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223. SCROPHULARIACEAE

Family description and key by M.J.M. Christenhusz.

Herbs or shrubs. Leaves opposite, free or basally connate, subopposite or alternate and spiral. Inflorescence racemose. Flowers polysymmetric, 4-merous. Stamens 2, 4 or 5, thecae head to head and confluent, staminodia absent or present. Ovary superior; stigma capitate. Fruit a schizocarp capsule, berry or drupe; septicial, or apically loculicidal (in *Buddleja*). Seeds numerous, minute. About 65 gen. Worldwide, except very cold and very dry areas.

This treatment follows the classification of the Scrophulariaceae in its modern sense, following the efforts of the Angiosperm Phylogeny Group (APG-III 2009, Stevens 2001-2008). In this classification the Buddlejaceae and Myoporaceae are included in the Scrophulariaceae *sensu stricto*. In Mesoamerica the Scrophulariaceae are represented by the genera *Alonsoa*, *Bontia*, *Buddleja*, *Capraria*, *Eremogeton*, and *Limosella*. *Peltanthera* was formerly included in Buddlejaceae, but may more likely belong in Gesneriaceae. This has however not yet been confirmed by APG-III (2009), where it is *insertis sedis*, and therefore this genus is tentatively included here.

The Australian *Myoporum laetum* G.Forst. is sometimes cultivated in gardens, but does not seem to be naturalizing in Mesoamerica yet. Considering its behaviour in other parts of the world this species can be expected to escape from gardens and plantings.

Other genera formerly placed in Scrophulariaceae are currently included in: **Calceolariaceae** (*Calceolaria*), **Linderniaceae** (*Lindernia*, *Micranthemum*, *Torenia*), **Orobanchaceae** (*Agalinis*, *Alectra*, *Buchnera*, *Castilleja*, *Conopholis*, *Escobedia*, *Lamourouxia*, *Melasma*, *Orobanche*, *Pedicularis*), **Phrymaceae** (*Hemichaena*, *Leucocarpus*, *Mazus*, *Mimulus*), **Plantaginaceae** (*Angelonia*, *Antirrhinum*, *Bacopa*, *Benjaminia*, *Callitriche*, *Conobea*, *Cymbalaria*, *Darcya*, *Digitalis*, *Gratiola*, *Linaria*, *Lophospermum*, *Maurandya*, *Mecardonia*, *Penstemon*, *Plantago*, *Russelia*, *Schistophragma*, *Scoparia*, *Sibthorpia*, *Stemodia*, *Tetranema*, *Veronica*), and

Schlegeliaceae (*Gibsoniothamnus*, *Schlegelia*). Tank et al. (2006) provided a good review of the systematics of the Scrophulariaceae *s.l.* and the current classification.

Bibliography: APG-III, *Bot. J. Linn. Soc.* 161: 105-121 (2009). Olmstead, R.G. et al., *Amer. J. Bot.* 8: 348-361 (2001). Oxelman, B. et al. *Taxon* 54: 411-425 (2005). Stevens, P. F. *Angiosperm Phylogeny Website*.

<http://www.mobot.org/MOBOT/research/APweb/> (2001 onwards). Tank, D.C., et al. *Australian Syst. Bot.* 19: 289-307 (2006).

1. Plants aquatic, in mud or floating; leaves in rosettes, linear; flowers minute, less than 2 mm long and broad **6. Limosella**

1. Plants terrestrial, not floating; leaves opposite or alternate, spread along the stem, linear-lanceolate to ovate-elliptic; flowers larger 2.

2. Leave margins entire, the blade leathery, with conspicuous translucent glandular dots (Swan Islands, Caribbean) **2. Bontia**

2. Leave margins dentate or serrate, at least at the apices; blade without translucent dots (translucent dots present in *Capraria*, but not conspicuous) 3.

3. Stamens 2, flowers very large, 6-8 cm **5. Eremogeton**

3. Stamens 4 or 5, flowers smaller, less than 2 cm 4.

4. Plants herbaceous, sometimes suffrutescent 5.

5. Flowers resupinate, salmon pink; leaves mostly opposite or ternate

1. Alonsoa

5. Flowers campanulate, white; leaves alternate **4. Capraria**

4. Plants woody, shrubs or trees. 6.

6. Flowers 4-merous; calyx tubular or campanulate, the lobes shorter than the tube; leaves, young stems, and outer surface of flowers with stellate hairs

3. Buddleja

6. Flowers 5-merous; calyx shortly connate, the lobes longer than the tube; hairs simple, branched and glandular **7. Peltanthera**

1. Alonsoa Ruiz & Pavón

Hemimeris L.f., *nom. illeg.*

By M.J.M. Christenhusz.

Herbs; stems quadrangular, glabrous to glabrescent. Leaves opposite or ternate, glabrous, the margin serrate or entire. Inflorescences terminal racemes, glandular pubescent; bracts alternate; pedicels solitary, twisted. Calyx 5-lobed, corolla 5-lobed, resupinate, the tube obsolete, the 2 posterior lobes free almost to the base, the lateral lobes short and broad, the anterior lobe largest, scarcely concave. Stamens 4; filaments short; anthers oblong. Style entire; stigma capitate. Capsule ovate or oblong, obtuse, compressed, septicidally bivalvate, the valves entire or bifid. Seeds numerous, minute, punctate-rugose. c. 11 spp. Mexico, Mesoamerica, Colombia, Venezuela, Ecuador, Peru, Bolivia, Paraguay, Chile, South Africa.

1. *Alonsoa meridionalis* (L.f.) Kuntze, *Rev. Gen. Pl.* 2: 457 (1891).

Scrophularia meridionalis L.f., *Suppl.* 280 (1781). Isotype: Colombia, *Mutis* 935 (US!-01561402). Illustr.: Standley & Williams, *Fieldiana, Bot.* 24 (9): 325, fig. 65 (1973). Photo: Smith et al., *Fl. Pl. Neotrop.*, plate 45A (2004).

Alonsoa caulialata Ruiz & Pav., *A. incisifolia* Ruiz & Pav., *A. mutisii* (Kunth) G. Don, *A. parviflora* (Kunth) G. Don, *A. serrata* Pennell, *A. urticifolia* (Sims.) Steud., *Celsia urticifolia* Sims., *Hemimeris caulialata* (Ruiz & Pav.) Pers., *H. mutisii* Kunth, *H. parviflora* Kunth, *H. urticifolia* (Sims.) Willd.

Erect, much branched herb to 1.5 m. Stems quadrangular, glabrous to glabrescent, narrowly winged. Leaves petiolate, often with fasciculate leaves in the axils; petioles 0.4-3 cm; blades 3-12 × 0.8-5 cm, ovate, ovate-oblong to lanceolate, the bases abruptly contracted and decurrent, acute to obtuse, the margins finely to coarsely serrate-dentate with sharply pointed, curved teeth, the apices acute, veins pinnate. Inflorescences racemose, elongate, leafy-bracteate; bracts 8-17 × 1-2 mm, ovate to lanceolate, petiolate; pedicels 0.5-2 cm. Calyx lobes 3-4 × c 2 mm, lanceolate, slightly enlarged in fruit. Corolla 4-11 mm, salmon-orange. Capsule 6-11 × 3-8 mm, ovoid, the apex acute. Seeds numerous, black.

Wet thickets or forest, often in scrubby or open places. Ch (*Purpus* 6880, MO); G (*Christenhusz* 5348, BM); H (*Williams & Molina R.* 17358, BM); ES (Standley & Williams, 1973); CR (*Hammel* 17971, MO); P (*Knapp & Monro* 10041, BM); 1500-3200 m. Mexico, Mesoamerica, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, sometimes cultivated as ornamental.

2. *Bontia* L.

Por C. Nelson.

Arbustos o árboles. Hojas alternas, enteras. Flores axilares, solitarias o fasciculadas; cáliz 5-partito, imbricado; corola con un tubo cilíndrico y limbo 2-labiado, el limbo posterior 2-partito, el anterior recurvado y 3-partito; estambres 4, didínamos; ovario 2-locular, los óvulos 4 en cada cavidad, el estilo delgado. Fruto en drupa, ovoide, de exocarpo carnoso y endocarpo óseo, 2-locular; semillas pequeñas. Islas de Swan o del Cisne (Honduras), N. Sudamérica, Antillas.

Bibliografía: Lanjouw, J. *Fl. Suriname* 24(2): 255-256 (1938). Nelson, C. y Proctor, G.R. *Brenesia* 41-42: 73-80. (1994).

1. *Bontia daphnoides* L., *Sp. Pl.* 2: 938 (1753). Lectotipo (designado por Chinnock, 1993): Dillenius, *Hort. Elthamensis* 57, t. 49, f. 57 (1732). Ilustr.: Correll y Correll, *Fl. Bahama Archip.* 1362, t. 595 (1982).

Arbustos 3 m o árboles hasta 9 m. Tallos glabros. Hojas 7.5-8 × 1.4-1.8 cm, elípticas, subcoriáceas, glabras, glanduloso-punteadas en ambas superficies, acuminadas, mucronadas, la base aguda, los márgenes sencillos, escariosos; pecíolo subalado a marginado 1-2 cm. Pedúnculo glabro. Flores 11-20 × c. 0.25 mm, ensanchado a 1 mm en la parte superior; lobos del cáliz anchamente ovados, imbricados, glabros, acuminados a caudados, ciliados, los 2 exteriores en fruto apenas acrescentes; corola c. 2 cm, verde-cafesosa púrpura por dentro con el labio superior semibífido, el inferior revoluto, semitrífido, densamente barbado en el lobo medio; estambres un poco más pequeños que la corola, los 2 superiores más pequeños, los filamentos delgados, engrosados y barbados hacia la base, las anteras divergentes, confluentes hacia el ápice; ovario ovoide, los lóculos en el septo secundario incompleto semibipartitos, con los óvulos superpuestos en el locelo, 8 en todo el ovario, el estilo persistente mucho tiempo sobresaliendo del tubo de la corola, en la base sin embargo constricto y arriba inflado hacia la parte angosta, el estigma obtuso. Drupa bacácea, amarilla, con el hueso con 8 semillas; semillas subincurvadas, oblongas, con poco endospermo. *Llanos calizos alrededor de estanques y colinas rocosas abiertas.* H (Nelson 9746, TEFH). 0-10 m. (Mesoamérica (Swan Isl.), Venezuela, Guayanas, Antillas.)

Esta especie en Mesoamérica es conocida solamente del Las Islas de Swan o del Cisne (Honduras). Además de la colección citada de 1986, *G.G. Nelson 76* (GH) en 1913 y *G.R. Proctor 32507* (IJ) en 1971 también han colectado esta planta en las Islas del Cisne (Nelson y Proctor, 1994).

3. *Buddleja* L.

By E.M. Norman, M.J.M. Christenhusz & G. Davidse.

Shrubs or less often trees; bark furrowed, fibrous, grayish brownish or blackish; young branches terete to quadrangular; young stems, leaves and inflorescences usually with a dense tomentum of stellate or candelabra hairs interspersed with glandular hairs. Leaves decussate (alternate in a few Asiatic spp.), with stipules most often reduced to a line, sometimes foliaceous or absent, petiolate to sessile; blades membranaceous to coriaceous, margin serrate-dentate, rarely entire or lobed. Inflorescences thyrsoid with 1-4 orders of branches, the cymes arranged in heads, pseudoverticels, or panicles; branches subtended by leaves, bracts or bracteoles. Flowers 4-merous, actinomorphic, usually fragrant, often functionally dioecious (in New World taxa), the sterile sex organs usually reduced. Calyx usually tomentose outside, tubular or campanulate, the lobes usually shorter than the tube, often acute, marcescent. Corolla white, cream, yellow, orange, pinkish or purple with orange throat, salverform, campanulate, funnelform or tubular, with stellate and glandular trichomes without and with unicellular warty hairs within; lobes shorter than the tube, mostly imbricate, rarely valvate. Stamens inserted mostly in the upper part of the corolla tube, more rarely below the middle; anthers linear, mostly included, dorsifixed, sessile or subsessile. Ovary 2(4)-locular, often with a glandular nectariferous surface at the base, tomentose on the upper portion; ovules anatropous on axile placentae; style included, less often exerted; stigma clavate or globose, slightly bilobed. Fruits primarily septicidal capsules, often also apically loculicidal. Seeds 0.5-2(-4) mm, yellowish to brown, ovoid to ellipsoid, often winged with reticulate testa; endosperm oily. Approx. 100 spp. Tropical, subtropical and warm-temperate America, Asia, E and S Africa, Madagascar, the Comoro and Mascarene islands and the Arabian Peninsula.

Bibliography: Norman, E.M., *Gentes Herb.* 10: 47-114 (1967).

1. Inflorescences densely spiciform; flowers bisexual; bracteoles 6-15 mm, conspicuous.

6. B. filibracteolata

1. Inflorescences cymose; flowers functionally unisexual; bracteoles shorter, inconspicuous.

2. Corolla salverform, the tube 8-9 mm.

4. B. davidii

2. Corolla funnelform or campanulate, the tube 1.5-5 mm.

3. Corolla funnelform; corolla lobes valvate, oblong, with a crescent-shaped line of hairs on the inner surface.

4. Flower clusters pedunculate at least at the base of the inflorescence, the first pair of heads on the lateral branches borne at a considerable distance from the main axis; corolla 4-5 m.

1. B. americana

4. Flower clusters sessile, the first pair of heads on the lateral branches above the first node borne very close to the main axis; corolla 3-4 mm.

3. B. crotonoides

3. Corolla campanulate or tubular-funnelform; corolla lobes imbricate, orbicular or ovate-oblong, glabrous or with scattered hairs on the inner surface.

5. Flowers borne in a few pairs of large heads, 1.2-2 cm in diameter, each with 40-50 flowers.

7. B. megalocephala

5. Flowers borne in many small cymules, 0.5-1 cm in diameter, each with 3-15 flowers.

6. Flowers white or greenish-white.

9. B. parviflora

6. Flowers yellow to orange.

7. Inflorescences half as long as the average length of the leaves; indument on the lower surfaces of the leaves and calyx very sparse and appressed.

2b. B. cordata subsp. **ovandensis**

7. Inflorescences as long as or longer than the average length of the leaves.

8. Flowers 5-15 per cymule.

9. Flower clusters very compact; corolla tube 1-1.5 cm.

10b. B. skutchii subsp. **skutchii**

9. Flower clusters less compact; corolla tube 1.5-2.5 mm.

2a. B. cordata subsp. **cordata**

8. Flowers 3-5 per cymule.

10. Leaves 0.5-3 cm broad, oblong-lanceolate, subcoriaceous. **8. B. nitida**

10. Leaves 3-16 cm broad, ovate-lanceolate or ovate-elliptic, membranaceous.

11. Leaf base rounded or obtuse; leaf blades 8-16 cm broad. **5. B. euryphylla**

11. Leaf base obtuse or cuneate; leaf blades 9-10 cm broad.

10 a. B. skutchii subsp. costaricensis

1. Buddleja americana L., *Sp. Pl.* 112 (1753). Lectotype (designated by Norman, 1967): *Herb. Clifford 35, Buddleia* no. 1 (BM!). Illustr.: Norman, *Fl. Neotrop.* 81: 136, t. 67 (2000). N.v.: tzelepat, sakil sakbajtez, Ch; arnica, sactzám, salvia santa, salvia sija, G; salvia, ES; hoja blanca, hoja de salbe, salviona, H; tabaquillo.

Buddleja americana L. var. *rothschulii* Loes., *B. americana* L. var. *albiflora* Gómez

Trioecious shrubs or small trees 2-5 m; bark light brown, fissured; young branches subquadrangular, tomentose or tomentulose. Leaf with blade 10- 15(-30) × 5-8(-15) cm, lanceolate, elliptic or ovate; membranaceous, above tomentulose or glabrescent, sometimes with glandular trichomes, below tomentose or tomentulose, underlain by glandular trichomes; base attenuate, acute or obtuse, often decurrent; margins serrate, serrulate or entire; apex acuminate; subsessile or with petioles to 2 cm, stipular lines evident. Inflorescences 5-25 cm, with 1 or 2 orders of branches, sometimes 3 at the base; basal branches subtended by leaves, the upper by bracts or bracteoles; flowers 5-15 per cymule; cymules 0.7-1.2 cm in diameter, short pedunculate or sessile. Calyx campanulate, outside tomentose, often also glandular; tube 1.5-2 mm; lobes 1.2-2 × 0.9-1.2 mm, acuminate. Corolla yellow inside, whitish outside, funnelform, outside tomentose, inside with warty hairs concentrated into a crescent-shaped line near the tip and margins of the lobes; tube 2-2.5 mm, lobes 2-2.5 × 1.2-1.5 mm, oblong, erect, acute, valvate. Stamens inserted at the sinus or 0.5 mm below; filaments 0.5-1 mm; anthers 0.8-1 mm. Ovary 1-1.5 mm, tomentulose and often glandular; style 0.5-1 mm; stigma 0.8-1 mm, clavate, obscurely 2-lipped. Capsules 3.5-4.5 × 2-2.5 mm, short-cylindrical, tomentulose and glandular, opening septicidally for half their length, loculicidally at the apex; valves acute, projecting downward at maturity. Seeds 0.8-1 × 0.25-0.3 mm, fusiform, winged; seed body 0.5-0.6 mm. 2n=76. Flowering Nov.-Apr. *Seasonal evergreen forests, mountain savannas, cloud forests, Pinus-Quercus forests, rocky slopes near rivers, disturbed areas along roadsides and pastures.* Ch (*Breedlove 23080, DS*); B (*Davidse & Brant 3273, MO*); G (*Standley 90223, F*); H (*Gillis 9063, F*); ES (*Wilbur et al. 16413,*

DUKE); N (*Bunting & Licht 631*, US); CR (*Burger 3914*, BM); P (*Croat 13549*, USF). 0-2500 m. (Mexico, Mesoamerica, Colombia, Venezuela, Ecuador, Peru, Bolivia, Antilles.)

Putative hybrids between this species and *Buddleja crotonoides* are: Ch (*Breedlove & Raven 19883*, DS); N (*Moreno 14466*, MO); CR (*Taylor & Skotak 4844*, DUKE).

2. *Buddleja cordata* Kunth in Humb., Bonpl. et Kunth, *Nov. Gen. Sp.* 2: 348 (1818). Lectotype (designated by Norman, 2000): *Humboldt & Bonpland s.n.* (P-Bonpl.!). Illustr. Norman, *Fl. Neotrop.* 81: 170, t. 82 (2000).

Buddleja astralis Standl. & Steyerl.

Dioecious shrubs or trees 2-12(-20)m; crown rounded; trunk 10-45 cm in diameter at the base; bark brownish or blackish, furrowed; young branches quadrangular, tomentose. Leaf with blade (4-)8-20(-27) × 3-8(-18) cm, lanceolate to ovate, membranaceous, occasionally subcoriaceous, glabrescent above, glabrescent, sparingly tomentulose or floccose-tomentose below; base subcordate, obtuse, sometimes decurrent; margins entire, serrate or serrulate; apex acute or acuminate; petioles 1-4 cm; stipular lines evident or with foliaceous, stipules 0.1-1 × 0.15-2 cm. Inflorescences 6-30 × 10-20 cm, paniculate, with 2-4 orders of branches; lowermost pairs of branches subtended by leaves, the upper ones by small bracts; flowers borne in groups of 5-10 per cymule; cymules 0.5-1 cm in diameter. Calyx campanulate, outside tomentose or subglabrous; tube 1-1.8 mm; lobes 0.5-1.5 × 1.2-1.5 mm, broadly triangular. Corolla creamy yellow or yellow, turning orange at maturity, often with a flush of orange at the throat, tubular-campanulate, outside tomentose or tomentulose, inside with warty hairs in the upper half of the tube and the lower half of the lobes; tube 1.5-2.5 mm; lobes 1.2-2 × 1.5-1.8 mm, ovate-oblong, spreading, rounded at the tip, imbricate. Stamens subsessile or with filaments 0.2-0.5 mm, inserted 0.5 mm below sinus, anthers 0.5-1 mm. Ovary 1-1.8 mm, tomentose on the upper portion; style 0.5-1.4 mm; stigma clavate, obscurely 2-lipped. Capsules 3.5-5 × 1.5-2.5(-3.2) mm, short cylindrical, tomentulose and glandular, opening septicidally for at least half of their length, loculicidally at the apex; valves acute. Seeds 1.2-2 × 0.25-0.4 mm, oblong, winged; seed body 0.6-0.8 mm. 2n = 76. Flowering throughout the year but mainly from Jul.-Jan. Pinus-Quercus forests, occasionally in cloud forests, and along roadsides. 2000-3000 m. (Mexico, Mesoamerica.)

2a. *Buddleja cordata* subsp. *cordata*

Blades below usually with thick floccose tomentum, often underlain by glandular trichomes. Inflorescences as long as or longer than the average length of the leaves. Pinus-Quercus forests, occasionally in cloud forests, and along roadsides. Ch (Raven & Breedlove 19779, DS); G (Steyermark 37276, F). 2000-3000 m. (Mexico, Mesoamerica.)

The typical subspecies is widespread in central Mexico but rare south of Oaxaca.

2b. *Buddleja cordata* subsp. *ovandensis* (Lundell ex E.M.Norman)

E.M.Norman, *Fl. Neotrop.* 81: 174 (2000). *Buddleja ovandensis* Lundell ex E.M.Norman, *Gentes Herb.* 10: 76 (1967). Isotype: Mexico, Chiapas, *Matuda 2664* (US!).

Blades below appearing glabrous but with a thinly appressed tomentum. Inflorescences approximately half the length of typical leaves. *Cloud forests*. 1700-2000 m. Ch (*Matuda 16212*). (Endemic.)

3. *Buddleja crotonoides* A.Gray, *Proc. Amer. Acad. Arts* 5: 165 (1861).

Holotype: Mexico, Baja California Sur, *Xanthus 77* (GH; isotypes K!, US!). Illustr.: Norman, *Fl. Neotrop.* 81: 143, t. 69A (2000). N.v.: Cel pat te, ch'ajil sak bajtez, nené chantzel, tan wamal, tzantze lab, tzelopat, yerba de padismo, Ch; salvia, G; hoja blanca, H & CR.

Buddleja amplexicaulis Standl. & Steyer., *B. crotonoides* A.Gray subsp. *amplexicaulis* (Standl. & Steyer.) E.M.Norman, *B. purpusii* Standl., *B. stenoptera* Standl. & Steyer., *B. tuxtlica* Loes.

Dioecious shrubs or small trees 1-5 m; bark greyish brown, shredding; young branches quadrangular sometimes winged, tomentose near the tip. Leaf with blade 5-15(-20) × 1-8(-12) cm, lanceolate, narrowly elliptic or ovate, subcoriaceous, sometimes rugose above, more rarely membranaceous, above tomentose, tomentulose or glabrescent, below tomentose or tomentulose, underlain by glandular trichomes; base subcordate, truncate, cuneate or amplexicaul, then abruptly contracted at the base; margins serrate, doubly serrate, serrulate, crenulate or subentire; apex acute or acuminate; sessile or with petioles to 1.5(-2) cm; stipular lines faint. Inflorescences 6-

18 × 5-12 cm, with usually 2 orders of branches at the base and one above; branches subtended by small leaves or inconspicuous bracts; flowers borne in sessile pairs of heads forming pseudo-verticels, the first pair of heads on the lateral branches borne very close to the main axis, except sometimes on the lowermost branch; pseudoverticels 0.5-1.2 cm in diameter, with 10-25 flowers. Calyx campanulate, lanose outside; tube 1-1.5 mm; lobes 0.5-1 mm, acuminate. Corolla greenish-yellow, funnellform, tomentose outside, with warty hairs in a crescent-shaped line on the inner surface of the lobes; tube 1.5-2 mm, constricted at the base; lobes 1.5-2 × 1-1.2 mm, oblong, erect, acute, valvate. Stamens inserted at the sinus or just below; filaments 0.5-1 mm; anthers 0.5-1 mm. Ovary 1-1.5 mm, tomentose or tomentulose; style 0.7-1 mm; stigma c. 0.5 mm, clavellate. Capsules 3-3.5 × 1.7-2 mm, short-cylindrical, tomentulose, opening septicidally for half their length, loculicidally only at the apex. Seeds 0.8-1 × 0.25-0.3 mm, fusiform, winged; seed body 0.45-0.6 mm. 2n=76. Flowering Oct.-Apr. *Rocky disturbed sites in Pinus-Quercus forests, along roadsides.* Ch (Croat 47731, MO); G (Standley 94059, F); H (Varela 92, MO); N (Moreno 14206, MO); CR (Almeda & Nakai 3645, CAS). (300-)1500-2000(-2700) m. (Mexico, Mesoamerica, Colombia, Venezuela.)

Putative hybrids between this species and *B. skutchii* are: Ch (*Breedlove* 53835, CAS, MO) and between *B. crotonoides* and *B. nitida*: Ch (*Sousa* 11330, CAS) G (*Standley* 86059, F).

4. *Buddleja davidii* Franch., *Nouv. Arch. Mus. Hist. Nat. sér. 2*, 10: 65 (1887), as 'Budleia Davidi'. Lectotype (designated by Christenhusz, 2009): China, Thibet, Moupan, *David s.n* (P-00641117!). Illustr.: Leeuwenberg, *Meded. Landbouwh. Wag.* 79: 115, t. 29 (1979). N.v.: Butterfly bush, B; pluma de reina, CR.

Shrubs up to 4 m; young branches tetragonous and densely white tomentose. Leaf with blade 10-15 × 2-4 cm, lanceolate or ovate-lanceolate, membranaceous, above glabrous, below tomentose; base attenuate or cuneate; margins serrate or serrulate; apex acute or acuminate; petioles 0.5 cm; stipules sometimes conspicuous, auriculate. Inflorescences 10-20 × 2-4 cm, terminal; flowers borne in many-flowered cymes in a tapering panicle. Calyx campanulate, sparsely pubescent; tube 1.5-2 mm; lobes 1 mm, acute to ovate. Corolla lilac, more rarely pink or white with a yellow eye, salverform, outside glabrous, sparsely hairy within above the insertion of the stamens; tube 8-9 mm; lobes 2-3 mm, suborbicular. Stamens sessile, inserted halfway up the

tube; anthers c. 1 mm. Ovary c. 2 mm, ovoid, glabrous; style 1-2 mm; stigma c. 1 mm, clavate. Capsules 7-8 × 1.5-2 mm, ellipsoid, dehiscent primarily septicidally. Seeds 3-4 × 0.5 mm, long-winged, thread-like; seed body 0.5 mm. $2n=76$. *Roadsides, escaped from cultivation*. G (von Türckheim 404, P); ES (Carlson 458, F); CR (Umaña 17, F); P (Tyson 5755, MO). 0-2600 m (Native to central and south-western China from Tibet to Hubei; widely naturalized in many temperate and subtropical regions, considered pests in New Zealand, Australia, United States and Europe.)

5. *Buddleja euryphylla* Standl. & Steyerl., *Publ. Field Mus. Nat., Bot. Ser.* 23: 223 (1947). Holotype: Guatemala, *Steyermark 43628* (F, isotype US!). Illustr.: Norman, *Fl. Neotrop.* 81: 168, t. 81C (2000).

Dioecious trees 8-15 m; young branches quadrangular, tomentose only at the apex. Leaf with blade 15-27 × 8-16 cm, ovate to ovate-elliptic, membranaceous, above glabrous or nearly so, below densely tomentose, at first underlain by glandular trichomes, becoming tomentulose; base rounded or obtuse; margins entire or slightly undulate; apex short acuminate or acute; petioles 3-7 cm; stipules 2-3.5 × 3-5 mm, auriculate. Inflorescences 20-30 × 20-30 cm, paniculate, with 3-4 orders of branches; basal branches subtended by leaves, the upper ones by filiform bracts; flowers usually 3 per cymule; cymules 0.4-0.6 cm in diameter, short pedunculate. Calyx campanulate, outside tomentose; tube 1.7-2.5 mm; lobes 0.7-1 mm, broadly triangular. Corolla yellow, campanulate, outside tomentose on the upper half, inside with warty hairs at base of the lobes and in the upper part of the tube; tube 2-2.5 mm; lobes 1.6-2.2 × 1.5-1.8 mm, ovate-oblong, rounded at the tip. Stamens inserted 0.5-1 mm below the sinus; filaments 0.2-0.5 mm; anthers 0.4-0.8 mm. Ovary 1-1.5 mm, ovoid, tomentose; style 1-1.3 mm; stigma 0.5-0.6 mm, clavate. Capsules not available. Flowering in Jan.-Feb. *Cloud forests*. G (*Steyermark 43377*, F); H (*Molina R. et al. 31389*, F); ES (*Allen & Van Severen 7196*, US). 2000-2500 m. (Endemic.)

6. *Buddleja filibracteolata* J.A. González et J. F. Morales, *Anales Jard. Bot. Madrid* 64: 161 (2007). Holotipo: Costa Rica, *Morales 5953* (INB). Ilustr. González y. Morales, *Anales Jard. Bot. Madrid* 64: 162, t. 1 (2007).

Arbustos 0.9-1.3 m ; ramitas jóvenes, cuadrangulares, sólidas, densamente tomentulosas; tallos viejos subcilíndricos y glabrescentes o glabros. Hojas opuestas, sésiles; láminas 3-10.5 × 0.7-2.1 cm, elípticas, angostamente obovado-elípticas, densa

a moderadamente tomentulosas cuando jóvenes, glabrescentes con la edad, glandular-punteadas y ocráceas en ambas superficies, con tricomas estrellados conspicuos y evidentes, con 6 a 10 pares de nervios secundarios, las venas terciarias apenas evidentes, la base amplexicaule, los márgenes finamente aserrados. el ápice agudo y cortamente mucronato. Inflorescencias 2-5 cm, terminales, espiciformes, pero de apariencia racemosa (debido a los cortos pedicelos ocultos por el indumento), densamente tomentosas, con tricomas estrellados y ocráceos. Flores bisexuales, tetrámeras; pedicelos 1.5-2 mm; bractéolas 6-15 × 0.4-0.5 mm, filiformes; cáliz gamosépalo, el tubo 2.1-2.6 mm, cupulado, los lóbulos 3.5-4.1 × 0.9-1.1 mm, angostamente ovados, acuminados; corola gamopétala, blanca, el tubo 2.9-3.2 × 2-2.2 mm, subclíndrico, los lobulos 3.2 × 1.2-1.5 mm, ovados, anchamente agudos a obtusos apicalmente, densamente tomentosos en ambas superficies; estambres adnatos a la corola, insertos en la unión de los lóbulos, los filamentos 0.3-0.5 mm, las anteras 0.7-0.8 mm, con dehiscencia introrsa; ovario 2.2-2.5 × 1.3-1.5 mm, subobovado, el ápice densamente indumentado con tricomas estrellados ocráceos, glabrescente hacia la base; estilo 0.3-0.4 mm; estigma 1.1-1.3 mm, 2-lobado, glabro. Frutos desconocidos. *Bosques húmedos*. CR (*Morales 5953*, MO). 1000-1200 m. (Endémica.)

7. *Buddleja megalcephala* Donn.Sm., *Bot. Gaz.* 23: 10 (1897). Holotype: Guatemala, *Nelson 3640* (US!). N.v.: patusche, salvia de cumbre, G. Illustr.: Norman, *Fl. Neotrop.* 81: 181, t. 87 (2000).

Buddleja megalcephala Donn.Sm. f. *albilanata* Moldenke.

Dioecious trees 5-12(-15) m; trunk to 65 cm in diameter at the base; bark brownish, fissured; young branches stout, quadrangular, thickly tomentose. Leaf with blade 7-20 × 2-6 cm, lanceolate or elliptic-oblong, subcoriaceous, above glabrescent, below with dense tomentum; base obtuse or acute; margins entire; apex acute to acuminate; petioles 1-2 cm; stipular lines conspicuous. Inflorescences 6-20 × 8-10 cm, with heads in racemes, sometimes with 2 orders of branches, the terminal head often poorly developed; lower branches subtended by leaves, the upper by linear bracts; bracts also sometimes 1/2 way up peduncle; heads 1.2-2 cm in diameter, with 40-50 flowers. Calyx tubular, densely tomentose outside; tube 1.5-2.5 mm; lobes 1.5-2 mm, narrowly triangular, acuminate. Corolla deep orange inside, paler outside, tubular-funnelform, outside tomentulose on the lobes, with a few scattered warty hairs

in the upper part of the tube; tube 4-5 mm, lobes 2-2.5 × 2.5-3 mm, orbicular, imbricate. Stamens subsessile, inserted c. 1 mm below the sinus; anthers 0.7-1 mm. Ovary 1.5-2 mm, tomentulose; style 1.5-3 mm; stigma 1 mm, clavate. Capsules 4.5-6 × 2-2.5 mm, narrowly ellipsoid, tomentulose or glabrescent, dehiscent primarily septically; valves acute. Seeds 1.5-2 × 0.35-0.45 mm, fusiform, prominently winged; seed body 0.6-0.9 mm. 2n = 76. Flowering Nov.-Jul. *Fields, roadsides, shrubberies and forests at high elevations, in rather dry habitats.* Ch (*Breedlove* 24283, ENCB); G (*Christenhusz* 5266, BM). 2700-4000 m. (Mexico, Mesoamerica, Venezuela.)

This species occurs in the highlands of Volcán Tacaná on the Mexican-Guatemalan border and the central highlands and Sierra de los Cuchumatanes of Guatemala.

Buddleja megalcephala is thought to hybridize with *B. nitida* (*B. × hypsophila* I.M.Johnst. The following specimens are putative hybrids: Ch (*Breedlove* 24357 DS); G (*Skutch* 843, holotype of *B. × hypsophila*, A).

8. *Buddleja nitida* Benth. in DC., *Prodr.* 10: 437 (1846). Lectotype (designated by Norman, 1967, 2000): Mexico, Chiapas, *Linden* 196 (K!). Illustr.: Norman, *Fl. Neotrop.* 81:178, t. 85A (2000). N.v.: Ch'uj ch'ul sakbajtez, tzajal oak bojtez, Ch; sacumis, G; salvia, P.

Buddleja alpina Oerst.

Dioecious shrubs or trees 4-10(-15) m; crown dense, rounded; trunk to 60 cm. diameter at the base; bark brown to black, exfoliating; young branches subquadrangular, tomentose. Leaf with blade 3-10 × 1-3.5 cm (or in dwarfed form c. 1 × 0.5 cm), oblong-lanceolate, subcoriaceous, above glabrescent, below with strongly appressed tomentum; base obtuse; margins entire, rarely serrulate, apex acute to long acuminate; petioles (0.5-)1-2(-3) cm; stipular lines evident. Inflorescences 3-8(-14) × 3-7(-10) cm, paniculate, with 3-4 orders of branches; basal branches subtended by leaves, the upper by small bracts; flowers borne in groups of 3-5 per cymule; cymules 5-7 mm in diameter; pedicels 0-2 mm. Calyx tubular-campanulate, tomentose outside; tube 1-1.7 mm; lobes 0.5-0.7 mm, broadly triangular, obtuse. Corolla yellow, maturing to orange, campanulate-funnelform, tomentose outside, inside with warty hairs in the throat and on the lower part of the lobes; tube 2.5-3 mm; lobes 1.2-2 × 1.5-1.8 mm, ovate-oblong, imbricate, rounded at the tip. Stamens

subsessile, inserted just below the sinus; anthers 0.6-1 mm. Ovary 1-1.5 mm, tomentulose on the upper portion; style 1-1.5 mm; stigma 0.5-0.8 mm, obscurely 2-lipped, clavate. Capsules 4-5 × 2-2.5 mm, oblong or ellipsoid, tomentose, opening septically for most of their length, loculicidally at the apex; valves acute. Seeds 1.2-1.7 × 0.3-0.35 mm, fusiform, winged; seed body 0.6-0.75 mm. 2n=76. Flowering throughout the year but mainly Dec.-Apr. *Limestone slopes or lava in subparamo, often in pastures or clearings, Quercus-Pinus forests, cloud forests, Quercus and bamboo forests.* Ch (*Laughlin 477, MEXU*); G (*Steyermark 32791, F*); H (*Mejía 7, MO*); CR (*Burger & Liesner 7430, F*); P (*Wilbur & Teeri 13332, MO*). (1000-)2000-4000 m. (Endemic.)

This species is thought to hybridize with *Buddleja crotonoides*, *B. skutchii* and *B. megalocephala*.

9. *Buddleja parviflora* Kunth in Humb., Bonpl. et Kunth, *Nov. Gen. Sp.* 2: 353 (1818). Holotype: Mexico, Morelos, *Humboldt & Bonpland 4059* (P-Bonpl.). Illustr.: Norman, *Fl. Neotrop.* 81: 178, t. 85B (2000).

Buddleja lanceolata Benth.

Dioecious shrubs or small trees 2-7(-10) m; trunk up to 20 cm in diameter at the base; bark blackish, exfoliating; young branches subquadrangular, tomentose. Leaf with blade 3-12 × 1-4.5 cm, lanceolate, ovate, oblong-ovate or elliptic, subcoriaceous, above usually with scattered stellate and glandular hairs, below with an appressed tomentum; base acute, obtuse or cuneate; margins entire or serrulate; apex acute or acuminate; petioles 0.4-1 cm; stipular lines evident. Inflorescences 3-18 × 2-12 cm, paniculate, with 2-3 orders of branches; branches subtended by small leaves or elongate bracts; flowers borne in groups of 3-5 per cymule; cymules 0.5-0.7 cm in diameter. Calyx campanulate, tomentose outside; tube 0.5-1.5 mm; lobes 0.5-1.5 mm, broadly triangular. Corolla white or greenish white, campanulate, outside tomentose, inside with warty hairs in the upper half of the tube and the lower half of the lobes; tube 1-1.5 mm; lobes 1-1.5 × 1.5 mm, ovate-oblong, imbricate. Stamens subsessile, inserted c. 0.5 mm below the sinus; anthers 0.6-0.8 mm. Ovary 0.7-1.5 mm, tomentulose on the upper portion; style 0.5-0.7 mm; stigma clavate, obscurely 2-lipped. Capsules 3-4 × 1.3-2 mm, short-cylindrical, tomentulose, with septical dehiscence for half their length, loculical at the apex; valves acute. Seeds 1.2-1.5 × 0.2-0.3 mm, oblong, winged; seed body 0.6-0.9 mm. 2n=76. Flowering throughout the

year. Pinus-Quercus forests. G (Harmon 4568, NY). 2500-3500 m. (Mexico, Mesoamerica.)

This species is wide ranging in central Mexico, but is known in Guatemala from one collection only.

10. *Buddleja skutchii* C.V.Morton, *Phytologia* 1: 148 (1935). Holotype: Guatemala, *Skutch 269* (US!). Illustr.: Norman, *Fl. Neotrop.* 81: 168, t. 81D (2000). N.v.: K'anál sakbajtez, sak bah te, sakbajtez, Ch; flor de santa maria, saclajac, salvia, salvia blanco, G.

Buddleja matudae Standl.

Dioecious trees 5-15 (-25) m; bark brown to blackish, fissured; young branches quadrangular, tomentose. Leaf with blade 6-20 × 2-7(-10) cm, lanceolate or ovate-lanceolate, above glabrescent; base obtuse or cuneate; margins entire, rarely serrulate; apex acuminate, sometimes acute; petioles 2-4 cm; stipular lines evident, often with small foliaceous stipules. Inflorescences 8-15 × 8-20 cm, paniculate with 3-4 orders of branches; lowermost branches subtended by leaves, the upper ones by bracts; flowers borne in groups of 5-15 per cymule; cymules, 0.4-0.6 cm in diameter, the flower clusters very compact. Calyx campanulate, outside tomentose; tube 0.8-1.5 mm; lobes 0.8-1 mm, broadly triangular. Corolla yellow to orange, tubular-campanulate, tomentose outside, inside with warty hairs sparsely scattered at the base of the lobes; tube 1-1.5 mm; lobes 1-1.5 mm, ovate-oblong, spreading, imbricate. Stamens inserted near the sinus; filaments c. 0.2 mm; anthers 0.5-0.8 mm. Ovary 0.5-1 mm, tomentulose on the upper portion; style 0.5-1 mm; stigma 0.3-0.5 mm, clavate. Capsules 3-3.7 × 1.7-2 mm, narrowly ovoid, tomentulose, septicidally dehiscent for half their length, loculicidally at the apex; valves acute. Seeds 1.4-1.8 × 0.3-0.35 mm, fusiform, often pointed at the funicular end, prominently winged; seed body 0.4-0.7 mm. $2n=76$. Flowering throughout the year. Pinus-Quercus forests, Pinus-Quercus-Liquidambar forests, second growth slopes. 1700-3300 m. (Mexico, Mesoamerica.)

10a. *Buddleja skutchii* subsp. *costaricensis* E.M.Norman, *Fl. Neotrop.* 81: 176 (2000). Holotype: Panama, *D'Arcy & D'Arcy 6543* (MO). N.v.: Salvia, CR.

Differs from typical *Buddleja skutchii* by its more membraneous leaves, glabrescent beneath; flowers 3-5 per cymule; corolla tube 2-2.2 mm; capsules 2.5-3 mm broad. Cloud forests. CR (*Acevedo 452*, US); P (*Gentry 5929*, XAL). (Endemic.)

This subspecies occurs in the Cordillera Central and Cordillera de Talamanca in Costa Rica and extends to Panama.

10b. *Buddleja skutchii* subsp. *skutchii*.

Differs from *Buddleja skutchii* subsp. *costaricensis* by its subcoriaceous leaves below with appressed tomentum and usually also floccose candelabra hairs; flowers 3-5 per cymule; corolla tube 2-2.2 mm; capsules 2.5-3 mm broad. Pinus-Quercus-Liquidambar forests, second growth slopes. 1700-3300 m. Ch (*Breedlove 42818*, CAS); G (*Steyermark 34070*, F). (Mexico, Mesoamerica.)

This subspecies occurs in the Sierra Madre of Chiapas and Guatemala. A putative hybrid between this subspecies and *Buddleja nitida* is: G (*Steyermark 34065*, F).

4. *Capraria* [Herm.] L.

Pogostoma Schrad., *Xuarezia* Ruiz & Pav.

By M.J.M. Christenhusz.

Herbs, often suffrutescent and woody at base; stems terete. Leaves alternate, spirally arranged, serrate or dentate, pinnately veined. Flowers axillary, pedicellate. Calyx 5-lobed, the lobes subequal. Corolla campanulate, white, 5-lobed, the lobes plane. Stamens usually 5. Style slender; stigma dilated or bilobate. Capsule bisulcate, loculicidally dehiscent. Seeds numerous, small, reticulate. 4 spp. (S. United States, Mexico, Mesoamerica, Colombia, Venezuela, Ecuador, Galapagos, Peru, Guianas, Brazil, Antilles.)

Pollen characters have shown an affinity between this genus and *Myoporum* L. (Mabberley, 1997). Both *Bontia* and *Capraria* have pellucid-dotted leaves, but *Bontia* and other genera related to *Myoporum* have entire, leathery or succulent leaves, whereas *Capraria* is always herbaceous and thin in texture and is often dentate or lobulate.

Bibliography: Sprague, T.A. *Bull. Misc. Inf. Kew* 1921(5): 205-212 (1921). Williams, J.K. *Lundellia* 7: 53-78 (2004). Duno-De Stefano et al. *Bol. Soc. Bot. Méx.* 79: 61-66 (2006)

1. Calyx with hairs that are either glandular or not, the glandular ones long-stalked, the lobes oblanceolate, obtuse to broadly acute; pedicels 1-4 mm; corolla strongly zygomorphic, bilabiate; stamens 4, included **2. C. frutescens**
1. Calyx glabrous, glabrescent or hirsute with eglandular hairs, sometimes with a few glandular hairs, the lobes lanceolate, acute to acuminate; pedicels 5-25 mm; corolla slightly zygomorphic to actinomorphic, never bilabiate; stamens 4 or 5, slightly to long-exserted 2
2. Branches, leaves and pedicels variously hirsute, (rarely glabrous); calyces glabrous, glabrescent, hirsute or glandular-hirsute; flowers slightly zygomorphic (never bilabiate), the two upper petals closer together than the other three are to each other; stamens 4 or 5, variable in length **1. C. biflora**
2. Branches, leaves, pedicels, and calices glabrous; corolla actinomorphic; stamens 5, isomerous 3
3. Corolla 8-10 mm, white; styles 3-5 mm **3. C. mexicana**
3. Corolla 4.5-6 mm, greenish; styles 0.75-1.5 mm **4. C. peruviana**

1. *Capraria biflora* L., *Sp. Pl.* 2: 628 (1753). Lectotype (designated by D'Arcy in Woodson & Schery (ed.), *Ann. Missouri Bot. Gard.* 66 : 209, 1979): Curaçao, cultivated in Uppsala, *Herb. Linn.* 785.1 (LINN). Illustr.: Standley & Williams, *Fieldiana, Bot.* 24 (9): 342, fig. 70 (1973). N.v.: *Agrimonia silvestre*, *claudiosa* (Y).

Capraria biflora f. *hirta* Loes., *C. biflora* var. *pilosa* Griseb., *C. hirsuta* Kunth, *C. lanceolata* Vahl, *C. mexicana* Griseb., *nom. illeg. hom.*, *C. semiserrata* Willd.

Coarse erect herb, sometimes woody at base, to 2 m; stems sparsely hirsute to densely hispid or villous, branched, terete. Leaves alternate, sessile to short petiolate, the petioles 0-2 mm; blades 2-12 × 0.6-2(-3.5) cm, narrowly lanceolate to oblanceolate, the bases (narrowly) cuneate, the margins sharply serrate distally, sometimes subentire, the apices acute, the veins prominent. Inflorescences axillary, fasciculate with 1-2(-4) pedicellate flowers; pedicels 7-20 mm, ascending, hispid-villous. Calyx variously pubescent to glabrous; calyx lobes 3.5-7.5 mm, linear to narrowly lanceolate, the apices acute to acuminate, in fruit usually longer than the capsule. Corolla slightly zygomorphic, the upper 2 petals somewhat closer together than to the other 3, (0.5-)0.8-1.1 × c 1 cm, white, campanulate, the tube 2-3.5 mm,

pubescent within, the lobes 4-7 mm lanceolate-ovate, obtuse, mucronate. Stamens 4 or 5, variable in length, exserted, anthers 0.9-1.1 mm. Style 3-4(-5) mm; stigma clavate, entire. Capsules 4-6 mm, broadly ovoid, **emarginate to rounded apically, septicidal and secondarily loculicidal, glandular punctate**. Flowering and fruiting all year. *Moist thickets, swamps, salt flats, sea shores, cleared land and mangroves*. T (Williams, 2004); Ch (*Breedlove 28999*, MO); Y (*Trejo et al. 412*, CICY); C (*Virgo 183*, K), QR (*Darwin 2361*, BM); B (*Dwyer 12177*, MO); G (*Kufer 400*, BM); H (*Proctor 32608*, BM); ES (*Stork et al. 8729*, K); N (*Miller 1296*, MO); CR (*Ramírez 420*, MO); P (*Peterson 6437*, MO). 0-350(-1000) m. (United States (Florida), Mexico, Mesoamerica, Isla de Coco, Colombia, Venezuela, Guianas, Peru, Brazil, Antilles, naturalized in Bermuda, Cape Verde, West Africa and Mauritius.)

Leaves are used as a substitute for tea in the Caribbean region.

2. *Capraria frutescens* (Houston ex Miller) Britten, *J. Bot.* 45: 315

(1907). *Erinus frutescens* Houston ex Mill., *Gard. Dict.* (ed. 8) 4 (1768).

Holotype: Mexico, Veracruz, *Houston s.n.* (BM-000953446!) Illustr.: Duno-De Stefano et al. *Bol. Soc. Bot. Méx.* 79: 63, fig. 2a-b (2006). N.v.: *Claudiosa*, *sek`aax*, *box* (Y) *malva de escoba* (H).

Capraria cuneata R.Br., *C. saxifragifolia* Schlttdl. & Cham.,

Pogostoma saxifragifolia (Schlttdl. & Cham.) Schrad.

Coarse erect, much branched herb, sometimes woody at base, to 1 m; stems sparsely hirsute to densely hispid or villous, terete. Leaves alternate, short petiolate, the petioles 1-3 mm; blades (0.7-)1.3-8 × 0.3-4 cm, ovate to ovate-lanceolate, the bases abruptly angustate to attenuate, the margins coarsely serrate distally, the apices obtuse to acute, the veins prominent. Inflorescences axillary, fasciculate with 1-3 pedicellate flowers; pedicels 1-4 mm, ascending, hispid-villous, sometimes with some glandular hairs. Calyx lobes 5-6 × 1 mm, oblanceolate to obtuse, the apices broadly acute, pubescent or glandular pubescent, the glandular hairs long-stalked. Corolla (0.5-)0.8-1.1 × 0.4-0.6 cm, pale lavender, darker in the throat, bilabiate, strongly zygomorphic, the tube 3-5 mm, the lobes 4-5 mm, lanceolate, obtuse. Stamens 4, included, anthers c 1 mm. Style 3-4.5 mm; stigma clavate. Capsules 3-6 mm, broadly ovoid, emarginate to rounded apically, septicidal and secondarily loculicidal, glandular punctate. Flowering and fruiting all year. *Along roadsides, along streams and river floodplains, ruderal and waste places, gardens, parks*. Ch (*Reyer Garcia*

1113, BM); Y (*Gaumer 520*, K); C (*Cabrera 9525*, MO); QR (*Tellez 3693*, MO); G (*Wallnöfer 9510*, MO); H (*Nelson et al. 6229*, MO). 10-700(-1000) m. (Mexico, Mesoamerica.)

Capraria biflora and *C. frutescens* are often found growing sympatrically. The two species are not known to hybridize and no evidence of introgression has been found. The morphology of these two species is substantially different, and the flowers thus suggest a divergent set of pollinators.

It is used medicinally to cure coughs and sores (Duno-De Stefano et al. 2006).

3. *Capraria mexicana* Moric. ex Benth., *Prodr. Syst. Nat. Regni Veg.* 10: 429 (1846). Lectotype (designated by Sprague, 1921): Mexico, *Berlandier 10* (K!). Illustr.: Duno-De Stefano et al. *Bol. Soc. Bot. Méx.* 79: 63, fig. 3a-b. (2006). N.v.: Chichibe, claudiosa (Y), te de la abuela (T).

Glabrous herb, sometimes woody at base, 1-2 m. Stems erect, much branched. Leaves sessile, 0.5-2.1 × 2-5.4 cm, oblanceolate to lanceolate, the bases attenuate, the margins coarsely irregularly toothed, the apices acute, pinnately veined. Inflorescences axillary, fasciculate with (1-)3(-4) pedicellate flowers; pedicels 5-9 mm. Calyx lobes 3-7 × 0.3-1 mm, narrowly lanceolate, longer than or as long as the capsule. Corolla actinomorphic, 8-10 mm, the tube c 3-4 mm, glabrous within, the lobes 2-5 mm, obtuse, white. Stamens 5, isomerous, exserted. Styles 3-5 mm. Capsule 5 × 3 mm, elongate-ovoid, the septal line furrowed and the apex emarginate, septicidal and secondarily loculicidal, glandular-punctate. Flowering and fruiting all year. *Along streams and in dry tropical forest, ruderal places, clearings and matorral.* T (*Cowan 3188*, MO); Ch (*Ton 6620*, MO); Y (*Johnson 57:1*, BM); C (*Cabrera 15963*, MEXU); QR (*Tellez 1993*, BM); B (*Davidse & Brant 32632*, MO); ES (*Rohweder 3654*, MO); N (*Araquistain 336*, MO). 0-50(-1000) m. (United States (Texas), Mexico, Mesoamerica.)

4. *Capraria peruviana* Benth., *Prodr. Syst. Nat. Regni Veg.* 10: 430 (1846). Lectotype (designated by Williams, *Lundellia* 7: 72, 2004): Ecuador, *Hinds s.n.* (K!). Illustr.: not found.

Capparis biflora Jacq., *nom. nud.*, *Xuarezia biflora* [Jacq.] Ruiz & Pav., *Witheringia? salicifolia* Hook.

Glabrous herb, sometimes woody at base, 1-2 m. Stems erect, much branched, longitudinally ribbed by decurrent leaf bases. Leaves sessile, 2-6 × 0.4-1.1 cm, oblanceolate to narrowly oblanceolate, the bases narrowly cuneate, the margins entire to weakly and irregularly toothed, the apices acute, pinnately veined, the midvein prominent and the lateral obscure. Inflorescences axillary, fasciculate with (1-)2-3(-4) pedicellate flowers; pedicels 6-16 mm. Calyx lobes 2-4.5 × c 0.1 mm, lanceolate, shorter than the capsule. Corolla actinomorphic, 4.5-6 mm, the tube c 2 mm, glabrous within, the lobes 2.5-3.5 mm, acute, pale greenish yellow. Stamens 5, isomerous, exserted, anthers 0.9-1.5 mm. Styles 0.75-1.5 mm. Capsule 5-6 × 2-3 mm, elongate-ovoid, the septal line furrowed and the apex emarginate, septicidal and secondarily loculicidal, glandular-punctate. Flowering and fruiting all year. *Wet places along river banks, ponds and roadside ditches.* P (Hayes 395, BM, K). 0-100(-1500) m. Mesoamerica, Colombia, Ecuador, Galapagos Islands, Peru.

Leaves are used as a substitute for Chinese tea in Peru. In Mesoamerica only known from a single collection.

5. *Eremogeton* Standl. & L.O. Williams

Ghiesbreghtia A. Gray, *nom. illeg. hom.*

By M.J.M. Christenhusz.

Suffrutescent, pubescent to tomentose, herbs or small trees. Leaves alternate or subopposite. Inflorescences axillary. Flowers solitary; pedicels long, ebracteolate. Calyx deeply 5-lobate, the lobes valvate. Corolla large and showy, bilabiate, white to yellow, the tube broadly tubular-campanulate; anterior lip spreading, trilobate, concave, the lobes subequal; posterior lip erect, bilobate, flat. Stamens 2, inserted on the base of the corolla, exserted. Style elongate, stigma capitate, slightly bilobate. Capsule ovoid, bisulcate, indurate, 4-valvate, the apex acuminate. Seeds narrowly oblong, sometimes angulated, numerous. 1 sp. Mexico, Guatemala.

Bibliography: Henrickson, J. *Sida* 11(2): 107-172 (1985).

1. *Eremogeton grandiflorus* (A. Gray) Standl. & L.O. Williams, *Ceiba* 3(3): 172 (1953). *Ghiesbreghtia grandiflora* A. Gray, *Proc. Amer. Acad. Arts* 8: 630 (1873). Type: Mexico, Chiapas, *Ghiesbreght s.n.*, 723 (holotype GH, isotype K!). Illustr.:

Standley & Williams, *Fieldiana, Bot.* 24 (9): 350, fig. 72 (1973). N.v.: Campanula, jicarillo (G).

Suffruticose herb, shrub, or small tree to 6 m; young branches densely tomentose. Leaves short-petiolate; petiole minutely winged; blades 3-9(-12) × 1.3-3.5(-6) cm, subopposite to alternate, elliptic to ovate or narrowly obovate to obtuse, densely pubescent, the base attenuate, the margins coarsely crenate to serrulate, sometimes entire, the apices acute. Inflorescence axillary, usually uniflorous; pedicel 5.5-6 cm. Calyx incised nearly to the base, the lobes 1.4-3 × 0.4-0.6 cm, unequal, linear-lanceolate to elliptic-oblong, pubescent, the apex rounded to acute. Corolla 5-8 × 2.5-5 cm, large and showy, white or yellow, glabrous or sparsely pilose outside. Style 6-8 cm. Capsule 1-3 × 0.7-1.3 cm, glabrous. Flowering March-November. *Forming dense thickets on dry exposed rocky slopes and in protected ravines.* Ch (Neill 5569, BM), G (Proctor 25323, MO). 800-1725 m. (Endemic).

6. *Limosella* L.

By M.J.M. Christenhusz.

Minute aquatic or mud-dwelling herbs. Acaulescent or stoloniferous, rooting at the nodes. Leaves radially arranged or fasciculate at the nodes. Leaves linear-cylindric, or dilated into an ovate or oblong blade. Inflorescences reduced, 1-2 flowered, axillary, inserted among the leaves. Flowers minute, white or pink. Calyx campanulate, 5-toothed. Corolla tube short, campanulate, the lobes 3, 4 or 5, rounded to ovate-oblong, subequal. Stamens 4 or less, inserted in the corolla tube. Style short, thickened and curved at the apex. Capsule dehiscent, bivalvate. Seeds small, ovoid. c. 10 spp., probably less. Canada, United States, Mexico, Mesoamerica, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Argentina, Antilles, Europe, South and East Africa, Madagascar, Asia, Australia, Pacific.

The species in this genus are poorly delimited, which is complicated by the small size of the plants and flowers, and the plasticity of the leaves. The genus is in need of a global monographic study.

Bibliography: Glück, H., *Bot. Jahrb. Syst.* 66: 488-563 (1934).

1. *Limosella australis* R.Br., *Prodr.* 443 (1810). Holotype: Australia, Tasmania, *Brown 2698* (BM!). Illustr.: Standley & Williams, *Fieldiana, Bot.* 24 (9): 373, figs. 82A, B (1973).

Limosella acaulis Sessé & Moc. (1894), *L. americana* Glück, *L. lineata* Glück, *L. minuta* Dinter ex Suess., *L. subulata* E.Ives, *L. tenuifolia* Nuttall

Acaulescent, aquatic herb. Stems, when present, slender and rooting at the nodes. Leaves fasciculate, linear-cylindrical, sometimes slightly dilated at the apex, 20-30 × 0.5-1.2 mm. Pedicels slender, shorter than leaves. Flowers minute. Calyx 0.3-0.6 mm. Corolla 1-1.9 mm, white, variously lobed, the lobes c 1 mm. *Muddy pools at high elevations, or marshy meadows in paramó.* G (Standley & Williams, 1973); CR (*Alfaro 421*, MO). (1740-)3300-3700(-4300) m. (United States, Mexico, Mesoamerica, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Argentina, Madagascar, South Africa, Australia, New Zealand, perhaps also elsewhere.)

The naming of this taxon is contentious. Glück (1934) described *L. americana* because he did not study the type of *L. australis* and decided that the description of *L. acaulis* was incomplete. I come to the conclusion here that all of the names given above are conspecific. The species is variable and the studied material from Mesoamerica is very scant and difficult to assign to any of the known taxa. Future studies and collections may prove that my choice of name was inaccurate, but there is little material currently available to me. Further collections and studies are needed to confirm the identity of this species.

7. *Peltanthera* Benth., nom. cons.

By E.M. Norman.

Trees; bark light brown; youngest branches, leaves and inflorescences sparingly puberulent with simple, branched and glandular hairs. Leaves decussate, without stipular line, petiolate; blades membranaceous, obovate to elliptic, the margins serrulate to subentire. Inflorescences terminal and axillary, compound cymes paniculate with 3-4 orders of branches; branches opposite or sub-opposite, the pedicellate flowers borne in cymose clusters. Flowers 5-merous, actinomorphic or nearly so, fragrant, bisexual. Calyx connate at the base, the lobes longer than the tube, long acuminate, marcescent. Corolla white, tubular, somewhat swollen at the base, the

lobes much shorter than the tube, valvate, spreading slightly at anthesis. Stamens usually shorter than the corolla lobes, inserted at the mouth of the corolla tube; filaments attached dorsally near the base of the anthers, with 4 locules at the base and 2-locular in the upper part; anthers dehiscent by a curved confluent line, becoming peltate after anthesis. Ovary 2-locular, with a thick disc at the base; ovules anatropous, numerous on the central half of the axile placentae; style slender; stigma peltate, reaching the level of the anthers. Fruits laterally compressed capsules, dehiscent loculicidally. Seeds minute, with narrow honeycomb-like wings. 1 sp. Costa Mesoamerica, Colombia, Ecuador, Peru, Bolivia.

Bibliography: Leeuwenberg, A.J.M., *Acta Bot. Neerl.* 16: 143-146 (1967).

1. *Peltanthera floribunda* Benth. in Benth. & Hook. f., *Gen. Pl.* 2: 797 (1876). Holotype: Peru, *Spruce 4940* (K). Illustr.: Norman, *Fl. Neotrop.* 81: 189, t. 91 (2000). N.v.: Cuerillo, CR.

Peltanthera costaricensis (Standl. & Steyererm.) Cuatrec., *Valerioa costaricensis* Standl. & Steyererm.

Trees 5-22 m; base up to 60-90 cm in diameter; youngest branches slightly puberulent with branched hairs. Leaves with the petiole 1-2 cm; blades 10-28 × 4-11 cm, obovate to elliptic, glabrous above, lower surface with the main veins conspicuous, primarily with branched multicellular hairs and glandular peltate hairs and some simple hairs, all found principally along the veins and margins; base cuneate, slightly decurrent; margins subentire to serrulate; apex acute to short acuminate. Inflorescences 6-15 × 7-12 cm; branches compressed laterally, with slight webbing, subtended by small linear bracts, the axils of branches pubescent with glandular and simple hairs. Calyx very shortly connate; lobes 1-1.7 × 0.4-0.6 mm, narrowly triangular, acuminate, the margins ciliate. Corolla with the lobes suberect at maturity, the outside glabrous except for the branched and glandular hairs along the margins, the inside glabrous except for conspicuous warty hairs on the upper part of the lobes; tube 3.2-4.5 mm, 1.5-2 mm in diameter at the base; lobes 1.2-1.5 × 0.5-0.9 mm, oblong, acuminate. Stamens with the filaments 1-2 mm; anthers 0.4-0.5 × 0.4-0.5 mm at anthesis, glandular on the dorsal side. Ovary 1.5-2.5 mm, ovoid, narrowed toward the apex, pubescent with branched trichomes, especially on the thickened basal disc; style 2.5-3.5 mm; stigma 0.45-0.6 mm in diameter. Capsules 3-4 × 2-2.5 mm, ovoid, apiculate, glabrous. Seeds 0.4-0.5 × 0.25-0.3 mm, ellipsoid, with 5-7

honeycomb- like wings; seed body 0.15-0.3 mm. Flowering Jan.-Mar. *Rain forests*. CR (*Hammel & Grayum 18935*, MO); P (*Croat 33501*, NY). 300-1500 m. (Mesoamerica, Colombia, Ecuador, Peru, Bolivia.)

The position of *Peltanthera* in Scrophulariaceae is questionable both on morphological and molecular grounds. Chloroplast DNA analysis places it closer to the Gesneriaceae (Stevens 2001 and onwards).

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