IDENTIFICATION OF SOME MALAYSIAN GRASSES

by

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When BUSE gave an enumeration of the grasses collected by JUNGHUHN in Java and Sumatra, he mentioned under *Paspalum* a species, described by RETZIUS in the year 1781 as *Paspalum hirsutum*. BUSE identified a grass from Sumatra as being the species of RETZIUS, on account of the description, having certainly not studied the authentic specimen, which was at that time not easy to consult. It may be that even the work of RETZIUS was not at his disposal, it is probable that he studied only the description, given afterwards in LAMARCK's Encyclopédie. RETZIUS described his species from China, where it was collected by BLADH. Although the description of RETZIUS agrees fairly well with BUSE's plant, we are in modern times not so satisfied with such an identification, because it is *a priori* not sure at all that the chinese species is identic with a grass from the high plateau of Sumatra, the more because since the description by RETZIUS and the identification by BUSE, such a *Paspalum* was never found in the wide area between China and Sumatra. I therefore carefully studied the type of RETZIUS at the herbarium of Lund (Sweden), which was kindly forwarded for study from the director at Lund and I compared it with BUSE's type, preserved at the Rijksherbarium. The latter is in a very good condition. Already at first sight the two types agree very much especially in the vegetative parts, the number of racemes, their length and general form. In the genus *Paspalum*, a very large one, much weight is given by agrostologists to the form and outline of the spikelets and I will therefore give my opinion on the type of RETZIUS first. The plant consists of an upper part of the culm with 3 very hirsute leaves and 2 distant racemes. The spikelets have hairy pedicels, the short hairs are sparingly mixed with long ones. The form of the spikelets is obovate-oblong; they are obtuse at the summit and rounded. The first glume (mostly rudimentary in the genus) is wanting the second one, which is very convex, is slightly shorter than the spikelet, minutely punctulate and

provided with 5 very strong nerves, a midnerve and two marginal ones, the latter anastomosing upwards and running into the midnerve at the top, which is thickened where the nerves meet. The sterile lemma or third glume is flat and as long as the spikelet; it has 3 strong nerves, a midnerve and 2 submarginal ones, anastomosing at the summit; the true margins are membranaceous and distinctly hairy at the middle, the hairs more or less flexuous or curved. Besides these 3 nerves there are 2 more nerves at a rather broad distance from the midnerve; these two nerves are faint and distinct only at the base of the glume and evanescent upwards, being undulate and giving that part of the glume a scrobiculate, transversely wrinkled appearance. The fruit (fertile lemma) is dark brown and exposed by the shortness of the covering glume. From all these characters it is evident that RETZIUS's plant belongs to a group of species in the genus *Paspalum* called by Mrs. AGNES CHASE the *„plicatula"*. Representative species of this group are the well-known New World *Paspalum plicatulum* MICHX. and the variable Old World species *Paspalum scrobiculatum* L.. The characters of the true *Paspalum hirsutum* are given on my plate, which is an exact copy of the type specimen, the spikelets being magnified 10 times. Returning to BUSE's plant from Sumatra, I indicate here the different characters of the spikelets. Their form and outline is different, they are not only a little longer but more elliptic, not rounded at the summit but distinctly obtusely apiculate; the convex glume is 3-nerved only, the marginal nerves not doubled, the glume is longer than the fertile lemma, obtecting it entirely and protruding above it; the flat sterile lemma is more narrowed upwards too with 3 very distinct nerves and 2 interjecting faint ones, the surface is wrinkled as in the American *Paspalum plicatulum* and the body of the glume is perfectly glabrous. Comparing types and the figures given by me, we see thus that there are distinct differences between the spikelets of the two types and it is therefore evident that we have here two different species. These differences between the two species as to the morphological characters are supported by the very different geographical distribution, the plant described by BUSE being hitherto only known from the prairies of the plateau of Padang lawas in Sumatra. Since BUSE described his species and the characters of the spikelets are given here *in extenso*, it is not necessary to describe BUSE's plant once more. It is named here after the collector Dr HORNER as a species, endemic on Sumatra, the **Paspalum Horneri** HENR. = *Paspalum hirsutum* BUSE, non RETZIUS.

A puzzling plant was described by BUSE in the year 1856 in DE

VRIESE's Plantae Indiae Batavae Orientalis as *Streptachne indica.* BUSE was an accurate observer and described this plant exactly but he unfortunately overlooked an important character. Having studied his type, a plant collected on Java by REINWARDT, I found that the spikelets have an articulation below the glume and thus easily fall of *in toto.* In the large tribe of the *Agrostideae* to which BUSE's plant belongs, this *Streptachne* is thus not a member of the subtribe *Stipeae* as BUSE supposed, this subtribe having always an articulation above the glumes which are persistent at maturity. It was thus at once evident that BUSE's plant was not a *Steptachme* at all, but more allied with such genera as *Polypogon* and *Chaeturus.* It belongs to the genus *Garnotia* which is already known from Java. BUSE's species is placed by me under *Garnotia stricta* BROGN..

Another curious grass was described by BUSE in the year 1854 as the endemic *Schizachyrium paradoxum.* He indicated already that his species was allied to the *Schizachyrium brevifolium* (SW.) NEES. In his monograph of the *Andropogoneae* this species was treated by HACKEL, who did not see the plant and remarked only on p. 365: „*ex descriptione videtur A. brevifolii var.*

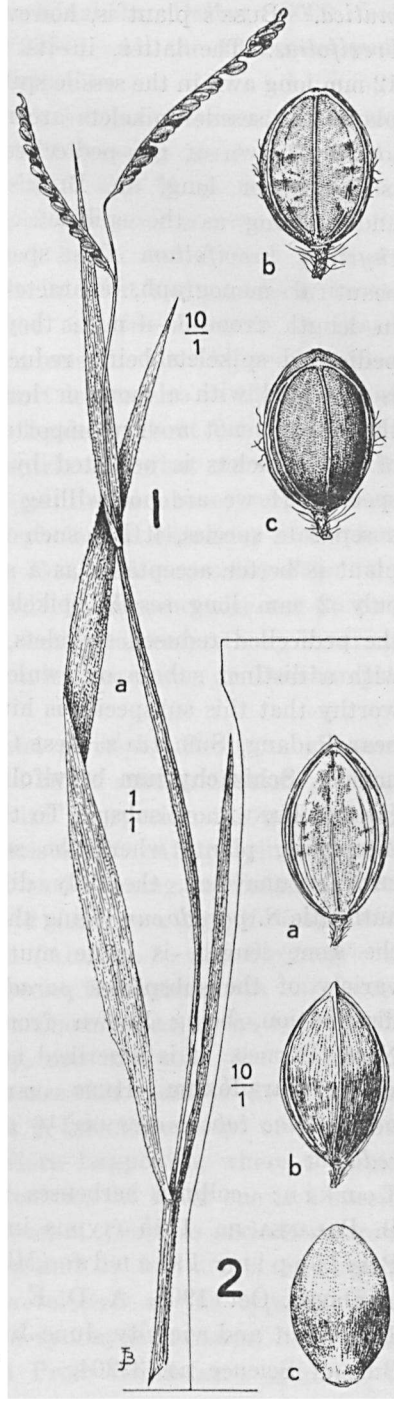

Fig. 1. a. *Paspalum hirsutum* RETZ. nat. size, b. spikelet in front, c. id. from the back, both magnified 10 times.

Fig. 2. *Paspalum Horneri* HENR., a. spikelet in front, b. id. from the back, c. sterile lemma, all magnified 10 times.

mutica." BUSE's plant is, however, not simply an unawned *Andropogon brevifolius.* The latter, in its typical form, has a well developed 8—12 mm long awn in the sessile spikelets, which are 3—4 mm long. In BUSE's plants the sessile spikelets are muticous but they are only about 2 mm long; the awn of the pedicelled spikelets in the typical *A. brevifolius* is 4—5 mm long, in BUSE's specimens only about ½ mm long and as long as the spikelet. From a large material of the *Schizachyrium brevifolium* this species is, in accordance with HACKEL's beautiful monograph, characterized by the sessile spikelets, varying in length from 3—4 mm; they have awns from 8—12 mm long, the pedicelled spikelets being reduced to a glume, 1—1½ mm long, which is provided with a more or less distinct awn. Certainly the length of the awns is not a very important taxonomic character, but the length of the spikelets is accepted by agrostologists for discriminating allied species. If we are not willing to accept BUSE's plants as representing a separate species, it has such striking spikelets that this characteristic plant is better acceptable as a subspecies, on account of the very small, only 2 mm long sessile spikelets without an awn; at the same time the pedicelled reduced spikelets are very small (only ½ mm long), but with a distinct subula or awnlet of about the same length. It is noteworthy that this subspecies is hitherto only known from the type locality near Padang, Sumatra's West Coast. BUSE's species has therefore to be named **Schizachyrium brevifolium** (SW.) NEES subspec. **paradoxum** (BUSE) HENR. nov. subsp.. To this subspecies belong, however, also some interesting plants where the sessile and pedicelled spikelets are both entirely unawned, the only difference between these plants and the authentic *S. paradoxum* being that the reduced pedicelled spikelet, having the same length, is quite muticous. I indicate this form here as a variety of the subspecies *paradoxum,* a variety having a much larger distribution, being known from Tonkin, the Philippine Islands and North Borneo. It is described here as **Schizachyrium brevifolium** NEES subsp. **paradoxum** HENR. var. **inerme** HENR. nov. var.: *Spiculae pedicellatae tabescentes vix ½ mm longae, ad glumam primam muticam redactae.*

Tonkin: collines herbeuses à la base du Mont Bavi, 1 août 1886. B. BALANSA no. 1745 (typus in Herb. Lugd. Bat. sub no. 908.80-111.) Philippine Islands: Mindanao; Todaya (mount Apo), District of Davao, Oct. 1909. A. D. E. ELMER no. 11939; Mindanao; Bukidnon, Tangculan and vicinity June-July 1920. M. RAMOS et G. EDANO. Herb. Bur. of Science no. 39204.

British North Borneo: Mount Kinabalu, Dallas, 3000 feet, 10 Dec. 1931 J. et M. S. CLEMENS no. 27540. All the specimens mentioned here are preserved in the Rijksherbarium.

STAPF described in the year 1894 *Deschampsia flexuosa* TRIN. var. *ligulata* from British North Borneo. This interesting plant was recently distributed in very beautiful specimens by J. and M. S. CLEMENS from Mount Kinabalu. The typical *Deschampsia flexuosa* is a species of the northern temperate zone. It has a short ligule and a very different aspect. This species is somewhat variable in habit and especially in the higher regions we find a plant described as *Aira montana* by LINNÉ. The latter was observed in Scandinavia and in the Alps of Central Europe and a curious from with very short leaves also in the mountains of Spain. In all these plants the short ligule is about 2 mm long, but the characters of the more condensed panicle somewhat more agree with those of STAPF's variety, which is, as mentioned above, very striking with its remarkable long ligule. The morphological character of the long ligule is used in such grass genera as *Poa, Calamagrostis, Stipa* and others to distinguish different species, which are otherwise not so easy to recognize, so that it is, in my opinion, better to accept STAPF's variety as a distinct endemic Bornean species under the name of **Deschampsia ligulata** (STAPF) HENR. nov. spec..

As to the generic name *Deschampsia,* given by BEAUVOIS for some species described by LINNÉ under *Aira,* I must remark that *Aira,* being a valid name, was published by him with 14 species, the genus being divided by him into „muticae" and „aristatae". After being purified by elimination of species, now accepted as belonging to distinct genera such as *Trisetum* (Aira no. 7), *Koeleria* (Aira no. 2), *Molinia* (Aira no. 3), *Catabrosa* (Aira no. 6), *Periballia* (Aira no. 5) and *Corynephorus* Aira no. 12), the remaining european species form the genus *Aira* sensu strieto. There is no agreement among taxonomists as to the type of the genus *Aira.* Selecting a type arbitrarily, does not solve the problem if *Aira caespitosa* and *Aira caryophyllea* are not considered to be congeneric. The best method is to ask what is LINNÉ's concept of his genus *Aira.* He first used this name in his Flora Lapponica, where 4 species have been described, 3 of them are congeneric, the other one is a species of *Trisetum.* These 3 species, *A. caespitosa, A. flexuosa* and *A. montana* form the basis of LINNÉ's genus *Aira* and it is in this case quite indifferent which of these 3 species is selected as the type of *Aira. Deschampsia* of BEAUVOIS is then only a synonym of *Aira.* I am much in favour of this view and agree with Prof. HITCHCOCK's opinion. In

the arrangement of the grasses at the Rijksherbarium, the genus *Deschampsia* is not accepted, the new species is therefore placed there under *Aira* as **Aira ligulata** (STAPF) HENR..

Only one species of the genus *Cenchrus* is found in our Malaysian region. This species is generally known under the name of *Cenchrus inflexus* R. BR. described in the year 1810. This name is, however, not tenable on account of the earlier homonym of POIRET from the year 1804, a quite different species of South America and belonging to a different genus. BROWN's species was therefore renamed by ROEMER and SCHULTES in the year 1817 in Systema Vegetabilium p. 258 as *Cenchrus Brownii.* To this species belongs further the *Cenchrus viridis* SPRENGEL from the year 1825, a name given by American authors to this species, the earlier name being probably overlooked by them. The species, which is widely distributed in the New World from Florida and Mexico to Brazil, is said to be introduced in the Malaysian regions. It may be found in herbaria sometimes as *C. echinatus* L., which is a separate New World species, observed also in Mauritius and the Samoa Islands.

Distribution of Cenchrus Brownii R. et SCH. (as far as represented in the Rijksherbarium).

Annam: Plage maritime à Cameran in 1886 (BALANSA).

Philippine Islands: Manila in 1910 (MC GREGOR in Herb. KNEUCKER exs. no. 833; Luzon in 1915 (MERRILL, Species Blancoanae no. 811).

Selebes: Kp. Koesaeng in 1912 (Exped. VAN VUUREN no. 381).

Ternate: in 1921 (BEGUIN no. 39).

Halmahera: Galèla in 1921 (BEGUIN no. 125, no. 1849).

Seran: G. Pemali in 1917 (Exp. RUTTEN no. 433); island Boano in 1918 (Exp. RUTTEN no. 1300).

New Guinea: River Uta (collector unknown).

Aroe Islands: Dobo in 1922 (danske exped. til Key-Oeerne, JENSEN no. 236).

Timor: ex herb. Paris; without locality leg. ZIPPELIUS)

Java: cultivated in Hort. Bogor. in 1869, TEYSMANN; near Batavia (REINWARDT); id. KUHL and VAN HASSELT).

Australia: collector unknown.

Panama: Culebra Canal zone, HITCHCOCK (Am. Gr. Nat. Herb. no. 622 as *C. viridis*).

Surinam: WEIGELT in 1827 as *C. pungens* H. B. K.; Herb. VAN HALL; HOSTMAN.

This species is represented in the old herb. VAN ROYEN as Cenchrus 2 pr. echinatus.

It is notewhorty that the genus *Cenchrus* is recently sharper distinguished from the genus *Pennisetum,* and a group of *Penniseta* to which belongs *Pennisetum ciliare* LINK, are now recognized as being indeed members of the genus *Cenchrus* on account of the connate rigid bristles or spines at the base of the involucrum. The *Pennisetum ciliare* being a *Cenchrus,* it is evident that the species *Pennisetum Karwinskyi* SCHRAD. is to be placed in the genus *Cenchrus.* For this species we have the name *Cenchrus multiflorus* PRESL, published eight years earlier than SCHRADER's name.