

## FABACEAE

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One of the largest plant families of the world with ~19,500 species exhibiting diverse habits including trees, erect or climbing shrubs, vines, lianas and terrestrial or aquatic herbs, with cosmopolitan distribution. Herbaceous vines often are twiners or scramblers or less often have tendrils (e.g., *Vicia*). Lianas for the most part have prehensile branches, twining stems, cirri (e.g., *Machaerium*, *Senegalia*), and less often are scramblers with armed stems or leaves. There are ~254 genera and 5,360 species of Fabaceae in the Neotropics\*. Of these, 60 genera contain lianas or climbing plants for a total of 770 species (844 taxa), occurring in a wide range of habitats, but more predominant in lowland moist forests, savannas, gallery forests, and in open disturbed biomes. Neotropical climbing Fabaceae are most diverse below 1,500 m of elevation. (\* total numbers are from G. Lewis, pers. comm., 2018).

**Diagnosics:** Being a morphologically diverse family it is sometimes difficult to distinguish its members from vines in other families. As a general rule, leaves in the Fabaceae are alternate, compound and stipulate. Many herbaceous vines are twiners and have trifoliolate leaves; scrambling shrubs are often armed with recurved prickles and have bipinnate leaves; some lianas have flattened stems, usually with successive cambia, and bright red exudates.

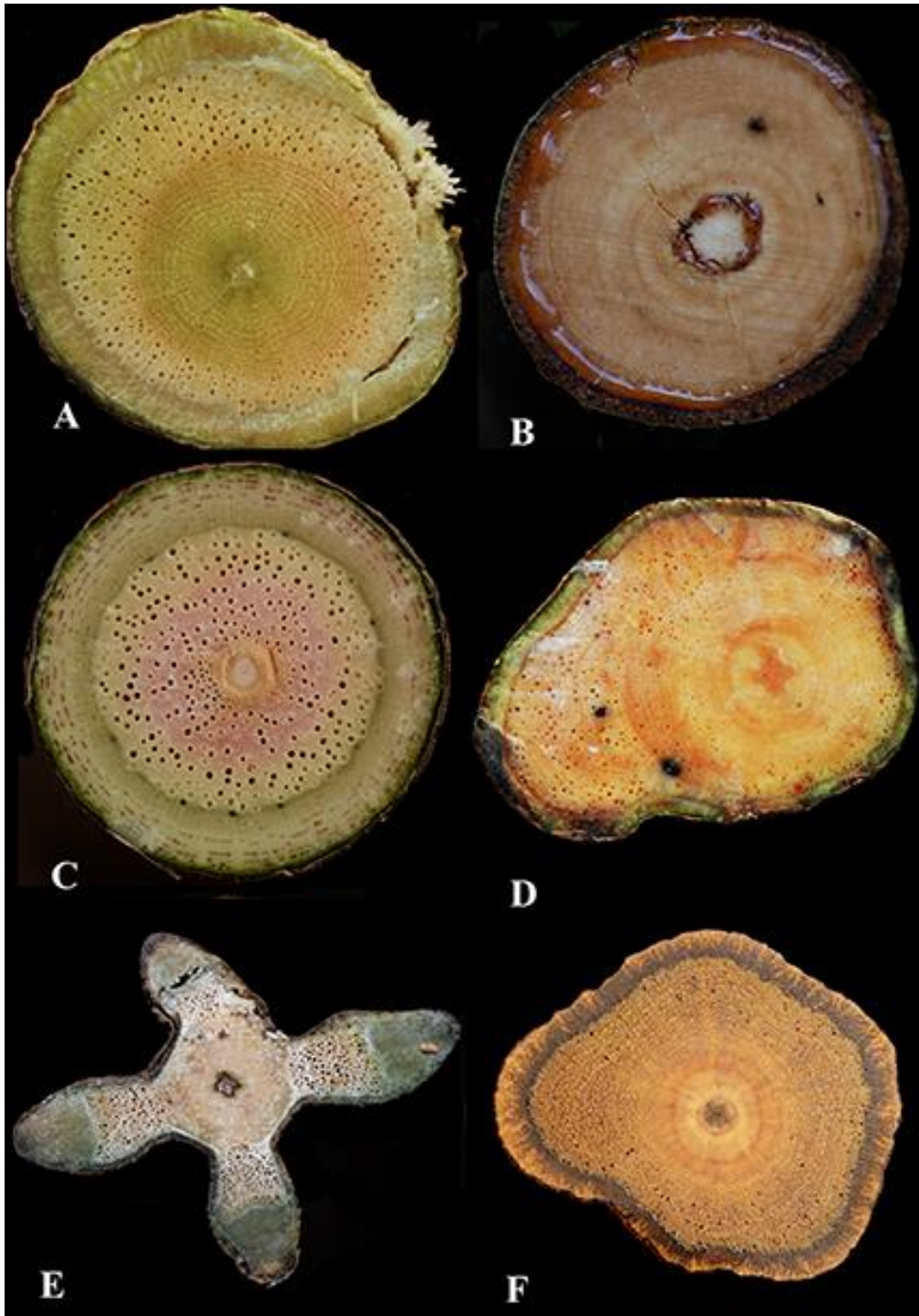
### General Characters

1. **STEMS.** Woody or less often herbaceous. Woody, mature stems are usually 1–5 cm in diameter, although in several genera (e.g., *Dalbergia*, *Machaerium* and *Schnella*) they may reach 30 cm or more in diameter, and more than 30 m in length. Stems are cylindrical (e.g., *Dalbergia*, *Deguelia*, *Machaerium*; Figures 111A–C; 112B; 113C), flattened (e.g., *Machaerium*, *Rhynchosia*, *Schnella*; Figures 112C; 113A, B; 114B), lobed (Figures 111E;

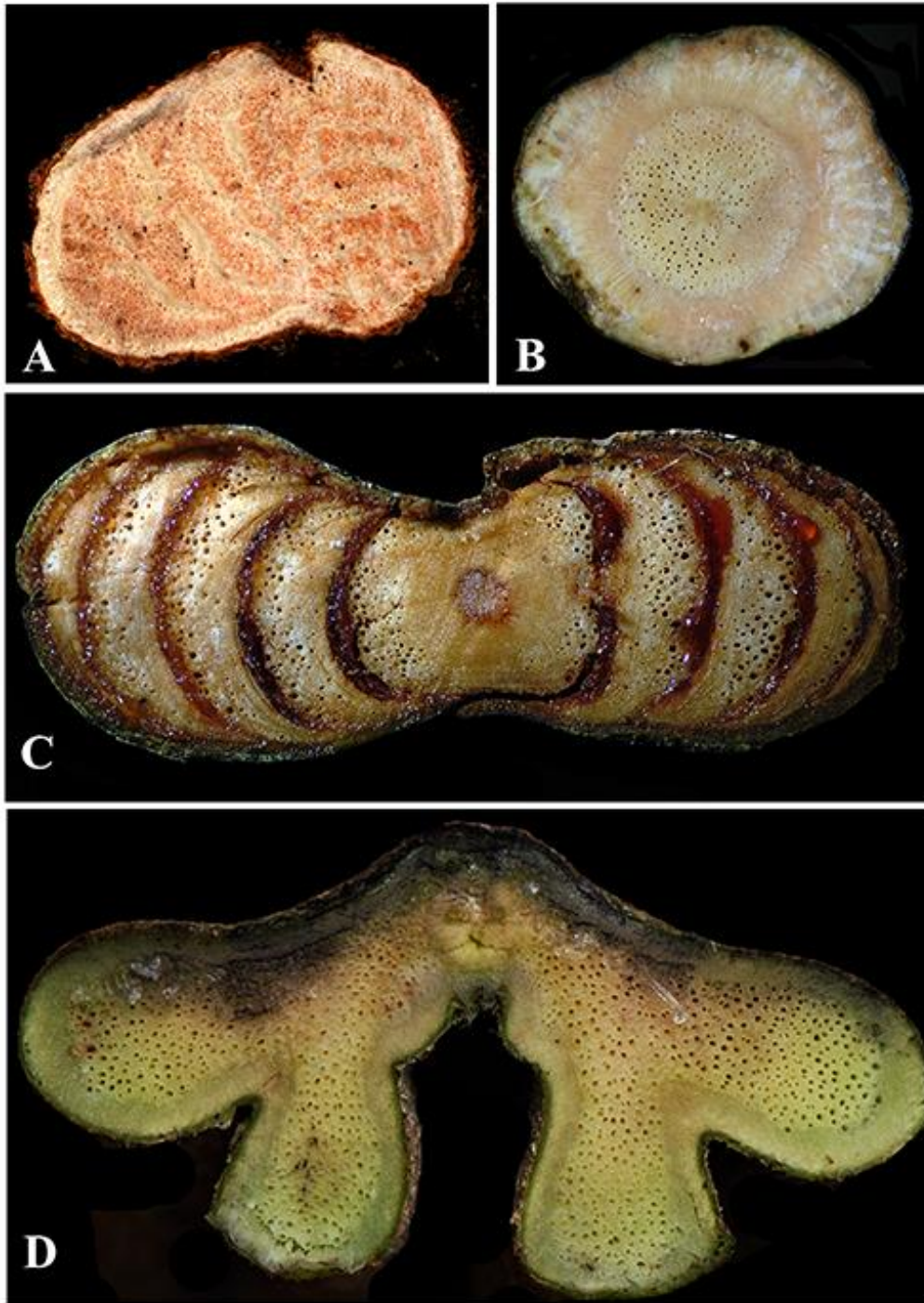
112D), pentagonal (e.g., *Senna*; Figure 111F), quadrangular (e.g., *Schnella*) or winged (e.g., *Centrosema*; Figure 114D) in cross section. Generally, Fabaceae have regular wood anatomy with abundant paratracheal parenchyma in the secondary xylem, which is also observed in many species of lianas. This is often arranged in broad bands that are visible to the naked eye (Figure 111A–D). In addition, rays are narrow and more or less conspicuous (Figure 111A–D, F). Secondary phloem often has concentric bands of fibers (Figure 111C).

Numerous species have stems with:

- a) Successive cambia forming concentric alternating rings of xylem and phloem (e.g., *Machaerium*; Figure 113C), concentric discontinuous bands of xylem and phloem (e.g., *Machaerium*, *Rhynchosia*; Figures 112C; 113B), or asymmetrical bands of vascular tissue (e.g., *Entada*, *Machaerium*, *Schnella*; Figure 112A);
- b) Neoformed vascular cylinders, i.e., the formation of novel vascular cylinders outside the original vascular cylinder after prolonged secondary growth (e.g., *Dalbergia*; Figure 113D); and
- c) Phloem wedges (e.g., *Dalbergia*, *Leptospron*, *Mimosa*, *Schnella*).

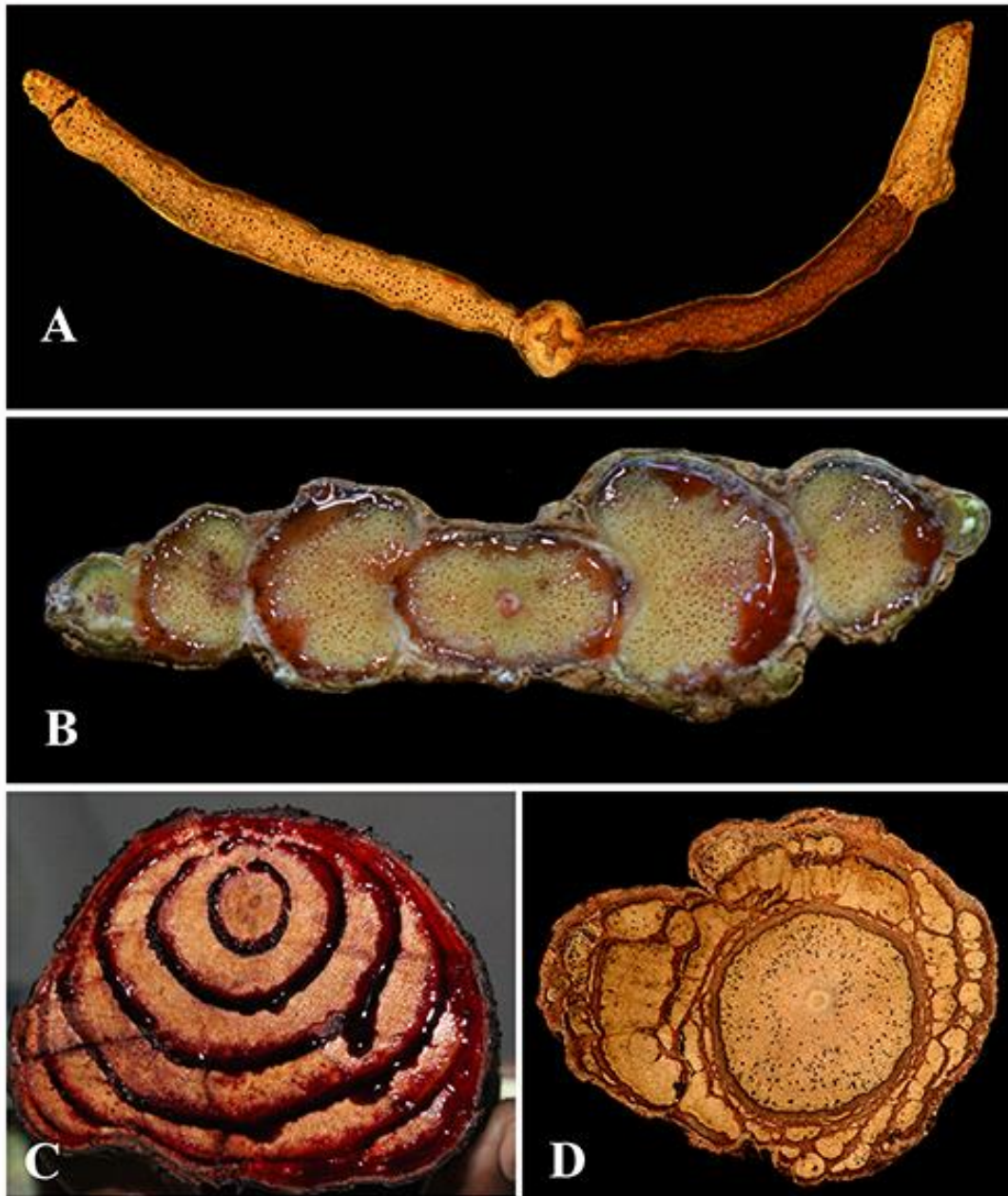


**Figure 111.** Cross sections of lianas stems in the Fabaceae. A–C. Regular anatomy, xylem with narrow rays and bands of parenchyma cells. **A.** *Deguelia* cf. *densifolia*. **B.** *Machaerium kegelii*, with pinkish exudate. **C.** *Macropsychanthus violaceus*, concentric fiber bands within secondary phloem. **D.** *Schnella* sp., slightly flattened, medulla cross-shaped. **E.** *Senegalia* sp., 4-lobed, each lobe with wide phloem area. **F.** *Senna quinquangulata*, pentagonal, with conspicuous wide vessels and narrow rays. Photos by P. Acevedo.



**Figure 112.** Cross sections of lianas stems in the Fabaceae. **A.** *Entada gigas* with successive cambia producing asymmetrical bands of vascular tissue. **B.** *Mucuna* sp., successive cambia producing discontinuous concentric arcs of xylem and phloem. **C.** *Machaerium mairerense*, successive cambia producing alternating bands of xylem and phloem in two opposite directions. **D.** *Schnella* sp., sinuous, 4-lobed, with cross-shaped medulla. Photos by P. Acevedo.





**Figure 113.** Cross sections of lianas stems in the Fabaceae. **A.** *Schnella* sp., flattened and ribbon-like with a single cambium, medulla cross-shaped. **B.** *Rhynchosia phaseoliode*, flattened and ribbon-like with a successive cambia producing alternating bands of xylem and phloem in two opposite directions. **C.** *Machaerium* sp., successive cambia producing alternating rings of xylem and phloem, and abundant red exudate. **D.** *Dalbergia amazonica* with neoformations. Photos: A, B, D by P. Acevedo; C by H. Medeiros.

2. EXUDATES. In herbaceous vines are usually watery and colorless, but in lianas is quite variable depending on the genus, sometimes it is clear, bright red (e.g., *Deguelia*, *Macropsychanthus*, *Machaerium*; *Rhynchosia*; Figures 111B; 112C; 113C), orangish (e.g., *Deguelia*), or watery red (e.g., *Mucuna urens* (L.) Medik.). In some species, the exudate oxidizes upon contact with air turning blackish (e.g., *Dalbergia*, *Mucuna*).
3. CLIMBING MECHANISMS. Twiners are common throughout the family, but mostly found in herbaceous genera such as *Galactia*, *Phaseolus*, *Teramnus*, and *Vigna*, or in moderately woody genera like *Dioclea*, *Macropsychanthus*, *Mucuna*, *Rhodopis* and *Rhynchosia*. The scrambling habit is predominant in woody individuals, which are either unarmed (e.g., *Macrosamanea*, *Senna*) or armed with curved prickles (e.g., *Guilandina* (Figure 115D), *Mimosa*, *Piptadenia*, *Senegalia*), or in herbaceous genera such as *Desmodium*. Tendrils, although not common in the family, are found in woody lianas such as *Entada* (Figure 115C), and *Schnella* (Figure 115E), and *Senegalia* (Figure 122A), and in herbaceous genera such as *Lathyrus* and *Vicia*. Short prehensile branches are common in *Dalbergia* (Figure 115A), *Deguelia*, *Machaerium*, and some species of *Canavalia*, *Piptadenia*, and *Senegalia*. Cirri, i.e., short, leafless flagelum-like, prehensile branches, are known in several species of *Machaerium* (Figure 114C) and *Senegalia* (Figure 115B).
4. LEAVES. Alternate or very rarely opposite. However, all climbers have alternate leaves which are commonly compound, but simple or unifoliolate (Figure 116A) leaves are found in a few species of climbers. The most common type of leaf is trifoliolate (Figure 116C) followed by pinnate (Figure 116E), bipinnate (Figure 116D, F); unifoliolate bilobed leaves (Figure 116B, G) are common in *Schnella*. Petioles and rachises are nearly cylindrical, slightly

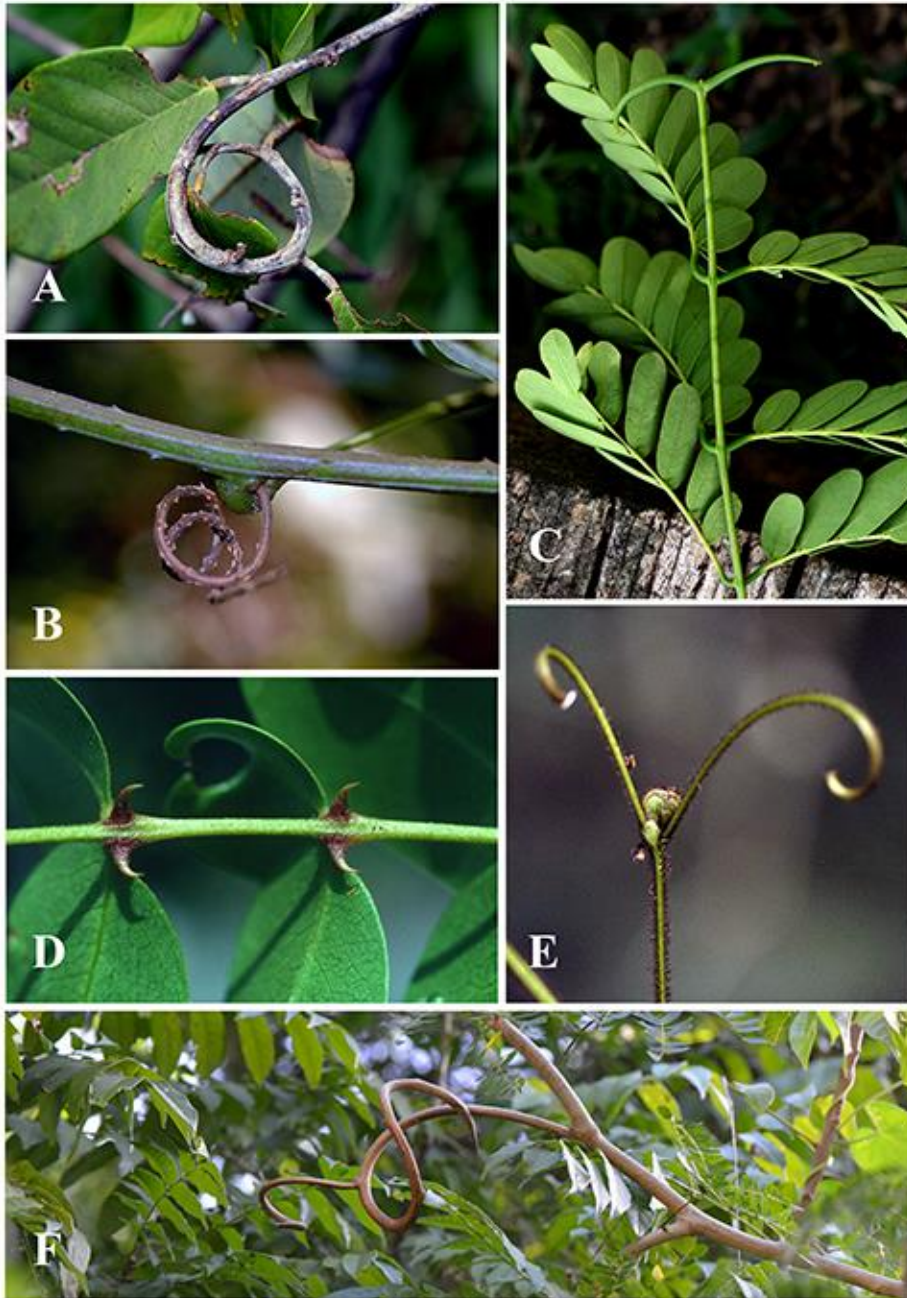
flattened adaxially, winged or armed with recurved prickles. Petioles and petiolules are usually pulvinate at the base (Figure 116G, H). Stipitate or sessile glands are present in many genera (Mimosoid and Caesalpinoid clades), commonly near the base of petioles or along the rachis between the insertion of leaflets or pinnae (e.g. *Adenopodia*, *Havardia*, *Piptadenia*, *Senegalia* and *Senna*).

5. STIPULES AND STIPELS. Stipules are persistent or caducous, and of various sizes and shapes, sometimes spinescent (e.g. *Machaerium*). Stipels are present in many genera.
6. INFLORESCENCES. Quite variable, usually racemose (Figure 117A, B, D, E, H, I) but also spicate or capitate (Figure 117F, G). They are ascending or hanging, axillary, distal, or cauliflorous. Distal inflorescences form a paniculate synflorescence at the end of branches and are common to all genera. Cauliflorous inflorescences are often fasciculate and found in only a few genera.
7. FLOWERS. Commonly bisexual and quite variable in size, shape and number of parts, with zygomorphic or actinomorphic symmetry (Figure 117), commonly sepals and petals are 5, stamens 10, but can be as little as 1 or numerous, and carpels always one.
8. FRUITS. Derived from a single carpel; most often flat, elongate and dehiscent, ranging in size from a few millimeters to nearly a meter long.
9. SEEDS. Quite variable in shape, size, texture, and color, some diagnostic at the generic level (Figure 119).

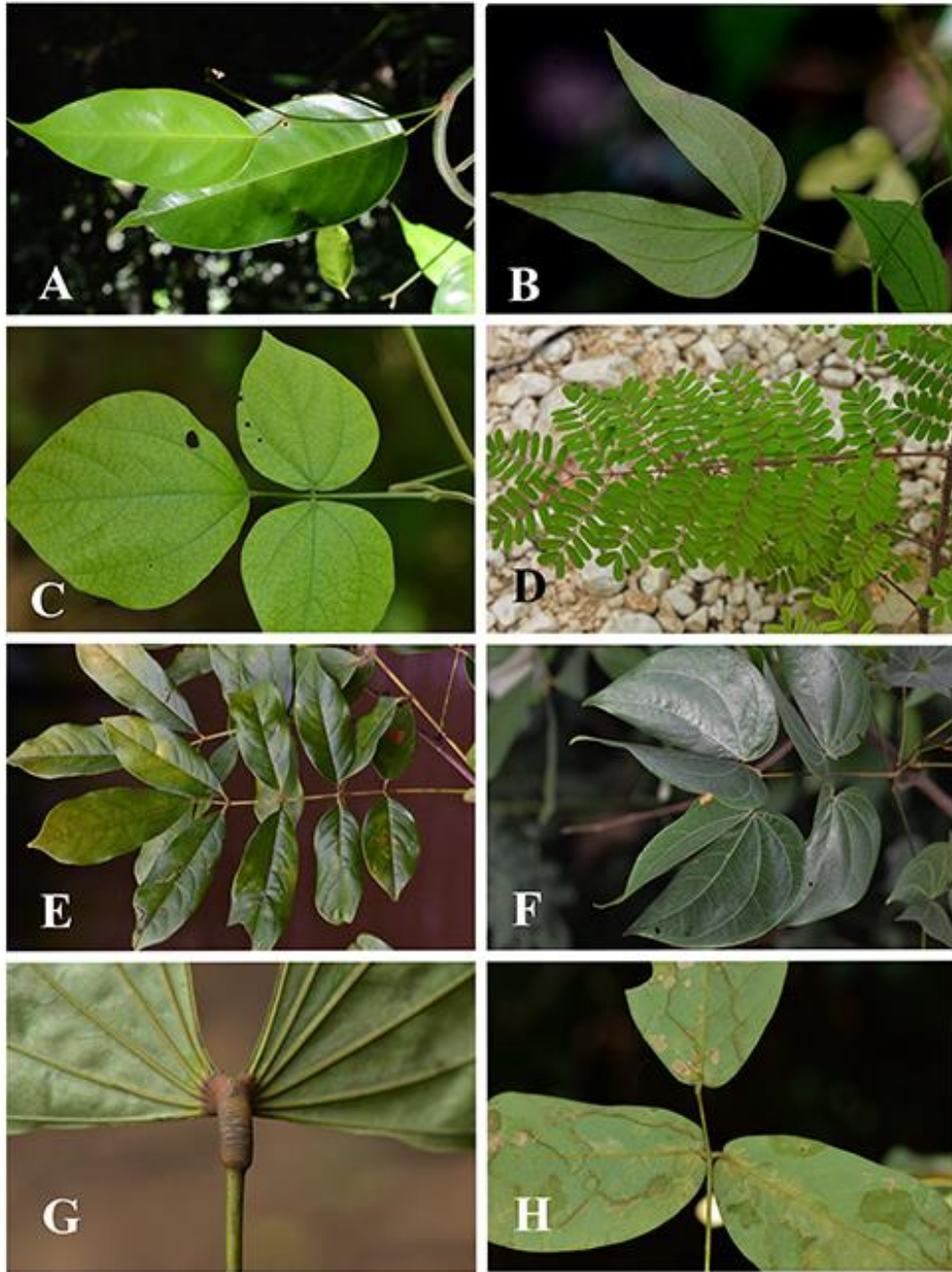


**Figure 114.** Stems of lianas in the Fabaceae. **A.** *Schnella guianensis* with sinuous stem (typical of the genus). **B.** *Rhynchosia erythrinoides*, flattened, ribbon-like stem. **C.** *Machaerium kegelii*, cylindrical stem, with short axillary cirri. **D.** *Centrosema plumieri*, twining, winged and corky stem. Photos by P. Acevedo.





**Figure 115.** Climbing mechanisms. **A.** *Dalbergia ecastaphyllum*, with short, prehensile, foliose branch. **B.** *Senegalia altiscandens*, with an axillary cirrus. **C.** *Entada polyphylla*, tendrils derived from the two distal pinnae. **D.** *Guilandina ciliata*, armed leaf rachis. **E.** *Schnella* sp. circinate tendrils at the base of inflorescence. **F.** *Parasenegalia vogeliana*, prehensile (tendrill-like) branch with determinate growth. Photos by P. Acevedo.

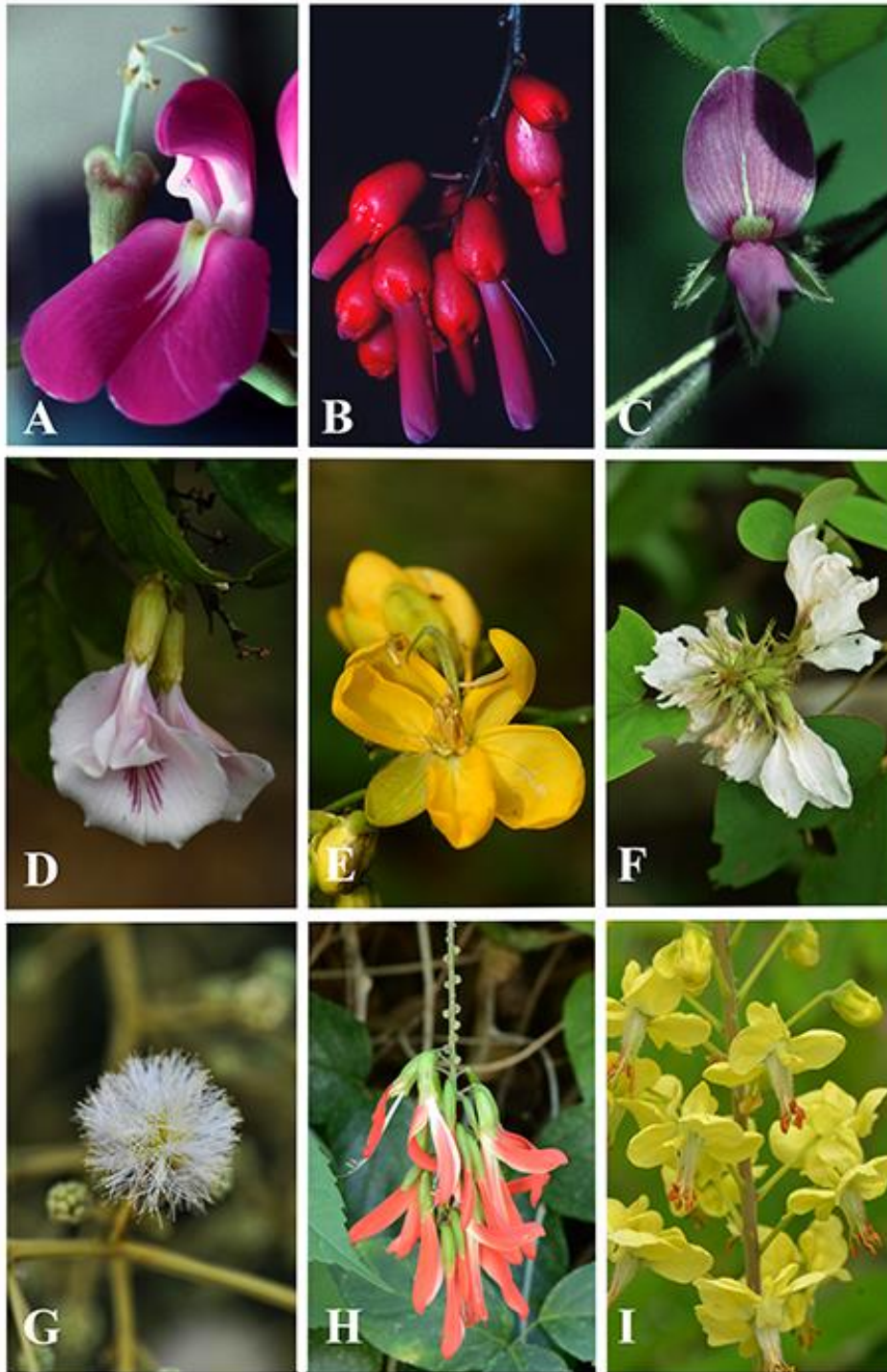


**Figure 116.** Leaves in Fabaceae. **A.** *Dalbergia amazonica*, unifoliolate leaves. **B.** *Schnella* sp., unifoliolate, bilobed leaf. **C.** *Rhynchosia phaseoloides*, trifoliolate leaf. **D.** *Biancaea decapetala*, pari-bipinnate leaf. **E.** *Deguelia chrysophylla*, imparipinnate leaf. **F.** *Senegalia* sp., pari-bipinnate leaves. **G.** *Schnella* sp., base of deeply bilobed foliole and petiole with distal pulvinus. **H.** *Rhynchosia phaseoloides*, a trifoliolate leaf with pulvinate petiolules. Photos by P. Acevedo.

## USES

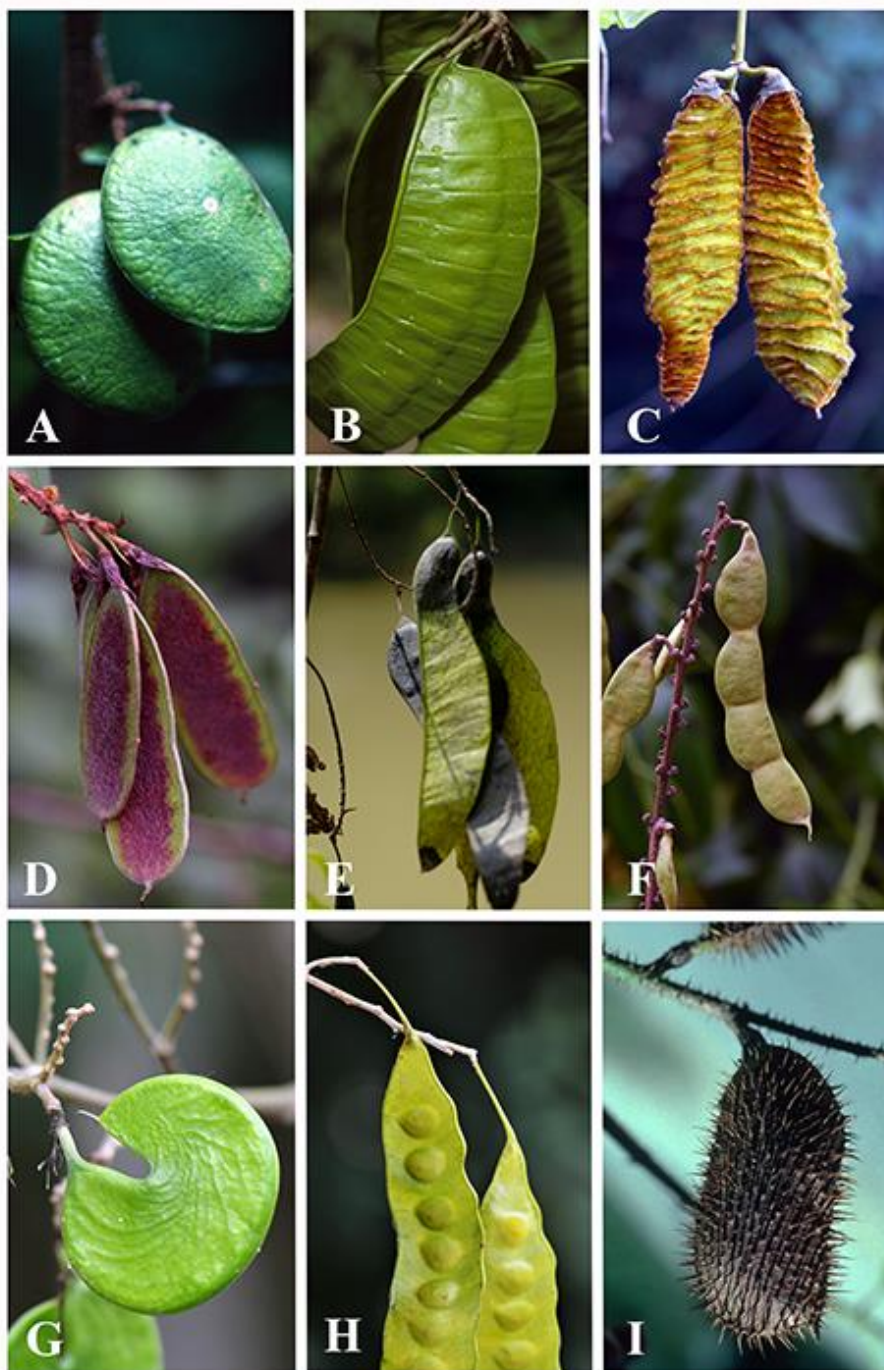
Numerous products are derived from this incredibly diverse family. In general, Fabaceae lianas are the source of flexible, rope-like building materials. Stems and branches are commonly used in the tropics as fish stupefactants, these includes species of *Abrus*, *Camptosema*, *Deguelia*, *Desmodium*, *Entada*, *Lonchocarpus*, *Machaerium*, *Nissolia*, *Pachyrhizus*, *Phaseolus*, *Rhynchosia*, *Schnella*, and *Senna* (Acevedo 1990). Some species of *Phaseolus*, *Lablab* and *Canavalia* bear seeds that are suitable for human consumption as they contain nutritious proteins or amino acids; *Pachyrhizus* is commercially cultivated for its edible, starchy tubers commonly known as “jicama”. The leaves of species in several genera (e.g., *Clitoria*, *Desmodium*, *Lablab*, *Macroptilium*, *Neonotonia*, *Neustanthus*, *Vigna*) are a good source for animal feed (Cook et al. 2020; Pfaf.org). The seeds of several genera are used as beads in the production of craft artifacts, as they are hard, showy, and often large; these include species in *Abrus*, *Canavalia*, *Guilandina*, *Macropsychanthus*, *Mucuna*, and *Rhynchosia*. There are several genera of climbing neotropical Fabaceae that are commonly used as ornamentals to add variety to local gardens. These include species of *Calopogonium*, *Camptosema*, *Canavalia*, *Centrosema*, *Clitoria*, *Dalbergia*, *Guilandina*, and *Vigna* (Menninger 1970). In addition, there are numerous genera in the Neotropics that have ornamental potential.



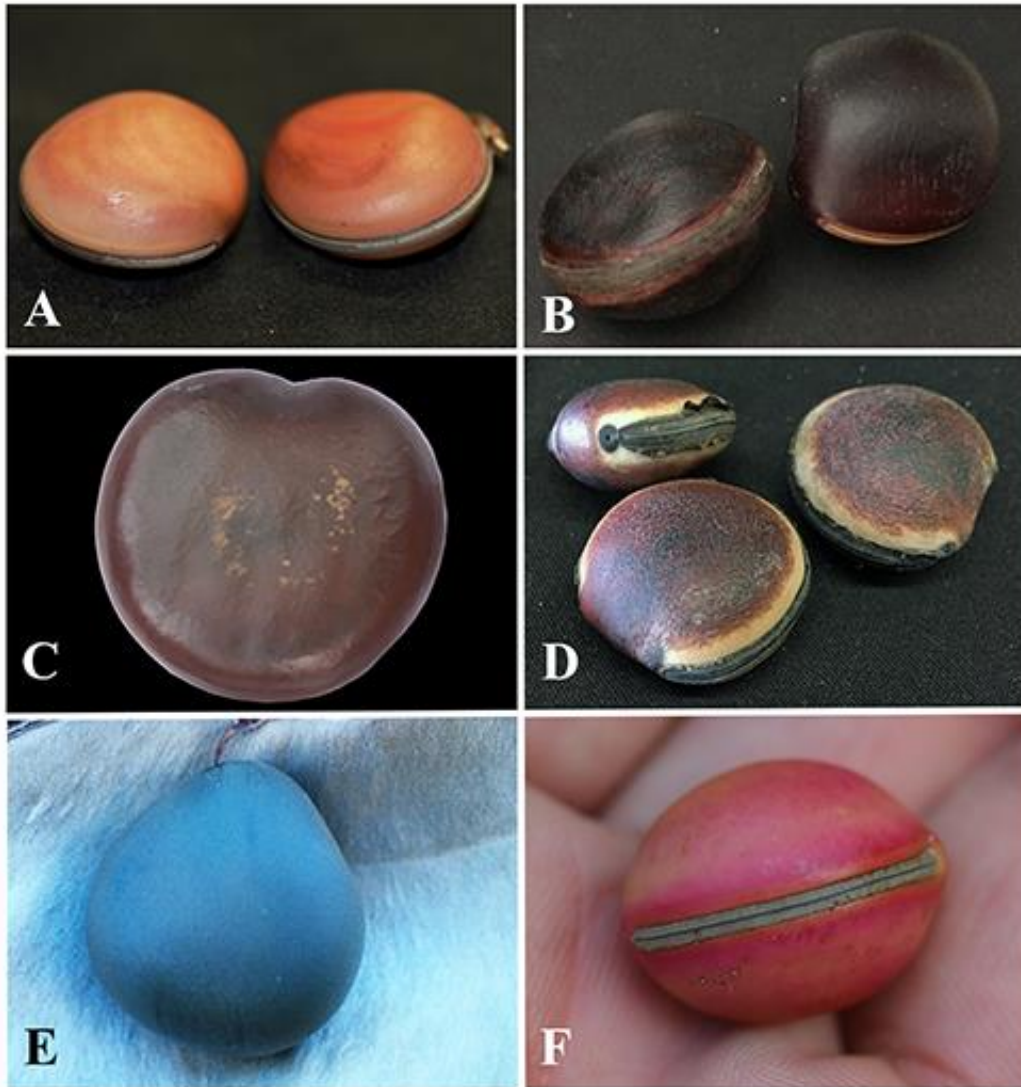


**Figure 117.** Flowers in Fabaceae. A–D, H. Papilionaceous flowers. E, F, I. Caesalpiaceae flowers. G. Mimosoid flowers. **A.** *Canavalia rosea*, resupinate, keel as long as the standard. **B.** *Rhodopis volubilis*, folded elongate standard. **C.** *Galactia striata*, reflexed standard. **D.** *Clitoria pozuzoensis*, resupinate, standard larger than remaining petals. **E.** *Senna bicapsularis*, poricidal anthers of different sizes. **F.** *Schnella* sp., petals of similar size. **G.** *Parasenegalia vogeliana*, minute flowers in a capitulum. **H.** *Cratylia spectabilis*, elongate folded standard. **I.** *Biancaea decapetala*, inflorescence with nodding flowers. Photos by P. Acevedo.





**Figure 118.** Fruits in Fabaceae. **A.** *Dalbergia monetaria*, flat, nearly circular. **B.** *Entada polyphylla*, a craspedium. **C.** *Mucuna urens*, exocarp with irritant hairs. **D.** *Schnella* sp., oblong, flat, pubescent. **E.** *Machaerium huanucoense*, a samara. **F.** *Deguelia* sp., semi-lomentaceous margins. **G.** *Machaerium lunatum*, lunate, water dispersed. **H.** *Parasenegalia vogeliana*, thin, flat, with marked seed locules. **I.** *Guilandina bonduc*, turgid with spiny exocarp. Photos by P. Acevedo.



**Figure 119.** Large, woody seeds in Fabaceae lianas. **A.** *Macropsyчанthus violaceus* from Brazil. **B.** *Macropsyчанthus comosus* from Puerto Rico. **C.** *Entada gigas* from Mexico. **D.** *Mucuna urens* from Puerto Rico. **E.** *Guilandina bonduc* from Puerto Rico. **F.** *Canavalia nitida* from Dominican Republic. Photos: A, B, D–F by P. Acevedo, C by J. Amith; pictures not to scale.

### Key to the genera of climbing Fabaceae

- 1. Plants armed with curved prickles or thorns .....2
- 1. Plants unarmed or if armed then with straight spines .....10
- 2. Leaves once pinnate, imparipinnate; exudate often red (predominantly neotropical)  
 ..... *Machaerium*

2. Leaves bipinnate; exudate never red.....	3
3. Petioles lacking nectaries; flowers bright yellow or pink.....	4
3. Petioles with nectaries; flowers white, pale yellow or pale green .....	6
4. Flowers mimosoid, corollas and stamens pink or pale yellow (Neotropics) .....	<b>Mimosa</b>
4. Flowers caesalpinoid, corolla yellow.....	5
5. Fruits unarmed; seeds oblong, brown; in disturbed habitats (exotic, naturalized in the Neotropics, especially in the West Indies) .....	<b>Biancaea</b>
5. Fruits armed; seed ovoid, gray, yellow-orange, or black; mostly of coastal habitats (Pantropics) .....	<b>Guilandina</b>
6. Stamens numerous; fruits dehiscent along the sutures, not leaving a marginal replum after dehiscing .....	7
6. Stamens 5–10; fruits leaving a marginal replum after dehiscing or dehiscing along sutures.....	8
7. Leaves and branches armed with prickles; stamens with filaments free or connate at the base (Neotropics) .....	<b>Senegalia</b>
7. Stems armed only with stipular spines; leaves unarmed; stamens with filaments connate at least ½ their length from base (Mexico to Nicaragua).....	<b>Havardia</b>
8. Leaves with glands at petiole and between pinnae .....	<b>Piptadenia</b>
8. Leaves with a gland above the petiole base .....	9
9. Anthers without an apical gland (Neotropics) .....	<b>Mimosa</b>
9. Anthers with an apical gland (Mexico to Nicaragua) .....	<b>Adenopodia</b>
10. Leaves pinnate .....	11
10. Leaves unifoliolate or trifoliolate.....	26
11. Leaves once pinnate .....	12

11. Leaves bipinnate .....	23
12. Leaves paripinnate .....	13
12. Leaves imparipinnate .....	17
13. Leaves with distal leaflets modified into tendrils .....	14
13. Leaves with normal distal leaflets.....	15
14. Style hairy along one side, from top to near the base (Mexico) .....	<i>Lathyrus</i>
14. Style hairy on distal portion, just below the stigma .....	<i>Vicia</i>
15. Petioles and rachis lacking stipitate glands; leaflets and flowers with translucent glandular dots; anthers opening through longitudinal slits (Neotropics).....	<i>Poiretia</i>
15. Petioles and rachis bearing stipitate glands; leaflets and flowers not bearing translucent glandular dots; anthers poricidal .....	16
16. Plants herbaceous reaching few m in length; flowers < 2 cm wide (Brazil) .....	<i>Chamaecrista</i>
16. Plants woody, reaching > 5 m long; flowers > 3 cm wide (predominantly neotropical)..	<i>Senna</i>
17. Corolla yellow.....	<i>Nissolia</i>
17. Corolla of other colors .....	18
18. Corolla bright red, standard oblong, suberect (Neotropics).....	<i>Barbieria</i>
18. Corolla of other colors, standard not oblong, reflexed .....	19
19. Twiners .....	20
19. Scramblers often with prehensile branches.....	22
20. Plants subwoody, reaching $\leq$ 5 m long; leaves membranaceous, small; fruits dehiscent, seeds red and black .....	<i>Abrus</i>
20. Plants woody reaching $\geq$ 5 m long; leaves coriaceous; fruits dehiscent or indehiscent; seeds never as above.....	21



21. Flowers < 2 cm long; standard petal reflexed, as long as the other petals; fruit commonly indehiscent (Neotropics) .....*Deguelia*
21. Flowers > 2.5 cm long; standard petal suberect, much larger than the other petals; fruit dehiscent (predominantly neotropical) .....*Clitoria*
22. Fruits falcate, with a distal wing or lunate; stipules usually spinescent and recurved; stem often with thick, red exudate and successive cambia (predominantly neotropical) .....*Machaerium*
22. Fruits oblong to orbicular, not falcate or lunate; stipules minute, caducous; stem with clear exudate, or if reddish then watery, lacking successive cambia (Pantropics) .....*Dalbergia*
23. Distal pinna modified into tendrils; Neotropics .....*Entada*
23. Distal pinnae with normal leaflets .....24
24. Petioles and leaf rachis lacking nectariferous glands; pantropical .....*Guilandina*
24. Petioles and/or leaf rachis with nectariferous glands .....25
25. Flowers large (3–5 cm long); stamen filaments connate for about half of their length (S. America) .....*Macrosamanea*
25. Flowers small (usually < 1 cm long); stamens free or connate only at base (Pantropics) .....*Parasenegalia*
26. Leaves unifoliolate, blade simple or bilobed (sometimes seemingly bifoliolate, with the two lobes separate to their bases) .....27
26. Leaves trifoliolate .....29
27. Stipels paired at the junction with the blade .....*Rhodopis*
27. Stipels wanting .....28

28. Leaves entire to deeply bilobed; plant bearing circinate tendrils in pairs; stems often sinuate, with a cross-shaped medulla (Neotropics).....	<i>Schnella</i>
28. Leaves unlobed; plant with axillary cirri (Pantropics).....	<i>Machaerium</i>
29. Standard oblong, folded in half longitudinally .....	30
29. Standard oblong, orbicular or reniform in outline, revolute to slightly folded longitudinally .....	32
30. Calyx campanulate, greenish; corolla violet, violet-pink, bluish, orange, or yellow, the standard shorter than the other petals; fruits usually with rigid, irritating hairs (Pantropics) .....	<i>Mucuna</i>
30. Calyx tubular, reddish; corolla red, the standard longer or slightly longer than the other petals; fruits lacking stiff, stinging hairs.....	31
31. Pseudoracemes shorter than the subtending leaf; calyx glabrous (Brazil). .....	<i>Mantiqueira</i>
31. Pseudoracemes much longer than the subtending leaf; calyx ferruginous hirsute (West Indies) .....	<i>Rhodopis rudolphioides</i>
32. Keel petal twisted or sigmoid .....	33
32. Keel petal straight .....	43
33. Keel sigmoid or hooked .....	34
33. Keel spirally twisted .....	37
34. Pseudoraceme nodes not noticeably swollen; pedicels longer than the calyx tube (Mexico to Costa Rica).....	<i>Ramirezella</i>
34. Pseudoraceme nodes conspicuously swollen; pedicels shorter than the calyx tube .....	35
35. Beak of keel narrowly hooked (NE and SE Brazil) .....	<i>Mysanthus</i>
35. Beak of keel widely curved.....	36

36. Beak of keel gradually curved upward into a hook with distal portion folded back on itself  
(Neotropics) ..... *Ancistrotropis*
36. Beak of keel sigmoid curved, with distal portion not folded back (Neotropics)  
..... *Sigmoidotropis*
37. Plant with uncinata hairs; keel petal laterally and tightly coiled (United States to W S.  
America) ..... *Phaseolus*
37. Plant with straight hairs ..... 38
38. Stipules medifixed; corolla bright yellow (Neotropics)..... *Vigna*
38. Stipules basifixed; corolla lilac, purple, rosy, white, blue-violet, red, sometimes pale yellow  
with faint purplish lines (Neotropics) ..... 39
39. Calyx lobes similar, shorter than the calyx tube ..... 40
39. Calyx lobes dissimilar, as long as or longer than the calyx tube ..... 41
40. Standard petal coiled; keel beak with numerous coils; style not swollen (Mexico to  
Argentina) ..... *Cochliasanthus*
40. Standard petal not coiled; keel beak slightly twisted to the left; style swollen near the base  
(Mexico to Argentina)..... *Condylostylis*
41. Corolla cardinal red or purple; standard petal smaller than the wing petals; fruits cylindrical  
(Neotropics) ..... *Macroptilium*
41. Corolla violet purple or lavender blue; standard petal nearly equal to the other petals or only  
slightly larger; fruits flattened..... 42
42. Distal portion of keel loosely coiled in a forward direction; lateral calyx teeth narrowly  
triangular, longer than the calyx tube; fruit straight (Mexico to Argentina) ..... *Helicotropis*

42. Distal portion of keel tightly coiled, projecting downward; lateral calyx teeth falcate, shorter than the calyx tube; fruit falcate (Neotropics) .....	<b><i>Leptospron</i></b>
43. Fruit a lomentum, with at least one margin (sometimes both) sinuate between the seeds, separating into segments that adhere to clothing (Cosmopolitan).....	<b><i>Desmodium</i></b>
43. Fruit not a lomentum.....	44
44. Leaves lacking stipels at the base of leaflets (Pantropics).....	<b><i>Canavalia</i></b>
44. Leaves with stipels at the base of leaflets .....	45
45. Leaflets and calyx with yellowish or orangish glandular dots (Neotropics) .....	<b><i>Rhynchosia</i></b>
45. Leaflets and calyx without glandular dots .....	46
46. Flowers solitary or in axillary fascicles .....	47
46. Flowers clustered at the nodes of pseudoracemes .....	48
47. Flowers not resupinate (standard in upper position); calyx tubular, with 4–5 equal lobes; corolla magenta to violet; standard white only at the base of center; wing petals much longer than the incurved keel; legume nearly cylindrical (SW United States to Argentina) .....	<b><i>Cologania</i></b>
47. Flowers resupinate; calyx campanulate, with the anterior lobe longer than the remaining ones; corolla mauve; standard white at the center nearly to the apex; wing petals about as long as the keel; legume flat. ....	<b><i>Centrosema haitiense</i></b>
48. Flowers more than 3 per node of pseudoracemes.....	49
48. Flowers 1–3 per node of pseudoracemes .....	60
49. Inflorescence nodes stalked .....	50
49. Inflorescence nodes sessile .....	52
50. Inflorescences pendent .....	<b><i>Cratylia argentea</i></b>



50. Inflorescences erect.....	51
51. Calyx lower lobe much longer than the remaining lobes; corolla purple or rarely blue; stamens pseudo-monadelphous (Pantropics) .....	<i>Macropsychanthus</i>
51. Calyx lobes subequal; corolla yellowish green; stamens diadelphous .....	<i>Oxyrhynchus</i>
52. Calyx 4-lobed.....	53
52. Calyx 5-lobed.....	57
53. Flower resupinate, wing petals minute, scarcely longer than the calyx (Brazil) .....	<i>Cleobulia</i>
53. Flowers not resupinate, wing petals at least twice as long as the calyx (Pantropics).....	54
54. Ovary sessile .....	55
54. Ovary stipitate.....	56
55. Corolla red; legume flattened.....	<i>Cymbosema</i>
55. Corolla whitish, mauve or purple; legume turgid .....	<i>Lackeya</i>
56. Corolla whitish, mauve or purple; legume upper margin not winged nor ribbed.....	<i>Cratylia</i>
56. Corolla purple, rarely whitish purple or reddish purple; upper margin with a longitudinal rib or wing on each side of suture .....	<i>Dioclea</i>
57. Standard with 2 elongate callosities near the base; legume tuberculate along upper margin (introduced throughout the Neotropics) .....	<i>Lablab</i>
57. Standard and fruits smooth, not bearing callosities .....	58
58. Wing petals without appendages .....	<i>Calopogonium</i>
58. Wing petals with an appendage at the base .....	59
59. Fruits linear; distal leaflet with trilobed margins (introduced throughout the Neotropics) .....	<i>Neustanthus</i>

59. Fruits oblong; distal leaflet with sharp-toothed margins (Mexico to Venezuela)  
.....*Pachyrhizus*
60. Standard orbicular, much larger than the other petals .....61
60. Standard variously shaped nearly equal to the other petals or only slightly larger .....63
61. Flowers not resupinate; wing petals spreading at right angle (S America, Hispaniola)  
.....*Periandra*
61. Flowers resupinate; wing petals not spreading at right angle, adhering to the keel .....62
62. Calyx as long as the bracteoles; standard gibbous right above the claw (Neotropics)  
.....*Centrosema*
62. Calyx much longer than the subtending bracteoles; standard not gibbous (Neotropics)  
.....*Clitoria*
63. Stipules medifixed; corolla yellow or lilac (Pantropics).....*Vigna*
63. Stipules basifixed; corolla of other colors, rarely yellow .....64
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68. Pseudoracemes umbelliform with nodes congested on distal portion of rachis (S. America)  
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 ..... *Galactia*

### Identification of genera based on vegetative characters

(present in at least some of the species)

Cauliflory: *Clitoria*, *Macropsychanthus*, *Rhodopis*, *Sigmoidotropis*.

Cross-shaped medulla: *Schnella*, *Senegalia*.

Flat or ribbon-like stems: *Centrosema*, *Machaerium*, *Schnella*, *Rhynchosia*.

Deeply 4-lobed stems: *Senegalia*.

Nectary glands on petioles and leaf rachis: *Adenopodia*, *Chamaecrista*, *Havardia*,  
*Macrosamanea*, *Mimosa*, *Piptadenia*, *Senegalia*, *Senna*.

Deep phloem wedges: *Dalbergia*, *Leptospron*, *Mimosa*, *Schnella*.

Red exudate: *Deguelia*, *Machaerium*, *Macropsychanthus*, *Rhynchosia*.

Sinuuous stems: *Schnella*.

Stipular spines: *Havardia*, *Machaerium*, *Piptadenia*, *Senegalia*.

Successive cambia: *Canavalia* (discontinuous), *Entada* (*E. gigas*, discontinuous), *Machaerium*  
 (concentric rings), *Mucuna* (discontinuous concentric arcs), *Rhynchosia* (concentric bands),  
*Schnella* (discontinuous bands).

**ABRUS** Adanson, Fam. Pl. 2: 327, 511. 1763.

Twining subwoody vines or less often subshrubs, reaching few m in length. Stems



*Abrus precatorius*. A. inflorescence. B. dehiscent capsules with bright red seed, photo by P. Acevedo.

cylindrical to moderately flattened;

xylem with wide rays and shallow

phloem wedges, reaching 1 cm in

diam. Leaves paripinnate; rachis

mucronate; leaflets opposite,

membranaceous; stipels minute,

appressed to the rachis; stipules

minute, persistent. Inflorescences of

axillary, lateral, or terminal

pseudoracemes; bracts and bracteoles

minute, caducous; pedicels short. Flowers papilionaceous; calyx campanulate, funnel-shaped,

with 5 minute lobes at the apex; corolla pink, purplish to yellowish, much longer than the calyx;

standard ovate or obovate, retuse at the apex, shortly clawed at base; wings recurved, shorter

than or as long as the keel; stamens 9, the filaments united into a long tube; ovary almost sessile,

with numerous ovules, the style smooth, curved, the stigma penicillate. Legume oblong,

flattened, small, dehiscent; seeds few, ellipsoid to almost globose, bright red with a black spot

surrounding the hilum or completely brown.

**Distinctive features:** Paripinnate compound leaves, with minute stipels; stamens 9, connate;

fruits short; seeds scarlet red with a black area around the hilum in *A. precatorius* L.

**Distribution:** A genus of four species, native to the Paleotropics. One species naturalized and

becoming weedy in the Neotropics.



Note: Seeds of *A. precatorius* are highly toxic, a single seed is potent enough to kill an adult human.

**ADENOPODIA** C. Presl, Epim. Bot. 206. 1851.

Scrambling lianas or sometimes erect shrubs or small trees. Stems cylindrical to slightly



*Adenopodia patens*, from E. Matuda 6184 (US).

angled, armed with recurved prickles; simple with regular wood anatomy. Leaves bipinnate, paripinnate; pinna opposite; leaflets opposite, obovate; rachis and petiole with recurved prickles; petiole with a conspicuous gland above the base; rachis with a gland at the junction of upper pinnae;

rachis mucronate; stipels absent; stipules minute. Inflorescences of axillary, solitary, or clustered spikes; bracts minute. Flowers minute, actinomorphic, sessile; calyx cupular, with 5 minute lobes; corolla white or yellowish, campanulate, 5-lobed, glabrous; stamens 10, free, projecting well beyond the corolla, anther with apical gland; ovary sessile, tomentose, with numerous ovules, the style smooth, the stigma punctiform. Fruit a craspedium with sinuate margins, transversely splitting into 1-seeded segments, leaving a persistent marginal replum.

**Distinctive features:** Presence of prickles on branches and leaves; petioles with a conspicuous gland above the base; flowers minute, in spikes; fruits splitting into transverse 1-seeded segments and leaving a replum along the margins. Often confused with *Entada* but distinguished by the

prickled stems and leaves and the absence of tendrils. Vegetatively similar to *Senegalia* and *Piptadenia* which are also armed but distinguished from them by the fruits that split into segments leaving a replum, while in *Senegalia* and *Piptadenia* the fruits dehisce longitudinally along the sutures.

**Distribution:** Seven species, four in Africa and three in Mexico, all of which are climbers, one species extending to Nicaragua.

**ANCISTROTROPIS** A. Delgado, Amer. J. Bot. 98: 1704. 2011.

Twining or creeping, herbaceous or subwoody vines. Stems cylindrical to slightly angled,



*Ancistrotropis peduncularis*, photo by Hervé Galliffet.

unarmed, glabrous or pubescent, simple with regular stem anatomy. Leaves trifoliolate; stipules minute, of various forms, persistent; stipels obovate, minute. Inflorescences of axillary pseudoracemes with 2–3 small to medium-size flowers (< 2.5 cm long) per node. Flowers

papilionaceous; calyx campanulate, with pleated tube and 5 lobes; corolla pale pink, violet or cream, the standard orbicular, involute along the margins forming a hood, the wings unguiculate longer than keel, the keel hook-shaped with distal portion open and folded back on itself, and with inner margins closed by conspicuous interlocking marginal hairs; stamens 10, diadelphous, the anthers of the same size; ovary sessile, with numerous ovules, the style thickened distally and extending as a small beak beyond the stigma, the stigma laterally extrorse due to torsion of the

style (i.e., laterally positioned initially but ultimately turned to the outside face in an extrorse position). Fruit linear to slightly curved, flattened, erect on the infructescence, dehiscent along both sutures by twisting valves; seeds oblong, light brown.

**Distinctive features:** Flowers with standard petal forming a hood, wing petals much longer than the keel, and the keel with hooked beak splayed open distally. The fruit is linear and erect on the infructescence. Previously classified under the genus *Vigna* which differs by the incurved keel petal and the commonly yellow corolla.

**Distribution:** A genus of six species with neotropical distribution, found in secondary or primary forests; 0–1200 m.

**BARBIERIA** de Candolle, Prodr. 2: 239. 1825 (nom. cons.).

Twining herbaceous or subwoody vines, reaching 4–10 m in length. Stems slender,



*Barbieria pinnata*, photo by P. Acevedo.

cylindrical with regular anatomy.

Leaves imparipinnate; leaflets 11–

21, chartaceous, opposite, oblong,

apex rounded and mucronate, base

rounded or obtuse, margins ciliate;

petiolules ferruginous-pubescent;

petioles pilose; rachis with a pair of

linear stipules at the base of each

pair of leaflets; stipules lanceolate, 5–9 mm long, pubescent, persistent. Inflorescences hanging,

of axillary racemes with few distal flowers, 4–16 cm long; bracts lanceolate, pubescent, forming

an involucre at the base of the calyx. Flowers papilionaceous, resupinate; calyx tubular, reddish,

with five subulate sepals, shorter than the tube, ventral sepals slightly longer than the lateral ones; corolla red or red-orange, standard oblong-ob lanceolate, unguiculate, 5–6 cm long, wings oblong, 9–13 mm long, keel elliptic-oblong, 17–23 mm long; stamens 10, staminal column white, anthers white; ovary linear, 8–11 mm long, white-pubescent. Legume subsessile, oblong, flattened, laterally compressed between the seeds, pubescent, with the margins sinuate and the calyx persistent at the base. Seeds 4–9 per fruit, dark brown or black, oblong, 4–6 mm long.

**Distinctive features:** Twining vine; leaves pinnately compound; leaflets discolored, with a pair of stipels at the base of each pair of leaflets; flowers red or red-orange.

**Distribution:** A single species native to Cuba, Hispaniola, Puerto Rico, Mexico, Central America, and South America; in moist forests.

**BETENCOURTIA** A. Saint-Hilaire, Voyage Distr. Diamans Brés. 1: 376. 1833.

Erect herbs or subshrubs, or herbaceous to subwoody twining vines; stems cylindrical;



*Betencourtia martii*, photo by Henrique Moreira.

often tuberous at base. Leaves palmately or pinnately trifoliolate; rachis when present, short; lateral leaflets symmetrical; stipels minute, subulate; stipules basifixed.

Inflorescences of axillary, pedunculate pseudoracemes, with nodes distally congested on the rachis (umbelliform); pedicels conspicuous; bracteoles

small, paired at base of calyx. Flowers papilionaceous; calyx campanulate, coriaceous, 4-lobed,

lobes longer than the tube; corolla mauve, purple or scarlet red, the standard elliptical to ovate, reflexed, glabrous, clawed, the wings appressed to the keel straight; stamens 10, pseudo-monadelphous or diadelphous, anthers monomorphic, glabrous; ovary sessile or shortly stipitate. Fruit a flattened, linear legume, with a beak at the apex, dehiscent by twisting valves; seeds small, 6–12, circular to globose, dark brown; hilum short, oblong.

**Distinctive features:** Scandent subshrubs or twining vines, distinguished by the umbelliform pseudoracemes; leaf rachis short or wanting; and pseudo-monadelphous stamens.

**Distribution:** A South American genus of eight species, three of which are vines that reach at least 2 m in length; Colombia, Venezuela, Brazil; scrubs, woodlands, open fields, montane and gallery forests; 700–1,200 m.

**BIANCAEA** Todaro, Nuov. Gen. Sp. 21. 1860.



*Biancaea decapetala*, photo by P. Acevedo.

Scrambling lianas, trailing shrubs or small trees. Stems cylindrical, armed with recurved prickles, reaching 6 cm or more in diam. and > 15 m in length; cross section: wood with abundant paratracheal parenchyma, ray tissue inconspicuous. Leaves alternate, paribipinnate; petioles with scattered prickles; rachis armed with pairs of prickles at the base of each pinna; pinnae in opposite to alternate pairs; leaflets opposite to alternate; blade membranous, eglandular, oblong-elliptic, apex acute, obtuse, rounded to emarginate, base asymmetric; petiole and rachis lacking stipitate glands; stipules triangular, lanceolate to ovate, sometimes amplexicaule, caducous or persistent.

Inflorescences ascending, of terminal or axillary racemes or panicles; rachis with scattered prickles; bracts ovate-lanceolate, caducous. Flowers zygomorphic, caesalpiniaceous; calyx with a short hypanthium and 5 caducous sepals, leaving a hypanthium ring at the base of the fruit; petals 5, free, clawed, yellow to white, eglandular; median petal smaller; stamens 10, filaments free, densely pubescent on lower half; ovary sessile. Legume oblong, coriaceous, unarmed, laterally compressed, or slightly swollen in *B. decapetala* (Roth) O. Deg., glabrous, oblong-elliptic to obovate, dehiscent, with a beaked apex. Seeds elliptic, ovoid to orbicular, black or brown, 8 per fruit.

**Distinctive features:** Scrambling, armed shrubs; leaves bipinnate, petiole and rachis lacking stipitate glands; corolla light yellow; anthers orangish; fruit unarmed, beaked. Superficially similar to *Guilandina* but leaves have many more leaflets, and the fruits are unarmed.

**Distribution:** A genus of six species native to southern Asia to the Malay Archipelago. *Biancaea decapetala* a large, scrambling shrub or liana has been introduced in the Neotropics, sometimes becoming a weed locally.

**CAETANGIL** L.P. Queiroz, Neodiversity 13: 81. 2020.

Twinning or creeping, subwoody vines. Stems slender, cylindrical, reaching 2 m in length. Leaves trifoliolate; lateral leaflets symmetrical; petiole elongated; stipels minute; stipules acicular, persistent. Inflorescences of axillary, long pedunculate pseudoracemes; flowers 2–3 clustered on the remotely distributed nodal swellings of the rachis; bracteoles minute, in pairs just below the calyx; pedicels short. Flowers papilionaceous; calyx campanulate, membranaceous, 4-lobed, the lobes slightly longer than the tube; corolla red or reddish purple, the standard oblong, reflexed at anthesis, unguiculate, glabrous, wings and keel straight; stamens



10, pseudo-monadelphous, anthers monomorphic, pubescent; ovary stipitate. Legume elongate, flattened, slightly curved, elastically dehiscent, beaked at the apex; valves thin woody seeds ~10, subglobose with a short, oblong hilum.

**Distinctive features:** Vegetatively similar to *Galactia* but corollas red or reddish purple and anthers bearded (vs. corollas mostly mauve or purplish and anthers glabrous).

**Distribution:** A South American genus of four species (including two undescribed species); seasonally dry vegetation such as the “Chaco” of southern South America, the “Caatinga” of northeastern Brazil, and the savannas in southern Guiana and northeastern Brazil; ~85 m.

**CALOPOGONIUM** Desvaux, Ann. Sci. Nat. (Paris) 9: 423. 1826.

Twining, herbaceous to moderately woody vines, or trailing herbs. Stems cylindrical to



*Calopogonium caeruleum*, photo by P. Acevedo.

slightly flattened, with regular anatomy; exudate watery.

Leaves trifoliolate; stipels and stipules minute.

Inflorescences of axillary pseudoracemes or fascicles;

the flowers clustered on the nodal swellings of the

rachis; bracts and bracteoles minute; pedicels short.

Flowers papilionaceous; calyx campanulate-tubular, 5-

lobed, the two upper lobes united to form a lip, the 3

lower lobes lanceolate, shorter than the tube; corolla

blue or violet, the standard obovate, auriculate at the

base, erect, revolute at margins, the wings narrow

(oblanceolate), as long as the standard, the keel shorter

than the wings; stamens 9–10, one of them free, the rest with the filaments united into a long

tube; ovary sessile, hirsute, with numerous ovules, the style curved, glabrous, the stigma capitate. Legume dehiscent, flattened, linear-oblong, with crenate margins, septate between the seeds; seeds semi-circular, flattened.

**Distinctive features:** Twiner with trifoliolate leaves with stipels; corolla bluish or purplish, small (< 1 cm long); fruits flat, with slightly crenate margins.

**Distribution:** A genus of eight to nine species, native to the Neotropics from Mexico to northern Argentina including the West Indies, naturalized in the Paleotropics; mostly found in open disturbed habitats; 0–1,500 (2,500) m.

**CANAVALIA** Adanson, Fam. Pl. 2: 325, 531. 1763.

Twining, herbaceous to woody vines, sometimes creeping. Stems cylindrical, simple or



*Canavalia nitida*, photo by P. Acevedo.

less often with successive discontinuous concentric successive cambia (e.g., *C. villosa* Benth.; Ibarra-Manríquez et al 2015). Leaves trifoliolate; stipels absent; stipules minute, caducous. Inflorescences of axillary or terminal pseudoracemes; the flowers clustered on the nodal swellings of the rachis; bracts minute, in pairs; pedicels short. Flowers papilionaceous, resupinate; calyx campanulate, 5-lobed, two lobes much larger than the remaining 3 and longer than the tube, the remaining 3 shorter than the tube; corolla pink, violet, or purple, the standard obovate, strongly reflexed, unguiculate, auriculate and

thickened at the base, the wings and the keel of similar size; stamens 10, the filaments united into a long tube; ovary sessile or stipitate, pubescent, with numerous ovules, the style filiform, the stigma capitate. Legume elongate, flattened or slightly turgid, dehiscent or indehiscent, not septate between the seeds, with a longitudinal ridge parallel to the upper suture; seeds 3 or more, usually oblong, brown, white, black or red (Figure 119F).

**Distinctive features:** Corolla pink, violet or purple, the standard unguiculate, auriculate and thickened at the base, keel and wings of similar length but shorter than the standard. Fruits longitudinally ridged along upper suture. Vegetatively similar to *Dioclea* and *Macropsychanthus* but distinguished by the lack of stipels and the resupinate flowers which are characteristics of *Dioclea* and *Macropsychanthus*.

**Distribution:** A pantropical genus of twining lianas and vines of ~60 species, 36 of which are native to the Neotropics in diverse vegetation formations, including flooded forest, gallery forest, open thickets, and woodland; 0–1,800 m.

**CENTROSEMA** (de Candolle) Bentham, Commentat. Legum. Gen. 53. 1837.

Twining, herbaceous to moderately woody vines, or rarely prostrate herbs. Stems



*Centrosema haitiense*, photo by P. Acevedo.

cylindrical, wiry, sometimes slightly flattened, keeled or winged with age; cross section with regular anatomy and conspicuous rays. Leaves trifoliolate or less often unifoliolate; stipels and stipules minute, persistent. Flowers resupinate, axillary, solitary or grouped on a bracteate

peduncle; bracts appressed to the calyx; pedicels more or less elongate. Flowers papilionaceous; calyx campanulate, 5-lobed, lobes unequal to almost equal; corolla pink, lavender or white, the standard ovate or rounded, unguiculate, subreflexed, the wings and the keel of similar size, but shorter than the standard; stamens 10, diadelphous or monadelphous; ovary almost sessile, with numerous ovules, the style curved, pubescent, the stigma capitate or truncate. Legume linear, flattened, the margins sometimes ribbed or winged, often with narrow discolored band, dehiscent by valves that twist on drying, not septate between the seeds; seeds numerous, small, oblong.

**Distinctive features:** Characterized by wiry stems and resupinate flowers with wide orbicular standards and short keel and wing petals. Similar to *Clitoria* but distinguished by the bracteoles that are as long as the calyx and by the standard that is gibbous right above the claw, while in *Clitoria*, bracteoles are shorter than the calyx and the standard is not gibbous. Similar to *Periandra* which differs by the large spreading wing petals.

**Distribution:** A genus of ~44 species native to the New World, 37 of which are climbers that occur within the Neotropics; open fields, scrubs, seasonal dry forests; 0–2,300 m.

**CHAMAECRISTA** (Linnaeus) Moench, Meth. 272. 1794.

Annual or perennial, erect herbs or shrubs, with a few scrambling vines. Leaves paripinnate; leaflets opposite; petioles usually grooved along upper surface, pulvinate at base and

bearing one or two discoid or stipitate glands; rachis grooved, ending in a filiform segment, often



*Chamaecrista barbata*, photo by Domingos Cardoso.

with additional glands at the bases of the leaflets; stipels wanting; stipules minute to foliaceous. Flowers caesalpiniaceous, bisexual, solitary or in a few species in supra-axillary racemes; pedicels bracteolate near or above middle; calyx of 5 unequal sepals; corolla yellow, of 5, free, slightly heteromorphic petals; stamens 5–10, usually heteromorphic, the

filaments shorter than the anthers; ovary 1-locular, sessile or shortly stipitate, with many ovules.

Legume dehiscent along both sutures, the valves coiling; seeds many, flattened.

**Distinctive features:** Leaves paripinnate with the rachis ending in a scale-like projection; petioles bearing one or two discoid or stipitate glands; corolla yellow, of free heteromorphic petals; stamens heteromorphic, with filaments shorter than the anthers.

**Distribution:** A tropical genus with ~330 species, 277 of which are found in the Neotropics, of these, only *C. acosmifolia* (H. S. Irwin & Barneby) H. S. Irwin & Barneby and *C. barbata* (Nees & Mart.) H.S. Irwin & Barneby are sometimes reported as climbing, scrambling shrubs in Brazil; thickets and margins of gallery forests; 600–900 m.

**CLEOBULIA** Martius ex Benth, Commentat. Legum. Gener. 67. 1837.

Twining lianas or vines, rarely erect shrubs. Stems terete or flattened when old in *C. leiantha* Benth. Leaves trifoliolate; rachis and petiole canaliculate; stipels setaceous, ~1 mm



*Cleobulia multiflora*, photo by Henrique Horeira.

long; stipules triangular, persistent. Inflorescence axillary or sometimes terminal, solitary, erect; flowers several per node; bracts triangular, ~2 mm long; pedicels short. Flowers papilionaceous, resupinate, 10–15 mm long; calyx campanulate, 4-lobed (upper 2 lobes fused), tinged reddish, glabrous to ferruginous

pubescent, the lobes unequal; corolla reddish, less often lilac or purple, the standard obovate to orbicular, spreading or reflexed, unguiculate, plicate, the keel slightly shorter than the standard, the wings  $\frac{2}{3}$  as long as the keel; stamens 10, diadelphous; ovary sessile, with few ovules, the style erect, glabrous, the stigma capitate. Legume oblong, dehiscent along both sutures, slightly swollen, with the margins ribbed; seeds few, ~6 mm long, reniform, with hilum encircling nearly half of the seed.

**Distinctive features:** Leaflets coriaceous, strongly nerved and pubescent abaxially, sometimes treated as a synonym of *Dioclea* but differentiated by the resupinate, smaller flowers with minute wing petals that scarcely surpass the calyx in length. Fruits and seeds as in some *Dioclea* species.

**Distribution:** A genus of four species with disjunct distribution. A species of shrub from the Oak and Pine forests in Guerrero, Mexico has been assigned to this genus; the remaining three species are vines that occur in Brazil; in wet to semi deciduous forests; 100–450 m.

**CLITORIA** Linnaeus, Sp. Pl. 753. 1753.



Twining herbaceous or woody vines, trees, or shrubs; stems cylindrical, simple, with



*Clitoria falcata*, photo by P. Acevedo.

regular anatomy. Leaves trifoliate or 5–7-pinnate with opposite leaflets in *C. ternatea* L.; stipels present; stipules minute, persistent. Flowers papilionaceous, resupinate, solitary or grouped in axillary or cauliflorous racemes; bracteoles appressed to the calyx, persistent. Calyx campanulate, with 5 equal or almost equal lobes, nearly as long as the tube; corolla blue-violet, white, yellow, or red, the standard suberect, rounded, rugose, longer than the wings and keel, the wings longer than the keel; stamens 10, diadelphous or monadelphous; ovary stipitate, the style curved, pubescent, the stigma truncate. Legume

linear or oblong, flattened, dehiscent along both sutures, not septate between the seeds; seeds few, orbicular to oblong, compressed, dark brown.

**Distinctive features:** Resupinate flowers with showy, obovate standard petal, much longer than the wing and keel petals. Like *Centrosema* but distinguished by the wing petals which are longer than the keel, while in *Centrosema* they are of about equal length.

**Distribution.** A pantropical genus of ~66 species, 48 of which are distributed in the Neotropics, of these, 25 are herbaceous to subwoody vines; in seasonally dry to wet forest, sometimes open and grassy habitats; 0–500(2,000) m.

**COCHLIASANTHUS** Trew, Pl. Rar. 1: 41. 1764.



Twining subwoody vines reaching few meters in length. Stems cylindrical, ~3 mm diam.



*Cochlianthus caracalla*, photo by Phil Bendle.

Leaves trifoliolate; stipels elliptic, ~2 mm long; stipules minute, deltoid, persistent. Inflorescences of axillary diffuse pseudo-racemes, with conspicuous swollen, nectariferous nodes; bracteoles minute, persistent. Flowers papilionaceous, spirally twisted; calyx widely campanulate, ~1 cm long, with 5 equal or almost equal

lobes; corolla lilac purplish or rosy, the standard oblong, twisted, longer than the keel and wings, the keel twisted with up to five loose right-handed coils, the wings large, appressed to the keel; stamens 10, diadelphous; ovary sessile, the style curved, the stigma punctiform. Legume oblong, flattened, with thickened margins and elongate beak, dehiscent along both sutures by twisting valves, slightly septate between the seeds; seeds few, oblong, dark brown, hilum straight as long as the seed.

**Distinctive features:** Subwoody vines, few meters long; flowers characteristically large and showy, with twisted standard and wing petals in a right-handed fashion, and spirally coiled keel; pedicels as long as or longer than the calyx, resulting in diffuse pseudoracemes.

**Distribution.** A single species, *Cochlianthus caracalla* (L.) Trew, native to the Neotropics from southern Mexico to northern Argentina and Uruguay; in secondary and primary wet forests, mostly without a dry season; 200–900 m. Cultivated worldwide, including parts of the West Indies for its spectacular flowers.

**COLOGANIA** Kunth, *Mimosas* 205. 1824.

Twining herbaceous vines or prostrate to erect herbs with a deep, woody taproot; stems



*Cologania procumbens*, photo by J. Amith.

cylindrical, very slender. Leaves trifoliolate, rarely 5-foliolate or unifoliolate; stipels setaceous; stipules basifixed persistent. Flowers papilionaceous, solitary or in axillary fascicles, or less often pseudoracemes; bracts and bracteoles persistent. Calyx tubular, gibbous on the vexillary side,

with 4–5 nearly equal lobes; corolla purple or rarely red; the standard obovate, reflexed, commonly emarginate and tapering at base, the wings and the keel unguiculate, the wings longer and slightly adherent to the incurved keel; stamens 10, diadelphous; ovary stipitate, the style incurved, glabrous, the stigma terminal, capitate. Legume linear or falcate, flattened to nearly cylindrical at maturity, dehiscent, shallowly septate between the seeds; seeds 6–12, flat, circular to nearly square, the hilum oblong

**Distinctive features:** Herbaceous twining vines, with magenta flowers; calyx tubular, gibbous at the base; fruits subcylindrical.

**Distribution.** ~13 species, although distributed from SW United States to northern Argentina, most species are centered in Mexico; only five species distributed in the Neotropics seem to reach 2 or more m in length; mostly in montane habitats; 2,000–3,000 m.

**CONDYLOSTYLIS** Piper, Contr. U.S. Natl. Herb. 22: 667. 1926.

Twining herbaceous vines. Stems cylindrical, slender. Leaves trifoliolate; leaflets 3-



*Condylostylis candida*, photo by Luís A. Funez.

plinerved from base; stipels and stipules minute, striate-nerved. Flowers papilionaceous, in axillary racemes; bracts and bracteoles striate-nerved. Calyx campanulate, with 5 wide, obtuse lobes; corolla blue-violet, white, yellow, or red, the standard orbicular, auricled, longer than the wings and the keel, the wings oblong,

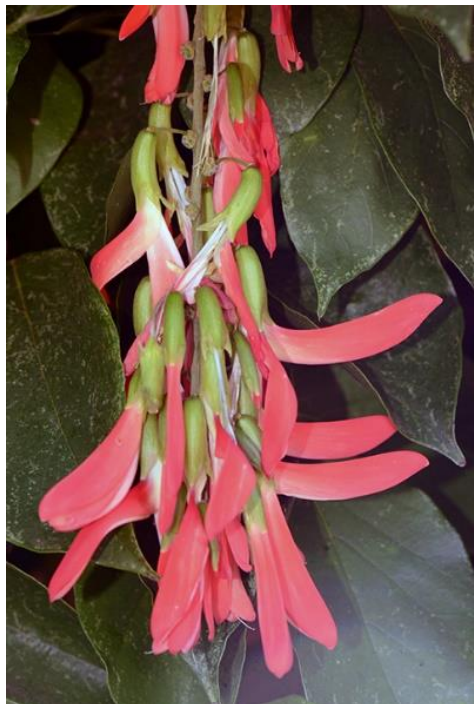
clawed, constricted below the middle; keel long-clawed, constricted and slightly twisted above the middle, with a bottle-shaped beak; stamens 10, diadelphous, the single free stamen thickened at base and geniculate at a right angle; ovary sessile, the style slightly curved, with a globose thickening at base, pubescent on distal portion, constricted at the tip and bearing a spatulate appendage, the stigma rounded, lateral. Legume linear, flattened, shortly beaked, dehiscent along both sutures; seeds few, cylindrical, with a linear hilum  $> \frac{1}{2}$  as long as the seed.

**Distinctive features:** Small, chartaceous leaflets with cuneate bases; corolla parts with left-handed symmetry; style with a globose thickening near its base; seeds with an ephemeral waxy layer. Vegetatively similar to *Rhynchosia* but lacking the yellow punctations that characterize that genus.

**Distribution.** Four species distributed from southern Mexico south to Argentina and Uruguay; in wet to semi deciduous forests; 0–1500 m.

**CRATYLIA** Martius ex Bentham, Commentat. Legum. Gener. 67. 1837.

Twining lianas or erect to scrambling shrubs; stems cylindrical, with regular anatomy.



*Cratylia spectabilis*, photo by P. Acevedo.

Leaves trifoliolate; leaflets coriaceous, often discolorous, some species abaxially golden pubescent; stipels minute, acicular; stipules small, caducous. Inflorescences of axillary pseudoracemes, fasciculate, the flowers grouped on the nodose swellings along the rachis; bracts and bracteoles minute, caducous. Flowers papilionaceous; calyx campanulate, commonly sericeous, with 4 lobes, the upper lobe emarginate; corolla white, rose to lilac or red-orange, the standard orbiculate, ovate or oblong, reflexed, slightly emarginate, the wings obovate, free, the keel incurved, slightly shorter than the wings; stamens 10,

diadelphous; ovary stipitate, with numerous ovules, the style incurved, the stigma capitate, terminal. Legume linear to oblong, flattened, dehiscent, slightly thickened at margins; seeds compressed, with a short, oblong, hilum.

**Distinctive features:** Calyx and commonly the underside of leaflets sericeous; seeds, hard, large; hilum often  $\frac{1}{2}$  –  $\frac{3}{4}$  the length of seed circumference.

**Distribution:** An extra-Amazonian, South American genus of seven species, six of which are lianas or climbing shrubs; Peru, Bolivia to SE Brazil, and northern Argentina; seasonally dry forests and woodlands, rainforests and savannas; 20–790 m.

**CYMBOSEMA** Bentham, J. Bot. (Hooker) 2: 61. 1840.

Twining subwoody vines to 7 m long; stems cylindrical, with regular anatomy. Leaves



*Cymbosema roseum*, photo by B. Hammel.

trifoliolate; stipels  
minute; stipules  
basifixed,  
caducous.  
Inflorescences of  
axillary, erect  
pseudoracemes,  
nodes with few to  
many flowers,  
sessile; bracts and

bracteoles minute, caducous. Flowers papilionaceous; calyx chartaceous, pink or greenish, tubular-campanulate, with 4 lobes that are of similar length and shorter than the tube, the upper lobe wider (resulting from the fusion of 2 lobes), triangular and obtuse, lower lobes narrowly triangular and acute; corolla red to fuchsia, the standard spreading or reflexed, abaxially pubescent toward the apex, auriculate, without callosities at the base, wings free, as long as the keel, with a basal spur on upper margin, keel oblanceolate, straight; stamens 10, diadelphous, anthers monomorphic; ovary sessile, pubescent, with 5–6 ovules, style cylindrical, stigma capitate, terminal. Fruit oblong, flattened, woody, elastically dehiscent; seeds small, lenticular, with a linear hilum reaching  $\frac{1}{2}$  of the seed circumference.



**Distinctive features:** Trifoliolate leaves with stipels; stipule basifixed; corolla bright red to fuchsia with elongated standard petal that is abaxially pubescent toward the apex; legumes elastically dehiscent; seeds ~10 mm long with hilum covering ½ of its circumference.

**Distribution:** A neotropical genus of a single species (*C. roseum* Benth.) distributed from the Yucatan Peninsula south to south-central Brazil and Bolivia; along edge of swamps or rivers, in wet, seasonally flooded forests; 0–300 m.

**DALBERGIA** Linnaeus f., Suppl. 52, 316. 1782 (nom. cons.).

Trees, erect or scrambling shrubs, or lianas with short, prehensile branches (Figure



*Dalbergia ecastaphyllum*, photo by P. Acevedo.

115A). Stems cylindrical, unarmed, up to 10 cm in

diam. and more than 25 m in length; with regular

anatomy, xylem sometimes with shallow phloem

wedges, and sometimes producing neoformations

within the cortex (Figure 113D); exudate watery,

sometimes quickly oxidizing. Leaves imparipinnate or

unifoliolate; leaflets alternate; stipels absent; stipules

minute to conspicuous, caducous, never spinescent.

Inflorescences of axillary or terminal racemes or

panicles; bracts and bracteoles minute, caducous or

persistent. Flowers papilionaceous; calyx campanulate,

with 5 short, equal or unequal lobes; corolla white,

yellow, pink or purple, the standard rounded or ovate, retuse, narrow at the base, the wings

usually longer than the keel; stamens 9–10, diadelphous or monadelphous; ovary stipitate,

pubescent, the style usually curved, the stigma minute. Fruits are oblong to circular (coin-shaped), indehiscent and usually with membranaceous margins; seeds small, lenticular, one to few.

**Distinctive features:** Usually with short, axillary prehensile branches; leaves either unifoliolate or imparipinnate with alternate or rarely subopposite leaflets. Vegetatively like *Machaerium* but distinguished by the exudate that only turns red or pink after oxidizing and lack of stipular prickles, while in *Machaerium* the sap is commonly dark red, and many species have a pair of stipular prickles. Fruits in *Dalbergia* are oblong to coin-shaped (pseudo-samaras), never lunate or a samara like in *Machaerium*.

**Distribution:** A pantropical genus of ~250 species, 60 of which are found in the Neotropics, but only 28 of which are climbers; most commonly found in moist to wet forests especially along river margins; 0–250 (1,900) m.

**DEGUELIA** Aublet, Hist. Pl. Guiane 1: 750, t. 300. 1775.



Twining lianas, scrambling shrubs, and rarely trees; stems cylindrical, reaching 5 cm or more



*Deguelia chrysophylla*, photo by P. Acevedo.

in diam., and > 25 m long, with regular anatomy, parenchyma abundant, in numerous concentric bands alternated with darker bands of fibers (Figure 111A); exudate clear, pinkish to red.

Leaves imparipinnate, 3–17-foliolate; leaflets opposite, or less often subopposite, usually smaller toward the basal portion of the rachis; petiolules pulvinate; stipels present or absent; stipules often caducous. Inflorescence axillary or terminal, clustered or solitary elongate pseudoracemes, with more than 5 flowers per node; bracts and

bracteoles usually caducous. Flowers

papilionaceous; calyx campanulate, subtruncate to dentate, usually with 3 distinct carinal lobes and 2 broader vexillary lobes partially connate; corolla white, yellow or purple to magenta, all petals unguiculate, of similar length; standard orbicular, oblong to obovate, usually emarginate at the apex, sometimes sub-auriculate; wings adnate with the keel above the claw; stamens unequal, pseudo-monadelphous, with vexillary stamen free at the base but connate higher up; ovary sessile or shortly stipitate, with (1–)2–15 ovules; style filiform, curved; stigma capitate. Legume indehiscent or rarely dehiscent, generally compressed, suborbicular, oblong to linear-oblong, membranaceous to coriaceous, rarely woody, with straight or sinuate margins (Figure 118F), the vexillary margin sometimes forming a narrow longitudinal wing. Seeds 1–12, oblong-reniform with short hilum.

**Distinctive features:** Leaves imparipinnate, usually > 5-pinnate with opposite leaflets; stems sometimes with pinkish or reddish exudate.

**Distribution:** A neotropical genus of ~20 species, 16 of which are twining lianas; lowlands of northern South America, one species extending through Central America north to Nicaragua; moist and wet forest; 100–900 m.

**DESMODIUM** Desvaux, J. Bot. Agric. 1: 122. 1813 (nom. cons.).

Erect, prostrate, or scrambling herbs, some species reaching > 2 m in length. Stems slender,



*Desmodium intortum*, photo by P. Acevedo.

with regular configuration. Leaves usually trifoliolate; stipels minute; stipules minute, caducous or persistent. Inflorescences of axillary or terminal pseudoracemes or panicles; bracts and bracteoles minute, caducous or persistent. Flowers papilionaceous; calyx campanulate, with 5 short to long, almost equal lobes; corolla pink, bluish or rarely white, the standard oblong to rounded, retuse, narrow at the base, the wings and the keel of the same length; stamens 10, diadelphous or monadelphous; ovary stipitate or sessile, pubescent, with few ovules, the style inflexed, the stigma minute. Fruit linear, flattened or spiral, with the

ventral margin or both margins deeply sinuate between the seeds, indehiscent, but separating in

segments containing a single seed which adhere to clothing or the fur of animals by uncinata hairs; seeds small, oblong.

**Distinctive features:** Corollas pink, lavender or violet; fruit a lomentum, commonly with uncinata pubescence that separates into single seeded segments which adheres to clothing.

**Distribution:** A pantropical genus with ~187 species, most of which are found in the New-World, 161 species are found in the Neotropics, 17 of which are reported as clambering herbs or subshrubs; open fields, scrubs, disturbed areas; 50–2,500 (3,200) m.

**DIOCLEA** Kunth in Humboldt, Bonpland & Kunth, Nov. Gen. Sp. 6: ed. folio, 342. 1824.

Twining subwoody vines, occasionally erect shrubs; stems cylindrical, with regular



*Dioclea guianensis*, photo by Andrés Hernández (STRI).

anatomy. Leaves trifoliolate; stipels minute; stipules basifixed, persistent. Inflorescences of axillary, erect pseudoracemes, node multiflorous, sessile, woody; bracts and bracteoles chartaceous. Flowers papilionaceous; calyx campanulate, chartaceous, with 4 lobes (2 upper lobes fused) of

similar length; corolla purple, rarely whitish purple or reddish purple, the standard reflexed, emarginate and pubescent toward the apex, auriculate and lacking callosities at the base, wings free, as long as the keel, with a basal spur on the upper margin, the keel elliptic to obovate, straight; stamens 10, pseudo-monoadelphous, anthers all fertile; ovary stipitate, with 7–15 ovules,

the style cylindrical, the stigma capitate. Fruit linear, flattened, woody, elastically dehiscent, upper margin with a longitudinal rib or wing on each side of suture; seeds small, lenticular, with a linear, faint hilum along  $\frac{1}{2}$  of its circumference.

**Distinctive features:** Trifoliolate leaves with stipels; leaflets for the most part coriaceous; sepals of similar length; standard petal distally pubescent; ovary stipitate; seeds small (to 14 mm long), hard, hilum often  $\frac{1}{2}$  the circumference length.

**Distribution:** A neotropical genus of ~14 species distributed from southern Mexico to NE Argentina, all of which are subwoody vines; gallery forest, evergreen forest, remnant forest along roads, seasonally flooded forests; 65–200 (2,000) m.

**ENTADA** Adanson, Fam. Pl. 2: 318, 554. 1763 (nom. cons.).

Trees, shrubs or tendrilled lianas; stems unarmed, cylindrical, reaching 8–15 cm in diam.,



*Entada polystachya*, photo by P. Acevedo.

with regular configuration or with successive cambia forming asymmetrical bands of vascular tissue in *E. gigas* (L.) Fawc. & Rendle (Figure. 112A). Leaves bipinnate, unarmed, neotropical species commonly with two distal pinnae modified into tendrils (Figure 115C); pinnae opposite; leaflets numerous, opposite; petioles with or without nectariferous glands; stipules small, setaceous; stipels minute, on secondary leaf axes. Flowers actinomorphic, bisexual, produced on spikes, usually arranged in paniculate inflorescences; bracts minute. Calyx

campanulate or crateriform, of 5 small sepals; corolla of free petals; stamens 10, exserted, the filaments free at the base, the anthers with a caducous apical gland; ovary subsessile, with numerous ovules, the style filiform. Fruit highly variable in size (20–100 cm long), shape, and dehiscence, an oblong craspedium, straight or recurved, flattened, articulate between the seeds in some species, the margins thickened, separating from the valves when ripe as a persistent replum; seeds flattened, circular or reniform, in some species ~1 cm long, in *E. gigas* (L.) Fawc. & Rendle up to 5 cm wide and ~1 cm thick (Figure 119C), often found along beaches (sea beans, sea hearts).

**Distinctive features:** Large lianas (in the Neotropics), reaching the canopy; the neotropical species have bipinnate leaves with pinnae derived tendrils; spicate or paniculate inflorescences. Flowers of *E. polyphylla* Benth. have a very strong fishy smell.

**Distribution:** A genus of ~30 species, of pantropical distribution; only three species in the Neotropics, all of which are lianas; moist or wet forests; 0–1,500 m. The genus according to G. Lewis is not monophyletic and needs further phylogenetic studies.

**GALACTIA** P. Browne, Civ. Nat. Hist. Jamaica 298. 1756.



Twining, herbaceous or slightly woody vines, sometimes erect herbs or subshrubs.



*Galactia striata*, photo by P. Acevedo.

Leaves 1–7-foliolate but commonly trifoliolate; stipels and stipules minute, often caducous.

Inflorescences of axillary or terminal pseudoracemes, the flowers grouped on the fleshy nodes along the rachis; bracts and bracteoles

minute, caducous or persistent. Flowers papilionaceous; calyx campanulate, with 4 elongate (2 upper lobes fused), unequal lobes; corolla pink, lavender, white, or less frequently red, the standard elliptical or rounded, reflexed, narrowed at the base, the wings appressed to the keel; stamens 10, monadelphous or diadelphous, of unequal length; ovary sessile, pubescent, with numerous ovules, the style curved, glabrous, the stigma capitate. Fruit a flattened, linear legume, slightly curved, with a beak at the apex, dehiscent by twisting valves; seeds small, few, ovoid, brown.

**Distinctive features:** Delicate vines, sometimes with wiry stems; flowers for the most part < 1 cm long.

**Distribution:** A pantropical and subtropical genus of ~118 species, 87 of which are found in the Neotropics with ~65 species of vines; diverse habitats, mostly in scrubs, dry forest or savannahs; 0–1,000(2,000) m.



**GUILANDINA** Linnaeus, Sp. Pl. 381. 1753.

Scrambling lianas or erect shrubs, commonly armed with recurved prickles. Stems



*Guilandina culebrae*, photo by P. Acevedo.

cylindrical, striate, reaching few to several meters in length. Leaves bipinnate; axes commonly armed with recurved prickles; pinnae opposite, leaflets opposite or alternate; petioles and rachis lacking glands; stipels wanting; stipules minute to foliaceous. Flowers caesalpiniaceous, unisexual or cryptically bisexual, in axillary or terminal racemes; pedicels articulate in the distal portion. Calyx campanulate, 5-lobed, sepals as long as the tube, reflexed; petals 5, free, yellow, unguiculate; stamens 10, filaments of equal length, flattened, free but interlocked by hairs; ovary sessile or short-stipitate, with numerous ovules. Legumes widely oblong,

dehiscent along one or both sutures, often spiny (Figure 118I); seeds solitary or few, large, hard, ellipsoid or ovoid, white, gray, brownish yellow, brown or black (Figure 119E).

**Distinctive features:** Vegetative parts often armed with recurved prickles; fruits dehiscent along one or both sutures, usually with spiny exocarp; seeds large, hard, gray, black, dark yellow, or brown, with small hilum.

**Distribution:** A tropical genus of 13 species, two of which are pantropically distributed, one endemic to Madagascar, nine are endemic to the West Indies, and one species endemic to Costa Rica; in coastal scrubs and seasonal forests, from sea level to 1,300 m elevation.

**HAVARDIA** J.K. Small, Bull. New York Bot. Gard. 2: 91. 1901.

Trees, shrubs or lianas (scramblers?) that reach the forest canopy. Stems cylindrical, with



*Havardia platyloba*, photo by L.M. Vicente Rivera.

regular anatomy, armed with recurved stipular spines. Leaves bipinnate; pinnae opposite, leaflets opposite; petioles glandular; stipels wanting. Flowers ~2 cm long, actinomorphic, bisexual, in long-pedicellate terminal fascicles of capitula. Calyx tubular-campanulate, 5-lobed; corolla tubular-campanulate, 5-lobed; stamens 60–70, white, exserted, monadelphous, connate at least  $\frac{1}{2}$  way; ovary short-stipitate, with few ovules. Legume flattened, oblong, chartaceous, dehiscent; seeds 8–9, elliptical, with slightly winged margin.

**Distinctive features:** Vegetative parts armed with spines and recurved stipular spines; fruits early dehiscent; flowers in large heads with showy, white stamens. Similar to *Senegalia* but only armed with stipular recurved spines (not randomly scattered prickles as in most species of *Senegalia*), and the flowers are much larger.

**Distribution:** A genus of seven species, distributed from Mexico to Colombia and Venezuela. Only *H. platyloba* (DC.) Britton & Rose in addition to being a tree, is known to grow as a liana in Mexico, Nicaragua, Costa Rica, and Colombia; in deciduous forests; 80–175 m.

**HELICOTROPIS** A. Delgado, Amer. J. Bot. 98: 1709. 2011.

Twining herbaceous vines or prostrate herbs, rooting at nodes, with a thick taproot at base.



*Helicotropis linearis*, photo by R.T. de Queiroz.

Stems slender, striate, hollow, mostly < 1 m long, sometimes reaching up to 2 m. Leaves trifoliolate; stipels minute, persistent; stipules triangular to lanceolate, parallel-nerved, persistent. Inflorescences axillary, few-flowered pseudoracemes; peduncles thick, much longer than the subtending

leaf; bracts foliaceous, persistent; pedicel shorter than the calyx tube; Flowers papilionaceous; calyx campanulate, asymmetrical, 5-lobed, vexillary lobe wider and shorter than the median and carinal lobes which are lanceolate, and as long as or longer than the tube; standard violet-purple, or lavender-blue with blotches of purple along the upper margin, obovate to widely ovate, revolute at margins, retuse at apex, with flap-like auricles at either side of distal portion of claw; wings overlapping and darker than the other petals; keel white to pale lavender, 2–3 times spirally coiled, beak with distal portion extended into an obtuse, short and flat opening; stamens 10, diadelphous; ovary with thick margins, the style thickened at base, the stigma apical to slightly lateral, introrse or extrorse, with a ring of hairs. Legume linear, flattened, with thickened margins and elongate beak, dehiscent by twisting valves. Seeds 18–25, reniform to square, flattened, hilum short, slightly darker than testa.

**Distinctive features:** Herbaceous twiners with trifoliolate leaves; corolla purplish to lavender, with a keel several times spirally coiled.

**Distribution:** A genus of three species, distributed from Mexico to northern Argentina; in open disturbed habitats, scrublands, savannas, and gallery forests; 145–1,230 m.

**LABLAB** Adanson, Fam. Pl. 2: 325. 1763.



*Lablab purpureus*, photo by P. Acevedo.

Twining, subwoody vines, reaching 3–7 m in length. Stems slightly angular, with regular anatomy; exudate scanty, watery. Leaves trifoliolate; leaflets broadly ovate or rhombic, chartaceous, with apex acute or acuminate and base cuneate or truncate on the central leaflet, unequal on the lateral ones, margins entire, ciliate; stipels subulate; petioles canaliculate, laterally flattened, thickened at the base; stipules lanceolate, persistent. Inflorescences of axillary pseudoracemes, erect, longer than the subtending leaf, flowers 2–3, grouped on the fleshy nodes along the rachis. Flowers papilionaceous; calyx campanulate, green, pubescent, sepals 5, short, unequal, lanceolate; corolla white or pale violet, the standard reflexed, rounded, wings oblanceolate, keel as long as the wings; stamens 10, diadelphous; ovary flattened, the style curved, the stigma terminal. Legume oblong, broader distally, the upper margin tuberculate, tardily dehiscent; seeds 3–5, up to 1 cm long, ovate or elliptical, flattened, light brown, with a white hilum.



**Distinctive features:** Robust twining vine with trifoliolate leaves; leaflets 3-veined from base; corolla white (but purple in ornamental cultivars); fruits tuberculate along the upper margin.

**Distribution:** A single species native to sub-Saharan Africa and Madagascar, widely introduced throughout the tropics for food, fodder and ornamental purposes. Known from several countries in the Neotropics, naturalized and invasive in Puerto Rico and Dominican Republic.

**LACKEYA** Fortunato, L.P. Queiroz & G. Lewis, Kew Bull. 51: 365. 1996.

Twining, herbaceous or slightly woody vines, a few m long. Leaves pinnately trifoliolate,



*Lackeya multiflora*, photo by L. Clark.

lateral leaflets asymmetrical, petiolules elongated; stipels and stipules minute. Inflorescences of axillary pseudoracemes, the flowers in groups of 3–6 on the swollen nodes along the rachis; pedicels short; bracteoles in pairs just below the calyx. Flowers papilionaceous, deflexed against the peduncle at anthesis; calyx campanulate, with 4 lobes shorter or longer than the tube; corolla whitish, mauve or purple, the standard elliptical, reflexed, keeled at the base, the wings and keel petals straight of similar length; stamens 10, pseudo-monoadelphous, of unequal length; ovary

sessile, appressed pubescent, with numerous ovules, the style curved, the stigma punctiform.

Fruit a turgid, oblong legume, with a curved beak at the apex. Seeds globose, with narrow-elliptic hilum.

**Distinctive features:** Twining vine with trifoliolate leaves; leaflets pinnately veined; corolla whitish, mauve or purplish with line markings toward the center; fruits turgid, glabrous.

**Distribution:** A New World genus of two species, both of which are found in northern to south central Mexico.

**LATHYRUS** Linnaeus, Sp. Pl. 729. 1753.

Trailing or climbing herbs with the aid of foliar tendrils, commonly less than 1 m long.



*Lathyrus japonicus*, photo by T.F. Niehaus.

Stems cylindrical. Leaves paripinnate, 2–24-foliolate; leaflets opposite or alternate, distal leaflets replaced by filamentous tendrils; stipels wanting; stipules conspicuous, usually foliaceous.

Inflorescences of axillary racemes usually much

longer than the subtending leaf. Flowers papilionaceous; calyx 5-lobed, variously colored but usually green; corolla pink, magenta, bluish, cardinal, white or yellow, the standard oblong to nearly circular, unguiculate, slightly reflexed, much larger than the keel and wings, keel and wing petals unguiculate; stamens 10, diadelphous, ovary oblong, sessile, the style pubescent on the carinate side. Legume elongate, turgid, few-seeded; seeds lenticular, prismatic-lenticular to subglobose, variously colored, with short hilum.



**Distinctive features:** One of the few genera of Fabaceae that bear tendrils of foliar origin, these representing a modified leaf or modified distal leaflets of a paripinnate leaf. *Lathyrus* is like *Vicia* as they both are herbaceous and have papilionaceous flowers but differ by the styles that are hairy all along the carinal side. *Vicia* species on the other hand, have styles that are hairy only on the distal portion. The only other neotropical genus with foliar tendrils is *Entada* but it is a woody liana with mimosoid flowers.

**Distribution:** A genus of ~182 species most of which have a temperate to warm temperate distribution. Although there are 16 species of vines in this genus reported for the Neotropics, they are at most a meter long, except for *L. splendens* Kellogg from Baja California, Mexico, which is recorded as reaching 2 m in length, and therefore the only species included in this treatment.

**LEPTOSPRON** (Bentham & Hooker f.), A. Delgado, Amer. J. Bot. 98: 1709. 2011.

Twining, herbaceous to subwoody vines, reaching 3–5 m in length. Stems cylindrical, glabrous to pilose; cross section regular, xylem with wide rays and deep phloem wedges in old stems. Leaves trifoliolate; leaflets 3-veined from base; stipules triangular, conspicuously veined, truncate at the base; stipels oblong. Inflorescences of axillary pseudoracemes, with 2 flowers per node; bracts small, caducous. Flowers papilionaceous; calyx green, campanulate, 4-lobed (2 upper lobes fused), the 3 lower lobes lanceolate, longer than the tube and the upper lobe; corolla lavender, the standard reniform, emarginate at apex, unguiculate, with yellow vexillary calluses,



*Leptospron adenanthum*, photo by P. Acevedo.

the wings obovate, unguiculate, twisted, nearly as long as the standard, the keel unguiculate, as long as the wings, spirally twisted  $\frac{1}{2}$ – $1\frac{1}{2}$  times at apex; stamens 10, diadelphous; ovary sessile, with numerous ovules, the style spirally coiled, pubescent on the distal portion.

Legume oblong, falcate, flattened with thickened margins and the seed locule slightly prominent, dehiscent by valves that twist on opening; seeds flattened, quadrangular or almost reniform.

**Distinctive features:** Herbaceous to subwoody twining vines with lavender to pale violet corolla; the keel petals spirally twisted, projected downward.

**Distribution:** A neotropical genus of two species, one of which (*L. adenanthum* (G. Mey.) A. Delgado) is naturalized in Africa, Madagascar, Asia, and Australia. In the Neotropics, the genus is found in Mexico, Central America, South America south to Argentina and Uruguay and the West Indies; 0–2000 m.

**MACHAERIUM** Persoon, Syn. Pl. 2: 276. 1807 (nom. cons.).

Trees, shrubs, or scrambling lianas, armed with recurved prickles or lignified, recurved stipular spines, usually with short prehensile branches (Figure 120B) or flagellum-like branches

(Figure 114C); stems cylindrical, with regular anatomy (Figure 111B) or successive cambia (Figure 113C), or sometimes flattened with successive alternating rings of xylem and phloem



**Figure 120.** A. *Machaerium huanucoense*, with samaras. B. *M. quinatum*, showing lateral, short prehensile branches. C. *M. lunatum*, with lunate, water-dispersed fruits. Photos by P. Acevedo.

(Figure 112C); exudate usually red or orangish (Figures 111B; 112C; 113C). Leaves imparipinnate or less often unifoliolate; leaflets alternate or subopposite; stipels absent; stipules spinescent and persistent or membranous and caducous. Inflorescences of axillary or terminal racemes or panicles; bracts minute; bracteoles broadly ovate, paired at the base of the calyx. Flowers papilionaceous; calyx asymmetrically campanulate, 5-lobed or subtruncate, the lobes unequal, shorter than the tube; corolla violet-pink, or white, the standard rounded or reniform, narrowed at the base, wings and the keel subequal; stamens 10, diadelphous or monadelphous; ovary short-stipitate, with 1–2 ovules, the style curved, the stigma punctiform or capitate. Fruit a samara, with a terminal wing (Figure 120A), or rarely indehiscent, flattened, straight, curved, or in the form of a half-moon (Figure 120C), circular in outline, without a wing, or the wing reduced; seeds solitary, reniform, ovate or orbicular.

**Distinctive features:** Stems cylindrical to flattened, usually armed and producing a reddish sap; leaves imparipinnate with alternate leaflets, usually with a pair of spinescent, recurved stipules; fruit usually a samara with a distal wing.

**Distribution:** Essentially a neotropical genus of ~130 species (with only *M. lunatum* (L.f.) Ducke extending to Africa), 88 species are reported as climbers; extending from Mexico to northeastern Argentina but centered in the Amazon region; in flooded and non-flooded forests, swamps, dry forests and scrubs; 0–1,650 (2,000) m.

**MACROPSYCHANTHUS** Harms in K. Schumann & Lauterbach, Fl. Deutsch. Schutzgeb.

Südsee 366. 1900.

Twining lianas to 25 m long, subwoody vines or occasionally erect subshrubs; stems



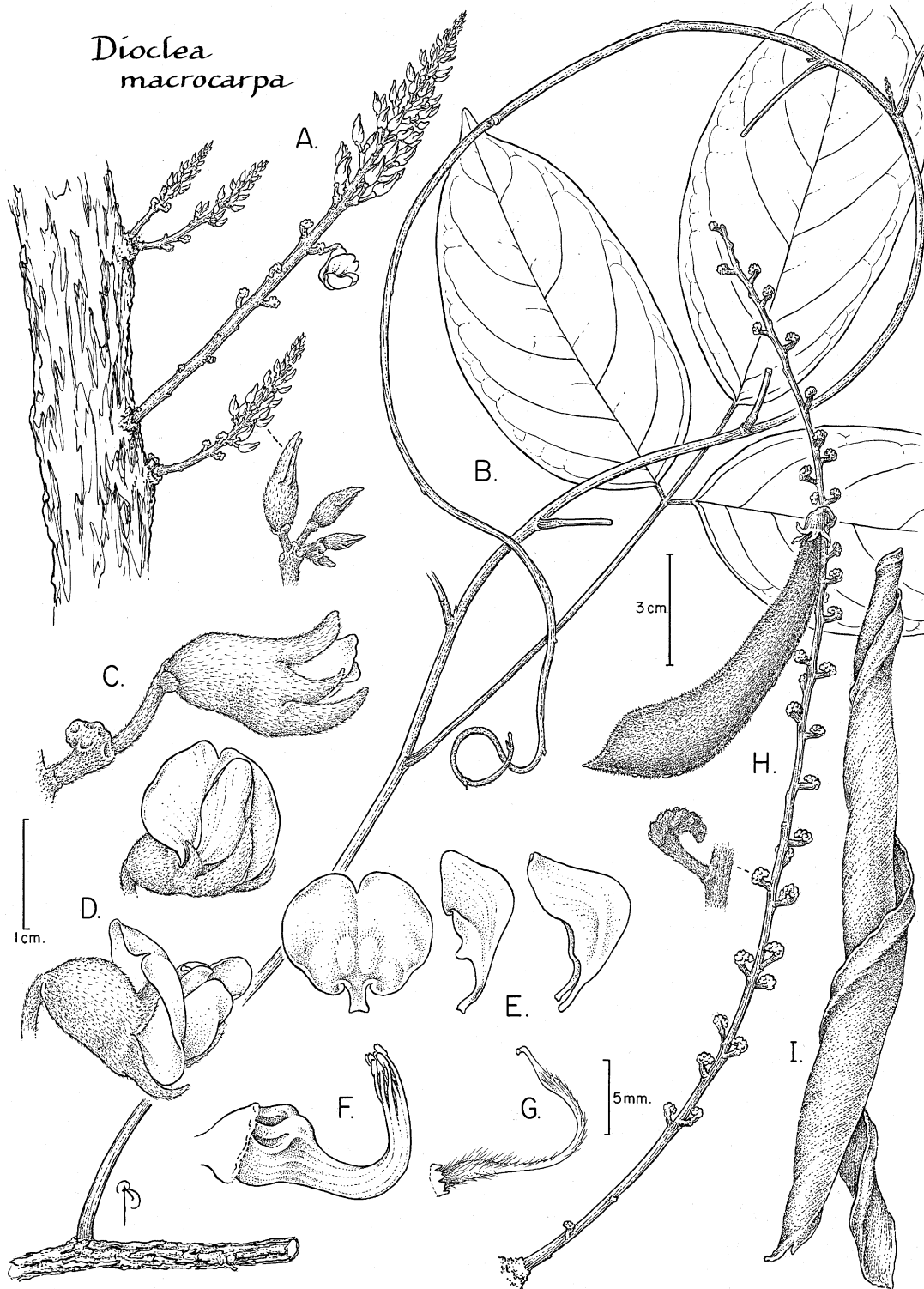
*Macropsyчанthus violaceus*, photo by P. Acevedo.

cylindrical, with regular anatomy (Figure 111C); exudate watery, or initially watery later producing a thick red resin. Leaves trifoliolate; stipels minute; stipules conspicuous, peltate or basifixed, persistent, or caducous. Inflorescences of axillary pseudoracemes or fascicles, sometimes cauliflorous, nodes multiflorous, stalked; bracts and bracteoles minute to large, caducous. Flowers papilionaceous; calyx campanulate, 4–5-lobed or deeply bilabiate, lower lobe much longer than the remaining lobes; corolla purple or rarely blue, glabrous, the standard reflexed, emarginate at apex, auriculate, yellowish and with 2 callosities at the base,

the wings free, twice as long as the keel, the keel triangular or semilunar, distally rostrate; stamens 10, pseudo-monadelphous, dimorphic, 5 or 6 fertile or monomorphic (all fertile); ovary villous, sessile, with 2–5 (10) ovules, the style swollen, distally flattened, the stigma capitate, terminal or subterminal. Fruit linear, oblong, compressed or turgid, coriaceous or woody, dehiscent or indehiscent; seeds large, commonly orbicular to globose, many species with a linear, elongate hilum ( $\frac{1}{2}$ – $\frac{4}{5}$  the seed circumference).

**Distinctive features:** Trifoliolate leaves with mostly setaceous stipels; stipules medifixed; leaflets for the most part coriaceous, widely elliptic or ovate to round. Seeds large, hard; hilum often covering  $\frac{1}{2}$ – $\frac{4}{5}$  of seed circumference (Figure 119A, B).

*Dioclea  
macrocarpa*



*Macropsychanthus macrocarpus*. **A.** Portion of stem with cauliflorous inflorescences. **B.** Twining branch with trifoliolate leaf. **C.** Flower bud on stalked node. **D.** Flower, lateral and top views. **E.** Standard, wing, keel petals. **F.** Androecium. **G.** Gynoecium. **H.** Un-dehiscent legume on infructescence. **I.** Dehiscent legume. Drawing courtesy of Bobbi Angell.



**Distribution:** A genus (previously classified as *Dioclea* by many authors) of ~47 species distributed throughout the tropics, 37 of which occur in the Neotropics from southern Mexico through Central America to NE Argentina, including the Greater and Lesser Antilles; common in moist to wet forests, few species in savannahs and woodlands of South America; 5–1,000 (2,300) m. Seeds of *M. comosus* (G. Mey.) L.P. Queiroz & Snak [drift seeds or sea beans (Figure 119B)] are often found along tropical beaches worldwide.

**MACROPTILIUM** (Bentham) Urban, Symb. Antill. 9: 457. 1928.

Erect, creeping, or clambering herbs or herbaceous twining vines. Leaves trifoliolate;



*Macroptilium lathyroides*, photo by P. Acevedo.

stipules and stipels minute.

Inflorescences of axillary pseudoracemes, the flowers grouped in pairs on the fleshy nodes along the rachis; bracts minute.

Flowers papilionaceous; calyx asymmetrically

campanulate or tubular, of 5

short, equal or unequal lobes;

corolla usually cardinal red or purple, the standard rounded, reflexed, unguiculate, the wings unguiculate, much longer than the other petals, the keel unguiculate, twisted in the distal portion, fused to the staminal tube; stamens 10, diadelphous; ovary sessile, flattened, pubescent, with many ovules, the style thickened at the base, distally curved and barbate, the stigma capitate.

Legume linear, cylindrical, dehiscent by valves that twist on drying; seeds numerous, small, oblong-cylindrical.

**Distinctive features:** Scrambling herbs or twining vines; wing petals much larger than the standard, the keel twisted at the distal portion.

**Distribution:** A neotropical genus of 20 species extending into the warm temperate areas of the Americas; 14 species in the Neotropics, distributed from Mexico to Argentina, including the West Indies; open fields, disturbed sites, granitic outcrops; 0–2,200 m. Introduced in parts of tropical Africa, tropical Asia, and Australia.

**MACROSAMANEIA** Britton & Rose, Ann. New York Acad. Sci. 35: 131. 1936.

Trees, erect shrubs, or scrambling lianas; stems unarmed, nearly cylindrical, with regular



*Macrosamanea spruceana*, photo by André Cardoso.

anatomy. Leaves bipinnate; pinnae opposite or subopposite; leaflets numerous, opposite; petiole with a conspicuous gland above the base; rachis commonly with a gland at the junction of pinnae; stipules small, setaceous or subulate. Flowers (up to 5 cm long)

actinomorphic, bisexual large, arranged in

pedunculate capitula. Calyx light green, narrowly campanulate, elongate, 5-dentate; corolla pale green, funnel-shaped, elongate, with 5 lanceolate lobes; stamens white, numerous, filaments connate for about half of their length, more than twice as long as the corolla, the minute ovary

subsessile, with few ovules, the style filiform. Legume, oblong, flattened, woody, longitudinally dehiscent along both sutures, the margins thickened; seeds flattened, elliptic or reniform, brown.

**Distinctive features:** Unarmed scrambling lianas, with bipinnate leaves bearing glands on petiole and leaf rachis; leaflets falcate; stamens white, much longer than the pale green corolla. Similar to *Entada* but distinguished by the lack of foliar tendrils and the larger flowers in capitula, not spikes or racemes.

**Distribution:** A South American genus with ~11 species of trees, two of which (*M. pubiramea* (Steud.) Barneby & Grimes and *M. spruceana* (Benth.) Record) sometimes grow as scrambling shrubs or lianas.

**MANTIQUEIRA** L.P. Queiroz, Neodiversity 13: 74. 2020.

Twining subwoody vines; stems slender. Leaves trifoliolate; lateral leaflets symmetrical;



*Mantiqueira bella*, photo by Luciano G. Pedrosa.

stipules and stipels minute, caducous.

Inflorescences of axillary

pseudoracemes, shorter than the

subtending leaf, the flowers grouped

2–3 on the fleshy nodes along the

rachis; bracteoles minute, paired at the

base of the calyx. Flowers

papilionaceous, 5–6 cm long; calyx

tubular, membranaceous, burgundy, 4-

lobed, the lobes unequal (one much wider) shorter than the tube; corolla cardinal red, the

standard oblong, folded in half longitudinally, slightly longer than the other petals, unguiculate,

keel and wings straight, long-unguiculate; stamens 10, pseudo-monadelphous, anthers monomorphic, glabrous; ovary long-stipitate, flattened, sericeous pubescent, with many ovules, the style as long as the ovary, the stigma terminal, truncate. Legume linear, flattened, sericeous, dehiscent by valves that twist on drying; seeds 5–7, 6–7 mm long, elliptic; hilum short, elliptic to oblong.

**Distinctive features:** Slender twining vines, flowers deep red, the standard oblong, longitudinally folded in half.

**Distribution:** A Brazilian genus of a single species (*M. bella* (Benth.) L.P. Queiroz) found in Serra da Mantiqueira and surroundings in the states of Minas Gerais and Espírito Santo; moist forests; 800–1,200 m.

**MIMOSA** Linnaeus, Sp. Pl. 516. 1753.

Erect or scrambling herbs or shrubs; stems usually armed with randomly scattered



*Mimosa* sp., photo by P. Acevedo.

prickles; cross sections with regular anatomy or numerous slender phloem wedges. Wood often with abundant paratracheal parenchyma; exudate scanty, watery. Leaves bipinnate; pinnae opposite; leaflets small, numerous, opposite; petioles sometimes

with a nectariferous gland at the base; rachis without nectariferous glands; stipules minute,

caducous or persistent; stipels minute or absent. Flowers actinomorphic, bisexual or staminate, produced in heads, solitary or grouped in axillary or terminal racemes; bracts small, usually shorter than the corolla. Calyx minute, cup-shaped, crowned by 5, minute lobes; corolla yellow or pink, funnel-shaped, with 3–5(6) lobes; stamens as numerous as or double the number of petals (3–10 stamens), long-exserted, the filaments free, the anthers glandless; ovary stipitate, with several ovules, the style filiform, the stigma punctiform. Fruits mostly a craspedium, oblong, chartaceous, flattened, usually with spiny margins, breaking away from the thickened margin (replum) into one-seeded articles or the whole central unit detaching from the replum; seeds flattened, lenticular or ovate.

**Distinctive features:** Armed, scrambling shrubs; leaves bipinnate with opposite pinnae, and numerous, opposite leaflets, sometimes with stipels; petioles and rachis usually without nectariferous glands (15–20 species in the Amazon have nectariferous glands); stamens free, pink or white; fruits usually with spiny margins.

**Distribution:** A genus of ~600 species of pantropical distribution, the majority of the species native to the Neotropics, but only 26 species are reported as climbing herbs or shrubs in this region; often seasonal dry forests, scrubs, savannahs; 0–1,500 (2,800) m.

**MUCUNA** Adanson, *Fam. Pl.* 2: 325, 579. 1763 (nom. cons.).

Twining lianas or subwoody vines, reaching 20 or more m in length. Stems cylindrical; cross section with regular anatomy, some species with successive discontinuous concentric arcs of vascular tissue (Figure 112B). Leaves trifoliolate; stipels absent or present; stipules caducous. Inflorescences of pendulous axillary pseudoracemes, usually with a long peduncle (~1 m); bracts foliaceous, caducous. Flowers papilionaceous; calyx campanulate, bilabiate, with 4 short lobes,





*Mucuna urens*, photo by P. Acevedo.

one of which is smaller; corolla violet, violet-pink, bluish, orange, or yellow, the standard oblong, folded longitudinally, elongate, narrowed at the base, auriculate, shorter than the subequal wings and keel; stamens 10, diadelphous; ovary sessile, villous, with few ovules, the style filiform, the stigma punctiform. Legume oblong, coriaceous, usually covered with irritant hairs (Figure 118C), dehiscent; seeds plump, oblong, circular, rounded, often with a hilum that circles  $\frac{2}{3}$ – $\frac{3}{4}$  of the seed circumference (Figure 119D).

**Distinctive features:** Inflorescences with a very long peduncle, hanging down; fruits usually covered with

irritant hairs. Seeds in some species are hard, large, and have a very long hilum.

**Distribution:** A pantropical genus of 112 species, 22 of which are native to the Neotropics, in addition, the noxious African weed *M. pruriens* (L.) DC., is widely naturalized throughout the Neotropics; moist to wet forest, 200–1,300 (3,000) m.

**MYSANTHUS** P.G. Lewis & A. Delgado, Kew Bull. 49: 343. 1994.



Twining herbaceous vines to 3 m long; stems nearly cylindrical, striate, strigose. Leaves



*Misanthus uleanus*, photo by D. Cardoso.

trifoliolate; leaflets 3–5-veined from base, distal leaflets obtuse to subcordiform at base; stipules small, persistent, ovate-deltoid, striate; stipels small, oblong. Inflorescences of axillary, elongate (up to 90 cm long), slender pseudoracemes, with 2–3 flowers per node; bracts minute.

Flowers papilionaceous, small; calyx

campanulate, bilabiate, with 5 lobes, two of which are almost completely united; corolla lilac-purple fading to yellowish, the standard widely obovate to suborbicular, emarginate at apex, eccentric covering the beak of the keel, wing petals at right angles to each other, the keel hooked and twisted to the right, stamens 10, diadelphous, with vexillary stamen free; ovary sessile, with 5–8 ovules, the style curved, expanded toward the middle portion, pubescent on the distal portion, the stigma capitate. Legume falcate, slightly flattened, dehiscent by valves that twist on opening, with seeds parallel to the suture; seeds reniform, plump, light brown, mottled, 6–7 mm long, the hilum ~1.5 mm long.

**Distinctive features:** Short twining vines with broadly falcate fruits and small flowers with large wing petals.

**Distribution:** A single species, *M. uleanus* (Harms) G.P. Lewis & A. Delgado, with two infraspecific taxa, endemic to NE and SE Brazil.

**NEONOTONIA** J.A. Lackey, *Phytologia* 37: 210. 1977.

Twining or trailing, herbaceous vines up to 4.5 m long, with woody taproot. Leaves



*Neonotonia wightii*, photo by Sheldon Navie.

trifoliolate; stipules lanceolate, striate; stipels subulate, persistent.

Inflorescences of axillary, elongate pseudoracemes with 2–3 flowers per node; bracts small. Flowers

papilionaceous; calyx campanulate, with 5 lobes, two of which are joined along much of their length; corolla

white, the standard subreflexed, obovate to rounded, emarginate at apex, with purplish marking near the center, the wings and keel shorter than the standard; stamens 10, diadelphous, the anthers of the same size; ovary sessile, with many ovules, the style curved, the stigma minutely capitate. Fruits oblong, turgid, nearly cylindrical but slightly constricted between the seeds, dehiscent by valves that twist on opening; seeds flattened, rectangular to nearly reniform, with minute hilum and a persistent small funicular remnant.

**Distinctive features:** Profuse twining vines, often covering an area of several square meters; plant hirsute all over; flowers with light purplish markings.

**Distribution:** A genus of two species native to sub-Saharan Africa, with *N. wightii* (Arn.) J.A. Lackey introduced as fodder in Argentina, Bolivia and Brazil, where it has become naturalized.

**NEUSTANTHUS** Bentham in Miquel, *Pl. Jungh.* 234. 1852.

Twining herbaceous or woody vines; stems cylindrical to flattened, with regular vascular



*Neustanthus phaseoloides*, photo by P. Acevedo.

anatomy. Leaves trifoliolate; stipules ovate to linear, persistent; stipels minute. Inflorescences of axillary or terminal pseudoracemes; bracts minute. Flowers papilionaceous; calyx campanulate, with 5 unequal lobes; corolla blue or violet, the standard obovate, retuse at the apex,

unguiculate and auriculate at the base, the wings unguiculate, with a curved appendage at the base of the inner margin, the keel slightly longer than the wings; stamens 10, monadelphous or diadelphous; ovary sessile, with several ovules, the style glabrous, curved, the stigma capitate. Fruit a linear legume, subflattened, dehiscent by valves that twist on opening; seeds oblong, numerous.

**Distinctive features:** Fast growing, twining, hirsute, herbaceous vine with trifoliolate leaves; distal leaflet trilobed; corolla lilac.

**Distribution:** Currently recognized as a segregate of *Pueraria* (Egan & Pan 2015) with a single species and three infraspecific taxa native from southeastern Asia to the Malay Archipelago and Australia. *Neustanthus phaseoloides* (Roxb.) Benth. var. *phaseoloides* has been introduced in the New-World as forage and later becoming a weed throughout the region.

**NISSOLIA** Jacquin, Enum. Syst. Pl. 7, 27. 1760 (nom. cons.).

*Chaetocalyx* DC. (1826).

Twining herbaceous to semi-woody vines. Stems cylindrical, striate, few cm in diam.,



*Nissolia fruticosa*, photo by P. Acevedo.

sometimes with hollow medulla; cross section with regular anatomy or sometimes with deep phloem wedges (e.g., *N. microptera* Poir.; Ibarra-Manríquez et al 2015). Leaves imparipinnate, 5–17-foliolate; leaflets with entire margins; petiolules pulvinate; stipels lacking; stipules persistent, deltoid to lanceolate, entire to lacinate, sometimes setose.

Inflorescences axillary or terminal racemes, panicles, or fascicles, but sometimes flowers solitary; bracts like the stipules but smaller; bracteoles wanting; pedicels and peduncles variable in length, pedicel articulated just below the calyx. Flowers papilionaceous, 4–15 mm long; calyx

campanulate 5-toothed, or truncate with remote linear or subulate teeth, sometimes with glandular setae; corolla yellow, the standard reflexed, spatulate to obovate-orbicular, shortly unguiculate and slightly longer than the wings and keel, the keel incurved; stamens 10, monadelphous; ovary sessile or stipitate, with 1–16 ovules, the style straight or recurved, glabrous, the stigma capitate. Fruit a lomentum, with few–16, flat or biconvex articles, with wavy margins, the distal article sterile and expanded into a straight or oblique obovate wing in some species; seeds small, flattened, reddish brown.

**Distinctive features:** Twining vines with imparipinnate leaves, yellow flowers, and samaroid or lomentaceous fruits.

**Distribution:** A New World genus of ~29 species, 18 of which are distributed from Mexico through Central America to Paraguay and the West Indies (Jamaica, Hispaniola, Lesser Antilles), in humid, open habitats; 200–600 m.

**OXYRHYNCHUS** Brandege, Univ. Calif. Publ. Bot. 4: 270. 1912.

Twining herbaceous vines or lianas. Stems cylindrical, reaching 10 cm in diam. and > 10



*Oxyrhynchus volubilis*, photo by Carlos Velasco.

m in length in *O. trinervius* (Donn. Sm.) Rudd. Leaves trifoliolate; stipels small, falcate; stipules deltoid, striate, persistent. Inflorescences of axillary pseudoracemes with more than 3 flowers per node; bracts and bracteoles minute, striate. Flowers papilionaceous, 10 mm long; calyx

campanulate, 5-lobed, the lobes obtuse and subequal; corolla yellowish green, the standard orbiculate, short-unguiculate at base, emarginate at apex, slightly revolute, the wings falcate-ovovate, adherent to the keel, the keel strongly beaked, incurved, as long as the wings; stamens 10, diadelphous; ovary sessile, with 2–3 ovules, the style curved, pubescent on the distal portion, the stigma capitate, penicillate. Legume oblong, turgid, coriaceous, with thickened margins; seeds 2–3 per fruit, subglobose, black, with white hilum about as long as the seed.

**Distinctive features:** Short twining vines; flowers with oblate, yellowish green standard petals, and recurved, beaked keel; fruits oblong, short, turgid, few seeded.



**Distribution:** A genus of four species with disjunct distribution, one species in New Guinea, and the remaining three from Mexico to Colombia, including the Bahamas and Cuba.

**PACHYRHIZUS** L.C. Richard ex de Candolle, Prodr. 2: 402. 1825 (nom. cons.).

Twining, herbaceous or subwoody vines, with tuberous roots. Leaves trifoliolate; stipels



*Pachyrhizus erosus*, photo by P. Acevedo.

filiform; stipules lanceolate, persistent. Inflorescences of axillary or terminal pseudoracemes, long-pedunculate; bracts minute. Flowers papilionaceous; calyx campanulate, bilabiate, with 5 short, nearly equal lobes; corolla blue or violet, the standard reflexed, broadly obovate, auriculate, oblong, the wings oblong-falcate, with a curved appendage at the base of the inner margin, adhering to the keel along the basal portion of the inner margin, the keel as long as the wings, recurved; stamens 10, diadelphous; ovary sessile, with many ovules, the style curved, the stigma globose. Legume oblong,

coriaceous, turgid, torulose (compressed between seeds), dehiscent by twisting valves, the valves septate internally between the seeds; seeds flattened, with a small hilum.

**Distinctive features:** Twining vines with a large edible, obpyramidal tuber; leaves trifoliolate; leaflets with sharp marginal teeth; distal leaflet with cuneate base.

**Distribution:** A genus of five species native to Mexico south to Colombia and Venezuela, introduced to other parts of South America, the West Indies, part of tropical Africa, and tropical

Asia. Some species (e.g., *P. erosus* (L.) Urb. and *P. tuberosus* (Lam.) Spreng.) are widely cultivated for their edible tubers (known as *jicama*) throughout the Neotropics.

**PARASENEGALIA** Seigler & Ebinger, *Novon* 25(2): 181. 2017.

Trees, shrubs, or scrambling lianas, climbing through the aid of short prehensile branches



*Parasenegalia vogeliana*, photo by P. Acevedo.

(Figure 115F); stems unarmed, cylindrical up to 25 m long and ~5 cm in diam. Leaves bipinnate; pinnae opposite; leaflets small to large, few or numerous, and opposite; petioles and rachis with

nectariferous glands; stipules minute, caducous. Flowers actinomorphic, bisexual, produced in heads or spikes grouped in axillary or terminal racemes or panicles; bracts small. Calyx campanulate, 5-lobed at apex; corolla white or cream, campanulate, 5-lobed; stamens numerous, exserted, the filaments free, white, the anthers minute; ovary stipitate, with several ovules, the style filiform. Fruit an oblong, flattened, straight legume with undulate margins (Figure 118H), dehiscent along the valves; seeds lenticular.

**Distinctive features:** Woody unarmed lianas, with cylindrical stems, that climb through the aid of short, prehensile, lateral branches. Flowers actinomorphic, white or cream, with numerous

exserted stamens, arranged in heads. Similar to other Mimosoid lianas but distinguished by the lack of prickles and the presence of prehensile lateral branches.

**Distribution:** A neotropical genus of 11 species, four of which are reported as climbers.

*Parasenegalia vogeliana* (Steud.) Seigler & Ebinger is recorded both as a tree and as a liana with prehensile branches and is found in dry forest below 500 m elev. in the West Indies (Hispaniola, Puerto Rico, and Lesser Antilles). *Parasenegalia rurrenabaqueana* (Rusby) Seigler & Ebinger from Peru and Bolivia, *P. amorimii* (M. J. F. Barros & M. P. Morim) Seigler & Ebinger and *P. miersii* (Benth.) Seigler & Ebinger from Brazil are reported as scrambling shrubs. The former two grow in seasonally dry forests, thickets, and savannas below 700 m, while the latter grows in wet forests in the state of Rio de Janeiro.

**PERIANDRA** Martius ex Bentham, Commentat. Legum. Gener. 56. 1837.



Erect shrubs or herbs, or twining vines. Stems cylindrical, wiry. Leaves trifoliolate or unifoliolate; stipels present; stipules striate. Flowers axillary, solitary or grouped on a bracteate peduncle, or in distal racemes; bracts paired, striate;

bracteoles striate, shorter and appressed to the calyx; pedicels shorter than the calyx. Flowers papilionaceous, resupinate; calyx campanulate, the lobes 5, short, the 2 upper ones connate, the remaining ones longer; corolla lilac, purple, red or yellowish, the standard reflexed, widely

obovate or orbiculate, unguiculate at base, retuse at apex, the wings and the keel much shorter than the standard, the wings obovate, spreading, the keel incurved, shorter than the wings; stamens 10, diadelphous or monadelphous; ovary sessile, with numerous ovules, the style incurved. Legume sessile, linear, flattened, long-beaked at apex, with thickened margins, dehiscent by valves that twist on drying, not septate between the seeds; seeds few, compressed, small, lenticular.

**Distinctive features:** Twining vines with showy flowers that have a wide orbicular standard with

*Periandra coccinea*, photo by Alex Popovkin.

shorter keel and wings, easily confused with *Centrosema* or

*Clitoria* but distinguished by the spreading wing petals.

**Distribution:** Predominantly a South American genus of seven species with one species endemic to Dominican Republic. Four species reported as twining vines; open field, scrubs, disturbed areas; 800–1,400 m.

**PHASEOLUS** Linnaeus, Sp. Pl. 723. 1753.

Twining herbaceous vines, with a pubescence of uncinata hairs. Leaves trifoliolate, with



*Phaseolus coccineus*, photo by P. Acevedo.

the rachis more or less elongate;

stipules striate, truncate at the base, persistent; stipels minute.

Inflorescences of axillary racemes, with the nodes not swollen and

lacking extra-floral nectaries; bracts minute, persistent. Flowers

papilionaceous; calyx asymmetrically campanulate, bilabiate, with 5 minute lobes; corolla white, pink, red, or purple, the standard symmetrical, rounded, unguiculate, reflexed, the keel tightly coiled and with a laterally projected keel beak, the wing as long as the keel; stamens 10, diadelphous; ovary almost sessile, linear, with one or more ovules, the style spirally twisted 1.5–2 times, barbate, the stigma terminal. Legume linear, oblong or falcate, straight, turgid, slightly compressed between seeds, dehiscent; seeds few, oblong, reniform, ellipsoid, variously colored, hilum very small.

**Distinctive features:** Twining vines with uncinata hairs; flowers with tightly coiled and laterally projected keel beak.

**Distribution:** A genus of ~87 species, native to the southern United States, and from Mexico to western South America, now with nearly cosmopolitan distribution through cultivation as the source of several kinds of beans; 28 species occurring in the Neotropics; open and cultivated fields, edge of moist forests; 0–2,450 m.

**PIPTADENIA** Bentham, J. Bot. (Hooker) 2: 135. 1840.



Trees, erect or scrambling shrubs or lianas to 30 m or sometimes longer; stems armed



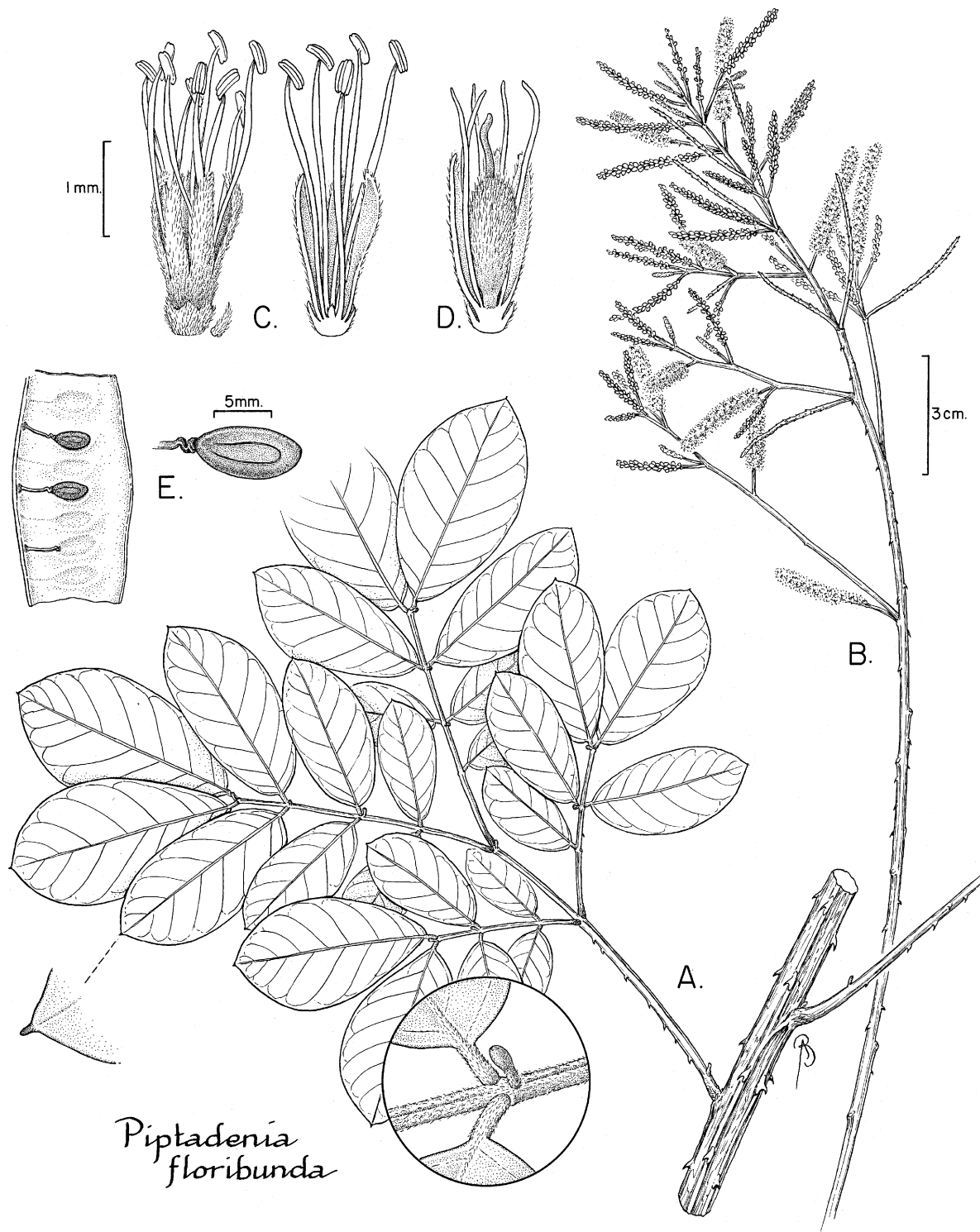
*Piptadenia adiantoides*, photo by G.S. Siqueira.

with recurved or conical prickles; cross section slightly angled or cylindrical, up to 10 cm in diam., with regular anatomy. Leaves pari-bipinnate; pinnae opposite; leaflets opposite; rachis and petiole with recurved prickles; petiole with a conspicuous gland above the base; rachides distally provided with a gland; stipels wanting; stipules minute, sometimes spinescent. Inflorescences of axillary, solitary or clustered spikes; bracts minute. Flowers minute, actinomorphic; calyx campanulate, shortly dentate; corolla white or greenish, campanulate, 5-lobed, the tube as long as the lobes; stamens 10, free,

projecting well beyond the corolla, anther with an apical gland; ovary subsessile, with 3–numerous ovules, the style smooth, the stigma punctiform. Legume oblong, stipitate or sessile, flattened, membranaceous, dehiscent along one or both sutures; seeds compressed, small.

**Distinctive features:** Vegetatively similar to *Senegalia* and *Adenopodia*. Distinguished from the former by the flowers with 10 stamens and anthers with an apical gland (vs. numerous stamens, and anthers without glands), and from *Adenopodia* by the fruits that dehisce along the sutures (vs. craspedium).

**Distribution:** A neotropical genus of 28 species distributed from southern Mexico to Bolivia, 13 of which are reported as climbers, some as large, woody lianas, sometimes facultative climbers; moist forest, rainforest, gallery forest, and seasonally deciduous forests; 250–500 m.



*Piptadenia floribunda*

*Piptadenia floribunda*. **A.** Portion of branch with leaf & detail of rachis stipitate gland. **B.** Inflorescence. **C.** Flower, lateral view & longitudinal section. **D.** Flower showing gynoecium. **E.** Portion of legume and seed. Drawing courtesy of Bobbi Angell.

**POIRETIA** Ventenat, Mém. Cl. Sci. Math. Inst. Natl. France 1: 4. 1807.

Shrubs or small trees, with one species of herbaceous twining vines reaching 3 m in



*Poiretia punctata*, photo by P. Acevedo.

length. Stems cylindrical, slender, striate, 1–4 mm in diam., with regular anatomy. Leaves paripinnate, 4-foliolate; leaflets spatulate, with translucent glandular dots and crenate margins, stipels subulate, persistent; petiolules pulvinate; stipules subulate, entire, glabrous, and

persistent. Flowers papilionaceous, in short axillary racemes; bracts like the stipules but smaller; pedicels longer than the calyx. Flowers ~1 cm long; calyx green, campanulate with 5 short, nearly equal lobes, the tube glabrous, gland-dotted; corolla yellow, the standard orbicular, reflexed, with involute margins, gland-dotted, unguiculate and slightly longer than the wings and keel, the wing obovate, slightly longer than the incurved keel; stamens 10, monadelphous; ovary sessile, with few ovules, the style incurved, glabrous, the stigma terminal, capitate. Fruit a linear-oblong loment, with 1–3 articles, indehiscent, flattened, verrucose in the middle.

**Distinctive features:** Similar to *Nissolia* in appearance, but easily distinguished by the 4-foliolate paripinnate leaves with glandular punctations and lomentaceous fruits with 1–3 articles.

**Distribution:** A neotropical genus of ~12 species with only *P. punctata* (Willd.) Desv. recorded as a vine and widely distributed in Mexico, Honduras, Costa Rica, northern and middle South America, Cuba and Hispaniola; in moist forest; 380–1,800 m.

**RAMIREZELLA** Rose, Contr. U.S. Natl. Herb. 8: 44. 1903.

Twining woody vines. Stems cylindrical, hollow in some species. Leaves trifoliolate;



*Ramirezella penduliflora*, photo by N. Ramírez Marcial.

leaflets strongly trinerved from base; stipules conspicuous, oblong-lanceolate, striate, caducous; stipels lanceolate.

Inflorescences of axillary pseudoracemes, longer than the subtending leaf, nodes not swollen but glandular; bracts

large, ovate, imbricate; pedicels

often longer than the calyx. Flowers papilionaceous; calyx campanulate, with 5 lobes of similar length; corolla pink to magenta, the standard wide-orbicular, slightly cucullate, the wings asymmetrical, the keel beak, recurved to the right, and often sigmoid, longer than the wings; stamens 10, diadelphous; ovary sessile, with numerous ovules, the style curved, pubescent on the distal portion, the stigma lateral. Legume oblong, turgid to nearly cylindrical, dehiscent by valves that twist on opening; seeds flattened, lenticular or oblong, 5–8 mm long.

**Distinctive features:** Twining woody vines with pink to magenta corollas, the keel sigmoid; fruits turgid to nearly cylindrical.

**Distribution:** A genus of seven species native from Mexico to Costa Rica; in seasonal dry forest and open plant biomes.

**RHODOPIS** Urban, Symb. Antill. 2: 304. 1900 (nom. cons.).

*Neorudolphia* Britton (1924).

Twining woody vines, reaching 5–15 m in length. Stems slightly angled to cylindrical,



dark brown, with numerous lenticels when mature; cross section with regular anatomy with conspicuous rays. Leaves unifoliolate or pinnately trifoliolate; leaflets coriaceous, ovate to lanceolate, with symmetrical, obtuse, rounded, subtruncate or cordiform base and entire or sinuate margins; petiolules thickened; petioles 1–5 cm long, sulcate, pulvinate at base; stipels minute; stipules lanceolate or subulate. Inflorescences axillary or cauliflorous, erect or pendulous pseudoracemes 12–25 cm long, the flowers in groups of 2–3 per node; pedicels 10–

*Rhodopis planisiliqua*, photo by P. Acevedo.

12 mm long; bracteoles in pairs, just below the calyx;

bracts minute, lanceolate. Flowers papilionaceous; calyx magenta-pink or red, campanulate to funnel-shaped, 4- or 5-lobed, with lobes as long or shorter than the tube; corolla magenta-pink to brilliant red, standard oblong, folded in half longitudinally, clawed; stamens 10, pseudo-monadelphous or diadelphous, slightly exposed; ovary sessile or shortly stipitate, with numerous ovules, style slender, elongate, the stigma punctiform. Legume oblong or oblanceolate, flattened,



dehiscent, pubescent, strigose, tomentose or glabrous; seeds oblong, ellipsoid or ovoid, slightly compressed.

**Distinctive features:** Leaves unifoliolate or trifoliolate, stipelled; flowers bright red; elongated racemes with 2–3 flowers per node with long folded standards.

**Distribution:** A West Indian genus of four species; *R. rudolphioides* (Griseb.) L.P. Queiroz from Cuba, Bahamas and Hispaniola, *R. planisiliqua* (L.) Urb. and *R. lowdenii* Judd from Hispaniola, and *R. volubilis* (Willd.) L.P. Queiroz from Puerto Rico; moist to wet forest; 0–1,500 m.

Note. Since *Rhodopis* was expanded to include *Neorudolphia volubilis* and *Galactia rudolphioides*, there are very few morphological characters to define the genus; perhaps the most conspicuous character is the oblong, red standard folded in half longitudinally, but this is a character found in numerous genera of Fabaceae.

**RHYNCHOSIA** Loureiro, Fl. Cochinch. 425, 460. 1790 (nom. cons.).

Prostrate to erect herbs, or herbaceous to woody twining vines, some species reaching 15



*Rhynchosia longeracemosa*, photo by P. Acevedo

or more m in length. Stems slender and cylindrical, some species developing a wide (up to 7 cm), flattened ribbon-like (Figure 113B) stem with successive cambia that produce alternate concentric arcs of xylem and phloem; many species producing a reddish exudate.

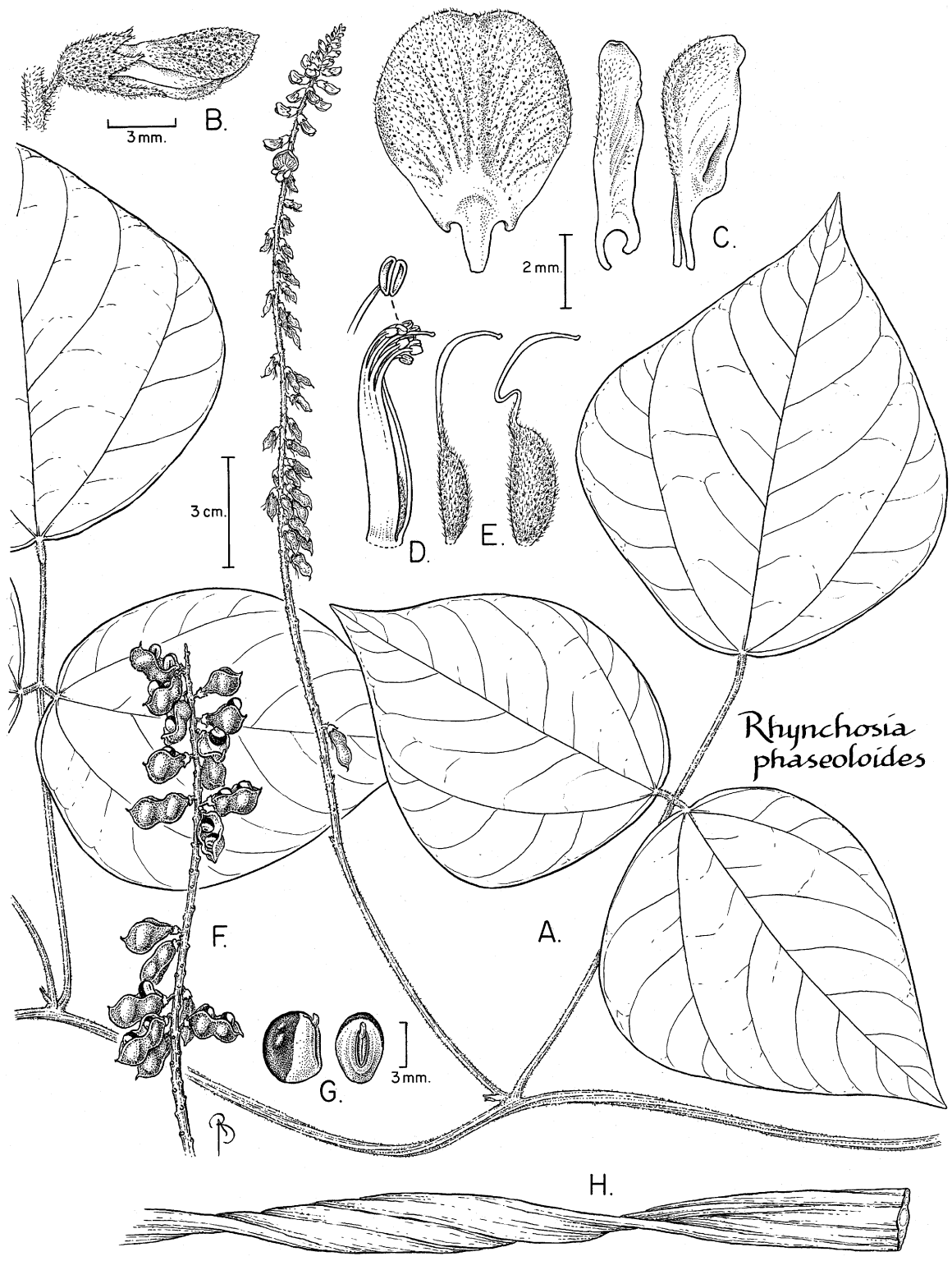
Leaves trifoliolate, the lower surface with numerous yellow resinous dots; stipules caducous; stipels minute.

Inflorescences axillary racemes, with the flowers sparse or clustered; bracts minute, persistent or caducous.

Flowers papilionaceous; calyx campanulate, with 4–5 elongate nearly equal lobes; corolla yellow, the standard obovate or rounded, slightly retuse at the apex,

unguiculate and auriculate at the base, the wings unguiculate, with a curved appendage at the base of the inner margin, the keel scarcely longer than the wings; stamens 10, monadelphous or diadelphous; ovary short-stipitate, with few or numerous ovules, the style glabrous, curved, the stigma capitate. Fruit an oblong or falcate-lunate legume, flattened, apiculate at the apex, usually dehiscent by valves that twist on opening; seeds few, flattened, rounded or elliptical, sometimes red and black.

**Distinctive features:** Trifoliolate leaves; leaflets usually with yellow or orange resinous dots on lower surface; many species with flattened, ribbon-like stems; corollas yellowish; many species with small, red and black seeds.



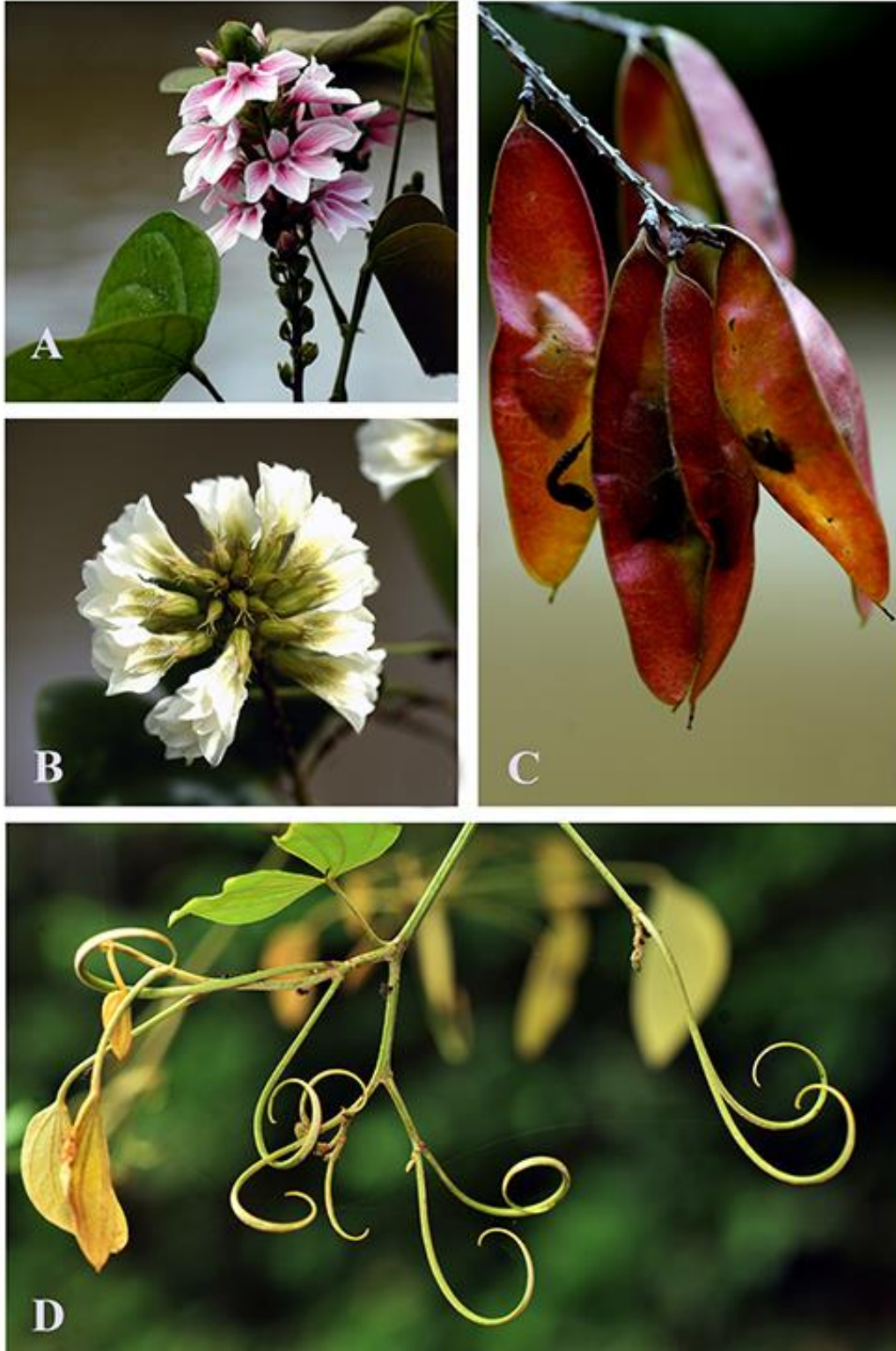
*Rhynchosia phaseoloides*. A. Flowering branch. B. Flower bud. C. Standard, wing, keel petals. D. Androecium & anther detail. E. Gynoecium. F. Infructescence. G. Bicolored seed, lateral & frontal views. Drawing courtesy of Bobbi Angell.

Distal portion of inflorescence. **D.** Flower, top and lateral views. **E.** Flower, longitudinal section. **F.** Androecium. **G.** Anthers, dorsal, frontal, & lateral views. **H.** Gynoecium, with coronal lobes at base. Persistent bracteoles. Drawing courtesy of Bobbi Angell.

**Distribution:** A genus of ~250 species, of pantropical distribution, extending into warm temperate zones, with 58 species in the New World, 38 of which are vines or lianas; moist to seasonally dry forests, open disturbed areas; 0–1,900 (2,500) m.

**SCHNELLA** Raddi, Quar. Piant. Nuov. Bras. 32. 1820.

Tendrilled lianas, reaching 30 m in length; mature stems of various shapes, these straight or sinuate (Figures 1A; 114A), sometimes reaching up to 30 cm in width; cross sections cylindrical or nearly so (Figure 111D), square, flattened or ribbon-like (Figure 113A), asymmetrically lobed, or deeply lobed (Figure 112D), all species with a cross-shaped medulla, sometimes with deep phloem wedges, and some species with successive cambia giving rise to continuous concentric arcs of xylem and phloem; exudate a clear sap. Tendrils derived from short, axillary branches with determinate growth, these distally circinate (Figures 115E, 121D), often becoming woody after securing a support. Leaves unifoliolate, entire, retuse at apex to deeply bilobed, sometimes



**Figure 121.** **A.** *Schnella cf. hirsutissima* with pink corollas. **B.** *Schnella* sp. with white corollas. **C.** *Schnella sprucei*, showing membranaceous legumes. **D.** *Schnella* sp. showing tendrils. Photos by P. Acevedo.

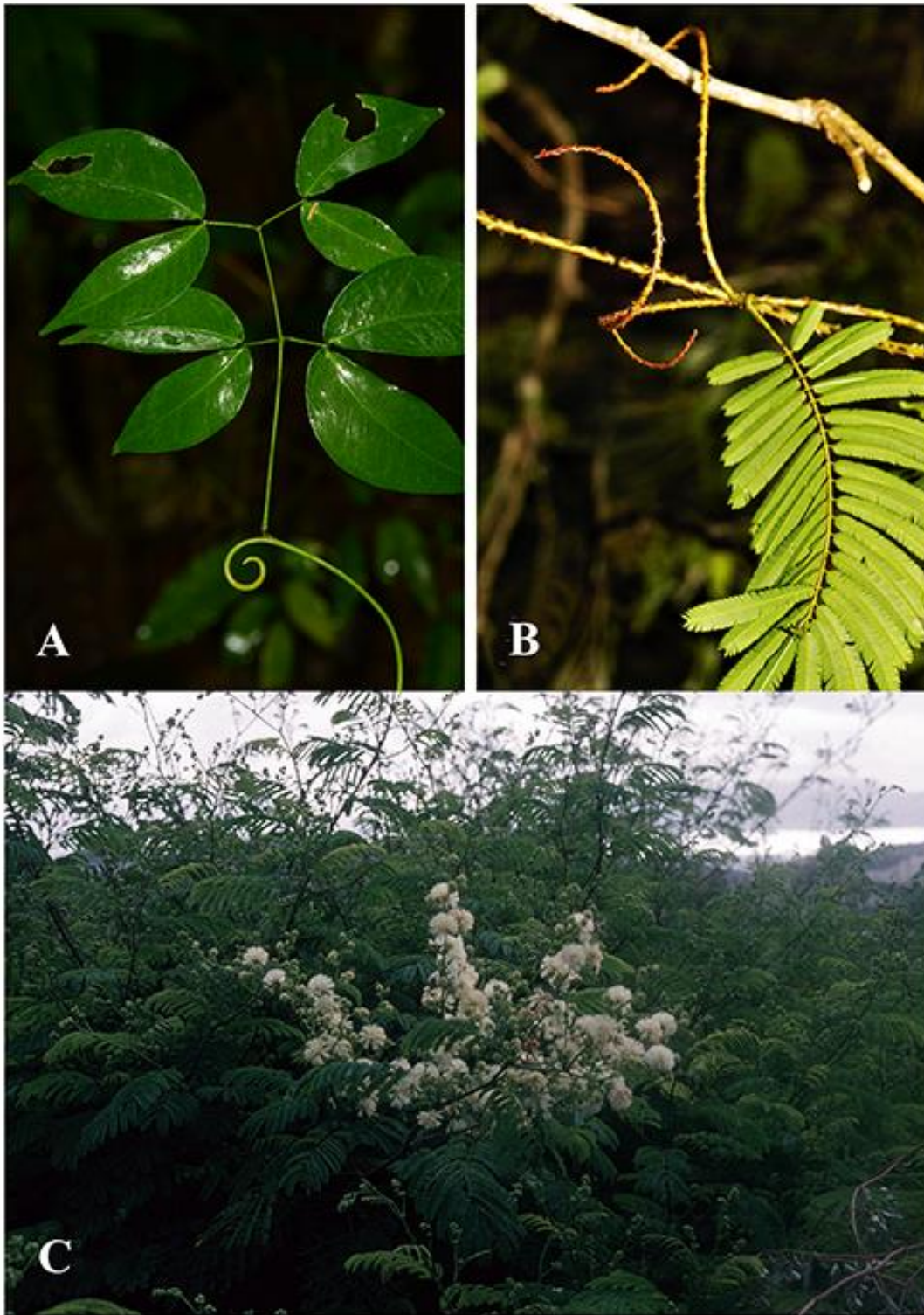


the lamina divided in two, resembling two separate leaflets (Figure 116B, G); petioles pulvinate at both ends (Figure 116B, G); stipules minute to foliaceous, persistent or caducous; stipel wanting, but some species with a minute stipel-like projection where the two lobes of the leaf meet (Figure 116B). Inflorescences of axillary racemes, with the flowers sparse to clustered into a nearly head-like inflorescence; bracts minute to large, persistent or caducous. Flowers caesalpinaceae; calyx campanulate, 5–15-ribbed, 5-lobed, the lobes wide to narrow, unequal or equal, or the calyx apically truncate; corolla zygomorphic with 5 unguiculate petals one of which is smaller, white or pink (Figure 121A, B); stamens 10, all fertile; ovary short-stipitate, with 1–6 ovules, the style glabrous, curved, the stigma capitate. Fruit an oblong, flattened, legume, apiculate at apex, dehiscent or sometimes indehiscent; seeds few, flattened, rounded or elliptical.

**Distinctive features:** Easily distinguished by the bilobed or partly bilobed unifoliolate leaves and the showy flowers. Many species have sinuous stems (Figures 1A; 114A) which are locally called monkey ladders. All species have stem medulla that is cross shaped, this feature is however, also found in the closely related Old World genus *Phanera* and in climbing species of *Senegalia*.

**Distribution.** A neotropical genus of 45–47 species, distributed from southern Mexico to northern Argentina, with one species (*S. glabra* (Jacq.) Dugand) reaching Cuba; lowland moist or wet forest, some species in shrubby savannas or scrub forest; 0–1,200 m.

**Note:** The species nowadays recognized in *Schnella* have gone through much nomenclatural change in the last decade, most were previously classified under *Bauhinia* or *Phanera*, but now, neotropical *Bauhinia* contains only trees or shrubs, and *Phanera* are lianas restricted to the Asian tropics.



**Figure 122.** Climbing mechanisms in *Senegalia*. **A.** *Senegalia mikanii*, unarmed species with circinate tendrils. **B.** *Senegalia* sp. with axillary cirri. **C.** *Senegalia riparia*, a species with scrambling habit. Photos by P. Acevedo.

**SENEGALIA** Rafinesque, *Sylva Tell.* 119. 1838.

Trees, shrubs, or lianas climbing through the aid of short prehensile branches, coiled cirri (Figures 115B; 122B), circinate tendrils (e.g., *S. mikanii* (Benth.) Seigler & Ebinger, these seem intermediate between shoots with determinate growth and real tendrils; Figure 122A), or scrambling (Figure 122C); stems armed with randomly scattered prickles or unarmed; cross section commonly deeply 4-lobed, each lobe with wide phloem area (Figure 111E) or less often cylindrical, the medulla in many species is cross-shaped. Leaves bipinnate; pinnae opposite; leaflets usually small, numerous (but see *S. mikanii* (Figure 122A), and opposite; petioles and rachis usually with nectariferous glands in variable positions depending on the species; stipels sometimes at the base of pinnae; stipules usually spiny, persistent. Flowers actinomorphic, bisexual, produced in heads or spikes grouped in axillary or terminal racemes or panicles; bracts small. Calyx campanulate, 5-lobed at apex; corolla yellow or white, tubular, with 4–5 lobes; stamens numerous, exserted, the filaments free or united just at the base, the anthers sometimes with an apical gland; ovary sessile or stipitate, with several ovules, the style filiform, curved, pubescent on the distal portion. Fruit an oblong or linear legume, straight or curved, flattened, dehiscent or indehiscent; seeds of diverse forms, usually flattened.

**Distinctive features:** Woody lianas, many species with deeply 4-lobed stems which sometimes split longitudinally into strands that correspond to the number of lobes. Flowers actinomorphic, white or light yellow, with numerous exserted stamens, arranged in heads or spikes. Many species have a cross-shaped medulla similar to those in *Schnella*. Similar to *Adenopodia* and *Piptadenia* (see under those genera for differentiating characters).

**Distribution:** A pantropical genus of ~220 species, half of which are native in the Neotropics, with 45 species reported as lianas or climbing shrubs; distributed from southern Mexico to

northern Argentina, including the West Indies, with majority of species in Brazil; wet or seasonally dry forests; 0–1,300 m.

**SENNA** P. Miller, Gard. Dict. Abr. ed. 4. 1754.

Trees, erect or scrambling shrubs, or less frequently herbs. Stems unarmed, with regular



*Senna undulata*, photo by P. Acevedo.

anatomy, often pentagonal (Figure 111F), in some species the stems turn yellowish when collected. Leaves pinnate; leaflets opposite; petioles and rachis sulcate, usually with a stipitate gland; stipules persistent. Flowers nearly actinomorphic, bisexual, in axillary or terminal racemes or panicles

or solitary; bracts minute to foliaceous; pedicels elongate or short. Flowers caesalpinaceae; calyx of 5 more or less elongate, free sepals; corolla yellow, of 5 free, slightly unequal, unguiculate petals; stamens 10, dimorphic, three of which are usually smaller and sterile, the filaments flattened, free, the anthers basifixed, dehiscent by terminal pores; ovary short-stipitate, with numerous ovules. Fruit of various forms, dehiscent or indehiscent; seeds numerous, of various forms, but commonly lenticular.

**Distinctive features:** Climbing, scrambling shrubs, easily told apart by the large, caesalpinaceae yellow flowers; leaves paripinnate; petiole and rachis usually with a stipitate gland. Stem cross sections nearly pentagonal and with a yellowish hue in many species.

**Distribution:** A genus of ~280 species, 210 of which are present in the New World, with 27 taxa reported as climbing, scrambling shrubs in the Neotropics; moist forest, edges of forest, savannah and roadsides; 10–1,000 m.

**SHUTERIA** Wight & Arnott, Prodr. Fl. Ind. Orient. 1: 207. 1834 (nom. cons.).

Herbaceous twining vine reaching few meters in length; stems slender, cylindrical.



*Shuteria involucrata*, photo from efloraofindia.

Leaves trifoliolate; stipules striate; stipels persistent. Inflorescences of axillary, short pseudoracemes or fascicles; flowers few per node; bracts striate, persistent; bracteoles subulate, persistent, appressed to the calyx. Flowers papilionaceous, small; calyx

campanulate, bilabiate with upper wider lobes connate, the remaining lobes acuminate; corolla

pale pink or purplish, the standard obovate, suberect, unguiculate at base, emarginate at apex, longer than the other petals, the wings narrowly oblique, adherent to the keel, the keel obtuse, appressed to the standard, shorter than the wings; stamens 10, diadelphous, the anthers of the same size; ovary sessile, with many ovules, the style incurved, the stigma terminal, capitate. Fruits oblong, flattened, obscurely septate, dehiscent by valves that separate; seeds flattened, subrounded to ellipsoid, with minute hilum.

**Distinctive features:** Hirsute herbaceous vine, the flowers small, with suberect standards.



**Distribution:** A genus of four species native to tropical Asia, Malesia and New Guinea, with *S. vestita* Wight & Arn. introduced to parts of tropical Africa and naturalized in Jamaica, where it is locally common.

**SIGMOIDOTROPIS** A. Delgado, Amer. J. Bot. 98: 1710. 2011.

Herbaceous, twining vines reaching 3–5 m in length. Stems cylindrical, slender. Leaves



*Sigmoidotropis speciosa*, photo by P. Acevedo.

trifoliolate; leaflets chartaceous, 3-veined from base; stipules conspicuous, asymmetrical at base; stipels subulate. Flowers pseudo-papilionaceous, in axillary pseudoracemes that are longer than the subtending leaf. Calyx green, campanulate, 5-lobed, the lobes of similar length, shorter than the tube; corolla pale violet to violet-pink, with lighter or greenish portions, the standard obovate, unguiculate, rounded at the apex, wings and keel unguiculate, of similar length, the keel sigmoid and appressed to the face of the standard, with distalmost portion flat and extended, and inner margins closed by short interlocking marginal hairs, the wings

spreading; stamens 10; ovary shortly stipitate, flat, pubescent, the style curved and pubescent distally, the stigma penicillate. Fruits linear, flattened, in a spreading position in the infructescence, dehiscent by twisting valves; seeds 15–20 per fruit, oblong, reniform flattened, 2–3 mm long, brown or blackish, with small hilum.

**Distinctive features:** Herbaceous twining vines with pale violet flowers having a distinctly sigmoid-curved keel that lacks the distal fold. Until recently, the species of *Sigmoidotropis* were

treated under the genus *Vigna* with which it shares many vegetative characters. Refer to the generic key on how to differentiate *Sigmoidotropis* from closely related taxa.

**Distribution:** A genus of seven species; inhabits secondary and primary forests with or without a dry season, as well as coastal thickets and riparian forests throughout much of the Neotropics; 0–2,250 m.

**TERAMNUS** P. Browne, Civ. Nat. Hist. Jamaica 290. 1756.

Herbaceous or woody twining vines, rarely erect subshrubs. Stems nearly cylindrical,



*Teramnus uncinatus*, photo by P. Acevedo.

slender, wiry. Leaves trifoliolate, the lower surface strigose; stipules subulate, persistent; stipels minute.

Inflorescences of axillary pseudoracemes, with 2–3 flowers grouped at the nodes; bracts small, persistent. Flowers papilionaceous, small; calyx campanulate, with 4–5

elongate, equal or unequal lobes; corolla white, lavender or yellow (lavender in the Neotropics), the standard obovate, slightly retuse at the apex, unguiculate, the wings unguiculate, the keel shorter than the wings; stamens 10, monadelphous with two unequal anthers; ovary sessile, with numerous ovules, the style short, pubescent, the stigma capitate. Legume linear, flattened, curved at the apex, dehiscent by valves that twist on opening; seeds few to numerous, reniform, with a small hilum.

**Distinctive features:** Short vines usually less than 5 m long; stems wiry, slender, and variously pubescent; flowers small, lavender; fruits with a curved or hooked beak. Sometimes confused with *Galactia* but in that genus the fruits are oblong, not linear.

**Distribution:** A genus of eight species of pantropical distribution, with three species native to the Neotropics; Mexico to SE Brazil, and the West Indies; in open and disturbed habitats; 0–1,900 m.

**VICIA** Linnaeus, Sp. Pl. 734. 1753.

Trailing or climbing herbs, commonly less than 1 m long. Stems cylindrical or angled.



*Vicia sativa*, photo by Sheila Gregory.

Leaves paripinnate, 2–24-foliolate; leaflets opposite or alternate, distal leaflets replaced by filamentous tendrils (highly reduced in *V. faba* L.); stipels wanting; stipules conspicuous, usually foliaceous.

Inflorescences of axillary racemes longer or shorter than the subtending leaf. Flowers papilionaceous; calyx 5-lobed, variously colored but usually green; corolla pink, magenta, bluish, white or yellow, the standard widely elliptical, unguiculate, slightly reflexed, much larger

than the keel and wings, keel and wing petals unguiculate; stamens 10, monadelphous, ovary oblong, sessile, style with a tuft of hairs near the apex or pubescent along the vexillary side. Legume elongate, relatively flat, few-seeded; seeds variously colored, lenticular to subglobose, with medium to long hilum.

**Distinctive features:** One of the few genera with tendrils of foliar origin, these representing a modified leaf or distal leaflets of a paripinnate leaf. *Vicia* is like *Lathyrus* as they are herbaceous and have papilionaceous flowers but differ by the styles that are hairy on the distal portion or along the vexillary side. *Lathyrus*, on the other hand, have styles that are hairy along the carinal side. The only other neotropical genus with foliar tendrils is *Entada* but it is a woody liana with mimosoid flowers.

**Distribution:** A genus of ~236 species most of which have a temperate to warm temperate distribution. Although there are 19 species of vines in this genus reported for the Neotropics, they are very short, not reaching a meter in length, except for *L. sativa* L. collected in Haiti, and *V. stenophylla* Vogel from Minas Gerais (Brazil) both of which are recorded as reaching 2 m in length.

**VIGNA** Savi, Nuov. Giorn. Lett. 8: 113. 1824 (nom. cons.).

Twining herbaceous or subwoody vines, climbing or trailing, or erect herbs or subshrubs.



*Vigna vexillata*, photo by P. Acevedo.

Leaves trifoliolate; stipules of various forms, persistent, medifixed; stipels subulate.

Inflorescences of axillary or terminal pseudoracemes;

bracts small. Flowers papilionaceous; calyx

campanulate, with 5 nearly

equal lobes that are as long as

the tube, two of which are almost completely united; corolla yellow, greenish yellow abaxially, sometimes pinkish or purplish, the standard oblate, emarginate, slightly revolute at the apex, the wings unguiculate, with a narrow projection or spur at the base, the keel beaked, recurved, as long as the wings; stamens 10, diadelphous, the anthers of the same size; ovary sessile, with numerous ovules, the style curved, pubescent on the distal portion, the stigma lateral. Legume falcate, oblong or linear, flattened to cylindrical, dehiscent by valves that twist on opening; seeds flattened, quadrangular or almost reniform.

**Distinctive features:** Slender twining vines; flowers with oblate, yellow or lavender standard petals, and recurved keels.

**Distribution:** A genus of ~100 species with pantropical distribution, the majority in tropical Africa and Asia; 18 species in the Neotropics, including six species which were introduced from the Old World tropics.



