees) Kunth.

The actual type, in ARECHAVALETA'S own herbarium at Montevideo, was not studied by me, but there is in HACKEL'S collection a very beautiful duplicate bearing the Vienna number 15998 with an authentic label in ARECHAVALETA'S handwriting. ARECHAVALETA named

his plant *Aristida heterophylla* and his label bears the data: „*Aristida heterophylla* Arech. Campos gramínicos del Uruguay. noviembre 1898.” The plant was however published by him as *Aristida subinterrupta* and this name was written afterwards by HACKEL



ARISTIDA SUBINTERRUPTA Arechavaleta.

From duplicate type specimen.

upon the label. The plant is a robust caespitose perennial with thick rootstock, the lower blades are flat but most of the others are convolute, the panicle is strictly erect, spike-like, interrupted at the base, the glumes are very unequal, both are manifestly awned, there is no column and the awns are subequal and about 4 cm. long.

In ARECHAVALETA'S work, cited above, we find a group of 5 species, which are not so easy to recognize, four of them were described

by him as new species, one of them he identified as *A. complanata* TRIN., which is the same as *A. laevis* KUNTH.

Aristida intermedia ARECH. (= *A. Arechavaletae* HENR.) has a rather short, 5—10 cm. long subspiciform panicle, the lower glume has sometimes a lateral nerve on one side and the upper is bifid at the apex with an awn from the sinus.

ARECHAVALETA described his *A. teretifolia* as having a 3-nerved lower glume, but I found the lower glume in *A. teretifolia* 1-nerved, sometimes one additional lateral nerve was observed in a few spikelets. This species is characteristic on account of the habit, the one-noded culms and the very firm, thick convolute blades.

Aristida altissima is a robust species with comparatively small spikelets, long-awned, one-nerved glumes and about 3 cm. long awns of the lemma. Although the culms are more than one meter high, they are rather few-noded. ARECHAVALETA tells us that the uppermost blades form a group of 3 with overlapping sheaths much longer than the convolute blades.

As a distinct character of *A. subinterrupta*, he gives the diversity of the blades, indeed an important character, but this is also found in *A. complanata (laevis)* and an accurate comparison of ARECHAVALETA'S plant with the type of *A. laevis* has proved that they belong to the same species. ARECHAVALETA'S idea of *A. complanata* was probably not correct, specimens so-named in his hand do not belong to *Aristida complanata* *) and the misapplication of the *A. complanata* of TRINIUS, may have induced him to describe this species as a new one. A distinct character of *A. complanata* (already indicated by DOELL in the Flora Brasiliensis) is the curious pubescent or hispidulous line across the collar of the sheaths (the so-called ligula externa), it is found in the same development in ARECHAVALETA'S plant.

On account of the identity of *A. laevis* and *A. subinterrupta* I have once more studied and compared the *Aristida adscensionis* var. *argentina* subv. *densiflora* HACK., treated by me already on p. 11 of this Revision, where I placed this plant as a variety under *A. subinterrupta*. This plant has the same vegetative characters as already stated by me and has also the curious line across the collar

*) ARECHAVALETA placed in his key on p. 72 of the cited work the *A. complanata* in the group of the „espiguillas mayores”, between *A. pallens* and *A. murina* and gives the blades as filiform, although he indicates that he has seen the figure of *A. complanata* in the Flora Brasiliensis of MARTIUS. This figure is however made from an incomplete duplicate specimen and not from the well-developed complete specimen in the Berlin Herbarium.

of the sheaths, the lowermost blades are flat. The spikelets are well-developed but not quite mature and the glumes and lemmas are shorter than in the types of *A. laevis* and *A. subinterrupta*. We must therefore place HACKEL'S plant as a slight variety under *A. laevis*. (*A. laevis* (Nees) Kunth var. *argentina* (Hack.) Henr.),

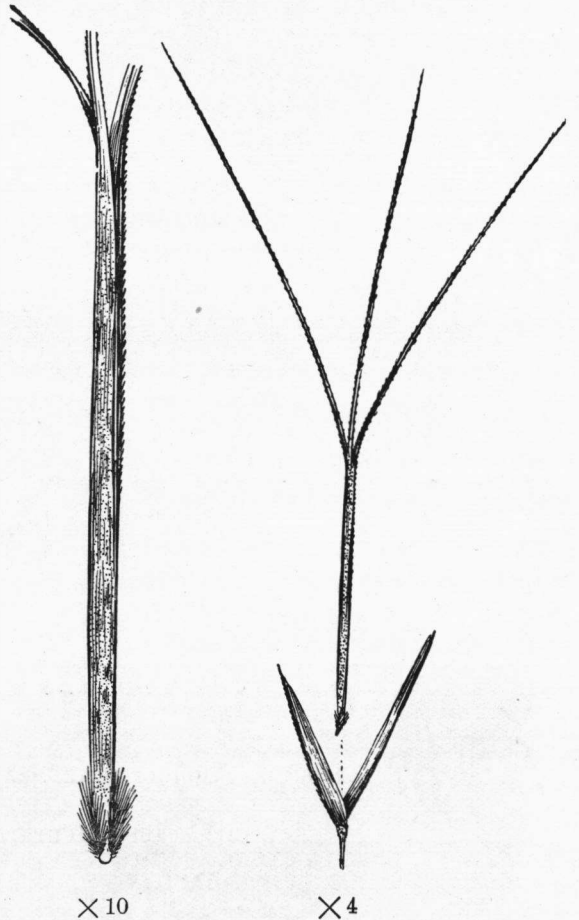
The *A. adscensionis* var. *argentina* HACK., as selected by me on p. 11 of this Revision differs from the subv. *densiflora* in the not so dense panicle, the line across the collar is however present but the specimen is incomplete, and there are no basal blades.

Aristida submucronata Schumacher.

F. C. SCHUMACHER; Beskrivelse af Guineiske Planter som ere fundne af Danske botanikere, isaer af Etatsraad Thoning, in Sel. phys. og mathem. Skr. [1827] Deel III. pag. 67!

Panicula contracta, ramis laxis, valvis calycinis obtusiusculis mucrone brevi, culmo dichotomo S.

Culmus *subbipedalis parum ultra, ramosus, dichotomus, teres glaber, laevis, basi dichotomiae tumescens: geniculi subinfracti, fusci*. Folia fere decempollicaria, sensim minora, angustissima, subplana, glabra, basi subciliata: ligula brevissima, annularis, margine utrinque sublanuginosa. Panicula contracta: rami laxi; rachi filiformi. Valvae calycis uniflorae, lanceolatae, obtusiusculae, mucrone brevissimo, longior bilineata, convexius-



ARISTIDA SUBMUCRONATA SCHUMACHER.

From type specimen.

cula subcarinata laevis; brevior lineam haud superans, carina scabriuscula. Corolla basi membrana brevissima subciliata, sublanuginosa calyculata; aristae aequales, subquadrilineares, scabriusculae. S.

The type is in the Schumacher Herb. at Copenhagen, it is glued upon a sheet, on the back of which is written: „Guin. Dr. Thon. 356” and SCHUMACHER'S manuscript-names: „*Aristida polystachia m. dichotoma m. Collectan. setacea Retz.? secund. specim. H. V.*”, only the name „*Aristida dichotoma m. Collectan.*” is not erased and SCHUMACHER published the species afterwards under another name, because there was already an *Aristida dichotoma* MICHX. SCHUMACHER mentions in his diagnosis the dichotomous culms. The type is a well-developed, probably annual plant, with about 4-noded culms, dichotomously branching from the nodes, the panicles are rather dense, spike-like, somewhat interrupted. The glumes are slightly unequal, they differ but one millim. in length, both are one-nerved, the lower is distinctly awned, the upper truncate at the apex and the midnerve excurrent as a distinct awn, the lemma has a very scabrous midnerve and 3 subequal awns, these are flat or subtriquetrous in the lowermost part with a thick green midnerve and hyaline winged rather broad margins.

The different characters of this plant are also observed partly in forms of the very variable species *Aristida adscensionis* L., but the combination of the different characters, the thick dichotomously branched culms and the shape of the panicle give the plant a very distinct aspect and this plant is certainly not an accidental form but is rather widely distributed in tropical Africa. Under the varieties of *A. adscensionis* it agrees somewhat with the var. *aethiopica* HOOK. f., also from tropical Africa, but the latter is not so robust, a more elegant plant, with glumes agreeing more with *A. adscensionis* and differs moreover in the less awned glumes and in the not so conspicuously winged lower parts of the awns. On account of the different observations given here I have taken up SCHUMACHER'S plant as a species.

***Aristida submucronata* Schumacher.**

var. *scabra* Henrard

nov. var.

Glumae uninerves, subaequilongae, glabrae; *inferior* ± 7 mm. longa,

carina scabra, acutata, *superior* \pm 8 mm. longa, carina inferne laevis, superne infra apicem scabriuscula, apice truncata vel bilobulata, inter lobulos breviter aristata, aristula scaberrima; *gluma fertilis* trinervis, callo obtusissimo longe barbato, circa 0,5 mm. longo, 9—11 mm. longa, carina scaberrima, in parte superiore scabra, leviter angustata sed haud stipitata; *aristae* basi applanatae, albo-marginatae, scaberrimae, subaequilongae, centralis circa 18—22 mm. longa, laterales 14—18 mm. longae.

Rhodesia: Zambesi; Boruma, anno 1890, leg. MENYHART no. 916. Typus in Herb. Univers. Zürich.

Differs from the typical *Aristida submucronata* in the very scabrous upper part of the lemma. The specimen in the Zürich Herb. was determined by Prof. HACKEL as *A. aethiopica* TRIN. et RUPR., which has also asperous lemmas, the two plants are indeed very similar at first sight. *Aristida aethiopica* has however a more open panicle with longer branches and branchlets, more unequal glumes and a longer lemma.

***Aristida subspicata* Trin. et Ruprecht.**

Species Graminum Stipaceorum, loc. cit. pag. 125!

Paniculae 4—5 pollicaris, exsertae, contractae, linearis, *thyrsiformis*, basi interruptae, rigidiusculae radiis pluribus l. solitariis, brevibus, ad basin usque divisis et floriferis; glumis cuspidato-setigeris, subaequalibus, 4 linealibus; flosculo glabro, apice cum arista obscure *articulato*, *infra articulum ter quaterve torto*, trilineali; setis patenti-divaricatis, parum inaequalibus, media subsemipollicari.

Insula Albemarle Gallopagonum. (Macrae!)

Radix repens? *Culmus* 1—1½ pedalis, ad nodos parum geniculatus. *Vaginae* glabrae, internodiis dimidiis breviores. *Ligulae* loco pili breves, densi, candidi. *Folia* semipedalia et breviora, planiuscula, ½ lineam lata l. convoluta, subtus glabra, supra densissime et brevissime pilosula. *Panicula* pallide straminea, junior basi vaginâ inclusa. *Flosculi* maturi ovato-oblongi l. ovaes, dorso (sub lente) minutissime et densissime punctulati, apice constricti et in stipitem aristae manifeste tortum abeuntes.

One of the endemic species of the Gallapagos belonging to the section *Pseudarthratherum*. The species is allied to *A. caudata* AND.,

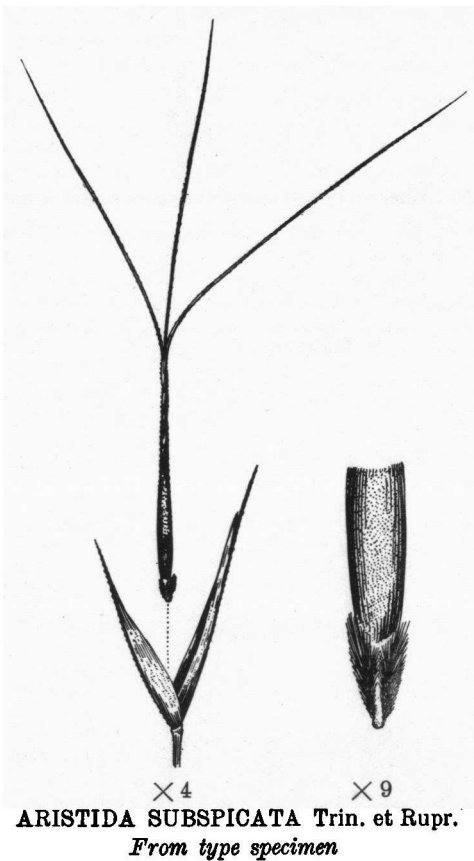
which differs in the denser, spike-like panicle, in the lower hispidulous glume with an awn as long as the body of the glume and in the thick, oblong lemma, pubescent at the striate summit, somewhat abruptly narrowed into the twisted column. See my figure on p. 85 of this Revision. The same species was described by ANDERSSON as *A. compacta*, the type of this plant differs only very slightly in the somewhat longer column but is for the rest quite the same plant as *A. subspicata*. Compare my figure on p. 109.

I had at my disposal a fragment from the type in the Trinius Herb. at the Academy of Leningrad.

***Aristida subulata* Henrard
nov. spec.**

(Sectio *Chaetaria*). Perennis, caespitosa, innovationibus intravaginalibus. *Culmi* simplices (rariter subramosi), stricte erecti, cum paniculis ad 40 cm. vel

plus longi, graciles, teretes, leviter striati, minutissime scabriusculi, plurinodes, nodis per culmum aequaliter dispositis. *Vaginae* internodiis multo breviores, arctae, striatae, glabrae, 2—2½ cm. tantum longae, collo nudo, *ligula* brevissima, dense ciliolata, auriculae ciliatae et longe erecto-barbatae; *laminae* erectae, inferiores tantum subplanae, superiores convoluto-setaceae sensim acuminatae, subulatae, subpungentes, glauco-virides, ut tota planta, 3½—6 cm. longae, inferne vix 1 mm. latae, striatae, marginibus incrassatis, subtus glabrae, supra strigilloso-hirtellae. *Panicula* 15 cm. vel plus longa, stricte erecta, angusta, inferne subinterrupta, subspiciformis sed haud densa, ramis binis vel subsolitariis, paucispiculatis, absque aristis tantum ad 2 cm. longis, pedicellis ad 7 mm. longis vel lateralibus brevissimis. *Spiculae* flavo-purpureae, *glumae* uninerves, inferior breviter aristata, carina scabra, 10—11 mm. longa, superior carina laevis, 13—14 mm.



ARISTIDA SUBSPICATA Trin. et Rupr.
From type specimen

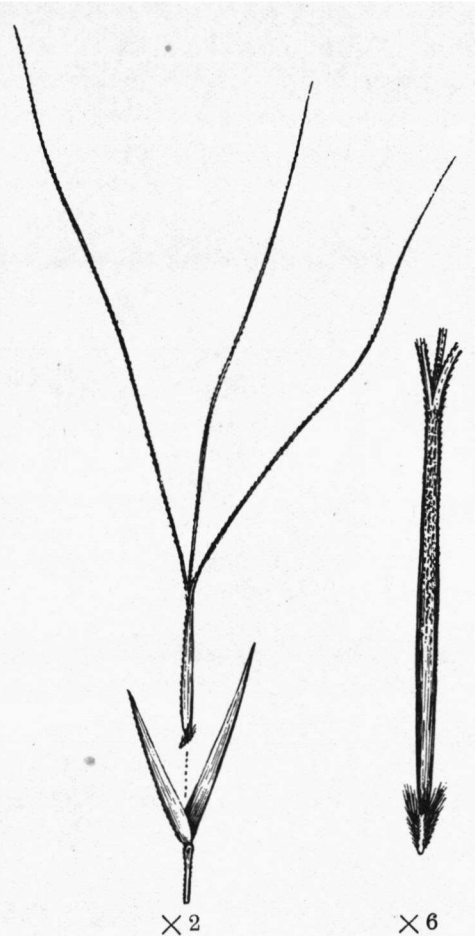
longa, aristata, interdum breviter auriculata, *gluma fertilis* callo subacuto, barbato, circa 1 mm. longo, ad 10 mm. longa, tubulosa, carina scabra, superne leviter sed distincte scaberula, haud stipitata neque torta, *aristae* capillares, purpureae, scabrae, ad basin leviter curvatae, subaequales, 3,5—4 cm. longae.

Argentina: Maraco, Pampa central, leg. Dr. A. CASTELANOS 8. I. 1927. In herbario LORENZO R. PARODI no. 8139. Typus speciei in Herb. Lugd. Batav. sub no. 927.250—232.

Rio negro. Montes de Oca. Feb. 1920 leg. Dr. L. R. PARODI, no. 3335. Cotypus in Herb. Lugd. Batav. sub no. 923.5—372.

The species is not allied to one of the other South American *Aristidas*, it agrees in habit at first sight with species from the southern United States, which belong to the group of the „*purpureae*”, especially with *A. Wrightii* NASH, *A. Fendleriana* STEUD. and *A. longiseta* STEUD. but in different characters it is quite distinct. It has not the very unequal glumes of the species of the „*purpureae*”, where the first glume is about half as long as the second one. From *A. Wrightii* which it much resembles it is moreover to distinguish by the few-flowered branches of the panicles, by the much longer awns, by the sheaths without a villous line across the back at the collar and by the shorter blades. It is noteworthy that in both species *A. subulata* and *A. Wrightii* the awns are somewhat contorted at the base.

From *A. Fendleriana* the new species is to distinguish by the blades which are not clustered at the base of the plant, there are



ARISTIDA SUBULATA Henrard.

From type specimen.

thus no long, naked culms as in *A. Fendleriana*. *Aristida longiseta* differs in the short axis of the panicle and in the quite glabrous lemmas.

Aristida subulata somewhat agrees also with species from the West Indian Islands, *A. neglecta* and *A. refracta*, both with filiform-convolute blades, these species have however much shorter glumes, lemmas and awns; *A. neglecta* has moreover a distinctly twisted beak of the lemma.

The marked relationship between species of Argentina and those of the southern United States is a fact that is not escaped to the attention of botanists. In an interesting paper PAUL C. STANDLEY of the U. S. National Museum gives us comparative notes on the floras of New Mexico and Argentina *). On a list of Argentine species and New Mexican analogues there is mentioned only one grass, the *Setaria villiglumis* HICKEN (which = *Setaria Kuntzeana* HERRMANN) compared with *Setaria composita* H. B. K., to this list we now can add two *Aristidas*, the new one, here described and a second species, I will describe afterwards as *Aristida trachyantha*. There are among the grasses of those regions other analogues in the genera *Andropogon*, *Stipa* and *Poa*.

It is noteworthy that the *Muhlenbergia nardifolia* GRISEBACH, described from northern Argentina, is the same species as the North American *Muhlenbergia gracillima* TORREY.

***Aristida subuniflora* Nash.**

G. V. NASH, in JOHN KUNKEL SMALL; Flora of the Southeastern United States, New York. [1903] p. 116!

Stems densely tufted, 2.5–3.5 dm. tall, erect, simple: leaf-sheaths usually confined to the base of the stem; blades involute, at least when dry, usually straight, sometimes curved, those on the stem usually 2, 2–4.5 cm. long, the basal longer: panicle 6–13 cm. long, its branches more or less spreading, the larger ones 2–3 cm. long, bearing 1 or 2 spikelets: spikelets 1.5–2 cm. long, the 2 outer scales 1-nerved, the first about $\frac{1}{2}$ as long as the second, the flowering scale 13–15 mm. long, usually a little shorter than the second scale, the awns ascending, the central one 3–5 cm. long, the lateral awns a little shorter.

In dry sandy soil, central Texas to New-Mexico. Spring and summer.

*) Journal of the Washington Academy of Sciences. Vol. VI, No. 9, May 4, (1916) p. 236–244!

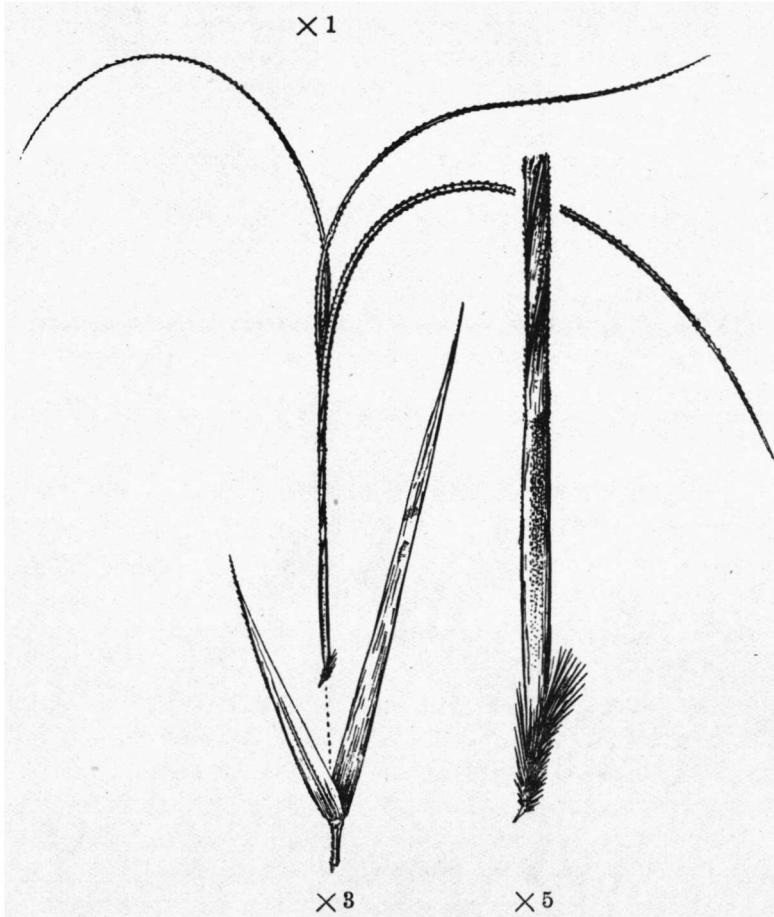
Note: = *Aristida Fendleriana* Steudel.

The type was collected by VASEY in New Mexico, a duplicate type is in the U. S. Nat. Herbarium. The description points clearly to *Aristida Fendleriana*, also described from New Mexico. The species forms characteristic large bunches with numerous innovations, the leaves are nearly all basal.

***Aristida superpendens* Domin.**

Bibl. Bot. Heft 85I [1915] loc. cit. p. 339!

Dense caespitosa, rigidiuscula, glauca glabraque; *culmi* graciles, elati, sine paniculis circa 4 dm alti, glabri, supra medium foliati,



ARISTIDA SUPERPENDENS Domin.

From type specimen.

basi ramosi; *vaginae* glaberrimae, internodiis breviores, mox patentēs; *laminae* rigidiusculae, glaucae, erectae vel subpatentes, elongatae, glaberrimae sed supra valde scabrae planae et circa 2 mm latae vel partim vel totae convolutae; *ligula* brevissima, fere subnulla; *panicula* laxissima, elongata, usque fere 4 dm longa, apice nutans; rami distantes, capillares, breves, spiculas 2—5 longiuscule et terminales longissime pedicellatas gerentes, flexuosi vel curvati; *spiculae* magnae, saepe subcoloratae, glabrae, nutantes; *glumae* quam maxime inaequales; gluma longior uninervis, scariosa, glabra, tenuiter acuminata, 24—26 mm longa, gluma altera fere duplo brevior, tantum 12—14 mm longa, carinata et nervis 2 lateralibus prominentibus percursa, acuminata nec aristata, glabra; *glumella* stipitata (stipite sericeo-hirsuto circa 2 mm vel paulo plus longo), anguste convoluta, glabra, circa 9 mm vel paulo plus longa; *aristae columnae* a glumella conspicue articulata, spiraliter contorta, circa 21—24 mm longa; *aristae rami* curvati, rigidiusculi, scabri, 7—10 cm longi.

Abbildung: Tafel XIII, Fig. 8—9.

Queensland: in den Savannenwäldern bei Mareeba häufig (DOMIN, II. 1910).

Eine der *A. stipoides* verwandte Art, die aber schon durch den stattlichen Wuchs, die sehr lockere Rispe mit langgestielten, überhängenden Ährchen, die sehr ungleichen Hüllspelzen, die kürzere Grannensäule, die längeren, rigideren Grannen etc. sehr leicht zu unterscheiden ist.

A beautiful species of the section *Arthratherum*, allied to *Aristida hirta* DOMIN, from which it differs in the much larger more pendulous spikelets and the longer awns. In my figure here the lemma and the awns are natural size. I could study the type in Prof. DOMIN's herbarium at Prague.

Aristida Suringari Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, dense caespitosa, innovationibus paucis. *Culmi* erecti, plurinodes, e nodis inferioribus vel omnibus ramosi, teretes, striati, laeves, cum paniculis 50 cm. vel plus alti. *Vaginae* inferiores internodiis paullo breviores, substramineae a culmo solutae, superiores arctae, internodia superantes, compressae, striatae, laeves; *ligula* abbreviata, ciliolata, auriculae pubescentes et pilis longis albis praeditae. *Laminae* angustae, convolutae, setaceae, longe acuminatae,

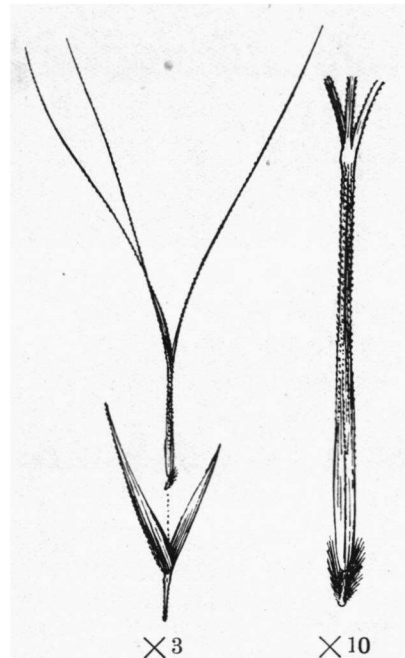
vi explanatae vix 1 mm. latae, ad 15 cm. longae, eae innovationum breviores, subtus minutissime scaberulae, supra scabriusculae. praesertim inferne pilis longis albis sparsis conspersae. *Panicula* angusta sed laxa, interrupta, 20. cm. vel plus longa, ramis binis vel subsolitariis, erectis vel subpatentibus, paucispiculatis. *Spiculae* flavo-viridulae vel subcoloratae, demum flavo-fuscae, *glumae* inaequales, inferior 7—9 mm. longa, acuta haud aristata, uninervis, interdum nervo singulo laterali praedita, carina scabra, superior brevior, $5\frac{1}{8}$ — $6\frac{1}{2}$ mm. longa, acuta, carina laevis, *gluma fertilis*, callo barbato, $\frac{1}{2}$ mm. longo, circa 5—6 mm. longa, angusta, tubulosa, superne leviter stipitata, infra aristas scabra, aristae subaequales, scabrae, 15 mm. longae, haud articulatae sed nodulo distincto praeditae.

India occidentalis: St. Eustatius. Sugarloaf, 11. V. 1885. leg. W. F. R. SURINGAR. Typus speciei in Herb. Lugd. Batav. sub no. 908.84—1084; St. Eustatius, slope of White Wall, 15. IV. 1885, leg. SURINGAR. Cotypus in Herb. Lugd. Batav. sub no. 908.84—1043.

This species, belonging to the group of the „*cognatae*”, is characterized by the inverse position of the glumes and thus allied to *Aristida arubensis* HENR., already described by me on p. 41 of this Revision. It bears the same relation to *A. arubensis* that

A. cognata does to *A. Swartziana*. *Aristida cognata* and *A. Suringari* have the same aspect, but they differ in the spikelet-characters, they agree however in the branched habit of the plant, in the few innovations, in the involute blades, with the scattered long hairs on the upper surface near the base, in the rather narrow, somewhat loose, long panicle with the distant branches and in the scaberulous beak of the lemma with the faint nodule at the summit, the totally different position of the glumes at once distinguishes this species however from the *A. cognata*.

A. arubensis has more the habit of *A. Swartziana* with the numerous innovations and the less branched or simple culms. The four species



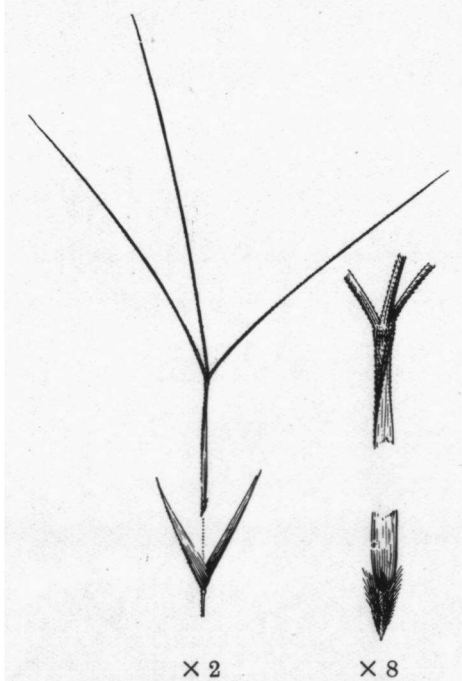
ARISTIDA SURINGARI Henrard.
From type specimen.

mentioned here are not so easy to recognize at first sight but examining the very constant characters of the glumes they are well to separate. See my observations under *A. cognata* on p. 105 and afterwards under *A. Swartziana* on p. 619 of this Revision. The new species is according to the notes of the collector, the common meadow grass near White Wall, a volcanic cone near the sea-coast.

Aristida Swartziana Steudel.

E. G. STEUDEL; Synopsis Plantarum Glumacearum [1854] p. 137!

Culmo caespitoso decumbente geniculato (1—2-pedali) simplici



ARISTIDA SWARTZIANA Steudel.
From type specimen.

laxo laevi; foliis tenuissimis filiformibus erectis laevibus; paniculae ramosae subcontractae radiis adpressis subdivisis erectis; spiculis fuscis; glumis subaequalibus, inferiore subulata mutica, superiore nitente mutica carinata flosculum longiorem nitentem obvolvante; antheris atropurpureis; stigmatibus villosis concoloribus; semine minutissimo acuminato. *A. adscensionis*. Swartz. obs. p. 40. non Lin. An eadem ac praecedens (*A. cognata* Trin. et Rupr.) sec. Trin. Rupr. (l. c. 139.) Jamaica.

The species was based upon the plant described by SWARTZ as *Aristida adscensionis*. See this Revision p. 16—17, where I observed that STEUDEL copied the

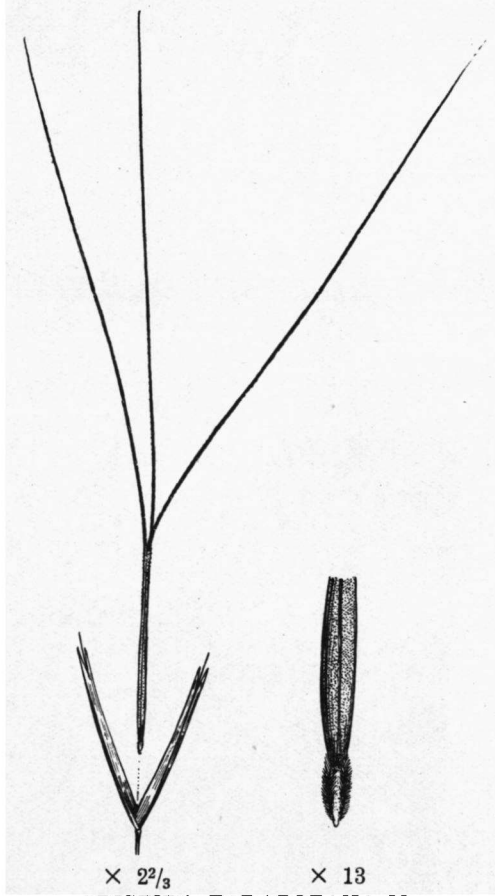
description of SWARTZ. STEUDEL has not seen an authentic specimen, but he recognized the species from the distinct characters given in the description of SWARTZ. I saw authentic specimens in the Thunberg Herbarium, accepted by me as the type and a specimen in the Schreber Herb. at Munich, the latter is labeled by SWARTZ as *A. adscensionis* and bears the Munich number 4876. This plant is slender and the panicle is not so well-developed as the panicles

in the Thunberg Herbarium. Under *A. cognata* TRIN. et RUPR., a closely allied species, I have already explained the difficulties to recognize both species *A. cognata* and *A. Swartziana*, because *A. cognata* was described from a fragment in the Schrader Herbarium at Leningrad, a fragment received from VENTENAT. I was so fortunate to find the authentic specimen in the Ventenat Herb. (Herb. De Candolle) at Geneva, kindly received for study from Dr. J. BRIQUET. This specimen is well-developed and complete and proves that *A. cognata* is indeed different from *A. Swartziana*. The authentic specimen of *A. cognata* has branched culms, few innovations and shorter blades and is thus very different in habit from *A. Swartziana*, in the panicles there are but few differences, in *A. Swartziana* the awns are generally longer. *A. Swartziana* has numerous erect innovations, long blades as much as 30 cm. long and the awns are up to 25 mm. long, in *A. cognata* they are commonly only 15 mm. long. HITCHCOCK has in his work on the North American *Aristidas* pointed out the differences between the two species very exactly.

***Aristida tarapotana* Mez.**

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 151!

Perennis, gracilis. Vaginae culmi quam internodia longiores, glabrae; ligulae breviter pilosae margine pilis paucis longis barbatae; laminae planiusculae. Culmi glabri. Inflorescentia pauciflora, tenuiter spiciformis, subcylindrica; ramulis brevissimis usque ad 20 mm metientibus; pedicellis vix ultra 2 mm longis. Glumae lanceolatae, in setas breves desinentes et manifeste auriculatae, I. ad 11,



ARISTIDA TARAPOTANA Mez.

From duplicate type specimen.

II. ad 9 mm longa. Paleae unguis ad 0,5 mm longus, breviter pilosus; articulatio deest; rostrum insigniter nullum; setae nudae, media ad 25, laterales ad 22 mm longae. — Hylaea, Tarapoto (Spruce).

One of the few plants, described by MEZ, which I could not study, on account of the reasons given already on p. 225 and 285 of this Revision. I found however duplicates in some other European Herbaria, the figure here is taken from a specimen in the Vienna Herbarium.

This plant agrees exactly with the description, it was collected by SPRUCE and is numbered 4526. The species is characteristic on account of the subequal glumes (glume I. the longer one), both very distinctly bifid with an awn from the sinus, a column is not present.

In a recent work of Prof. A. S. HITCHCOCK: The grasses of Ecuador, Peru and Bolivia, in Contr. U. S. Nat. Herbarium. Vol. XXIV. Part 8. (1927) *), this species is placed as a synonym under *A. setifolia* H. B. K., which is however a totally different species, with very unequal, awned but not bifid glumes, a distinctly twisted well-developed column and other striking characters. See my figure on p. 559 of this Revision.

Aristida Teneriffae Steudel.

E. G. STEUDEL; Synopsis Plantarum Glumacearum Pars I. [1854] p. 420! no. 108c.

*) In the same work we find on p. 404 my *Aristida Mandoniana*, placed as a synonym under *A. adscensionis*. Prof. HITCHCOCK has not consulted my extensive description of *A. Mandoniana* in the Meded. Rijks Herb. no. 40 p. 55. From this description it is at once to see that *A. Mandoniana* is a quite different perennial species not at all to bring in connection with one of the numerous forms of the annual *A. adscensionis* if we compare the characters of the long-awned glumes and the distinctly twisted well-developed column of MANDON'S plant. HITCHCOCK has studied only the number 1277 in the U. S. Nat. Herb., received as a duplicate from the Vienna Herbarium. This number is however 1277^{bis} and indeed a different plant belonging to *A. bromoides*, a subspecies of *A. adscensionis*. As to the treatment of the genus *Aristida* in HITCHCOCK'S recent work, I am not very content, the key he gives is very incomplete and the characters are not always correctly chosen, the descriptions in some cases incorrect and the synonyms wrong, under *A. complanata* such quite different species as *A. leptochaeta* and *A. teretifolia* are taken up as synonyms and also the very different *A. longiramea* var. *boliviana* which has an inverse position of the glumes and a twisted column. It is not the place here to enter into particulars, but the treatment of many other genera of the high Andes is certainly not in accordance with the accurate earlier works on grasses of this author.

Radice fibrosa albida villosula caespitifera; culmis rectis vel geniculatis uti vaginae foliaque glaucescentibus; vaginis striatis laevibus glabris internodia superantibus; ligula brevi membranacea obtusa ciliolata; foliis complicato-teretibus curvatis glabris laevibus (2—3" longis); paniculae contractae laxiusculae (1½—2-pollicaris et ultra, purpurascens et albidulae), radiis solitariis et fasciculatis paucifloris; glumis angustis linearibus inaequalibus scabriusculis, inferiore quam flosculus subduplo brevior, superiore eum aequante, apice utrinque indistincte denticulatis nec acuminatis; flosculo 2—3-lineali tereti tenui laevi glabro, apice non torto nec cum arista articulado, hujus setis aequalibus 3—4" longis scabriusculis. *Boivin* coll. nr. 222. Teneriffa.

Note: = *Aristida adscensionis* L.

The actual type in STEUDEL'S hand was not found in herbaria studied by me but I saw a duplicate of Boivin no. 222 from Teneriffa in the Vienna Herbarium. This plant is a well-developed specimen with a rather faint root-system but with some sterile innovations, the panicle is narrow and erect. In the spikelet-characters it is distinctly an *A. adscensionis* although *A. coerulescens* also occurs on Teneriffa. The dimensions of the spikelets are: glume I. = 5—6 mm., gl. II. = 8—9 mm., glume III. = 9 mm. (the callus ½ mm.), the central awn is 14 mm., the lateral awns are 12 mm. long.

Aristida tenuiflora Steudel.

E. G. STEUDEL; Synopsis Plantarum Glumacearum. [1854] p. 138!

Radice fibrosa validula; culmo erecto (1—2-pedali) cum nodis vaginis foliisque glabris glaucescentibus; foliis angusto linearibus planis apice convolutis (⅓—⅝" latis, 3—6" longis); paniculae (6—7-pollicaris) apice nutantis radiis solitariis erectis contractis basi longe nudis superne divisis et densiuscule floriferis; spiculis tenuissimis, glumis parum inaequalibus lineari-subulatis (3" longis) parum longioribus flosculo apice scabro; setis tenuissimis subaequalibus 8—10-linearibus. Vix *A. vulgaris* senegalenses *Trin. Leprieur* legit in Senegalia.

Note: = *Aristida mutabilis* Trin. et Rupr. var. *longiflora* Trin. et Rupr.

The type in the Paris Herbarium was kindly received for study

from Prof. H. LECOMTE. The specimen, lacking the base, belongs to *A. mutabilis*; it has the scabrous glumes and other characters of the spikelets of the var. *longiflora* TRIN. et RUPR. The specimen is quite the same as the *A. longeradiata* STEUDEL in the Paris Herbarium and although this plant is labeled as *longeradiata* by him, it cannot be accepted as the actual type. Here we had once more the difficulty of the selection of the type. What is the actual type, the specimen in his own herbarium or the specimen so-named is another collection? It was somewhat puzzling to me that STEUDEL described a plant from Senegal collected by LEPRIEUR as *A. longeradiata* and the same plant also as *A. tenuiflora*. We know that STEUDEL studied the Lenormand Herbarium which is at the University of Caen (Calvados) and in this collection, I kindly received for study from Prof. R. VIGUIER, I found the actual type of *A. longeradiata*. This specimen agrees better with the rather insufficient description of STEUDEL given on p. 303 of this Revision. STEUDEL mentioned the lanceolate acuminate subequal glumes and the scabrous lemmas. The specimen in STEUDEL'S script in the herbarium at Caen is not the *A. mutabilis* but the very rare *A. Kunthiana* TRIN. et RUPR., a species having the habit and the vegetative characters of *A. mutabilis* but being very different in the characters of the spikelets on account of the equal glumes, the very scabrous lemmas and the totally wanting column, the articulation is placed immediately between the body of the lemma and the awns. We have therefore to place *A. longeradiata* as a synonym under *A. Kunthiana*.

Aristida tenuirostris Henrard

nov. spec.

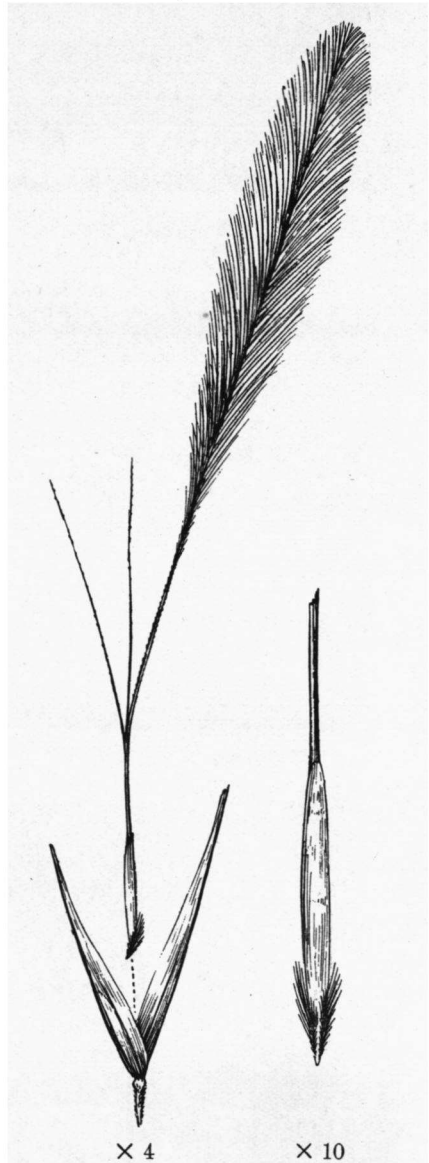
(Sectio *Stipagrostis*). Perennis, caespitosa, florendi tempore innovationibus paucis; *culmi* elongati, erecti vel geniculatim adscendentes, circa 3-nodi, nodis glabris, glaberrimi, teretes, leviter striati, 20 cm. vel plus alti, vix 1 mm. crassi, in basi vaginis aphyllis indivisis firmis, stramineis, subtomentosis vestiti, prophylla ciliata; *vaginae* internodiis dimidio breviores, striatae, leviter carinatae, glaberrimae, *ligula* brevissima, minute ciliolata, auriculae pilis longis albis dense patule barbatae; *laminae* setaceae, complicatae, vix $\frac{1}{3}$ mm. latae, vi explanatae vix 1 mm. latae, 3—6 cm. longae, subcurvatae vel subpatentes, subtus scaberulae, marginibus incrassatis, supra scabrae, saltem inferne pilis longis albis praeditae; *panicula* angusta, breviter exserta vel subinclusa, inferne laxa et subinterrupta, axis scaber, rami inferiores bini, omnes tenues, scaberrimi, ad medium usque nudi, superne spiculiferi, pedicellis scaberrimis; *spiculae* angustae,

purpureae vel flavescens, absque aristis quam pedicelli aequilongae vel laterales paulo longiores, *glumae* inaequilongae, *inferior* subobtusata vel subacuta, carina laevissima, nervis lateralibus duobus dimidiam *glumam* aequantibus in carinam arcuatim excurrentibus praedita, 8 mm. longa, *gluma superior* 10 mm. longa, 3-nervis, nervis laevibus, apice obtusa, leviter bifida vel emarginata, inter dentes brevissime aristulata, *gluma fertilis* callo acuto dense barbato, 4 mm. longa, tubulosa, laevissima, columna cum *glumella* oblique articulata, glabra, haud vel minute torta, 3–4 mm. longa, *aristae* valde inaequilongae, centralis in parte inferiore scabra, nuda, superne pennata, apice aequaliter rotundata, haud exserta, 20–27 mm. longa, pars plumosa circa 14–20 mm. longa, *aristae* laterales scaberrimae, 8–10 mm. longae.

Angola: Bibalha e Mouhino, Serra Giraul, terra ferruginosa, VII. anno 1883 leg. F. NEWTON no. 18, 31 et 41. Typus speciei in Herb. Hackel Vindobon. sub no. 22488.

Allied to *Aristida uniplumis* LICHT., but distinguished by the wanting pencil of hairs at the branching-point of the awns and the more scabrous branches and branchlets, the dimensions of the glumes are the same as in *A. uniplumis* but the latter has densely papillose lemmas under a lens and a distinctly twisted column.

A. obtusa, which has the same rounded apex of the feathery part of the central awn is at once to distinguish by the one-noded culms, the quite different filiform blades and the inverse position



ARISTIDA TENUIROSTRIS Henrard.
From type specimen.

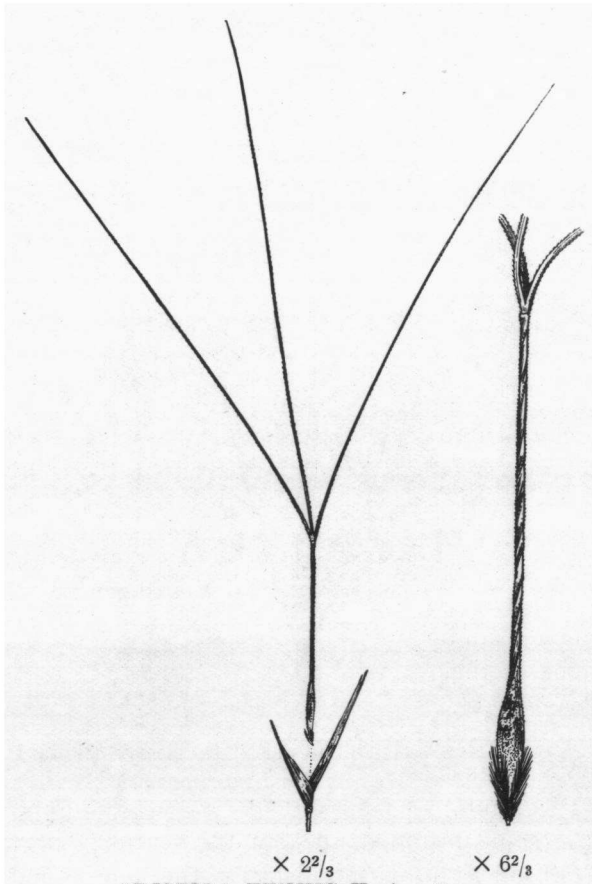
of the glumes. Our species is also allied to *A. Dregeana* and *A. lutescens*, the latter differs abundantly in the pungent rigid blades, the smooth rachis and filiform branches, the longer glumes, the acutish tip of the central awn and the longer lateral awns, which are addressedly ciliate upwards *Aristida Dregeana* differs in the rigid blades, smooth panicle-branches, nearly equal, 13 mm. long glumes and longer awns, the central one up to 4 cm. long.

***Aristida tenuis* Hochstetter.**

CH. F. HOCHSTETTER; Plantas novas africanas proponit et describit in Flora oder Allgemeine Botanische Zeitung. Regensburg, Jahrg. XXXVIII. [1855]-p. 200!

(Hb. abyss. BUCHINGER nr. 1271.)

Radice fibrosa, culmis tenuibus 1—1½-pedalibus nodisque



glabris, vaginis ore piloso-barbatis, foliis angustissimis planis vel convoluto-setaceis; panicula diffusa, radiis binis tenuissimis bifidis, radiolis 3—5-spiculatis, spiculis glabris, glumis inaequalibus, inferiore in setulam producta cum hac bilineali, superiore duplo longiore acutissima apice saepe bifida setula interjecta, flosculo basi brevissime sericeo-piloso, valvula inferiore lineali apice in aristam trifidam nudam excurrente, stipite 3—4-lineali ad divisionem articulo, articulo non solubili, setis subaequalibus 8—10 linealibus.

ARISTIDA TENUIS Hochstetter.

From type specimen.

Note: = *Aristida Cassanellii* Terracciano.

BUCHINGER's number 1271, I studied in different European herbaria. The plant was collected by SCHIMPER at Gurrarf-Golleb in Abyssinia.

It is an annual plant with quite the habit of *A. mutabilis* TRIN. et RUPR., and belonging also to the section *Pseudarthratherum*. I placed the plant as a variety under *A. mutabilis*, but having seen more material I found the characters of the spikelets very constant and accepted the plant as a species. On account of the *Aristida tenuis* KUNTH from the year 1829 the species must have another name, the name given by TERRACCIANO. The species has glabrous glumes, the lower acute, the upper distinctly bifid, shortly awned from the sinus. It differs from *A. mutabilis* and its varieties in the thick, ovoid lemma and in the very long twisted column, 3—4 times longer than the lemma.

Aristida tenuis (H. B. K.) Kunth.

CHARLES SIGISMOND KUNTH; Révision des Graminées dans les Nova Genera et Species plantarum de Humboldt et Bonpland, Paris. [1829] Tom. I. p. 62!

= *Streptachne tenuis* HUMBOLDT, BONPLAND et KUNTH; Nova Genera et Species Plantarum. Tom. I. [1815] p. 124!

Description given in the Nova Genera:

S. panicula subsimplici, diffusa, ramis geminis, rhachique scabris.

Crescit regione calida juxta Bordones et Cumama. 2. Floret Septembri.

CULMUS erectus, simplex, tripedalis, teres, glaber. NODI glabri. FOLIA subsetacea, sicca convoluta, rigida, apicem versus scabra, interne pilosiuscula. VAGINAE striatae, glabrae, ore pilosae. LIGULA brevissima, fimbriato-ciliata. PANICULA subsimplex, diffusa, subpedalis, ramis geminis, triquetris, scabris. RHACHIS triquetra, scabra. GLUMAE fuscescentes et PALEAE ut in praecedentibus.

A praecedente vix diversa *).

Note: = *Aristida ternipes* Cavanilles.

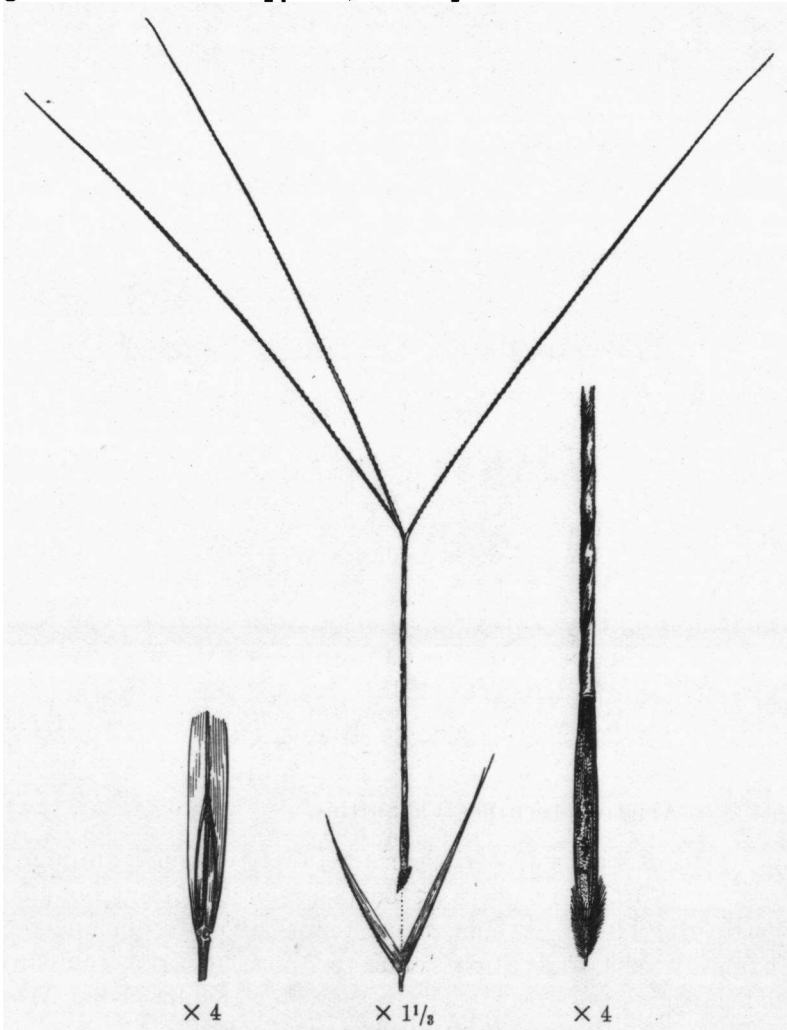
The type in the Paris Herbarium was examined through the courtesy of Prof. H. LECOMTE, it bears a small label in BONPLAND's hand with the names: *Avena?* *Stipa tenuis* and *Streptachne tenuis*, the names *Avena* and *Stipa tenuis* are erased. An accompanying printed label bears the data: „*Streptachne tenuis* Kth. *Aristida tenuis* Knth En. In regione calida juxta Cumana". The specimens

*) *Streptachne pilosa* H. B. K. = *Aristida jorullensis* KUNTH.

are fragmentary, a broken culm and the top of a panicle, the plant is moreover not quite mature and rather badly developed. It agrees in the different characters with *A. scabra*, described in the same work, this species is the same as *Aristida ternipes* CAV. See this Revision p. 630.

***Aristida tenuisetulosa* (Pilger) Mez.**

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 147!
 = *Aristida stipoides* R. BR. var. *tenuisetulosa* PILGER, ap. J. PERKINS;
 Fragmenta Florae Philippinae, l. cit. p. 146!



ARISTIDA TENUSETULOSA (Pilger) Mez.

From duplicate type specimen.

Perennis, gracilis. Vaginae culmi quam internodia paullo breviores, glabrae laevesque; ligulae in pilorum longorum e fauce prominentium seriem mutatae; laminae convolutae setaceae, glabrae, minute vel vix scabridae. Culmi glabri. Inflorescentia pauciflora, interrupte angustissimeque 2-pinnata quasi spiciformis; ramulis quam maxime abbreviatis in spicularum ad 2 fascicula mutatis. Spiculae quam pedicelli multo longiores, glaberrimae. Glumae e lanceolato in apicem longe tenuissimeque setulosum productae juxta setulam sueto minute auritae, 1-nerviae, inferior 12—15, superior 18—22 mm longa. Paleae unguis 1,5—2 mm longus, longiuscule pilosus; articulatio permanifera; rostrum 25—30 mm longum, valde tortum; setae nudaе, subaequaliter 60—70 mm longae. — Philippinen (Merrill no. 329, Mearns no. 2334, Curran no. 5885, Merrill et Darling no. 12476).

See my critical observations on p. 595 of this Revision. The type is Merrill no. 329 in the Berlin Herbarium. I have seen the other specimens through the courtesy of Prof. PILGER, they are labeled in MEZ's handwriting. Mearns no. 2334 was identified by Prof. DOMIN as *A. arenaria* R. BR. (Bibl. Bot. Heft 85 I. c. p. 338!) This plant is a rather dwarf form with a 15 mm. long column and subequal 5—5½ cm. long awns but the lower glume is 11 mm. long with the characteristic short lateral nerves as given in the figure here and the upper 17 mm. long glume has the bifid apex of *A. tenuisetulosa* so that we must place this plant under *A. tenuisetulosa*.

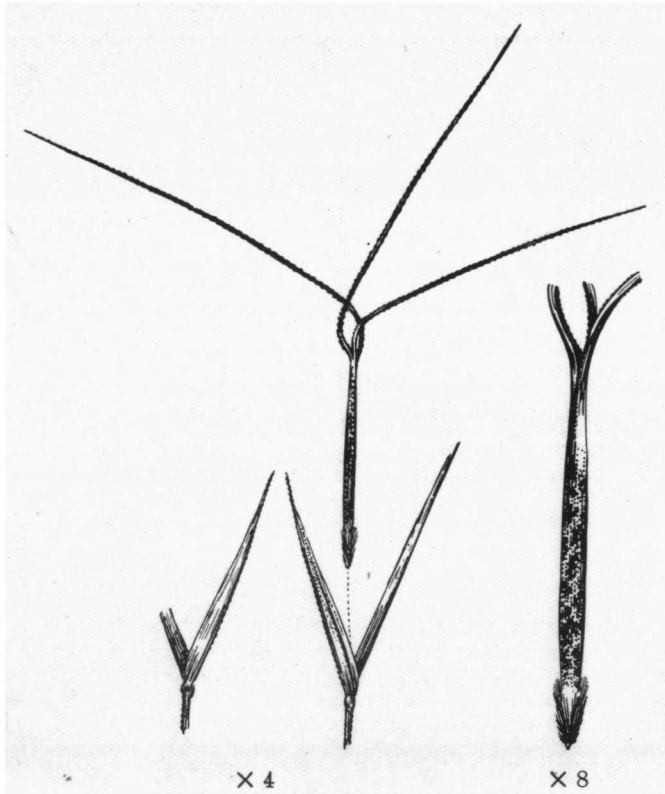
Aristida tenuispica Hitchcock.

A. S. HITCHCOCK; The North American species of *Aristida*, in Contributions from the United States National Herbarium. Vol. XXII. [1924] p. 581!

Plants perennial; culms cespitose, slender, glabrous, 60 to 100 cm. tall; sheaths glabrous, somewhat pilose around the throat; ligule a short ciliate membrane, less than 0.5 mm. long; blades flat, narrowed into an involute point, 10 to 20 cm. long, 1 to 2 mm. wide, glabrous beneath, scabrous and bearing scattering long hairs on the upper surface; panicle slender and narrow, about half the entire length of the culm, the branches short and appressed, somewhat distant, few-flowered; glumes nearly equal, somewhat awn-pointed, the first about 8 mm. long, scabrous on the keel, having a lateral nerve on one side, the second a little longer than the first, 1-nerved, glabrous on the keel; lemma about 7 mm. long including the 1 mm. long

callus and the 1 mm. long beak, dark colored; awns equal mostly 12 to 15 mm. long, spreading or reflexed, somewhat spirally contorted at base.

Type in the U. S. National Herbarium, no. 990944; collected in „flat woods” [low pine barrens] at Hillsoboro, Florida, October 6, 1898, by Robert Combs (no. 1384).



ARISTIDA TENUISPICA Hitchcock.

From type specimen.

This species differs from *A. gyrans* in the flat blades, taller culms, shorter callus, and more nearly equal glumes.

A portion of the type, collected by COMBS, was kindly received from Prof. A. S. HITCHCOCK. The species is only found in Florida and belongs to the species of *Aristida* where the awns are somewhat spirally contorted at base at maturity. *A. tenuispica* is characterized by the slender panicle, about half as long as the whole plant, by the few-flowered, short branches of the panicle and by the flat blades. The lower glume has a prominent lateral nerve on one side,

this character is found in many other species of the genus *Aristida*, but there are mostly at the same time also purely 1-nerved glumes.

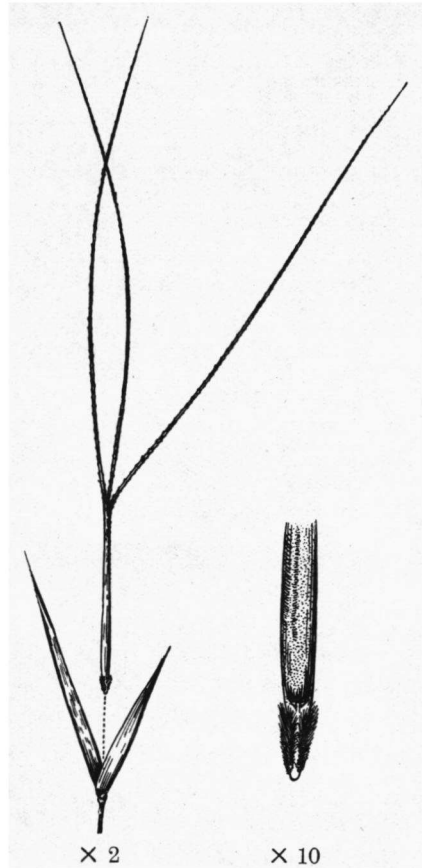
***Aristida teretifolia* Arechavaleta.**

J. ARECHAVALETA; NUEVAS *Aristidas* del Uruguay, in *Anales del Museo Nacional de Montevideo*. Tom. IV. [1903] p. 79! Lám. IV. Planta entera en tamaño menor que el natural.

Rizomas breves. Pajas erectas rígidas, de 15—25 cm de largo, con entrenudos cortos en la base, el terminal de la panoja un tanto comprimido, estriado, liso. Vainas estriadas, poco abiertas en su ápice; lígula mínima, pestañosa, con un mechoncito de pelos en cada lado; láminas apergaminadas, glaucas, estriadas en la haz y en el envés, no ásperas, llegando hasta la base de la panoja las largas. Panojas espiciformes, de 10—15 cm de altura, estrechas, erectas; eje estriado, liso; ramificaciones secundarias, arriadas contra él, más largas que los espacios que las separan. Espiguillas violado-verdosas; glumas desiguales: I^{ra} de 8—9 mm, 3-nerviada, aguda, nervio medio casi enteramente liso; II^{da} de 15 mm ±, 1-nerviada, puntiaguda, lisa; III^{ra} de 10 mm ±, pálida; arista de ramas derechas iguales, poco escabrosas.

Vive en campos gramíneos, formando haces ó matas bastante densas, aisladas, poco extendidas. Florece en noviembre.

In HACKEL's Herb. at Vienna I found a beautiful duplicate of the type (Vienna number 22193) with ARECHAVALETA's authentic printed label and in his handwriting the data: „*Aristida bicolor* Arech. Campos gramíneos novbre 1899.” The name *bicolor* was a



ARISTIDA TERETIFOLIA
Arechavaleta.

From duplicate type specimen.

manuscript name, the species was published afterwards as *A. teretifolia* and HACKEL has written this name upon the label.

Aristida teretifolia is a caespitose perennial with firm, 1-noded culms, the node placed near the base of the culm, the rather short, firm and convolute blades are flat only in the lowermost part, the auricles are densely bearded. A two-nerved lower glume occurs sometimes here and there in the panicle, a character not rarely observed also in some other species of the genus.

Specimens perfectly agreeing with the duplicate type I have seen from Montevideo (in rupestribus, Nov. 1881 leg. ARECHAVALTA no. 271), beautiful specimens also from Cerro de Montevideo, ad fissuras rupium, collected by BERRO no. 3299 and 3529. The species seems to be common at Salto, where it was collected by BERRO „in campis petrosis” in the year 1902 (no. 2667) and in Oct. of the year 1918 at the same locality by Dr. L. R. PARODI (no. 342).

Aristida ternipes Cavanilles.

ANT. JOSEPHUS CAVANILLES; Icones et Descriptiones Plantarum, quae aut sponte in Hispania crescunt, aut in hortis hospitantur. Matritum, Vol. V. [1799] p. 461

ARISTIDA panicula coarctata longissima: ramulis alternatim ternis capillaribus: arista intermedia longiore.

Huius plantae vidi dumtaxat paniculam et folium paniculae proximum; quare nihil dicam de culmo qui praecedentibus procerior videtur si ex paniculae et folii magnitudine coniciendum. Folium est convolutum subulatum sesquipedale, cuius vagina brevis, striata. Panicula sesquipedalis: ramuli alternatim terni, semipedem longi, capillares, rachidi paralleli, versus apicem floriferi; flores subdecem, alterni pedicellis propriis. Calicis valvulae carinatae, virides, subulatae, exteriore paulo brevior. Corolla calice longior, basi villosa, apice triaristata, aristis lateralibus brevibus, intermedia semipollicari. Reliqua ut in praecedentibus.

Habitat Panamaide, inventa a Domino Ludovico Neé. Floret Novembri.

Under *A. scabra* on p. 533 of this Revision, I have already observed that I accepted Prof. HИTЧCOCK's identification of *A. scabra* and *A. ternipes*. See his North American species of *Aristida* in Contr. U. S. Nat. Herb. Vol. XXII. (1924) p. 523! The type specimen in the Herbarium of the Botanical Garden at Madrid consists only of a culm with a panicle; the lateral awns, described as short, are in the specimen minute, and less than 1 mm. long. In the description

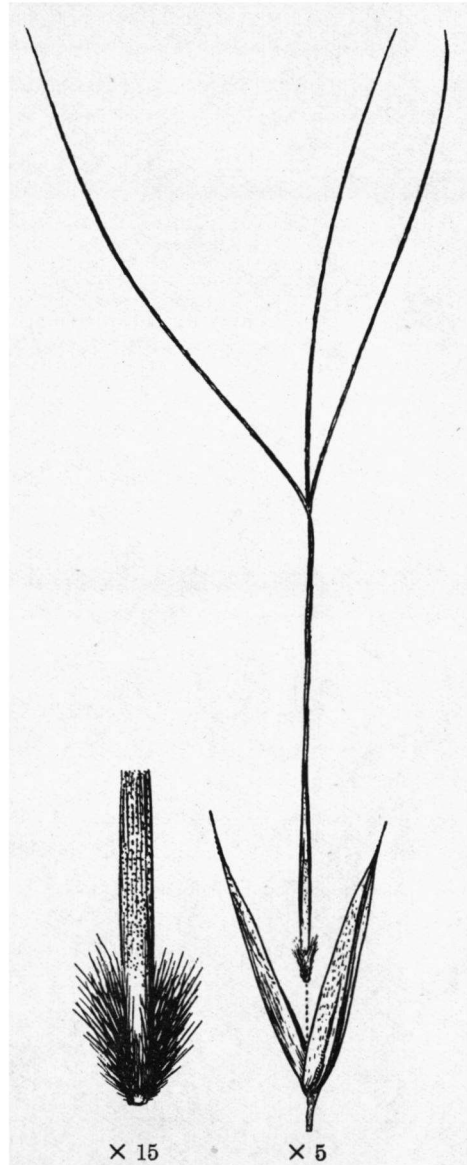
the lower glume is given as shorter than the upper but in *A. scabra* the lower glume is the longer one, although in nearly all the specimens of *A. scabra* I could study, less-developed spikelets were observed with a shorter lower glume. Commonly however the position of the glumes is as given in my figure on p. 533 of this work.

***Aristida textilis* Mez.**

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 149!

Perennis, gracillima. Vaginae culmi quam internodia longiores, pilis longis crassisque lanuginosae; ligulae breviter pilosae nec margine barbatae; laminae planae vel siccae complicatae, dorso pilis longis conspersae. Culmi praeter nodos glabros dense lanuginosi. Inflorescentia densiuscule 3-pinnata, fusiformis, flaccida; ramulis stricte erectis, usque ad 90 mm longis; pedicellis lateralibus usque ad 8 mm longis. Glumae anguste lanceolatae, 1-nerviae, apice auriculis nullis longe setosae, inferior dorso pilis minutissimis scabridula ad 7,5; superior laevis ad 8 mm longa. Paleae unguis vix 0,3 mm longus breviter pilosus; articulatio deest; setae media ad 20, laterales ad 17 mm longae, nudaе. — Ostafrika, Kyimbila (Stolz).

The type was studied in the Berlin Herbarium; upon a printed label of the Museum is written the determination in Prof. MEZ's handwriting. The



× 15 × 5
ARISTIDA TEXTILIS Mez.
From type specimen.

collector's label bears the data: „No. 2103 Kyimbila lunyanziro. Bulongwa 2000 mtr. Bergwiesen. Ähreblüte grauschwarz. Blätter grünlich grau. Die Bakuya machen aus diesem Gras Flechtarbeiten ebenso wird die Frauenbekleidung daraus geflochten, dient zum Decken der Dächer. 4. VIII. 13. Ad. Stolz"). *) *A. textilis*, a member of the section *Chaetaria*, belongs to a group with densely woolly or hirsute sheaths and is most allied to *A. Dewildemani* HENRARD from the Belgian Congo, which differs however in the long-bearded mouth of the sheaths and auricles and in the rather short, about $2\frac{1}{2}$ mm. long column, in *A. textilis* the auricles and mouth of the sheaths are pubescent only or glabrous and the column is about 6 mm. long. In *A. textilis* some internodes have a scanty pubescence below the nodes or sometimes they are more or less villous, but some of them are glabrous throughout, smooth and shining.

Aristida Thoningii Trin. et Ruprecht.

Species Graminum Stipaceorum, loc. cit. pag. 137!

Paniculae 7—9 pollicaris pyramidatae, subsecundae, apice nutantis, fasciculiflorae, pallidae, basi exsertae radiis *tenuissimis*, pluribus, patentibus: longioribus fere bipollicaribus, paullo supra basin *densissime* floriferis, inferioribus nonnullis nutantibus; glumis inaequalibus *acutis*: superiore 3— $3\frac{1}{4}$ *lineali*, inferiorem *lined integrâ* superante; flosculo maturo 4 *lineali*, carinâ dorsali et nervo laterali apicem versus scabro, ceterum glabro, maculato, apice non torto neque articulado; setis parum inaequalibus, patentibus, media 6—7 *lineali*.

Guinea. (Thoning! in Hb. Schumacher.)

Radix fibrosa, annua. *Culmus* 1—2 pedalis et major, erectus, simplex l. ad nodos 2—3 tumidos ramulos steriles emittens, parum geniculatus, glaber, teres, inferne lineam crassus l. duplo tenuior. *Vaginae* et *ligulae* ut in proxime affini *A. guineënsi*. *Folia* subsempedalia, planiuscula, angustissime linearia, $\frac{1}{4}$ — $\frac{1}{2}$ lin. lata, apice attenuato setacea, flaccida viridia, glabra, supra obsolete scabriuscula.

Note: = *Aristida submucronata* Schumacher.

The Russian monographers described the species from a specimen in the Schumacher Herbarium at the Botanical Garden of Leningrad; I could study this specimen through the courtesy of Prof. B. FEDTSCHENKO. TRINIUS overlooked the publication of SCHUMACHER'S *Aristida submucronata* from the year 1827, SCHUMACHER described the same

*) Natives make from this grass their twisted works, also the woman's clothes; is used for thatching.

plant from his own herbarium, now at Copenhagen, I compared both types and found them to be indeed the same. The type of *Aristida Thonningii* consists of two specimens, one is immature but with basal parts, the other is a 3-noded culm with a well-developed panicle. Upon the sheet is written: „Herb. Schum.” and in RUPRECHT'S handwriting: „*Aristida Thonningii*. Specimen originale (1842).”

***Aristida tineta* Trinius et Ruprecht.**

Species Graminum Stipaceorum, loc. cit. p. 111!

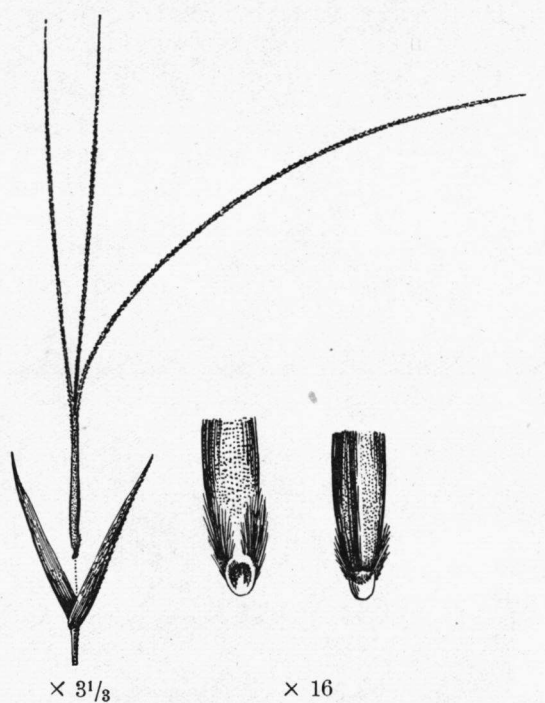
Panicula 3—5 pollicaris, pyramidatae, *secundae*, coloratae radiis binis ternisve elongatis: longiori inferne nudo erecto, superne patulo; glumis spadiceis subaequalibus, *acuminato-cuspidatis*, *bilinealibus*, flosculum pallidum superne *scabrum* non tortum *aequantibus*; setis lateralibus erecto-patulis 4—5 linealibus, media *divaricata* et parum arcuata 6—9 lineali.

Chaetaria spadicea Nees ab Esenb. Agr. Bras. (1829) p. 385 non R. S.

Aristida spadicea Trin. Act. Petrop. (1836) p. 43. non HBK.

Guyana gall. (Hb. Mus. Paris. n. 262!); in praeruptis ripae fluvii Solimoes provinciae fluminis Nigri et in graminosis cultis ad villam de Obidos provinciae Paraënsis; item in campis agrestibus provinciae Piauhianae (Martius!) Nov. Decembr. ☉.

Culmus 1—2 pedalis, simplex vel rarius superne ramos floriferos 1—2 gerens, glaber ut tota planta. *Ligula* nulla, interdum pili pauci ejus loco. *Folia* filiformia, canaliculata, stricta, pl. min. pedalia, glabra, vix scabra. *Aristida spadicea* HBK. longe differt flosculo glumis multo longiore, apice spiraliter contorto.



ARISTIDA TINCTA Trinius et Ruprecht.
From type specimen.

NEES described in his *Agrostologia Brasiliensis* in the year 1829 two *Chaetarias*, *Chaetaria spadicea* and *Chaetaria torta*. Although he cites under *Ch. spadicea* the specimens in the *Nova Genera*, described as *Aristida spadicea* H. B. K., he has not studied an authentic specimen of that species and he misapplied the name *spadicea*, for the plants collected by MARTIUS, plants quite different from the true *A. spadicea*. In the year 1836, TRINIUS accepted these plants also as the *A. spadicea* of HUMB. BONPL. and KUNTH, but in the year 1842 the Russian authors recognized, from the description in the *Nova Genera*, that the true *A. spadicea* was a different species (by the longer glumes and by the twisted well-developed column!). They described therefore the plants of MARTIUS as a new species, under the name of *A. tincta*. The specimen from French Guiana, first mentioned in the description, is true *A. tincta* but it is not the type. I studied the plants, collected by MARTIUS, in the Munich Herbarium.

Aristida tincta as accepted by me is a rather widely distributed species, it is found from Costa Rica and Panama to Venezuela and from British Guiana, Surinam ad French Guiana to Brazil. The species has a very short, very obtuse callus, equal glumes, the lower distinctly pubescent all over, the awns are much longer than the lemmas, the central one is slightly curved, the lateral ones are straight, $\frac{1}{3}$ shorter than the central one and twice as long as the lemma. The species is placed by HITCHCOCK in N. A. sp. of *Aristida* p. 579 under *A. torta* KUNTH, which is an allied distinct species.

***Aristida torta* (Nees) Kunth.**

CAROLUS SIGISMUNDUS KUNTH; *Agrostographia Synoptica sive Enumeratio Graminearum omnium hucusque cognitarum, adjectis characteribus, differentiis et synonymis.* [1833] Tom. I. p. 190!

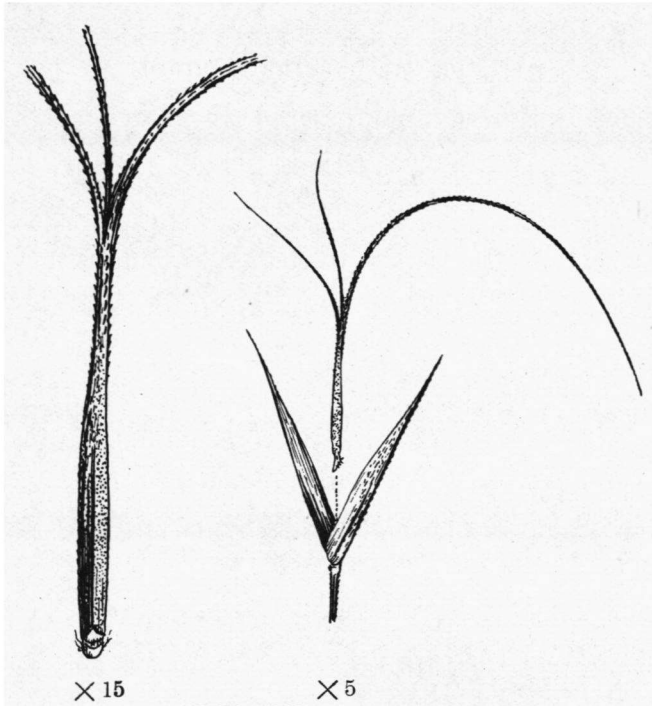
= *Chaetaria torta* NEES AB ESENBECK; *Agrostologia Brasiliensis* l. c. [1829] p. 386!

Description given by Nees, l. c. p. 386!

Ch. culmo simplici, foliis lineari-elongatis complicatis facie scabris, vaginarum collo barbato, panícula ramosa subverticillata coarctata subcontorta, glumis acutis, superiore flosculum superante, setis lateralibus rectis flosculum scabrum aequantibus, media reflexa duplo longiore.

Simillima *Chaetariae recurvatae* (*Aristidae* H. et K.), sed differt evidenter: spiculis brevioribus 3 linearibus, neque linearum $4\frac{1}{2}$; glumis lanceolatis et acuminatis quidem, sed non longe attenuatis,

minus membranaceis (subspadiceis), inferiore flosculo parum-, superiore eodem $\frac{1}{4}$ longiore; setis flosculi inaequalibus, neque hoc ad setarum originem longe attenuato subfiliformi. Congruunt reliqua. — Culmus sesquipedalis, compressus, laevis. Folia radicalia setacea; caulina fere pedalia, erecta, stricta, dorso laevia, facie scabra, saepe complicata vel convoluta. Ligula brevissima glabra. Vaginae longae, convolutae, laeves, collo barbatae. Panicula 5—6 pollices longa, erecta,



ARISTIDA TORTA (Nees) Kunth.

From type specimen.

strictiuscula, densa. Rami fasciculati, spirâ fere torti, appressi, scabri, divisi. Rhachis compressa, scabra. Spiculae subspadiceae.

Habitat in campis altis provinciae Minarum. (Mart.) Floret Aprili. 2.

Observ. *Aristida gracilis* Ell. *Bot. of S. Carol., Trin. Gr. unifr. et sesquifr.* p. 178, differt panicula tenui.

The type, I studied in the Martius Herbarium at Munich, is labeled by NEES. *Aristida torta* is a rare species, endemic in Brazil, and hitherto only known from a few localities, it is different from *Aristida tinctoria*, as already observed by me. The glumes are more acute and distinctly awned (not acuminate only), the lemma is shorter and the central awn is strongly curved in a semicircle, the

lateral awns are much thinner, somewhat flexuous and about as long as the body of the lemma. The different characters to distinguish the two species were already accurately indicated by NEES.

Aristida Friesii HACK. is a species from Southern Bolivia with a bifid second glume, a distinct beak or minutely twisted column and short, strictly erect awns. This species is cited by HITCHCOCK as „A. Friesii Henr.”, in his recent work on the grasses of Ecuador, Peru and Bolivia on p. 406. *)

Aristida trachyantha Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, dense caespitosa, innovationibus intravaginalibus; *culmi* uninodes, vel interdum binodes, nodo superiore in $\frac{1}{3}$ — $\frac{1}{5}$ inferiore culmi sito, teretes, simplices, superne longe denudati, stricte erecti, leviter striati, glabri vel minutissime scabriusculi, sine paniculis ad 20 cm. alti, vix 1 mm. crassi; *vaginae* infimae stramineae, breves, laxiusculae, subcarinatae, striatae, marginibus latis, reliquae culmum arcte amplectentes, internodiis breviores; *ligula* minuta, dense breviterque ciliolata, auriculae externe dense barbatae, collo distincte ciliato vel villosa; *laminae* glaucae ut tota planta, stricte erectae vel leviter curvatae, firmulae, complicatae fere cylindraceae, diametro vix $\frac{1}{2}$ mm., subpungentes, vi explanatae 1 mm. latae, subtus scabriusculae vel sublaeves, supra breviter hirtellae, 4—5 cm. longae vel innovationum ad 7 cm. longae; *panicula* longe exserta, 15 cm. vel plus longa, stricte erecta, angusta, contracta sed haud spiciformis, inferne interrupta, sublaxa, axis teretiusculus, subscaberulus, rami stricte erecti, bini vel superne subsinguli, paucispiculati, pedicellis apice subclavatis, scaberrimis; *spiculae* griseo-purpureae vel demum flavidae, erectae, *glumae* inaequilongae, uninerves, *inferior* acuta brevissime mucronulata, carina scabra, 8—9 $\frac{1}{2}$ mm. longa, *superior* carina laevis, 14—15 $\frac{1}{2}$ mm. longa, apice distincte bifida et breviter aristata, *gluma fertilis* linearitubulosa, callo acuto dense barbato 1 mm. longo, 10 mm. longa, inferne laevis superne regulariter tuberculato-scabra, rostrum nullum, aristae basi applanatae et leviter contortae, subaequales, 35—37 mm. longae.

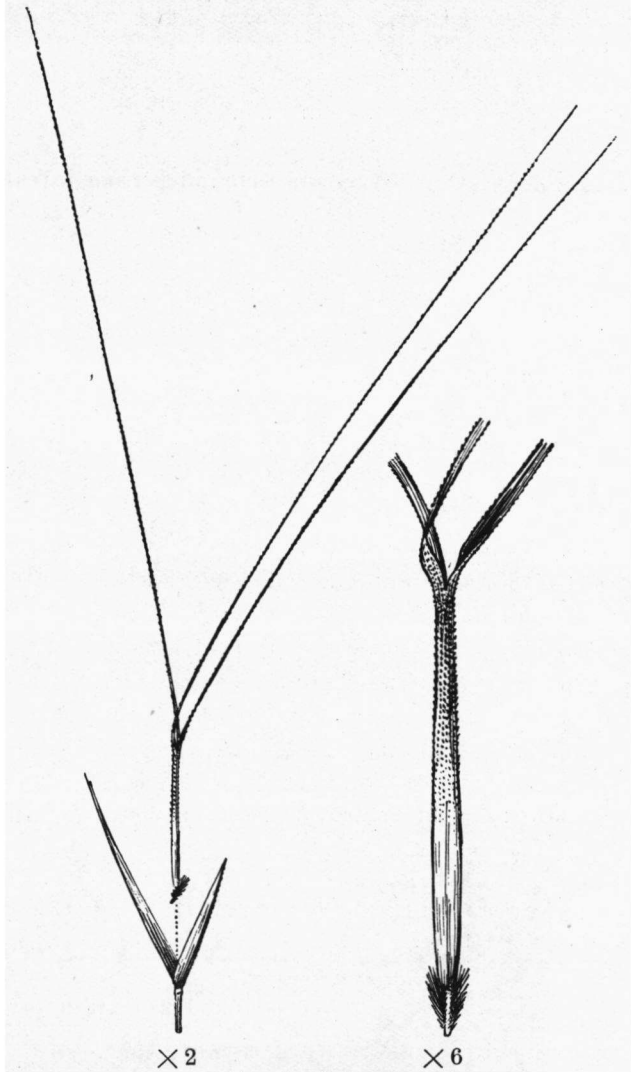
*) I must observe that such a citation of a described species is wrong. I described the new species *Aristida Friesii*, which was named so by my lamented friend Eduard HACKEL, who permitted to publish his undescribed species. HITCHCOCK himself published undescribed species under the manuscript or herbarium names of different authors (*Aristida lanuginosa* SCRIBNER, *Aristida neglecta* LEON). Whence his inconsequence?

Argentina: Gobernación de la Pampa Central; General Acha, in campis graminosis, Jan. anno 1927. Herbario LORENZO R. PARODI no. 8140. Typus speciei in Herb. Lugd. Batav. sub no. 927.250—231.

Allied to the group of the North American „*purpureae*”, with erect panicles and appressed branches. Agreeing with *A. Wrightii* NASH as to the villous line across the back at the collar of the sheaths, but differing in the shorter blades, the longer awns and in the less-unequal glumes, the Argentine species agrees with *A. Fendleriana* STEUD. in the habit, in the numerous short curved leaves, the mostly basal sheaths and the long-exserted naked culms, but the very unequal glumes of *A. Fendleriana* (gl. II. about twice as long as gl. I.) and the wanting hispidulous or villous line on the collar distinguish the *A. Fendleriana* clearly from the *A. trachyantha*.

A. longiseta differs in the smooth lemma, slightly scaberulous only just below the awns, in the only a few cm. long axis of the panicle and in the leaves which are not clustered at the base of the culms.

Allied also to the Argentine *A. subulata* HENR., described by me



ARISTIDA TRACHYANTHA Henrard.
From type specimen.

as a new species on p. 612 of this Revision, which differs in the more-noded culms, the leaves not basal, in the sheaths without a villous line across the back at the collar and in the less scabrous, only slightly rough upper part of the lemma. The two Argentine species have a quite different habit. *Aristida subulata* bears about the same relation to *Aristida trachyantha* that *Aristida Wrightii* does to *A. Fendleriana*. It is very curious that there occurs in Argentina a third species of the group of the „*purpureae*”, so that it is not impossible that all the North American „*purpureae*” have their analogues in South America.

Aristida trichodes (Nees) Walpers.

G. G. WALPERS; *Annales Botanices Systematicae*. Tom. III. [1852—53] p. 753!

= *Chaetaria trichodes* NEES ab Es. ined. ap. Dr. LINDLEY, *Gramineae Herbarii Lindleyani*; in HOOKER'S *Journal of Botany*. Vol. II. [1850] p. 101!

Panicula angusta contracta, ramis capillaribus subfasciculatim decompositis, glumis setaceo-mucronatis scabris, inferiore flosculi stipitem brevissimum subaequante, superiore eodem stipite longiore crasse trinervi, flosculo lineali, arista ad basin fere divisa, lacinia media bilineali lateralibusque linealibus saepe recurvis scabris, foliis lineari-angustis complicato-setaceis vaginisque striatis.

Insulae Philippinae. *Cuming*, n. 671.

Digitalis, caespitosa, erecta, gracilis. — Similis primo ad aspectum *Chaetariae capillaceae*, sed differt *foliis* viridibus nec glaucis, complicatis, vaginis radicalibus latioribus, truncatis, spiculis pallide fuscis nec viridulis, *glumis* nervis 3 fortioribus praeditis, superiore flosculos cum stipite brevissimo superante.

Note: = *Aristida Cumingiana* Trin. et Rupr.

The name *Aristida trichodes* is a typonym because it was based upon the same type (*Cuming* no. 671), described already in the year 1842 as *A. Cumingiana* by the Russian monographers.

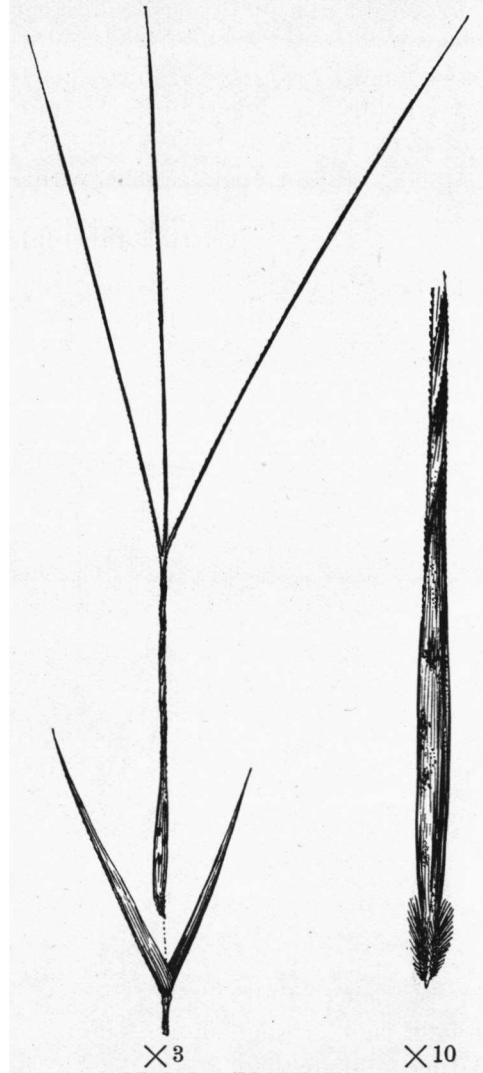
Aristida Trinii Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis tempore florendi innovationibus paucis; *culmi* simplices, erecti, cum paniculis 80—90 cm. alti, graciles, 1—1½ mm. crassi, teretes, glaberrimi, leviter striati, circa 4-nodes, nodis incrassatis, tumidis, subaequaliter dispositis, nodo superiore

prope medium culmi sito; *vaginae* arctae, laeves, striatae, internodiis breviores; *ligula* brevissima, minute puberula, auriculae pubescentes et pilis paucis elongatis praeditae; *laminae* anguste lineares, inferne interdum subplanae, complicatae, longe acuminatae ad 20 cm. longae, glaucae vel demum fuscantes; *panicula* erecta, longe exserta, subspiciformis, subdensa, 20—30 cm. longa, sine aristis circa $\frac{1}{2}$ cm. lata, axis angulosus, superne scabriusculus, rami scabri, bini a basi divisi, quasi semi-verticillati, inaequilongi, longiores cum aristis ad 7 cm. vel plus longi, filiformi, submultiflori vel laterales pauciflori, pedicellis scaberrimis; *spiculae* flavo-fuscae vel flavo-purpurascens; *glumae* unives, angustae, aristatae, *inferior* longior, carina scabriuscula, 13 mm. longa, *superior* carina laevis, 11 mm. longa, *gluma fertilis* tubulosa, laevis, callo peracuto dense barbato 1 mm. longo, circa 10 mm. longa, superne in columnam optime spiraliter tortam, scabram, 10 mm. longam abiens, *aristae* capillares suberectae vel subpatentes, subaequilongae, centralis 28—30 mm., laterales 24—25 mm. longae.

Brasilia: Minas Geraes, leg. J. GLAZIOU, anno 1889, no. 17896. Typus speciei in Mus. Botanic. Hauniense, sub nom. *A. riparia* Trin. Duplic. typus in Herb. Hackel Vindobon. sub no. 15940.



ARISTIDA TRINII Henrard.

From type specimen.

Agrees in habit with *Aristida riparia* TRIN., a species which differs however in the very characteristic bifid lower part of the

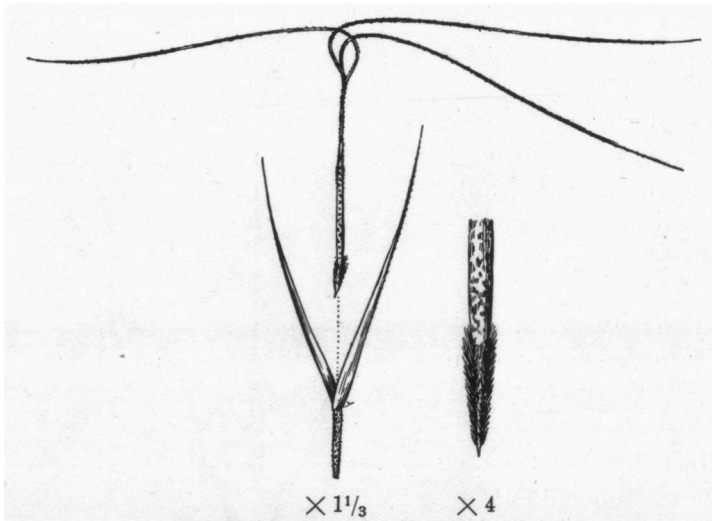
callus and in the internodes which are shorter than the sheaths, in our species they are much longer.

In the group of the South American „*ripariae*” with contracted spike-like panicles there are two other somewhat allied species, *A. megapotamica (implexa)* is very different in habit and in the characters of the spikelets, but *Aristida Ekmaniana* much resembles *Aristida riparia* and *Aristida Trinii*, in *A. Ekmaniana* the lower glume is however shorter than the upper one, the upper surface of the blades bears long hairs in the lower part and the lemma including the acute callus is longer, up to 9 mm. long. *Aristida oligospira* is at once to recognize by the very short, obtuse callus, *Aristida chapadensis* by the loose and open panicle with spreading branches.

Aristida tuberculosa Nuttall.

THOMAS NUTTALL; The Genera of North American Plants and a Catalogue of the species to the year 1817, Philadelphia. [1818] p. 57!

Culms rigidly erect, dichotomous, with tumid articulations and small tubercles or callosities in the axillae of all the branches;



ARISTIDA TUBERCULOSA Nuttall.

From Harger no. 3529 Milford, Connecticut.

panicle rigid, rather short, ramuli approximating towards the summit of the culm distinct at the base; calix valves carinate, with very long subulate points, and twice the length of the corolla; corolla cylindric, stipitate; awns smooth, nearly equal, very long, spirally convolute, and growing together towards the base.

Culm with very few articulations, (2 to 3 feet high.) Sheaths of

the radical leaves mostly tomentose; leaves smooth, very long and subulate. Branches erect, removed from the culm, and the flowers often from each other by the interposition of small callosities at their base. Valves of the calix subulate, often more than an inch long. Flowers distinctly stipitate, stipe villous; awns twisted together at the base, nearly equal, more than 2 inches long.

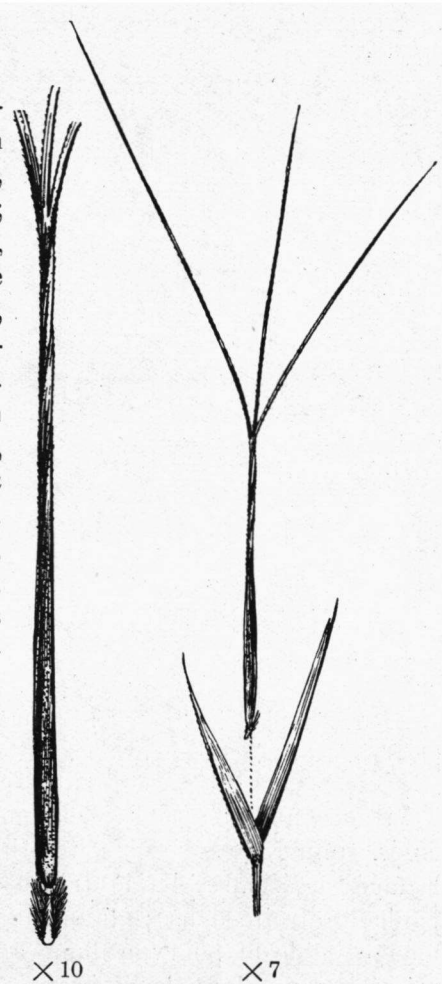
In the sandy pine forests of Georgia, a few miles from Augusta.

A well-known annual species, belonging to the section *Arthratherum*, easy to recognize by the long twisted column and the arcuate-contorted base of the awns.

***Aristida tucumana* Henrard**

nov. spec.

(Sectio *Chaetaria*). Perennis caespitosa. Culmi stricte erecti, cum panicula circa 30 cm. alti, simplices, infra paniculam minute scaberuli; vaginae leviter striatae, scaberulae, glabrae sed pilis paucis longis parce adpersae; ligula obsoleta, ciliolata, auriculae pubescentes, collo minutissime puberulo; laminae ad 15 cm. longae, rigidulae, involutae, sensim longe acutatae, utrinque scaberulae, margine haud incrassatae; panicula densa, spiciformis, circa 10 cm. longa et 1 cm. lata, rhachi scaberula, ramis solitariis a basi spiculiferis, subspiciformibus, spiculis secus ramos aequaliter dispositis, imbricatis, quam pedicelli longioribus; spiculae pulchre purpurascens, glumae glabrae, uninerves, acutae, aristatae, gluma I. (cum arista $1\frac{1}{2}$ mm. longa) 7 mm. longa, carina scabra, gluma II. 9 mm. longa, carina laevis, apice bidenticulata, inter dentes aristulata, aristula circa 1 mm. longa; gluma III. fertilis sine callo $5-5\frac{1}{2}$ mm. longa, leviter punctulata, haud articulata, callo



ARISTIDA TUCUMANA Henrard.

From type specimen.

0,8 mm. longo subobtusos dense sed breviter barbato, apice in stipitem scabrum, 4 mm. longum, valde tortum abiens, aristae inaequales, scaberulae, media 14—15 mm. longa, laterales 11—12 mm. longae.

Argentina: Tucuman; Dep. Tafi, Rio Blanco, in campis, 2300 m. s. m., 27 Feb. 1905 leg. M. LILLO no. 4271. Typus speciei in Herb. HACKEL nunc Herb. Vindobon. sub no. 22167.

The plant has the habit of the Bolivian *Aristida enodis* HACK., which differs however in the straight, not twisted column and in the 3-nerved lower glume. The species described here is more allied to *A. achalensis* MEZ and its var. *elongata* HENR., it may be that we have to unite afterwards *A. tucumana* and *A. achalensis* in one, somewhat variable species. In *A. achalensis* var. *elongata*, the lemma, including callus and column, is about 13 mm. long, exerted from the glumes and the lateral setae of the upper glume are inconspicuous, the lower glume is scaberulous on the back. *A. tucumana* differs in the lemma which is together with the column not or scarcely exerted from the glumes, the lateral setae of the upper glume are conspicuous and the lower glume is scabrous on the keel only, smooth on the back. Typical *A. achalensis* has a rather long up to 20 cm. long, dense panicle, interrupted at the base, longer glumes, the lower glume is 10 mm. long, the upper 11 mm. long and the three awns are moreover longer, the central awn is 20 mm. long.

***Aristida tunetana* Cosson.**

E. COSSON; Considérations générales sur la distribution des plantes en Tunisie et sur leurs principales affinités de Géographie botanique. Compt. rend. Acad. des Sciences. Paris. t. XCVIII, séance du 25. févr. [1884] (Nomen nudum).

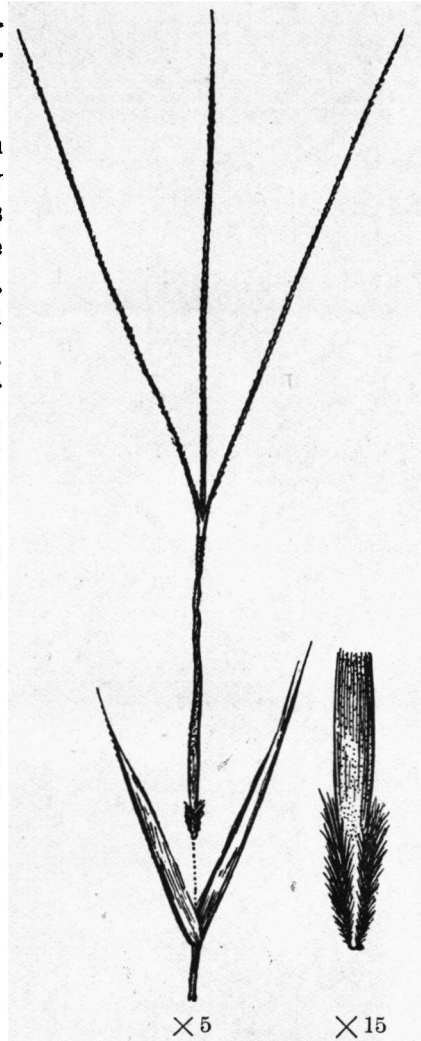
BATTANDIER et TRABUT; Flore de l'Algérie. Monocotylédones. [1895] p. 157! (Description).

Vivace en touffe dense; chaumes de 2—3 décim.; dressés, geniculés, simples; feuilles étroites linéaires, enroulées, très scabres sur la face supérieure; ligule très courte, tronquée, brièvement ciliée; panicule étroite dense; glumes linéaires, inégales; la supérieure plus longue bifide et pourvue d'une arête droite, l'inférieure longuement aristée aussi; glumelle inférieure insérée sur un callus assez long velu, linéaire, convolutive, scabre, *se prolongeant sans articulation avec*

la partie simple et tortile de l'arête sur une longueur de 5 millim., les trois branches nues qui terminent l'arête sont égales, très tenues, longues de 15 millim. 2. Mai-juin. Broussailles de l'Enfida (Mission bot. Tunisie 1883).

The type in the Cosson Herbarium at Paris was kindly received for study from Prof. H. LECOMTE. The sheet bears a well-developed, densely caespitose plant, with simple, few-noded culms. The printed label reads: „Mission botanique en Tunisie en 1883: M. M. E. Cosson, Doumet-Adanson, A. Letourneux, V. Reboud; G. Baratte, E. Bonnet”; upon this label is written in Cosson's hand: „*Aristida Tunetana* Coss. sp. nov. in Exs. Soc. Dauph. Clairières des broussailles des bois de l'Enfida, au nord et près de Batria 2 juin.”

The species belongs to the section *Pseudarthratherum*, having an articulation below the branching-point of the awns. It is allied to *Aristida elyptrophoroides* CHIOVENDA which has the same habit, which is distinguished by the many-noded branched culms, the densely bearded auricles of the sheaths, the longer panicle, the much shorter lateral setae of the upper glume and the longer, about 2 cm. long awns. Also allied to the South African *A. congesta* R. et S., especially agreeing with it in the not bearded auricles and in the simple culms, but differing in the long lateral setae of the upper glume, in the shorter blades and in the short innovations, clustered at the base of the culms.



ARISTIDA TUNETANA Cosson.
From type specimen.

Aristida uniplumis Lichtenstein

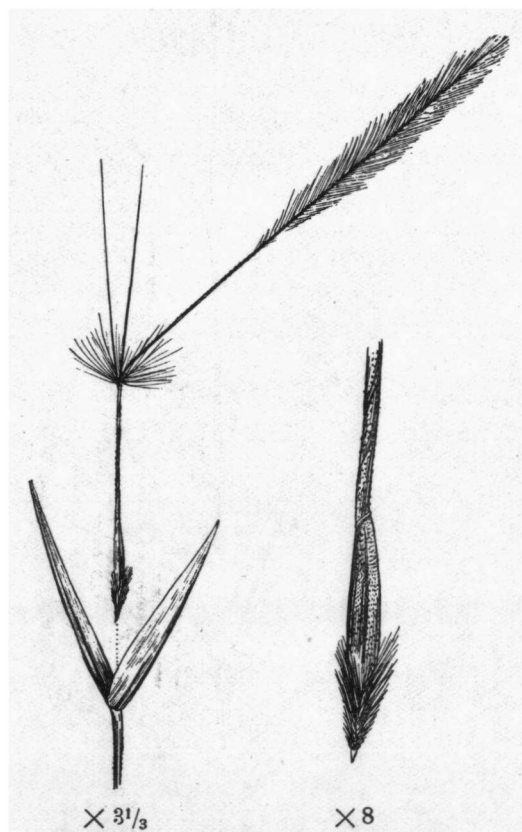
in JOAN JACOB ROEMER et JOS. AUGUST SCHULTES; Systema Vegetabilium, Stuttgart, [1817] Vol. II. p. 401!

Aristâ intermediâ longiore plumosâ, lateralibus basi pilosis, culmo glabro ramoso.

Lichtenstein Spicileg. Fl. capens. Mss.

Folia filiformia subulata. Culmus in panicula flexuosus. *Hab. in Karroo prope Chamka fluvium, in Graff Reynett et Kaab.*

C. B. TRINIUS; De Graminibus unifloris et sesquifloris Dissertatio botanica, Petropol. [1824] p. 180!



ARISTIDA UNIPLUMIS Lichtenstein.
From duplicate type specimen.

Panicula patente; Glumis acutis perianthio longioribus; inferiore $\frac{1}{4}$ breviori; Arista infra medium divisa: laciniis lateralibus (4-linealibus) nudis, media (plusquam unguiculari) plumosa. V. sp. Cap.

C. B. TRINIUS; Graminum Genera quaedam speciesque complures definitionibus novis in Mémoires de l'Académie Impériale des Sciences de St. Pétersbourg, VI^me Série. Tome I. [1829] p. 89!

Panicula patente; Glumis acutis perianthio sesquilineali longioribus; inferiore quartam partem breviori; Arista infra medium divisa, ad divisuram lanata: laciniis lateralibus capillariibus, nudis, ultralinealibus,

media fere 9-lineali, superne plumosa. V. sp. Cap. b. sp..

Sesquipedalis, ramosa. Folia involuta. Panicula lucidissima, pallens.

Arthratherum uniplume NEES ab E.; Florae Africae australioris Illustrationes Monographicae. [1841] p. 181!

Paniculae contractae ramis fasciculatis a basi divisis, aristae lacinia media 9–10-lineali procul a basi plumosa apice nuda, lateralibus duplo brevioribus capillaribus nudis, stipite ad divisuram longe barbato flosculoque bilineali paulo longiori, glumis subaequalibus glabris, inferiori setaceo-acuminata superiore mucronata, foliis convoluto-setaceis vaginisque glabris, his ore longe barbatis.

Aristida uniplumis *Lichtenst.* in *R. et Sch. S. Veg. II. p. 401. n. 12. Trin. in Act. Petrop. 1830. I. p. 89. et 1836. II. p. 52? Kunth. En. I. p. 195. n. 62.*

In Karro prope Chamka fluvium in Districtu Graaf Reynett et Kaab, Lichtenstein; inter rupium nuda capita ad Colesberg alt. 4500', (Drège). 2.

Culmus simplex, teres, pedalis, ad paniculam usque vaginatus. Vaginae glabrae, striatae, ad os lutescentes et barba longa patente ornatae; inferiores margine membranaceae. Folia convoluto-setacea, attenuata, sulcato-striata, glabra; fasciculorum $1\frac{1}{2}$, culmi inferiora 2–3 poll. longa. Panicula semipedalis, angusta ob ramos adpressos; qui quidem graciles sunt, fasciculato-terni-quini (sive potius unus a basi divisus), alii monostachyi, alii ramosi, flexuosi, scabriusculi. Glumae $5\frac{1}{2}$ lin. longae, pallidae, basi purpurascens, glabrae, chartaceo-membranaceae; inferior setaceo-acuminata, superior attenuata apice truncata cum mucronulo. Flosculus 2 lin. longus. Stipes aristae 3-linearis; arista ad divisuram barba longa candida. Arista media 10 lin. longa, prope a basi albo-plumosa, apice nudo setaceo lutescente; aristae laterales capillares, 5 lineas longae, nudaе, basi pilo uno alterove. Stamina tria, antheris fulvis mucronatis.

Adnot. 1. Synonymum *Trinii* dubium propter lacinias aristae laterales „ultralineales” et glumam inferiorem „quartam partem breviorem”. An haec ad *Arthratherum ciliatum* spectant?

TRINIUS et RUPRECHT; *Species Graminum Stipaceorum*, loc. cit. p. 172!

Culmo, nodis et vaginis superioribus glabris; ligulis dense et breve ciliatis; paniculae radiis inferioribus geminis, divaricatis, paullo supra basin floriferis; glumis parum inaequalibus, glabris, apice acute bidentatis: superiore 4 lineali inferiorem lineâ $\frac{1}{2}$ — $\frac{3}{4}$ superante; flosculo $1\frac{1}{2}$ lineali; stipite aristae deciduae bilineali, torto, superne ad divisuram *barbato-piloso*; setis lateralibus erectiusculis, 3–4

linealibus, nudis, media sub 8 lineali, geniculato-patente, inferne ad $\frac{1}{3}$ — $\frac{1}{4}$ partem nuda; mucronulo *apicali via exserto*.

In deserto Karro prope Chamka fluvium in distr. Graaf Reynett et Kaab. (Lichtenst.).

Culmus ramosus, sesquipedalis. *Vaginae* internodiis breviores. *Folia* involuta, filiformia, subulata.

The type is LICHTENSTEIN'S plant, described by ROEMER and SCHULTES. TRINIUS studied the same plant (a duplicate) and described it in the years 1824 and 1829. The characters of this plant are given in my figure here, the branching-point of the awns is long-bearded and the central awn is naked in lower $\frac{1}{3}$ part, the tip of the awn is not exserted. In the year 1841 NEES described his *Arthratherum uniplume*, he mentions Lichtenstein's specimen, which he probably has not seen and he described the central awn as plumose nearly from the base and the tip as naked, characters taken from a specimen collected by DRÈGE at Colesberg. This specimen has moreover longer glumes, up to 14 mm. long (NEES says $5\frac{1}{2}$ lin.) and NEES mentioned once more on p. 181 the „*arista media prope a basi albo-plumosa, apice nudo setaceo lutescente*”. In the year 1842 the Russian monographers accepted only Lichtenstein's plant as the true *Aristida uniplumis* and treated the plant from Colesberg as a distinct variety, they called var. *Neesii*. In the Flora Capensis Dr. STAFF has simply united the two plants, he describes the central awn as „*plumose all along or naked below*”. I have accepted DRÈGE'S plant as a distinct variety in my work.

***Aristida uniplumis* Lichtenstein.**

var. *Neesii* Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. p. 173!

Paniculae contractae radiis fasciculatis; glumis subaequalibus $5\frac{1}{2}$ lin.; flosculo bilineali; stipite aristae 3 lin.; setis lateralibus 5 lin.; media 9—10 lin. fere a basi albo-plumosa, apice nuda. *Arthratherum uniplume* N.E. Gram. Afr. aust. (1841) p. 81. excl. syn. — Inter rupium nuda capita ad Colesberg altit. 4500 ped. (Drege). An species distincta?

See my observations on this variety already given above under *Aristida uniplumis*.

Aristida uniplumis* Lichtenstein.*var. *Pearsonii* Henrard****nov. var.**

Differt a typo stipite aristae non solum ad geniculam sed etiam in parte superiore penicillato-barbato, arista centrali aequaliter plumosa, sed mucronulo apicali nudo praedita; glumae ut in typo. Accedit ad varietatem *Neesii* TR. et RUPR., quae differt glumis subaequalibus, multo longioribus.

Angola australis: Inter Gambos Mission Station et Cabama; (Percy Sladen Memorial Expedition in South-West Africa. 1908—1909), 17. 5. 09. legit H. H. W. PEARSON, no. 2487. Typus in Herb. Kew.

***Aristida uruguayensis* Henrard.**

Proles hybrida. (*Aristida murina* CAV. × *Aristida pallens* CAV.)

Perennis, caespitosa. *Culmi* stricte erecti cum paniculis ad 5 dm. alti, altioresve, subrobusti, 2 mm. crassi, teretes, glaberrimi, substriati, paucinodes, nodis in parte inferiore culmi subcongestis. *Foliorum vaginae* teretiusculae, haud equitantes vel distichae, arctae, internodia superantes, glaberrimae, striato-sulcatae; *ligula* minuta, dense breviterque ciliolata, auriculae haud barbatae. *Laminae* rigidae, inferne planae, glauco-virides, superne complicatae, plus minus 2—3 mm. latae, longissimae, ad 30 cm. vel plus longae, sensim longe acuminatae, scaberrimae et subpubescentes vel subtus glabrescentes, marginibusque scaberrimae, nervis prominentibus percursae. Innovationes elongatae, foliis approximatis, erectis, haud pectinato-distichae; *laminae innovationum* rigidulae, longissimae, auriculis barbatis. *Panicula* laxa, composita, patens, ad 15 cm. longa, sub anthesi patentissima, apice interdum subnutans, rhachi tereti, inferne laevi, superne angulata, scabra, ramis geminis, scabris, subaequilongis, filiformibus, arcuato-patentibus, nutantibus vel flexuosis, etiam anthesin distantibus, ad medium vel ultra nudis, primariis 8—10-spiculatis, secundariis 4—5-spiculatis; *spiculae* breviter pedicellatae congestae, *glumae steriles* inaequales, pallidae, lineari-lanceolatae, sensim acuminatae, aristatae, *inferior* 13—14 mm. longa, subulata, lanceolata, 1-nervis vel basi 3-nervis, carina scabra, *superior* 27—28 mm. longa, 1-nervis, carina laevi, *gluma fertilis* callo acuto, dense sed haud longe barbato, circa 1 mm. longo, 15—17 mm. longa, laevissima, carinata, carina tantum scaberula, applanata, caryopsis haud evoluta, antherae 3, lineares, ad 3 mm. longae, bene evolutae

sed pollen pro parte corrugatum et male evolutum. Aristae sub-
aequales, scaberrimae ad 10 cm. longae, subpatentes.

Uruguay: San José do Uruguay, Septemb. anno 1823, leg SELLO W
Typus in Herb. Mus. Berolin., cum schedula: „*Chaetaria pallens* Nees
ab E. Var. α *murina* Cav. Sellow, *Brasilia merid.*”.

Huc etiam pertinet planta prope Villa do Minas in Uruguay a
Sellowio sub no. d 339 lecta, in Herbario Museo Berolin., cum
schedula: „*Aristida pallens* Cav. (SPRENGEL scripsit)”, et cum schedula
„*Chaetaria pallens* α *murina* mihi. *Aristida murina* Cav. (NEES scripsit),
planta ad var. *murinam* vergens sed differt panicula minus com-
posita et ramis brevioribus, singulis.

One of the parents of this interesting hybrid, the *Aristida murina*,
described and figured by CAVANILLES, is a rather uniform plant
and readily recognized. See this Revision p. 364—365. The panicle
is strictly erect, compact and spike-like, the branches are single,
spikelets bearing from the base, the spikelets are congested and the
panicle is V-shaped in outline. The specimens of this species are
commonly rather small, the uppermost internode about 1 dm. long,
rarely rather long exerted and up to 2 dm. long, but the shape
of the panicle is always very characteristic. If we compare this
species with the *Aristida pallens*, we find that the vegetative parts
of both are very different, in *A. murina* there are numerous inno-
vationshoots, they are intravaginal but not distichous or flabellate,
the margins of the lower sheaths not overlapping. The blades are
shorter than the culms, rather firm, always with a prominent tuft
of hairs on the auricles. The other parent, *A. pallens*, also described
and figured by CAVANILLES is a very different species, although
very variable as to the length of the awns and the panicle-branches,
the species is well-characterized by the open panicle with long
branches, naked in the lower part, the spikelets never congested
but more or less distant, the aspect of the panicle thus very different
and never spike-like. *A. pallens* has moreover much longer and less
rigid blades and the vegetative parts are quite different from those
of the *A. murina*. In *A. pallens* the intravaginal innovationshoots
are few, the blades long, they generally reach the panicle or they
are longer and the lower sheaths have overlapping margins, they
are distichous and more or less flabellate and both species treated
here are always distinctly recognizable.

It is remarkable that NEES, in his *Flora Brasiliensis*, united both
species and placed *A. murina* as a variety α under *A. pallens*. He

was followed by the Russian monographers, who placed definitively *A. murina* as var. *murina* under *A. pallens*.

The two specimens mentioned above as belonging to the hybrid were studied by NEES, and SPRENGEL named one of the plants *A. pallens*, the same plant was determined by NEES as *A. murina*. Probably on account of these two intermediate specimens, NEES united both species and TRINIUS followed NEES without having seen these intermediate plants. I have studied an extensive material of both species and I found the characters to separate them very constant, except the two intermediate plants, I never saw other specimens intermediate between the two species and they are probably very rare or overlooked, although both species grow together in the same localities. SELLOW, the accurate observer, collected the intermediate specimens, he also collected the typical *A. murina* and different varieties of the *A. pallens*. The typical *A. uruguayensis* is rather intermediate between the parents, having the vegetative portions of *A. murina* and the panicle-characters of *A. pallens*. As to the floral characters, the upper glume is intermediate in length between *A. murina* and *A. pallens*, longer than the glume of *A. murina* and shorter than the glume of *A. pallens*. The ovaria are badly developed and the pollen, studied by the method of KÖLREUTER, *) proved to be partly totally empty and corrugate. These observations although not sufficient to distinguish the hybrid are however very valuable in connection with the different morphological characters taken here into consideration.

***Aristida Urvillei* Stuedel.**

E. G. STEUDEL; Synopsis Plantarum Graminearum, [1854] p. 141!

Glabra; culmo erecto simplici vel ramoso tereti laevi (2-pedali et ultra) foliato; vaginis arctis superne solutis; ligula brevissima ciliata; foliis convolutis curvatis apicem versus setaceis scabriusculis; panicula oblonga subcontracta (ultra pedali), radiis subdistantibus, infimis verticillatis inaequalibus, brevioribus a basi longioribus versus medium floriferis, superioribus ternis binis vel solitariis; glumis inaequalibus subpellucidis angustis (longiore 3—4-lineali) subaristato-acuminatis; flosculo glumas subaequante basi pilis argenteo-sericeis obvallato, glabro cum setis subaequalibus (6—7'' longis) scabris. *Urville* legit in Ins. Societ. an Maloun.

*) K. R. KUPFFER; Kölreuters Methode der Art-Abgrenzung nebst Beispielen ihrer Anwendung und einigen allgemeinen Betrachtungen über legitime und hybride Pflanzenformen. Acta Horti Botanici Universit. Imp. Jurjevensis T. VI. No. 1. [1905].

STEUDEL described the species from a specimen in D'URVILLE'S Herbarium which is at the University of Caen (Calvados). Through the courtesy of Prof. R. VIGUIER I received all the *Aristidas* from the Museum at Caen for study, among them I found the sheet with STEUDEL'S plant. The label bears the determination in STEUDEL'S hand with an addition by STEUDEL in parenthesis: „cum *Triticum scabro* erat mixta". Upon the label is written in another hand: „(Steucl scripsit 1853)" and the locality: Fafahak (I. Waigiou)? ou Malouines?

Unfortunately the authentic specimen of STEUDEL, which is mounted on a sheet, stamped: Institut Botanique de Caen. Hb. DUMONT-D'URVILLE, consists only of a culm with 4 leaves; the upper part is broken off and the panicle is probably lost in course of time. It is therefore impossible to identify the species. The locality: Malouines (Falkland Islands) is certainly an error. In DUMONT D'URVILLE'S work on the flora of the Malouines^{*)} we find on the list of the species no *Aristida* or an indication of such a species of the genus. We have now to look for the other locality on the label; STEUDEL mentioned the Society Islands which are a French possession (Tahiti) but on the label this locality is not given, the island of Waigiou belongs to Dutch New Guinea^{**)} and was visited by the navigators DAMPIER, FREYCINET, DUPERREY and also by DUMONT D'URVILLE; the isthmus of Fak-Fak is the Offak of the traveller FREYCINET and the locality Fafahak is probably the same. So far as we know the flora of Waigiou, there is not found any species of the genus *Aristida* and this locality must also be considered as erroneous.

On the autentic label, STEUDEL'S observation that the plant was mixed with *Triticum scabrum* gives us the possibility that the plant, STEUDEL described, is from the continent of Australia, or from Tasmania or New Zealand, because *Triticum scabrum* is only known from these countries, but the fragment in STEUDEL'S Herbarium gives us not a single character to identify the *Aristida Urvillei* with one of the species described from the Australian continent, the genus *Aristida* does not occur on Tasmania or New-Zealand.

*) J. D'URVILLE; Flore des Iles Malouines, Mémoires de la Société Linnéenne de Paris vol. IV. [1825]!

**) J. VAN WIJK RZN; Algemeen Aardrijkskundig Woordenboek, Dordrecht [1821] p. 1730!

Aardrijkskundig en Statistisch Woordenboek van Nederlandsch Indie, met eene voorrede van Prof. P. J. VETH, Amsterdam, III. [1869] p. 1139!

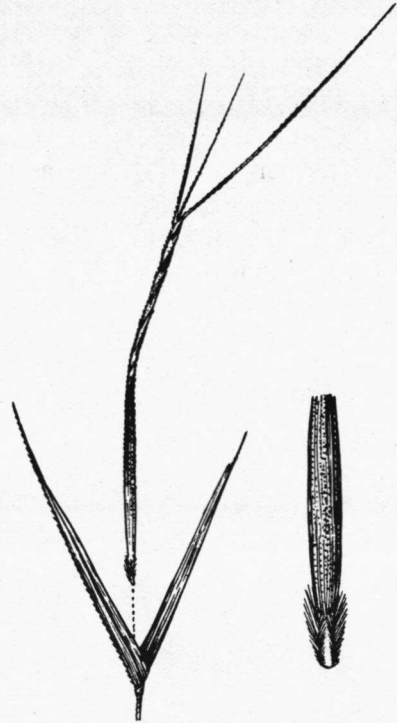
Encyclopaedie van Nederlandsch-Indië, onder redactie van D. G. STIBBE met medewerking van E. M. UHLENBECK. IV. [1921] p. 661!

***Aristida utilis* Bailey.**

F. MANSON BAILEY; Contributions to the flora of Queensland, in The Queensland Agricultural Journal. Vol. XVIII. [1907] p. 340!

SECTION CHAETARIA.

Rhizome shortly creeping, not robust, forming dense tufts of very slender stems 3 to 4 ft. high with inflorescence, the lower few internodes only a few inches long and densely villous with weak, longish hairs; nodes nearly or quite glabrous; the last internode or peduncle $\frac{1}{2}$ -line diam., very long, glabrous, and of a rather dark glossy yellow. Leaves narrow, 3 to 6 in. long, the apex acuminate; sheath more or less hairy; ligula of very short more or less distinct scales. Panicle slender, from 12 to 15 in. long, the lower branches distant, scarcely spreading; the branchlets and pedicels quite capillary and scabrous. Outer glume 5-nerved, 2nd glume 1-nerved, hyaline, both tapering into awnlike points, and 3 to 4 lines long; flowering glume longer, convolute in the upper part, terminating in a trifid awn or 3 separate awns; the centre one 6 to 8 lines long; the lateral or smaller ones $1\frac{1}{2}$ lines long, glabrous and often purplish; callus hairs about $\frac{1}{3}$ -line, white.



× 4 × 10
ARISTIDA UTILIS Bailey.

From type specimen.

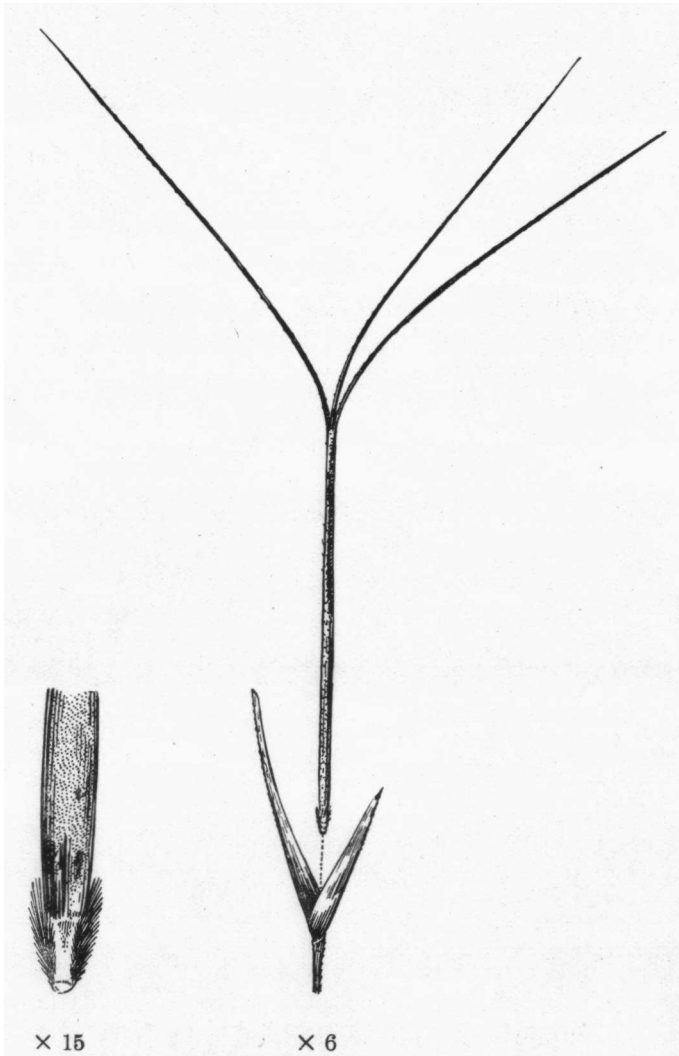
Hab.: Near Cooktown, *Mark Webb*. My specimens are still somewhat imperfect; but enough is available to show that the present species is very distinct from other Australian species, and it does not fully agree with others of which I have descriptions. The long smooth peduncles are being used in the manufacture of hats.

The type in the Kew Herbarium was kindly received for study from Dr. A. W. HILL. The specimen is labeled in BAILEY'S hand as given in the publication, it belongs to the section *Streptachne* with very thin, short, about 4 mm. long lateral awns. As to the spikelets it agrees somewhat with *Aristida abnormis* CHIOV. and *A. redacta*

STAPP, which are however annual species In the section *Streptachne* it is the only species hitherto known with the characteristic villous or woolly pubescent internodes and by this character easy to recognize.

***Aristida vagans* Cavanilles.**

ANT. JOSEPHUS CAVANILLES; Icones et Descriptiones Plantarum, quae aut sponte in Hispania crescunt, aut in hortis hospitantur. Matritum, Vol. V. [1799] p. 45! Tab. 471. Fig. 1!



ARISTIDA VAGANS Cavanilles.

From type locality, Port Jackson, leg. Camfield.

ARISTIDA paniculae ramulis divaricatis paucifloris: corolla calicibus longiore: aristis brevibus, media productiore.

Culmi bi-tripediales, glabri, teretes: articuli rubentes elongati. Folia vaginantia, vagina pollicari, in folium postea soluta subulatum, semipedem longum. Flores paniculati, panicula parce ramosa, ramis divaricatis paucifloris. Calicis valvulae non ita acutae ac in praecedentibus, exteriore brevior. Corolla calice et aristis longior, basi villosa, apice triaristata; aristarum intermedia productiore. Reliqua ut in praecedentibus.

Habitat prope portum Jackson in Nova-Hollandia, floretque Aprili. Ex eodem herbario.

Explic. tab. a Flos paulo auctus.

The actual type, probably in the Madrid Herbarium, I could not study but the species is well-known and to recognize from the plate given by CAVANILLES. The species is characteristic by the divaricate branches and branchlets of the panicle, with the short-pedicelled spreading spikelets, giving the plant a striking habit. The lemma is but shortly beaked and much longer than the glumes.

Aristida vagans Cavanilles.

var. *compacta* Bentham.

GEORGE BENTHAM; *Flora australiensis*, loc. cit. [1878] Vol. VII. p. 563!

BENTHAM'S description of *A. vagans* CAV. reads: Stems slender, erect and 1 to 2 ft. high, or diffuse and much branched. Leaves slender, almost filiform, usually short. Panicle 3 to 6 in. long, at first narrow, at length branching and pyramidal, the pedicels very short. Outer glumes usually dark-coloured, 2 to 3 lines long, the 2nd longer than the lowest, both with 1 prominent nerve. Flowering glume always longer than the outer ones and often twice as long. Awns sessile, about 4 lines long. Palea very short. — R. Br. Prod. 173; F. Muell. Fragm. VIII. 111; *A. ramosa*, Sieb. Agrostoth. n. 55; *A. parviflora*, Steud. Syn. Glum. I. 140 (from the char. given).

Queensland. Brisbane River, Mareton Bay, *F. Mueller*; Rockhampton, *O'Shanesy*; Condamine, *Hartmann*.

N. S. Wales. Port Jackson, *R. Brown*, *Woolfs*; New England, *C. Stuart*.

Var. *compacta*. Panicle short and compact, but the spikelets and awns quite of *A. vagans*. — Warwick, *Beckler*, *Nernst*.

Note: = *Aristida caput-medusae* Domin.

The type of var. *compacta* in the Kew Herbarium I could study through the liberality of Dr. A. W. HILL, it belongs indeed to *A. caput-medusae* as already supposed by Prof. DOMIN, if we compare the description of *A. caput-medusae* on p. 81 with the figure of BENTHAM'S type given on p. 82 of this Revision.

Aristida vagans Cavanilles.

var. gracilipes Domin.

K. DOMIN; First Contribution to the Flora of Australia, in FEDDE, Repertorium specierum novarum regni vegetabilis, IX. [1911] p. 551!

Panicula elongata sed angusta laxissima, ramis paniculae tenuibus arcuato-patentibus, spiculis longius pedicellatis, pedicellis capillaribus, glumis conspicue inaequalibus (7 mm et 4—4½, mm longis), aristis capillaribus media lateralibus conspicue longiore.

New South Wales: Cameroon Brush, coll. Leichhardt.

Note: = *Aristida gracilipes* (Domin) Henrard.

See my description of the species on p. 209 of this Revision.

Aristida vagans Cavanilles.

var. gracillima Bentham.

GEORGE BENTHAM; Flora australiensis. London, [1878] Vol. VII. p. 563!

Var. *gracillima*. Stems long, slender and branching; panicle filiform. — Cameroons Brush, Leichhardt; Rockhampton, O'Shanesy.

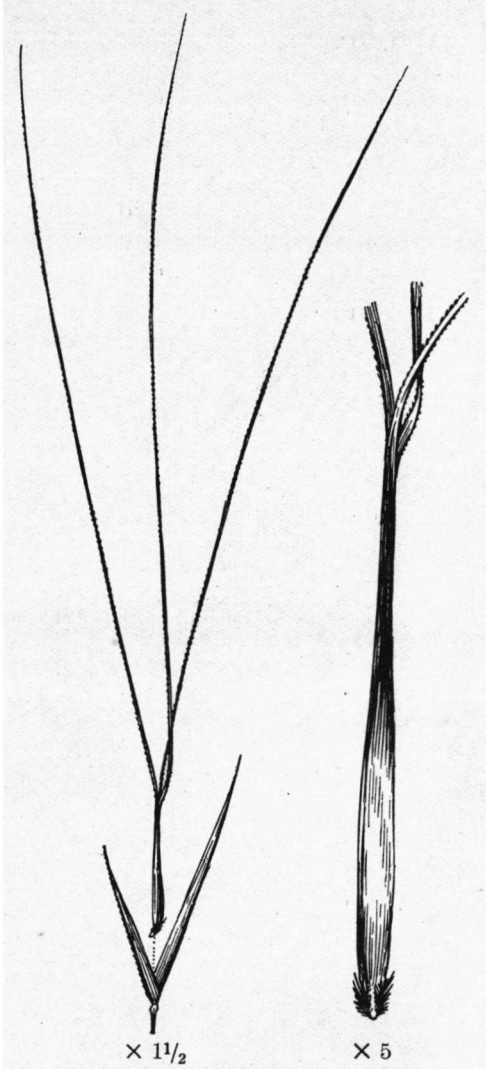
Note: = *Aristida gracilipes* (Domin) Henrard.

The type in the Kew Herbarium bears BENTHAM'S label: „*Aristida vagans* Cav. var., Cameroons Brush, Leichhardt, Herb. F. Muell. 1877", it was published by him as var. *gracillima* and independently by DOMIN as var. *gracilipes*. Treated as a variety of *Aristida vagans*, the name *gracilipes* is superflous. The plant is however so different and so characteristic that it is certainly a very distinct species. On account of OLIVER'S homonym from the year 1875 we cannot use the name *gracillima* and we have to take up DOMIN'S name for the species.

***Aristida valida* Henrard**

nov. spec.

(Sectio *Chaetaria*). Perennis, valida, dense caespitosa, innovationibus intravaginalibus, sine squamis aphyllis; *culmi* erecti, altissimi, cum paniculis 70—80 cm. longi, $1\frac{1}{2}$ mm. circa crassi, uninodes, nodo paulo supra basin culmi sito, teretes vel compressiusculi, glaberrimi, leviter striati; *vagina* striata, ad 20 cm. longa, teretiuscula, superne hians complicata, striata, subscaberula vel sublaevis; *ligula* brevissima, pilosula, auriculae pubescentes et pilis albis longis praeditae; *laminae* angustae complicatae vi explanatae vix $\frac{3}{4}$ mm. latae, valde elongatae, 30 cm. vel plus longae, utrinque scaberrimae, longe setaceo-acuminatae, subpungentes, eae foliorum innovationum arcte convolutae, setaceae, culmum aequantes vel subsuperantes; *panicula* erecta 30 cm. circa longa, angusta, contracta sed haud spiciformis, valde interrupta; axis principalis plane visibilis, teres, glaberrimus, superne scabriusculus, rami bini a basi divisi, quasi terni vel quaterni, inferne nudi, erecti vel subpatentes, longiores (aristis non computatis) ad 8 cm. longi, paucispiculati; *spiculae* erectae, pedicellis subclavatis scabris ad 5 mm. longis vel lateralibus brevioribus, flavo-virides; *glumae* angustae, *inferior* $12\frac{1}{2}$ — $15\frac{1}{2}$ mm., vulgo 13—14 mm. longa, acutissima, breviter vel vix aristata, uninervis, carina scabra, *superior* longior 20—25 mm., vulgo 23—24 mm. longa, uninervis, carina laevis, sensim longe acuminata, *gluma fertilis*, callo obtuso,



ARISTIDA VALIDA Henrard.

From type specimen.

$\frac{1}{2}$ mm. circa longo, dense barbato, circa 11—12 mm. longa, tubulosa, glaberrima, laevissima, pulchre violacea, superne angustata, quasi stipitato-rostrata, *aristae* coloratae, graciles, scabriusculae, ad basin leviter applanatae, subcontortae, subaequales ad 70 mm. metientes.

Argentina: Gobernación de Misiones; Apóstoles, 25. I. 1926, in campis altis leg. Dr. L. R. PARODI no. 6902. Typus speciei in Herb. Lugd. Bat. sub no. 926.156—888.

Allied to the „*pallens*” group but quite different in the very long sheaths and blades, in the long very interrupted panicle and in the comparatively shorter glumes; the lemma is very characteristic, smooth all over and the upper half part is narrowed and suggests a column, which is however not present at all, if we make a transverse section just below the awns.

The species was already found by Dr. PARODI in the year 1922 at Santa Ana in Misiones (no. 4331). This specimen agrees perfectly with the type but is overmature and most of the florets are fallen off, one panicle is however well-developed and complete but the awns are only 5—6 cm. long, and the lower glume is distinctly awned, the awn 3—4 mm. long, the lemma is about 13 mm. long and agrees in the characters with the type.

Aristida Vanderysti De Wildeman.

E. DE WILDEMAN; Additions à la Flore du Congo, Bulletin du Jardin Botanique de l'État à Bruxelles. Vol. VI. [1919] p. 40! pl. XXXV fig. 7—12!

Plante à souche . . . , atteignant au moins 70 cm. de haut, tiges glabres ou légèrement scabres, dressées, simples ou ramifiées à 1—2 noeuds visibles; gaines glabres; ligule ciliée, feuilles étroites, linéaires, aigües, atteignant 18 cm. de long, et 2 mm. de large, enroulées, courtement scabres sur les deux faces; panicules plus ou moins ramifiées à rameaux généralement solitaires, simples ou ramifiés à rachis atteignant environ 5 cm. de long, à ramifications courtes, scabres; épillets étroits, atteignant sans les prolongements des valves environ 4 cm. de long, glumes inégales, étroites, l'extérieure de environ 4 cm. de long, glabre, brunâtre, aigüe, à environ 5 nervures, l'intérieure plus courte, glabre, aigüe, d'environ 3,5 cm. de long, valve linéaire, courtement velue sur le dos, velue à la base, à 3 nervures, terminée sans articulation par trois soies dont le stipe, enroulé à la base, mesure environ 45 mm. de long, les soies 80—90

mm. de long; courtement velues-scabres; étamines 3, de environ 3 mm. de long, ovaire ovoïde, stigmates . . . , graine . . .

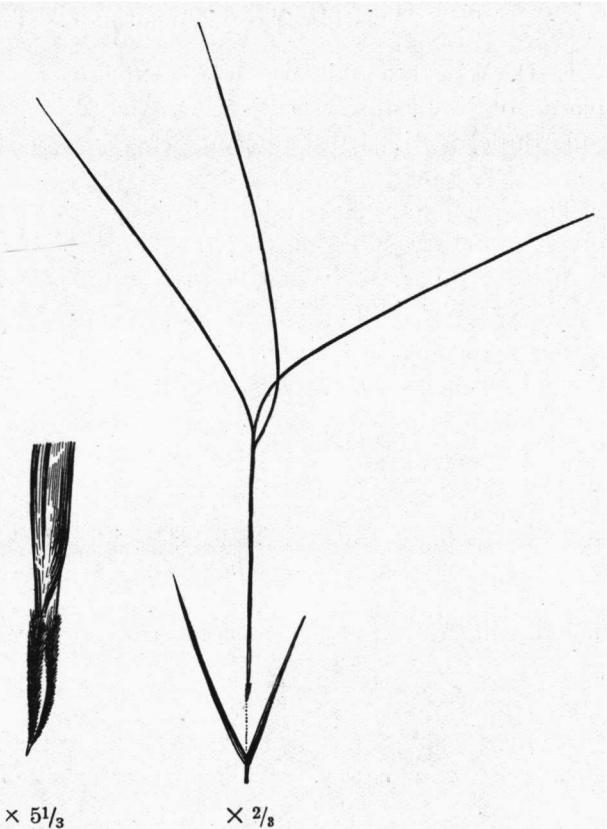
Nyungu, janvier 1914 (H. Vanderyst, n. 3216); Mukulu, janvier 1914 (H. Vanderyst, n. 3182).

Observations. — Cette espèce paraît se ranger dans le groupe *Chaetaria*, car les soies qui terminent la valve ne se désarticulent pas. Nous n'avons pu trouver les ovaires complets de cette plante, ni des fleurs hermaphrodites en bon état.

Elle se caractérise par les soies nettement stipitées, à parties libres plus longues que le stipe.

Aristida Vanderysti;

Culmis usque circ. 70 cm. longis, erectis, simplicibus vel ramosis, 1 vel 2-nodis; foliorum vagina glabra, ligula ciliata, lamina angusta, linearis, acuta, usque 18 cm. longa et 3 mm. lata, breviter scabra; panicula plus minus ramosa, ramis vulgo solitaribus, simplicibus vel ramosis; spi-



ARISTIDA VANDERYSTI De Wildeman.

From type specimen.

culis angustis circa 4 cm. longis; gluma externa circ. 4 cm. longa, glabra, brunneola, acuta circ. 5-nervia; interna circ. 3,5 cm. longa, glabra, acuta; valva linearis, dorso breviter et basi velutina, 3-nervia; trisetis, basi setis circ. 45 mm. longis et setis 80—90 mm. longis; antheris 3, circ. 3 mm. longis; ovario ovoïde.

A very characteristic species, easy to distinguish by the habit, the narrow up to 20 cm. long interrupted panicle, the reddish-brown

long spikelets with inverse position of the glumes, the thick, robust, about $4\frac{1}{2}$ cm. long column and the divaricate awns. I received the types in the Congo Herbarium at Brussels for study from Prof. DE WILDEMAN, I studied moreover a beautiful series of the species in the Kew Herbarium, a series collected in Angola by J. GOSSWEILER (no. 2765, 3674 and 4099).

Aristida Vaseyi Wooton et Standley.

E. O. WOOTON and PAUL C. STANDLEY; The grasses and grass-like plants of New Mexico, in New Mexico College of Agriculture Exp. Sta. Bulletin 81. [1912] p. 55.

The species are keyed but no descriptions are given. *A. vaseyi* is given under two divisions of the key as follows:

Mature flowering glume tapering upwards into a slender neck; second empty glume barely surpassing the flowering or usually shorter, the latter scabrous; awns less than 2 inches long usually (sometimes longer).

Spikelets small, 10 mm. long or less, the awns never more than twice as long, usually numerous.

Panicle strict, many flowered, and crowded, never spreading 7. *A. vaseyi*

Spikelets larger, 15 mm. long or more; the awns usually more than twice as long as the flowering glume.

Panicle simple or nearly so.

Panicle strict; spikelets numerous and crowded, relatively small; pedicels short, erect 7. *A. vaseyi*

In Contributions from the U. S. Nat. Herb. XVI. [1913] p. 143! the authors base *A. vaseyi* on:

A. reverchonii angusta [typographical error for *angusta*] VASEY in Contrib. from the U. S. Nat. Herb. III. [1892] p. 46!; WOOTON and STANDLEY give nearly the same key in Flora of New Mexico [1915] p. 63!

VASEY says: panicle narrow, otherwise nearly the same. — Comanche Peak (*Reverchon*), Texas (*G. C. Nealley*).

The specimen cited by VASEY from „Comanche Peak” Texas, was collected by REVERCHON (no. 10) Sept. 1881. This is an overmature

specimen of *A. Reverchonii**) with most of the florets fallen, the lower foliage strongly curled. (A. CHASE in litt.).

Note: = *Aristida glauca* (Nees) Walpers.

Aristida Vaseyi, *Reverchonii* and *Nealleyi* belong to a single somewhat variable species as already indicated by Prof. HITCHCOCK on p. 555 of his North American species of *Aristida*. I received from him a beautiful set of this species which has to bear the name of *Aristida glauca* and I have accepted Prof. HITCHCOCK'S opinion.

Aristida venezuelae Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, dense caespitosa, innovationibus intravaginalibus; *culmi* erecti, simplices vel subramosi, plurinodes, internodia inaequilonga, interdum nodis nonnullis aggregatis, cum paniculis ad 50 cm. vel plus alti, 1 mm. circa crassi, teretiusculi vel leviter compressi, striati, minutissime scaberuli; *vaginae* arctae vel superne paulo hiantes, glabrae, internodiis breviores, *ligula* brevissima, ciliolata, auriculae pubescentes, haud pilis longis barbatae; *laminae* angustae, convolutae, interdum inferne subplanae, subtus laeves, supra scaberulae, explanatae ad 2 mm. latae, 8—10 cm. vel plus longae, setaceo-acuminatae, innovationum complicatae, angustissimae; *panicula* circa 15 cm. longa, subcontracta, sed laxa, interrupta, axis angulosus, superne scaberulus, rami bini vel interdum singuli, inaequilongi, longiores inferne nudi, superne dense spiculiferi, erecto-patentes, interdum subcurvati, paucispiculati, breviores sessiles paucispiculati; *spiculae* breviter vel brevissime pedicellatae, — pedicellis ad 5 mm. longis, angulosis superne subclavatis, scaberulis, — erectae, flavo-virides vel demum stramineae; *glumae* uninerves, inaequilongae inferior longior, 7—9 mm. longa, carina scabra, superior 6—7 mm. longa, carina laevis, ambae acutae vix aristatae, *gluma fertilis*, callo acuto $\frac{1}{2}$ — $\frac{3}{4}$ mm. longo, dense superne longe barbato, circa 6—8 mm. longa, carina scabra, in parte superiore scaberrima, tubulosa, haud rostrata sed infra aristas leviter nodulosa, aristae scaberrimae, subpatentes, centralis ad 20 mm. longa, laterales ad 15 mm. longae.

Venezuela: in savannis ad Caracas, leg. Dr. E. WARMING (Warmings

*) The species was published as *A. Reverchonii*, in HITCHCOCK'S work the name is always given as *Reverchoni*.

Rejse til Vest-Indien og Venezuela 1891—92). Typus speciei in Mus. Botan. Hauniense (mixtus cum *Andropogon angustatus* Steudel.)

Probably belonging to the group of the „*cognatae*” and distinguished by the inverse position of the glumes; agreeing in habit with the *A. Moritzii* described by me on p. 356 of this Revision, but lacking the long hairs on the upper surface of the blades and differing moreover in the glabrous glumes scabrous lemmas and not bearded auricles.

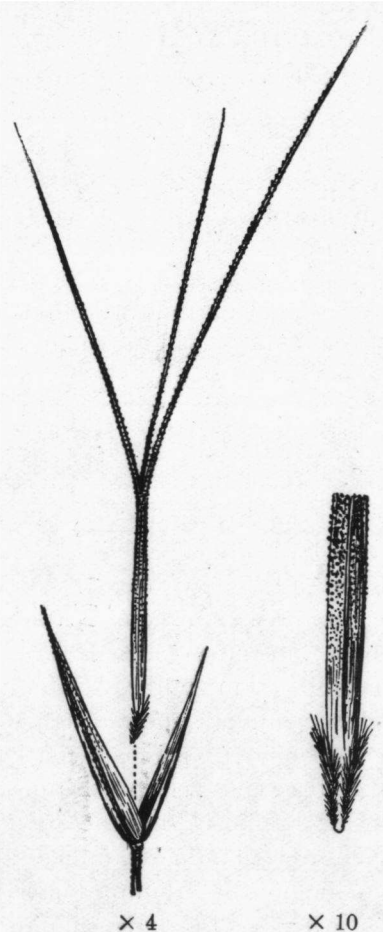
Aristida arubensis HENR. from Aruba and Curaçao agrees with the new species in the inverse position of the glumes but has longer glumes and long-bearded auricles. *Aristida Surin-gari* HENR. als from Curaçao differs in the long hairs on the upper surface of the blades and in the bearded auricles.

In the Berlin Herbarium I found a specimen belonging to the new species, from Columbia: Bogota, Mesa de la Puerta, 1400 m. collected in 1925 by Dr. A. SCHULTZE no. 208, it agrees with the type but has slightly shorter glumes.

***Aristida venustula* Arechavaleta.**

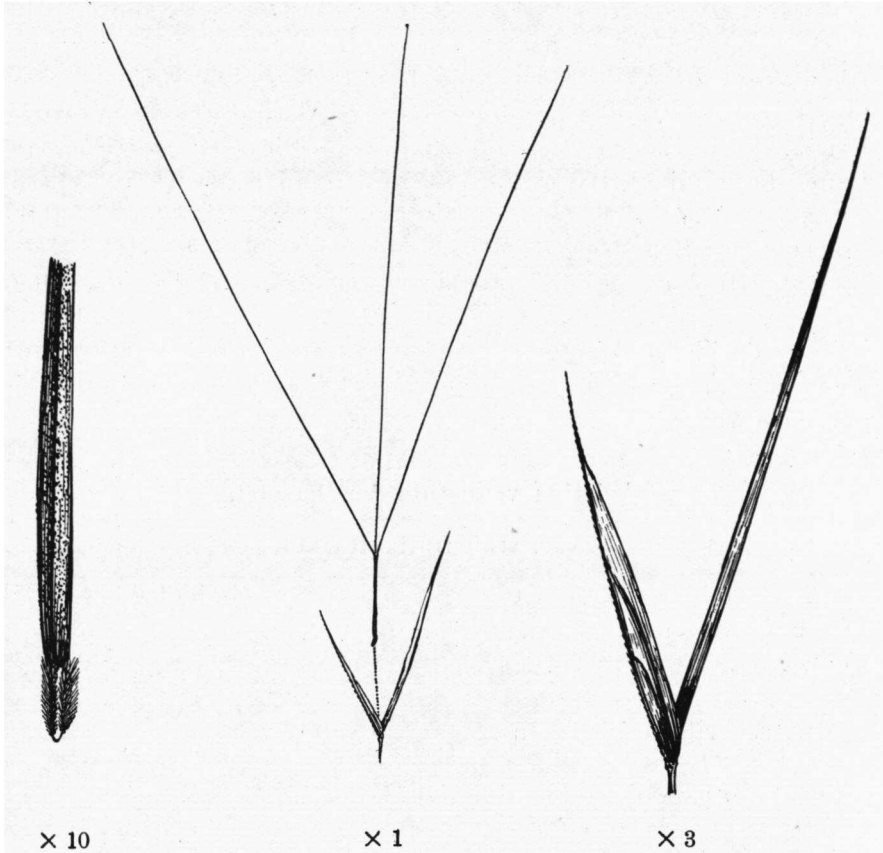
J. ARECHA VALETA; NUEVAS *Aristidas* del Uruguay, in *Anales del Museo Nacional de Montevideo*, Tomo IV. [1903] p. 77!

Rizomas breves, ascendentes. Entrenudos muy próximos. Paja de la panoja, de 20—30 cm. Vainas más cortas y otras más largas que los entrenudos, estriadas y abiertas en su extremo superior; lígula mínima, pestañosa; lámina convulata, estrecha, apercaminada, prolongada en larga punta. Panoja laxa y abierta, de escasas espiguillas, ramificaciones subsimples, cabizbajas ó suberectas. Espiguillas violadas, glumas desiguales: 1^{ra} de 17 mm ±; 1^{da} de



ARISTIDA VENESUELAE Henrard. From type specimen.

30 mm \pm , 1-nerviadas, alesnadas, lisas; III^{ra} de 15 mm \pm de largo, violada, poco comprimida, cilíndrica casi, escabrosa, arista de 80—90 mm, ramas derechas, poco abiertas, capilares, coloreadas; IV^{ta} poco diferente de las escamas de la glumelilla, lanceolada como ellas.



ARISTIDA VENUSTULA Arechavaleta.

From duplicate type specimen.

Vive en campos gramínicos, se destaca por su coloración violada intensa.

On p. 409 I have already observed that NEES was the first agrostologist who recognized the plant, unfortunately he described it as a variety of *A. pallens* and was followed by TRINIUS. *Aristida venustula* is however a very characteristic species, to recognize by the lower glume which is 5-nerved, the curved lateral nerves are very unequal and anastomosing with the midnerve.

A beautiful duplicate was studied by me in HACKEL'S Herbarium (Vienna number 22185), it bears ARECHAVALETA'S authentic printed label with the data in his handwriting.

Aristida venustula is rather widely distributed and found in Southern Bolivia, Argentina, Paraguay, Uruguay and Southern Brazil.

Bolivia (Prov. Santa Cruz, Samaipata, HERZOG no. 3010); Argentina (Tucuman, PARODI no. 1857, immature. Corrientes, PARODI no. 6161, 6269 (pp.), 6325. Cordoba STUCKERT no. 20537a, CASTELLANOS in Hb. PARODI no. 3325. Entre Rios, LORENTZ no. 827. Misiones, Santa Inés-Posadas, PARODI no. 4116, 4168, 4234, 4514, 4519. Apóstoles, PARODI no. 6847, 6903.); Paraguay (Villa Rica, BALANSA no. 188. Luque-La Trinidad, BALANSA no. 188a. Paraguari, BALANSA no. 188b); Uruguay (Montevideo, ARECHAVALETA, BALANSA, BERRO); Brazil (SELLOW, JÜRGENS, Rio Grande do Sul).

On p. 316 I observed that HERZOG'S plant no. 3010, cited here, was treated by me as *Aristida longifolia* v. *robusta* and indeed, in habit and chief characters it agrees with *A. longiseta*, the North American analogue of the species but *A. longiseta* has always one-nerved lower glumes.

***Aristida venustula* Arechavaleta.**

var. *scabrifolia* Hackel,

ap. T. STUCKERT; Tercera Contribución al conocimiento de las Gramináceas Argentinas in Anales del Museo Nacional de Buenos Aires. Tom. XXI. [1911] p. 71!

Var. *scabrifolia* Hackel nov. var. ad inter, vel species nova?

Differt praecipue foliis scabris junceis.

N. v. Flechilla morada (Ch.).

St. no 19,195 (5. X. 1908) Colonia Margarita Belén, Chaco (H. M.).
Se precisa mayor cantidad de material para efectuar un estudio más detenido.

Unfortunately I was unable to identify this variety, the true character to recognize *Aristida venustula* was never observed not even by the author of the species and therefore we do not know if the var. *scabrifolia* belongs indeed to *A. venustula*. On p. 402 of this Revision I observed that Stuckert no. 18327 probably belongs to this variety, but it may be that STUCKERT no. 19195 is a quite

different plant. The type of var. *scabrifolia* I tried in vain to find in Hackel's and Stuckert's collections. The plant was collected by Doña HORTENSIA MARCENARO, Colonia Margarita Belén, Chaco.

***Aristida vestita* Thunberg.**

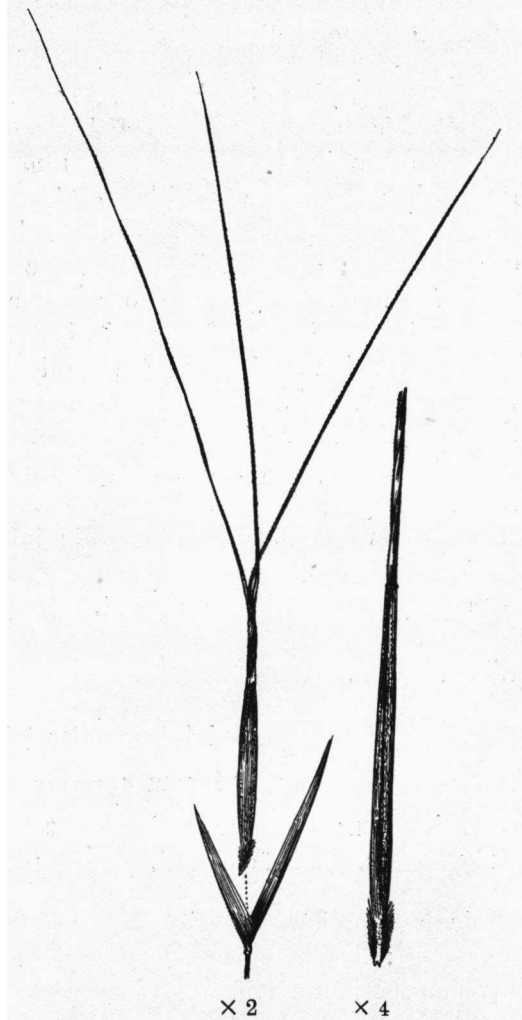
CAROL. PET. THUNBERG; Prodomus plantarum Capensium, quas, in promontorio Bonae spei Africes annis 1772—1775, collegit. Upsaliae, Pars I. [1794] p. 19!

A. panicula trichotoma patenti, aristis aequalibus glabris, calyce inaequali.

CAROL. PET. THUNBERG; Flora Capensis, sistens Plantae Promontorii Bonae Spei Africes, secundum Systema Sexuale emendatum etc. Volum. I. Upsaliae [1813] *) p. 394!

A. (*Vestita*.) panicula trichotoma patenti, aristis aequalibus, glabris, calyce inaequali. Prodom. capensis. p. 19.

Culmus simplex, totus imprimis inferne lanatus lana albida, erectus, pedalis & ultra. *Folia* alternatim vaginantia vaginis lanatis, convoluta, subulata, striata, glabra, subreflexa, breviora. *Panicula* trichotoma, ampla pedunculis capillaribus, subreflexis. *Calyx* biglumis, glaber, uniflorus: *glumae* inaequales: altera duplo longiore, corollam aequante; lanceolato-



ARISTIDA VESTITA Thunberg.
From type specimen.

*) See note under *A. capensis* on p. 75 of this Revision.

subulatae, concavae. *Arista* triseti, subaequalis intermedia parum longiori, divaricata, glabra, purpurascens.

- Differt a priori*: 1. culmo lanato.
2. calyce inaequali.
3. panicula ampliori.

The type in the Herbarium at Upsala I received for study from Prof. O. JUEL. The specimen consists of a broken culm with the basal parts and a panicle. The sheet is labeled by THUNBERG and an accompanying label bears Dr. STAPP'S identification. From THUNBERG'S description we see that not only the sheaths are woolly but also the internodes of the culm; different authors identified the rather rare species with *Aristida diffusa* described by TRINIUS, a species with quite glabrous internodes, and sheaths hairy, lanate ore glabrous; so described MEZ, accepting the identification of *A. vestita* and *A. diffusa* as correct the true *A. vestita* once more as *Aristida flocciculmis*. NEES said in his work on the grasses of the Cape colony that the indumentum indicated by THUNBERG, corresponds to the sheaths but the authentic description is clear enough and the type has indeed the lanate internodes. This character of the lanate or woolly internodes is quite different and independent from the character of the lanate sheaths or blades and is in the genus *Aristida* a valuable character to distinguish allied species. *Aristida vestita* is hitherto observed in the Kalahariregion and Griqualand West.

See my observations under *A. diffusa* on p. 142, under *A. flocciculmis* on p. 182 and under *A. lanuginosa* BURCHELL on p. 287 of this Revision.

Aristida vestita Thunberg.

forma amplior Hackel.

E. HACKEL; Gramineae in Plantae Marlothianae. Nachtrag, in ENGLER Bot. Jahrbücher XI. [1889] p. 400!

panicula amplior (12–15 cm longa), multiramea, patula; glumae steriles 5:11 mm longae, fertilis 8 mm longa, aristae stipes 5 mm, divisiones 24 mm longae.

Griqualand-West, in lapidosis „Spytfontein” prope urbem Kimberley, alt. 1200 m (Marl. n. 847); alio loco pr. Kimberley (n. 940). — Jan. 1886.

Two specimens are mentioned in the description, the first number,

Marloth no. 847 is in HACKEL's Herb. (Vienna number 22179), the data are given on a printed label HERBARIUM A. ENGLER, but the name var. *amplior* is not in HACKEL's handwriting. The second specimen mentioned is in the Berlin Herbarium, this plant is better-developed but also quite immature. The sheet bears the identification by MEZ as *Aristida flocciculmis* n. sp. but this specimen was not mentioned in the description of *A. flocciculmis*. The printed label bears the name „*Aristida vestita* Thunb. var. *amplior* Hack.” in HACKEL's handwriting. Both specimens mentioned by HACKEL are quite the same but the panicles are badly developed and very young, both belong however to the typical form of *Aristida vestita* as described by THUNBERG.

***Aristida vestita* Thunberg.**

var. *brevestipitata* Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. p. 158!

ut β ; (i.e. var. *densa* Trin. et Rupr.) sed panicula tantum 4 pollicaris; stipes aristae 1—1½ linealis; setae patentes, rectiusculae; vaginae inferiores extus lanatae. (Drege spec. g. et f. partim.)

Note: = *Aristida diffusa* Trinius.

var. *brevestipitata* (Trin. et Rupr.) Henr.

In typical *Aristida diffusa* the column is 7—8 mm. long and the sheaths are glabrous, the shorter panicle occurs also in other varieties described by TRINIUS and RUPRECHT. The variety *brevestipitata* is characterized by the much shorter only about 3 (2½—4) mm. long column, this column is however distinctly twisted, there is a variety with still shorter, nearly wanting column and there is thus only a short scarcely twisted beak. This variety *pseudohystrix* is already treated by me on p. 471 of this Revision. Both varieties compared here have woolly lower sheaths, both there occur also specimens of var. *brevestipitata* with glabrous sheaths and old herbarium specimens have commonly lost their tomentum.

***Aristida vestita* Thunberg.**

var. *densa* Trin. et Rupr.

l. c. p. 158!

ut α ; (i.e. *A. diffusa* Trin.) sed panicula densius florifera; gluma superior 5—6 linealis; flosculus 4½—5 linealis; setae laxae, divaricatae. (Drege pl. exs. spec. h.)

Note: = *Aristida diffusa* Trinius.
 var. *densa* (Trin. et Rupr.) Henr.

This variety differs from typical *Aristida diffusa*, in the subcontracted, denser panicle with erectly-ascendent branches, the column is 7—8 mm long as in *A. diffusa*, but the upper glume is 12—15 mm. long, in typical *A. diffusa* the upper glume is longer and 16½—18 mm. long and the lemma including the callus is somewhat longer, up to 14 mm. long in stead of 10—12½ mm.

Aristida vestita Thunberg.

var. *Eckloniana* Trin. et Rupr.

l. c. p. 158!

ut β ; (i.e. var. *densa* Tr. et Rupr.) sed panicula angustior, magis contracta, tantum 4—5 pollicaris; radii erecti; gluma superior 6 linealis; flosculus 4 linealis; setae minus laxae. — *Arthratherum hystrix* N. E. in *Linnaea* 1832. p. 287. Ad latus septemtrionale mont. tabularis alt. II. Novembr. (Ecklon hb! n. 976.)

NEES described *Arthratherum hystrix* in *Plantae Ecklonianae*, in *Linnaea*, Journal für die Botanik von D. F. L. VON SCHLECHTENDAL, Vol. VII. [1832] p. 287! His description is given here:

Arthr. panicula subsecunda subtrichotoma, aristis sesquipollicaribus infra divisuram perianthium subaequantibus, glumis obtusis bifido-dentatis, inferiore flosculo duplo brevior, superiore flosculo (dempta arista) longiore.

Auf der nördlichen Seite des Tafelbergs zweite Höhe, Novembri. Ecklon. — In districtu Beaufort: J. F. Drege. 2. Vidi exempla tria.

Fibrae radicales crassae, basi dense tomentosae. Fasciculi foliorum densissimi. Folia altitudinis culmi, vel breviora, convoluto-filiformia, incurva, laevia, glaucescentia; culmi supremum brevissimum, setiforme. Vaginae radicales in bulbum congestae, reliquae angustae: inferiores molliter villosae, superiores glabriusculae; omnes ad os auriculatae. Ligula brevissima, ciliolata. Culmus teres, pedalis, binodis, nodis fuscis, glaber*). Panicula 2—4-uncialis, patula. Rami filiformes, gemini, bi raro trichotomi. Spiculae lineares, teretes. Glumae laeves, primum purpura et flavedine imbutae, dein pallide cinnamomeae:

*) Lana, quam dicit culmi Thunbergius, vaginarum est integumentum. (We know at the moment that this interpretation of NEES is wrong, compare the accurate description of THUNBERG.)

inferior lineas $2\frac{1}{2}$ longa, oblonga, truncato-obtusa, irregulariter bifida, lacinulis saepe dente uno alteroque setaceo munitis; superior lineas $5\frac{1}{2}$ longa, lanceolata, attenuata, arcte convoluta, inaequaliter 2—4-fida, lacinulis setaceis parvis. Flosculi valvula, usque ad aristae geniculum dum metiaris, 5 lineas longa, punctulata, virescens. Stipes aristarum contortus, lineas $4\frac{1}{4}$ — $4\frac{1}{2}$ longus, annulo secedens; aristae setaceae, scabrae, purpurascens aut virescens, media paullo fortior, 10 lineas longa, laterales pollicares.

Note: = *Aristida diffusa* Trinius.

var. *Eckloniana* (Trin. et Rupr.) Henr.

The type is Ecklon no. 976, it was edited in exsiccatae as a *Stipa* with a printed label with the data as given by NEES and TRINIUS. The synonyms given by NEES in *Linnaea* are wrong, in his work on the grasses of South Africa we find in 1841 *Arthratherum hystrix* as a synonym under *Arthratherum vestitum* on p. 174.

The type, cited here, has the following characters: the lower glume is 8 mm., the upper 14—15 mm. long, the lemma is together with the 2 mm. long callus about 13 mm., the column 6—7 mm. long, the central awn is 37 mm., the lateral ones are

34 mm. long. The lower sheaths are woolly as described by NEES but TRINIUS and RUPRECHT do not mention the lanate sheaths, different specimens of Ecklon's number 976 have no basal portions and the sheaths so far as they are present are glabrous, the upper sheaths are in Ecklon's plants always glabrous. The variety *Eckloniana*



ARISTIDA VESTITA Thunberg.

var. *Eckloniana* Tr. et Rupr.

From type specimen.

belongs thus to the forms of *Aristida diffusa* with woolly lower sheaths and is accepted so in my work.

In the description of NEES there are some errors, the column is given as $4\frac{1}{4}$ — $4\frac{1}{2}$ lines and the lemma including the column as 5 lines long, but the lemma without the column is at least 4 lines long and the column thus cannot have a length of about $4\frac{1}{2}$ lines, the column is indeed about 6 mm. long as given by me above.

***Aristida vestita* Thunberg.**

var. *parviflora* Trin. et Rupr.

I. c. p. 158!

ut α ; (i.e. *A. diffusa* Trin.) sed panicula parviflora, angustior (inprimis juvenilis); gluma superior 4— $4\frac{1}{2}$ linealis; stipes aristae bilinealis; setae rectiusculae, patentes, media 9—12 linealis. (Drege pl. exs. spec. i. juvenile. α .)

Note: = *Aristida dasydesmis* (Pilger) Mez.

See for this species my observations under *A. dasydesmis* on p. 131 of this Revision.

***Aristida vestita* Thunberg.**

var. *Schraderiana* Trin. et Rupr.

loc. cit. pag. 158!

ut γ ; (i.e. var. *Eckloniana*) sed gluma superior 7 linealis, inferior 4 lin.; flosculus semipollicaris; vaginae inferiores lanatae et folia paniculam aequantia.

Note: = *Aristida diffusa* Trinius.

var. *Schraderiana* (Trin. et Rupr.) Henr.

Although *Aristida diffusa* is a rather common plant in South Africa, it is not abundantly represented in the different herbaria I could study. The var. *Schraderiana* has quite the habit of var. *Eckloniana*, the blades are longer and reach the panicle, in var. *Eckloniana* they are short or rather short not reaching the panicle. Among all the varieties of *A. diffusa*, the var. *Schraderiana* has the largest spikelets and agrees with var. *Eckloniana* in the lanate lower sheaths, it differs not so much from the var. *Eckloniana* in the panicle- and spikelet-characters, the length of the glumes and lemmas

is somewhat variable; in var. *Schraderiana* the lower glume is about 10 mm. long and the upper 17—17½ mm. long, lemma and column have the same length as is var. *Eckloniana*. Intermediary specimens occur and we must probably afterwards unite the two varieties. Dr. STAPF has in *Flora Capensis* Vol. VII. p. 561 only treated two varieties: var. *parviflora*, which is a quite distinct species and var. *Schraderiana*, the latter has according to him a foot of awn, 1—2 lines long, this is in contradiction with the specimen where the column is 6—7 mm. long. STAPF's var. *Schraderiana* includes some other varieties mentioned above.

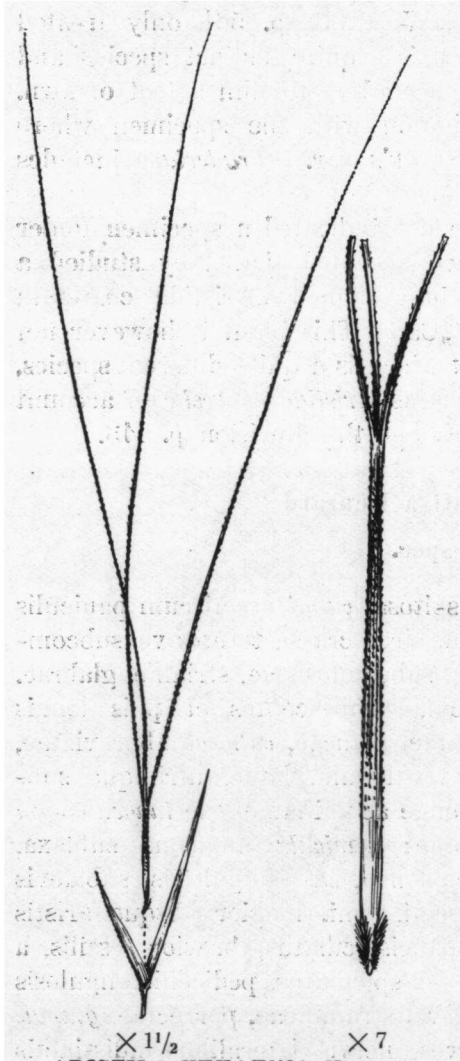
The Russian monographers have not indicated a specimen under their var. *Schraderiana* but I have accepted that they studied a plant from the Schrader Herbarium named „*Aristida coarctata* Lichtenstein” with the locality: „Cap.” This plant is however not the true *A. coarctata* LICHTENSTEIN which is a quite different species, published by ROEMER and SCHULTES as *Aristida congesta* on account of the earlier *A. coarctata* H. B. K. See this Revision p. 113.

Aristida vexativa Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis caespitosa, *culmi* erecti cum paniculis ad 30 cm. alti, paucinodes, ½ mm. circa crassi, teretes vel subcompressi, leviter striati; *vaginae* arctae, subcompressae, striatae, glabrae, ligula brevissima, ciliolata, auriculae pubescentes et pilis longis sparsis barbatae; *luninae* complicatae, glaucae, *culmeae* abbreviatae, 5 cm. circa longae, vi explanatae vix 1 mm. latae, utrimque subscaberulae vel sublaeves, sensim longe acuminatae, eae *innovationum* longiores, complicatae, subflexuosae; *panicula* angusta, sublaxa, subinterrupta, erecta, 15 cm. circa longa, axis angulosus, sublaevis vel subscaberulus, rami stricte erecti, bini, longior absque aristis 3—4 cm. longus, inferne nudus, paucispiculatus, brevior sessilis, a basi spiculiferus, 2—3 cm. longus, 1—2-spiculatus, pedicellis angulosis subscaberulis; *spiculae* livide fuscae vel stramineae, porrectae, *glumae* angustae subtrinerves vel uninerves, nervis lateralibus indistinctis vel interdum nullis, *inferior* 9—10 mm. longa, aristulata, carina scabra, *superior* 19—20 mm. longa, longe acuminato-aristata, carina laevis, *gluma fertilis* tubulosa, callo acuto barbato circa ¾ mm. longo, 8—11 mm. longa, inferne laevis, superne regulariter longitudinaliterque denticulato-scabra, angustata, aristae subaequales ad 70 mm. longae, scaberrimae, erectae vel subpatentes, haud contortae.

Argentina: Santa Fé; Santo Tomé, 15. I. 1920, leg. LORENZO R. PARODI no. 3288. Typus speciei in Herb. Lugd. Bat. sub no. 927.320—292.



ARISTIDA VEXATIVA Henrard.
From type specimen.

Agreeing in the characters of the spikelets with the North American *Aristida purpurea* NUTT., which has the same lemma, gradually tapering to the summit and with tuberculate-scarious lines from below the middle to the summit, it differs however in the longer awns and the habit is quite different; the panicles are not nodding, the branches strictly erect, the branches and longer pedicels are not capillary, nor curved or flexuous. Agrees with the group of the „*purpureae*” in the upper glume which is twice as long as the lower one.

Much allied to the South American *Aristida trachyantha* HENR., from which it differs in the wanting villous line across the back at the collar, in the longer upper glume and in the longer awns, but having the typical scabrous lines of the lemma. *Aristida subulata* HENR. differs in the more-noded culms and the only slightly scabrous upper part of the lemma. As to the habit it agrees also with *A. Arechavaletae* HENR. (*A. intermedia* ARECH.), which differs in

the shorter upper glume, the shorter awns and the perfectly smooth lemmas. The North American analogues *A. Wrightii*, *Fendleriand* and *longiseta* differ in many other characters. *A. Wrightii* has a villous line across the collar and shorter, about 2 cm. long awns, *A. longiseta* has a very short axis of the panicle, a smooth lemma,

minutely rough only under a strong lens and the lemma is scarcely narrowed above. *Aristida Fendleriana* is most allied to the new species but the lemma although scabrous upwards has not the characteristic scabrous lines as in *A. purpurea* and *A. vexativa*; *A. Fendleriana* has moreover a narrower, shorter, only about 2—6 cm. long panicle, shorter glumes and a longer, nearly $1\frac{1}{2}$ mm. long callus, the awns are shorter and up to 5 cm. long.

The type was not collected as it should be, the culms are partly broken and the roots are broken off. At the type locality the species grows together with typical *Aristida pallens* CAV..

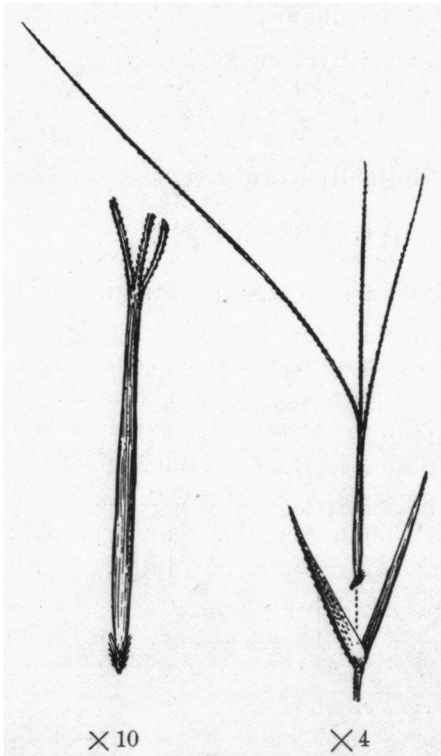
Aristida vilifolia Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, laxe caespitosa, innovationibus extravaginalibus, basi vaginis aphyllis stramineis praedita; *culmi* erecti, cum paniculis 50 cm. vel plus alti, teretes, leviter striati, elegantes, vix $\frac{1}{2}$ mm. crassi, simplices vel hic inde parum ramosi, circa 8—10-nodes, nodis equaliter dispositis; *vaginae* internodiis breviores, tantum circa 3 cm. longae, arctae, leviter striatae, glabrae vel scabriusculae vel pilis sparsis praeditae, *ligula* brevissima, breviter ciliata, auriculae pubescentes, pilis nonnullis albis sparsis praeditae; *laminae* 3—7 cm. longae, a basi contractae, convolutae, interdum inferne planae, utrimque subscaberulae, marginibus incrassatis, supra praesertim in parte inferiore, pilis longis adpersae, vix $\frac{1}{2}$ mm. crassae, explanatae vix 1 mm. latae; *panicula* longe exserta, pedunculo (internodio summo) longissimo, superne scabriusculo, angusta, erecta, subinterrupta, subspiciformis sed haud densa, 10—15 cm. vel plus longa, axis subangulosus, scaberrimus, ramis binis vel subsolitariis, inaequalibus, scaberulis, filiformibus, primario in $\frac{1}{2}$ inferiore nudo, 1—2 cm. longo, paucispiculato, secundario fere a basi spiculifero, 1—2-spiculato; *spiculae* congestae, erectae, griseo-virides vel pallide purpureae. pedicellis scabris; *glumae* subaequilongae, angustae, uninerves, *inferior* acuta, scabro-pubescent, carina scaberrima, 6—7 mm. longa, *superior* acuminata, glabra, carina laevis, $6\frac{1}{2}$ —8 mm. longa, *gluma fertilis*, callo barbato subacuto, $\frac{1}{2}$ mmi longo, 5 mm. longa, laevis, carina tantum superne scabra, haud rostrata; aristae scabrae, inaequilongae, centralis patens, leviter curvata sed haud contorta, circa 14—15 mm. longa, laterales erectae, 9—10 mm. longae.

Cuba: Camagüey; Savanna, leg. E. L. EKMAN, Oct. 21, 1922. Typus speciei in Herb. Lugd. Bat. sub no. 925.70—13. (Amer. Gr. Nat. Herb. no. 791.)

The new species, distributed in exsiccatae as *Aristida gyrans* CHAPM., a species from south-eastern North America, was identified in HITCHCOCK'S North American species of *Aristida* as *Aristida*



× 10
ARISTIDA VILIFOLIA Henrard.
From type specimen.

purpurascens POIR.; the latter differs abundantly in the very different habit, the robust, thicker culms, the long, up to 20 cm. long quite flat blades with only an involute point, the few culm-nodes, the auricles, without the long hairs, the longer glumes with an inverse position and the longer about 7 mm. long lemma. Also allied to the North American *Aristida virgata* TRIN. which better agrees in the spikelet-characters but differs in the flat blades and in the few-noded culms. In the shorter involute blades the new species agrees also with the species of the „gyrans” group, the members of this group differ however in the spirally contorted base of the awns.

Aristida villosa Robinson et Greenman.

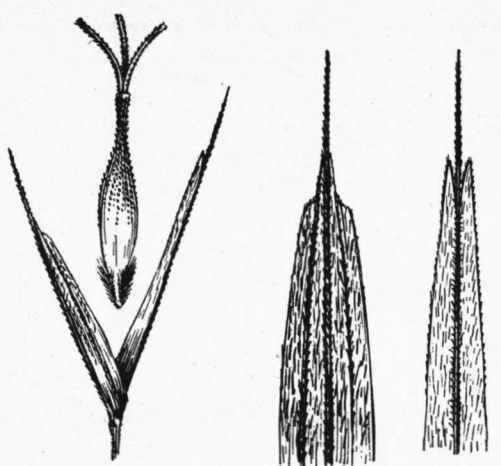
B. L. ROBINSON and J. M. GREENMAN; On the flora of the Galápagos Islands, as shown by the collection of Dr. G. Baur. Contributions from the Gray Herbarium of Harvard University, New Series, N°. IX, in the American Journal of Science, Third Series Vol. L. [1895] p. 144!

Annual: root a cluster of short delicate fibres: culms several, slender, ascending, nearly a foot in height; internodes minutely

puberulent under a lens: blade of leaves thin, flat, narrowly linear, 2 to 5 inches long, 1 to 1¼ lines broad, also finely puberulent and slightly scabrous and hispid upon both surfaces; sheaths conspicuously silky-villous with soft white spreading hairs except near the base; the summit covered with more densely tufted hairs; ligules laciniately ciliate: panicles 1½ to 3 inches long, condensed and subspicate, 4 lines in diameter; lowest branchlets scarcely imbricated: sterile glumes nearly equal, lanceolate to linear, attenuate, shortly aristate, 3 lines long, closely puberulent, ciliate upon the keel; spreading aristae of the flowering glumes 2 to 5 lines long; rhachis and rhachillae finely puberulent. — Collected on Jervis Island, August, 1891.

Through the kindness of Dr. B. L. ROBINSON, Curator of the Gray Herbarium, Harvard University, I received for study the interesting collection of *Aristidas* from the Galapagos Islands, among them I found the type of *A. villosa*. The species belongs to the section *Pseudarthratherum*, the column is articulate just below the branching-point of the awns. *Aristida villosa* is a very distinct species, allied

to *A. caudata* AND. and *A. subspicata* TRIN. et RUPR., but differing in the conspicuously villous sheaths with spreading hairs and minutely pubescent internodes, by this character unique among all the other species of the section *Pseudarthratherum*. The lower glume is 3-nerved with a very characteristic pubescence on and between the nerves, it is abruptly narrowed and awned, the upper glume is deeply bifid with acutish lobes. The lemma is thick, glabrous below, very scabrous in the upper part, rather abruptly narrowed into the scarcely twisted very scabrous column, together with the column and the bearded, ½ mm. long callus, about 5 mm. long.

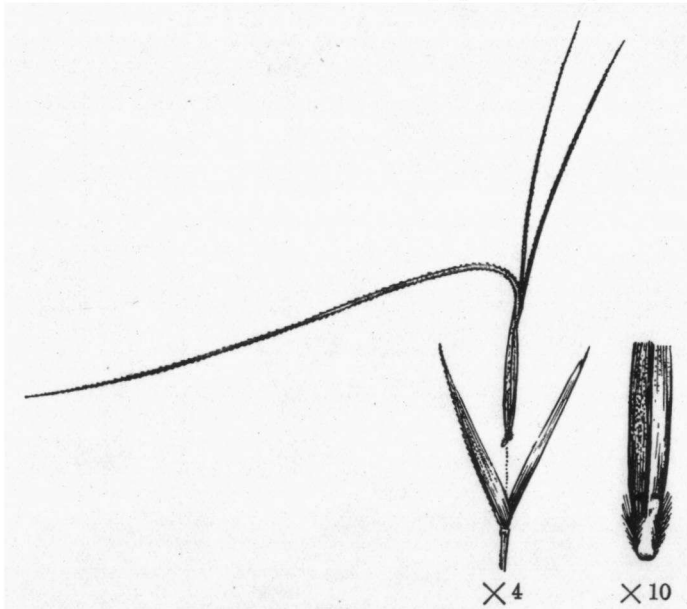


× 6
ARISTIDA VILLOSA Robinson et Greenman.
From type specimen.

***Aristida virgata* Trinius.**

apud K. SPRENGEL; Neue Entdeckungen, loc. cit. [1821] p. 60!

Radix fibrae simplices, tortiles, paucae. *Culmus* tripedalis, erectus, gracilis, basi pennae corvinae crassitie, teres, tenuissime striatus, glaber, superne nudus. *Nodi* 3: articulus infimus levissime geniculatus. *Vaginae* internodiis dimidio breviores, arctae, ad ramorum ortum hiantes, striatae, glabrae. *Ligula* obsoleta. *Folia* semipedalia et longiora, linearia, *plana*, angusta, firma, glabra, margine asperula, erecta, fere glaucescentia. *Panicula* sesquipedalis, *virgata*, subnutans, *secunda*, *angustata*. *Rachis* sulcata, retrorsum scabra. *Rami* solitarii, statim a basi ramosi, dissiti, ita ut paniculam interruptam referant: inferiores digitales erecti, superiores sesquipollicares patuli, nutantes.



ARISTIDA VIRGATA Trinius.

From an authentic specimen labeled by Trinius.

Ramuli breves, subadpressi, glabri. *Locustae* ochraceo-virentes, non computatis aristas lineas circiter tres longae. *Calyx* chartaceo-membraneus, flosculo (absque aristas) longior: glumae lanceolatae, acuminatae, viridi-carinatae: inferior paullo *minor*, carina hispidula. *Corolla* cylindrico-oblonga, pedicello brevissime pubescenti insidens: valv. inferior glabra, chartacea, apice trisetis: seta media *refracta*, valvula *plus triplo* longior, *crassior*, hispidula; duae laterales erecto-strictae, tenuiores, valvula *plus duplo* longiores: valv. superior 4—, 5 plo brevior, angustissima, lineari-lanceolata, acutissima. *Lodiculae* squamae longitudine valvulae superioris, hyalinae, lineares.

Hab. in America boreali.

(Ich kenne *Ar. longe-spicata* Poir. nicht: die eben beschriebene

scheint durch runden Halm, platte Blätter und minder ungleich-lange Grannen abzuweichen. Kenner mögen aus der Beschreibung das weitere vergleichen.)

The type is in the Trinius Herbarium at the Academy of Leningrad, received from BERNHARDI as *Aristida racemosa*, the latter is the same as *Aristida purpurascens* POIR., a closely allied species. *Aristida virgata* agrees in habit with *A. purpurascens*, both have the same vegetative parts, but *A. virgata* has much shorter, equal glumes, in *A. purpurascens* the glumes have an inverse position. In the Vienna Herb. I studied a beautiful specimen of *A. virgata*, which bears the determination in the handwriting of TRINIUS. The label bears in ink the data: „*Aristida stricta?* Mich. Amer. bor. Enslen.“, and in lead-pencil: „Kann es nicht sein, verwandt mit *interrupta* Cav. a qua differt: fol. planis, corolla basi nuda, aristis nudis, media refracta (*virgata* dicenda).“

Aristida Virletii Fournier.

EUG. FOURNIER; Mexic. Plant. etc. Pars II. Gramineae, Paris, [1881] p. 76!

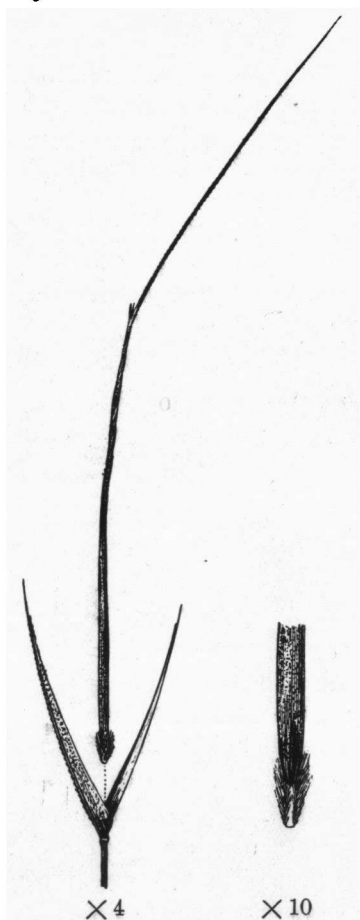
Culmo plus quam 2-pedali, basi pennam passerinam crasso; glabro, nisi versus basim foliorum intus albo-villoso; foliis linearilanceolatis 5" longis; ligula brevissima pilosa; paniculae viridis exsertae apice incurvatae radiis inferne remotis, flexuosis, a medio circiter floriferis; pedicellis geminis appressis, firmis, intus excavatis, brevibus; glumis subaequalibus, exteriore carinata, mesonervo valido, mucronante, interiore magis hyalina, flosculo atro-violaceo sub lente minute villosa, apice extra glumas longe stipitato et torto, setis lateralibus vix conspicuis, media geniculata glumas aequante.

Orizaba (F. MÜLL. n. 2104 in herb. Petrop.); *San Luis de Potosi* (VIRL. n. 1421); *Laguna, Talea*, agosto (LIEBM. n. 672); absque loco (LIEBM. n. 657).

Note: = *Aristida Schiedeana* Trin. et Rupr.

MÜLLER'S number 2104, in the Herbarium of the Botanical Garden at Leningrad, I could study through the courtesy of Prof. B. FEDTSCHENKO; it is labeled in FOURNIER'S handwriting. The sheet bears 3 different plants, one is a depauperate specimen of *Muhlenbergia*

implicata (H. B. K.) KUNTH, easy to recognize by the very short hyaline obtuse crenulate scarcely 1 mm. long glumes, the long



ARISTIDA VIRLETTII Fournier.

From type specimen.

lemmas with the long awn and the capillary pedicels. This specimen is cited by FOURNIER himself under *Muhlenbergia implicata* on p. 85 of his work as Müll. 2104 and we can therefore neglect it.

The right-hand specimen on the sheet consists of a broken culm and a panicle of *Aristida ternipes (scabra)*, the left-hand specimens are the same as *Aristida Schiedeana*, having the inverse position of the glumes, the lower distinctly pubescent and a lemma with the long twisted column and the minute lateral awns.

In the Copenhagen Herbarium I studied the cited specimens from LIEBMAN, collected in the year 1842, they are labeled by FOURNIER and agree perfectly with Müller no. 2104 and with the type of *A. Schiedeana* TRIN. et RUPR.

Aristida vulgaris Trin. et Rupr.

Species Graminum Stipaceorum, loc. cit. pag. 131!

Paniculae 2—6 pollicaris, subsecundae, rigidae l. apice nutantis, linearis l. pyramidatae, basi exsertae et interdum interruptae radiis inferioribus geminis, aut contractis erectis a basi fere floriferis, aut effusis nutantibus; altero paullo supra basin —, altero superius dense florifero; glumis pl. min. inaequalibus: superiore $2\frac{1}{2}$ — $4\frac{1}{2}$ lineali, apice obtuso l. eroso et interdum mucronulato, flosculo pl. min. brevior, glumam inferiorem obtusam l. acutam lineam $\frac{1}{2}$ — $1\frac{1}{2}$ superante; flosculo 3— $6\frac{1}{2}$ lineali, glabro l. scabro, apice non torto neque articulado; setis parum inaequalibus, erecto patentibus, media 4—12 lineali.

Ab A. Adscensione in omni statu diversa: glumis obtusioribus et radiis semper geminis, panicula basi exserta et culmis jam prope

radicem diffusis. *Nodi* geniculati numquam a vaginis obtecti. *Vaginae* glabrae, ore pilis paucis brevissimis obsitae. *Ligula* nulla. *Folia* anguste linearia, plerumque convoluta, in pagina superiore scabriuscula l. densissime et brevissime pubescentia. *Flosculus* semper glumis, quidpiam saltem, longior. Variat panicula colorata l. pallida et culmo simplici l. ramoso; raro gluma superior (ut in quibusdam spiculis var. mongholicae) inferiore lineâ dimidiâ brevior. *Radix* in omnibus varr. annua videtur, Desfontainesius tamen A. coerulecenti perennem adscribit.

Note: = *Aristida adscensionis* L.

In the year 1842 the Russian monographers have accepted as *Aristida adscensionis* L., only the plants from the type locality and they cited in their work only the specimens from OSBÆCK, SWARTZ! and CLARION! (in Hb. Mertens).

The *A. adscensionis* as accepted by different authors from other localities in the Old World was accepted by them as a different species, they called *A. vulgaris*. This name was however superflous because the supposed new species was a combination of different species already described by RETZIUS, WILLDENOW, DESFONTAINES and NEES, together with many other plants included in this new species by TRINIUS and RUPRECHT.

As a distinct character of their *A. vulgaris*, they mentioned the upper glume which is $2\frac{1}{2}$ — $4\frac{1}{2}$ lines long, with an obtuse or erose, sometimes mucronulate apex, and an obtuse or acute lower glume which is longer than the lemma. These characters agree partly with true *A. adscensionis* L. and with *A. coerulescens* DESF., partly with a different South-African species, *Aristida curvata* (NEES) TR. et RUPR..

Under these circumstances there is no type of *A. vulgaris* and the first species mentioned under *A. vulgaris*: *A. canariensis* WILLD., is therefore accepted as the type and *Aristida vulgaris* placed therefore as a synonym under *A. adscensionis* L..

Aristida vulnerans Trinius et Ruprecht.

Spec. Gram. Stipaceorum, loc. cit. pag. 175!

Culmo, nodis vaginisque glabris; ligulis brevissime ciliatis; paniculae ovato-oblongae, *strictae, densiusculae*, semipedalis, basi demum exsertae radiis solitariis *rigide patentibus*, a basi jam divisus et superne ramulosis: ramificationibus intra axillas *callosis et pilosis*; glumis

subaequalibus, glabris, lanceolatis, $4\frac{1}{2}$ —5 *linealibus*; flosculo *bilineali*, apice truncato; stipite aristae deciduae vix *semilineali*, non torto, cylindrico, intus cavo, extus glabro; setis arcuato-patentibus, omnibus aequaliter a basi pennatis, apice *subnudis*, semipollicaribus.

Aristida pungens Sieber hb. Aegypt. (vix Desf.) Trin. Diss. 1. p. 181 et Act. Petrop. 1829. p. 89. Savi Act. Moden. 1837 p. 198.

Aegyptus sup. pr. Syene (Sieber!)

An varietas *A. pungentis* Desf.? sed spicularum magnitudo in speciminibus omnibus investigatis valde constans, etiam panícula densius florifera ac in icone Desfontainesii; folia erecto-patentia, stric-tissima l. rarius quidpiam arcuata.



ARISTIDA VULNERANS Trinius et Ruprecht.
From type specimen.

Belonging to the section *Stipagrostis*, this species is placed there in the group of the „*pungentes*”, characterized by the very short column, and the three awns about equal in length and plumose from the branching-point. One of the members, *A. sabulicola* PILG., is very characteristic and not closely allied. See this Revision on p. 526—527. The four other species are more allied but easy to recognize. *Aristida pennata* and *A. scoparia* have an inverse po-

sition of the glumes, the former has moreover a very curious oblique articulation of the awns and the latter has always very rigid blades. *Aristida vulnerans* and *A. pungens* are most allied but *Aristida vulnerans* differs in the bearded axils of the branches of the panicles, the pedicels of the spikelets are pubescent, and both glumes are manifestly awned, *Aristida pungens* has glabrous, quite smooth axils of the panicle-branches, glabrous or scabrous pedicels only and the glumes are unawned, the upper one only with a mucro. *Aristida*

vulnerans is an endemic species from Egypt, *Aristida pungens* is distributed from north-western Africa to Nubia and Egypt. See also my observations, given already in this Revision under *Aristida pungens* on p. 476—479.

***Aristida vulpioides* Hance.**

HENRY F. HANCE; *Adversaria in Stirpes imprimis Asiae orientalis criticas minusve notas etc.*, in *Annales des Sciences Naturelles*. Sér. V. Botanique. Paris. Tom. V. [1866] p. 251!

Radice fibrosa, culmis gracilibus bipedalibus ramosis cum foliis involutis setaceo-acuminatis glaberrimis, ligula ad fasciculum pilorum reducta, paniculis angustis strictis 6—10-pollicaribus, radiis supra basin bifidis plurifloris adpressis scabris basi nudis, gluma inferiore 3-lineali lanceolato-lineari acuminata superiore 4-lineali lineari acuta utraque purpurascenti-alba, dorso scabra, flosculo glumis tertio vel duplo etiam longiore dorso scabra, aristae inarticulatae ad basin usque trifidae setis erectis nudis sursum scabridis, media 10-lineali, lateralibus 8-linealibus.

In agro Pekinensi detexit cl. Dr *S. W. Williams* (Herb. propr., n° 11465.)

Vera est *Aristida*, sensu quo genus intelligo (Cfr. *Ann. sc. nat.*, IV, sér. 18, 233) in difficillimo *Chaetariarum* agmine collocanda, sed proxima affinitas me fugit. Habitu quodammodo similis *Vulpiae pseudo-myuro* Soy.-Willem.

Note: = *Aristida adscensionis* L.
var. *vulpioides* (Hance) Hack.

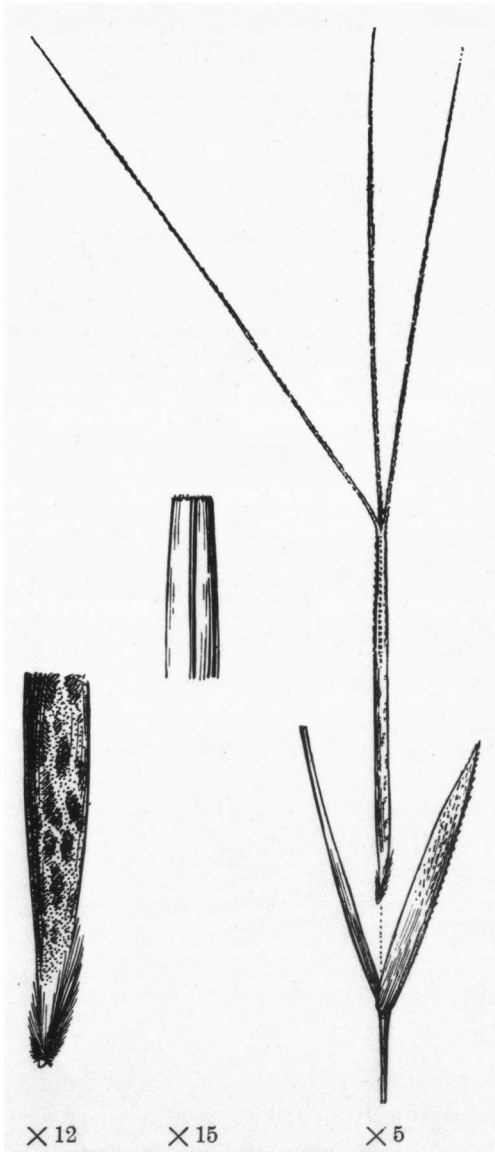
In the morphological characters perfectly agreeing with *A. adscensionis* but with a different habit. The chinese specimens seen by me are annual plants with long culms, closely appressed branches and long very narrow panicles. I have accepted HACKEL's opinion that HANCE's plant is only a slight variety of *A. adscensionis* L.

***Aristida Walbeliana* Henrard**

nov. spec.

(Sectio *Chaetaria*). *Radix* ignota. *Culmus* gracilis, ramosus. *Foliorum* vaginae arctae, compressae, carinatae, striatae, scabrae. *Laminae* planae, supra scabrae, subtus laeves, glaberrimae, crassinerves. *Panicula* terminalis late ovata, ad 15 cm. longa et lata, lateralibus minoribus, lucidissima, diffusa, *rhachi* glabra, *ramis* singulis binisve,

elongatis, subcapillaribus, strictis vel flexuosis, in dimidio inferiore indivisis. *Spiculae* ad extremum ramulorum densiuscule aggregatae,



ARISTIDA WAIBELIANA Henrard.
From type specimen.

nunc longius nunc breviter pedicellatae, pedicellis scaberulis, apice haud incrassatis, lanceolato-lineares, violaceae, 8 mm. longae. *Gluma* I. lanceolata, 7,5 mm. longa, acutiuscula, vix aristulata, in parte inferiore glabra ceterum scaberula, uninervis, nervo extus scabro, *gluma* II. 8 mm. longa, linearis, glabra, obtusissima, ciliolata, truncata, nervo glabro, *gluma* III. *fertilis* anguste linearis, cum callo barbato 10 mm. longa, arcte involuta, livida, non stipitata, maculis nigro-violaceis ornata, in parte superiore praesertim dorso, aculeolis scaberrima, apice haud articulata neque torta, aristis erecto-patulis, scabris, basi non tortis, media maxima 16 mm. longa, lateralibus 13 mm. fere longis. *Palea* minuta.

Africa austro-occidentalis:
ad Grootfontein prope Uitkomst in pratis sparsim anno 1916 leg. Dr. L. WAIBEL no. 120. Herb. Mus. Bot. Berolin.

The new species belongs to an interesting group of annual species of the section *Chaetaria*, with very open and

effuse panicles. Although much agreeing in habit, they are very characteristic and distinct as to the spikelet-characters. *Aristida scabrivalvis* HACK. has not only very scabrous lemmas as is to see from my figure on p. 534 of this Revision, but also curious glumes,

the upper one deeply bifid, with an awn from the sinus. *Aristida effusa* and *A. Waibeliana* have much longer lemmas, scabrous only on the keel, the former has acute glabrous glumes without the bifid apex, the latter a broad lower glume, pubescent above and subacute only at the summit, the upper glume is abruptly truncate with a ciliolate apex. The plant described here as a new species was referred by PILGER and MEZ to *A. scabrivalvis*, but is at once to distinguish by the characters of the glumes, unique in this group.

I have seen in the Kew Herbarium a beautiful series of the same species. The specimens were collected by H. H. W. PEARSON in South Angola, where the species is common among rocks in open forest between Gambos fort and Mission Station, no. 2445. These plants are annual and overmature but agree with the type.

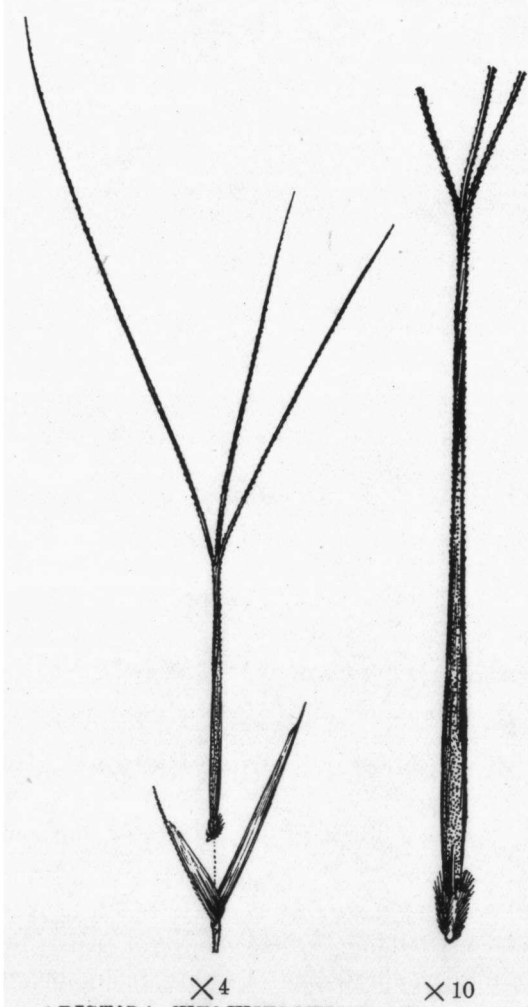
Aristida Warburgii Mez.

CARL MEZ; in FEDDE, Rep. spec. nov. loc. cit. XVII. [1921] p. 149!

. Perennis, gracillima. Vaginae culmi quam internodia multo breviores, glabrae; ligulae breviter pilosae nec margine barbatae; laminae convolutae setaceae. Inflorescentia pauciflora, laxissime 3 pinnata, subpyramidalis; ramulis usque ad 50 mm longis, e basi divisis. Pedicelli gracillimi, laterales usque ad 10 mm longi. Glumae lanceolatae, I. ad 10 mm longa bene 3-nervia, sensim acutissima; II. ad 14 mm metiens 1-nervia, apice auriculata setosulaque. Paleae unguis ad 1,5 mm longus, longiuscule pilosus; articulatio deest; rostrum elegantissimum valdeque tortum; setae media ad 26, laterales ad 20 mm longae, nudaе. — Australien, Queensland bei Maryborough (Warburg).

The type, which must be in the Berlin Herbarium, could not be studied because Prof. MEZ has not returned the specimen to the Herbarium and Prof. PILGER tried in vain to get it for me. We know that the grasses described by MEZ, were not carefully studied by him, as to the characters of *A. Warburgii* given in the description above we see that this species belongs to a group of Australian *Aristidas*, called by Prof. DOMIN „*Holatherum*”. To this group belong: *A. perniciosa* DOM., *A. holathera* DOM., *A. latifolia* DOM., *A. macroclada* HENR., and *A. Schultzii* MEZ. *Aristida Warburgii* and *A. Schultzii* are the only species of this group with 3-nerved lower glumes, the other species have 1-nerved glumes. *A. Schultzii* agrees in many characters with the description of *A. Warburgii*, but differs in the shorter pedicels of the lateral spikelets, in the relatively shorter glumes, in the only 1 mm. long callus and in the somewhat shorter

lateral awns of the lemmas. Both species probably belong to the same species and *A. Warburgii* is better to place under *A. Schultzii* as a synonym, but having not seen the type or a specimen agreeing perfectly with the description, I could not unite *A. Schultzii* and *A. Warburgii*.



ARISTIDA WELWITSCHII Rendle.
From type specimen.

Aristida Welwitschii
Rendle.

ALFRED BARTON RENDLE; Catalogue of the African Plants collected by Dr. Friedrich Welwitsch in 1853—61. Vol. II. Part. I. London [1899] p. 202!

Perennial, habit of *A. Adscensionis* but with a gracefully flexuose, more supple, denser panicle; pedicels shorter than the spikelets, like the rachis and branches hispidulous, spikelets narrow, subulate before the divergence of the barren glumes, pale greenish; gl. I. narrowly lanceolate-acuminate, 1-nerved, keel hispidulous, with an awn $\frac{1}{8}$ its length; gl. II. linear, 1-nerved, narrowing to the blunt apex, which passes abruptly into a short awn $\frac{1}{6}$ the length of the glume, back not keeled, glabrous; gl. III.

with a short shortly hairy callus, linear-oblong, convolute, 3-nerved, nerves scabridulous, passing above into a narrow-linear 3-nerved stipe to the 3-branched awn; awn-branches very slender, the median about $\frac{1}{3}$ longer than the lateral.

Plants 2 ft. or more in height; roots strong, tough; culms and suberect branches smooth, terete, wiry, nodes glabrous; sheath closely surrounding the internodes, glabrous, except for a few hairs at the mouth, ligule very short ($\frac{1}{4}$ line), truncate, membranous; blades convolute, very slender, long, stiff, wiry, tapering to a fine point, glabrous, reaching over a foot in length. Panicle 4 to 8 in. long, branches slender, suberect, pedicels of spikelets $\frac{1}{2}$ to $1\frac{1}{2}$ lines long; gl. I. including awn 2 lines long, gl. II. $3\frac{1}{4}$ lines, gl. III. slightly longer, $3\frac{1}{2}$ lines, not including the callus ($\frac{1}{4}$ line), to the point of branching of the awn; middle awn-branch $\frac{3}{4}$ in., lateral branches $\frac{1}{10}$ in.

Near *A. Adscensionis* but distinguished by its awned barren glumes and inflorescence characters. Apparently (e. descript.) near *A. alopecuroides* Hack. in Abh. Bot. Ver. Brandenb. XXX. p. 144, from Amboland, which however has a spike 20 cm. long, an awn-stipe 6 mm. long, and 4 to 5 times twisted, and linear-acuminate leaves 2 to 3 mm. broad at the base.

GOLUNGO ALTO? — No. 7255 (no information).

PUNGO ANDONGO. — Monstrous. Meadows near Bumba and N-billa; March 1857. No. 7437. Specimens not in flower but apparently conspecific with the above.

A small portion of the type in the British Museum, (Welwitsch no. 7255), was kindly received from Dr. A. B. RENDLE. The type is somewhat immature, the lemmas have however a very distinct, somewhat twisted column.

The species was described in the year 1899; according to a letter received from Dr. RENDLE the paper was issued 30 May. Dr. STAFF'S *Aristida angustata* belongs to the same species and was published in August of the same year, as given in Vol. VII of the Flora Capensis, opposite the title-page. Thus RENDLE'S name has priority.

Aristida Welwitschii Rendle.

var. minor Rendle.

loc. cit. pag. 203!

Plants smaller (10 to 15 in.), panicle shorter and stiffer (2 to 3 in. long), barren glumes often pinkish, the outer broader and more abruptly awned than in the type.

GOLUNGO ALTO. — Native name Quipusu. Widely caespitose in

the higher thicket-grown pastures. Sobato de Bumba; 12 Oct. 1855. Used for brooms. No. 7235. A stiff widely caespitose grass forming the mountain meadows, and making the higher slopes very slippery. Rather plentiful in the higher parts of the Alto Queta mountains; May 1855. No. 7273.

The following specimens without flower probably belong to this neighbourhood: —

PUNGO ANDONGO. — A singular grass; used for wickerwork. Without flower, and with culms already destroyed, growing intermingled with sods of a tall robust *Ascolepis*, near Condo; March 1857. No. 6945. At the foot of the pasture-hills near Bumba; without fl.; March 1857. No. 6945c.

Aristida Welwitschii is a rather variable species and small forms described as var. *minor* are not rare, they are sometimes only 10 cm. high with very short and depauperate panicles, pinkish glumes are a common phenomenon, in the type of *Aristida Welwitschii* the glumes are pale greenish, but this is not an important character. In Angola and Benguela such forms are common among typical *A. Welwitschii*.

***Aristida Welwitschii* Rendle.**

var. *subtomentosa* Henrard

nov. var.

Culmi sticte erecti, simplices, paucinodes; internodia inferiora praesertim infra nodos subtomentosa vel unilateraliter sublanuginosa, internodia superiora glabra; vaginae inferiores lanuginosae, superiores subhirtellae vel glabrescentes; laminae foliorum canaliculato-convolutae, glabrae vel supra pilis paucis praeditae; spiculae ut in typo sed glumae paulo longiores, inferior $7\frac{1}{2}$ mm., superior circa 10 mm. longa, callus $\frac{3}{4}$ mm. longa, gluma fertilis cum stipite 2—3 mm. longo, circa 8 mm. longa, aristae subaequilongae, centralis circa 20 mm., laterales 18 mm. longae.

Angola: inter Marro de Cruz et Kambango. leg. GOSSWEILER no. 1614, 5. VI. 1904. Typus in Herb. Zürich, ex Herb. Mus. Britannic..

Aristida Welwitschii as described by RENDLE is together with its var. *minor* glabrous throughout. The variety described here is very interesting on account of the lanuginose lower internodes and the woolly sheaths. The variety occurs together with typical *A. Welwitschii* and with var. *minor*. In the Kew Herbarium I saw a beautiful series

collected by H. H. W. PEARSON on the plateau near Humpata in South Angola no. 2760 in the year 1909 at an altitude of 6000 feet (Percy Sladen Memorial Expedition in South-West Africa 1908—1909). This series consists of typical *A. Welwitschii*, var. *minor* and var. *subtomentosa*.

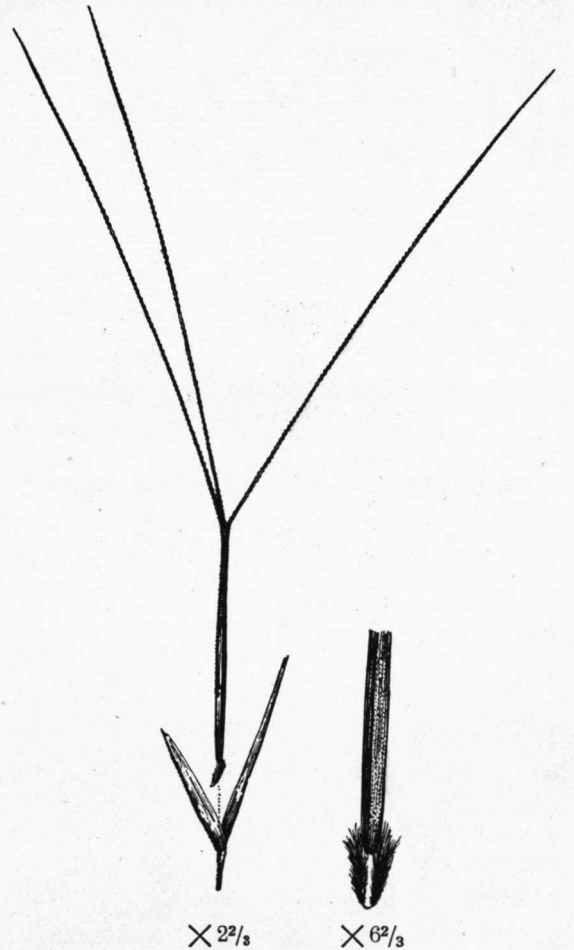
Aristida Wrightii Nash.

G. V. NASH; in JOHN KUNKEL SMALL, Flora of the Southeastern United States, New York [1903] p. 116!

Stems tufted, 3.5—5 dm. tall, simple, leafy: leaf-blades involute, at least when dry, those on the stem usually 3 or 4, 3—20 cm. long, often curved, as are the commonly longer basal ones: panicle 1—2 dm. long, its branches more or less spreading, the longer usually bearing 2—4 spikelets: spikelets 12—15 mm. long, the 2 outer scales 1-nerved, the first scale about $\frac{1}{2}$ as long as the second, the flowering scale 10—12 mm. long, usually a little shorter than the second scale, the awns ascending, the central one 2.5—3 cm. long, the lateral awns a little shorter.

In dry sandy soil, Kansas to Texas and New-Mexico. Summer and fall.

The type in NASH'S Herbarium, is now in the Herbarium of the



ARISTIDA WRIGHTII Nash.

From type locality.

Texas, Dallas, Reverchon in 1881.

New York Botanic Garden and was collected in Texas near Dallas by REVERCHON, no. 1061. I have not seen this plant but it was studied by Prof. HITCHCOCK, who was so kind to send me a portion of a specimen from the type locality Dallas in Texas, collected by REVERCHON in the year 1881, which has been compared by him with the actual type. *A. Wrightii* is a distinct species belonging to the group of the „*purpureae*” with strictly erect panicles and several-flowered panicle-branches. It is moreover characterized by the sheaths with a villous line across the back at the collar and by the rather long, narrow panicles with rather short awns. The glumes are glabrous,

both acute but the upper distinctly bifid with an awn from the sinus, the lower one is 6—7 mm. long, the upper one about 11—12 mm. long, the lemma is scaberulous on the upper half and especially on the keel and about 12—13 mm. long, the awns are slightly contorted at base and about 2—2½ cm. long.

***Aristida Zeyheri* (Nees)
Stuedel.**

E. T. STEUDEL; Nomenclator Botanicus. Stuttgart. Ed. II. Pars I. [1841] p. 132!

= *Arthratherum Zeyheri* NEES ab ESENBECK; Florae Africae australioris. I. Gramineae. [1841] p. 177!

Description given by Nees:

Paniculae secundae contractae ramis capillaribus fasciculatis brevibus, aristis plus quam semipollicaribus villosis apice setaceis infra divisuram valvula brevioribus, glumis acuminatis superiori flosculo demta



ARISTIDA ZEYHERI (Nees) Stuedel.

From type specimen.

arista duplo, inferiori eodem dimidio longiori, foliis filiformibus laevibus.

In Tulbaghskloof, Tulbaghsthal, etc. (Worcester), ad Constantiam, Dornhoogde, in Witzenberg, Vogelvalley aliisque in locis planitie Capensis (Ecklon).

Floret Septembri, Octobri. 2.

Species haec, cum *Arthrathero* Capensi hucusque confusa, haud difficili negotio distinguitur, dummodo ad paniculam angustiore secundam, spiculas minores et proportiones partium floris animum advertas. Dimensiones spiculae *Arthratheri* Capensis in Linn. l. c. ad specimen minus factae sunt. Addimus igitur dimensiones utriusque speciei e plurium speciminum observatione haustas.

<i>Arthratherum Capense.</i>		<i>Arthratherum Zeyheri.</i>	
Gluma utraque	6 — 8'''	Gluma superior	6''' raro 7—8'''
		inferior	5 — 6'''
Flosculus cum stipite	2 ¹ / ₄ — 3 ¹ / ₃ '''	-	- 2 ¹ / ₂ - 3'''
Stipes aristae	2 ³ / ₄ — 4'''	-	- 1 ³ / ₄ — 2'''
in var. β*)	5 — 6'''		
Arista media	9 — 14'''	-	- 8 — 12'''
Aristae laterales	7 ¹ / ₂ — 9'''	-	- 7 — 10'''

Note: = *Aristida capensis* Thunb.
var. *Zeyheri* (Nees) Walpers.

On p. 80 of this Revision I have already observed that there are intermediary forms between *A. capensis* and *A. Zeyheri* and that both are not so easy to distinguish as was indicated by NEES. The type in the Berlin Herbarium, I have studied through the courtesy of Prof. R. PILGER. The sheet bears three well-developed specimens, which are labeled by NEES: „Distr. Worcester, Tulbaghskloof, Tulbaghsthal, Winterhoek, Witzenberg, Vogelvalley etc.” A second label bears the data: „Distr. Cap. Constantia Zeyher!” The 3 specimens are identical, they agree with var. *barbata* in the short column, but var. *barbata* differs in the very long blades and in the bearded mouth of the sheaths; from typical *A. capensis* it differs

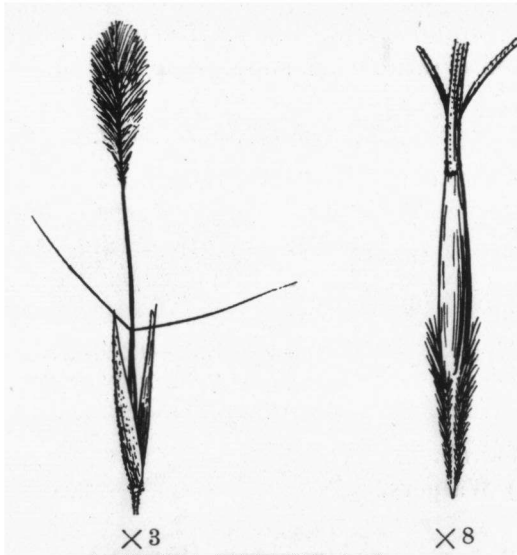
*) This var. β was mentioned by NEES in Fl. Afr. austr. p. 176. Panicula magis contracta minore minus composita, from Tulbagh (Ecklon) and Paarlberg (Drège). NEES probably meant var. γ. *macropus* which has such a long column.

in the hairy much shorter column and from the var. *canescens*, which has the hairy column it differs but slightly in the more unequal glumes, shorter lemma and shorter column.

***Aristida Zittelii* Ascherson.**

Verhandlungen des Botanischen Vereins der Provinz Brandenburg. Berlin. Jahrg. XXI. [1880] p. 70!

A basi ramosissima, interdum fere suffruticosa; culmi geniculato-ascendentes, internodiis puberulo-scabris; foliorum vagina et lamina (in sicco setaceo-convoluta) striata, sub lente inter strias praesertim



ARISTIDA ZITTELI *Ascherson.*

From type specimen.

minutissime scabriuscula, tactu laevis; ligula dense ciliata; pannicula (saepe folii supremi vagina basi involu-crata) oblonga, laxa 0,12—0,15 m longa, ramis scabriusculis, spiculas pro genere numerosas (30 et plures) mediocres (cum arista 0,018—0,020 m longas) gerens; glumae (bractee involucrales) subaequales, 0,008—0,009 m longae, acuminatae, trinerves, dorso scabriusculae, margine hyalinae; palea inferior (bractea) cum axi barbato 0,005 m longa, inferne dorso dense villosa, in aristam 0,002 m circiter supra basin divisam

abiens; setae laterales glabrae, intermediae partis plumosae apice rotundatae (nec seta excurrente superatae) basin superantes.

Von dieser Art wurden auf dem Kalkplateau der Libyschen Wüste zwischen Siut und Farâfrah am 23. Dec. 1873 einige blühende Exemplare (No. 2498) aufgelesen; der beschleunigte Gang der Karawane und die Jahreszeit, in der fast sämtliche, dort nicht sparsame *Aristida*-Rasen völlig vertrocknet waren (die meisten, an denen noch Spuren der Blütenstände zu erkennen waren, ergaben sich als *A. plumosa* L.) liessen nicht constatiren, ob unsere Art dort häufiger ist. Dagegen gelangte Vortragender in den Besitz eines grösseren Vorrathes (No. 2499) durch einen eigenthümlichen, von Rohlf's (Drei Monate in der Libyschen Wüste, Cassel 1875 S. 101)

mit folgenden Worten erzählten Vorfall: „Jenseit Bir-el-Dikker [zwischen Farâfrah und Dachel] aber sollten wir im buchstäblichen Sinne des Wortes in eine absolut pflanzenlose Gegend kommen. Ascherson hatte vor Antritt der Reise gewettet, er würde an jedem Tage wenigstens eine Pflanze zu sehen bekommen — er hat seine Wette verloren. Allerdings wurde er am 5. Januar [1874] durch einen sonderbaren Fund einigermaassen entschädigt. Unsere Araber fanden im Sande vergraben einen kleinen Grasvorrath, welchen jedenfalls eine der kleinen mit Eseln oder Rindern zwischen Farâfrah und Dachel verkehrenden Karawanen dort für die Rückkehr niedergelegt hatte . . . Eine ansehnliche Zahl noch brauchbarer Exemplare wanderte in das Herbarium unseres Botanikers, und ergab sich dieses Federgras als eine der wenigen noch unbeschriebenen Arten, welche wir auf dieser Expedition angetroffen haben. Ascherson . . . hat dieselbe *Aristida Zittelii* getauft.“ Es ist anzunehmen, dass diese Exemplare in der Nähe von Farâfrah gesammelt und höchstens einige Wochen früher vergraben worden waren.

Diese Art gleicht im Wuchs und wegen der zahlreichen Aehrchen der algerischen *A. brachyathera* Coss. et Bal., welche indess noch kleinere Aehrchen (incl. der Granne nur 0,015 m) seidig-zottige Internodiën und eine auslaufende Spitze der Grannenfeder hat; durch die oben abgerundete Feder unterscheidet sich *A. Zittelii* von den meisten Arten der Gattung; in Aegypten besitzt dies Merkmal ausserdem nur *A. obtusa* Del., deren Wuchs indess ein ganz anderer ist, indem aus einem dichten Rasen von kurzen Blattrrieben unverzweigte kurze Halme gleichsam schaftähnlich aufsteigen; die dichter gedrängte Rispe dieser Art trägt etwa 9—12 Aehrchen, die mit der Granne 0,03 m Länge erreichen.

In the section *Stipagrostis* we have a group „*acutiflorae*“ with glabrous sheaths, lanate or pubescent internodes and rather short spikelets, less than 1 cm. long. To this group belong: *Aristida acutiflora* Tr. et RUPR., *A. brachyathera* Coss. et BAL. and *A. Zittelii* ASCH.; although these species have the same habit, they are quite distinct and easy to recognize. *Aristida Zittelii* has a central awn which is plumose only in upper half but without a naked tip, the feathery part very obtuse in outline. The two other species have an excurrent naked tip of the central awn. *A. brachyathera* differs in the curious callus and in the 3 equal awns, the central one feathery from the branching-point. *Aristida acutiflora* is most allied to *A. Zittelii* but has a central awn with an excurrent naked tip.

The type of *A. Zittelii* in the Berlin Herbarium was studied through the courtesy of Prof. R. PILGER. The sheet bears ASCHERSON's printed label with his determination and the number 2499. Upon the sheet MEZ has written: „*Aristida brachyathera* Coss. et Bal.", the latter is however a very different endemic species from the Algerian Sahara.

ADDITIONS.

Aristida ambongensis Camus.

AIMÉE CAMUS; Nouvelles espèces malgaches des genres *Aristida* et *Sporobolus*, Bull. de la Société Botanique de France, Tom. 73, Cinquième série, Tome II. [1926] p. 435!

Planta perennis, glaberrima, pallida. Culmi erecti vel ascendentes, 30—40 cm. alti, rigidi, ramosi, foliati, ad nodos parum geniculati. Laminae teretes, rigidae, erectae, pallide virides, apice acuminatae, glabrae, 3—15 cm. longae, 1 mm. latae. Vaginae arctae, teretes, glabrae. Ligulae brevissimae, ciliatae. Panicula effusa, laxissima, 9—13 cm. longa; rami remoti inaequales, solitarii vel geminati. Spiculae 6—6,6 cm. longae. Glumae steriles lanceolatae, acuminatae, carinatae, inaequales, Ima 1,5—1,7 cm. longa, dorso scaberula; II^{da} 1,7—1,9 cm. longa. Gluma fertilis linearis, 8—9 mm. longa, in aristam inferne simplicem tortam 10—13 mm. longam basi articulata deinde trisetam producta; aristae divisiones capillares, patulae, media 3,5—4,5 cm. longa, laterales 3,2—4 cm. longae; callus elongatus 2 mm. longus, breviter sericeo-barbatus.

Madagascar cent.: Stompiku (Ambongo), sables très secs et découverts (Perrier de la Bâthie, no. 11092).

Par son arête articulée à la base sur la glume fertile et à divisions glabres, cet *Aristida* se rattache à la sect. *Arthratherum*. C'est jusqu'ici la seule espèce de cette section récoltée à Madagascar.

L'*Aristida ambongensis* est une plante extrêmement cassante qui rappelle beaucoup l'*Aristida Aristidis* Coss., de l'Afrique septentrionale, mais en diffère par ses glumes peu inégales, entières, la supérieure mutique, ni bifide, ni aristée.

Cet *Aristida* a aussi des affinités avec l'*A. Kotschyana* Hochst. mais la partie basilaire non divisée de l'arête est bien plus longue.

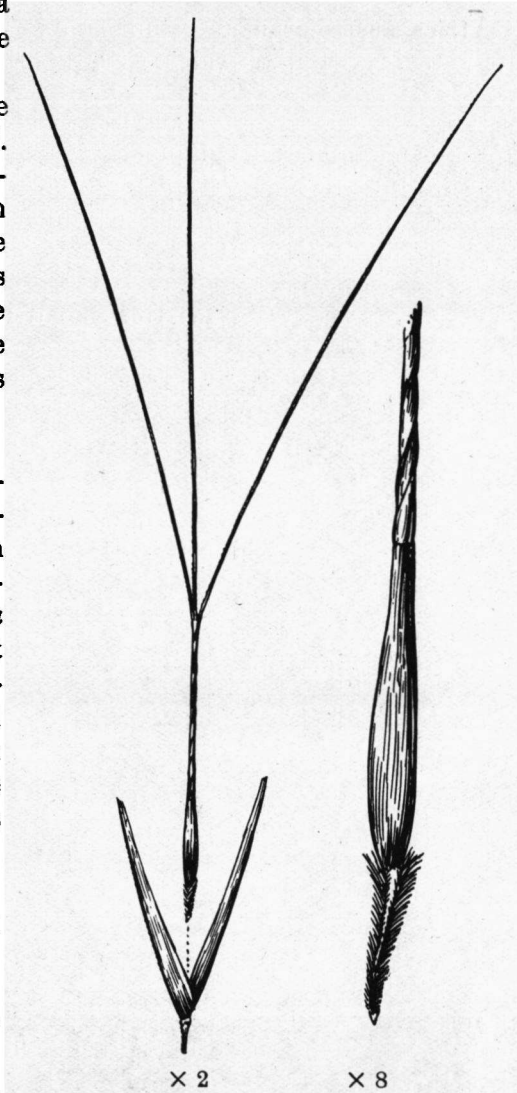
Il se distingue de l'*A. Sieberiana* Trin., de l'Afrique tropicale, par sa panicule bien plus lâche, ses glumes peu inégales, non longuement acuminées, la partie basilaire entière de l'arête bien plus allongée.

L'*A. ambongensis* rappelle un peu, par son port, l'*A. sabulicola* Pilger, mais sa panicule est très lâche et non spiciforme, les rameaux de l'arête sont dépourvus de poils épars, la partie non divisée surmontant la glume fertile dépasse plus longuement les glumes stériles.

This very interesting species of the section *Arthratherum* was studied through the courtesy of Prof. H. LÉCOMTE. *Aristida sabulicola* PILGER is a totally different species belonging to the section *Stipagrostis* not at all allied to this species and with a quite different habit. See the figure on p. 527 of this Revision.

***Aristida andoniensis* Henrard
nov. spec.**

(Sectio *Chaetaria*). E fragmentis tantum mihi cognita. Spiculae purpureae, *gluma inferior* 15—16 mm. longa, 3-nervis, nervis scaberulis, dorso subpubescens, acuta, breviter aristata, *gluma superior* paulo brevior, 14 mm. longa, apice bifida, inter lobos aristulata, aristula 1 mm. longa; *gluma fertilis*, callo barbato, subobtusio, 1 mm. longo, 12 mm. longa, ventre sulcata, marginibus involutis, glabra, laevis, leviter carinata, carina tantum minute scaberula, aristae porrectae,



ARISTIDA AMBONGENSIS Camus.
From type specimen.

triquetrae, marginibus alatis scaberrimis, subaequilongae, ad 30 mm. metientes.

Africa austro-occid.: Ovamboland, Andoni, open grass veld, anno 1921. leg. K. H. BARNARD no. 16519. Herb. Kew.

Inter species africanas affinis *A. rhinochloa* HOCHST., a qua differt glumis fertilibus glaberrimis laevibus. *Aristida serrulata* CHIOV., tantum breviter descripta, accedit glumis fertilibus glabris, dorso secus costam serrato-ciliatis sed differt, e descriptione, aristas vix paleam superantibus.

Aristida Boisii Camus.

AIMÉE CAMUS; Espèces et variétés nouvelles de Graminées asiatiques, Bulletin du Muséum National d'Histoire Naturelle, Tom. XXV. [1919] p. 370!

Perennis. Culmi elati, 1 m. vel ultra alti, erecti, teretes, firmi, glaberrimi, supra nodos inflati. Laminae e basi vix angustata a vagina parum distincta lineares, convolutae, 40—50 cm. longae, 3—5 mm. latae, supra laeves, subtus margineque scaberulae. Vaginae striatae internodiis longiores. Ligula brevissima. Panicula 30—50 cm. longa, laxa, interrupta, rhachi communi rigida, rami erecti vel erecto-patuli, verticillati, subfastigiati, subnutantes. Pedicelli 2—3 mm. longi. Spiculae 9—10 mm. longae; gluma Ima quam IIa $\frac{1}{3}$ — $\frac{1}{4}$ brevior, lanceolata, acuminata, mutica; IIa lanceolata, acuminata, mutica; IIIa angustata, oblonga; arista continua, leviter torta; setae 3 subaequales, scaberulae, 12 mm. longae; callus barbatus.

Cochinchine: Ong iem (Bois, n° 2171).*)

Cette espèce est très bien caractérisée par sa panicule allongée, très interrompue surtout à la base, à axe principal très robuste, rigide, dur, arrondi, très lisse, à rameaux atteignant parfois 8—10 cm. de longueur, en verticilles peu nombreux, les verticilles inférieurs très distants.

L'*A. Boisii* se rapproche de l'*A. setacea* Trin., mais s'en distingue par sa panicule bien moins étroite, interrompue, à axe principal plus robuste, arrondi. Proche aussi de l'*A. Hystrix* L. f., il s'en différencie par ses feuilles plus allongées, sa panicule bien plus longue, à axe principal rigide, à rameaux dressés, le callus de la glumelle inférieure nettement poilu.

*) On the authentic label the specimen is numbered 2191.

Note: = *Aristida culionensis* Pilger.

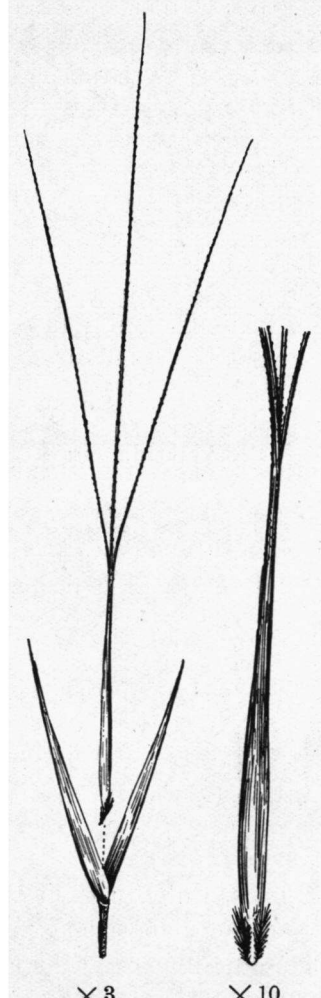
The type in the Paris Herbarium, labeled by Mss. CAMUS consists of an overmature plant without roots and with some broken panicles only. The printed label reads: „Herbier du Prince Roland Bonaparte. D. Bois. — Mission en Indo-Chine et à Java. (Novembre 1902—Avril 1903)”. Upon this label is written: „No. 2191 Grande graminée des terrains secs et sablonneux caryopse a 3 arêtes. Ong-iem, Cochinchine, 26 Janvier 1903.”

The type agrees perfectly with the type of *A. culionensis*, described from the Philippines, nearly all the florets are fallen off, but the few ones observed have the twisted column of the species.

Aristida chrysochlaena Henrard

nov. spec.

(Sectio *Chaetaria*). Perennis, elata; *culmus* subrobustus, cum panícula 1,5 m. vel plus altus, inferne 2—2½ mm. crassus, teres, laevissimus, superne leviter striatus, paucinodis, internodiis longissimis; *vaginae* longissimae, arctae, striatae, glaberrimae, superne scabriusculae, *ligula* minuta, vix ciliolata, *auriculae* glabrae vel subpubescentes; *laminae* 20 cm. vel plus longae, convolutae vel inferne planiusculae, explanatae saltem inferne circa 3 mm. latae, subtus scabriusculae vel laeves, supra subhirtellae, marginibus incrassatis; *panícula* longissima (pars superior deest), sed plus quam 20 cm. longa, angusta sed laxa, interrupta, circa 3 cm. lata, axis plane visibilis, teretiusculus, laevis, ramis binis, stricte erectis, scaberimis, a basi nudis, primario ad 10 cm., secundario ad 5 cm. longo;



ARISTIDA CHRYSOCHLAENA
From type specimen.

spiculae erectae, aureo-flavae, subnitentes, subcongestae, pedicellis brevioribus scaberrimis, *glumae* laevissimae, subaequilongae, uninerves, acutae, aristulatae, ambae apice breviter sed distincte auriculatae, *inferior* 11½—12 mm. longa, carina laevis, aristula ¾—1 mm. longa, *superior* 11 mm. longa, carina laevissima, *gluma fertilis* callo barbato subacuto, 1 mm. longo, 10 mm. longa, laevissima, superne angustata sed haud rostrata neque torta, aristae scabrae, porrectae, centralis 25 mm. circa longa, laterales 18—20 mm. metientes.

Angola: Benguella; country of the Ganguellas and Ambuellas. Leg. J. GOSSWEILER, no. 2710. Typus speciei in Herb. Kew.

***Aristida coerulescens* Desfontaines.**

var. *breviseta* Hackel.

E. HACKEL; Gramineae in Plantae Marlothianae. Nachtrag, in ENGLER, Bot. Jahrbücher XI. [1889] p. 400!

Differt a typo aristae divisionibus brevioribus: media 9—11 mm, lateralibus 8—9 mm longis. Glumae steriles ca. 7 mm, fertiles 9 mm longae. Panicula laxiuscula.

Hereroland, in sabulosis depressis prope Otyimbingue, alt. 900 m (Marl. n. 1379). — Florif. m. Jan. 1886.

Note: = *Aristida curvata* (Nees) Trin. et Rupr.

The type from ENGLER'S Herbarium in the Berlin Museum, kindly received for examination from Prof. PILGER, is labeled in HACKEL'S hand and the label bears the data as given in the publication. The specimen has quite the same glumes and lemmas as the type of *Aristida curvata*, they agree perfectly with the figure given by me on p. 125 of this Revision.

***Aristida formosana* Honda.**

M. HONDA; Revisio Graminum Japoniae XIII, in The Botanical Magazine, Tokyo, [May, 1927] Vol. XLI. p. 379!

Perennes. Culmi caespitosi, erecti, glaberrimi, teretes, 40—50 cm alti. Vaginae glaberrimae, ad oras barbatae. Ligula brevissima. Folia angustissime linearia, canaliculato-involuta, glabra, 15—25 cm longa. Panicula ampla, elongata, circ. 30 cm longa, patens, rhachi stricta, scabriuscula; ramis inferiore semiverticillatis, superiore geminis v. solitariis, patulis v. erecto-patulis scabris, circ. 6—10 cm longis, ad

basin dense villosis. Spiculae longius tenuiter pedicellatae, subulato-lineares, 10—12 mm longae. Glumae steriles valde inaequales; Ima subulato-linearis, longe attenuata, acutissima, 11 mm longa, hyalino-membranacea, glabra, dorso carinato-uninervis, nervo scabro, IIda conformis sed 7 mm longa. Gluma fertilis callo brevi, acuto, breviter albido-barbato instructa, subulata, glabra, 5 mm longa, sine articulatione in aristam tripartitam transeunte, aristae ramis parum inaequalis, medio 1½ mm longo, lateralibus 11 mm longis, gracilibus.

Nom. Jap. Taiwan-matsubashiba (nov.)

Hab.

Formosa: Heichōshō in Tōyen (Y. SHIMADA, anno 1909).

Planta endemica.

Note: = *Aristida chinensis* Munro.

The type was not studied, but all the characters given in HONDA's description, agree perfectly with those of the *Aristida chinensis* MUNRO. My figure of this species on p. 91 of this Revision is given as magnified $6\frac{2}{3}$ and $2\frac{2}{3}$ times, the original drawing from which the zincograph was taken was unfortunately indicated as $\frac{2}{3}$, but in reality taken natural size, so we have to multiply with $\frac{3}{2}$ and the enlargements on p. 91 become $\times 10$ and $\times 4$.

In the type of *A. chinensis* the lower glume is 12 mm. long, the upper shorter one is 8 mm. long, the lemma is 7 mm. long (slightly longer than given in HONDA's description) but the length of the awns is exactly the same. The differences are so minute that we can without doubt accept the identity.

Aristida gracillior Pilger.

var. *Pearsonii* Henrard

nov. var.

Differt a typo praesertim columna nuda, haud barbata, etiam ad geniculam pilis longis destituta; arista centralis in parte inferiore scaberrima tantum, haud pilis longis praedita, in parte superiore dense plumosa, apice nudo.

South Angola: Common locally on sand with other grasses and *Welwitschias* between Mossamedes and R. Coroca. (Percy Sladen Memorial Expedition in South-West Africa, 1908—1909) Legit H. H. W. PEARSON, 23. 4. 09. no. 2249. Typus in Herb. Kew. Desert at Caulao on the Mossamedes Railway, 27. 4. 1909, leg. H. H. W. PEARSON no. 2881 (p.p.), mixed with *Aristida prodigiosa* WELW. var. *calva* HENR.

Aristida Viciosorum Pau.

CARLOS PAU y CARLOS VICIOSO; Plantas de Persia y de Mesopotamia, recogidas por D. Fernando M. de la Escalera, in Trabajos del Museo Nacional de Ciencias Naturales, Serie Botánica. No. 14. [1918] p. 44.

Sectio Chaetaria P. B. — Annuā, culmis tenuibus 30 cm., geniculatis; foliis angustissime linearis, serrulatis, planis; ligula brevissima, ciliata; panícula laxa, pauciflora; glumis anguste linearibus, inaequalibus, aristis sessilibus, capillaribus scabris, patulis, media longiore.

Habit. Ahwas.

Difiere de la *A. coerulescens* Desf., a la que se parece mucho, por su raiz anual, hojas planas, ser pauciflora y, sobre todo, por sus aristas mayores. La *A. pumila* Decais. es una forma de esta, aun cuando Boissier la dio como especie diferente, pues dice Post (Flora of Syria, Palestina and Sinai, pag. 859); „Rather a form than a variety”. Afirmacion que no es posible en la *Viciosorum*, atendiendo unicamente a la longitud de las aristas.

Translation. Differs from *A. coerulescens* Desf. which it closely resembles by its annual habit, flat leaves, by being few flowered and above all by its larger aristas. *A. pumila* Decais. is a form of this, which Boissier said was a different species, but as Post says (Flora of Syria, Palestina and Sinai, p. 859) „Rather a form than a variety”. It is not possible in *Viciosorum* to rely solely on the length of the aristas.

Note: = *Aristida adscensionis* L.

Prof. BORNMÜLLER at Weimar, the well-known authority on Persian plants informed me that nothing was known to him about this species. Dr. A. W. HILL, Director of the Kew Herbarium was so kind to send me a copy of the original description of *Aristida Viciosorum* and a translation in English. I had written to Mr. PAU, but received no answer. From the description given here, it is clear that the new species is the common annual *A. adscensionis*, larger awns are a common phenomenon in the annual plants.

EXCLUDED SPECIES.

***Aristida americana* L.**; *Systema Naturae* Ed. X. [1759] p. 879; SWARTZ, *Obs. Bot.* [1791] p. 41. pl. 2 f. 2. = *Bouteloua americana* (L.) SCRIBNER; *Proc. Acad. Phila.* [1891] p. 306. See D. GRIFFITHS; *The Grama Grasses: Bouteloua and related Genera*, in *Contr. from the U. S. Nat. Herbarium*, Vol. XIV. [1912] p. 407 and 408!

***Aristida antillarum* Poiret**, in LAMARK; *Encycl. Suppl. I.* [1810] p. 451; *Atheropogon antillarum* SPRENGEL; *Syst. Veget. I.* [1825] p. 294. = *Bouteloua spec.?* (POIRET gives: *panicula ramis brevibus* and *calycibus bifloris*).

***Aristida arundinacea* L.**; *Mantissa plantarum altera* [1771] p. 186. = *Arundo madagascariensis* KUNTH; *Rév. Gram. I.* [1829] p. 273. t. 48! = *Neyraudia madagascariensis* (KUNTH) HOOK. F. *Fl. British India*. Vol. VII. [1897] p. 305!

***Aristida caffra* Bory**; *Voyage II.* [1804] p. 376. = *Pennisetum caffrum* (BORY) LEEKE; *Untersuchungen über Abstammung und Heimat der Negerhirse*, in *Zeitschrift für Naturwissenschaften*, Bd. 79 [1907] Heft 1 und 2!

An authentic specimen was studied by me in the Herbarium of the Bot. Gard. at Leningrad.

***Aristida crinita* Steudel**; *Nom. Bot. Ed. II.* [1841] p. 131! = *Stipa crinita* GAUDICHAUD, in DE FREYCINET; *Voyage autour du monde* [1826] p. 407. See D. K. HUGHES; *Further notes on the Australian Species of Stipa* in *Kew Bulletin* [1922] p. 21!

***Aristida domingensis* Kunth**; *Rév. Gram. I.* [1829] p. 62! = *Streptachne domingensis* SPRENGEL, ap. ROEMER et SCHULTES; *Mantissa*. Vol. II. [1824] p. 188! = *Schizachyrium hirtiflorum* NEES; *Agrost. Brasil.* [1829] p. 334! = *Andropogon hirtiflorus* (NEES) KUNTH; *Rév. Gram. II.* p. 569 t. 198!

***Aristida foenicularis* Edgew.**; *Journ. As. Soc. Beng. XXI.* [1852] 160. 183. = *Aristida funiculata* TRIN. et RUPR. *Spec. Gram. Stipac. l. c.* p. 159.

***Aristida Freycinetii* Steudel**; *Nom. Bot. Ed. II.* [1841] p. 131! = *Aristida crinita* STEUDEL, loc. cit. [1841] non PRESL [1830]!

***Aristida subbiflora* Steudel**; *Synops. Plant. Glumac.* [1854] p. 138 = *Bouteloua americana* (L.) SCRIBN.

NOMINA NUDA.

- Aristida adscendens** Hook. f. sec. Index Kewensis. Error. In HOOKER'S Fl. Brit. Ind. p. 225 there is only given *Aristida adscendens* Trimen. Cat. Ceyl. Pl.
- Aristida adscendens** Trimen, Cat. Ceyl. Pl. p. 108 sec. HOOK. f. loc. cit. p. 225, There is no reference to *Aristida adscendens* in TRIMEN'S Cat. Ceyl. Plants p. 108. Only *Aristida adscensionis* is mentioned.
- Aristida aequiramea** Schlechtendahl sec. Index Kewensis in Linnaea XXII (1849) p. 343. Error for *Aristida aequiramea* ADOLF SCHEELE, Beitr. z. Fl. von Texas in Linnaea l. c. p. 343.
- Aristida arundinacea** Koenig ex RETZIUS; Obs. Bot. IV. p. 22 = *Aristida setacea* RETZ..
- Aristida avenaria** Trin. sec. Ind. Kewensis. Error for *arenaria* TRIN..
- Aristida bipartita** Steudel sec. Ind. Kewens. = *Aristida bipartita* (NEES) TRIN. et RUPR..
- Aristida breviseta** Buckley sec. Ind. Kewens. Error. There is no *Aristida breviseta*. On p. 92 of the Proceedings, BUCKLEY describes his *A. curtiseta*.
- Aristida bromoides** Salzmann ap. Trin. et Rupr. Sp. Gram. Stipac. l. c. p. 118 = *Aristida longifolia* TRINIUS.
- Aristida capensis** L. ex JACKSON; Index Linn. Herb. (1912) p. 38. Quid?
- Aristida capillaris** Kunth sec. Ind. Kewens. = *Aristida capillaris* NEES (CAV.) in MARTIUS, Fl. Bras. (1829) p. 388 = *Aristida capillacea* LAMARK.
- Aristida centrifuga** Burchell; Cat. Geogr. 1392, in Trav. in the int. of S. A. Vol. I. p. 266. = *Aristida ciliata* DESF..
- Aristida Chloris** Salzmann ex DOELL in MARTIUS, Fl. Bras. II. 3. p. 83. = *Gymnopogon foliosus* (WILLD.) NEES.
- Aristida chrysopila** Steudel; Nom. Bot. Ed. II. p. 131. = *Chrysopogon plumulosus* HOCHSTETTER; Aufbau der Graspflanze in Württembergische Naturwissenschaftliche Jahreshefte. Jahrg. III. Heft 1. (1847) p. 62!
- Aristida ciliata** Steud. & Hochst. Herb. arab. un. it. no. 165. = *Aristida hirtigluma* STEUD..
- Aristida coerulescens** Hochst. Herb. Un. it. no. 359. = *Aristida adoesis* HOCHST. (p. p.), *Aristida adscensionis* L. var. *Abyssinica* (TR. & RUPR.) HENR. (p. p.).

- Aristida coerulescens*** Sieber in Cat. Palaest. = *Aristida Sieberiana* TRINIUS.
- Aristida coarctata*** Lichtenstein ap. ROEM. & SCH. Syst. Veg. II. p. 401. = *Aristida congesta* ROEM. & SCHULTES.
- Aristida curtisetata*** A. Gray sec. Index Kewensis. Error for *curtiseta* BUCKLEY, Proceed. Acad. of Nat. Scienc. of Philadelphia „1862” (1863) p. 92. There is no *A. curtisetata* A. GRAY, as GRAY only gives on p. 334 of the same work, a Report upon Mr. BUCKLEY’S Gramineae.
- Aristida depressa*** Trinius; De Gram. Unifl. et sesquifl. Diss. bot. (1824) p. 175 is according to the Index Kewensis the same as *A. setacea* RETZIUS, it is however as to the description (glumis acutissimis, superiore subduplo longiori perianthium subaequante) the same as *Aristida depressa* RETZIUS.
- Aristida fruticans*** Burchell, in Cat. Geogr. no. 1885 in Trav. Vol. I. (1822) p. 294. = *Aristida namaquensis* (NEES) TRIN. & RUPR..
- Aristida fugitiva*** Vasey. See my Critic. Revision Vol. I. (1926) p. 187—188.
- Aristida funicularis*** Trinius ex STEUDEL in Nom. Bot. Ed. II. p. 131. = *Aristida funiculata* TRIN. & RUPR..
- Aristida furcata*** Poiteau in ROEMER & SCHULTES; Syst. Veg. II. (1817) p. 711. = *Bouteloua americana* (L.) SCRIBNER.
- Aristida geminiflora*** Steudel; Synops. Pl. Glum. (1854) p. 144. Nees sub *Stipagrostis*. Error for *Aristida geminifolia* NEES sub *Stipagrostis*.
- Aristida geminata*** Willd. ex STEUDEL; Nom. Bot. Ed. II. p. 131. = *Gymnopogon foliosus* (WILLD.) NEES Authentic specimen was studied in the Willdenow Herb. no. 1818. The specimen was from St. Thomas collected by LEDRU and received from VENTENAT. The specimen is determined by TRINIUS as *Gymnopogon foliosus* NEES.
- Aristida gossypina*** Bosc ap. BEAUVOIS in Essai Nouv. Agrost. (1812) p. 30. A description was given under *Chaetaria gossypina* P. B. by ROEMER and SCHULTES; Syst. Veget. II. p. 391.
- Aristida herbacea*** Stendel ex DURAND et SCHINZ; Conspect. Fl. Afric. V. (1894) p. 835. cited in the Index Kewensis. In the Conspectus *Aira herbacea* STEUDEL is given as a synonym under *Aira paradoxa* STEUDEL.
- Aristida hordeacea*** Hochst. ex STEUDEL; Syn. pl. Glum. p. 142 sub *Aristida Steudeliana* TRIN. & RUPR. = *Aristida hordeacea* KUNTH.
- Aristida Kotschyl*** Hochst. ex. STEUDEL; Syn Pl. Glum. p. 142 sub *Aristida funiculata* = *Aristida funiculata* TRIN. & RUPRECHT.
- Aristida lanuginosa*** Bosc ex Trinius; Mém. Acad. St. Pétersb. (1836) p. 46 sub *A. stricta* MICHX. Observatio.
- Aristida laxa*** Willdenow, ap. TRIN. et RUPR. Spec. Gram. Stipac.

- l.c. (1842) p. 130 sub *Aristida dispersa* TRIN. et RUPRECHT. = *Aristida adscensionis* L. The authentic specimen in the Willdenow Herb. was studied by me. See this Revision Vol. I. p. 99.
- Aristida lembaensis* Vanderyst; Bull Agric. Congo Belg. IX. (1918) p. 239.
- Aristida linearifolia* Rottler ex HOOKER F. Fl. Brit. Ind. VII. p. 300 = *Dichaetaria Wightii* NEES.
- Aristida lutescens* Steudel, secund. Index Kewensis. = *Aristida lutescens* (NEES) TRIN. et RUPRECHT.
- Aristida macranthera* Hochst. ex BOISSIER; Fl. Or. V. p. 493. = *Aristida funiculata* TRIN. et RUPRECHT.
- Aristida minuta* Poiteau ex ROEMER et SCHULTES; Syst. Veget. II. p. 711. = *Bouteloua juncea* (DESV.) HITCHCOCK.
- Aristida montana* Rottler ex Wallich Cat. no. 8912 B. = *Garnotia scoparia* STAPP.
- Aristida nutans* Hort. Berol. ex STEUDEL; Nom. Bot. Ed. II. p. 131. = *A. adscensionis* L.
- Aristida pallens* Nuttall. See Critical Revision Vol. II. (1927) p. 411.
- Aristida pallescens* Durand in Herb. Mertens. See Critical Rev. Vol. II. p. 270.
- Aristida papillosa* Batt. et Trabut. See Critical Revision Vol. III. p. 589.
- Aristida pungens* Sieber sec. Index Kewensis. See Crit. Rev. Vol. III. p. 478.
- Aristida pungens* Steudel sec. Index Kewensis. = *Aristida scoparia* TRIN. et RUPR. See Crit. Rev. Vol. III. p. 478.
- Aristida secunda* Ledeb. ap TRINIUS; Gram. unifl. etc. (1824) p. 238. = *Bouteloua juncea* (DESV.) HITCHCOCK.
- Aristida sericea* Ehrenberg ex BOISSIER; Fl. Or. Vol. V. p. 497. = *Aristida paradisea* EDGEWORTH.
- Aristida setacea* Hort. ex STEUDEL; Nom. Bot. Ed. II. p. 132. = *Aristida adscensionis* L.
- Aristida spicata* Rottler ex HOOKER f. in Fl. Brit. Ind. VII. p. 226. = *Aristida mutabilis* TRIN. et RUPRECHT.
- Aristida stipaeformis* Hochst. ap. STEUDEL, Herb. nub. no. 55. = *Aristida pallida* STEUDEL.
- Aristida stipacea* Ehrenb. et Hemprich ap. TRIN. & RUPR. Spec. Gram. Stipac. l. c. p. 159; BOISSIER. Fl. Or. Vol. V. p. 493. = *Aristida funiculata* TRIN. et RUPRECHT.
- Aristida stipiformis* Lamark secund. Index Kewensis. = *Aristida stipoides* LAM. in Illustrat. p. 157.
- Aristida stricta* Steudel secund. Index Kewensis. = *Aristida stricta* MICHX., STEUDEL; Syn. Fl. Glum. (1854) p. 133.

- Aristida subrecurvata* Beauvois;** Essai Nouv. Agrost. Index p. 152.
- Aristida tenella* Kurz ex HOOK. F.;** Fl. Brit. Ind. VII. p. 224. = *Aristida Cumingiana* TRIN. et RUPRECHT.
- Aristida trichodes* Nees** secund. Index Kewensis in HOOKER'S Journal of Botany. Vol. II. p. 101. There is mentioned only *Chaetaria trichodes* NEES. See this Revision p. 638. *Aristida trichodes* NEES was mentioned once more by STEUDEL in Syn. Pl. Glum. (1854) p. 140. The Index Kewensis cites *Aristida trichodes* STEUDEL p. 140, but this is not correct. = *Aristida Cumingiana* TRIN. et RUPRECHT.
- Aristida tripilis* Thunberg;** Florula Ceylan. Diss. (1825) p. 2. = *Aristida setacea* RETZIUS. See this Revision p. 557—558.
- Aristida unilateralis* Willd. ex STEUDEL;** Nom. Bot. Ed. II. p. 132. = *Routeloua aristidoides* (H. B. K.) GRISEBACH. In the Willdenow Herb. I studied the cover no. 1817 which contains a sheet labeled „*A. unilateralis* Humboldt (W.)” The label reads: „An festuca (Humboldt) in frigid. Toluca.” A label in KUNTH'S hand bears the determination: „*Eutriana aristidoides* Kunth” and „*Dinebra aristidoides* olim.”

