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NORTH AMERICAN SPECIES OF EPILOBIUM SOUTH OF THE UNITED STATES

PHILIP A. MUNZ

The genus *Epilobium* is largely one from the colder parts of the earth. Hence it is not surprising that in the area indicated for this paper there are only a few species. These, however, are rather interesting in extending range from other areas or in being quite local. The present study is partly the result of an opportunity to see various types in European herbaria in connection with other investigations in the family Onagraceae. Acknowledgment is gratefully given to the National Science Foundation Grant 4316 from which a portion of the expense involved was covered. Herbarium specimens cited in this paper are according to the standard abbreviations. To the curators of both American and foreign herbaria I express appreciation of the opportunity to examine material in their care, especially to Dr. A. Pilat of Prague for notes on the type of *E. brachycarpum*.

KEY TO SPECIES

- A. Floral tube not prolonged beyond the ovary; flowers slightly irregular, the petals entire, 10-20 mm. long. 1. *E. angustifolium*
- AA. Floral tube prolonged slightly beyond the ovary; flowers quite regular, the petals notched, mostly smaller.
 - B. Plants glaucous throughout, 0.5-2 dm. tall; petals 3-4 mm. long. Chihuahua. 2. *E. madreense*
 - BB. Plants not glaucous, mostly taller.
 - C. Petals 5-8 mm. long.
 - D. Leaves glabrous on margins; stems with more or less strigulose decurrent ridges and some scattering appressed pubescence between. Durango. 3. *E. mayssilesii*
 - DD. Leaves strigose on margins; stems quite closely strigulose. Costa Rica. 4. *E. meridense*
 - CC. Petals smaller.
 - D. Stems with broad strongly marked pubescent ridges decurrent from the leaf-bases.
 - E. Mature coma cinnamon-colored; seeds about 1.5 mm. long. Santo Domingo. 5. *E. coloratum*
 - EE. Mature coma white; seeds about 1 mm. long. Central Mexico. 6. *E. mexicanum*
 - DD. Stems not usually as above.
 - E. Pubescence generally distributed on the upper stems; inflorescence with some gland-tipped hairs. Central Mexico. 7. *E. brachycarpum*
 - EE. Pubescence mostly lacking on middle and upper stems; inflorescence with nonglandular appressed hairs. Northern Mexico.
 - F. Leaves lanceolate, mostly about $\frac{1}{4}$ - $\frac{1}{6}$ as wide as long. Baja California and Sonora. 8. *E. adenocaulon parishii*
 - FF. Leaves narrowly lanceolate, about $\frac{1}{6}$ - $\frac{1}{10}$ as wide as long. Sonora to Chihuahua. 9. *E. fendleri*

1. EPILOBIUM ANGUSTIFOLIUM L.,

Sp. Pl., 347, 1753.

Chamaenerion angustifolium Scop., Carn. ed. 2, 271, 1772.

E. spicatum Lam., Fl. Fr. 3: 482, 1778.

Perennial from underground rootstocks, the stems mostly simple, few, commonly puberulent above, rather densely leafy above, 6-25 dm. tall; lvs. alternate, lanceolate, subentire, paler beneath, 7-20 cm. long; flowers many in long terminal racemes with small almost linear bracts; pedicels 5-12 mm. long; sepals lance-linear, 8-12 mm. long, commonly canescent-puberulent, tinged lavender; petals lilac-purple to rose, clawed, obovate, 8-18 mm. long; stamens 8, in a single series, often unequal, shorter than petals; style hairy at base, exceeding stamens; capsule 5-8 cm. long, canescent; seeds oblong, 1-1.4 mm. long, with long dingy coma.

Known to me from a single collection in Mexico, NUEVO LEÓN, Municipio de Galeana, Cerro Potosí, on east face of peak at about 3150 m., July 20, 1938, *R. A. Schneider 1040* (F). Common of course from New Mexico and California northward; circumpolar.

2. *EPILOBIUM MADRENSE* Wats.,

Proc. Am. Acad. 23: 274, 1888.

Perennial with slender branching rooting rhizomes; plant glabrous and glaucous; stems slender, ascending, 5-20 cm. high, simple, arising from leafy rosettes; leaves crowded, all except the upper opposite, lanceolate, subpetiolate, acutish, entire or somewhat denticulate, 12-25 mm. long; flowers few to several, on slender pedicels to about 6 or 8 mm. long; floral tube 1.5-2 mm. long; sepals 1.5-2 mm. long; petals 3-4 mm. long, "purplish"; capsule 2-4 cm. long, glabrous or very minutely and sparingly strigulose under magnification; seeds markedly papillose, about 0.6 mm. long, the coma whitish.

Type locality, wet calcareous ledges, Arroyo Ancho, Sierra Madre, CHIHUAHUA, the type collection Oct. 16, 1887, *C. G. Pringle 1245* (GH, K, RSA, US). Another collection from damp calcareous walls of canyons, Sierra Madre, Oct. 2, 1888 is *Pringle 1607* (BM, G, K, MO, P).

The species seems nearest to *E. glaberrimum* Barb. in its glaucousness, branching rootstocks, etc., but is a smaller plant and removed from that species, which ranges from southern California and Utah northward, by many hundred miles.

3. *Epilobium maysillesii* Munz, sp. nov.

(Fig. 1)

Perennial, from creeping, simple or branched rhizomes; stems erect, simple or few-branched in inflorescence, 2.5-4 dm. high, purplish, with more or less strigulose decurrent ridges and some scattering appressed pubescence between; leaves mostly opposite, except the uppermost, lanceolate to lance-oblong, sessile, blunt, slightly denticulate, 15-30 mm. long, 4-7 mm. wide; inflorescence with some appressed nonglandular and some spreading gland-tipped rather minute hairs; pedicels to about 2.5 cm. long in fruit; floral tube 1.5-2 mm. long, purplish; sepals purplish, 4-5 mm. long; petals mostly various shades of pink, 5-8 mm. long; capsule 3.5-5 cm. long; seeds smooth, about 1 mm. long. (Perennis; rhizomis simplicis vel ramosis; caulibus erectis, 2.5-4 dm. altis, subpurpureis, in lineis decurrentibus strigulosis; foliis suboppositis, lanceolatis vel lanceo-oblongis, sessilibus, subdenticulatis, 15-30 mm. longis, 4-7 mm. latis; inflorescentia cum pilis adpressis, glandulosis aut non-glandulosis; pedicellis in fructu ad 2.5 cm. longis; tubo floris 1.5-2 mm. longo, subpurpureo; sepalis subpurpureis, 4-5 mm. longis; petalis subroseis, 5-8 mm. longis; capsulo 3.5-5 cm. longo; seminibus laevibus, ca. 1 mm. longis.)

Type.—"large patches in upper meadow," 12 miles west of El Salto, just east of Las Adjuntas, 2300-2400 m., Aug. 31, 1951, DURANGO, Mexico, *J. H. Maysilles 7604*, RSA no. 117503, isotype MICH.

Other material seen.—DURANGO: El Salto, 2530-2540 m., Aug. 28, 1934, *F. W. Pennell 18281* (PH, US) with somewhat smaller flowers; 11 miles west of El Salto, Aug. 11, 1956, *U. T. Waterfall 12679* (RSA); Metates, north of Cueva, 2650-2700 m., Aug., 1934, *Pennell 18389* (PH, US); without definite locality, *P. Ibaña Garcia 403* (US); Cerro Chupadero, 45 miles south of El Salto and just west of Pueblo Nuevo, in humid oak-pine forest, 2000-2500 m., July 28, 1955, *Maysilles 8241-A* (MICH).

It is a pleasure to name this large-flowered purplish-stemmed strigose-ridged species for

Mr. Maysilles whose two collections first called it to my attention. It suggests *E. mexicanum* but is much showier and considerably farther north in its distribution.

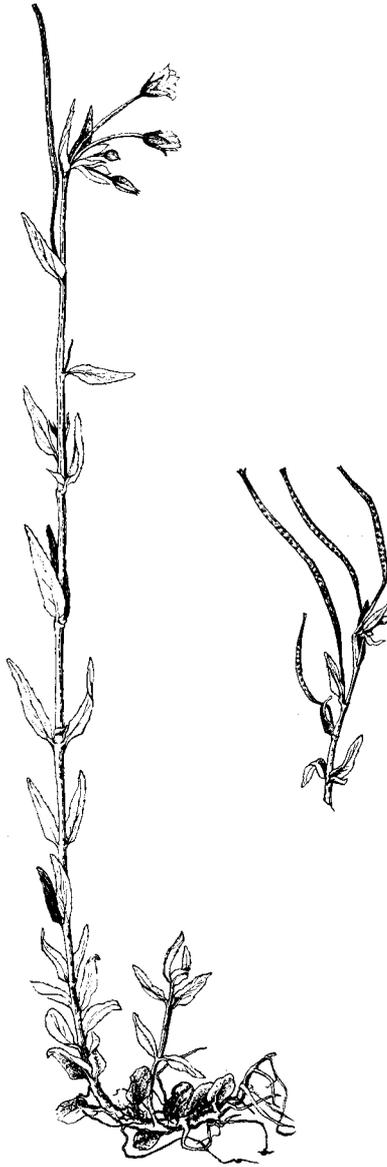


FIG. 1. *Epilobium maysillesii*, habit sketch drawn from Maysilles 8241-A, showing basal leafy innovations, simple erect stems, nodding inflorescence, sessile leaves.

4. *EPILOBIUM MERIDENSE* Hausskn.,
Mon. Epil., 266-267, 1884.

Perennial with leafy innovations bearing opposite oblong sessile leaves; stems simple or branched, slender, more or less woody at base, purplish, strigulose above, largely 1.5-3 dm. long, with leaf bases decurrent as strigose lines; leaves crowded, oblong, the lower opposite, the main cauline 1-2 cm. long, 3-6 mm. wide, somewhat denticulate, strigulose on margins, the uppermost alternate; flowers sparsely strigulose; sepals 3-3.5 mm. long; petals pinkish to pale lavender, 4-5 mm. long; capsules pedicelled, 3.5-5 cm. long, slender; seeds 1-1.2 mm. long, papillose.

Type locality, province Mérida in Venezuela. Distributed from Ecuador to Colombia. The following collections from COSTA RICA seem referable here: San José Province, Cerro de la Muerte, 3600 m., Sept. 17, 1950, *C. W. Dodge & P. H. Allen 5680* (US); Prov. of Cartago, shrub-páramo, Pan-American Highway 5 km. above Millsvale, Cordillera de Talamanca, 3400-3500 m., July 22, 1949, *Holm & Iltis 469* (BM).

It is not surprising to find a species of *Epilobium* from high elevations in northwestern South America in the higher places in Costa Rica. Another example of the same kind of distribution is found in the case of *Fuchsia boliviana* var. *luxurians* Johnston.

5. *EPILOBIUM COLORATUM* Bieler,
Plant. Nov. Herb. Spreng. Cent., 18, 1807;
Muhl. ex Willd., Enum. Hort. Berol., 411, 1809.

E. domingense Urban, Symb. Ant. 7: 532, 1913.

Perennial with sessile leafy basal rosettes; stems ascending to erect, about 5-10 dm. high, mostly much branched in upper parts, glabrous below, strigulose upward in lines from the decurrent leaf-bases and in upper parts also finely glandular pubescent and generally strigulose; leaves well distributed, narrow-lanceolate, long-acuminate, 4-15 cm. long, 0.5-2.5 cm. wide, closely serrulate with many fine teeth, short-petioled, uppermost leaves passing into reduced leafy bracts; inflorescence more or less canescent; sepals 1.5-3 mm. long; petals pink, 3-5 mm. long; capsules slender, pedicelled, 3-5 cm. long; seeds about 1.5 mm. long, the mature coma cinnamon-colored.

Type locality, Pennsylvania. Found in moist places, low grounds, etc. over much of the eastern United States, it is rather surprising to be collected in the island of Santo Domingo. The following specimens seem to me definitely to be assigned to this species: SANTO DOMINGO: Prov. de La Vega, wet places along banks of Río Grande, April 21, 1957, *J. Jiminéz 3559* (US); Río Grande on new road to Valle Nuevo, 1400 m., July 16, 1955, *Jiminéz 3002* (US); Cordillera Central, Prov. de Agua, San Juan, Lomas de la Mediana, Sabaña Nueva, 1950 m., Sept. 17, 1929, *Ekman* (S, US); Valle Nuevo, *Canela 383*, in 1937 (P). HAITI: near Furcy, 1300 m., in 1920, *E. C. Leonard 4817* (US); Massif de la Selle, Marigot near M. Pabaio, 2200 m., Aug. 24, 1924, *Ekman H 1617* (S, US), Pétionville, Fourcy, at 1500 m., *Ekman H 1749* (S, US); headwaters of Rivière Pénaud, *Ekman H 1750* (S).

6. *EPILOBIUM MEXICANUM* Moc. & Sessé ex DC.,
Prod. 3: 41, 1828.

E. repens Schlecht., Linnaea 12: 267, 1838, from the description. Based on a *Schiede* collection from Mt. Orizaba, which I have not seen.

E. doriphyllum Hausskn., Mon. Epil., 257, pl. 16, fig. 74, 1884, from description. Based on *Schmitz 453* from near Mexico, which I have not seen.

E. ostenfeldii Lévl., Fedde Repert. 9: 323, 1911. Based on *Liebman 92*, in herb. Copenhagen and described as having 4-lineate stems. I have seen *Liebman 3292* (C).

Perennial with procumbent sprawling leafy vegetative shoots; stems mostly 3-7 dm. long, erect, glabrous below, with prominent strigose lines above from the decurrent leaf-bases, freely branched; leaves numerous, lance-ovate to lanceolate, sessile or very short-petioled, mostly $\frac{1}{3}$ - $\frac{1}{4}$ as wide as long, minutely and rather evenly serrulate, subacuminate, subglabrous, 2-5 cm. long; inflorescence mostly freely branched, leafy-bracteate; sepals sparsely strigulose, 2-3 mm. long; petals pink, 5-6 mm. long; capsules subglabrous or more

or less strigulose, pedicelled, very slender, mostly 4-5 cm. long; seeds about 1 mm. long, brown, papillose.

Type locality, Mexico. Original description based on a Sessé and Moçoiño drawing and very meager, the drawing quite stylized. In the Sessé and Moçoiño material of Onagraceae loaned me some years ago by the Chicago Museum I found no *Epilobium* under this name or that would help definitely to identify the name. However, because of the rather broad leaves and branching habit shown in the drawing used by De Candolle I am following Samuelsson in his interpretation of the species (Svensk Bot. Tidskr. 17: 292, 1923). Representative herbarium material, MEXICO: HIDALGO, Real del Monte, *Galeotti* 3018 (W); Zimapán, *Galeotti* 3018 (G, P). JALAPA, Pico de Orizaba, *Liebmann* 3290 (GH), *Galeotti* 3026 (G, P, W), *Seaton* 254 (F, GH, US). ZACATECAS, Sierra Madre, *Rose* 2384 (US). MEXICO, Sierra de las Cruces, *Harsbberger* 38 (GH, PH), *Pringle* 4182 (BM, E, F, G, GH, K, MO, P, PH, S, W); Nevada de Toluca, *Balls* B 4988 (MO, US). FEDERAL DISTRICT, Desierto de los Leones, *Munz* 15063 (GH, POM, US), *Lyonnet* 505 (US); below Ojos de Agua, *Balls* 4988 (BM, E, K). MICHOACÁN, Tancitaro, *Hinton* 15649 (GH, PH, US); Morelia, *Arsène in* 1909 (F). MORELOS, Lakes of Zempoala, *Langman* 2691 (PH), *Lyonnet & Chavez* 3402 (US). PUEBLA, Tescmalaquilla, *Balls* 4474 (BM, K, US); Chinantla, *Liebmann* 3292 in part (C), 3293 (US). JALISCO, Nevada de Colima, *McVaugh* 12904 (RSA, US). OAXACA, Sierra de San Felipe, *C. L. Smith* 847 (US), *E. W. Nelson* 1079 (US); 18 miles sw. of Oaxaca, *E. W. Nelson* 1404 (US). GUATEMALA: Dept. SAN MARCOS, Volcán Tajumulco, *Steyermark* 35724 (POM). Dept. HUEHUETENANGO, Sierra Cuchumatanes, *Skutch* 1259 (GH). Dept. CHIMALTENAGO, *Skutch* 638 (US).

The species grows in moist places, at about 2000 to 3700 meters elevation.

7. EPILOBIUM BRACHYCARPUM Presl, Reliq. Haenk. 2: 30, 1835.

E. montezumae Sam., Svensk. Bot. Tidskr. 17: 293, 1923.

E. bonplandianum Authors, not Kunth in Humb., Bonpl., Kunth, Nov. Gen. et Sp. 6: 95, 1823. Based on a South American type.

E. mexicanum var. *paulsenii* Lévl., Bull. Géogr. Bot. 22: 183, 1912, nomen nudum. Based on a specimen from near Puebla, at 2,170 m., Sept. 16, 1907, *Arsène* 1087. I have seen a collection by *Arsène* with similar data, but under number 1887 and assume it is probably the same.

Perennial, simple or branched above, 3-8 dm. high, the stems glabrous below, terete and pubescent above (the hairs generally distributed, not in lines); leaves well distributed, lanceolate, subsessile, mostly about 1/8-1/12 as wide as long, evenly denticulate, subacuminate, subglabrous, mostly 3-7 cm. long, gradually reduced upward into leafy bracts; sepals strigose, 2.5-3 mm. long; petals pinkish, about 4 mm. long; capsules pedicelled, slender, strigulose, 3.5-6 cm. long; seeds brown, papillose, about 1 mm. long.

Type locality, Mexico. If I am correct in my interpretation of Presl's name it will refer to the plant currently being identified as *E. montezumae* over which it has many years priority. The original description states clearly that the leaves were narrow, the upper stems terete and pubescent, certainly separating it from the broader-leaved, lineate *E. mexicanum*. Notes about the type specimen at Prague were kindly sent me by Dr. Pilat and agree. Representative material seen, MEXICO: MEXICO, Temascaltepec, *Hinton* 3291 (BM, F, GH, K, US); Amecameca, *Fisher in* 1924 (F, MO, US); Comunidad, Temascaltepec, *Hinton* 794 (BM, K). FEDERAL DISTRICT, El Rosario, *MacDaniels* 629 (F); Valley of Mexico, *Pringle* 9396 (F, GH, K, MO, US), 6307 (E, GH, K, PH, S, W), *Bourgeau* 41 (F, P); San Angel, *Berlandier* 942 (BM, G, P, US, W), *Schaffner* (P, PH); Talpam, *Arsène* 8861 (F, MO, P, US). PUEBLA, near Puebla, *Arsène* 1887 (MO, US), *Nicolas* 86 (MO, P, US), *Kenoyer A* 420 (US); Nória, *Nicolas in* 1909 (F, G, P). MICHOACÁN, Patzcuaro, *Pringle* 5271 (GH); Morelia, *Arsène* 9836 (US). MORELOS, Cuernavaca, *Pringle* 11453 (C, F, GH, K, US, W). TLAXCALA, San Bernabe Amaxac de Guerrero, *Sharp & Hernandez* 44441 (RSA). OAXACA, Sierra de San Felipe, *C. L. Smith* 847 (MO), *Galeotti* 3050 (P).

The species grows in moist places at elevations of 1500 to 2500 meters.

8. EPILOBIUM ADENOCALON Hausskn. var. PARISHII (Trel.) Munz, Aliso 4: 95, 1958.

E. parishii Trel., Zoe 1: 210, 1890.

E. californicum var. *parishii* (Trel.) Jeps., Man. Fl. Pls. Calif., 670, 1925.

E. californicum Hausskn., Mon. Epil., 260, 1884.

E. palmeri Lévl., Rep. Nov. Sp. 5: 98, 1908.

Perennial, with innovations by leafy rosettes; stems erect, 3-10 dm. high, glabrous below,

with some hair on decurrent lines below the nodes, with a whitish more or less appressed nonglandular pubescence in the inflorescence; mostly weakly branched above; leaves ovate-elliptic-lanceolate, 3-6 cm. long, acute to obtuse, serrulate, rounded into very short flat petioles, about $\frac{1}{4}$ - $\frac{1}{6}$ as wide as long, more or less pubescent; upper leaves gradually reduced; sepals about 2 mm. long; petals white or pink, 2-4 mm. long; capsules slender, pedicelled, 4-6 cm. long, strigulose; seeds obovoid, abruptly short-beaked, about 1 mm. long, papillose.

Type locality, San Bernardino, California. Material seen, MEXICO: BAJA CALIFORNIA, Rancho San Jacinto, 45 miles s. of Ensenada, *Wiggins & Demaree 4730* (F, POM, US); 5 miles nw. of La Grulla, Sierra San Pedro Martir, *Wiggins & Demaree 4850* (POM, US); valley of Mission de San Pedro Martir, *Wiggins 9044* (US); Sierra de Laguna, near Todos Santos, *Brandegee in 1890* (MO); Sierra de San Francisco, *Brandegee 215* (PH, US); La Chuparosa, *Brandegee in 1893* (POM). SONORA, San José Mts., *E. A. Mearns 1678* (US), *C. B. Wolf 2511* (RSA).

Growing in moist places below 2200 meters, from Sonora and Lower California to British Columbia.

9. *EPILOBIUM FENDLERI* Hausskn.,

Mon. Epil., 261, 1884.

Much like *E. adenocaulon* var. *parishii* in aspect, perhaps lower, 2-4 dm. high, often more compactly branched, subglabrous below, strigulose above in the usually branched inflorescence, especially on the lines decurrent from the leaf-bases; leaves rather crowded, mostly 1-2 (-5) cm. long, oblong-lanceolate, subglabrous, with rather few shallow teeth, mostly acutish, subsessile; sepals strigulose, 2-2.5 mm. long; petals pale, 3.5-4 mm. long; capsules pedicelled, canescent-strigulose, slender, 3-5 cm. long; seeds brown, papillose, not beaked.

Type locality, northern New Mexico. Material seen, MEXICO: CHIHUAHUA, Sierra Madre near Colonia García, *Townsend & Barber 167* (BM, E, F, G, K, MO, P, POM, US), 225 (BM, E, F, MO, P, POM, US); Río Chico, *Le Sueur 1406* (F, MO, US); Marsh Lake, Sierra Madre, *M. E. Jones in 1903* (POM); San Diego Canyon, Sierra Madre, *Jones in 1903* (POM); Meadow Valley, Sierra Madre, *Jones in 1903* (POM). COAHUILA, Del Carmen Mts., *E. G. Marsh Jr. 742* (F).

Growing in moist places, at about 2000 to 2600 meters elevation.

A NEW SPECIES OF *OENOTHERA* FROM MEXICO

PHILIP A. MUNZ

Oenothera maysillesii Munz, sp. nov.

(Fig. 1)

Perennial from an elongate woody taproot, the crown simple or few-branched; basal leaves few to several, rhombic-ovate, grayish-strigose above and beneath with rather stiff hairs, evenly serrulate, acute, the blades 2.5-5 cm. long, 1-3 cm. broad, with about 5-7 main veins on each side of the midrib, gradually narrowed basally into broad petioles 0.5-1.5 cm. long; stems arising from basal axils, one to few, prostrate, slender, rather coarsely and unequally strigose, mostly 1-2.5 dm. long, rather equally leafy with subsessile ascending lance-elliptic to ovate-elliptic serrulate strigose leaves 1-2 cm. long; flowers apparently solitary on the runnerlike stems, borne in one of the lower axils, yellow, day-blooming; ovary sessile, grayish-strigose, elongate, about 1 cm. long, 4-loculed; floral tube very slender, erect, about 7-9 cm. long, with more or less appressed, rather coarse but not stiff, hairs without, glabrous within; sepals lance-linear, 3-3.5 cm. long, more or less loosely strigose, the tips free, subulate, 3-5 mm. long; petals obovate, 2.5-3 cm. long; stamens 8, somewhat unequal, 1.6-2.2 cm. long; anthers linear, 7-8 mm. long; pistil extended to about the tips of the petals, the linear stigma-lobes 4-5 mm. long; capsule and seeds not seen.

Perennis; caudice suffruticoso, simplice vel ramoso; foliis basalibus paucis vel multis,