

DESMODIUM: PRELIMINARY STUDIES — IV

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DURING THE DOZEN YEARS since the series *Desmodium: Preliminary Studies* (Schubert, 1940, 1941, 1950) was interrupted it has been possible for me to examine in some detail material of the species of several regions (including central and east tropical Africa and Panama), to photograph the types of many species, as well as to observe certain other species in the field in various localities in Latin America. As a result, the long-term project of a monographic treatment of *Desmodium*, though still a somewhat distant objective, now is more likely to be accomplished than it has been at some periods in the past. To avoid bibliographic confusion the series of *Preliminary Studies* will be continued and, as in the past, will include taxonomic and nomenclatural notes best published as a prelude to, rather than in, a floristic or monographic study.

In this paper there will be considered some problems concerning tropical American and African species. Many of the problems necessitating these notes arose during studies toward the preparation of a treatment of species of *Desmodium* for the *Flora of Panama*, others for the *Flora of East Tropical Africa*. Some of the conclusions presented here are, however, corrections of previous misinterpretations now clarified by a study of the types.¹

The genus *Desmodium*, widespread and consisting of a large number of species, is distributed throughout most tropical and temperate regions of the world. One of its great centers of distribution is in Mexico where there is perhaps the largest number of species with the most diverse development of plant parts. The habit may vary from delicately herbaceous to tall frutescent or subarborescent. Each of the organs also has a wide range of diversity, probably the most conspicuous being in the loment.

¹The studies on which this paper is based (including the photographs taken in European herbaria) were carried on largely while I was a fellow of the John Simon Guggenheim Memorial Foundation (1950–51) and, to a lesser extent, during a trip sponsored by the Gray Herbarium of Harvard University (1946), and during a period in Belgium (1951–52) while serving as botanical consultant for the Economic Cooperation Administration under the auspices of I.N.E.A.C. at the Jardin Botanique de l'État in Brussels. Field observations in Latin America were made during various collecting trips while conducting a project, as botanist, for the New Crops Research Branch, Agricultural Research Service, U. S. Department of Agriculture and the National Heart Institute, National Institutes of Health.

To the friends and colleagues who facilitated field work and library studies and in various ways disposed of numerous difficulties I am most appreciative. To the directors and curators of the institutions in which I was able to study and take photographs and to those who kindly made material available on loan I am extremely grateful. The herbaria from which material is cited are indicated by the abbreviations of Lanjouw and Stafleu listed in *Index Herbariorum* (ed. 4, 1959).

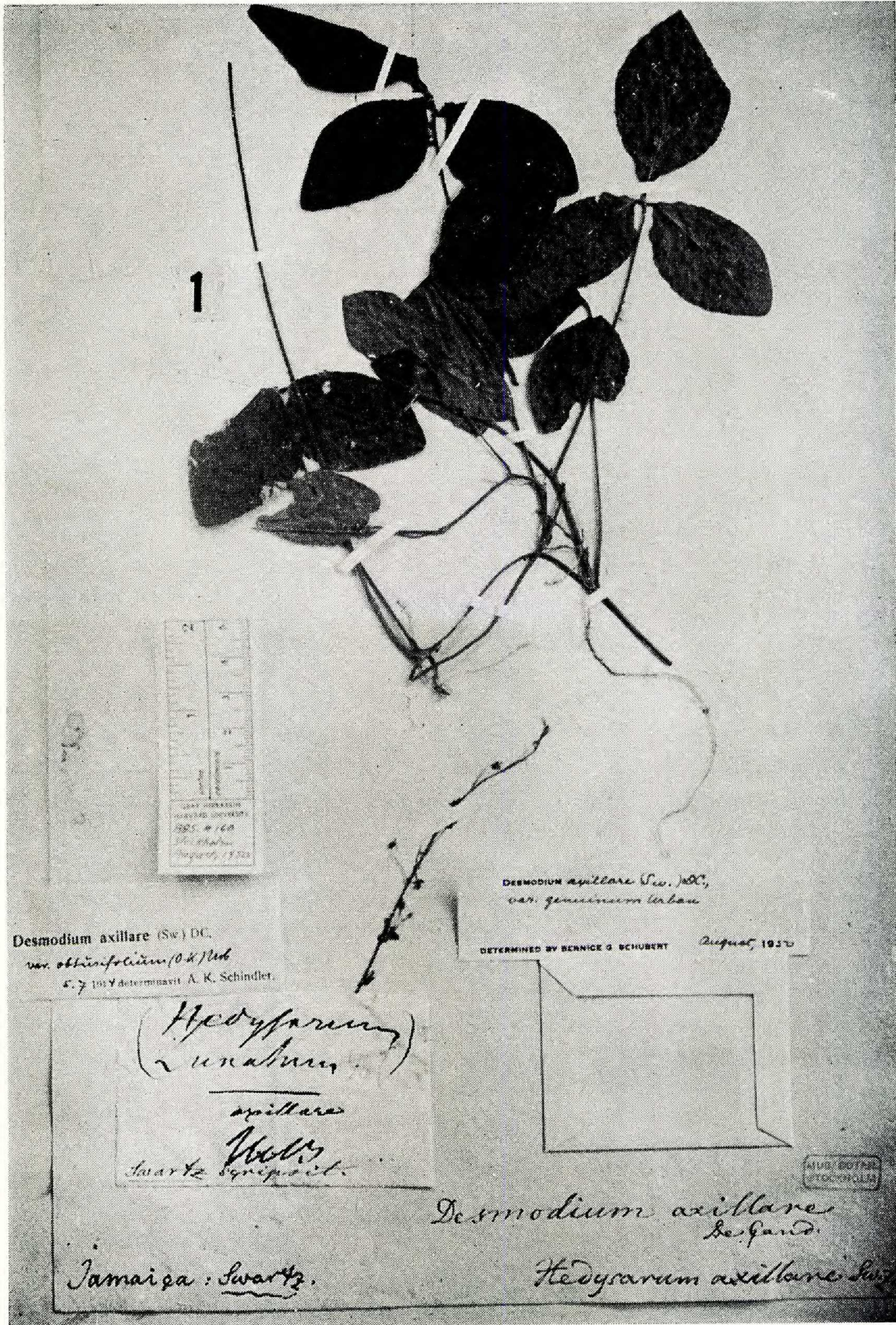


FIG. 1. Holotype of *Hedysarum axillare* Sw., $\times \frac{1}{2}$.

The characters of the inflorescence and loment offer the best means for distinguishing species, as well as the best clues to discovering their relationships. Among the Mexican species of *Desmodium*, *sensu lato*, there are at least three subgenera. The species treated by Schindler as *Meibomia*, *sensu stricto*, would form the largest subgenus (although unfortunately in the subgeneric category this name will probably not be available). As a unit this group of species is composed of two sections, each of which contains several easily recognizable species groups probably best designated as series. The subgeneric classification will be considered in detail in a later paper. It is interesting to note, however, that within the two sections distinguished by characters of the inflorescence there are several occurrences of parallel development in the modification of the loment.

In tropical Africa, although many subgeneric categories of *Desmodium* are represented, there are many fewer species and far fewer species groups (Schubert, 1952, 1954). Endemics do occur, but there seems to be a much lower level of development in the genus in Africa than in America, and there are scarcely any unquestionably native species which have American relatives.

In Asia the genus reaches a far more interesting level of development with large numbers of species showing much diversity and modification. The Section *Podocarpium* Benth (Isely, 1951) has three representatives in eastern North America. Also many of the widespread tropical species have an Asiatic origin.

DESMODIUM AXILLARE AND ITS VARIETIES — A CLARIFICATION

In tropical America *Desmodium axillare* is widespread and well known. It extends from southern Mexico through Central America, the West Indies, and at least the northern half of South America. The confusion which has surrounded the definition of its varieties is largely the result of insufficient knowledge of the types.

Desmodium axillare (Sw.) DC. Prodr. 2: 333. 1825.

Var. *axillare*

Hedysarum axillare Sw. Prodr. 107. 1788; Fl. Ind. Occ. 1274. 1806. Holotype, Jamaica. Swartz (s; GH, negative no. 8189); isotype (? BM; GH, negative nos. 7794 a, b, c).

Meibomia axillaris (Sw.) O. Ktze. Rev. Gen. Pl. 1: 195. 1891.

D. axillare (Sw.) DC. var. *α. genuinum* Urb. Symb. Antill. 2: 303. 1900.

Nephromeria axillaris (Sw.) Schindl. Repert. Sp. Nov. 20: 284. 1924.

Meibomia axillaris (Sw.) O. Ktze. var. *α. obtusifoliola* O. Ktze. *loc. cit.* Holotype, Cayey, 2000', Portorico. Mar. 1874, Kuntze (NY; GH, negative no. 4022).

D. axillare (Sw.) DC. var. *α. obtusifoliola* (O. Ktze.) Urb. *op. cit.* 4: 291. 1905.

Nephromeria axillaris (Sw.) Schindl. var. *α. obtusifoliola* (O. Ktze.) Schindl. *loc. cit.*

- Hedysarum reptans* Poir. in Lam. Encyc. Méth. Bot. 6: 422. 1804. Holotype, Santo Domingo, Desportes (P-JU, no. 15,543; GH, negative no. 8190).
Meibomia reptans (Poir.) O. Ktze. *ibid.* 198.
D. radicans Macfad. Fl. Jam. 1: 269. 1837, based on *Hedysarum axillare* Sw.
Meibomia andina Rusby, Mem. Torrey Club 3: 21. 1893, *pro parte*, as to isotypes (GH, MO, US), not as to holotype (NY), Yungas, Bolivia, *Bang* 650.

The typical variety of *Desmodium axillare*, based on *Hedysarum axillare* Sw., has been recognized by authors under various epithets. It should now properly be called var. *axillare* "without citation of an author's name."² It was possible to study the holotype of *Hedysarum axillare* Sw. at the Regnelliska Typherbariet of the Botanical Department, Naturhistoriska Riksmuseet, Stockholm, and a photograph of this specimen is reproduced here (FIG. 1). A specimen in the British Museum (Nat. Hist.) annotated by Schindler as "probably the type specimen of *Hedysarum axillare* Sw." may be an isotype (GH, negative no. 7794), but the specimen from Swartz's herbarium should be accepted as the holotype. Schindler came to the same conclusion after he had annotated the sheet in the British Museum (probably in 1922), for in his bibliographic study on *Desmodium* [Schindler, 1928, p. 5, entry (356)] he noted "Or. in H. Stockh. [var. *obtusifoliola*]."

From a study of material in Paris the conclusion in my earlier paper (Schubert, 1941) to place *Hedysarum reptans* in the synonymy of this variety, is confirmed. The holotype of *H. reptans* Poir., a specimen collected by Desportes, is in the Herbarium Jussieu (P-JU) of the Muséum National d'Histoire Naturelle. Another specimen, in the Herbarium Générale (P) of the same museum, also determined as *H. reptans*, is var. *stoloniferum* (var. *sintensis*). A photograph of Poiret's type is reproduced here (FIG. 2).

Var. *acutifolium* (O. Ktze.) Urb.

- D. axillare* (Sw.) DC. var. β . *acutifolium* (O. Ktze.) Urban, Symb. Antill. 4: 292. 1905. Holotype, Panama, Colón, June 1874, Kuntze (NY; GH, negative no. 6273).
Meibomia axillaris (Sw.) O. Ktze. var. β . *acutifolia* O. Ktze. Rev. Gen. Pl. 1: 195. 1891.
Nephromeria axillaris (Sw.) Schindl. var. β . *acutifolia* [as "*acutifoliola*"] (Urb.) Schindl. Repert. Sp. Nov. 20: 284. 1924.
D. axillare (Sw.) DC. var. β . *angustatum* Urb. *op. cit.* 2: 303. 1900.
D. axillare (Sw.) DC. var. β . *angustatum* Urb. f. *robustius* Urb. *loc. cit.* Isotype, Sierra de Luquillo, Portorico, *Sintenis* 1689 (GH).
D. axillare (Sw.) DC. var. β . *acutifolium* (O. Ktze.) Urb. f. *robustius* (Urb.) Urb. *op. cit.* 4: 292. 1905, based on *D. axillare* var. β . *angustatum* f. *robustius*.
Nephromeria axillaris (Sw.) Schindl. var. β . *acutifolia* (Urb.) Schindl. f. *robustior* (Urb.) Schindl. *loc. cit.*
Hedysarum oblongifolium Bertero ex DC. Prodr. 2: 332. 1825, *pro syn.*

² Int. Code of Bot. Nomenclature, 1961. Article 26.

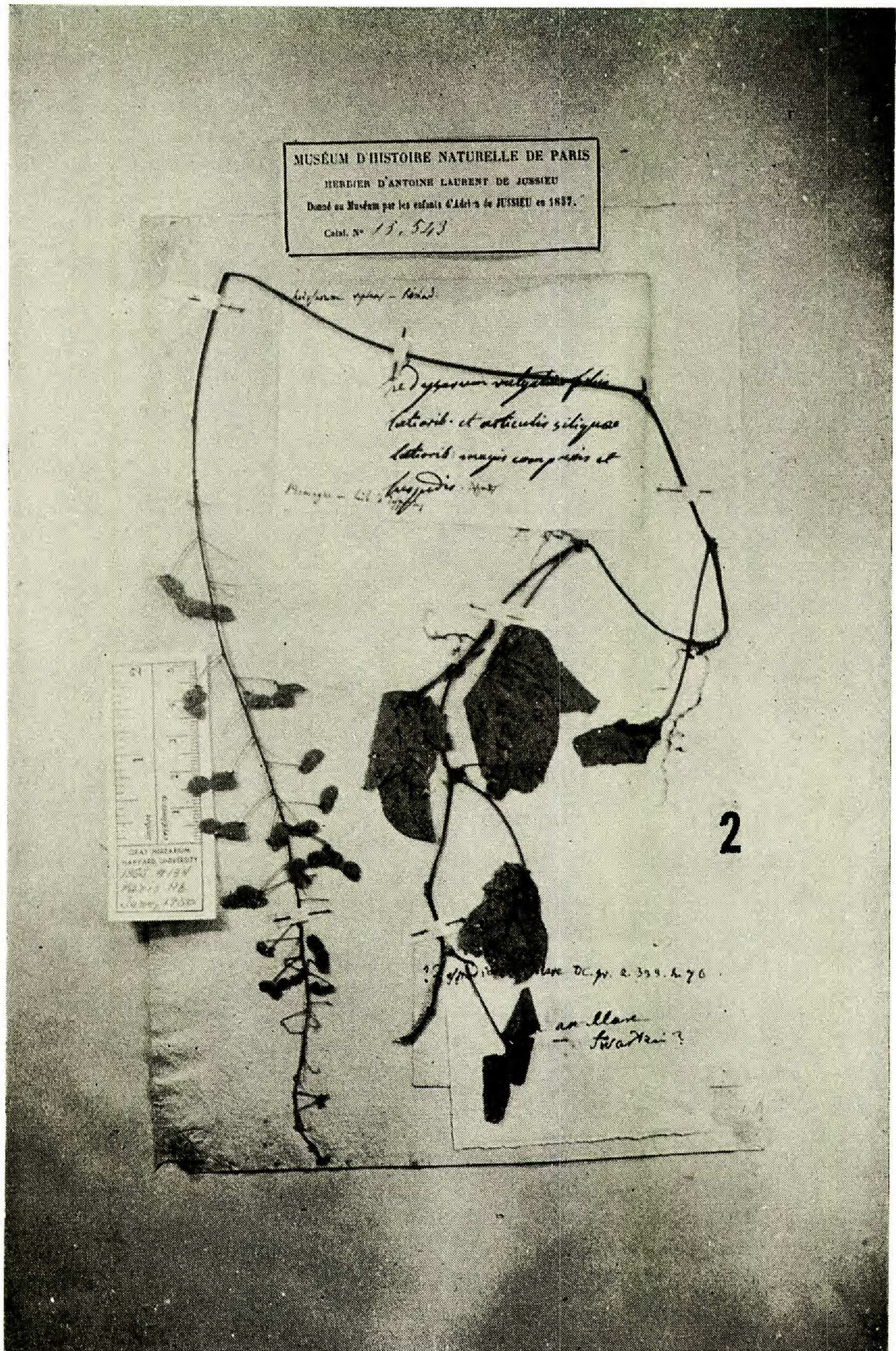


FIG. 2. Holotype of *Hedysarum reptans* Poir., $\times \frac{1}{2}$.

D. oblongifolium Bertero ex DC. *loc. cit.*

Meibomia umbrosa Britt. Bull. Torrey Club 37: 353. 1910. Holotype, Troy, Jamaica, Sept. 13-18, 1906, *Britton 444* (NY; GH, negative no. 6303).

Meibomia prorepens Blake, Contr. U. S. Nat. Herb. 24: 6. 1922. Holotype, Los Amates, Dept. Izabal, Guatemala, May 29, 1919, *S. F. Blake 7718* (US; GH, fragment and negative no. 4046).

In my earlier treatment (p. 79) I placed (with some doubt) the names *Hedysarum stoloniferum* Rich. ex Poir. and *Desmodium stoloniferum* (Rich. ex Poir.) Steud. in the synonymy of var. *acutifolium*, following Schindler, who treated *Desmodium axillare* as a *Nephromeria* and made the required combinations. Examination of the type shows that in this instance Schindler was in error and that the epithet *stoloniferum* must be taken up for var. *sintensisii*. The question will be discussed under that variety. I also noted in my earlier study (Schubert, 1941, p. 86) that Schindler placed DeCandolle's name, *D. spirale* (Sw.) DC., var. β . *stoloniferum* (Rich. ex Poir.) DC. in the synonymy of *D. wydlerianum* Urb. DeCandolle's material in *Herbier DeCandolle of the Conservatoire et Jardin Botaniques, Geneva*, is *D. wydlerianum*, but it is the Richard material in *Herbier Jussieu, Paris*, which must be taken as the type.

Var. *stoloniferum* (Rich. ex Poir.) comb. nov.

Hedysarum stoloniferum Rich. ex Poir. in Lam. Encyc. Méth. Bot. 6: 421. 1804. Holotype, Antilles, *Richard* (P-JU, no. 15,570; GH, negative nos. 8191 a, b, c, d).

D. spirale β . *stoloniferum* (Rich. ex Poir.) DC. Prodr. 2: 333. 1825.

D. stoloniferum (Rich. ex Poir.) Steud. Nomencl. ed. 2, 1: 496. 1840.

D. axillare var. γ . *Sintensisii* Urb. Symb. Antill. 2: 303. 1900. Lectotype, Sierra de Yabucoa in sylva primaeva montis Cerro Gordo, *Sintensis 2781* (GH).

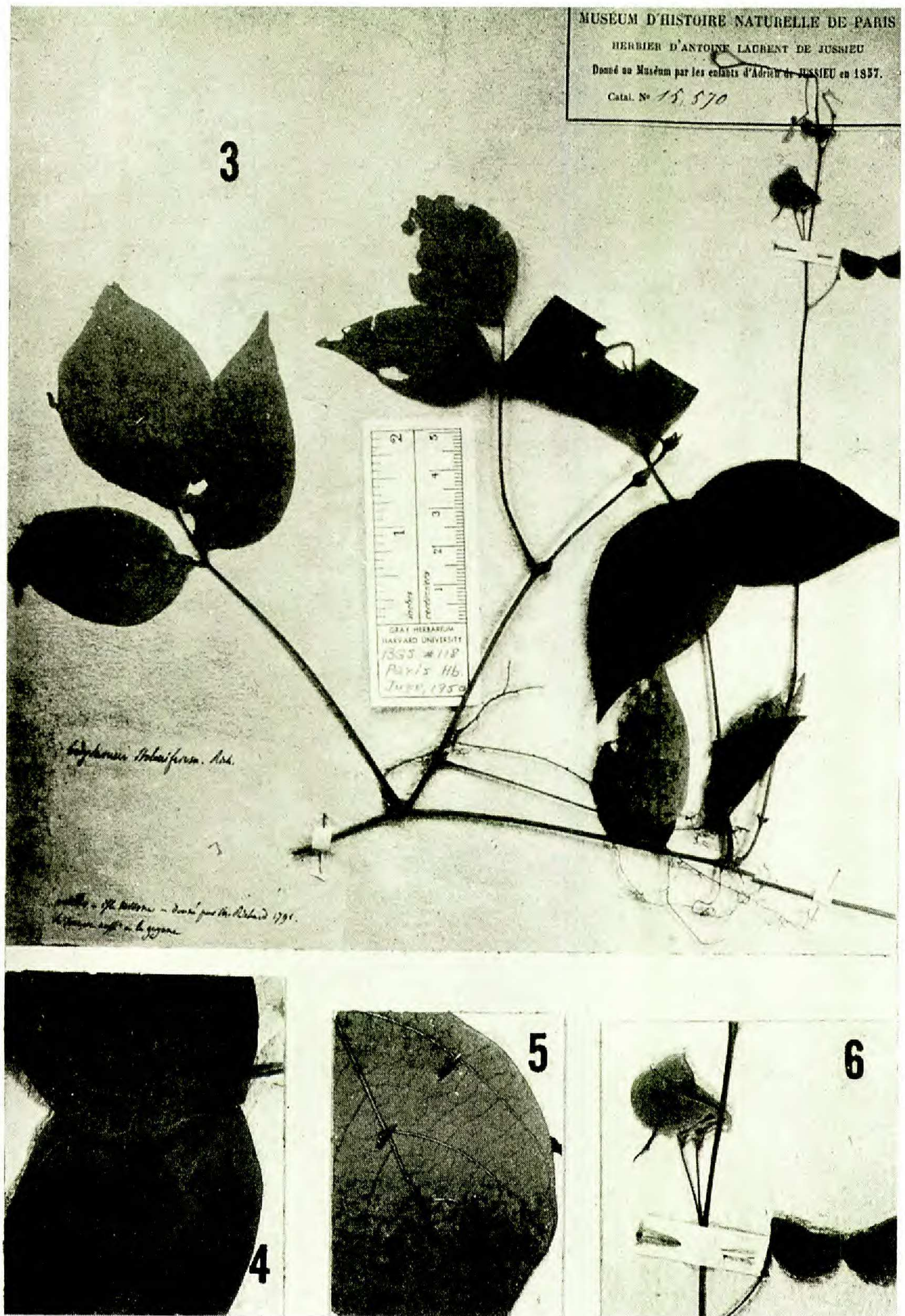
Meibomia Sintensisii (Urb.) Britt. in Britton & Wilson, Sci. Surv. Porto Rico & Virgin Isl. 5: 402. 1924.

Nephromeria axillaris (Sw.) Schindl. var. γ . *Sintensisii* (Urb.) Schindl. Repert. Sp. Nov. 20: 284. 1924.

D. axillare var. *Sintensisii* sensu Schubert, Contr. Gray Herb. 135: 84-86, *pl. 1.*, *figs. A1-7*. 1941.

Meibomia albida Blake, Contr. U. S. Nat. Herb. 24: 5. 1922. Holotype, Quebradas, Dept. Izabal, Guatemala, *Blake 7510* (US; GH, isotype and negative no. 7510).

As noted under var. *acutifolium* the epithet *stoloniferum* must be taken up for var. *sintensisii*, not as earlier supposed for var. *acutifolium*. The type material of *Hedysarum stoloniferum* in *Herbier Jussieu* does not have long, spreading pilosity on the stems, nor leaflets velutinous beneath, characters of var. *acutifolium*, but does have the characters of var. *sintensisii*. Therefore, *stoloniferum*, a much earlier epithet, should be taken up for the taxon in place of *sintensisii*. A photograph of the holotype and enlargements of significant details are reproduced here (Figs. 3-6).



FIGS. 3-6. *Hedysarum stoloniferum* Rich. ex Poir. 3, Holotype, $\times \frac{1}{2}$; 4, portion of upper surface of leaflets, $\times 1$; 5, portion of lower surface of leaflet, $\times 1$; 6, loment, $\times 1$.

COMMENTS ON JUNGHANS' LIST OF THONNING'S
AND ISERT'S COLLECTIONS

A valuable addition to the many recent studies of African plants has been made by Dr. Jens Junghans (1961, 1962) in his paper on Danish collections in West Tropical Africa, in which he emphasizes the collections of Thonning and Isert, and the extensive publication of Schumacher with its descriptions based on them. The purpose of the study was to locate the type-specimens and give the pertinent bibliographic references. This has been carefully done and the paper should be a most useful tool in work treating African plants. It should be kept in mind however, that although new descriptions were formulated for many species based on the collections of the Danish botanists, Schumacher himself did not consider all the species new, and, as a result, although the specimens are the basis of his descriptions, they are types only when they represent new species. An unfortunate omission in the paper, from the bibliographic point of view, is that page references for descriptions of species are made only to the "preprint" edition of Schumacher's paper. Junghans notes in his bibliography that Schumacher's paper, originally published in 1827, was republished in 1828 and 1829 (Schumacher 1827, 1828, 1829). He neglects to note however, that the preprint was differently paged and that as a result authors may cite different page references for the same names, depending on which copy of the publication they have. The table below will show how great the discrepancy may be. The first column lists the species of *Hedysarum* in Junghans' paper, the second column the page reference from Junghans and/or *Index Kewensis*, and the third column the page reference from Schindler (1928).

<i>Hedysarum</i>	Reference to Schumacher from Junghans and/or IK	Reference to Schumacher from Schindler
<i>deltoideum</i>	361	135
<i>fruticulosum</i>	363	137
<i>granulatum</i>	362	136
<i>lanceolatum</i>	360	134
<i>ovalifolium</i>	359	133
<i>pictum</i>	364	138
<i>rugosum</i>	358	132
<i>umbrosum</i> ³	362	136

During my stay in Copenhagen I was able to study and photograph some of the *Hedysarum* collections described by Schumacher, and it seems appropriate to equate the names under *Hedysarum* in Junghans' list with the names in current use. Eight species of *Hedysarum* were listed (pp. 350, 351), all of which are now maintained in other genera or relegated to synonymy of species in other genera. I list here the names from Junghans with their equivalents and in the following pages add some relevant synonymy and discussion.

³ Not in *Index Kewensis*; not cited by Schindler.

1. *HEDYSARUM DELTOIDEUM* Schum. & Thonn. in Schum. in Beskr. Guin. Pl. 361. 1827,⁴ Danske Vid. Selsk. Naturv. Afhdl. 4: 135. 1829;⁵ Junghans, Bot. Tidsskr. 57: 350. 1961 = *Desmodium velutinum* (Willd.) DC.

2. *HEDYSARUM FRUTICULOSUM* Schum. & Thonn. in Schum. BGP. 363. 1827, DVS. 137. 1829; Junghans, *ibid.* 350 = *Desmodium ramosissimum* G. Don.

3. *HEDYSARUM GRANULATUM* Schum. & Thonn. in Schum. BGP. 362. 1827, DVS. 136. 1829; Junghans, *ibid.* 351 = *Desmodium triflorum* (L.) DC.

4. *HEDYSARUM LANCEOLATUM* Schum. & Thonn. in Schum. BGP. 360. 1827, DVS. 134. 1829; Junghans, *ibid.* 351 = *Desmodium gangeticum* (L.) DC.

5. *HEDYSARUM OVALIFOLIUM* Schum. & Thonn. in Schum. BGP. 359. 1827, DVS. 133. 1829; Junghans, *ibid.* 351 = *Alysicarpus ovalifolius* (Schum.) Léonard.

6. *HEDYSARUM PICTUM* Jacq. Collect. 2: 262. 1788, Icones 3: *pl.* 567. 1792; Willd. 3(2): 1204. 1802; Hornem. De Ind. Pl. Guin. 23. 1819; Schum. BGP. 364. 1827, DVS. 138. 1829; Junghans, *ibid.* 351 = *Uraria picta* (Jacq.) Desv.

7. *HEDYSARUM RUGOSUM* Willd. Sp. Pl. 3(2): 1172. 1802; Hornem. De Ind. Pl. Guin. 23. 1819; Schum. BGP. 358. 1827, DVS. 132. 1829; Junghans, *ibid.* 351 = *Alysicarpus rugosus* (Willd.) DC.

8. *HEDYSARUM UMBROSUM* Isert ex Schum. BGP. 362. 1827, DVS. 136. 1829 (*nomen nudum*); Junghans, *ibid.* 351 = *Desmodium velutinum* [?].

The species of this list are, in general, either of wide natural distribution, or introduced by various means throughout tropical areas of the world. Since, therefore, they have been much collected and several have been redescribed and renamed many times from different regions, it seems worthwhile to include what synonymy I have been able to check and to add other available pertinent information in an effort toward eventual completeness.

Desmodium velutinum (Willd.) DC. Prodr. 2: 328. 1825.

Hedysarum velutinum Willd. Sp. Pl. 3(2): 1174. 1802. Holotype, *hb. Willd.* 13763 (B; GH, negative no. 8194).

Hedysarum lasiocarpum P. Beauv. Fl. Oware & Benin 1: 32. *pl.* 18. 1806. Lectotype, *Palisot de Beauvois* [in fruit] (G; A, photo. G no. 635; isotype [in flower] G; A, photo. G no. 633).

Desmodium lasiocarpum (P. Beauv.) DC. *ibid.*

Hedysarum latifolium Roxb. Hort. Bengal. (Cat. Calc.) ed. Carey 57. 1814, *nomen nudum*, but based on *Hardwicke*, 1801; Ker, Bot. Reg. 5: *pl.* 355 and descr. 1819.

Desmodium latifolium (Roxb. ex Ker) DC. *ibid.*

Hedysarum deltoides Poir. in Lam. Encyc. Suppl. 5: 15. 1817.

⁴ This reference will be abbreviated as BGP when it occurs again in this paper.

⁵ Additional references to this work will be abbreviated as DVS.

Hedysarum deltoideum DC. Prodr. 2: 328. 1825 *pro syn.* Reference to Poiret's species was made here, with a query, in the synonymy of *Desmodium lasiocarpum* as "Hedys. deltoideum."

Hedysarum deltoideum Schum. & Thonn. in Schum. BGP. 361. 1827, DVS. 135. 1829, based on Guinea: Aquapim [or Akwapim], *Thonning* [2 collections, one in fl., one in fr.] (c; GH, negative nos. 8192a, b, c, d). This seems to be a redescription of *Hedysarum deltoides* Poir. presumably based on a specimen "misit Vahl, 1804 e Guinea," labeled *Hedysarum deltoideum* (P-JU, no. 15,578; GH, negative no. 8193).

Anarthrosyne cordata Klotzsch in Peters, Reise Mossamb. Bot. 1: 39, pl. 7. 1862.

Pseudarthria cordata (Klotzsch) C. Muell. in Walp. Ann. Bot. Syst. 7: 765. 1868. There is no doubt about the plant concerned here, but the validity of the combination is somewhat questionable.

Additional references to and synonyms of *D. velutinum* may be found in the following papers: Schindler, A. K., [1925, p. 6; 1928, p. 28 entries (499) and (692)]. Schubert, B. G. (1952, p. 294; 1954, p. 194). M. S. Knaapvan Meeuwen, *Desmodium* in Malaysia, in *Reinwardtia* 6(3): 264. 1962. [It should be noted throughout this last cited paper that references to "Léon., Fl. Congo Belge 5: . . ." should be attributed to B. G. Schubert rather than Léonard.]

Desmodium ramosissimum G. Don, Gen. Syst. 2: 294. 1832, non Arechav. 1901; B. G. Schubert, Bull. Jard. Bot. Bruxelles 22: 293. 1952. Holotype, W. Trop. Afr.: St. Thomas, *G. Don* (BM; GH, negative no. 7799).

Hedysarum mauritianum Willd. Sp. Pl. 3(2): 1185. 1802. Holotype, *hb. Willd.* 13794 (B; GH, negative no. 8201) [= *D. canum* (Gmel.) Schinz & Thellung].

Desmodium mauritianum (Willd.) DC. Prodr. 2: 334. 1825, based on *H. mauritianum* Willd., as to name but not as to plant.

Aeschynomene arborea Sieb. ex DC. *ibid.*, *pro syn.*, based on *Sieber, Fl. Maurit. exs.* 155 (dupl. A); presumably not *Aeschynomene arborea* L.

Hedysarum fruticosum Schum. & Thonn. in Schum. BGP. 363. 1827, DVS. 137. 1829, non Desv. 1826; Junghans, *ibid.* 350. Holotype, Guinea: Aquapim, *Thonning* [with mss. no. 203, fl. & fr.] (c; GH, negative nos. 8202 a, b); another sheet, in fruit, coll. *Thonning* (c; GH, negative no. 8202 c) is a probable isotype; a presumable isotype is in Paris "misit D. Vahl 1804 e Guinea" (P-JU 15,580; GH, negative no. 8203). An *Isert* collection cited by Junghans I have not seen.

Desmodium fruticosum (Schum.) Walp. Repert. 1: 737. 1842, based on the preceding. The name *Hedysarum fruticosum* Schum. & Thonn. in Schum. is preoccupied by *H. fruticosum* Desv. It is very frustrating not to know the basis of the latter name. Desvaux said his plant came from Madagascar, but the name seems neither to have been taken up by any later author nor considered by Schindler who examined all the Desvaux material available.

Desmodium triflorum (L.) DC. Prodr. 2: 334. 1825.

Hedysarum triflorum L. Sp. Pl. 749. 1753. Holotype, *Hedysarum* no. 45 "Hedysarum 3-foliatum repens . . ." coll. *Burmman* (LINN; A, photo.).

Hedysarum granulatum Schum. & Thonn. in Schum. BGP. 362. 1827, DVS. 136. 1829; Junghans, *ibid.* 351. Holotype, Guinea: *Thonning* (c; GH, negative nos. 8204 a, b). A presumable isotype is a sheet in Paris, sent by Vahl in 1804 "e Guinea" (P-JU 15,576; GH, negative no. 8204 c).

It is interesting that both the collection at Copenhagen and that at Paris are annotated *Hedysarum granuliferum* in Schumacher's hand, but the epithet under which the species was published is *granulatum*. Junghans (p. 351) noted also that two sheets of Isert are this species. A very curious fact overlooked by both Junghans and Schindler, and perhaps by Schumacher, is that Biehler (p. 32, 1807) described *Hedysarum granuliferum* in a doctoral dissertation in 1807, based on a Thonning collection from Guinea. The dissertation was republished by Sprengel in the *Mantissa Prima* of *Florae Halensis* (Sprengel, p. 48, 1807), and the species *H. granuliferum* was attributed to him in *Index Kewensis*. (For notes concerning these two papers and the dates of publication see Fernald, 1945.) What plant Biehler had from Sprengel's herbarium, however, it is hard to say, for he described it as having "pedunculis axillaribus unifloris, leguminibus monospermis." Schumacher described his plant with "Racemus laterifolius, 4-6 florus. . . . Lomentum 2-7 articulatum, . . ." It is possible that Schumacher knew of Biehler's publication and for that reason changed the epithet of his species.

Desmodium gangeticum (L.) DC. Prodr. 2: 327. 1825.

Hedysarum gangeticum L. Sp. Pl. 746. 1753. Holotype, *Hedysarum* no. 13 "gangeticum 5" (LINN; A, photo.).

Aeschinomene gangetica (L.) Poir. in Lam. Encyc. Méth. Bot. 4: 453. 1798 [?], based on specimen in Lamarck herbarium (P-LA; GH, negative no. 8200).

Pleurolobus gangeticus (L.) J. St. Hil. Nouv. Bull. Soc. Philom. 3: 192. 1812, Jour. Bot. 1: 61. 1813.

Meibomia gangetica (L.) O. Ktze. Rev. Gen. Pl. 1: 196. 1891.

Hedysarum ochroleucum Moench, Meth. 118. 1794, based on "*Hedysarum gangeticum* L. Icon. Burmann. Zeyl. Tab. 49. fig. 2." This seems to be a simple renaming of the Linnaean *Hedysarum gangeticum*. It has nothing to do with the later (1864) *Desmodium ochroleucum* M. A. Curtis ex Canby, of eastern North America. Moench's name was properly placed in synonymy by DeCandolle (p. 327, 1825).

Hedysarum maculatum L. Sp. Pl. 746. 1753. Holotype, *Hedysarum* no. 14 "maculatum 4 // Hedysarum capparidis folio" (LINN; A, photo.).

Aeschinomene maculata (L.) Poir. in Lam. Encyc. Méth. Bot. 4: 452. 1798 [?], based on specimen in Lamarck herbarium (P-LA; GH, negative no. 8199).

Pleurolobus maculatus (L.) J. St. Hil. in Nouv. Bull. Soc. Philom. 3: 192. 1812, Jour. Bot. 1: 61. 1813.

Desmodium gangeticum var. *maculatum* (L.) Baker in Hook. f. Fl. Brit. Ind. 2: 168. 1876; Hepper in Keay, Hutch. & Dalz. Fl. West Trop. Afr. ed. 2. 1(2): 584. 1958.

Hedysarum colinum Roxb. Hort. Bengal. (Cat. Calc.) ed. Carey 57. 1814, *nomen nudum* but based on *Nalla-mandu*, 1802.

Hedysarum collinum Roxb. Fl. Ind. 3: 349. 1832; Wight, Icon. 1: pl. 272. 1840.

Hedysarum lanceolatum Schum. & Thonn. in Schum. BGP. 360. 1827, DVS. 134. 1829; Junghans, *ibid.* 351. Holotype, Guinea: *Thonning* [with mss. no. 201, in fr.] (C; GH, negative no. 8196 a, b); probable isotype "e Guinea" sent in 1804 by Vahl (P-JU 15,577; GH, negative no. 8198).

Desmodium lanceolatum (Schum.) Walp. Repert. 1: 737. 1842, non Schindl. ex Gagnep. 1920.

Desmodium polygonoides Welw. ex Bak. in Oliv. Fl. Trop. Afr. 2: 161. 1871. Holotype, Angola: highlands of Pungo Andongo, *Welwitsch 2160* (BM; GH, negative nos. 7802 a, b).

Meibomia polygonoides (Welw.) O. Ktze. Rev. Gen. Pl. 1: 198. 1891, as "polygonodes."

Desmodium cavalerieri Léveillé, Fl. Kouy-Tchéou 232. 1914. Holotype, *J. Cavalerie 3274* (E; A, photo.).

Desmodium gangeticum is a widespread polymorphic species varying considerably in habit and leaflet shape but not in its more significant characteristics. I have cited above only those species for which I have seen authentic material or a photograph, or purely nomenclatural synonyms for which the basis is known. Additional synonymy which I have not yet checked or of species from areas not yet studied may be found in Schindler (1928) and Knaap-van Meeuwen (pp. 249, 250, 1962).

Alysicarpus ovalifolius (Schum.) Léonard, Bull. Jard. Bot. Bruxelles 24: 88. fig. 11. 1954.

Hedysarum ovalifolium Schum. & Thonn. in Schum. BGP. 359. 1827, DVS. 133. 1829; Junghans, *ibid.* 351. Holotype, Guinea: *Thonning* (C; BRUX, photo.).

Léonard illustrated his full discussion of this species with a photograph of the holotype and cited full synonymy, *op. cit.* The species has been taken up in *Desmodium* as *D. ovalifolium* (Schum.) Walp. Repert. 1: 737. 1842 (which is a later homonym) and also as *D. thonningianum* Dietr. Synop. Pl. 4: 1147. 1847.

Uraria picta (Jacq.) Desv. Jour. Bot. 1: 123. pl. 5, fig. 19. 1813; Léonard, Fl. Congo Belge et du Ruanda Urundi 5(2): 232. fig. 14. 1954.

Hedysarum pictum Jacq. Collect. 2: 262. 1788, Icon. 3: pl. 567. 1792; Willd. Sp. Pl. 3(2): 1204. 1802; Hornem. De Ind. Pl. Guin. 23. 1819; Schum. BGP. 364. 1827, DVS. 138. 1829; Junghans, *ibid.* 351. Holotype, Guinea: *Isert* (w [fide Schindler]); isotype, *Isert* (c [fide Junghans]). Junghans also cited a Thonning collection (c).

This species, illustrated by a handsome plate in Jacquin's *Icones*, *loc. cit.*, seems to have had a remarkably uncluttered nomenclatural history.

Alysicarpus rugosus (Willd.) DC. Prodr. 2: 353. 1825; Léonard, Bull. Jard. Bot. Bruxelles 24: 92. fig. 12. 1954.

Hedysarum rugosum Willd. Sp. Pl. 3(2): 1172. 1802; Hornem. De Ind. Pl. Guin. 23. 1819; Schum. BGP. 358. 1827, DVS. 132. 1829; Junghans, *ibid.* 351. Holotype, Guinea: *Isert, hb. Willd.* (B; BRUX, photo.). A presumable isotype was sent to Paris by Vahl in 1804 (P-JU 15,575; GH, negative no. 8195).

This species was not considered new by Schumacher who cited the reference to Willdenow and included a transcription of Willdenow's diagnosis. The species, with its synonymy is amply treated by Léonard, *ibid.*

HEDYSARUM UMBROSUM Isert ex Schum. BGP. 362. 1827, DVS. 136. 1829, *nomen nudum in nota*; Junghans, *ibid.* 351.

Schumacher wrote, under *Hedysarum deltoideum* that a sheet in Isert's collection bears the name *Hedysarum umbrosum*, and that it might be a variety of *H. deltoideum* or the same thing. Schindler did not cite this name, nor is it listed in *Index Kewensis*. It is based on a collection of Isert (c) which I have not seen.

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