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A TENTATIVE KEY TO THE
SOUTH AMERICAN SPECIES OF SIDA, L.

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This is an artificial key, and juxtaposition of the species does not necessarily indicate close relationship. Many of the species are imperfectly known, and in such cases published descriptions have been the only source of the characterizations in the key. This is always unsatisfactory because the descriptions often omit characters that have been used as the basis of the divisions of the present key, hence the large number of possible exceptions that are mentioned in parentheses. As far as practicable, however, the diagnoses are based upon examination of herbarium specimens and of photographs of types, when available. Species not known from farther south than Panama are excluded. The notes will be found at the end of the paper. Note 1.

EDITOR'S NOTE. In his monographic "Studies in Sida (Malvaceae)" (Contrib. Gray Herb. No. 180, pp. 4-91, April, 1957), I. D. Clement treats 28 species, 18 of which occur in South America. In the key which we are publishing here, Dr. Kearney uses all names that Clement has employed except three. Whereas Dr. Kearney accepts the name *S. prostrata* Cav. (first paragraph 18 of key) and treats *S. flavescens* Cav. as a synonym (Note 15), Clement (p. 44) does the reverse. Dr. Kearney accepts *S. Hassleri* Hochr. as a species distinct from *S. linifolia* Cav., but Clement treats *S. Hassleri* as a synonym of *S. linifolia* var. *brevis* (Hochr.) Clement (p. 84). With reservations, Dr. Kearney retains *S. quinquenervia* Duchass. in *Sida* (cf. Note 59), while Clement refers the plant to the monotypic genus *Sidastrum* Baker f. (p. 9). Kearney and Clement do not always dispose of nonacceptable names in the same way, but we have not gone through the synonymy in the two treatments to list the discrepancies. Among the names listed as indeterminate by Dr. Kearney in his Note 1, two are disposed of by Clement: *S. graminifolia* Rich. is given as a synonym of *S. linifolia* Cav. var. *linifolia* by Clement (p. 83); and *S. inflata* Larrañaga is given as *S. physocalyx* A. Gray by Clement (pp. 32, 34). *Sida centuriata* Clement, "obviously in close relationship to *S. ciliaris*," is described as a new species from Paraguay (pp. 18-20).

(†) This is the fourth paper dealing with the taxonomy of *Malvaceae* to be published in this journal with aid from the T. H. Kearney Memorial Fund of the California Academy of Sciences.—J. T. HOWELL.

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In his treatment of *Sida* in the Flora of Peru, J. Francis Macbride (Field Museum Bot. Ser. 13, Pt. 3A, No. 2: 573–588, –1956) treats two species not included by Dr. Kearney in the present key: *S. chachapoyensis* Baker f. (p. 576) and *S. grewiiifolia* (Ulbr.) Hochr. ex Macbride (p. 578). The former is mentioned by Dr. Kearney in his Note 23; the latter is based on *Abutilothamnus grewiiifolius* Ulbr. which Dr. Kearney retained in its monotypic genus (cf. Kearney, Amer. Midl. Nat. 46: 104, 124, –1951). The plant called *S. veronicaefolia* by Macbride (p. 587) is treated as *S. hederaefolia* by Kearney (cf. dichotomy 37 in key).—J. T. HOWELL.

1. Leaves palmately lobed, usually deeply so. Plants annual (so far as is known); inflorescences paniculate, usually many flowered; petals pink to red-violet; anthers few (5–20); carpels 5–7, aristate (except sometimes in *S. jatrophioides*?), the awns retrorsely hispid. Section OLIGANDRAE. Note 2. (2).

1. Leaves not palmately lobed (9).

2. Staminal column glabrous; anthers 5. Carpels 5 (3).

2. Staminal column pubescent; anthers 10–20 (6).

3. Carpel-awns about 14 mm. long. Peru. *S. lomana* Bruns. Note 3

3. Carpel-awns 4–6 mm. long (4).

4. Leaf-lobes oblong, obtuse, scarcely narrowed at base. Peru.
 *S. patuliloba* R. E. Fries

4. Leaf-lobes lanceolate or ovate-lanceolate, acute or acutish, narrowed (in *S. lomegeiton*?) at base (5).

5. Stipules 5–7 mm. long; leaves cleft to below the middle; calyx submentose; carpel-awns 6 mm. long. Ecuador, Peru, and Bolivia. . . .
 *S. oligandra* K. Schum.

5. Stipules 1.5–2 mm. long; leaves cleft nearly to the middle; calyx sericeous; carpel-awns about 4 mm. long. Peru.
 *S. lomegeiton* Ulbr. Note 4

6. Carpels 5, the awns 12–14 mm. long. Anthers 10. Ecuador
 *S. decandra* R. E. Fries. Note 5

6. Carpels 7, the awns 4–5 mm. long (7).

7. Leaves relatively shallowly cleft, the lobes broad at base, triangular; anthers 10–15. Ecuador, Peru, and (?) Brazil. . . . *S. palmata* Cav. Note 6

7. Leaves cleft to below the middle, the lobes narrowed at base (8).

8. Anthers 20; leaf-lobes pinnately incised. Peru
 *S. jatrophioides* L'Hér. Note 7

8. Anthers 10; leaf-lobes irregularly toothed. Peru. *S. rupe* Ulbr.

9. Peduncle adnate to the petiole of the subtending leaf or bract; flowers in more or less dense, few-flowered apical clusters, as if involucrate by the upper leaves and conspicuous, hirsute-ciliate stipules. Leaves (except in *S. surumuensis*) sparingly serrate toward apex, mostly narrow, often wedge-shaped; carpels 5–8. Section *Pseudomalachra*. (10).

9. Peduncles not so adnate; flowers not in dense terminal clusters or, if so, then not appearing involucrate (13).
10. Leaves tridentate at the broadly truncate apex, cuneate-obovate or oblanceolate. Stems more or less decumbent; petals about 17 mm. long, pinkish-yellow; carpels 5, aristate, rugose-reticulate, conspicuously spinose-muricate on the dorsal angles. Northern Argentina.....
.....*S. paradoxa* Rodrigo
10. Leaves several-toothed in the upper half or two-thirds or nearly entire in *S. surumuensis*. Carpels rugose-reticulate and muricate, shortly and stoutly aristate (11).
11. Stems erect or ascending, sparingly branched; carpels with long, spinose murications. Leaves linear; petals 10–15 mm. long, pink or purple. Brazil, Paraguay, Uruguay, Argentina; North America.....
.....*S. anomala* St. Hil.
11. Stems procumbent to ascending, diffusely branched from the base; carpels with usually short murications (12).
12. Plants suffrutescent from a strong, woody caudex; stems up to 40 cm. long; leaves narrowly linear or linear-lanceolate, acute at apex, the margins entire or nearly so; petals more than 10 mm. long, orange. Brazil (Amazonas) and (?) British Guiana...*S. surumuensis* Ulbr. Note 8
12. Plants (sometimes annual?) herbaceous or nearly so above the caudex; stems seldom more than 25 cm. long; leaves narrowly oblong to obovate or (rarely) suborbicular, rounded or truncate to acute at apex, the margins serrulate or serrate; petals 6–10 mm. long, pink, purplish, or orange. Almost throughout South America; North America.....
.....*S. ciliaris* L. Note 9
13. Flowers with an involucl of (usually 3) narrowly linear bractlets; herbage silvery-lepidote. Perennial herb with low, decumbent stems; leaves thickish, asymmetric, suborbicular, rather coarsely dentate; flowers solitary in the axils on more or less elongate, often curved peduncles; petals yellow, drying blackish; carpels 6–8, muticous. Section PSEUDOMALVASTRUM. Paraguay, Uruguay, Argentina
.....*S. leprosa* (Ortega) K. Schum. Note 10
13. Flowers not involuclate; herbage not silvery-lepidote (14).
14. Calyx becoming greatly enlarged, inflated, membranous, more or less conspicuously veiny, enclosing and much longer than the muticous (sometimes bluntly rostrate) carpels. Plants mostly herbaceous above ground; leaves mostly cordate. Section PHYSALODES. (15).
14. Calyx otherwise, only moderately accrescent. Note 11. (19).
15. Flowers numerous, in rather loose, axillary clusters of 4 or more. Herbage loosely tomentose; stems erect; leaves oblong-ovate to suborbicular, cordate, coarsely crenate-dentate, somewhat discoloured; calyx 7–10 mm. long at maturity; petals salmon-pink; carpels 5, not at all rostrate, smooth-sided. Brazil, Paraguay, Uruguay, Argentina.....
.....*S. urticaefolia* St. Hil. Note 12
15. Flowers few, either solitary in the axils of the stem and branches or rarely 2 in *S. macrodon*, or normally 2, rarely 3 in *S. prostrata* (16).

16. Stems usually creeping and rooting at the nodes, very slender, minutely stellate and with long, simple hairs; leaves very asymmetric, cordate at base, thin, ovate, acute or acuminate at apex, shallowly dentate or crenate; carpels 5, with hyaline lateral walls, smooth or obscurely reticulate, muticous or nearly so. Calyx 5–7 mm. long at maturity, the lobes scarcely cordate; petals yellow or whitish, 6–7 mm. long. Brazil, Argentina; southern Mexico, Central America, and Panama.
.....*S. decumbens* St. Hil. & Naud. Note 13
16. Stems not creeping or rooting at the nodes; leaves symmetric or nearly so, thicker; carpels with thicker, firm lateral walls (17).
17. Calyx strongly plicate-angulate, the lobes deeply cordate; carpels 10–14, with coarsely reticulate, firm, lateral walls and a long, horizontal, blunt beak, black at maturity; petals yellow, 10–20 mm. long. Stems more or less decumbent from a long, tuber-like caudex, rather loosely pubescent with mostly few-rayed hairs; leaves symmetric or nearly so, oval, ovate, or suborbicular, coarsely crenate-dentate, usually subcordate at base, rounded to acutish at apex; calyx 10–15 mm. long. Brazil, Paraguay, Uruguay, Argentina; North America.....
.....*S. physocalyx* A. Gray. Note 14
17. Calyx not or but slightly plicate-angulate, the lobes not deeply cordate; carpels fewer, with smooth or smoothish lateral walls and without a long horizontal beak; petals pink or white. Stems finely stellate and with long simple hairs (18).
18. Peduncles much shorter than the subtending leaves; flowers 1–3 in the axils; carpels 5. Brazil, Uruguay, Argentina...*S. prostrata* Cav. Note 15
18. Peduncles mostly longer than the subtending leaves; flowers solitary, rarely binate; carpels about 8. Stems sometimes from a thick, tuber-like root. Brazil, Bolivia, Paraguay, Argentina, Peru.....
.....*S. macrodon* DC. Note 16
19. Inflorescences terminal or subterminal, corymbiform or short-racemose, the small subulate bracts caducous; leaves entire-margined, mostly linear or lanceolate, elongate, sharply attenuate-acuminate, short-petiolate or subsessile. Stipules conspicuous, subulate, rather persistent; calyx campanulate, pilose or villous; petals white or yellow, sometimes with a brown-purple basal spot; carpels muticous or nearly so. Section STENINDA. (20).
19. Inflorescences otherwise or the leaves not entire (21).
20. Plants herbaceous, annual (or sometimes perennial?); stems unbranched or sparingly (seldom freely) branched; leaves linear or narrowly lanceolate; calyx 4–5 mm. long; petals 7–10 mm. long; carpels 7–9. Northern South America to Bolivia, Brazil, and Paraguay; North America*S. linifolia* Juss. ex Cav. Note 17
20. Plants suffrutescent; stems more branched; leaves lanceolate, or the lower ovate-lanceolate or elliptic; calyx about 7 mm. long; petals 11–15 mm. long; carpels fewer. Herbage hirsute with long, pustular-based, simple hairs. Paraguay*S. Hassleri* Hochr.
21. Flowers numerous or many, in open, more or less leafy, terminal panicles, usually long-pedicellate (except in *S. micrantha* and *S. pyra-*

- midata*). Carpels 7 or fewer. Section THYRSINDA, amplified. Note 18. (22).
21. Flowers relatively few, if many and more or less paniculate (*S. aggregata*, *S. cordifolia*, *S. urens*) then short-pedicellate and crowded. Section MALVINDA (26).
22. Petals dark red or purple. Herbage pubescent, usually copiously so, without glandular hairs; leaves ovate or ovate-lanceolate, cordate or rounded at base, crenate or serrate; panicle very open, the filiform pedicels much longer than the flowers; petals 3–5 mm. long, often reflexed; carpels 5, muticous or short-beaked. Northern South America to northern Argentina; North America *S. paniculata* L. Note 19
22. Petals (in *S. goyazensis*?) yellow or orange or (in *S. micrantha*) sometimes pink (23).
23. Flowers very small, the petals 2–3 mm. long, not or barely surpassing the calyx; inflorescence an elongate, leafy thyrse with suberect, very many-flowered branchlets. Herbage rather roughly stellate-tomentose; leaves broadly ovate or suborbicular, cordate to truncate at base, up to 12 cm. long; calyx rounded at base, not angulate; carpels 5, short-cuspidate to nearly muticous, puberulent apically. Colombia, Venezuela, Guiana, Brazil; Cuba *S. micrantha* St. Hil. Note 20
23. Flowers larger, the petals 5 mm. or longer, surpassing the calyx; inflorescence more open and fewer-flowered (24).
24. Herbage sparsely to copiously pubescent, usually with few or no long and simple, or glandular hairs; leaves shortly and rather abruptly acuminate; carpels 5–8, muticous to cuspidate, thick, the firm lateral walls smooth. Plants suffruticose or shrubby; leaves thin, green, broadly ovate, shallowly cordate or truncate at base, the uppermost leaves reduced to small bracts; inflorescence-branches slender, mostly elongate and more or less racemose or subpaniculate; calyx rounded at base, not angulate; petals 6–8 mm. long, yellow or orange, sometimes red at base. Colombia and Venezuela; North America
. *S. pyramidata* Desportes. Note 21
24. Herbage with long, spreading, simple hairs and copiously glandular-pilose; leaves usually long-acuminate; carpels 5, more or less aristate. Calyx rounded or somewhat angulate (25).
25. Petals about 5 mm. long; carpel-awns slender, antrorsely pilose. Inflorescence-branches rather lax, the flowers rarely solitary in the axils; leaves long-petiolate, ovate, cordate, finely dentate or crenate. Colombia, Venezuela; North America . . . *S. glutinosa* Commers. Note 22
25. Petals 9 mm. long; carpel-awns retrorsely pilose. Plants perennial, herbaceous or suffrutescent; leaves ovate or oblong-ovate, concolorous; stipules deltoid-ovate, barely 1 mm. long; flowers on long, slender peduncles; carpel-awns very short, curved. Brazil (Goyaz)
. *S. goyazensis* K. Schum.
26. Carpels 5 or occasionally 6 (often so in *S. acrantha* and *S. subcuneata*?). Note 23. (27).
26. Carpels (in *S. galheirensis*?) seldom fewer and often more than 6 (71).

- edge. Stems with scattered, long, simple hairs in addition to the more abundant shorter hairs; leaves ovate-lanceolate, shallowly cordate; calyx 8–9 mm. long, puberulent and also with longer, simple hairs on the angles and margins, the lobes sharply attenuate-acuminate; petals about 12 mm. long. Bolivia.....*S. gracilipes* Rusby. Note 32
38. Carpels (in *S. lapaensis*?) otherwise (39).
39. Carpels muticous, truncate or depressed at apex, glandular. Herbage glandular and viscid; flowers somewhat clustered at apex of the branchlets, very fragrant; petals more (?) than 20 mm. long. Brazil (Minas Geraes)*S. odorata* Monteiro f. Note 33
39. Carpels (in *S. lapaensis*?) corniculate, cuspidate, or aristate at apex, not glandular. Leaves small, discoloured (40).
40. Plant shrubby; leaves linear-oblong, subcordate, obtuse at apex; petals 10 mm. long, retuse at apex. Calyx tomentellous; mature fruit unknown. Brazil (Minas Geraes).....*S. lapaensis* K. Schum.
40. Plants herbaceous, perennial; leaves ovate, cordate, acutish to subacuminate at apex; petals about 7 mm. long. Carpels cuspidate or very shortly aristate (41).
41. Stem-pubescence of long, fine, spreading, simple hairs only; petals unequally bilobate. Argentina (Tucumán).....*S. Lilloana* Rodrigo
41. Stem-pubescence of short, more or less glandular hairs; petals emarginate. Paraguay*S. rupicola* Hassler var. *grandiflora* Hassler
42. Inflorescences mainly terminal, subcapitate or umbelliform, the flowers conspicuously subtended by the stipule-like, reduced upper leaves. Leaves (below the inflorescence) oblanceolate or oblong-obovate, often somewhat rhombic, mostly cuneate or subcuneate at base, serrate or crenate above the middle; calyx-lobes long-acuminate; petals yellow or white with a purple basal spot; carpels (sometimes 6) muticous or nearly so, dehiscent only at apex, with fragile lateral walls (43).
42. Inflorescence otherwise, if terminal, then not conspicuously bracteate with stipule-like bracts, the flowers solitary or clustered in the upper axils (44).
43. Plants herbaceous, perennial; pubescence grayish; leaves rhombic-oblong or -obovate, $\frac{1}{4}$ – $\frac{1}{2}$ as wide as long, acute or obtuse at apex, crenate-dentate to about the middle; flowers mostly terminal. Brazil (Minas Geraes)*S. acrantha* Link
43. Plants woody; pubescence yellowish; leaves oblong-oblanceolate, about $\frac{1}{4}$ as wide as long, rounded-truncate at apex, dentate only at or very near the apex; flowers axillary as well as terminal. Brazil (Minas Geraes)*S. subcuneata* St. Hil. Note 34
44. Flowers solitary or subracemosely clustered in the axils of the uppermost leaves (45).
44. Flowers more scattered along the stem, solitary or glomerate (46).
45. Leaves linear-lanceolate, about $\frac{1}{5}$ as wide as long; flowers mostly solitary, the pedicels 5 mm. or longer; calyx glabrous, the lobes very long-caudate; petals about 5 mm. long, oblong, yellow; carpels muticous. Brazil (Amazonas)*S. blepharoprion* Ulbr. Note 35

45. Leaves ovate or elliptic, about $\frac{1}{2}$ as wide as long; flowers mostly in dense clusters, the pedicels not more than 2 mm. long; calyx minutely stellate-pubescent and with long, simple hairs, the lobes subacuminate; petals 7 mm. long, suborbicular, rose-pink; fruit unknown. Brazil (Bahia) *S. Ulei* Ulbr. Note 36
46. Inflorescence (when well developed) composed of dense, subcapitate, several-flowered, axillary and terminal glomerules, these sometimes constituting a leafy panicle, the flowers (except in *S. margaritensis*) subsessile or very shortly pedicellate. Leaves cordate at base; calyx (except sometimes in *S. tomentella*?) hirsute or villous, plicate-angulate; petals (in *S. pseudo-urens*?, *S. tomentella*?) yellow, sometimes with a red base (47).
46. Inflorescence otherwise (52).
47. Carpels shortly aristate, the awns retrorsely hirsutulous. Stems somewhat woody, black-violet after loss of the pubescence; leaves lanceolate to ovate, about $\frac{1}{2}$ as wide as long, shallowly cordate, attenuate-acuminate at apex; petals 4.5 mm. long, shorter than the calyx; seeds minutely puberulent. Paraguay *S. melanocaulon* Hassler. Note 37
47. Carpels muticous to shortly aristate, the awns, when present, antrorsely pilose (48).
48. Calyx about 4 mm. long; stems with reddish, stellate pubescence. Leaves $\frac{2}{3}$ – $\frac{3}{4}$ as wide as long, acute. Peru *S. pseudo-urens* Baker f. Note 38
48. Calyx 5–8 mm. long; stems with long, simple, spreading hairs in addition to other pubescence (49).
49. Petals 5 mm. long; plants suffruticose; peduncles up to 4 cm. long; carpels with a somewhat prominent dorsal costa, 3 mm. long. Paraguay *S. margaritensis* Hassler. Note 39
49. Petals 6–7 mm. long; plants herbaceous or nearly so; peduncles much shorter; carpels rounded on the back, not prominently costate (50).
50. Stems densely tomentose toward apex with short, stellate hairs, also more sparsely villous with long, very fine, lax, simple hairs; leaves ovate-lanceolate, long-acuminate, serrate or crenate-serrate, discolorous, dark green above, whitish-tomentose beneath; calyx commonly without long hairs; carpels 3 mm. long, apiculate, puberulent. Brazil *S. tomentella* Miq. Note 40
50. Stems not tomentose, hirsute or hispid with stiff, simple or few-armed hairs; leaves commonly ovate, acutish to short- (exceptionally long-) acuminate, nearly concolorous; calyx villous or hirsute, especially on the angles and margins; carpels 1.5–2 mm. long, glabrous or nearly so (51).
51. Herbage rather sparsely pubescent; leaves thin, usually short-acuminate, rather coarsely dentate or serrate; lateral glomerules often borne on elongate branchlets. Almost throughout South America; North America *S. urens* L. Note 41
51. Herbage densely pubescent with reddish or yellowish hairs; leaves thick, acutish, crenulate-serrulate; lateral glomerules sessile in the axils or nearly so. Venezuela, Bolivia, Brazil, and (?) Paraguay *S. rufescens* St. Hil. Note 42

52. Leaves linear or linear-lanceolate, not more than $\frac{1}{5}$ as wide as long, subcordate-subauriculate at base, acute, serrulate above the middle; petals white with a dark purple basal spot, about 11 mm. long. Plants herbaceous; stipules up to 12 mm. long, persistent after the leaves fall; carpels 2–2.5 mm. long, obovoid-trigonous, thick, muticous or slightly apiculate, reticulate and minutely pitted, thin-walled, glabrous. Brazil *S. linearifolia* St. Hil.
52. Leaves broader, or the petals yellow, or, if white, then without a basal spot (53).
53. Corollas white or whitish; carpels opening irregularly below by a whitish membrane. Stems minutely stellate-pubescent; leaves broadly ovate to lanceolate, serrate, rounded to subcordate at base; flowers solitary in the axils but becoming racemosely crowded at apex; peduncles much shorter than the subtending leaves; calyx 5-angulate, the lobes acute. West Indies and "tropical continental America"
..... *S. alba* L. Note 43
53. Corollas normally yellow in most of the species (paragraphs 54–70); carpels commonly opening regularly at apex (54).
54. Carpels muticous, obovoid-trigonous, rounded or depressed at apex. Herbage more or less glandular-puberulent, the stems also with long, spreading, simple hairs; leaves lanceolate to ovate; flowers axillary, solitary or in very few-flowered loose clusters, often rather long-pedunculate; calyx glandular-puberulent and hirsute; petals about 6 mm. long, shorter than the calyx, yellow (55).
54. Carpels corniculate, cuspidate, or aristate at apex (56).
55. Lateral walls of the carpels smooth, very thin and fragile. Brazil and (?) Paraguay *S. aurantiaca* St. Hil.
55. Lateral walls of the carpels rugulose, firm. Venezuela, Brazil, Colombia(?), Paraguay (?) *S. Martiana* St. Hil. Note 44
56. Peduncles (except sometimes in *S. spinosa*) very short. Leaves rounded, truncate, or subcuneate at base (rarely obscurely cordate); carpels normally more or less aristate, the awns and apex of the carpel-body pilosulous with antrorse or spreading hairs (57).
56. Peduncles (in *S. Emilei*?) elongate, usually very slender (60).
57. Herbage finely soft-tomentose; stems herbaceous or somewhat woody, often decumbent, without infrapetiole tubercles; leaves oblong or subrhombic to suborbicular, rounded or obtuse at apex, nearly concolorous; corolla whitish, buff, or pale yellow. Northern South America; West Indies, southern Mexico (?), Panama
..... *S. jamaicensis* L. Note 45
57. Herbage minutely stellate-puberulent; stems herbaceous, erect, often with more or less spinose infrapetiole tubercles; leaves ovate or oblong to narrowly lanceolate, obtuse or acutish at apex, usually discolored; petals normally yellow (58).
58. Leaves ovate, ovate-lanceolate, or oblong, $\frac{1}{2}$ – $\frac{2}{3}$ as wide as long. Almost throughout South America; North America
..... *S. spinosa* L. var. *spinosa*. Note 46

58. Leaves (except sometimes in var. *Riedelii*) linear or lanceolate, not more than $\frac{1}{4}$ as wide as long (59).
59. Flowers commonly only 1 or 2 in the axil, sometimes with an accessory branchlet; carpel-awns erect. Almost throughout South America.*S. spinosa* var. *angustifolia* (Lam.) Griseb. Note 47
59. Flowers commonly several in the axil, in dense glomerules; carpel-awns divergent. Brazil, Paraguay, Argentina.*S. spinosa* var. *Riedelii* (K. Schum.) Rodrigo. Note 48
60. Leaf-base not cordate, either truncate or cuneate (61).
60. Leaf-base more or less deeply cordate (63).
61. Leaves less than 2 cm. long, linear, truncate at apex, serrulate, discoloured; calyx 3–3.5 mm. long, longer than the corolla. Herbage minutely stellate-puberulent; stems profusely branched; carpels about 2 mm. long, rugose-reticulate on the sides, mucronate. Colombia.*S. Killipii* Kearney. Note 49
61. Leaves mostly more than 2 cm. long, broader than linear, acuminate at apex, irregularly serrate; flowers larger, the corolla 5 mm. or longer. Carpels shortly beaked (62).
62. Blades rhombic-lanceolate, strongly cuneate and subhastate at base, coarsely toothed. Peru?*S. Ruizii* Ulbr. Note 50
62. Blades ovate-lanceolate or ovate-oblong, truncate at base. Flowers nutant; carpels with thin, fragile, obscurely veined lateral walls. Brazil (Minas Geraes)*S. chapadensis* K. Schum.
63. Stems (or lateral branches) prostrate and often rooting at the nodes, very slender, often nearly filiform. Leaves nearly or quite as long as wide; carpels more or less aristate with antrorsely (sometimes retrorsely?) scabrous or pilose awns, the body 2–2.5 mm. long. Colombia, Peru, Galápagos Islands; West Indies, Old World Tropics.*S. hederaefolia* Cav. Note 51
63. Stems decumbent to erect, not rooting at the nodes (64).
64. Carpels muticous or merely corniculate at apex. Leaves broadly ovate or subtrilobate (65).
64. Carpels more or less aristate (66).
65. Herbage and calyx entirely glabrous except that the young stems are sparsely glandular and hirsute; lateral walls of the carpel very thin, reticulate. Brazil (Ceará)*S. cearensis* Ulbr. Note 52
65. Herbage and calyx copiously pubescent with short glandular and eglandular, and with long, simple hairs; lateral walls of the carpels covered with sessile, fetid glands. Bolivia, Brazil, Argentina.*S. piauihyensis* Ulbr. Note 53
66. Petals 9–10 mm. long; carpels 1.5 mm. long, including the awns. Plants perennial, herbaceous, with subscandent, flexuous stems; leaves nearly concolorous, triangular-lanceolate or oblong-ovate, 2.5–6 cm. long; flowers solitary in the axils, long-pedunculate; calyx with minute hairs on ribs and margins, otherwise glabrous. Paraguay.*S. gracillima* Hassler. Note 54
66. Petals (in *S. Emilei*?) not more than 7 mm. long; carpels larger (67).

67. Carpels 2-lobed at apex, the lobes deltoid or quadrate and terminating in awns, the carpel-body below the smooth lobes usually finely reticulate (68).
67. Carpels (in *S. Emilei*?) otherwise (70).
68. Stems decumbent, herbaceous or nearly so above the caudex, with long, fine, simple hairs in addition to shorter pubescence; carpel-body 2.5–4.5 mm. long, narrow, the awns rather long, antrorsely pilose. Uruguay, Argentina.....*S. dictyocarpa* Griseb.
68. Stems erect or ascending (69).
69. Carpels as in *S. dictyocarpa* but with shorter awns; stems more or less woody above the caudex, up to 1 m. high, minutely puberulent, without long hairs. Argentina, Bolivia, and (?) Paraguay.....
.....*S. esperanzae* R. E. Fries. Note 55
69. Carpels rounded-trigonous, 2.5 mm. high, short-awned; stems herbaceous or nearly so, with long hairs in addition to other pubescence. Paraguay*S. rupicola* Hassler. Note 56
70. Peduncles articulated toward the base; stems densely pubescent toward apex; leaves velutinous on both surfaces, obtuse or acute at apex. Flowers solitary in the axils; petals (even the claws) entirely glabrous; mature fruit unknown. Paraguay.....*S. Emilei* Hochr. Note 57
70. Peduncles articulated at or above the middle; stems not densely pubescent; leaves not velutinous, attenuate-acuminate. Stems glabrate to copiously but not densely pubescent with mostly simple, often somewhat glandular hairs; leaves sparsely pubescent, thin, ovate or ovate-lanceolate, cordate, serrate-dentate; inflorescence, when well developed, forming an open, leafy, relatively few-flowered panicle, the peduncles up to 4 cm. long; petals about 6 mm. long; carpels narrow, usually finely reticulate, pilose toward apex, with (often very long) antrosely pilosulous awns. Mexico and West Indies to northern South America*S. glabra* Mill. Note 58
71. Inflorescence mainly terminal and spike-like, the flowers nearly sessile and closely subtended (falsely involuclate) by several subulate, hispid bracts, these much longer than the calyx. Plant herbaceous; stems hispid; leaves lanceolate, ovate-lanceolate, or ovate-oblong, acuminate; calyx 6–7 mm. long, with acute lobes, shorter than the yellow petals; carpels 7–10, dehiscent to the base dorsally. Guiana, Brazil; Panama*S. quinquenervia* Duchass. Note 59
71. Inflorescence not spike-like or the flowers not subtended as above (72).
72. Blades of the leaves more or less acutely lobed. Stems erect, scurfy or white-tomentose; blades ovate, cordate at base, acuminate at apex, irregularly serrate, discoloured, white-tomentose beneath, up to 10 cm. long; flowers glomerate at apex of the long peduncles; petals 12–16 mm. long, much longer than the calyx; carpels 12–15, cuspidate. Ecuador*S. Jamesonii* Baker f.
72. Blades not lobed or very shallowly so. Note 60. (73).
73. Leaves distichous, shortly petiolate or sessile, often more or less rhombic, rounded to cuneate and more or less asymmetric at base. Stipules conspicuous, persistent, prominently 3-nerved; pedicels very short; carpels usually more than 7, cuspidate or aristate (74).

73. Leaves not distichous (75).

74. Herbage (except in var. *hispida* K. Schum.) not conspicuously pubescent, often glabrate; leaves narrowly lanceolate to ovate, up to 8.5 cm. long; flowers solitary or in small, short-pedunculate, axillary glomerules; petals yellow or whitish, from little-surpassing to about twice as long as the calyx; carpels cuspidate or short-aristate. Almost throughout South America; North America; Old World... *S. acuta* Burm. Note 61

74. Herbage copiously hirsute with simple and stellate hairs; leaves elliptic-lanceolate, up to 14 cm. long, coarsely serrate, long-acuminate; flowers mostly in dense, many-flowered clusters at the ends of axillary branchlets; petals light purple, scarcely surpassing the calyx; carpels long-aristate. Bolivia *S. Bakeriana* Rusby. Note 62

75. Carpels aristate, the awns retrorsely hispid or pilose (76).

75. Carpels not aristate, or the awns not retrorsely pubescent (84).

76. Leaves mostly linear to oblong-lanceolate and less than $\frac{1}{2}$ as wide as long (77).

76. Leaves mostly oblong, ovate, or suborbicular, at least the lower ones nearly $\frac{1}{2}$ to quite as wide as long (80).

77. Petals 13-14 mm. long, at least twice as long as the calyx, yellow; leaves very narrow, not more than $\frac{1}{7}$ as wide as long, acute at base, up to 6 cm. long, short-petiolate. Flowers loosely subcorymbose or racemose at apex of the stem and branches; stems tomentulous or puberulent above; carpels with rather long, divergent awns. Brazil.
..... *S. angustissima* St. Hil.

77. Petals not more than 10 mm. long; leaves (in *S. Allemanii*?) mostly broader, truncate or rounded (rarely subcordate) at base (78).

78. Stems minutely canescent, very rarely with long, simple hairs; leaves denticulate or serrulate, mostly linear or narrowly oblong, rounded or subcuneate at base; calyx angulate-turbinate; petals whitish or cream-colored, brownish at base or pink-veined. Flowers solitary in the axils, somewhat crowded apically; carpels 6-8, narrow, conspicuously muricate, the awns nearly or quite equaling or (in var. *submutica*) much shorter than the body. Colombia, Venezuela, Ecuador; North America; var. *submutica* in the Galápagos Islands and (?) Peru...
..... *S. salviaefolia* Presl

78. Stems with long, simple, spreading hairs in addition to much shorter stellate and glandular hairs; leaves crenate or serrate; calyx (in *S. Allemanii*?) more or less campanulate; petals (in *S. Allemanii*?) pink (79).

79. Petioles geniculate at apex; lowest teeth of the leaves not spreading. Northeastern Brazil *S. Allemanii* Monteiro f. Note 63

79. Petioles straight, not geniculate; lowest teeth of the leaves spreading. Plants herbaceous or suffrutescent; stems rarely aculeate (Note 64); flowers solitary in the upper axils and aggregated at apex of the stems; lower leaves sometimes ovate; peduncles articulated shortly below the calyx; carpels 9-13, the awns slender, as long as the body or, in var. *manresana* (Note 65) considerably shorter. Brazil, Paraguay, Uruguay, northern Argentina
..... *S. pseudo-potentilloides* Monteiro f. Note 66

80. Stems pubescent with short, glandular hairs; petioles as long or longer than the blades; flowers all solitary in the axils. Plants herbaceous, perennial; leaf-blades suborbicular or oblong, up to 2 cm. long; calyx campanulate; petals 15 mm. long, rose; carpels 10 or 11, long-awned, deeply reticulate below. Northwestern Argentina
.....*S. calchaquiensis* Rodrigo
80. Stems otherwise pubescent, the glandular hairs few or none; petioles shorter (usually much shorter) than the blades; flowers solitary or clustered in the axils and more or less crowded at apex of the stem and branches (81).
81. Flowers very numerous, in dense, axillary and terminal, corymbose or subracemose clusters, the whole inflorescence more or less paniculate. Herbage velutinous with rather long, fine hairs, often rather loosely so, usually without very long, stiff, spreading hairs; leaves ovate to suborbicular, $\frac{1}{2}$ to nearly as wide as long, cordate or truncate at the broad base, conspicuously dentate or serrate; calyx plicate-angulate, the lobes broad, subcordate; petals 10–12 mm. long, commonly yellow; carpels 7–12, prominently reticulate, the awns elongate and retrorsely hispid, or short and the hairs not retrorse. Almost throughout South America; North America*S. cordifolia* L. Note 67
81. Flowers not very numerous, 1 or 2 in the axils and more or less aggregated at apex (82).
82. Stems without long, simple hairs, whitish- or yellowish-lanate; calyx angulate, spreading in fruit, tomentose, the lobes caudate. Leaves rhombic or oblong (to orbicular?), rather coarsely crenate-serrate; petals about 12 mm. long, suborbicular, yellow (?); carpels about 10. Northeastern Brazil.....*S. galheirensis* Ulbr. Note 68
82. Stems (except sometimes in *S. campestris*?) with long, spreading, simple hairs in addition to other pubescence; calyx broadly campanulate, the lobes acuminate. Carpels prominently rugose below (83).
83. Plants perennial and suffrutescent, but flowering the first season; calyx about 10 mm. long, villous with spreading hairs; corolla reddish-yellow; carpels about 12, long-ciliate on the margins of the dehiscent section. Uruguay, Argentina....*S. variegata* (Griseb.) Krapov. Note 69
83. Plants annual; calyx 5 mm. long, pilosulous; corolla (fide Svenson) white with a red center; carpels 6–10, the dehiscent section not ciliate. Upper leaves sometimes narrowly lanceolate. Ecuador
.....*S. campestris* Benth.
84. Carpels (except sometimes in *S. rhombifolia*) distinctly aristate but the awns not retrorsely pilose (85).
84. Carpels not aristate, muticous to cuspidate or (in *S. Glaziovii*) sometimes minutely aristate (90).
85. Leaves linear or narrowly lanceolate or oblong, $\frac{1}{6}$ – $\frac{1}{4}$ ($\frac{1}{3}$) as wide as long, discolorous; flowers mostly in small, terminal, subcorymbose clusters. Plants suffrutescent; petals emarginate or unequally bilobate, very asymmetric; carpels about 10, with a broad, more or less reticulate basal section; the awns shorter than the body (86).

85. Leaves (at least the lower ones) broader, $\frac{1}{3}$ or more as wide as long or, if less than $\frac{1}{3}$ (*S. rhombifolia*) then more or less rhombic and the flowers more scattered (87).
86. Stems with long, spreading, simple hairs in addition to other pubescence; leaves truncate or subcordate at base, crenate; peduncles articulated; petals 15–18 mm. long, yellow. Southern Brazil (?), Paraguay, northern Argentina *S. vespertina* Ekman
86. Stems without long hairs, minutely puberulent; leaves subcuneate at base, sharply serrate; peduncles not articulated; petals not more than 10 mm. long, yellow or (fide Ekman) when fresh, violet with a yellow base. Southern Brazil, northern Argentina
..... *S. potentilloides* St. Hil. Note 70
87. Petals rose-colored, 10–15 mm. long. Stems shortly stellate-pubescent, also villous, and with sessile glands; flowers solitary (or few?) in the upper axils, aggregated at end of the stem, the peduncles articulated; leaves linear or oblong, rather thick, truncate at base, crenate throughout; calyx 8–12 mm. long. Carpel-awns antrorsely pilose. Paraguay, Uruguay, and (?) northern Argentina
..... *S. multicrena* Hochr. Note 71
87. Petals (in *S. santaremensis*?) prevailing yellow, sometimes whitish or tinged with pink, not more than 12 mm. long; calyx smaller (88).
88. Leaves $\frac{1}{2}$ to very nearly as wide as long, ovate to suborbicular; herbage velutinous. Carpels with short awns, these with spreading, stellate and simple hairs. Northern Argentina
..... *S. cordifolia* var. *breviaristata* Monteiro f.
88. Leaves usually less than $\frac{1}{2}$ as wide as long (89).
89. Leaves normally more or less rhombic and cuneate at base, lanceolate to ovate or obovate; carpels commonly longer than wide. Plants often suffrutescent to shrubby; herbage seldom conspicuously pubescent; infrapetiolar tubercles sometimes present; stipules more or less persistent; flowers solitary or few in the axils, or more or less clustered apically, the peduncles short or elongate; carpels mostly 10–14, with long, glabrous or minutely pilosulous awns, or sometimes nearly muticous. Almost throughout South America; North America; Old World *S. rhombifolia* L. Note 72
89. Leaves not rhombic, not (?) cuneate at base, elliptic, oval, or suborbicular; carpels wider than long. Small infrapetiolar tubercles present; carpel-awns 1 mm. or longer. Northern Argentina
..... *S. santaremensis* Monteiro f. var. *Krapovickasiana* Monteiro f.
90. Inflorescence of few-flowered, axillary, short-peduncled, subumbellate or subracemose clusters, the flowers seldom solitary in the axils, flowers very small, the calyx barely 5 mm. long, rounded-campanulate, not at all angulate, the petals little, if any, longer. Plants shrubby or suffruticose; herbage stellate-tomentose; leaves short-petiolate, ovate to lanceolate, often subrhombic, cuneate, rounded, or subcordate at base, obtuse to subacuminate at apex, rather finely crenate or dentate; calyx densely tomentose, the lobes acutish; petals pink with a dark basal spot (or yellow turning red?); carpels about 10, muticous

- or mucronate, with thin, finely reticulate lateral walls. Venezuela, Brazil, Paraguay, Argentina; West Indies . . . *S. acuminata* DC. Note 73
90. Inflorescence otherwise, or the flowers larger, or the calyx more or less angulate (91).
91. Petals purple, pink, or white drying pink or (in *S. purpurascens*?) exceptionally yellow (92).
91. Petals (in *S. santaremensis*?, *S. tuberculata*?) normally yellow or orange, sometimes drying pink (97).
92. Stems decumbent or procumbent; leaves about as wide as long, up to 2.5 cm. long, rather long-petiolate, subcordate or subtruncate at base, coarsely crenate-dentate. Stems with long, spreading hairs in addition to other pubescence; flowers solitary in the axils, the peduncles long (often longer than the subtending leaves), slender; petals about 15 mm. long, white or pink, rather deeply emarginate, slightly asymmetric; carpels 10, muticous, with fragile lateral walls. Paraguay *S. pseudocymbalaria* (Hassler) Hassler. Note 74
92. Stems erect or ascending; leaves longer than wide (93).
93. Leaves usually less than $\frac{1}{3}$ as wide as long, oblong or lanceolate, rather long-petiolate; stems (except sometimes in *S. Weberbaueri*) with long, simple hairs in addition to other pubescence. Carpels muticous or slightly apiculate (94).
93. Leaves $\frac{1}{3}$ – $\frac{2}{3}$ as wide as long; stems without long hairs (95).
94. Carpels 11–13, the indehiscent (basal) portion strongly reticulate; petals rose-violet; leaves narrowly oblong or oblong-lanceolate, rounded or subcordate at base. Southern Brazil, northern Argentina *S. Regnellii* R. E. Fries
94. Carpels 6 or 7, muticous, with 2 short, thick, obtuse beaks, the indehiscent portion very rugose with about 4 elevated, oblique or transverse ridges; petals white or lilac with pink or purple bases and (or) veins; leaves lanceolate, subrhombic, more or less cuneate at base. Peru *S. Weberbaueri* Ulbr.
95. Petals about 20 mm. long, pale lilac; carpels (about 15?), subangulate at apex; stipules linear-lanceolate. A shrub, up to 3 m. high; stems pulverulent, tomentose; leaves ovate, about $\frac{1}{2}$ as wide as long, denticulate-serrulate, sometimes shallowly 3-lobed, rounded or subcordate at base, acuminate; flowers cymosely clustered at apex of the stem and branches. Peru *S. pulverulenta* (Ulbr.) Kearney. Note 75
95. Petals less than 15 mm. long; carpels 7–9, muticous, glabrous; stipules filiform or nearly so (96).
96. Peduncles elongate, sometimes surpassing the subtending leaves, very slender; leaves elliptic or somewhat rhombic, more or less cuneate at base, obtuse or acutish at apex, serrate, $\frac{1}{3}$ – $\frac{1}{2}$ as wide as long; petals white, drying pink. Southern Brazil, Paraguay *S. adscendens* St. Hil. Note 76
96. Peduncles much shorter than the leaves; leaves ovate or ovate-lanceolate, rounded, truncate, or cordate at base, acuminate at apex, irregularly crenate or serrate, $\frac{1}{2}$ – $\frac{2}{3}$ as wide as long; petals pink or pale purple (sometimes yellow?). Carpels smooth or nearly so, the walls fragile. Brazil *S. purpurascens* Salzm. ex K. Schum. Note 77

97. Inflorescence mostly of loose, few-flowered clusters on often elongate axillary branchlets but some of the flowers also solitary in the axils; carpels (10 or more) obliquely cuspidate or aristulate, the basal section strongly reticulate, much wider than the smooth apical section. Plants herbaceous or suffrutescent; stems erect, sparsely to copiously stellate-tomentose or tomentulous, with inconspicuous infrapetiolar tubercles; leaves broadly ovate to ovate-lanceolate, often somewhat rhombic, subcuneate or truncate at base, crenate or serrate; calyx-lobes deltoid, acute or mucronate; petals about 10 mm. long, yellow (exceptionally white?). Brazil, Paraguay, Argentina
.....*S. Glaziovii* K. Schum. Note 78
97. Inflorescence (in *S. santaremensis*?) otherwise; carpels muticous to corniculate (98).
98. Carpel-apex corniculate, the horns rather long and broad; leaves orbicular to elliptic, not rhombic. Petals about 10 mm. long; carpels (9?) 10-14. Brazil and northern Argentina
.....*S. santaremensis* Monteiro f. Note 79
98. Carpel-apex muticous or apiculate or, if corniculate (in *S. tobatensis*), then the horns much narrower (99).
99. Stems with numerous long, simple hairs and subtomentose with short, stellate hairs; leaves oval to suborbicular, subcordate or truncate at base, corolla about 20 mm. long, yellow drying pink. Flowers solitary, rather long-pedunculate; carpels 10, dehiscent dorsally, the lateral walls very thin and fragile. Brazil (Minas Geraes)
.....*S. rubifolia* St. Hil. Note 80
99. Stems without long, simple hairs, stellate-tomentose or tomentulous; leaves narrower; corolla smaller (100).
100. Leaves up to 2 cm. long, oblong, about $\frac{1}{3}$ as wide as long, truncate at base, the margin of the lower $\frac{1}{3}$ entire; calyx about 5 mm. long, minutely puberulent. Stems woody, with infrapetiolar tubercles; flowers solitary in the axils, the petals not described; carpels 6 or 7, the mature fruit unknown. Brazil (Minas Geraes)
.....*S. tuberculata* R. E. Fries. Note 81
100. Leaves up to 5 cm. long, not more than $\frac{1}{4}$ as wide as long (except sometimes in *S. urosepala*), rounded to subcordate at base; calyx 8-10 mm. long (101).
101. Petals about 15 mm. long, pale orange, entirely glabrous; calyx yellowish-tomentulous, the lobes acute; floral leaves much reduced, the inflorescence appearing subracemose; leaves linear or linear-lanceolate, $\frac{1}{6}$ - $\frac{1}{5}$ as wide as long; carpels about 12, minutely curved-corniculate at apex. Paraguay*S. tobatensis* Ulbr. Note 82
101. Petals about 10 mm. long, bright yellow with a dark base, drying pink, ciliate at base; calyx hirsute with long, simple hairs, the lobes rather abruptly caudate-acuminate; floral leaves not (?) greatly reduced, the flowers subcorymbosely aggregated toward apex; leaves narrowly oblong, $\frac{1}{4}$ - $\frac{1}{3}$ as wide as long; carpels 7, slightly 2-lobed at apex. Brazil (São Paulo)*S. urosepala* R. E. Fries. Note 83

NOTES

1. The following taxa, some of which probably do not belong to the genus *Sida* as now restricted, are insufficiently known for inclusion in this key: *S. amoena* Desf. (Brazil), *S. angulata* Vell. (Brazil), *S. betulaeifolia* Schrank (Brazil), *S. brasiliensis* Cav. (Brazil), *S. chacoensis* Hassler (Paraguay, *nom. nud.*?), *S. compressicaulis* Larrañaga (Brazil), *S. echinata* Willd. (Ecuador), *S. graminifolia* Rich. (Guiana), *S. hirticarpa* Larrañaga (Uruguay), *S. inflata* Larrañaga (Uruguay), *S. Luschnathiana* Steud. (Brazil), *S. micrantha* Schrank non St. Hil. (Brazil), *S. Miqueliana* Turcz. (Brazil), *S. myriantha* Planch. & Lind. (Colombia, Brazil), *S. nemorensis* Mart. ex Colla (Brazil), *S. ovalis* Kostel. (Peru), *S. Pohliana* Presl (Peru), *S. radiciiflora* Presl (Ecuador), *S. rhombiformis* Larrañaga (Uruguay), *S. ribifolia* St. Hil. (Brazil), *S. Rojasii* Lév. non Hassler (Argentina), *S. semidentata* St. Hil. & Naud. (Brazil), *S. setosa* Mart. ex Colla (Brazil), *S. suborbicularis* St. Hil. & Naud. (Brazil), *S. tomentosa* Mart. ex Colla non Cav. (Brazil), *S. villosa* Mill. (South America), *S. viscidula* Klotzsch (Brazil?). *Sida Tulla* Ulbr. is excluded (see Leaflet West. Bot. 7:121).

2. Paragraphs 2 to 8, inclusive, were taken from R. E. Fries' treatment of this section (K. Sv. Vet. Akad. Handl. ser. 3, 242:14-19).

3. The petals of *S. lomana* were described as probably ochroleucous.

4. Perhaps not specifically distinct from *S. oligandra*.

5. Fries thought this very near *S. lomana*.

6. Synonym: *S. ricinoides* L'Hér. Contrary to the statement by Schumann (Fl. Bras. 12³:322), a specimen from Prov. Chimborazo, Ecuador (*W. H. Camp E2999*) has the stems and petioles hirsute with very long, spreading, simple hairs.

7. Synonyms: *S. palmata* Cav. (Diss. p. 274, not p. 20) and of Jacq.

8. Very close to *S. anomala* St. Hil.

9. Synonyms: see Key to the North American Species, Leaflet West. Bot. 7:148, Note 3.

10. Synonyms: *S. sulphurea* (Gill.) A. Gray.

11. *S. pseudocymbalaria* (Hassler) Hassler, with strongly connivent calyxlobes, might be sought here, but the calyx is only moderately accrescent (see first paragraph 92).

12. Synonyms: *S. flavescens* K. Schum. non Cav. (fide Rodrigo).

13. Synonyms: *S. stolonifera* Salzm., *Anoda decumbens* Hochr. (See also Key to the North American Species, Leaflet West. Bot. 7:148, Note 11.) This species was included by Rodrigo in Section *Physalodes* but Monteiro f. placed it in his *Malvinda-Pentacocca* Section *Decumbentae*.

14. Synonym: *S. hastata* St. Hil. non Willd.

15. Synonyms: *S. flavescens* Cav., *S. intermedia* St. Hil. This species apparently intergrades with *S. urticaefolia* (first paragraph 15).

16. Synonyms: *S. physaloides* Presl and (doubtfully) *S. cymbalaria* Hochr. The latter, from Paraguay, was described as suffrutescent, with white-tomentose young branches and sessile glands on the petioles. It was reduced by Hassler to a variety of *S. macrodon*. The photograph of the type at

Chicago Museum shows, however, that, as compared with the type of *S. macrodon*, the leaves are more elongate (ovate), symmetric, more shallowly dentate, and strongly discolorous.

17. Synonyms: *S. angustissima* Miq. non St. Hil., *S. campi* Vell., *S. viminea* Fisch., and (doubtfully) *S. Fiebrigii* Ulbr. The last, from Paraguay, has the lower leaves oblong or oblong-lanceolate and was described as having the petals dark red toward the base. It may be at least varietally distinct.

18. *S. glabra* Mill. (second paragraph 70) might be sought here, but the flowers, although sometimes in an open leafy panicle and long-pedicellate, are relatively few.

19. Synonyms: see Key to the North American Species, Leaflet West. Bot. 7:148, Note 14.

20. Synonyms: see Key to the North American Species, *ibid.*, p. 148, Note 18.

21. Synonyms: see Key to the North American Species, *ibid.*, p. 148, Note 16. *S. capituliflora* Colla, from Brazil, was described as differing from *S. dumosa* (*S. pyramidata*) in having merely acutish leaves, more pubescent herbage, and a more capitate inflorescence.

22. Synonyms: see Key to the North American Species, *ibid.*, p. 148, Note 15.

23. The following 5-carpellary taxa were too inadequately described for inclusion in this key: *S. Bradei* Baker f. (Brazil), *S. chachapoyensis* Baker f. (Peru), *S. obsita* Mart. ex Colla (Brazil). Monteiro f. thought that the first might be a synonym of *S. viarum* St. Hil. but, as described, it has broader leaves, shorter petioles and peduncles, a larger calyx (about 8 mm. high), and apparently no long hairs.

24. Synonyms: *S. mollis* Rich. non Ortega and (doubtfully) *S. viridis* St. Hil. & Naud.

25. Synonyms: *S. savannarum* K. Schum. and (doubtfully) *S. pilifera* Klotzsch. The latter name may never have been published as it is not in Index Kew. and Fl. Bras.

26. Considered by Ulbrich to be related to *S. Weberbaueri* (second paragraph 94) but he described the latter as having the fruit usually 7-merous.

27. Synonyms: *S. abscissa* Willd., *S. serrata* var. *abscissa* (Willd.) K. Schum.

28. Ulbrich thought this species related to *S. spinosa*. The relationship seems closer to *S. serrata*.

29. Synonym (fide Rodrigo): *S. argentina* var. *paraguayensis* Ulbr.

30. Synonyms: see Key to the North American Species, Leaflet West. Bot. 7:149, Note 22.

31. Synonyms: *S. Dombeyana* DC., *S. repens* Dombey ex Cav., *S. veronicaefolia* var. *hederifolia* K. Schum. This species seems closely related to the Old World *S. veronicaefolia* Lam., but in the latter the carpels are commonly muticous.

32. The peculiar carpels are somewhat like those of *S. dictyocarpa* Griseb. (first paragraph 68). Rusby described the corolla as "slightly exceeding the calyx" and "light purple," but in the type collection, it is 1.5 times as long as the calyx and appears orange-yellow.

33. Stated by Monteiro f. to be related to *S. aurantiaca* var. *fragrantissima* K. Schum., which was described in Fl. Bras. as having erect, strict, virgate stems and small linear or subovate-lanceolate, minutely crenulate, often obtuse, inconspicuously 3-nerved leaves.

34. Paragraphs 43 are based on comparison of photographs of the types of *S. acrantha* and *S. subcuneata*. They certainly appear specifically distinct. Monteiro f. published the combination *S. subcuneata* var. *acrantha* but *S. acrantha* is the older name.

35. Ulbrich thought this species related to *S. linifolia*, but he described the leaves as regularly and acutely serrate.

36. Ulbrich did not state the number of carpels, but as he thought this species related to *S. tomentella* Miq., the number is presumably 5.

37. Very similar in appearance to *S. tomentella* Miq. (first paragraph 50).

38. Too imperfectly described for certain identification.

39. Doubtfully distinct from *S. urens* or *S. tomentella*.

40. Perhaps a synonym of *S. caudata* St. Hil. & Naud., an older name.

41. Synonyms: see Key to the North American Species, Leaflet West. Bot. 7:149, Note 24.

42. The above characterization is based upon two specimens in the U. S. National Herbarium which correspond rather well with St. Hilaire's description. These are from Venezuela (*L. H. Bailey* 99) and Bolivia (*Bang* 2807). Synonyms: *S. urens* var. *rufescens* (St. Hil.) Baker f. and, probably *S. urens* var. *aurea* Hassler, described from Paraguay.

43. See Fl. Jamaica 53:114. This species is poorly understood. In Fl. Bras. and Index Kew., *S. alba* is cited as a synonym of *S. spinosa* L. which, however, has apically dehiscent carpels.

44. Including var. *viscosissima* St. Hil. (A. Juss.?). In Fl. Bras. *S. Martiana* was cited as a synonym of *S. aurantiaca*. Monteiro f. (*Lilloa* 17:504) recognized both as species and the carpel-characters in paragraphs 55 are taken from his key.

45. Synonyms: see Key to the North American Species, Leaflet West. Bot. 7:149, Note 28.

46. Synonyms: see Key to the North American Species, *ibid.*, Note 29.

47. Basonym: *S. angustifolia* Lam.

48. Basonym: *S. Riedelii* K. Schum. It may be specifically distinct from *S. spinosa*.

49. Synonym: *S. ramosissima* Killip & Cuatrecasas non (Presl) D. Dietr.

50. Very imperfectly known, being based on a single old specimen showing only the top of the plant.

51. Synonym: see Note 31.

52. Ulbrich thought this related to *S. decumbens* St. Hil. & Naud. (see first paragraph 16), but the photograph of the type indicates a very different plant from either *S. decumbens* or from *S. veronicaefolia*, of which Monteiro f. suggested that it might be a variety.

53. Ulbrich considered the relationship to be with *S. goyazensis* (see second paragraph 25) but Monteiro f. thought it near *S. veronicaefolia*. Com-

parison of photographs of the types shows it to be very similar to *S. cearensis* and perhaps not specifically distinct.

54. Hassler compared this species with *S. veronicaefolia*.

55. Synonym: *S. dictyocarpa* var. *esperanzae* (R. E. Fries) Rodrigo and perhaps not more than varietally distinct.

56. Related to *S. glutinosa* Cav., fide Hassler. This also is doubtfully distinct, as a species, from *S. dictyocarpa*. See also second paragraph 41.

57. Characters from Hochreutiner (Ann. Genève 20:138) who compared it with *S. decumbens* St. Hil. & Naud.

58. Synonyms: see Key to the North American Species, Leaflet West. Bot. 7:148, Note 19.

59. Synonyms: *S. guianensis* K. Schum., *Sidastrum quinquenervium* Baker f. If the carpels are dehiscent as described by Baker, the genus *Sidastrum* Baker f. perhaps should be maintained.

60. *S. interrupta* Balb., of Colombia (carpels 8–10) presumably belongs to this section but was too imperfectly described for inclusion in this key. If a *Sida*, it seems very different from any other species in this key, to judge by a photograph of the upper part of the plant, which shows the broadly ovate, acuminate leaves nearly sessile and the flowers in dense, widely spaced, subsessile glomerules, these in long, naked, terminal, spike-like inflorescences. *S. sessiliflora* Hook. from Mendoza (Argentina?) with very broad merely acute leaves and very small, yellow flowers (carpels 10) is not identifiable and may not even be a *Sida*, as Hooker did not state that the carpels are 1-ovulate.

61. Synonyms: see Key to the North American Species, Leaflet West. Bot. 7:149, Note 33. Also *S. Arrudiana* Monteiro f. which Monteiro himself (ined.?) subsequently reduced to synonymy. This species is sometimes difficult to distinguish from *S. glomerata*. (See first paragraph 27.)

62. Petal-color as described by Rusby, but wants checking.

63. Monteiro's original description should be consulted for additional characters. In his key (Monogr. Malv. Bras.), he placed next to this species "*S. elata* Hassler" (*S. potentilloides* ssp. *elata* Hassler?) from Paraguay, distinguishing the latter as having the upper leaves broader and carpels larger (8.5 mm. long including the awns) and with the orifice rather long-pilose.

64. In *B. Rambo* 40353 from Villa Manresa, Rio Grande do Sul, Brazil, the stems are rather copiously verrucose or shortly aculeate. I can find no mention of this character. It is less strongly developed in *Brizuela* 924 and 1359 from Prov. Catamarca and in several other specimens from Argentina.

65. This variety, of Leite & Monteiro, was described in *Lilloa* 17:519.

66. Synonym (fide Monteiro f., *Lilloa* 17:516): *S. potentilloides* K. Schum., non St. Hil. Judging from the photograph of the type of *S. dubia* St. Hil. & Naud. this also may be a synonym.

67. Synonyms: see Key to the North American Species, Leaflet West. Bot. 7:149, Note 37. See also first paragraph 88 of this key.

68. Ulbrich described this as having about 10 styles and 5 carpels! From the shape of the calyx as shown in photograph of type, the fruit may well be 5-carpellary.

69. Basonym: *Sida cordifolia* var. *variegata* Griseb. Synonym: *S. montana* K. Schum. non D. Dietr.

70. As restricted by Monteiro f. (Lilloa 17:520) who cited *S. anarthra* Ekman as a synonym.

71. Synonym (fide Monteiro f., Lilloa 17:520): *S. camporum* (Hassler) Hassler. According to Monteiro f. (ibid., p. 516) *S. multirena* var. *longearistata* (Hassler) Hochr., as interpreted by Rodrigo (Rev. Mus. La Plata ser. 2, 6:160-163, fig. 32) is *S. pseudo-potentilloides*.

72. An extremely variable species. Synonyms: see Key to the North American Species, Leaflet West. Bot. 7:150, Note 45. *S. lonchitis* St. Hil. & Naud. may also be a synonym. Several varieties were described in Fl. Bras. (123:339), of which var. *surinamensis* (Miq.) K. Schum. (*S. Kohautiana* Presl) is the most distinct, having lanceolate or oblong-lanceolate, more or less rhombic, attenuate-acuminate leaves up to 15 cm. long and carpels with very long, flexuous awns. A specimen from Colombia (*Cuatrecasas 15913*) has similar carpels but the leaves are rounded at base and scarcely rhombic, although otherwise as in var. *surinamensis*, and the flowers are subcorymbosely clustered at apex of axillary branchlets. This may represent an undescribed species.

73. Several varieties have been described, including (both from Paraguay) var. *Rojasii* (Hassler) Hassler (*S. Rojasii* Hassler) with longer petioles and stipules than in typical *S. acuminata* and petals 7-7.5 mm. long; and var. *grandiflora* Hassler with petals 9 mm. long and about 1.5 times as long as the calyx.

74. Basonym: *S. rubifolia* St. Hil. ssp. *pseudocymbalaria* Hassler. Synonym: *S. rubifolia* f. *suborbicularis* Chod. & Hassler. Compare first paragraph 99. Plant very similar in general appearance to *S. argentina* (second paragraph 37) but described as having 10 muticous carpels.

75. Basonym: *Abutilon pulverulentum* Ulbr. Ulbrich gave the number of style-branches as 7 or 8, the number of carpels as about 15.

76. Synonym (fide Hassler): *S. paraguariensis* Hochr.

77. A homonym, *Sida purpurascens* Link (*Abutilon purpurascens* K. Schum.) being a much older name. Schumann (Fl. Bras. 123:346) thought that *S. subsessilis* Turcz. might be the same as *S. purpurascens* Salzm., but Turczaninow's name is also invalid, there being an older *S. subsessilis*, of Colla.

78. Synonym (fide Monteiro f.): *S. Bradei* Ulbr., non Baker f.

79. Compare second paragraph 89.

80. Compare *S. pseudocymbalaria*, first paragraph 92.

81. Var. *pseudorhombifolia* Monteiro f., also from Brazil, was described as having linear to elliptic or subrhombic leaves, resembling *S. rhombifolia* but having different chromosome numbers.

82. Thought by Ulbrich to be related to *S. Barclayi* Baker f. See Key to the North American Species, first paragraph 49, Leaflet West. Bot. 7:146. The types of *S. tobatensis*, to judge by a photograph, has much the appearance of *S. salviaefolia* Presl.

83. Reduced to synonymy under *S. subcuneata* by Monteiro f. (Lilloa 17:514). Compare *S. acrantha*, first paragraph 43.