

NOTES ON BROMELIACEAE, XXV

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It is over 30 years since Mez made a comprehensive survey of the genera of the Bromeliaceae in his second and final monograph of the family in the Pflanzenreich, and it is well to summarize the changes that have taken place in that time before attempting a new monograph. On the whole his system has stood up well, especially considering the material that was at his disposal. Not much further change is anticipated in the subfamilies Pitcairnioideae and Tillandsioideae, but thanks to the failure of Mez's pollen distinctions, there are many changes ahead in the Bromelioideae.

Any synonymy since the Pflanzenreich is noted under the appropriate genus.

BROMELIACEAE

1. Mature seed appendaged or if not (Pitcairnia in part and Navia) then the fruit at least partly capsular and dehiscent; ovary superior or largely so in most genera, to inferior; fruit capsular or if not (Pitcairnia in part) then the seed appendaged.
2. Seed-appendages entire or slightly divided (Brocchinia paniculata) or lacking (Pitcairnia aphelandriflora and Navia); fruit usually dehiscent; leaves mostly spinose-serrate; indument of finely to scarcely divided scales; plants usually terrestrial.....I. PITCAIRNIOIDEAE
2. Seed-appendages finely divided and forming a coma, always present; fruit dehiscent; leaves always entire; indument almost always of obvious scales; plants mostly epiphytic.
II. TILLANDSIOIDEAE
1. Mature seed unappendaged; fruit baccate; ovary inferior or nearly so; leaves mostly spinose-serrate; indument almost always of obvious scales; plants often terrestrial.
III. BROMELIOIDEAE

I. PITCAIRNIOIDEAE

1. Plants monoecious with perfect flowers or if rarely polygamo-dioecious (Dyckia maritima and D. selloa) then petals yellow or orange and plants native of southernmost Brazil and Uruguay.
2. Bases of the filaments separate from each other, but sometimes individually adnate to the petals and sepals.
3. Seeds appendaged.
4. Ovary wholly superior; petals regular.
5. Petals naked.
6. Seeds with a falciform or broad apical appendage.
7. Petal-blades broad, distinct from claw, tightly coiled together after anthesis; Andean plants of open summits

from Costa Rica and Venezuela to Chile and Argentina.

1. FUYA

7. Petal-blades narrow, indistinct, remaining separate after anthesis; plants of northeastern Brazil.

2. ENCHOLIRIUM

6. Seeds bicaudate-appendaged.

8. Anthers basifixed, linear, coiled at anthesis; inner filaments adnate to base of petals; leaf-blades thin, more or less contracted at base; mesophytic plants of Mexico to Argentina.....3. FOSTERELLA

8. Anthers subbasifixed to equitant, stout, straight; filaments usually free; leaf-blades firm, not contracted at base; plants of the Guayana Highland and northeastern Brazil.

9. Anthers subbasifixed; petals brightly colored, more or less massed together together after anthesis but not twisted; sepals large and firm.....4. CONNELLIA

9. Anthers equitant; petals white, separate after anthesis; sepals not over 7 mm long, thin, flat.

5. COTTENDORFIA

5. Petals appendaged with a single basal scale each; plants of the southern Andes from Peru to Chile and Argentina.

10. Scape evident; inflorescence usually well developed; plants ring-forming so far as known...6. DEUTEROCOHNIA

10. Scape lacking; inflorescence one-few-flowered; plants polster-forming.....7. ABROMEITIELLA

4. Ovary partially to wholly inferior, or if superior then the petals zygomorphic (*Pitcairnia mirabilis*).

11. Petals large, naked or appendaged, usually zygomorphic and forming a hood over the anthers; sepals convolute with the left side of each overlapping the right of the next one; plants of Mexico and the West Indies to Argentina and Brazil.....8. PITCAIRNIA

11. Petals minute, regular; sepals cochlear with both posterior ones overlapping the anterior; plants of the Guayana Highland.....9. BROCCINIA

3. Seeds naked at maturity.

12. Sepals convolute; petals zygomorphic (*Pitcairnia aphelandriflora*).....8. PITCAIRNIA

12. Sepals cochlear; petals regular, naked; ovary superior (in most species) to nearly inferior; plants of the Guayana Highland.....10. NAVIA

2. Bases of the filaments forming a tube and adnate to the petals; petals yellow or orange, cochlear; plants of eastern South America.....11. DYCKIA

1. Plants dioecious with functionally unisexual flowers; petals rose or white; plants of Texas, Mexico, and northern Central America.....12. HECHTIA

II. TILLANDSIOIDEAE

1. Ovary wholly or almost wholly superior; seeds plumose-appendaged only at base or apex, or mostly at base.

2. Appendage of the seed wholly or preponderantly (Vriesea subgenus Alcantarea) basal, straight at maturity.
3. Petals free or with the very short tube much exceeded by the sepals.
4. Petals naked; inflorescence of one or more distichous-flowered spikes or rarely reduced to a single polystichous-flowered spike; largely xerophytic plants of southeastern United States to Chile and Argentina.
13. TILLANDSIA
4. Petals bearing scales on the inner surface; largely mesophytic plants of Mexico and the West Indies to Brazil and Argentina.....14. VRIESEA
3. Petals joined or closely agglutinated in a tube to the height of the sepals.
5. Petals naked; largely mesophytic plants of southern Florida and the West Indies and southern Mexico to Bolivia and Brazil.....15. GUZMANIA
5. Petals appendaged; plants of the central Andes.
16. MEZOBROMELIA
2. Appendage of the seed apical, folded over at maturity; sepals strongly asymmetric in most species; inflorescence of polystichous-flowered spikes; leaves mostly cretaceous-coated; plants of southern Florida, the West Indies, and Mexico to Brazil and Peru.....17. CATOPSIS
1. Ovary only half superior; seeds about equally plumose-appendaged at both ends; plants of the Lesser Antilles, Trinidad, and adjacent Venezuela.....18. GLOMEROPITCAIRNIA

III. BROMELIOIDEAE

1. Petals naked; inflorescence never simple and strobilate.
2. Filaments not forming a tube; petals free or connate by their margins.
3. Inflorescence elongate.
4. Inflorescence simple but lax and not strobilate.
5. Flowers pedicellate; sepals unarmed; plants of the Mount Itatiaia area in eastern Brazil.....19. FERNSEEIA
5. Flowers sessile; sepals unarmed or mucronate; plants of Colombia.....20. RONNBERGIA
4. Inflorescence compound.
6. Stamens naked.
7. Ovules few; flowers minute, sessile or pedicellate; sepals not more than 3 mm long; plants of Costa Rica and Trinidad to Amazonian Brazil.....21. ARAEOCOCCUS
7. Ovules numerous; flowers larger, sessile; sepals 18-23 mm long; plants of eastern and Amazonian Brazil and adjacent areas.....22. STREPTOCALYX
6. Stamens appendaged; flowers sessile; plants of Central America.....23. ANDROLEPIS
3. Inflorescence densely capitate or capitiform or rarely spiciform with fascicles of flowers in the axils of ample bracts (Nidularium seidelii), often involucrate.

- 8. Flowers pedicellate.
- 9. Stamens equaling or exceeding the rounded erect petal-blades; plants of Chile.....24. OCHAGAVIA
- 9. Stamens shorter than the acute spreading petal-blades; plants of eastern Brazil to Amazonian South America. 25. NEOREGELIA
- 8. Flowers sessile.
- 10. Epigynous tube very short or lacking.
- 11. Outer bracts of the central inflorescence foliaceous; petals spreading, obtuse; usually some of the flowers unisexual; plants of eastern Brazil....26. CRYPTANTHUS
- 11. Outer bracts of the inflorescence bracteiform; petals erect or if spreading (Nidularium in part) then acute.
- 12. Outer bracts ample, colored, much exceeding the flowers; inflorescence always central; plants of eastern Brazil and Colombia.....27. NIDULARIUM
- 12. Outer bracts small and inconspicuous; inflorescences mostly lateral in the axils of large cauline leaves; Andean plants from Mexico and Venezuela to Chile. 28. GREIGIA
- 10. Epigynous tube elongate; scape elongate, slender; inflorescence not involucrate; plant of eastern Brazil. 29. ANDREA
- 2. Filaments forming a tube to which the fleshy petals are joined along their centers but with their margins free; plants of Mexico and the West Indies to Argentina and Uruguay.....30. BROMELIA
- 1. Petals appendaged or when rarely naked (Aechmea in part) then the inflorescence simple and strobilate.
- 13. Ovaries always remaining distinct; inflorescence compound or simple.
- 14. Ovary in small part superior; scape naked; inflorescence simple, strobilate, pseudolateral; plant of southeastern Brazil and adjacent areas.....31. ACANTHOSTACHYS
- 14. Ovary completely inferior.
- 15. Scape-bracts foliaceous or the scape lacking; sepals always free.
- 16. Sepals nearly or quite symmetric; petal-appendages well developed.
- 17. Filaments of second series adnate to the petals; scape usually present; plants of eastern Brazil. 32. ORTHOPHYTUM
- 17. Filaments all free; scape lacking; plants of Chile. 33. FASCICULARIA
- 16. Sepals definitely asymmetric; petal-appendages vestigial; plants of North and South America. 38. AECHMEA (in part)
- 15. Scape-bracts distinct from the leaves, or if there is no evident scape (Aechmea in part) then the sepals much connate; epigynous tube often large.
- 18. Inflorescence involucrate; sepals unarmed, nearly or quite free in most species; plants of eastern Brazil.

19. Petals completely free.....34. CANISTRUM
19. Petals partially connate above the base but often free at the base and exposing the bases of the filaments of the first series.....35. WITTROCKIA
18. Inflorescence not involucrate or if somewhat so then the sepals mucronate and much connate.
20. Inflorescence compound (simple in depauperate specimens of Hohenbergia littoralis); flowers in strobilate spikes, much compressed.
21. Epigynous tube very small or lacking; pollen-grains with 2 or 4 pores; plants of Central America and the West Indies to eastern Brazil.....36. HOHENBERGIA
21. Epigynous tube well developed; pollen-grains with more than 4 pores; plants of Costa Rica and the West Indies to northeastern Brazil.....37. GRAVISIA
20. Inflorescence simple or if compound then the flowers not in strobilate spikes.
22. Flowers sessile or if rarely pedicellate (Aechmea in part) then the sepals free.
23. Sepals mucronate or pungent or if blunt then small and the ovules long-caudate; plants of North and South America.....38. AECHMEA (in part)
23. Sepals unarmed or soft-apiculate; ovules unappendaged.
24. Ovules numerous.
25. Petals regular, erect or suberect; pollen-grains with pores; flowers sessile; plants of eastern Brazil.....39. QUESNELIA
25. Petals either zygomorphic or recurved in a spiral; dry pollen-grains usually with a single longitudinal fold; flowers sessile or pedicellate; plants of Central America to Argentina and Uruguay.
40. BILLBERGIA
24. Ovules few; flowers pedicellate, regular; plants of northeastern Brazil.....41. NEOGLAZIOVIA
22. Flowers pedicellate; sepals connate; pollen-grains with more than 4 pores; plants of eastern Brazil.
42. PORTEA
13. Ovaries fused with each other and with the fleshy bracts to form a syncarp; inflorescence usually with an apical coma, simple; sepals never mucronate.
26. Inflorescence with a small inconspicuous coma, never producing basal shoots; plant propagating by elongate rhizomes; petals bearing vertical folds; plants of Paraguay and adjacent areas.....43. PSEUDANANAS
26. Inflorescence usually with a large conspicuous coma, often with basal shoots; rhizomes lacking; petals usually bearing well developed scales; plants probably native from Paraguay to Amazonian Brazil, now pantropical..10. ANANAS

I. PITCAIRNIOIDEAE

1. PUYA Molina, Sagg. Chile 160, 351. 1782. Type: P.

chilensis Molina.

2. ENCHOLIRIUM Mart. ex Schult. f. in Roem. & Schult. Syst. 7, pt. 2: lxviii, 1233. 1830. Type: E. spectabile Mart.

3. FOSTERELLA L. B. Smith, Phytologia 7: 171. 1960. Type: F. micrantha (Lindl.) L. B. Smith (Pitcairnia micrantha Lindl.).

Lindmania Mez in DC. Mon. Phan. 9: 535. 1896, in large part but not as to type.

4. CONNELLIA N. E. Brown, Trans. Linn. Soc. ser. II, 6: 66. 1901. Type: C. augustae (Rich. Schomburgk) N. E. Brown (Encholirium augustae Rich. Schomburgk).

5. COTTENDORFIA Schult. f. in Roem. & Schult. Syst. 7, pt. 2: lxiv, 1193. 1830. Type: C. florida Schult. f.

Lindmania Mez in DC. Mon. Phan. 9: 535. 1896. Type: L. guianensis (Beer) Mez (Anoplophytum guianense Beer).

6. DEUTEROCOHNIA Mez in Mart. Fl. Bras. 3, pt. 3: 430, 506. 1894. Type: D. longipetala (Baker) Mez (Dyckia longipetala Baker).

7. ABROMEITIELLA Mez, Bot. Archiv. (Berlin) 19: 460. 1927. Type: A. pulvinata Mez.

8. PITCAIRNIA L'Hérit. Sert. Angl. 7. Jan. 1789 (nom. cons.). Type: P. bromeliaefolia L'Hérit.

Conanthes Raf. Fl. Tellur. 4: 24. 1838. Type: C. albiflos (herb.) Raf. (Pitcairnia albiflos Herb.).

Willrussellia A. Chevalier, Bull. Soc. Bot. France 84: 503. 1938. Type: W. feliciana A. Chevalier.

9. BROCCHINIA Schult. f. in Roem. & Schult. Syst. 7, pt. 2: lxx, 1250. 1830. Type: B. paniculata Schult. f.

10. NAVIA Schult. f. in Roem. & Schult. Syst. 7, pt. 2: lxv, 1195. 1830 (nom. cons. propos.). Type: N. caulescens Mart. ex Schult. f.

11. DYCKIA Schult. f. in Roem. & Schult. Syst. 7, pt. 2: lxv, 1194. 1830. Type: D. densiflora Schult. f.

Prionophyllum K. Koch, Ind. Sem. Hort. Berol. 1873, App.: 7. 1874. Type: P. selloum K. Koch. The distinction of flowers partially unisexual does not seem strong enough by itself for separation from Dyckia.

12. HECHTIA Kl. Allg. Gartenzeit. 3: 401. 1835. Type: H. stenopetala Kl.

Bakeria André, Rev. Hort. 61: 84, pl. 1889, non Seem. 1864. Type: B. tillandsioides André.

Bakerantha L. B. Smith, Contr. Gray Herb. 104: 72. 1934. Type: B. tillandsioides (André) L. B. Smith (Bakeria tillandsioides André).

II. TILLANDSIOIDEAE

13. TILLANDSIA L. Sp. Pl. 286. 1753; Gen. Pl. ed. 5. 138. 1754. Type: T. utriculata L.

14. VRIESEA Lindl. Bot. Reg. 29: 10. 7 Feb. 1843 ("Vriesia") corr. Beer, Bromel. 91. 1857 (orth. et nom. cons.). Type: V. psittacina (Hook.) Lindl. (Tillandsia psittacina Hook.).

Thecophyllum emend. sensu Mez, Bull. Herb. Boiss. ser. II, 3: 131. 1903, non André 1889.

- Cipuroopsis Ule, Verhandl. Bot. Ver. Brandenb. 48: 148. 1907. Type: C. subandina Ule.
15. GUZMANIA R. & P. Fl. Peruv. 3: 37, pl. 261. 1802. Type: G. tricolor R. & P.
- Sodihoa André, Bull. Soc. Bot. France 24: 167. 1877. Type: S. graminifolia André.
- Thecophyllum André, Bromel. Andr. 107. 1889. Type: T. poortmanii André. Cf. Smith & Pittendrigh, Journ. Washington Acad. Sci. 43: 401. 1953.
- Chirriposa Suesseng. Bot. Jahrb. 72: 293, pl. 4, fig. 11. 1942. Type: C. solitaria Suesseng. Monotypic genus, a taxonomic synonym of Guzmania polycephala Mez & Wercklé.
16. MEZOBROMELIA L. B. Smith, Proc. Am. Acad. 70: 151, pl. 1, fig. 10, 11. 1935. Type: M. bicolor L. B. Smith.
17. CATOPSIS Griseb. Fl. Brit. W. Ind. 599. 1864. Type: C. nutans (Sw.) Griseb.. (Tillandsia nutans Sw.).
18. GLOMEROPITCAIRNIA Mez, Bull. Herb. Boiss. ser. II, 5: 232. 1905. Type: G. penduliflora (Griseb.) Mez (Tillandsia penduliflora Griseb.).

III. BROMELIOIDEAE

19. FERNSEEA Baker, Handb. Bromel. 19. 1889. Type: F. itatiaiae (Wawra) Baker (Bromelia itatiaiae Wawra).
20. RONNBERGIA E. Morr. & André, Ill. Hort. 21: 120, pl. 177. 1874. Type: R. morreniana Linden & André.
21. ARAEOCOCCUS Brongn. Ann. Sci. Nat. ser. II, 15: 370. 1841. Type: A. micranthus Brongn.
22. STREPTOCALYX Beer, Flora 37: 348. 1854. Type: S. poeppigii Beer.
23. ANDROLEPIS Brongn. ex Houliet, Rev. Hort. 42: 12. 1870. Type: A. skinneri Brongn. ex Houliet.
24. OCHAGAVIA Philippi, Anal. Univ. Chile 13: 168. May 1856; Bot. Zeitung 14: 647. Sept. 1856. Type: O. elegans Philippi.
- Placseptalia Espinosa, Bol. Mus. Nac. Hist. Nat. Chile 23: 5. 1947. Type: P. rebecca Espinosa.
25. NEOREGELIA L. B. Smith, Contr. Gray Herb. 104: 78. 1934. Type: Billbergia meendorffii Regel.
- Regelia Lindm. Öfvers. Akad. Holm. 542. 1890, non Schauer 1843. Type: R. meendorffii (Regel) Lindm. (Billbergia meendorffii Regel).
- Aregelia sensu Mez in DC. Mon. Phan. 9: 61. 1896, non Kuntze 1891. Kuntze's Aregelia was a renaming of Nidularium and therefore can not be applied to a segregate of it.
26. CRYPTANTHUS Otto & Dietr. Allg. Gartenzeit. 4: 297. 1836, non Osbeck 1757 (nom. cons.). Type: C. bromelioides Otto & Dietr.
27. NIDULARIUM Lem. Jard. Fleur. 4: pl. 411, misc. 60. 1854. Type: N. fulgens Lem.
- Aregelia Kuntze, Rev. Gen. 2: 698. 1891. Type: Nidularium fulgens Lem. An unnecessary renaming because of the supposed duplication of Nidularia Bull. in the fungi.
28. GREIGIA Regel, Gartenflora 14: 137, pl. 474. 1865. Type: G. sphacelata (R. & P.) Regel (Bromelia sphacelata R. & P.).

- Hesperogreigia Skottsberg, Acta Horti Gotoburgensis 11: 220. 1936. Type: H. berteroi (Skottsberg) Skottsberg (Greigia berteroi Skottsberg).
29. ANDREA Mez in DC. Mon. Phan. 9: 114. 1896. Type: A. selowiana (Baker) Mez (Quesnelia selloana Baker).
30. BROMELIA L. Sp. Pl. 285. 1753; Gen. Pl. ed. 5. 138. 1754. Type: B. pinguin L.
- Deinacanthon Mez in DC. Mon. Phan. 9: 12. 1896. Type: D. urbanianum (Mez) Mez (Rhodostachys urbaniana Mez). The character of simple inflorescence by itself is not enough to distinguish Deinacanthon, especially as several species of Bromelia are very little branched.
31. ACANTHOSTACHYS Kl. in Lk., Kl. & Otto, Ic. Pl. Rar. Hort. Berol. 1: 21, pl. 9. 1840. Type: A. strobilacea (Schult. f.) Kl. (Hohenbergia strobilacea Schult. f.).
32. ORTHOPHYTUM Beer, Flora 37: 347. 1854. Type: O. glabrum (Mez) Mez (Prantleia glabra Mez). Beer indicated no species in his description of Orthophytum.
- Sincoraea Ule, Bot. Jahrb. 42: 191. 1908. Type: S. amoena Ule.
- Cryptanthopsis Ule, Bot. Jahrb. 42: 193. 1908. Type: C. saxicola Ule.
33. FASCICULARIA Mez in Mart. Fl. Bras. 3, pt. 3: 627. 1894. Type: F. bicolor (R. & P.) Mez (Bromelia bicolor R. & P.).
34. CANISTRUM E. Morr. Belg. Hort. 23: 257. 1873. Type: C. aurantiacum E. Morr.
35. WITTROCKIA Lindm. Svenska Vet. Akad. Handl. 24, no. 8: 20. 1891. Type: W. superba Lindm.
36. HOHENBERGIA Schult. f. in Roem. & Schult. Syst. 7, pt. 2: lxxi, 1251. 1830. Type: H. stellata Schult. f.
37. GRAVISIA Mez in Mart. Fl. Bras. 3, pt. 3: 179. 1891; 299. 1892. Type: G. exsudans (Lodd.) Mez (Bromelia exsudans Lodd.). It is becoming increasingly difficult to separate this genus from Aechmea.
38. AECHMEA R. & P. Prodr. 47. 1793. Type: Ae. paniculata R. & P.
- Eriostax Raf. Fl. Tellur. 4: 25. 1838. Type: E. glauca Raf. nom. illeg. (Bromelia melanantha Ker-Gawl.).
- Chevalieria Gaud. Atl. Voy. Bonite pl. 61. 1843. Type: C. sphaerocephala Gaud. Mez maintained this genus on the basis of naked petals, yet the original plate clearly shows them to be appendaged.
- Disteganthus Lem. Fl. des Serres 3: pl. 227. 1847. Type: D. basi-lateralis Lem.
- Wittmackia Mez in Mart. Fl. Bras. 3, pt. 3: 179, 274. 1 Nov. 1891. Type: W. lingulata (L.) Mez (Bromelia lingulata L.). Contrary to Mez's description, the petals are appendaged.
39. QUESNELIA Gaud. Atl. Voy. Bonite pl. 54. 1842. Type: Q. rufa Gaud.
40. BILLBERGIA Thunb. Pl. Bras. Dec. 30. 1821. Type: B. speciosa Thunb.
41. NEOGLAZIOVIA Mez in Mart. Fl. Bras. 3, pt. 3: 179. 1891.

Type: N. variegata (Arr. Cam.) Mez (Bromelia variegata Arr. Cam.).

42. PORTEA Brongn. ex K. Koch, Ind. Sem. Hort. Berol. 1856, App.: 7. 1857; Ann. Sci. Nat. ser. IV, 6: 368. 1857. Type: P. kermesiana Brongn. ex K. Koch.

43. PSEUDANANAS Hassler ex Harms in Engler & Prantl, Pflanzenfam. ed. 2, 15a: 153. 1930. Type: P. macrodontes (E. Morr.) Harms (Ananas macrodontes E. Morr.).

44. ANANAS Mill. Gard. Dict. abr. ed. 4. 1754. Type: Bromelia ananas L.

DOUBTFUL OR EXCLUDED

ANACYCLIA Hoffmannsegg, Preiss-Verzeichn. Pflanzen 1833: 10. 1833, in adnot. Type: A. farinosa Hoffmannsegg. Identity uncertain. Cf. Index Kew. Suppl. 12: 8. 1959.

PSedomelia Neck. Elem. 3: 150. 1790. No type indicated. Cited by some as equivalent to Bromelia, but impossible because of the unilocular ovary. Possibly a member of the Zingiberaceae or Marantaceae.

WAETHAKYA Herm. Mus. Zeyl. 55. 1717. Based on Bromelia, foliis margine etc. L. Fl. Ceyl. 54. 1747, where cited. According to Mez in Engler, Pflanzenreich IV, 32: 636. 1935, this belongs to the Pandanaceae.

DYCKIA

The four largest genera in the subfamily Pitcairnioideae are Pitcairnia, Puya, Dyckia and Navia, in that order. All but Dyckia divide into fairly large groups of species so that it has been possible to revise them without too much perplexity and ambiguity. In Dyckia, however, only a handful can be separated with any facility and the remainder constitute a mass that appears to be the result of very recent and rapid evolution. The usual characters for separating bromeliad species break down in all directions and it is necessary to make a key that straddles interminably. The present key is a working key and much less stable than the others, but I am publishing it here to give other people a chance to use and improve it.

Previously, I tried to make a major division on whether the filaments were connate or not above the common tube with the petals. This was eminently logical, but unfortunately no more practical than any other character. In my disgust, I was going to discard the filament-fusion character completely, but at least it is no worse than the others, so I have decided to make what use I can of it.

Thus, the present key is a completely artificial one to serve the purpose of identification while I grope for something more significant.

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1. Pedicels 20-35 mm long, much exceeding the floral bracts; leaves over 1 m long, repand-serrate with teeth 4 mm long. Brazil: Minas Gerais.....1. D. pedicellata
1. Pedicels not over 15 mm long.
 2. Inflorescence tripinnate or more divided; floral bracts not more than 3 mm long; sepals not more than 5 mm; some flowers unisexual (Prionophyllum).
 3. Inflorescence densely tomentose-lepidote. Brazil: Santa Catarina, Rio Grande do Sul.....2. D. maritima
 3. Inflorescence wholly glabrous. Uruguay. Brazil: Rio Grande do Sul.....3. D. selloa
 2. Inflorescence not more than bipinnate or the floral bracts and sepals larger.
 4. Stamens long-exserted (by more than the length of the anthers); inflorescence lax. Paraguay.
 5. Pedicels 7-11 mm long; sepals 10-12 mm long; inflorescence lepidote.....4. D. insignis
 5. Pedicels almost none; sepals 6 mm long; inflorescence glabrous.....5. D. exserta
 4. Stamens not exserted by more than a fraction of the anthers.
 6. Scape lacking; inflorescence sessile, 4 cm long. Brazil: Goiás.....6. D. odorata
 6. Scape present or where not known, the inflorescence much more than 4 cm long.
 7. Upper scape-bracts nearly equaling to exceeding the internodes (scape unknown in D. vestita and D. virgata).
Subkey I
 7. Upper scape-bracts much shorter than the internodes.
 8. Inflorescence compound; pedicels not over 7 mm long.
Subkey II
 8. Inflorescence simple (or few-branched and probably simple at times).
 9. Filaments free above the common tube with the petals.
Subkey III
 9. Filaments connate above the common tube with the petals.
Subkey IV

Subkey I

1. Inflorescence compound.
2. Axes (at least) of the inflorescence densely lepidote or tomentose-lepidote.
3. Pedicels to 15 mm long; floral bracts exceeding the sepals. Brazil: Minas Gerais.....7. D. princeps
3. Pedicels not over 5 mm long; floral bracts serrulate.
4. Lowest floral bracts shorter than the flowers.
5. Margins of the sepals obscured by the dense lanate indument; petals barely exceeding the 15 mm long sepals. Brazil: Minas Gerais.....8. D. ursina
5. Margins of the sepals clearly visible.
6. Flowers subsessile; sepals 11 mm long, oblong-ovate, obtuse; indument of the inflorescence fulvous.

- Paraguay.....9. D. vestita
6. Flowers on distinct pedicels 1-5 mm long; indument of inflorescence ferruginous.
7. Sepals strongly incurved at apex, acute, to 10 mm long. Brazil: Minas Gerais, Santa Catarina..10. D. monticola
7. Sepals straight or nearly so, 5-8 mm long.
8. Sepals at least twice as long as broad, acute, carinate. Brazil: Paraná.....11. D. frigida
8. Sepals less than twice as long as broad with a broad apex, ecarinate. Brazil: São Paulo to Rio Grande do Sul.....12. D. encholirioides
4. Lowest floral bracts equaling or exceeding the flowers; petals carinate.
9. Sepals 8 mm long; leaf-spines 3-5 mm long; inflorescence usually much branched. Brazil: São Paulo to Rio Grande do Sul.....12. D. encholirioides
9. Sepals 11-12 mm long, or the leaf-spines less than 2 mm long; inflorescence few-branched; petals scarcely if at all carinate. Brazil: Minas Gerais.
10. Inflorescence cinereous-lepidote; leaf-spines 2.5-3 mm long.....13. D. cinerea
10. Inflorescence ferruginous-lepidote; leaf-spines 1.5-2 mm long.
11. Filaments free above the common tube; style very short. 14. D. trichostachya
11. Filaments connate for 2 mm above the common tube; style 1/3 the length of the ovary.....15. D. bracteata
2. Axes of the inflorescence sparsely and fugaciously appressed-lepidote to glabrous.
12. Sepals acute, strongly incurved, 8-13 mm long. Brazil: Santa Catarina.....16. D. cabreræ
12. Sepals broadly rounded, straight or nearly so, 6-7 mm long.
13. Sepals elliptic, longer than wide. Brazil: Minas Gerais. 17. D. elata
13. Sepals deltoid-ovate, as wide as long. Brazil: Goiás. 18. D. goiana
1. Inflorescence simple.
14. Axes (at least) of the inflorescence densely lepidote or tomentose-lepidote.
15. Leaf-blades densely lepidote on both sides.
16. Floral bracts ample, covering most of the sepals; pedicels short and obscure; filaments free above the common tube.
17. Inflorescence villous; floral bracts entire. Brazil: Rio Grande do Sul.....19. D. choristaminea
17. Inflorescence lepidote; floral bracts serrulate. Brazil: Minas Gerais.....20. D. simulans
16. Floral bracts narrow; pedicels distinct; filaments connate above the common tube.
18. Leaves nearly 50 cm long, the blades 30 mm wide, laxly serrate; sepals 11 mm long. Brazil: Minas Gerais. 13. D. cinerea
18. Leaves 9-17 cm long, the blades 8-10 mm wide, repand-

serrate; sepals 6 mm long. Brazil: Paraná.

21. D. fosteriana

15. Leaf-blades soon glabrous above or on both sides.

19. Sepals triangular-acute or acuminate.

20. Inflorescence whitish-vestite.

21. Lower floral bracts apiculate; filaments free above the common tube. Uruguay. Southern Brazil.

22. D. remotiflora

21. Lower floral bracts acuminate; filaments connate above the common tube. Brazil: Minas Gerais to Santa

Catarina.....23. D. minarum

20. Inflorescence ferruginous-vestite.

22. Floral bracts entire; sepals 15 mm long, their margins obscured by the dense lanate indument. Brazil: Minas Gerais.....8. D. ursina

22. Floral bracts serrulate; sepals 8-10 mm long.

23. Upper scape-bracts and lower floral bracts with a linear blade several times longer than the base; inflorescence very lax at base; sepals fimbriate. Brazil: Minas Gerais.....24. D. duarteana

23. Upper scape-bracts and floral bracts with narrowly triangular blades.

24. Floral bracts large, exceeding most of the flowers; pedicels 5 mm long, stout.

25. Posterior sepals alate-carinate; filaments free above the common tube. Brazil: Rio Grande do Sul.

25. D. irmgardiae

25. Posterior sepals carinate but not alate; filaments connate above the common tube. Brazil: Minas

Gerais, Paraná, Santa Catarina.....26. D. reitzii

24. Floral bracts shorter than the flowers; pedicels to 10 mm long, slender. Brazil: Paraná.

27. D. hatschbachii

19. Sepals broadly rounded or subacute, obtuse or apiculate.

26. Lower floral bracts maximally 20-25 mm long, equaling or exceeding the flowers.

27. Filaments free above the common tube; leaf-blades sparsely appressed-lepidote beneath. Brazil: Goiás.

28. D. eminens

27. Filaments connate above the common tube; leaf-blades densely cinereous-lepidote beneath. Brazil: Minas

Gerais.....15. D. bracteata

26. Lower floral bracts much less than 20 mm long or exceeded by the sepals or both.

28. Scape-bracts and lower floral bracts serrulate.

29. Leaves 5 cm long. Brazil: Minas Gerais.

29. D. densiflora

29. Leaves 30-100 cm long.

30. Floral bracts suborbicular; flowers erect or suberect; style very short. Brazil: Minas Gerais.

30. D. lagoensis

30. Floral bracts ovate or lanceolate; flowers spreading;

- style $1/3$ as long as the ovary. Brazil: São Paulo .
to Rio Grande do Sul.....12. D. encholirioides
28. Scape-bracts and lower floral bracts entire or very
obscurely serrulate.
31. Petals ferruginous-tomentulose; plant 1 m or higher;
leaves repand-serrate with teeth 10 mm long; floral
bracts shorter than the sepals. Brazil: Mato Grosso.
31. D. ferruginea
31. Petals glabrous; plant 3-5 dm high; leaf-spines to 3.5
mm long; lower floral bracts equaling or exceeding
the sepals.
32. Filaments free above the common tube.
33. Sepals 8-12 mm long. Uruguay. Southern Brazil.
22. D. remotiflora
33. Sepals 6-7 mm long. Brazil: Goiás, Mato Grosso.
32. D. tenuis
32. Filaments connate above the common tube; sepals to 7
mm long. Brazil: Minas Gerais....33. D. schwackeana
14. Axes of the inflorescence glabrous or sparsely and
fugaciously lepidote.
34. Leaf-blades very finely and regularly white-striate beneath
due to the inclusion of the scales in the deep narrow
internerves, broad and thick. Brazil: Minas Gerais to
Santa Catarina.....34. D. brevifolia
34. Leaf-blades not regularly striate beneath, the scales more
or less covering the nerves.
35. Scape-bracts all with linear blades; leaves entire or sub-
entire; flowers 9 mm long, half as long as the inter-
nodes. Brazil: Goiás, Mato Grosso (?).
35. D. burchellii
35. Scape-bracts diverse, the upper ones bladeless.
36. Sepals triangular-acute or acuminate, carinate.
37. Floral bracts ample, exceeding the lower flowers; inflo-
rescence dense toward apex; pedicels stout, to 5 mm
long; filaments connate.
38. Sepals alate-carinate, to 16 mm long; indument of in-
florescence whitish. Brazil: Paraná...36. D. dusenii
38. Sepals not alate, 8-9 mm long; indument of inflores-
cence ferruginous. Brazil: Minas Gerais, Paraná,
Santa Catarina.....26. D. reitzii
37. Floral bracts narrow; inflorescence lax; sepals incurved
39. Scape-bracts and lower floral bracts serrulate; fila-
ments connate for 2 mm above the common tube. Brazil
Minas Gerais, Santa Catarina.....10. D. monticola
39. Scape-bracts and floral bracts entire or nearly so;
filaments scarcely connate above the common tube.
Brazil: Santa Catarina.....16. D. cabreræ
36. Sepals broadly rounded or subacute, obtuse or apiculate.
40. Scape-bracts and lower floral bracts serrulate.
41. Filaments connate above the common tube.
42. Floral bracts ample, the lowest exceeding the flowers,
Brazil: Distrito Federal.....37. D. brasiliana

42. Floral bracts narrow, the lowest about equaling the sepals. Brazil: Rio de Janeiro to Paraná.
38. D. pseudococcinea
41. Filaments free above the common tube.
43. Leaves 7-8 cm long. Brazil: Minas Gerais.
20. D. simulans
43. Leaves 25-50 cm long.
44. Petal-blades ecarinate, suborbicular; lowest floral bracts equaling or exceeding the flowers. Brazil: Minas Gerais.....14. D. trichostachya
44. Petal-blades strongly carinate; lowest floral bracts about equaling the sepals. Brazil: Pará.
39. D. silvae
40. Scape-bracts and floral bracts entire or nearly so.
45. Lower floral bracts much shorter than the sepals; inflorescence laxly many-flowered; flowers subsessile; filaments high-connate. Paraguay.....40. D. virgata
45. Lower floral bracts equaling or exceeding the sepals.
46. Filaments connate above the common tube. Brazil: Minas Gerais.....33. D. schwackeana
46. Filaments free above the common tube.
47. Floral bracts broadly ovate and apiculate. Uruguay. Southern Brazil.....22. D. remotiflora
47. Floral bracts with a long narrowly triangular blade about as long as the base. Brazil: Goiás, Mato Grosso.....32. D. tenuis

Subkey II

1. Axes (at least) of the inflorescence densely lepidote or tomentose-lepidote.
2. Margins of the sepals obscured by the dense lanate indument; petals barely exceeding the 15 mm long sepals. Brazil: Minas Gerais.....8. D. ursina
2. Margins of the sepals clearly visible.
3. Indument of the inflorescence ferruginous. Brazil.
4. Sepals acute; floral bracts serrulate.
5. Sepals strongly incurved at apex, to 10 mm long. Brazil: Minas Gerais, Santa Catarina.....10. D. monticola
5. Sepals straight or nearly so, 5-8 mm long. Brazil: Paraná
11. D. frigida
4. Sepals broadly subacute or rounded, entire or apiculate.
6. Scape-bracts entire. Brazil: Minas Gerais.
41. D. weddelliana
6. Scape-bracts serrulate.
7. Floral bracts broadly ovate and apiculate, barely exceeding the lower pedicels. Brazil: Bahia.
42. D. maracasensis
7. Floral bracts narrower, acuminate, much exceeding the pedicels. Brazil: São Paulo to Rio Grande do Sul.
12. D. encholirioides
3. Indument of the inflorescence cinereous or fulvous.

Argentina, Paraguay. Southern Brazil.

8. Filaments free above the common tube with the petals.
9. Style about equaling the ovary. Paraguay. Argentina: Misiones. Brazil: Santa Catarina.....43. D. distachya
9. Style very short.
10. Floral bracts apiculate or obtuse; flowers lax; anthers included. Bolivia. Brazil: Mato Grosso. Paraguay. Argentina: Formosa, Chaco, Santa Fé.....44. D. ferox
10. Floral bracts acuminate; flowers dense; anthers somewhat exserted. Argentina: La Rioja, Jujuy, Tucumán. 45. D. velascana
8. Filaments connate above the common tube with the petals.
11. Sepals 11 mm long; style none; floral bracts acuminate, equaling the sepals. Paraguay.....9. D. vestita
11. Sepals 7 mm long; style trifid, 2.5 mm long; floral bracts apiculate, shorter than the sepals. Argentina: Salta.....46. D. chaguar
1. Axes of the inflorescence glabrous or laxly and fugaciously lepidote.
- 12..Sepals triangular-acute to acuminate; filaments free above the tube with the petals or nearly so. Brazil: Santa Catarina.....16. D. cabreræ
12. Sepals broadly acute to obtuse, entire or apiculate.
13. Filaments free above the common tube with the petals.
14. Floral bracts exceeding the flowers, acuminate. Paraguay. 47. D. velloziifolia
14. Floral bracts shorter than the sepals.
15. Floral bracts much exceeding the lower pedicels.
16. Style well developed, distinct, ca 2 mm long or more.
17. Branches densely flowered; sepals 3-6 mm long. Paraguay. Brazil: Parana, Mato Grosso..48. D. microcalyx
17. Branches laxly flowered; sepals 6-12 mm long.
18. Sepals even, more or less carinate, only about half as long as the petals. Southern Brazil. Paraguay. Bolivia.....49. D. leptostachya
18. Sepals distinctly nerved, not carinate, distinctly more than half as long as the petals.
19. Leaves very laxly serrate with nearly straight intervals. Brazil: Minas Gerais...50. D. mello-barreto
19. Leaves sinuate-serrate. Brazil: Santa Catarina. 51. D. ibiramensis
16. Style short (not over 1 mm) or none.
20. Floral bracts acuminate; sepals carinate. Paraguay. 52. D. affinis
20. Floral bracts apiculate.
21. Rhachis geniculate, very slender; flowers more or less secund. Bolivia.....53. D. pulquinensis
21. Rhachis not more than flexuous; flowers not secund.
22. Anthers exserted. Argentina: Córdoba, San Luis, La Rioja.....54. D. floribunda
22. Anthers included.
23. Style lacking. Bolivia. Paraguay:.. Brazil: Mato

Grosso. Argentina: Formosa, Chaco, Santa Fé. .

44. D. ferox

23. Style short, 1 mm, but distinct. Paraguay.

55. D. commixta

15. Floral bracts about equaling to shorter than the lower pedicels.

24. Petal-blades suborbicular; style almost none. Brazil:

Minas Gerais.....56. D. orobanchoides

24. Petal-blades subrhombic-ovate; style 6 mm long,

exserted. Paraguay.....57. D. tobatensis

13. Filaments connate above the common tube with the petals.

25. Anthers included.

26. Pedicels to 5 mm long, mostly exceeding the floral bracts

Brazil: Mato Grosso.....58. D. irwinii

26. Pedicels very short, much exceeded by the floral bracts.

Brazil: Minas Gerais.....59. D. rariflora

25. Anthers exserted.

27. Style 2.5-5 mm long. Argentina: Misiones.

60. D. niederleinii

27. Style 1 mm long. Argentina: Santa Fé, Santiago del

Estero.....61. D. ragonesei

Subkey III

1. Axis (at least) of the inflorescence densely lepidote or tomentose-lepidote.

2. Indument of the inflorescence ferruginous.

3. Margins of the sepals obscured by the dense lanate indument; petals barely exceeding the 15 mm long sepals. Brazil:

Minas Gerais.....8. D. ursina

3. Margins of the sepals clearly visible.

4. Upper scape-bracts and lower floral bracts with a linear

blade several times longer than the base; sepals fimbri-

ate. Brazil: Minas Gerais.....24. D. duarteana

4. Upper scape-bracts with triangular blades.

5. Lower floral bracts and upper scape-bracts entire; petal-blades suborbicular, ecarinate. Brazil: Minas Gerais.

62. D. sordida

5. Lower floral bracts and upper scape-bracts serrulate;

petal-blades elliptic to obovate, carinate. Brazil:

São Paulo to Rio Grande do Sul.....12. D. encholirioides

2. Indument of the inflorescence cinereous or white.

6. Anthers exserted; style very short. Paraguay.

63. D. tomentella

6. Anthers included; style distinct.

7. Floral bracts ample, covering most of the sepals.

Uruguay. Southern Brazil.....22. D. remotiflora

7. Floral bracts inconspicuous, exposing most or all of the sepals.

8. Upper scape-bracts and lower floral bracts serrulate.

Brazil: Minas Gerais.....64. D. oligantha

8. Upper scape-bracts and lower floral bracts entire. Para-

- guay. Argentina: Misiones. Brazil: Santa Catarina.
43. D. distachya
1. Axis of the inflorescence glabrous or sparsely and fugaciously vestite.
9. Lower floral bracts rounded, subacute, obtuse or apiculate.
10. Floral bracts from shorter than to slightly exceeding the 3-8 mm pedicels; sepals 7-8 mm long.
11. Pedicels 8 mm long; petal-blades oblong, ecarinate.
- Brazil: Minas Gerais.....65. D. biflora
11. Pedicels 3 mm long.
12. Flowers subdense; petal-blades suborbicular. Brazil: Minas Gerais.....56. D. orobanchoides
12. Flowers very lax; petal-blades rhombic. Brazil: Pará.
66. D. duckei
10. Floral bracts much exceeding the pedicels.
13. Style elongate, much more than 1 mm long.
14. Floral bracts ample, covering most of the sepals. Southern Brazil. Paraguay. Argentina. Uruguay.
22. D. remotiflora
14. Floral bracts inconspicuous, exposing nearly all of the sepals.
15. Flowers dense; sepals 3-6 mm long. Paraguay. Brazil: Parana, Mato Grosso.....48. D. microcalyx
15. Flowers lax; sepals 6-12 mm long.
16. Sepals emarginate, lepidote-tomentellous. Northwestern Argentina.....67. D. tweediei
16. Sepals obtuse, not emarginate, soon glabrous. Southern Brazil. Paraguay. Bolivia.....49. D. leptostachya
13. Style short, not over 1 mm, or none.
17. Rhachis geniculate, very slender; flowers more or less secund. Bolivia.....53. D. pulquinensis
17. Rhachis not more than flexuous; flowers not secund.
18. Anthers exserted.
19. Petal-blades carinate. Argentina: Córdoba, San Luis, La Rioja.....54. D. floribunda
19. Petal-blades ecarinate. Paraguay.....63. D. tomentella
18. Anthers included.
20. Style lacking. Paraguay. Argentina: Formosa, Chaco, Santa Fé.....44. D. ferox
20. Style short, 1 mm, but distinct. Paraguay.
55. D. commixta
9. Lower floral bracts acuminate or linear-laminate.
21. Pedicels to 14 mm long; leaves entire or subentire.
- Brazil: Minas Gerais.....68. D. heloisae
21. Pedicels not over 7 mm long.
22. Scape-bracts all with linear blades; leaves entire or subentire; flowers 9 mm long, half as long as the internodes. Brazil: Goiás, Mato Grosso (?).
35. D. burchellii
22. Scape-bracts diverse, the upper ones bladeless.
23. Style elongate, much more than 1 mm long.
24. Floral bracts exceeding the flowers. Paraguay.

47. D. velloziiflora
24. Floral bracts shorter than the sepals.
25. Leaf-blades essentially the same on both sides. Brazil Minas Gerais.
26. Scales wholly covering the leaf-blades; scape-bracts serrulate.....69. D. argentea
26. Scales confined to the grooves between the nerves. 50. D. mello-barretoii
25. Leaf-blades more vestite beneath.
27. Scape-bracts serrulate. Brazil: Santa Catarina. 51. D. ibiramensis
27. Scape-bracts entire. Brazil: Minas Gerais.
- 28 Pedicels to 7 mm long.....70. D. linearifolia
28. Pedicels not more than 3 mm long....71. D. hilaireana
23. Style short, not over 1 mm long, or none.
29. Leaf-blades densely retrorse-serrate expecially toward the base. Brazil: Minas Gerais, Goiás. 72. D. marnier-lapostollei
29. Leaf-blades laxly serrate throughout.
30. Floral bracts about equaling the slender 5 mm long pedicels; flowers spreading or reflexed. Brazil: Minas Gerais.....73. D. macedoi
30. Floral bracts much exceeding the pedicels.
31. Anthers more or less exserted; floral bracts entire.
32. Lower floral bracts about equaling the flowers. Brazil: Goiás, Mato Grosso.....32. D. tenuis
32. Lower floral bracts shorter than the sepals.
33. Pedicels cylindric, 4 mm long. Brazil: Pará. 74. D. sickii
33. Pedicels broadly obconic, 2 mm long. Brazil: Goiás. 75. D. pumila
31. Anthers included.
34. Petals 17-18 mm long.
35. Petal-blades sharply curved-spreading. Brazil: Pará 39. D. silvae
35. Petal-blades suberect. Argentina: Misiones. 76. D. subinermis
34. Petals 9-15 mm long; petal-blades suberect.
36. Petal-blade strongly carinate.
37. Indument of the inflorescence stipitate-glandular in character. Brazil: Minas Gerais. 77. D. glandulosa
37. Indument of the inflorescence of peltate lacerate scales.
38. Lowest floral bracts exceeding at least the sepals; leaf-blades ferruginous-lepidote beneath Brazil: Paraná.....78. D. deltoidea
38. Lowest floral bracts shorter than the sepals.
39. Leaf-blades ferruginous-lepidote beneath; plants to 1 m high. Paraguay.....52. D. affinis
39. Leaf-blades whitish-lepidote beneath; plants 15-40 cm high. Brazil: Minas Gerais to Santa

- Catarina.....79. D. tuberosa
 36. Petal-blade very weakly if at all carinate; petals
 10-11 mm long.
 40. Pedicels to 4 mm long; petals brown, fleshy.
 Brazil: Goiás.....80. D. machrisiana
 40. Pedicels not over 2 mm long. Brazil: Bahia.
 81. D. elongata

Subkey IV

1. Axis (at least) of the inflorescence densely lepidote or tomentose-lepidote.
2. Lower floral bracts acuminate or linear-laminate.
3. Pedicels to 10 mm long; indument of the inflorescence ferruginous. Brazil: Minas Gerais.
4. Lower floral bracts with long linear blades.
 24. D. duarteana
4. Lower floral bracts triangular-acuminate...82. D. macropoda
3. Pedicels not over 5 mm long.
5. Lower floral bracts serrulate.
6. Leaf-blades conspicuously repand-serrate, covered on both sides with cinereous scales. Brazil: Paraná.
 21. D. fosteriana
6. Leaf-blades not repand-serrate, soon glabrous above; indument of the inflorescence ferruginous.
7. Sepals strongly incurved at apex, acute, to 10 mm long.
 Brazil: Minas Gerais, Santa Catarina...10. D. monticola
7. Sepals straight or nearly so, to 8 mm long.
8. Leaves 5 cm long; style very short. Brazil: Minas Gerais.....29. D. densiflora
8. Leaves 30-100 cm long; style $1/3$ the length of the ovary. Brazil: São Paulo to Rio Grande do Sul.
 12. D. encholirioides
5. Lower floral bracts entire or microscopically serrulate or fimbriate (D. saxatilis).
9. Style $1/3$ to $1/2$ the length of the ovary; pedicels distinct, 3-4 mm long.
10. Inflorescence very lax; sepals broadly acute and apiculate. Brazil: Piauí, Bahia, Minas Gerais.
 83. D. dissitiflora
10. Inflorescence subdense; sepals obtuse. Brazil: Minas Gerais.....41. D. weddelliana
9. Style short, not over 1 mm, or none.
11. Flowers distinctly pedicellate; lower floral bracts equaling or exceeding the sepals; sepals obtuse.
 Brazil: Minas Gerais, Mato Grosso.....84. D. saxatilis
11. Flowers subsessile.
12. Indument of the inflorescence ferruginous; flowers 13 mm long. Brazil: Goiás.....85. D. uleana
12. Indument of the inflorescence fulvous; flowers to 20 mm long. Paraguay.....9. D. vestita
2. Lower floral bracts obtuse or apiculate.

13. Anthers included; indument of the inflorescence
ferruginous; style 1.5 mm long. Brazil: Bahia.
42. D. maracasensis
13. Anthers exserted.
14. Style 6 mm long. Argentina: Misiones.....86. D. mitis
14. Style 1 mm long. Argentina: Santa Fé, Santiago del Estero
61. D. ragonesei
1. Axis of the inflorescence glabrous or sparsely and fugaciously
lepidote.
15. Petals without a distinct claw and blade, narrowly elliptic;
leaf-blades erect, 13-32 cm long, the spines nearly
straight, 2 mm long; filaments wholly connate; stigmas
subsessile. Brazil: Goiás, Mato Grosso...87. D. horridula
15. Petals with a sharp distinction between the narrow claw and
broad blade.
16. Lower floral bracts acuminate.
17. Anthers exserted. Argentina: Santa Fé....61. D. ragonesei
17. Anthers equaling the petals or shorter.
18. Scape-bracts distinctly serrulate.
19. Pedicels 3-10mm long.
20. Sepals rounded, obtuse or obscurely apiculate.
21. Leaf-blades pectinate-serrate with flat spines 6 mm
long. Brazil: Minas Gerais.....88. D. pectinata
21. Leaf-blades with spines laxer, uncinat and not over
3.5 mm long
22. Pedicels not over 5 mm long.
23. Floral bracts ample, covering much of the sepals;
leaf-blades glabrous and lustrous above. Brazil:
Distrito Federal.....37. D. brasiliana
23. Floral bracts small and inconspicuous, not covering
much if any of the sepals; leaf-blades densely
lepidote above at least initially. Brazil: Minas
Gerais.
24. Style nearly as long as the ovary; leaf-spines 3.5
mm long.....69. D. argentea
24. Style almost none; leaf-spines 1 mm long.
89. D. spinulosa
22. Pedicels to 10 mm long; filaments almost wholly
connate. Brazil: Minas Gerais.....82. D. macropoda
20. Sepals acute; style very short.
25. Posterior sepals nearly straight, convex. Brazil: Rio
de Janeiro to Paraná.....38. D. pseudococcinea
25. Posterior sepals strongly inflexed and carinate.
Brazil: Santa Catarina.....16. D. cabreræ
19. Pedicels not over 2 mm long, very short and stout.
26. Floral bracts exceeding the lowest flowers and all the
sepals. Brazil: Minas Gerais.....30. D. lagoensis
26. Floral bracts all exceeded by the sepals. Brazil: Rio
Grande do Sul (?).....90. D. sellowiana
18. Scape-bracts entire or very obscurely serrulate.
27. Flowers to 15 mm long; petals about twice as long as the
sepals. Brazil: Minas Gerais.....91. D. warmingii

27. Flowers 8-13 mm long; petals much less than twice as long as the sepals.
28. Leaves about 5 cm long; inflorescence subdense, short; flowers 8 mm long. Brazil: Minas Gerais.
92. D. consimilis
28. Leaves much longer; inflorescence lax, elongate.
29. Flowers secund, very lax; lower floral bracts barely exceeding the pedicels; petals brown. Brazil: Bahia
93. D. secunda
29. Flowers not secund.
30. Leaf-blades 5 mm wide, 10-15 cm long. Brazil: Goiás.
94. D. stenophylla
30. Leaf-blades much wider and longer.
31. Style $1/3$ as long as the ovary; sepals broadly acute and apiculate. Brazil: Piauí, Bahia, Minas Gerais
83. D. dissitiflora
31. Style very short or none.
32. Petal-blade elliptic, longer than wide. Brazil: Minas Gerais, Goiás.....84. D. saxatilis
32. Petal-blade very broadly obovate, wider than long. Brazil: Goiás.....95. D. aurea
16. Lower floral bracts rounded or broadly acute, obtuse or apiculate.
33. Leaf-blades 7 mm wide with mostly subopposite spines 5-7 mm long. Brazil: Goiás.....96. D. dawsonii
33. Leaf-blades wider and with much smaller spines.
34. Floral bracts barely if at all exceeding the slender 4-6 mm long pedicels; style distinct.
35. Leaf-blades densely lepidote beneath; pedicels twice as long as the floral bracts. Brazil: Goiás.
97. D. racemosa
35. Leaf-blades densely lepidote on both sides; pedicels slightly shorter than the floral bracts. Brazil.
98. D. lutziana
34. Floral bracts much exceeding the pedicels.
36. Style distinct, 2 mm or longer.
37. Sepals very broadly elliptic, 7-9 mm long, more than twice the floral bracts; style $1/3$ to $1/2$ as long as the ovary. Bolivia.....99. D. gracilis
37. Sepals suborbicular or subreniform, 5-7 mm long, slightly if at all exceeding the floral bracts; style about as long as the ovary. Argentina: Misiones.
38. Pedicels 2-4 mm long, stout, angled.
60. D. niederleinii
38. Pedicels lacking (?).....86. D. mitis
36. Style short, not over 1 mm, or none.
39. Lower floral bracts 7-15 mm long, from nearly equaling to slightly exceeding the sepals; leaves 14-24 cm.
40. Floral bracts ample, covering much of the sepals. Brazil: Goiás.....95. D. aurea
40. Floral bracts narrow, not covering the sepals. Brazil: Minas Gerais.....59. D. rariflora

39. Lower floral bracts 4-5 mm long, much shorter than the sepals; leaves 50-120 cm long.

41. Flowers pedicellate for 3 mm. Brazil: Pará.

41. Flowers subsessile. Paraguay..... 100. D. paraensis
40. D. virgata

1. D. PEDICELLATA Mez in DC. Mon. Phan. 9: 515. 1896. Type: Schwacke 8413. Identity with the genus Dyckia is uncertain because of the lack of petals and stamens. The plant might be an Encholirium.

2. D. MARITIMA Baker, Handb. Brom. 136. 1889. Type: Tweedie s. n. Prionophyllum maritimum (Baker) Mez in DC. Mon. Phan. 9: 542. 1896. Dyckia tomentosa Mez in DC. Mon. Phan. 9: 515. 1896. Type: Sellow Brom. Paris 73.

3. D. SELLOA (K. Koch) Baker, Handb. Brom. 136. 1889. Prionophyllum sellowii K. Koch, Ind. Sem. Hort. Berol. 1873, App. 4: 7. 1874. Type: Sellow 3339. Dyckia grandifolia Baker, Handb. Brom. 136. 1889. Type: Saint Hilaire 276. D. macracantha Baker, op. c. 137. Type: Sellow Brom. Paris 75. D. myriostachya Baker, l. c. Type: Sellow Brom. Paris 76.

4. D. INSIGNIS Hassler, Ann. Cons. & Jard. Bot. Genève 20: 316 Feb. 1919. Type: Fiebrig 4615. D. insignis lusus flaviflora Hassler, op. c. 317. Type: Fiebrig 4867. D. insignis var. macrantha Hassler, op. c. 318. Type: Fiebrig 5310-a. D. insignis var. obtusiflora Hassler, l. c. Type: Fiebrig 5310. D. grandiflora Mez, Fedde Rep. Spec. Nov. 16: 68. Nov. 1919. Type: Fiebrig 4615.

5. D. EXSERTA L. B. Smith, Rev. Argent. Agron. 8: 192, fig. 1-5. 1941. Type: Rojas 7563.

6. D. ODORATA L. B. Smith, Phytologia 10: 485, pl. 2, fig. 8, 9. 1964. Type: Dawson 14578.

7. D. PRINCEPS Lem. Jard. Fleur. 3: pl. 224, 225. 1853. Type: Description & plates.

8. D. URSINA L. B. Smith, Arquiv. Bot. Estado S. Paulo n. ser. 1: 109, pl. 111. 1943. Type: Foster 636.

9. D. VESTITA Hassler, Ann. Cons. & Jard. Bot. Genève 20: 315. 1919. Type: Fiebrig 5311.

10. D. MONTICOLA Smith & Reitz in Reitz, Sellowia no. 14: 104, fig. 3. 1962. Type: Reitz & Klein 4789.

11. D. FRIGIDA Hook. f. Bot. Mag. 103: pl. 6294. 1877. Type: Hort. Linden. Pourretia frigida sensu Hook. f. l. c., not Linden 1853, which is obviously some species of Puya with blue petals and coming from Colombia. Dyckia regalis Linden & Morr. ex Baker, Handb. Brom. 134. 1889, nomen in synonym., quite possibly based on a descendant of D. frigida.

12. D. ENCHOLIRIOIDES (Gaud.) Mez in DC. Mon. Phan. 9: 507. 1896.

Var. a. ENCHOLIRIOIDES. Garrelia encholirioides Gaud. Atl. Voy. Bonite pl. 115. 1851. Type: Gaudichaud 130. Encholirion garreli Beer, Bromel. 27. 1857, nom. nov. Dyckia catharinensis K. Koch, Ind. Sem. Hort. Berol. 1873, App. 4: 4. 1874. Type: Gaudichaud s. n. D. altissima sensu Baker, Handb. Brom. 134.

1889, in part, as to Garrelia encholirioides Gaud. ? D. catharinensis var. dentata Wittm. Bot. Jahrb. 13, Beibl. 29: 17. 1891.

Type: Schenck 456. Encholirion catharinense (K. Koch) Benth. & Hook. f. ex Mez in Engl. Pflanzenreich IV, 32: 320. 1935, nomen. Axes of the inflorescence and the sepals yellow.

Var. b. RUBRA (Wittm.) Reitz, Anais Bot. Herb. Barbosa Rodrigues no. 3: 108. 1951. D. rubra Wittm. Bot. Jahrb. 13, Beibl. 29: 16. 1891. Type: Schenck 619. Axes of the inflorescence and the sepals red.

13. D. CINEREA Mez in Mart. Fl. Bras. 3, pt. 3: 469. 1894. Type: Glaziou 18570.

14. D. TRICHOSTACHYA Baker, Handb. Brom. 133. 1889. Type: Sellow Brom. Paris 59. D. micracantha Baker, op. c. 135. Type: Sellow 1097.

15. D. BRACTEATA (Wittm.) Mez in Mart. Fl. Bras. 3, pt. 3: 470. 1894. D. dissitiflora var. bracteata Wittm. Bot. Jahrb. 13, Beibl. 29: 16. 1891. Type: Schenck 3510.

16. D. CABRERAE Smith & Reitz in Reitz, Sellowia no. 14: 101, fig. 2. 1962. Type: Smith, Reitz & Sufridini 9262.

17. D. ELATA Mez in DC. Mon. Phan. 9: 508. 1896. Type: Schwacke 8739.

18. D. GOIANA L. B. Smith, sp. nov. A D. elata Mez, cui verisimiliter affinis, sepalis latissime deltoideo-ovatis differt.

PLANT flowering to 2.5 m high. LEAVES lacking (but judging from the lower scape-bracts) narrowly triangular, pungent, very laxly spinose-serrate, covered on both sides with appressed whitish scales at least at first. SCAPE stout, soon glabrous; scape-bracts exceeding the internodes, the lower presumably foliaceous, the upper ovate with a long narrowly triangular apex, serrulate. INFLORESCENCE laxly compound, 1 m long, finely cinereous-lepidote at first; primary bracts like the upper scape-bracts, to 7 cm long; main axis stout; lateral branches suberect, slender, slightly flexuous, to 5 dm long; floral bracts broadly ovate, serrulate, the lower long-acuminate and exceeding the flowers, the upper apiculate and shorter than the sepals; pedicels suberect, stout but distinct, to 4 mm long (fruit). SEPALS broadly deltoid-ovate, to 6 mm long, equally wide, ecarinate, persistently lepidote; petals 10-12 mm long, orange, the blade spreading, elliptic, rounded, carinate, about equaling the stamens; filaments short-connate above the common tube; style distinct, 1 mm long. Pl. I, fig. 1: Margin of lower scape-bract x 1; fig. 2: Flower x 1; fig. 3: Sepal x 2; fig. 4: Young stamens x 2; fig. 5: Young pistil x 2.

BRAZIL: Goiás: Cerrado, Córrego Estrema, ca 42 km northeast of Formosa, Serra do Morcêgo, alt. 800 m, 20 April 1966, H. S. Irwin et al. 15163 (US, type: NY).

19. D. CHORISTAMINEA Mez, Fedde Rep. Spec. Nov. 16: 71. 1919. Type: Malme s. n.

20. D. SIMULANS L. B. Smith, Arquiv. Bot. Estado S. Paulo n. ser. 1: 108, pl. 110. 1943. Type: Foster 570.

21. D. FOSTERIANA L. B. Smith, Arquiv. Bot. Estado S. Paulo n. ser. 1: 107, pl. 106. 1943. Type: Foster 1154.

22. *D. REMOTIFLORA* Otto & Dietr. Allg. Gartenz. 1: 129. 1833.
Type: (Sellow) Hort. Berol.

Var. a. *REMOTIFLORA*. *D. rariflora* sensu Graham, Bot. Mag. 62: pl. 3449. 1835; sensu Lindl. Bot. Reg. 21: pl. 1782. 1836, non Schult. f. 1830. *D. rariflora* var. "*D. remotiflora*" Baker, Handb. Brom. 132. 1889. *D. rariflora* var. *cunninghami* Baker, l. c.
Type: Cunningham. *D. vaginosa* Mez in Mart. Fl. Bras. 3, pt. 3: 490. 1894. Type: Glaziou 15497. Upper scape-bracts and floral bracts with broad apiculate summits; sepals cucullate, 8-10 mm long; petals 17-23 mm long.

Var. b. *MONTEVIDENSIS* (K. Koch) L. B. Smith, Arquiv. Bot. Estado S. Paulo n. ser. 1: 108. 1943. *D. montevidensis* K. Koch, Ind. Sem. Hort. Berol. 1873, App. 4: 4. 1874. Type: (Sellow) Hort. Berol. *D. rariflora* var. "*D. montevidensis*" Baker, Handb. Brom. 132. 1889. *D. rariflora* var. *montevidensis* (K. Koch) Baker ex Hauman & Vanderveken, An. Mus. Nac. Hist. Nat. Buenos Aires 29: 239. 1917. Upper scape-bracts and floral bracts with broad apiculate summits; sepals nearly or quite straight, 6-8 mm long; petals 11-17 mm long.

Var. c. *ANGUSTIOR* L. B. Smith, Arquiv. Bot. Estado S. Paulo n. ser. 1: 108. 1943. Type: Bornmueller 351.

23. *D. MINARUM* Mez in Mart. Fl. Bras. 3, pt. 3: 483, pl. 91. 1894. Type: Regnell II-283.

24. *D. DUARTEANA* L. B. Smith, sp. nov. A *D. ursina* L. B. Smith, cui affinis, bracteis florigeris serrulatis, pedicellis distinctis, sepalis minoribus differt.

PLANT flowering 6 dm high. LEAVES (inner) to 17 cm long; sheaths ovate, 3 cm long; blades 7 mm wide, laxly and finely serrate, covered with appressed cinereous scales on both sides, becoming glabrous especially beneath. SCAPE 5 mm in diameter, ferruginous-lanate at first; scape-bracts broadly ovate with long linear blades, serrulate, all but the highest exceeding the internodes. INFLORESCENCE pseudosimple with one-flowered branches, very lax, over 3 dm long, densely ferruginous-lanate; lower floral bracts like the scape-bracts, exceeding the flowers; pedicels suberect to spreading, to 8 mm long. SEPALS broadly ovate, acuminate and thickened at apex, 10-12 mm long, fimbriate, ecarinate, nerved; petals 15 mm long, orange (! Duarte), the blades suberect, broadly obovate, ecarinate; stamens included; filaments free above the common tube; stigmas sessile. Pl. I, fig. 6: Margin of inner leaf x 1; fig. 7: Flower x 1; fig. 8: Sepal x 2.

BRAZIL: Minas Gerais: Wet campo, km 137 on Estrada da Conceição, Serra do Cipó, alt. 1300 m, 21 April 1955, A. P. Duarte 2749 (RB 70533, type; phot. US).

25. *D. IRMGARDIAE* L. B. Smith, Phytologia 13: 150, pl. 7, figs 8, 9. 1966. Type: L. B. & R. C. Smith, I. Schultz & Oyara s. n.

26. *D. REITZII* L. B. Smith, Anais Bot. Herb. Barbosa Rodrigues 2: 14, pl. 1-3. 1950. Type: Reitz 2690.

27. *D. HATSCHBACHII* L. B. Smith, sp. nov. A *D. encholirioides* (Gaud.) Mez, cui verisimiliter affinis, bracteis florigeris inconspicuis, pedicellis elongatis, sepalis acutis differt.

PLANT known only from fragments, flowering 1.5 m high (! Hatschbach). LEAVES to 85 cm long; sheaths inconspicuous; blades linear-triangular, pungent, 45 mm wide, laxly serrate with antrorse uncinat dark spines 7 mm long, covered beneath with white appressed scales, initially or soon glabrous above. SCAPE (upper) slender, ferruginous-tomentose; scape-bracts imbricate, linear-triangular from an ovate base, serrulate. INFLORESCENCE simple, subax, 4 dm long, many-flowered, ferruginous-tomentulose except the petals; floral bracts narrowly triangular, the lowest slightly exceeding the pedicels, serrulate; pedicels spreading, straight, slender, to 10 mm long. SEPALS ovate, acute, 8 mm long, carinate; petals 14 mm long, the blades subrhombic, curved-spreading; stamens included; filaments free above the common tube; styles 3, to 2 mm long. Pl. I, fig. 9: Leaf-margin x 1; fig. 10: Flower and bract x 1; fig. 11: Pistil x 2.

BRAZIL: Paraná: Mun. Paranaguá: Low woods of restinga, 1 Nov. 1951, Hatschbach 2725 (US, type).

28. *D. EMINENS* Mez, Bot. Jahrb. 30, Beibl. 67: 5. 1901. Type: Glaziou 22192-a.

29. *D. DENSIFLORA* Schult. f. in Roem. & Schult. Syst. 7, pt. 2: 1194. 1830. Type: Martius s. n.

30. *D. LAGOENSIS* Mez in Mart. Fl. Bras. 3, pt. 3: 483. 1894. Type: Warming 2171.

31. *D. FERRUGINEA* Mez in DC. Mon. Phan. 9: 533. 1896. Type: Kuntze s. n.

32. *D. TENUIS* Mez in Mart. Fl. Bras. 3, pt. 3: 484. 1894. Type: Gardner 3479. *D. morreniana* Mez in Mart. Fl. Bras. 3, pt. 3: 496. 1894. Type: Hort. Liège. *D. kuntzeana* Mez in DC. Mon. Phan. 9: 523. 1896. Type: Kuntze s. n.

33. *D. SCHWACKEANA* Mez in Mart. Fl. Bras. 3, pt. 3: 478. 1894. Type: Glaziou 18572.

34. *D. BREVIFOLIA* Baker in Saund. Ref. Bot. 4: pl. 236. 1871. Type: Hort. Kew. *D. sulphurea* K. Koch, Ind. Sem. Hort. Berol. 1873, App. 4: 3. 1874. Type: Hort. Berol. *D. rariflora* sensu Wittm. Bot. Jahrb. 13, Beibl. 29: 15. 1891, non Schult. f. 1830. *D. princeps* Hort. ex Mez in Mart. Fl. Bras. 3, pt. 3: 493. 1894, in part., non Lem. 1853. *D. gemellaria* E. Morr. ex Mez, op. c. 494. Type: Hort. Liège.

35. *D. BURCHELLII* Baker, Handb. Brom. 131. 1889. Type: Burchell 8178.

36. *D. DUSENII* L. B. Smith, Contr. Gray Herb. 98: 6, pl. 2. 1932. Type: Dusen 18081.

37. *D. BRASILIANA* L. B. Smith, sp. nov. A *D. pseudococcinea* L. B. Smith, cui affinis, bracteis florigeris amplis flores infimos superantibus differt.

PLANT flowering to 1.5 m high. LEAVES numerous in a dense rosette, over 3 dm long; sheaths suborbicular, castaneous; blades linear-triangular, 2-3 cm wide, laxly retrorse-serrate with slender spines 2.5 mm long, covered with appressed whitish scales beneath, glabrous above. SCAPE 6 mm in diameter, sparsely and finely white-lepidote, soon glabrous; scape-bracts lance-ovate, acuminate, serrulate, very irregularly longer and shorter than

the internodes. INFLORESCENCE simple, elongate, laxly many-flowered, finely and fugaciously white-lepidote; floral bracts ovate, acuminate, ample, serrulate, the lowest exceeding the flowers; pedicels subcylindric, 5-7 mm long. SEPALS suborbicular, 9 mm long, cucullate; petals 15 mm long, orange (! Irwin), the blade broadly obovate, suberect to spreading; stamens included; filaments connate above the common tube; style very short. Pl. I, fig. 13: Leaf-margin x 1; fig. 14: Flower and bract x 1; fig. 15: Sepal x 2.

BRAZIL: Distrito Federal: Campo cerrado, Brasilia, 14 Nov. 1958, E. Pereira 4685 & Pabst 5011 (RB, phot. US); rooted in termite nest, cerrado, Brasilia, alt. 975 m, 13 Nov. 1965, H. S. Irwin et al. 10268 (US, type; NY); cerrado and gallery margin, 3 km north of Sobradinho, alt. 1225 m, 9 Nov. 1965, Irwin et al. 10113 (NY).

Very old material doubtfully referred here: Cerrado, 5 km north of Planaltina, on road to São Gabriel de Goiás, Goiás, alt. 1200 m, 16 Oct. 1965, Irwin et al. 9257 (NY, US); cerrado, summit of Chapada da Contagem, alt. 1100 m, 14 Jan. 1966, Irwin et al. 11659 (NY, US).

38. *D. PSEUDOCOCCINEA* L. B. Smith, Arquiv. Bot. Estado S. Paulo n. ser. 1; 108, pl. 109, fig. 1. 1943. Type: Foster 1144.

39. *D. SILVAE* L. B. Smith, Phytologia 13: 151, pl. 7, fig. 14, 15. 1966. Type: N. T. Silva 784.

40. *D. VIRGATA* Mez, Fedde Rep. Spec. Nov. 16: 68. 1919. Type: Rojas 46.

41. *D. WEDDELLIANA* Baker, Handb. Brom. 132. 1889. Type: Weddell 2584.

42. *D. MARACASENSIS* Ule, Bot. Jahrb. 42: 197. 1908. Type: Ule 7019.

43. *D. DISTACHYA* Hassler, Ann. Cons. & Jard. Bot. Genève 20: 308. Feb. 1919. Type: Fiebrig 5648. *D. distachya* forma *induta* Hassler, op. c. 309. Type: Fiebrig 5824. *D. interrupta* Mez, Fedde Rep. Spec. Nov. 16: 70. Nov. 1919. Type: Fiebrig 5648.

44. *D. FEROX* Mez in DC. Mon. Phan. 9: 511. 1896. Type: Kuntze s. n. *D. meziana* Kuntze, Rev. Gen. 3, pt. 2: 302. 1898. Type: Kuntze s. n. *D. hamosa* Mez, Fedde Rep. Spec. nov. 3: 33. 1906. Type: Fiebrig 685 e. p. *D. ferox* f. *australis* Hassler, Ann. Cons. & Jard. Bot. Genève 20: 303. 1919. Type: Kuntze s. n. *D. ferox* f. *vulgaris* Hassler, l. c. Lectotype: Hassler 2310. *D. ferox* subsp. *hamosa* (Mez) Hassler, op. c. 304. *D. ferox* f. *hamosa* (Mez) Castellanos, An. Mus. Nac. Hist. Nat. Buenos Aires 37: 496. 1933.

45. *D. VELASCANA* Mez in Mart. Fl. Bras. 3, pt. 3: 476. 1894. Type: Hieronymus & Niederlein 66.

46. *D. CHAGUAR* Castellanos, An. Mus. Nac. Hist. Nat. Buenos Aires 36: 373, pl. 4. 1931. Type: Spegazzini s. n.

47. *D. VELLOZIIIFOLIA* Mez, Fedde Rep. Spec. Nov. 16: 70. 1919. Type: Hassler 9576.

48. *D. MICROCALYX* Baker, Handb. Brom. 133. 1889. Type: Balansa 696.

Var. a. *MICROCALYX*. *D. microcalyx* var. *inermis* Hassler, Ann.

- Cons. & Jard. Bot. Genève 20: 307. 1919. Type: Hassler 8787.
D. microcalyx var. micrantha Hassler, op. c. 308. Type: Fiebrig 5941. D. minutiflora Mez, Fedde Rep. Spec. Nov. 16: 67. 1919.
 Type: Fiebrig 5941. Sepals 3-4 mm long.
 Var. b. OSTENII L. B. Smith, Contr. Gray Herb. 104: 73, pl. 3, fig. 16. 1934. Type: Osten & Rojas 8097. Sepals 6 mm long.
 49. D. LEPTOSTACHYA Baker, Gard. Chron. 1884, pt. 2: 198. 1884
 Type: Hort. Kew. D. conspicua Mez in DC. Mon. Phan. 9: 513. 1896
 Type: Balansa 4742. D. boliviensis Mez, op. c. 524. Type: D'Orbigny 858. D. hassleri Mez, Bull. Herb. Boiss. ser. II, 3: 134. 1903. Type: Hassler 3261. D. rojasii Mez, Fedde Rep. Spec. Nov. 16: 67. 1919. Type: Rojas in Hassler 10884. D. apensis Mez, op. c. 69. Lectotype: Hassler 4061. D. longifolia Mez, l. c. Type: Rojas in Hassler 10500. D. remotiflora var. montevidensis sensu L. B. Smith, Anais Bot. Herb. Barbosa Rodrigues 2: 45. 1950, not as to type.
 50. D. MELLO-BARRETOI L. B. Smith, Phytologia 7: 109, pl. 1, fig. 16-19. 1960. Type: Mello Barreto 2122.
 51. D. IBIRAMENSIS Reitz, Sellowia no. 14: 104, fig. 4. 1962. Type: Reitz & Klein 2635.
 52. D. AFFINIS Baker, Handb. Brom. 133. 1889. Type: Balansa 534.
 53. D. PULQUINENSIS Wittm. Mededeel. Rijks Herb. Leiden no. 29: 88. 1916. Type: Herzog 1849.
 54. D. FLORIBUNDA Griseb. Symb. Argent. in Goett. Abh. 24: 331. 1879. Type: Hieronymus 566. D. gilliesii Baker, Handb. Brom. 136. 1889. Type: Gillies s. n.
 55. D. COMMIXTA Hassler, Ann. Cons. & Jard. Bot. Genève 20: 305. 1919. Type: Chodat & Vischer 97 e. p.
 56. D. OROBANCHOIDES Mez in Mart. Fl. Bras. 3, pt. 3: 475. 1894. Type: Tamberlik s. n.
 57. D. TOBATIENSIS Hassler, Ann. Cons. & Jard. Bot. Genève 20: 309. 1919. Type: Hassler 2099.
 58. D. IRWINII L. B. Smith, sp. nov. A D. racemosa Baker, cujus bracteas floresque valde imitans, inflorescentia ramosa, stylo brevissimo differt.
 PLANT flowering to 2.25 m high. LEAVES 6-7 dm long; sheaths suborbicular, 4 cm long, castaneous with pale margins; blades linear-triangular, pungent, 20-25 mm wide, laxly serrate with brown spines 2 mm long, covered with appressed whitish scales on both sides, becoming partially glabrous above. SCAPE lateral, 10 mm wide, pale-lepidote, becoming glabrous; lower scape-bracts subfoliaceous, the upper narrowly triangular from a broadly ovate base, much shorter than the internodes, serrulate. INFLORESCENCE laxly few-branched, 1 m long, finely cinereous-lepidote, becoming glabrous with age; primary bracts like the upper scape-bracts, much shorter than the sterile bracteate bases of the branches; branches suberect, slightly flexuous, slender, elongate; floral bracts broadly ovate, apiculate, mostly shorter than the pedicels; flowers lax, secund, curved-ascending; pedicels slender, to 5 mm long. SEPALS broadly ovate, obtuse, 6-8 mm long; petals 9 mm long (at least), the blade suberect, broadly obovate; stamens

included; filaments connate above the common tube; stigmas subsessile. CAPSULES ovoid, acute, 15 mm long; seeds with a broad rounded subfalcate wing. Pl. I, fig. 16: Leaf-margin x 1; fig. 17: Flower and bract x 1; fig. 18: Sepal x 2; fig. 19: Petal x 2.

BRAZIL: Mato Grosso: Cerrado, 30 km south of Xavantina, drainage of the upper Rio Araguaia, alt. 400 m, 11 June 1966, Irwin et al. 16923 (US, type; NY); cerrado and campo margin, 75 km south of Xavantina, alt. 525 m, 17 June 1966, Irwin et al. 17340 (NY).

59. D. RARIFLORA Schult. f. in Roem. & Schult. Syst. 7, pt. 2: 1195. 1836. Type: Martius s. n.

60. D. NIEDERLEINII Mez in Mart. Fl. Bras. 3, pt. 3: 474. 1894. Type: Niederlein 229 e. p. D. missionum Mez, op. c. 477. Type: Niederlein 229 e. p. D. missionum var. breviflora Hassler, Ann. Cons. & Jard. Bot. Genève 20: 316. 1919. Type: Hassler 142.

61. D. RAGONESEI Castellanos, Lilloa 10: 454, fig. 2. 1944. Type: Castellanos s. n.

62. D. SORDIDA Baker, Handb. Brom. 132. 1889. Type: Saint Hilaire 402.

63. D. TOMENTELLA Mez, Fedde Rep. Spec. Nov. 16: 69. 1919. Type: Fiebrig 4046.

64. D. OLIGANTHA L. B. Smith, Arquiv. Jard. Bot. Rio de Janeiro 15: 329, fig. h-1. 1958. Type: Duarte 2748.

65. D. BIFLORA Mez in Mart. Fl. Bras. 3, pt. 3: 486. 1894. Type: Glaziou 19919.

66. D. DUCKEI L. B. Smith, Bol. Mus. Paraense Emílio Goeldi n. ser. no. 1: 3, fig. k-o. 1958. Type: Ducke s. n.

67. D. TWEEDIEI Mez in Mart. Fl. Bras. 3, pt. 3: 485. 1894. Type: Tweedie s. n.

68. D. HELOISAE L. B. Smith, Smithsonian Misc. Coll. 126: 26, 65, fig. 16. 1955. Type: L. B. Smith et al. 6698.

69. D. ARGENTEA Mez in Mart. Fl. Bras. 3, pt. 3: 492. 1894. Type: Glaziou 17280-a.

70. D. LINEARIFOLIA Baker, Handb. Brom. 131. 1889. Type: Saint Hilaire 1010.

71. D. HILAIREANA Mez in DC. Mon. Phan. 9: 530. 1896. Type: Saint Hilaire 924.

72. D. MARNIER-LAPOSTOLLEI L. B. Smith, Bromel. Soc. Bull. 16: 102, fig. 1966. Type: Marnier-Lapostolle s. n.

73. D. MACEDOII L. B. Smith, Arquiv. Bot. Estado S. Paulo n. ser. 2: 195. 1952; Smithsonian Misc. Coll. 126: 67, 68, fig. 18. 1955. Type: Macedo 2974.

74. D. SICKII L. B. Smith, Arquiv. Jard. Bot. Rio de Janeiro 15: 330, fig. m-q. 1958. Type: Sick B-613.

75. D. PUMILA L. B. Smith, Phytologia 13: 151, pl. 7, fig. 13. 1966. Type: Irwin & Soderstrom 7365.

76. D. SUBINERMIS Mez in Mart. Fl. Bras. 3, pt. 3: 487. 1894. Type: Niederlein 1205.

77. D. GLANDULOSA L. B. Smith & Reitz, sp. nov. Ab omnibus speciebus adhuc cognitae inflorescentiae indumento glanduliforme facile distinguenda.

PLANT flowering 7 dm high. LEAVES to 23 cm long; sheaths suborbicular, 2 cm long; blades narrowly triangular, acuminate to an

abruptly acute pungent apex, 23 mm wide, laxly serrate with uncinuate antrorse spines 2 mm long, covered beneath with cinereous appressed scales, smooth and glabrous above. SCAPE 6 mm in diameter, laxly glandular-lepidote with yellow trichomes ca 0.07 mm high; scape-bracts numerous but small and covering very little of the scape, triangular, entire, the lowest linear-laminate and bearing some peltate scales, all the others vestite with glandular trichomes alone, the highest shorter than the internodes. INFLORESCENCE simple, laxly many-flowered, to 27 cm long, laxly glandular-vestite except the petals; floral bracts triangular-ovate, acuminate, entire, the lowest exceeding the sepals; pedicels spreading, subcylindric, 5 mm long. SEPALS ovate, obtuse, 7 mm long, cucullate, ecarinate, rugose in drying as if initially fleshy; petals 12 mm long, orange (! Magalhães), the blade rhombic, obtuse, carinate; stamens included; filaments free above the common tube; style 1 mm long. Pl. I, fig. 20: Leaf-margin x 1; fig. 21: Trichome x 100; fig. 22: Flower and bract x 1; fig. 23: Sepal x 2; fig. 24: Pistil x 2.

BRAZIL: Minas Gerais: In small sparse groups among rocks at the base of the Serra do Itambé, 19 March 1963, M. Magalhães 18959 (Hb. Bradeanum 25726, type: phot. US).

78. D. DELTOIDEA (L. B. Smith) L. B. Smith, stat. nov. D. coccinea var. deltoidea L. B. Smith, Arquiv. Bot. Estado S. Paulo n. ser. 1: 107. 1943. Type: Dusén 17357. D. tuberosa var. deltoidea (L. B. Smith) L. B. Smith, op. c. 2: 119. 1950.

79. D. TUBEROSA (Vell.) Beer, Bromel. 157. 1857. Tillandsia tuberosa Vell. Fl. Fluminensis 135. 1825; Icon. 3: pl. 136. 1835. Type: Description & plate. Dyckia coccinea Mez in Mart. Fl. Bras. 3, pt. 3: 491. 1894. Type: "Sellow e. n. 23".

80. D. MACHRISTIANA L. B. Smith, Los Angeles County Mus. Contr. Sci. no. 17: 7, fig. 5. 1957. Type: Dawson 14153-a.

81. D. ELONGATA Mez in DC. Mon. Phan. 9: 529. 1896. Type: Sellow Brom. Paris 58.

82. D. MACROPODA L. B. Smith, sp. nov. D. duarteanam L. B. Smith (cf. supra) simulans sed bracteis florigeris inferioribus haud lineari-laminatis, sepalis rotundatis, filamentis alte connatis differt.

PLANT flowering about 4 dm high. LEAVES 25 cm long; sheaths suborbicular, 3 cm long, stramineous; blades narrowly triangular, acuminate to a fine rigid point, laxly serrate with retrorsely uncinuate spines 1.5 mm long, covered beneath with appressed whitish (appearing ferruginous from soil) scales, smooth and glabrous above. SCAPE very short, finely ferruginous-lepidote; scape-bracts long-acuminate from an ovate base, subentire, the uppermost much shorter than the internode. INFLORESCENCE simple, laxly many-flowered, 25 cm long, finely ferruginous-lepidote except the petals; floral bracts like the scape-bracts, entire, the lowest exceeding the sepals; pedicels spreading, slenderly cylindric, to 10 mm long. SEPALS broadly ovate, rounded or apiculate, 7 mm long, strongly convex, the posterior more or less carinate; petals 14 mm long, orange (! E. Pereira), the blades broadly rhombic, carinate; stamens included; filaments almost wholly

connate; styles 3, very short. Pl. I, fig. 25: Leaf-margin x 1; fig. 26: Flower and bract x 1; fig. 27: Sepal x 2; fig. 28: Stamens and pistil x 2.

BRAZIL: Minas Gerais: Diamantina, Rio das Pedras, 29 May 1955, E. Pereira 1622 (RB 90642, type; phot. US).

83. *D. DISSITIFLORA* Schult. f. in Roem. & Schult. Syst. 7, pt. 2: 1194. 1830. Type: Martius s. n.

84. *D. SAXATILIS* Mez in DC. Mon. Phan. 9: 518. 1896. Type: Schwacke 8948.

85. *D. ULEANA* Mez in DC. Mon. Phan. 9: 517. 1896. Type: Ule 3134.

86. *D. MITIS* Castellanos, An. Mus. Nac. Hist. Nat. Buenos Aires 36: 51, pl. 2. 1929. Type: Spegazzini s. n.

87. *D. HORRIDULA* Mez, Bot. Jahrb. 30, Beibl. 67: 5. 1901. Type: Glaziou 22194.

88. *D. PECTINATA* L. B. Smith & Reitz, sp. nov. A *D. dawsonii* L. B. Smith, cujus folias valde simulans, bracteis florigeris angustis, staminibus inclusis differt.

PLANT flowering 75 cm high. LEAVES 14 cm long; sheaths broadly ovate, 2 cm long, stramineous basally; blades very narrowly triangular, subulate-acuminate, 8 mm wide, covered on both sides with appressed cinereous scales, becoming more or less glabrous above, subdensely pectinate-serrate with flat spreading spines 6 mm long. SCAPE 5 mm in diameter, glabrous; lower scape-bracts subfoliaceous, the upper narrowly triangular, thin, serrulate, irregularly shorter than the internodes. INFLORESCENCE simple, laxly many-flowered, 21 cm long, glabrous; floral bracts like the upper scape-bracts, serrulate, the lowest exceeding the sepals; pedicels spreading to reflexed, broadly obconic, 3 mm long, constricted at base. SEPALS broadly ovate, rounded, entire or apiculate, 7 mm long, rugose when dry as if formerly fleshy, little if at all carinate; petals 9 mm long, red-orange (! Pabst), the blades obovate, carinate; stamens included; filaments short-connate above the short common tube; stigmas sessile. Pl. I, fig. 29: Leaf-margin x 1; fig. 30: Flower and bract x 1; fig. 31: Sepal x 2; fig. 32: Stamens x 2.

BRAZIL: Minas Gerais: In xerophytic habitat, outcrop of Triassic sandstone, between Conceição do Rio Verde and Cambuquira, 16 June 1957, G. F. J. Pabst 4129 (Hb. Bradeanum 3766, type; phot. US).

89. *D. SPINULOSA* L. B. Smith & Reitz, sp. nov. A *D. argentea* Mez, cujus inflorescentiam simulans, foliorum spinis parvis, stylo subnullo differt.

PLANT flowering 85 cm high. LEAVES 35 cm long; sheaths sub-orbicular, 3 cm long, pale brown; blades linear-triangular, 16 mm wide, laxly serrate with mostly retrorse uncinatate spines 1 mm long, covered with appressed cinereous scales on both sides, becoming more or less glabrous above. SCAPE lateral, 4 mm wide sparsely and finely pale-lepidote; scape-bracts ovate, serrulate, the lower dense and with long linear blades, the upper acuminate, shorter than the internodes. INFLORESCENCE simple, laxly many-flowered, to 27 cm long, finely white-lepidote at first; floral

bracts like the upper scape-bracts, serrulate, the lowest equaling the midpoint of the sepal; pedicels curved-ascending, slender, 5 mm long, angled, not constricted. SEPALS ovate, rounded and apiculate, 7 mm long, strongly convex; petals 10 mm long, blades rhombic; stamens included; filaments short-connate above the common tube; stigmas subsessile. Pl. I, fig. 33: Leaf-margin x 1; fig. 34: Flower and bract x 1; fig. 35: Sepal x 2; fig. 36: Stamens x 2.

BRAZIL: Minas Gerais: Varzea da Palma, Fazenda da Mãe d'Água, 19 Nov. 1962, A. P. Duarte 7409 (Hb. Bradeanum 27225, type: phot. US).

90. *D. SELLOWIANA* Mez in DC. Mon. Phan. 9: 520. 1896. Type: Sellow Brom. Paris 52.

91. *D. WARMINGII* Mez in Mart. Fl. Bras. 3, pt. 3: 481. 1894. Type: Warming s. n.

92. *D. CONSIMILIS* Mez in Mart. Fl. Bras. 3, pt. 3: 479, pl. 90. 1894. Type: Weddell 1407.

93. *D. SECUNDA* L. B. Smith, sp. nov. Ab omnibus speciebus adhuc cognititis inflorescentia laxissime secundiflora, petalis brunneis differt.

PLANT flowering 9 dm high. LEAVES over 25 cm long; sheaths unknown; blades very narrowly triangular, to 24 mm wide, laxly serrate with brown retrorse spines 2 mm long, covered on both sides with appressed cinereous scales becoming more or less glabrous above. SCAPE very slender, glabrous; lower scape-bracts subfoliaceous, the upper small, remote, triangular, acuminate, subentire. INFLORESCENCE simple, very laxly secund-flowered, to 23 cm long, sparsely and fugaciously pale-lepidote; floral bracts acute, entire, the lowest distinctly exceeding the pedicels; pedicels spreading, cylindric, 3 mm long. SEPALS ovate, rounded, 7 mm long, thin, brownish; petals 12 mm long, brown, apparently rather fleshy, the blades broadly rhombic, ecarinate; stamens included; filaments short-connate above the common tube; style ca 1 mm long. Pl. I, fig. 37: Leaf-margin x 1; fig. 38: Flower and bract x 1; fig. 39: Sepal x 2; fig. 40: Stamens x 2; fig. 41: Pistil x 2.

BRAZIL: Bahia: Drainage of the Rio Corrente, western Bahia, Campinas, ca 10 km south of Rio Piau, ca 150 km south of Barreiras, 850 m, 13 April 1966, Irwin et al. 14723 (NY, type: phot. US).

94. *D. STENOPHYLLA* L. B. Smith, sp. nov. A *D. saxatile* Mez, cujus inflorescentiam simulans, foliorum laminis angustissimis differt.

PLANT flowering to 3 dm high. LEAVES numerous in a dense globose rosette, to 16 cm long; sheaths suborbicular, 2 cm long, brown; blades linear, finely subulate-acuminate, 5 mm wide, laxly serrate with slender recurved spines 2 mm long, at first covered on both sides with appressed whitish scales but soon glabrous. SCAPE 2 mm thick, glabrous; scape-bracts small, broadly ovate, microscopically serrulate, the lowest linear-laminate, the others acuminate, remote. INFLORESCENCE simple, laxly few-flowered to 10 cm long, fugaciously white-lepidote; floral bracts like the

upper scape-bracts, the lowest equaling the sepals or shorter, microscopically serrulate; pedicels ca 1 mm long, stout but distinct. SEPALS broadly ovate, rounded, 6 mm long; petals 8-10 mm long, orange, the blades broadly elliptic; stamens included; filaments connate above the common tube; stigmas sessile. Pl. I, fig. 42: Section of leaf x 1; fig. 43: Flower and bract x 1; fig. 44: Sepal x 2; fig. 45: Young petal x 2.

BRAZIL: Goiás: Mun. Cristalina: Rooted in soil-filled rocky crevices, locally common, 5 km south of Cristalina, alt. 1175 m, 1 Nov. 1965, Irwin et al. 9728 (US, type; NY).

95. *D. AUREA* L. B. Smith, sp. nov. A *D. saxatile* Mez, cui affinis, petalorum laminis latissime obovatis differt.

PLANT flowering ca 1 m high (! Irwin). LEAVES to 23 cm long; sheaths suborbicular, 2-3 cm long, stramineous; blades strongly recurved, narrowly triangular, acuminate to an abruptly acute pungent apex, 3 cm wide, laxly serrate with recurved spines 1.5 mm long, finely lepidote in the narrow grooves beneath, glabrous above. SCAPE lateral, 4 mm wide, sparsely white-lepidote; scape-bracts broadly ovate, acuminate, the upper less than half as long as the internodes, entire. INFLORESCENCE simple, laxly many-flowered, 3 dm long, sparsely and fugaciously white-lepidote; floral bracts broadly ovate, acuminate, entire, the lowest exceeding the sepals; pedicels subcylindric, stout, 4 mm long. SEPALS ovate, broadly subacute, 8 mm long; petals 12 mm long; the blade obovate, broader than long; stamens equaling the petals; filaments connate above the common tube; style less than 1 mm long. Pl. I, fig. 46: Leaf-margin x 1; fig. 47: Flower and bract x 1; fig. 48: Sepal x 2; fig. 49: Petal x 2.

BRAZIL: Goiás: Campo, 15 km west of Cristalina, Serra dos Cristais, alt. 1200 m, 6 March 1966, Irwin et al. 13613 (US, type; NY).

96. *D. DAWSONII* L. B. Smith, Los Angeles County Mus. Contr. Sci. no. 17: 2, fig. 2-4. 1957. Type: Dawson 15236.

97. *D. RACEMOSA* Baker, Handb. Brom. 132. 1889: Type: Gardner 4015.

98. *D. LUTZIANA* L. B. Smith, Arquiv. Bot. Estado S. Paulo n. ser. 1: 107, pl. 107. 1943. Type: Foster 1144-b.

99. *D. GRACILIS* Mez in DC. Mon. Phan. 9: 516. 1896. Type: D'Orbigny 1006.

100. *D. PARAENSIS* L. B. Smith, Phytologia 13: 150, pl. 7, fig. 10-12. 1966. Type: Fróes 30030.

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APPENDIX

(Doubtful and excluded taxa, named hybrids)

acaulis Baker, Handb. Brom. 137. 1889 = NAVIA ACAULIS Mart. ex Schult. f. in Roem. & Schult. Syst. 7, pt. 2: 1196. 1830.

altissima Lindl. Bot. Reg. 27: 84. 1841. The description: "scapi.....squamis.....integris" does not accord with any material that might be used as a lectotype in default of original material, so it seems best to keep this name in the dubious category.

argentea Nicholson, Dict. Gard. 1: 497. 1885 = HECHTIA ARGENTEA Baker in Hemsl. Biol. Centr. Am. Bot. 3: 317. 1884.

augustae Baker, Handb. Brom. 135. 1889. = CONNELLIA AUGUSTAE (Rich. Schomburgk) N. E. Brown, Trans. Linn. Soc. ser. II, 6: 66, pl. 13. 1901.

caulescens Baker, Handb. Brom. 137. 1889 = NAVIA CAULESCENS Mart. ex Schult. f. in Roem. & Schult. Syst. 7, pt. 2: 1195. 1830

decomposita Baker, Handb. Brom. 136. 1889 = DEUTEROCOHNIA LONGIPETALA (Baker) Mez in Mart. Fl. Bras. 3, pt. 3: 506, pl. 95. 1894.

desmetiana Baker, Bot. Mag. 120: pl. 7340. 1894 = HECHTIA DESMETIANA (Baker) Mez in DC. Mon. Phan. 9: 551. 1896.

gigantea K. Koch, Ind. Sem. Hort. Berol. 1873, App. 4: 4. 1874, nomen illeg., wrongly attributed to Lindley. As used by Koch, D. gigantea is an unnecessary substitute name for D. princeps Lem. Mez equates it with D. altissima Lindl. as perhaps Koch intended to do. I have found no material so named and there the matter rests.

glaziovii Baker, Handb. Brom. 133. 1889 = NEOGLAZIOVIA VARIEGATA (Arr. Cam.) Mez in Mart. Fl. Bras. 3, pt. 3: 427, pl. 80, fig. 1. 1894.

grisebachii Baker, Handb. Brom. 130. 1889 = ABROMEITIELLA BREVIFOLIA (Griseb.) Castellanos, An. Mus. Nac. Hist. Nat. Buenos Aires 36: 371, pl. 2, 3, 6. 1931.

x Lad Cutak M. B. Foster, Bromel. Soc. Bull. 5: 35. 1955; 9: 61. 1959 = SULPHUREA x LEPTOSTACHYA.

laxiflora Mart. ex Baker, Handb. Brom. 134. 1889, nomen in synonym. Baker and Mez give this as a synonym of D. altissima Lindl. but material of Ackermann from Minas Gerais, Brazil, in Brussels, has serrulate floral bracts and can scarcely be the same. It may well be an undescribed species but the material is inadequate for further action.

lemaireana Hort. ex Bull. Cat. no. 97: 5. 1874; Mez in Pflanzenreich IV, 32: 340. 1935 =?

longipetala Baker, Handb. Brom. 135. 1889 = DEUTEROCOHNIA LONGIPETALA (Baker) Mez in Mart. Fl. Bras. 3, pt. 3: 506, pl. 95. 1894.

ramosa Hort. ex K. Koch, Ind. Sem. Hort. Berol. 1873, App. 4: 4. 1874, nomen in synonym. Equated with D. altissima Lindl. and D. princeps Lem., which are not the same, its identity therefore is wholly uncertain.

spectabile Baker, Handb. Brom. 138. 1889 = ENCHOLIRIUM SPECTABILE Mart. ex Schult. f. in Roem. & Schult. Syst. 7, pt. 2: 1233. 1830.

subsecunda Baker, Handb. Brom. 135. 1889 = ENCHOLIRIUM SUBSECUNDUM (Baker) Mez in DC. Mon. Phan. 9: 540. 1896.

Puya edulis E. Morr. Belg. Hort. 27: 354. 1878; Mez in Pflanzenreich IV, 32: 340. 1935. Judging from the scanty description and area of origin, this is probably a species of Dyckia.

Plate I

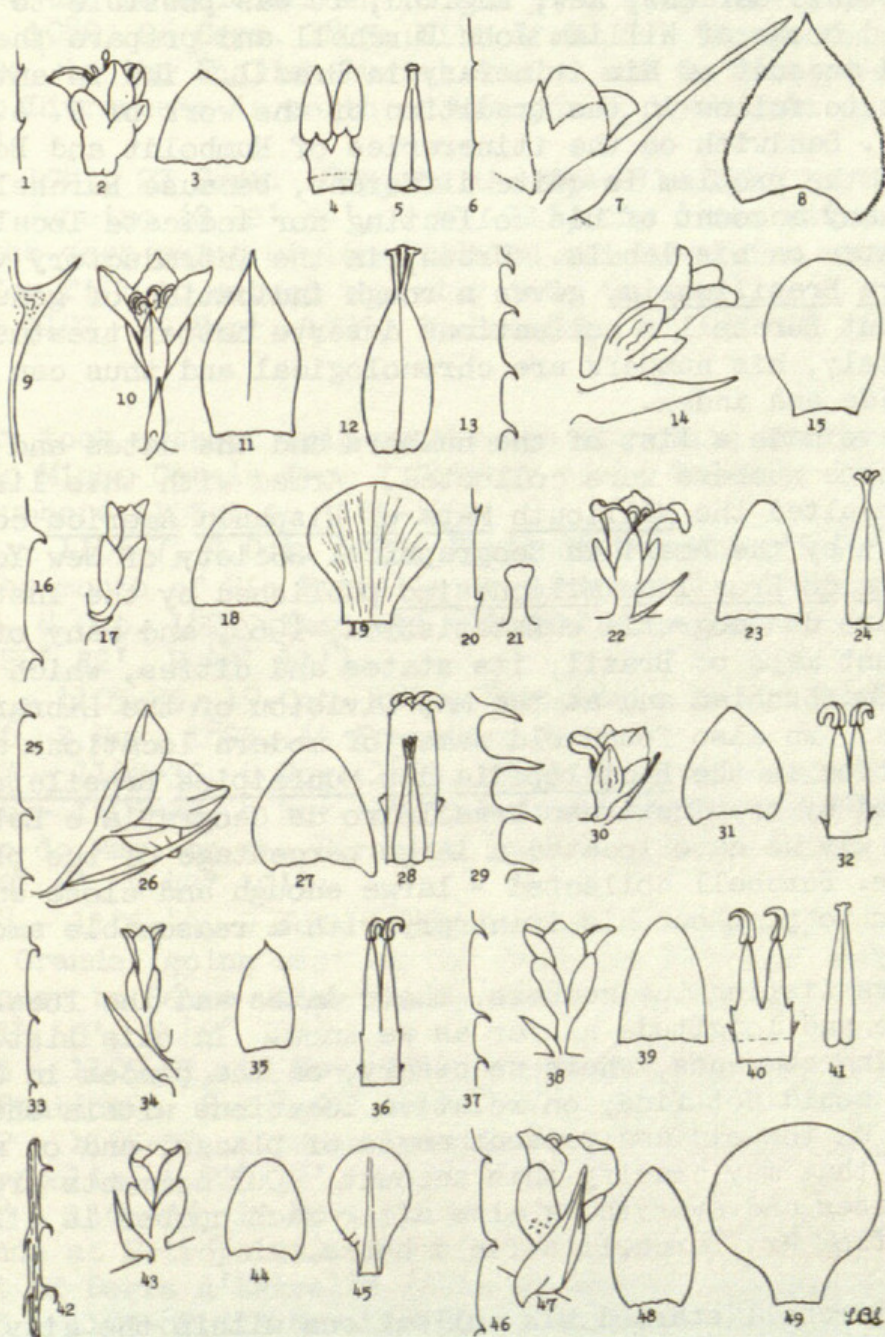


Fig. 1-5: *Dyckia goiana*; 6-8: *D. duarteana*; 9-12: *D. hatschbachii*; 13-15: *D. brasiliana*; 16-19: *D. irwinii*; 20-24: *D. glandulosa*; 25-28: *D. macropoda*; 29-32: *D. pectinata*; 33-36: *D. spinulosa*; 37-41: *D. secunda*; 42-45: *D. stenophylla*; 46-49: *D. aurea*.



Smith, Lyman B. 1967. "Notes on Bromeliaceae, XXV." *Phytologia* 14(8), 457–491.

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