The genus *Echeandia*, founded on *Anthericum reflexum* Cav., was proposed by Ortega in his Novarum Plantarum Decades in 1798, and has been generally maintained by botanists since. Kunth, in 1843, recognized three species under it. Baker, monographing the *Anthericaceae* in 1877, could find no clear lines of demarcation between these species and referred all the material known to him to the original species. Hemsley, though suspecting that more than one species was concerned, retained Baker’s treatment because of insufficient material for a satisfactory revision. Since the date of his work, the increasingly thorough floristic exploration of Mexico has revealed a number of obviously distinct forms, several of which have been singly described by various botanists. The genus can hardly yet be considered as thoroughly understood; but a brief synopsis, which shall contrast the characters of the different species and bring together the existing information concerning them, may be of service, even though it can lay no claim to finality. The following is an attempt at such a synopsis.

*Echeandia* is, so far as known, a strictly American genus and chiefly confined to Mexico and Central America. The material at hand shows one species collected in Venezuela. The genus is very closely related to *Anthericum* L., from which, indeed, it is separated by only one constant character—its connate anthers. Although the American species of *Anthericum* are more numerous than those of *Echeandia*, the two groups show a distinctly parallel development, both containing species with smooth and with roughened filaments, smooth and scabrous stems and ovoid and oblong capsules. In particular, *E. macrocarpa* and *A. stenocarpum*, and *E. Pringlei* and *A. tenue* are nearly indistinguishable except by the characters of their anthers.
I have preferred, at least for the present, to regard plants which differ only in comparatively superficial foliar and habital characters as varieties of a single species, rather than specifically distinct. I have, however, made an exception in the group of forms closely related to *E. reflexa*. Here, because of imperfect material of *E. reflexa* and *E. paniculata* and of certain puzzling specimens from Yucatan, I have not been able to arrive at a wholly clear conception of the relationships of the different forms; and I have allowed described species to stand as such, rather than make new combinations which later might have to be withdrawn.

For the loan of specimens, and for other kindly assistance in the preparation of this paper, I am indebted to Captain John Donnell Smith, to Mr. Brandegee of the University of California, Dr. Rose of the National Herbarium, and Dr. Greenman of the Field Museum. All specimens cited are in the Gray Herbarium, unless otherwise specified.

**ECHEANDIA** Ort. Perianth rotate, spreading or reflexed in flower, after anthesis the withered segments cohering above the ovary and persistent until pushed off by the expanding capsule; segments 6, distinct, three-nerved, about equal in length, the inner often broader. Stamens 6, hypogynous, shorter than the perianth; filaments filiform or clavate, smooth or more or less papillose- or crispate-roughened; anthers linear, hastate at base, the filament attached in the sinus, usually equalling or longer than the filaments, connate in a cylindrical tube which surrounds the style, intorse. Ovary sessile, three-lobed; style filiform, a little longer than the tube of anthers; stigma small, capitate. Capsule ovoid or oblong, triangular, loculicidal. Seeds numerous, angulate-compressed, black, minutely papillose.—Roots fibrous, clustered, often thickened or fusiform. Leaves basal or rarely the lower part of the stem leafy. Stem scapiform, bracted, simple or branched above, the branches virgate. Flowers yellow or white, on usually slender jointed pedicels in clusters of 1-4 on the stem and its branches, in the axils of chartaceous bracts, each pedicel subtended by a similar smaller bractlet; the clusters in virgate racemes.

a. Filaments smooth; leaves strictly basal, not sheathing the stem, b.
   b. Stem scabrous, 1-4-bracted
   c. Leaves spreading, falcate, 15 cm. or less long
   d. Leaves erect, narrowed at base, more than 15 cm. long, d.
   d. Leaves broad, 2 cm. or more
   d. Leaves narrow, not over 1 cm. wide

1. *E. parviflora*.
2. *E. brevijolia*.
a. Filaments more or less crispate- or papillose-roughened, e.

b. Leaves broad, 0.8–3.5 cm. wide, membranous in drying, soft, the principal nerves usually connected by conspicuous cross-veinlets, f.

c. Stem smooth; flowers chiefly yellow, as far as known, g.

d. Capsule ovoid or short-oblong, 6–9 mm. long, 5–7 mm. broad; inner perianth-segments oblong-lanceolate, little broader than the outer, h.

e. Leaves lanceolate or even ovate-lanceolate, 20–25 cm. long, 2.8–5 cm. wide, not more than 8 times as long as wide.

4. E. macrophylla.

e. Leaves linear or narrowly lanceolate, 24–42 cm. long, 1.2–2.3 cm. wide, at least 12 times as long as wide.

4. E. macrophylla, var. longifolia.

g. Capsule oblong, 1–1.8 cm. long, 4–6 mm. wide; inner perianth-segments ovate or ovate-lanceolate, often much broader than the outer, i.

h. Leaves for the most part sheathing the stem but confined to its base; stem about 2-bracted, j.

i. Leaves narrow, 8–13 mm. wide, k.

k. Leaves usually several (6–10), suberect . 5. E. macrocarpa.

k. Leaves few (2–4), spreading, short in proportion to the stem.

5. E. macrocarpa, var. formosa.

j. Leaves broader, 1.5–2 cm. wide . . . . . . 6. E. reflexa.

i. Stem leafy for about a third of its height, the leaves passing gradually into 3-6 reduced bracts . . . . . . 7. E. paniculata.

f. Stem scabrous, at least below; flowers white . . . . 8. E. albiflora.

e. Leaves narrow, 2–5 mm. wide or less, firm, closely and prominently veined, mostly without visible cross-veinlets, l.

l. Leaves 2–5 mm. wide, minutely scabrous beneath; stem 2-bracted; inflorescence mostly branched . . . . . . . . . . 9. E. flexuosa.

l. Leaves 2 (–2.5) mm. wide or less, scabrous-ciliate on the margins, elsewhere smooth; stem 3–6-bracted; inflorescence mostly simple.

10. E. Pringlei.

1. E. PARVIPLORA Baker. Leaves membranous, linear, not very prominently nervet, 4–8 mm. wide, 6–22 cm. long, suberect or somewhat spreading and falcate; stem scabrous or hirtellous at least below, simple or sometimes with as many as 5 branches; pedicels rather short and stout, in fruit 6–8 mm. long, jointed below the middle or toward the base; filaments smooth; capsule (seen on the Pringle specimen only) broadly oblong, 3.5–5 mm. wide, 6–9 mm. long. — Engl. Bot. Jahrb. viii. 209 (1887). — GUATEMALA: Santa Rosa, alt. 900 m., May, 1892, John Donnell Smith, Pl. Guat., no. 3528. MEXICO: Mt. Orizaba, Cordoba, 830 m., Aug. 20, 1891, Henry E. Seaton, no. 485, in part. State of Guerrero, dry hillsides, near Iguala, alt. 915 m., July 29, 1907, Pringle, no. 10,388.

2. E. BREVIFOLIA Watson. Leaves membranous, with cross-veinlets,
short, 12–15 cm. long, 6 mm. wide, acuminate, spreading and somewhat falcate, not sheathing the stem; stem about 6 dm. tall, smooth, 6-bracted, with few (3–4) branches; pedicels slender, in fruit 11–14 mm. long, jointed below the middle; filaments smooth; capsule short-oblong, 4–4.5 mm. wide, 7–8 mm. long. — Proc. Am. Acad. xxvi. 156 (1891). Phalangium ramosissimum Presl, Rel. Haenk. i. 127 (1825). Anthericum ramosissimum R. & S. Syst. vii. 469 (1829).

Echeandia Haenkeam Kunth, Enum. iv. 629 (1843). — Mexico: State of Jalisco, near Guadalajara, 12 Nov., 1888, Pringle, no. 2151. Dry rocky cliffs of barranca near Guadalajara, 23 Sept., 1891, Pringle, no. 3870. — Flowers apparently small as in E. macrophylla, the perianth-segments narrow, whitish in drying. From Presl's description it seems highly probable that this plant is the same as his Phalangium ramosissimum. In the absence of authentic material, however, I hesitate to make the new combination required by the transfer of Presl's species to Echeandia.

Var. lanceolata, n. var., a forma typica recedit habitu gracilior, foliis angustioribus 6–10 mm. latis, pedicellis 1 cm. longis, capsulis minus- orbibus 3.5 mm. latis 5–6 mm. longis. — Mexico: State of Sinaloa, Copradia, Oct. 20, 1904, Brandegee, type (in Herb. Univ. Cal., sheet no. 119,863). Ymala, Sept. 28 to Oct. 8, 1891, Palmer, no. 1677. Culiacan, Sept. 17, 1904, Brandegee (in Herb. Univ. Cal., sheet no. 119,856). — The name lanceolata was applied to this plant, on herbarium labels, by Mr. Brandegee, who at that time was inclined to regard it as a good species. It seems, however, hardly specifically distinct from E. nodosa. The specimen on sheet no. 119,856 of the University of California Herbarium has broader leaves than the other two plants cited and may be regarded as a transitional form between the extreme development of the variety and typical E. nodosa.

4. E. macrophylla Rose, in hb., foliis omnino radicalibus caulibus vaginantibus lanceolatis 20–25 cm. longis 2.8–5 cm. latis in apicem acuminatum angustatis, caule 7 dm. alto glabro 2-bracteato, ramis 5–6 saepe 2 ex axilla unica, pedicellis infra medium vel prope basin articulatis, floribus parvis, perianthii segmentis 1–1.3 cm. longis
lineari-vel oblongo-lanceolatis latitudine subequalibus, interioribus paulum latioribus acutis, exterioribus obtusiusculis, filamentis clavatis modice crispatis in floribus (novellis) visis quam antherae duplo brevioribus, capsulis ovoidcis 7 mm. longis 5 mm. latis. — MEXICO: State of San Luis Potosi, grassy slopes, Las Canoas, 16 June, 1890, Pringle, no. 3183.

Var. longifolia, n. var., foliis late linearibus 24-42 cm. longis 1.2-2.3 cm. latis saepius solum radicalibus, caule 6.2-9 cm. alto, ramis paucis (1-3), pedicellis 1-2 cm. longis, filamentis antheras aquavitibus vel eis brevioribus, capsulis ovoideis vel breviter oblongis 7-9 mm. longis 5-6 mm. latis, ceteris praecedentibus. — E. terniflora Lindley, Bot. Reg. xiv. Misc. no. 144 (1839), not Ort. E. terniflora Baker, Journ. Linn. Soc. xv. 288 (1877), in part, not Ort.; Hemsel. Biol. Cent.-Am. Bot. iii. 376, in part, not Ort. — MEXICO: State of Oaxaca, vicinity of Choapam, alt. 1150-1400 m., July 28 & 29, 1894, Nelson, no. 910, type (in U. S. Nat. Herb.). State of Vera Cruz, Zacuapan, dry sunny fields, Nov., 1908, Purpus, no. 3761. Orizaba, Botteri, no. 1185. Ibid., Cordoba, 830 m., Aug. 20, 1891, H. E. Seaton, no. 485, in part. Vallée de Cordova, 23 Avril, 1865-66, Bourgeau, no. 2307. VENEZUELA: prope coloniam Tovar, 1854-55, Fendler, no. 1549. The Bourgeau plant has entirely the habit and the fruit of this species, but the filaments are nearly smooth. It seems somewhat transitional between this and the preceding group. — Flowers yellow according to Lindley's description; white with yellow anthers according to a note on Fendler's label. The plant seen by Lindley was possibly E. reflexa, but from his description, seems rather to belong here.

5. E. macrocarpa Greenman. Leaves chiefly basal, suberect, rather narrowly linear, (6) 8-15 mm. broad, membranous, the cross-veinlets usually prominent, long in proportion to the stem, usually 6-10 in number; stem 1-2-bracted, glabrous, simple or few-branched; pedicels jointed below the middle, rather stout, in fruit 1-1.7 cm. long; flowers apparently rather large, the perianth-segments 1.5-1.7 cm. long, the inner ovate-lanceolate; filaments moderately roughened, equalling or slightly longer than the anthers; capsules oblong, 1-1.8 cm. long, 4-6 mm. wide. — Proc. Am. Acad. xxxix. 73 (1903). E. terniflora Hemsel. Biol. Cent.-Am. Bot. iii. 376, in part, not Ort. — MEXICO: State of San Luis Potosi, near Tancanhuitz, May 2, 1898, Nelson, no. 4393, type; region of San Luis Potosi, alt. 1850-2450 m., Parry & Palmer, no. 890. "Mexico," no locality, Ehrenberg, no. 81. "Chiapas, etc.,” Ghiesbrecht, no. 875. Vallée de Mexico, Santa Fé, 6 Juillet, 1865-66, Bourgeau, no. 413. Guanajato, 1880, A. Dugès. State of Oaxaca, vicinity of Cerro San Felipe, alt. 3000-3400 m., 1894, Nelson, no. 1056
A specimen from Mt. Orizaba, 3000 m., Aug. 5, 1891, H. E. Seaton, no. 180, is probably a reduced form of this species. — Flowers yellow according to Ghiesbrecht’s label. Difficult to separate from E. reflexa, except by purely habital characters.


6. *E. reflexa* (Cav.) Rose. Leaves rather closely sheathing the base of the stem, broadly linear, 27–40 cm. long, 1.5–2.2 cm. wide, acuminate, membranous, the cross-veinlets prominent; stem about 7 dm. tall, smooth, rather slender, bearing 2–3 foliaceous bracts, in the single specimen seen with two branches; pedicels jointed below the middle, in fruit 1.4–1.7 cm. long; perianth-segments broad, 1.5 cm. in length; filaments strongly roughened, at least in the young flower shorter than the anthers; capsule (immature) oblong, 1 cm. long, 4 mm. wide.

— Contr. U. S. Nat. Herb. x. 93 (1906). *Anthericum reflexum* Cav. l.c. Pl. iii. 21, t. 241 (1795); Willd. Sp. Pl. ii. 140 (1799). *Echandia terniflora* Ort. Nov. Pl. Dec. 90, 135, & 136, t. 18 (1798); Redouté, Lil. vi. t. 313 (1812); Kunth, Enum. iv. 627 (1843); Baker, Journ. Linn. Soc. xv. 288 (1877), in part; Hemsl. Biol. Cent.-Am. Bot. iii. 376 (1885), in part. *Phalangium reflexum* Poir. Encycl. Meth. Bot. v. 249 (1804). *Conanthera Echandia* Pers. Syn. i. 370 (1805); Link & Otto, l.c. Pl. Rar. 5, t. 3 (1828). — Mexico: State of Morelos, ledges, Sierra de Tepoztlan, near Cuernavaca, alt. 2300 m., August 22, 1906, Pringle, no. 10,289. — Although the form represented by Mr. Pringle’s plant here cited was the first of the genus to be collected, it seems not to be common. His specimen is the only one I have seen which, in its combination of broad leaves, few-branched stem, yellow, rather broad perianth-segments, strongly roughened filaments and oblong capsules, agrees well with Cavanilles’s and Ortega’s plates.

7. *E. paniculata* Rose. Stem tall, with 6–7 panicked branches, leafy above the base for about a third of its height, the leaves passing gradually into 3–6 reduced bracts; leaves membranous, with cross-veinlets, linear, long-attenuate at apex, up to 5 dm. long, 1.5–3 cm. wide; flowers rather large, yellow; perianth-segments 1.5 cm. long; the outer oblong-linear, the inner ovate, 6 mm. wide; filaments clavate, strongly roughened, about equaling the anthers; capsule not seen.

— Contr. U. S. Nat. Herb. x. 93 (1906). — Mexico: State of Morelos,
near El Parque, Sept. 21, 1903, Rose & Painter, no. 844 (in U. S. Nat. Herb., sheets nos. 454,954 & 454,955). — No fruit of this species has been preserved, but its floral characters place it clearly very near E. reflexa. So far as the material at hand shows, it differs from that species only in its more leafy stem and more branched inflorescence and may very probably prove to be no more than a variety of it. — Here are doubtfully placed the specimens from two collections of C. F. Gaumer namely from Yucatan, Izamal, Sept., 1895, no. 843 and Chicankanab, no. 1995 (the latter in Herb. Field Mus. Nat. Hist., sheet no. 58,793). These specimens have neither fruit nor good flowers and in their absence can hardly be placed definitely. They have mostly a much-branched inflorescence, several (7–8)-bracted stem and the leaves pass abruptly into the much reduced bracts. In this respect they differ from E. paniculata; and the branches of the inflorescence are more slender and the flower-buds smaller than in either that species or E. reflexa, although the plants are quite as robust.

8. E. albiflora (Schlecht. & Cham.) Mart. & Gal. Leaves basal, several, lanceolate-linear, narrowed to an acute apex, the principal nerves united by transverse veinlets, membranous, glabrous, about 36 cm. long, 1.8–2 cm. wide; stem scabrous or hirtellous below; inflorescence paniculate; pedicels slender, 10 mm. long, jointed below the middle; flowers white; perianth-segments lanceolate; filaments retrorsely papillose-crispate, equalling the anthers; capsule? — Bull. Acad. Brux. ix. 386 (1842); Kunth, Enum. iv. 628 (1843). Conanthera albiflora Schlecht. & Cham. Linnaea, vi. 50 (1831). Echeandia leucantha Klotzsch, fide Kunth, l. c. — I have seen no material referable to this species. The above description is taken chiefly from that of Kunth.

9. E. flexuosa Greenman. Leaves firm, closely and prominently veined, suberect, minutely scabrous beneath, 2–5 mm. wide, variable in length (reaching 8 dm.), long-acuminate; stem 9 dm. high or less, smooth, 2–3-bracted, the lower bract sometimes elongated and setaceous, reaching 15 cm. in length; pedicels jointed near or below the middle, rather stout, in fruit 12–16 mm. long; flowers rather large with lanceolate perianth-segments; filaments moderately roughened, shorter than or nearly equalling the anthers; capsule oblong, 6–9 mm. long, 3–4 mm. wide. — Proc. Am. Acad. xxxix. 73 (1903). — Mexico: State of Oaxaca, Mts. of Jayacatlan, alt. 1400 m., 10 Sept., 1894, Lucius C. Smith, no. 188. State of Jalisco, Rio Blanco, July, 1886, Palmer, no. 185; bluffs of the barranca of Guadalajara, 1400 m., 19 July, 1902, Pringle, no. 11,197.

10. E. Pringlei Greenman. Leaves firm, closely and prominently
veined, scabrous-ciliate on the margins, elsewhere smooth, 1.5–2 (2.5) mm. wide, 1–3 dm. long; stem 2.7–6 dm. high, slender, glabrous, simple, bearing 3–6 bracts; pedicels jointed near the base, in fruit 10–14 mm. long; filaments moderately roughened, shorter than the anthers; capsule oblong, 3–3.5 mm. wide, 7 mm. long — Proc. Am. Acad. xl. 28 (1904). — Mexico: State of Jalisco, dry calcareous hills above Etzatlan, 2000 m., 24 Oct., 1904, Pringle, no. 8812; grassy plains near Guadalajara, 1500 m., 4 Oct., 1903, Pringle, no. 11,715; hillsides of Zapotlan, alt. about 1500 m., Aug. 8, 1905, P. Goldsmith, no. 122; near Etzatlan, Oct. 2, 1903, Rose & Painter, no. 7544 (in U. S. Nat. Herb.).

**EXCLUDED SPECIES.**


**II. SPERMATOPHYTES, NEW OR RECLASSIFIED, CHIEFLY RUBIACEAE AND GENTIANACEAE.**

By B. L. Robinson.

**Ranunculus trisectus** Eastwood, n. sp.,¹ glaber vel paulo pilosus 1–2 dm. altus simplex vel 2–3-ramosus, ramis ascendentibus; foliis radicalibus orbicularibus trisectis, diametro 2–3 cm., basi reniformibus cum sinu saepissime angusto; segmentis approximatis, medio late cuneato, lateralibus inaequaliter bipartitis, superiore parte trilobata majore; omnibus lobulis similibus oblongis 2–3 mm. latis duplo longioribus, apice et basi callosis, sinubus obtusis; petiolis striatis basi membranaceis dilatatis et persistentibus; foliis caulinis 1–3 sessilibus vel breviter petiolatis 3–5-sectis, segmentis integris vel lobatis, ultimis lobulis oblongo-linearibus ad apicem et sinum callosis, basi petiolorum vel foliorum membranaceo amplexicauli; pedunculis altis, fructiferis

¹ This species, elaborated by Miss Alice Eastwood from material in the Gray Herbarium, is here published at her request.

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