

## SYNOPSIS OF THE NORTH AMERICAN SPECIES OF *LOESELIA* (POLEMONIACEAE)

B.L. Turner

Department of Botany, University of Texas, Austin, Texas 78713 U.S.A.

### ABSTRACT

A synoptic treatment of the North American (mostly Mexican) species of *Loeselia* is presented. Fourteen species are recognized: *Loeselia caerulea*; *L. ciliata*; *L. cordifolia*; *L. glandulosa* (with two varieties, var. *glandulosa* and var. *conglomerata*); *L. grandiflora*; *L. greggii*; *L. hintoniorum* B.L. Turner, *sp. nov.*; *L. involucrata*; *L. mexicana*; *L. nepetifolia*; *L. pumila*; *L. purpusii*; *L. rupestris*; and *L. rzedowskii*. A key to species and a complete synonymy is provided, along with distributional maps.

KEY WORDS: Polemoniaceae, *Loeselia*, México

*Loeselia* is a taxonomically difficult genus largely confined to México, although a single species (*L. glandulosa* [Cav.] G. Don) extends southwards as far as Venezuela in South America. In Brand's (1907) account of the genus, he recognized twelve species in two sections, sect. *Loeselia* with eight species and sect. *Giliopsis* with four species. In spite of its mostly suffruticose habit, Standley (1924) provided a synopsis of the genus for the *Trees and Shrubs of Mexico* in which twelve species were recognized. Grant (1959) was the last to touch upon the genus in an inclusive sense. He removed sect. *Giliopsis* from *Loeselia*, positioning the latter in his tribe Bonplandieae, along with only one other genus, *Bonplandia*. Grant recognized nine species in *Loeselia*, eight of these placed in the section *Loeselia* and one, *L. grandiflora* Standley, making up the newly proposed section *Glumiselia*. In addition, through a lapse (1967, p. 145) he excluded *L. purpusii* T.S. Brandegees from the genus, equating this with *Gilia purpusii* T.S. Brandegees, the latter a well defined taxon unrelated to the former (*cf.* Turner 1993).

The present contribution, in which fourteen species are recognized, was stimulated by my attempts to identify a large number of unidentified sheets



of *Loeselia* from México at LL, TEX, made especially frustrating by the inadequate treatments of both Brand and Standley. My study is based upon the examination of several hundred or more sheets of *Loeselia* on file at F, LL, and TEX. These have all been annotated and serve as the basis for the distributional maps (Figures 1-6).

### LOESELIA L.

*Loeselia* L., *Gen. Pl.*, ed. 5. 276. 1754. Type: *L. ciliata* L.

*Hoitzia* Juss., *Gen. Pl.* 136. 1789. Type: *H. mexicana* Lam.

My concept of the genus is essentially the same as that of Grant (1959), there being no need to modify the description which he provided.

### KEY TO LOESELIA

1. Corollas scarlet or deep red. .... 9. *L. mexicana*
1. Corollas white, pink, lilac, blue or yellow. .... (2)
  2. Corollas yellow, the lobes densely arachnoid-tomentose; Nayarit, northern Jalisco. .... 14. *L. rzedowskii*
  2. Corollas white, pink, lilac or lavender, very rarely yellow, if so the lobes  $\pm$  glabrous. .... (3)
3. Flowers (with associated bracts) arranged single and axillary along the stem forming elongate, often secund racemes, the flowering units bent or reflexed from the axis of the pedicels. .... (4)
3. Flowers not disposed as in the above, the flowers arranged two or more in compact clusters, or if single then borne erect on the pedicels. .... (5)
  4. Larger floral bracts mostly ovate to oblanceolate in outline, at maturity markedly reticulate-venose, the surfaces between the veins tissue paper-like; stems eglandular, the hairs puberulous to incurved. .... 1. *L. caerulea*
  4. Larger floral bracts mostly lanceolate in outline, not as described in the above; stems densely glandular-pubescent. .... 11. *L. pumila*
5. Capsules 5-6 mm long, their apices markedly glandular-capitate; seeds markedly winged, 3-5 to each locule; southernmost Puebla. ....
  - ..... 12. *L. purpusii*



5. Capsules 2-4 mm long, their apices glabrous or obscurely pubescent; seeds not or but weakly winged, 1-2 to each locule. ....(6)
  6. Outer or surrounding bracts of flowers or flower-clusters linear-lanceolate, mostly 0.5-1.5 mm wide. ....(7)
  6. Outer or surrounding bracts of flowers or flower clusters ovate to orbicular, mostly 2-10 mm wide. ....(10)
7. Midstems to some considerable extent glandular-pubescent; corolla lobes mostly 8-16 mm long; widespread. ....(9)
7. Midstems mostly eglandular-pubescent; México, Veracruz, Guerrero, Oaxaca, and Chiapas. ....(8)
  8. Flowers arranged in units of 3 or more, each borne upon pedicels 1-3 mm long; Veracruz, Oaxaca, Chiapas. .... 10. *L. nepetifolia*
  8. Flowers single, each borne upon pedicels 5-20 mm long forming an open panicle; México, Guerrero. .... 5. *L. grandiflora*
9. Flowers mostly arranged in clusters of 2 or more, the pedicels mostly 1-2 mm long; mostly southern México (Figure 5). ....
  - ..... 4b. *L. glandulosa* var. *conglomerata*
9. Flowers mostly borne single on pedicels 2-10 mm long; mostly western México (Sonora to México State) (Figure 5). ....
  - ..... 4a. *L. glandulosa* var. *glandulosa*
10. Midstem leaves subsessile or clasping, their blades cordate at the base. ....(11)
10. Midstem (but not upper) leaves petiolate, not clasping, their blades acute to obtuse at the base, tapering upon the petioles. ....(12)
11. Ovary glabrous; upper portion of plants with mostly alternate leaves and alternate branching; interior Michoacán and Guerrero (Figure 1). ....
  - ..... 7. *L. hintoniorum*
11. Ovary pubescent at apex; upper portion of plants with mostly opposite leaves and opposite branching; Pacific slopes of Jalisco, Colima, and Michoacán (Figure 1). .... 3. *L. cordifolia*
12. Suffruticose sprawling herbs 10-30 cm high; larger associated bracts of flower clusters about as long as wide, at maturity the interveinal areas markedly tissue paper-like; central Plateau of northcentral México (Figure 3). .... 6. *L. greggii*



12. Stiffly erect brittle-stemmed suffruticose herbs 40-150 cm high; larger associated bracts of flower clusters mostly longer than wide, at maturity the interveinal areas often chartaceous but scarcely tissue paper-like (except in *L. rupestris*); westernmost and southern México. .... (13)
13. Longer lateral ciliations of outer floral bracts mostly 2-4 mm long; corollas white to creamy white, mostly 10-16 mm long; Veracruz, Guerrero, Oaxaca, Chiapas. .... 2. *L. ciliata*
13. Longer lateral ciliations of outer floral bracts mostly 1.0-1.5(-2.0) mm long; corollas mostly white, creamy white, lavender to purple; Pacific slopes of México (Baja California, Sonora, and Chihuahua south to Oaxaca). .... (14)
14. Floral bracts with 3-5 spinose teeth or lobes, marginal setae absent; vestiture ca. 1 mm high, the hairs glandular. .... 13. *L. rupestris*
14. Floral bracts not as described for *L. rupestris*; vestiture 0.2-0.5 mm high, the hairs eglandular. .... 8. *L. involucrata*

1. *LOESELIA CAERULEA* (Cav.) G. Don, *Gen. Syst. Gard.* 4:248. 1837. BASIONYM: *Hoitzia caerulea* Cav., *Icon.* 4:45, t. 366. 1798. *Cantua caerulea* (Cav.) Poir, *Encycl. Meth. Bot.* 10:81. 1811. TYPE: MEXICO. Guanajuato: vicinity of Guanajuato, 1787-1798, *Nee s.n.* (HOLOTYPE: M; Isotype: F!). Publication date, locality, and collector from MA specimen (cf. Garilleti 1993).

*Hoitzia scariosa* Mart. & Gal., *Bull. Acad. Sci. Brux.* 12:274. 1845.  
*Loeselia scariosa* (Mart. & Gal.) Walp., *Rep. Bot.* 6:527. 1846.  
 TYPE: MEXICO. Puebla: Tehuacán, 1840, *H. Galeotti 638* (LECTOTYPE [selected here]: BR!).

This is a widespread relatively uniform species having a relatively low bushy habit and small narrowly lanceolate leaves. *Loeselia caerulea* appears closely related to *L. pumila* (Mart. & Gal.) Walp., both possessing similar habits, foliage and inflorescences.

2. *LOESELIA CILIATA* L., *Sp. Pl.* 628. 1753.  $\equiv$  *Hoitzia loeselia* Spreng., *Syst.* 1:626. 1825. TYPE: MEXICO. Veracruz: w/o locality [probably in vicinity of the coastal city of Veracruz], 1729, *Houstoun s.n.* (HOLOTYPE: L).



*Hoitzia aristata* H.B.K., *Nov. Gen. & Sp.* 3:164. 1818. *Loeselia aristata* (H.B.K.) G. Don, *Gen. Syst. Gard.* 4:248. 1837. TYPE: MEXICO. w/o specific locality, 1803-1804, *Humboldt & Bonpland s.n.* (HOLOTYPE: P, microfiche TEX!).

*Hoitzia lupulina* Hook. & Arn., *Bot. Beechey's Voy.* 441. 1841. TYPE: NICARAGUA. Realejo, 1828, *Sinclair s.n.* (LECTOTYPE [designated here]: K!). In the protologue two collections were cited (one from Realejo, the other from Acapulco), both presumably collected by Sinclair.

*Loeselia ciliata* L. var. *echinophylla* Brand, *Pflanzenreich* 4(250):178. 1907. TYPE: MEXICO. w/o date, w/o locality, *Seltener s.n.* (HOLOTYPE: B, destroyed).

This taxon is closely related to *Loeselia involucrata* G. Don and most workers have confused the two, except for Hemsley (1899) and Brand (1907) who maintained both species (cf. discussion under *L. involucrata*). *Loeselia ciliata* is apparently mostly confined to rather lowland tropical habitats from 10 to 1,000 meters, to judge by a large range of collections from southern México and Central America (Figure 2).

3. *LOESELIA CORDIFOLIA* Hemsl. & Rose, Hook. Icon. 26: t. 2551. 1899. *Loeselia amplexans* (Hook. & Arn.) Benth. ex DC. forma *cordifolia* (Hemsl. & Rose) Brand, *Pflanzenreich* 4(250):178. 1907. TYPE: MEXICO. Jalisco: Tepic, 1862, *E. Palmer s.n.* (HOLOTYPE: K; Isotype: US).

Both Brand (1907) and Standley (1924) placed this well-marked taxon in synonymy with *Loeselia amplexans* (= *L. involucrata*), in spite of the convincing data (including illustrations) provided by Hemsley & Rose justifying its recognition. The latter workers knew *L. cordifolia* only by type material. I have examined numerous newly assembled specimens of *L. cordifolia*, all showing pubescent ovaries and midstem leaves with cordate, subsessile bases. These include: Colima: *Acevedo & Lopez 1146* (TEX). Jalisco: *Panero 4537* (TEX); *Sanders 10444* (TEX). Michoacán: *Hinton et al. 13653* (LL); etc.

*Loeselia cordifolia* superficially resembles *L. hintoniorum* B.L. Turner, but the latter has glabrous ovaries and, of course, has the upper leaves and branching consistently alternate in arrangement, as noted in my key to species.

4. *LOESELIA GLANDULOSA* (Cav.) G. Don, *Gen. Syst. Gard.* 4:248. 1837. *Hoitzia glandulosa* Cav., Icon. 4:45, t. 367. 1798. *Cantua glandulosa* (Cav.) Poir., *Encycl. Meth. Bot.* 10:30. 1844. TYPE: MEXICO.





Figure 1. Distribution of *Loeselia caerulea* (open circles), *L. cordifolia* (closed circles), and *L. hintoniorum* (triangles).



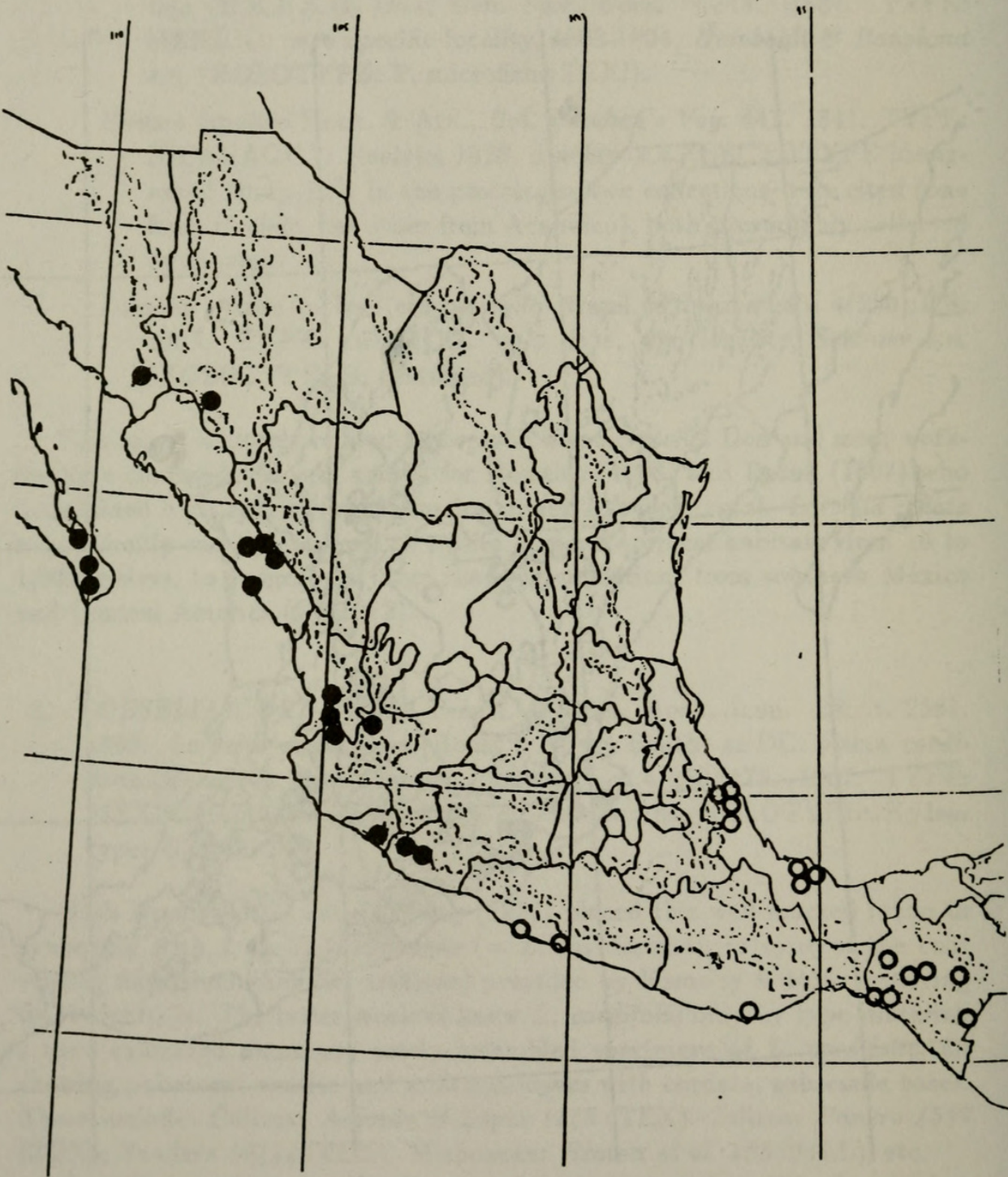


Figure 2. Distribution of *Loeselia ciliata* (open circles) and *L. involucreta* (closed circles).



México [or Michoacán]: "inter Actopan et Salvadierra", 1787-1796, *Nees* n. (HOLOTYPE: MA, according to Garilleti 1993; Isotype: F!). Actopan is in the present state of Puebla, while Salvaterra is in Michoacán; geographical considerations (Figure 5) suggest that the plant was collected in the state of México or Michoacán.

This is a widespread highly variable taxon and was treated by Brand (1907) as comprised of four varieties occupying two subspecies as follows:

1. Flowers arranged single or in few-flowered heads; leaves lanceolate [subsp. *cervantesii*]. ..... (2)
1. Flowers arranged in few- to numerous-flowered heads; leaves mostly ovate subsp. *conglomerata* [= subsp. *glandulosa*]. ..... (3)
  2. Stems subsimple, glabrous or glabrate. .... var. *nepetifolia*
  2. Stems pubescent, much-branched. .... var. *ramosissima*
3. Leaves glabrous to sparsely hirsute. .... var. *scabra*
3. Leaves densely hirsute. .... var. *hirsuta*

I recognize Brand's var. *nepetifolia* as a distinct species, although Standley (1924) retained this taxon under his concept of *L. glandulosa*. As indicated in my key to taxa, only two infraspecific categories of *L. glandulosa* are recognized as follows.

#### 4a. *LOESELIA GLANDULOSA* (Cav.) G. Don var. *GLANDULOSA*

The type of this name applies to individuals and/or populations having nonconglomerate flowers, their pedicels (1-)2-7 mm long. Early on I had intended to apply a new specific name to such populations, but examination of the type and discovery of  $\pm$  intermediate individuals from the states of Morelos, Michoacán, and Jalisco has convinced me that only two intergrading morphogeographical entities are involved, var. *glandulosa* and var. *conglomerata*.

- 4b. *LOESELIA GLANDULOSA* (Cav.) G. Don var. *CONGLOMERATA* (H.B.K.) Brand, *Pflanzenreich* 4(250):177. 1907. BASIONYM: *Hoitzia conglomerata* H.B.K., *Nov. Gen. & Sp.* 3:164. 1818. *Loeselia conglomerata* (H.B.K.) G. Don, *Gen. Syst. Gard.* 4:248. 1837. *Loeselia glandulosa* (Cav.) G. Don var. *conglomerata* (H.B.K.) Brand, *Pflanzenreich*



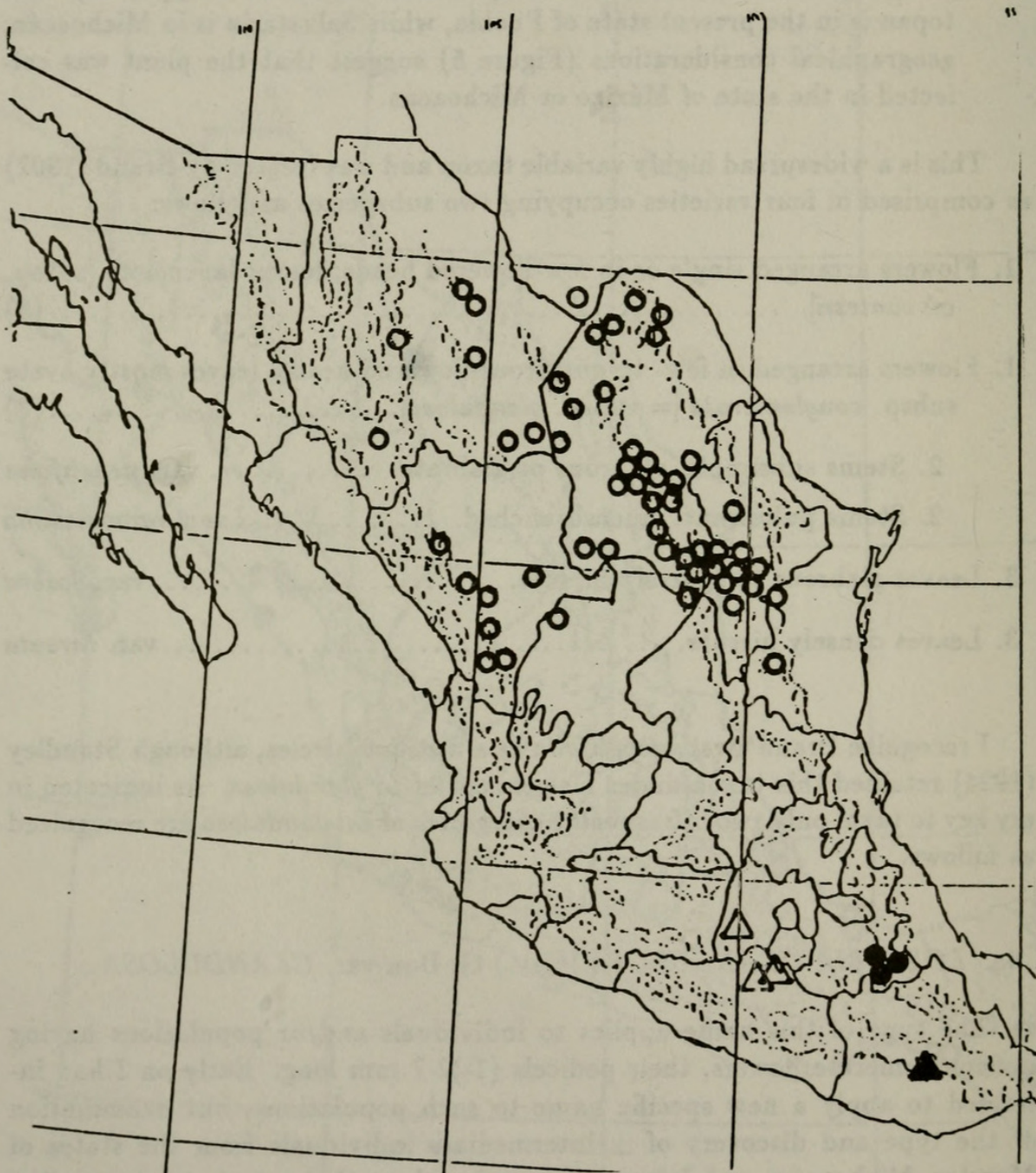


Figure 3. Distribution of *Loeselia greggii* (open circles), *L. grandiflora* (open triangles), *L. purpusii* (closed circles), and *L. rupestris* (closed triangles).



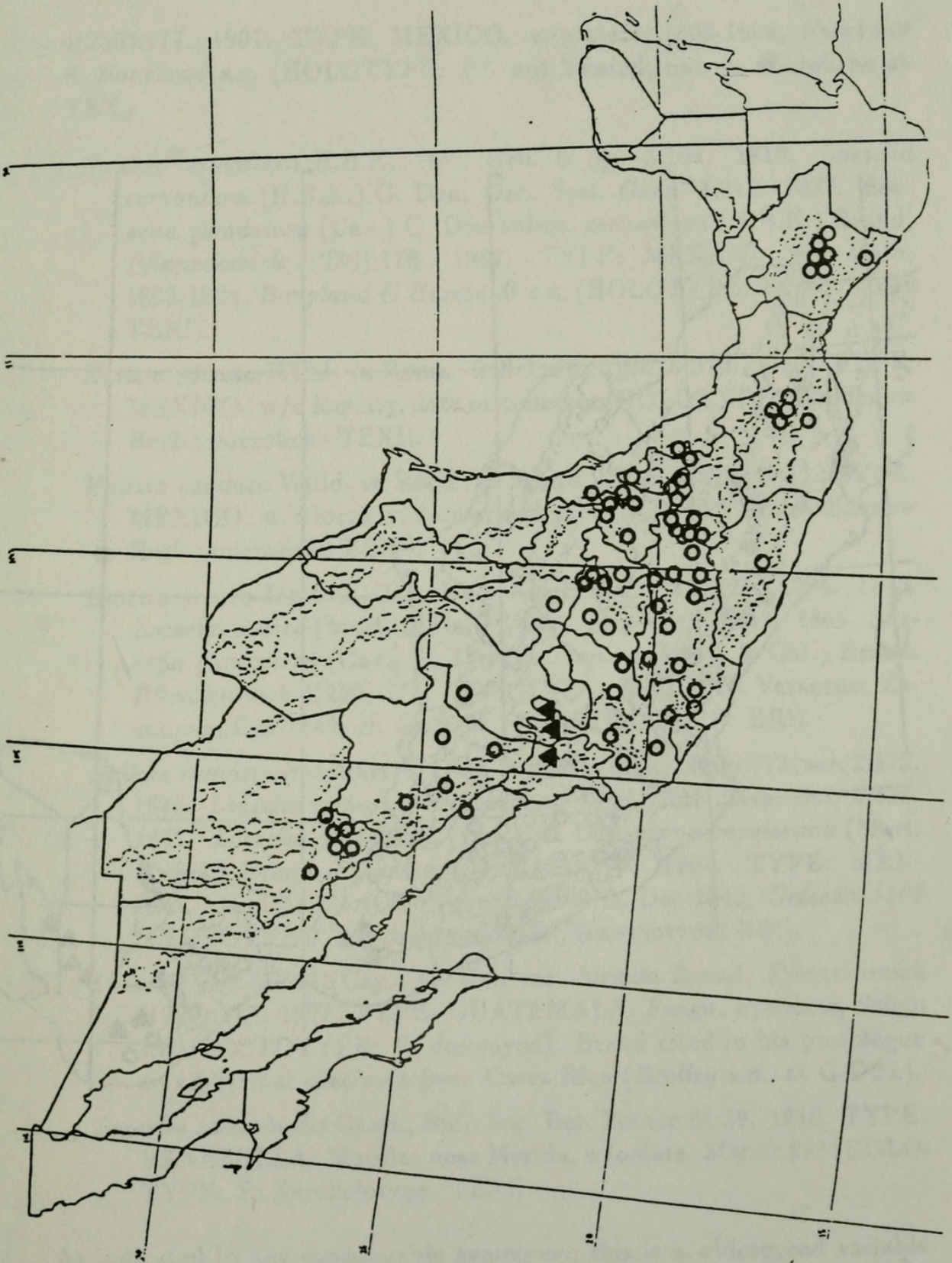


Figure 4. Distribution of *Loeselia mexicana* (circles) and *L. rzedowskii* (triangles).



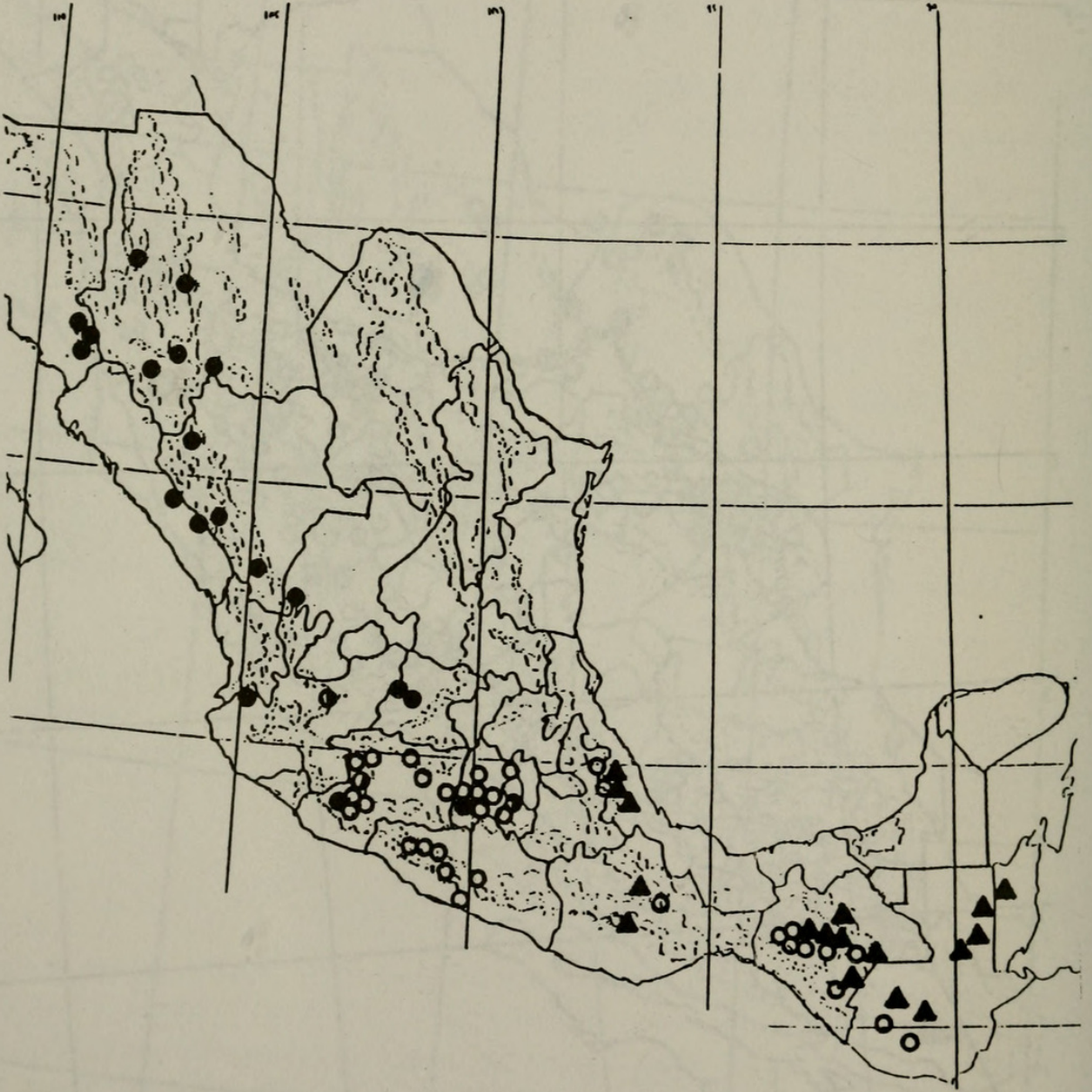


Figure 5. Distribution of *Loeselia glandulosa* var. *glandulosa* (closed circles), *L. glandulosa* var. *conglomerata* (open circles), and *L. nepetifolia* (triangles). Collections of *L. g.* var. *conglomerata* from Costa Rica and Venezuela not shown.



4(250):177. 1907. TYPE: MEXICO. w/o state, 1803-1804, *Humboldt & Bonpland s.n.* (HOLOTYPE: P?, not located; not on microfiche at TEX).

*Hoitzia cervantesii* H.B.K., *Nov. Gen. & Sp.* 3:164. 1818. *Loeselia cervantesii* (H.B.K.) G. Don, *Gen. Syst. Gard.* 4:248. 1837. *Loeselia glandulosa* (Cav.) G. Don subsp. *cervantesii* (H.B.K.) Brand, *Pflanzenreich* 4(250):176. 1907. TYPE: MEXICO. w/o state, 1803-1804, *Bonpland & Humboldt s.n.* (HOLOTYPE: P; microfiche TEX!).

*Hoitzia spicata* Willd. in Roem. & Schult., *Syst.* 4:370. 1819. TYPE: MEXICO. w/o locality, date or collector (HOLOTYPE: Willdenow Herb.; microfiche TEX!).

*Hoitzia capitata* Willd. in Roem. & Schult., *Syst.* 4:370. 1819. TYPE: MEXICO. w/o locality, date or collector (HOLOTYPE: Willdenow Herb.; microfiche TEX!).

*Hoitzia scabra* Mart. & Gal., *Bull. Acad. Brux.* 12, ser. 2:294. 1845. *Loeselia scabra* (Mart. & Gal.) Walp., *Rep. Bot.* 6:317. 1846. *Loeselia glandulosa* (Cav.) G. Don var. *scabra* (Mart. & Gal.) Brand, *Pflanzenreich* 4(250):177. 1907. TYPE: MEXICO. Veracruz: Zacuapan, Oct 1840, *H. Galeotti 7052* (HOLOTYPE: BR!).

*Hoitzia ramosissima* Mart. & Gal., *Bull. Acad. Sci. Brux.* 12, ser. 2:172. 1845. *Loeselia ramosissima* (Mart. & Gal.) Walp., *Rep. Bot.* 6:526. 1847. *Loeselia glandulosa* (Cav.) G. Don var. *ramosissima* (Mart. & Gal.) Brand, *Pflanzenreich* 4(250):177. 1907. TYPE: MEXICO. Oaxaca: Sierra de Yavezia, 7000 ft, Dec 1842, *Galeotti 1453* (LECTOTYPE [selected here]: BR!; Isolectotype: BR!).

*Loeselia glandulosa* (Cav.) G. Don var. *hirsuta* Brand, *Pflanzenreich* 4(250):177. 1907. TYPE: GUATEMALA. Fuego, w/o date, *Salvin s.n.* (LECTOTYPE: B, destroyed). Brand cited in his protologue an additional specimen from Costa Rica (*Brolley s.n.*, at G-DEL).

*Loeselia columbiana* Gand., *Bull. Soc. Bot. France* 65:59. 1918. TYPE: VENEZUELA. Merida: near Merida, w/o date, *Moritz 995* (HOLOTYPE: P; Xeroholotype: TEX!).

As indicated by the considerable synonymy, this is a widespread variable taxon which intergrades with var. *glandulosa*. It is largely confined to tropical and subtropical North America, except for a collection from South America described as *Loeselia columbiana*. Brand (1907) cites five collections from Costa Rica and Nicaragua which are not shown in Figure 5.



5. *LOESELIA GRANDIFLORA* Standley, J. Wash. Acad. Sci. 17:527. 1927.  
TYPE: MEXICO. Guerrero: Achotla, 700 m, Jan 1927, *B.P. Reko 5100*  
(HOLOTYPE: US).

This is a very distinctive taxon as indicated by Standley in his original description, the plant known to him only by the type and an additional Reko collection (5057 [US]) from the same general area. I have examined two additional collections as follows: Guerrero: Nicolas del Oro, ca. 1200 m, 13 Jan 1938, *Mexia 9105* (F). México: Distr. Temascaltepec, Platanal, 8 Feb 1933, *Hinton 3353* (F).

In his original description Standley notes the taxon to be a suffruticose herb "probably 60 cm tall", but the *Mexia* collection, cited above, describes the plant as a "strict shrub up to 2.5 m high", while label data on the Hinton plant describe it as "1.5 m leaning". The species has a very distinct diffuse panicle inflorescence, unlike those of any other taxon in the genus.

6. *LOESELIA GREGGII* S. Watson, Proc. Amer. Acad. Arts 18:117. 1883.  
TYPE: MEXICO. Coahuila: Saltillo, 1879-1880, *E. Palmer 1063* (LECTOTYPE [selected here]: GH; Isolectotype: F!). Two collections were cited in Watson's protologue, the lectotype, and *Gregg 360*.

Most workers (e.g., Standley 1924; Correll & Johnston 1970) have followed Brand (1907) in accepting *Loeselia greggii* as synonymous with *L. scariosa*, but the type of the latter belongs to *L. caerulea*, the original material from southern Puebla.

7. *LOESELIA HINTONIORUM* B.L. Turner, *sp. nov.* TYPE: MEXICO. Guerrero: Dist. Mina, Chilacayote-Carrizal, by river, 1400 m, 2 Dec 1939, *Hinton et al. 14941* (HOLOTYPE: LL!; Isotype: TEX!).

*Loeseliae cordifoliae* Hemsley & Rose similis sed ovariiis glabris (vs. pubescentibus) et foliis superis plerumque alternatis (vs. oppositis) differt.

Erect suffruticose herbs mostly 0.5-1.0 m high. Stems hirsutulous, glandular or eglandular, to glabrate. Leaves (at mid-stem) mostly opposite and subsessile, broadly lanceolate, 3-5 cm long, 1.5-2.0 cm wide, serrulate; upper leaves alternate, cordate and markedly clasping. Flowers 3-10, arranged in bracteate clusters at the apices of alternate branches. Outer bracts of clusters cordate, glabrous, white-splotched below, ca. as wide as long, their marginal spines 0.5-1.5 mm long. Calyces glabrous 7-8 mm high; sepals united for 3-4 mm, the free portions 3-nervate, acuminate awned, the awns ca. 2 mm long.



Corollas white to pink, 15-25 mm long; tubes 8-12 mm long; lobes 10-15 mm long. Ovary ovoid, glabrous. Capsules obpyramidal, glabrous, ca. 3.5 mm long; seeds (immature) ca. 1 mm long.

ADDITIONAL SPECIMENS EXAMINED: MEXICO. Guerrero: road to Cd. Altamirano from Zihuatenejo, 38 km N on Coastal hwy 200, 20 Nov 1983, *Barrie 632* (TEX); Manchon, 1700 m, 21 Apr 1937, *Hinton et al. 10078* (LL); Vallecitos, 20 Nov 1937, *Hinton et al. 11574* (LL); along route 134, 20.9 km N of San Antonio, 1950 m, 11 Jan 1992, *Prather 1219* (TEX); along hwy 134, ca. 40-50 mi NE of junction with hwy 200, 14 Jan 1989, *Woodruff 757* (TEX). Michoacán: Mpio. Uruapan, La Tzararacua, lado N de la Presa, pine-oak forest, near the river, 1600 m, *Magana 255* (F,TEX).

*Loeselia hintoniorum* is closely related to the lower elevational, more coastal, *L. ciliata*, (10-1000 m vs. 1000-2000 m) but is readily distinguished from the latter by its strongly clasping, alternate cordate upper leaves, the midstem leaves subsessile with blades rounded at the base. Vegetatively, it is superficially similar to *L. cordifolia*, but the latter is readily distinguished by its pubescent ovaries and upper leaves opposite throughout or nearly so.

It is a pleasure to name this taxon for the remarkable Hinton family, well known Mexican plant collectors, who first collected the species.

8. *LOESELIA INVOLUCRATA* G. Don, *Gen. Syst. Gard.* 4:248. 1837.  
TYPE: MEXICO. Nayarit: vicinity of Tepic, 1827-1828, *Lay s.n.* (type material not located).

*Hoitzia amplexens* Hook. & Arn., *Bot. Beechey's Voy.* 441. 1841.  
*Loeselia amplexens* (Hook. & Arn.) Benth. ex DC., *Prodr.* 9:320.  
1845. TYPE: MEXICO. Nayarit: between San Blas and Tepic, 1828, *Sinclair s.n.* (HOLOTYPE: K!).

As noted by Hemsley (1899), most workers up to that date (and thereafter!) tended to place *Loeselia involucrata* in synonymy with *L. ciliata*. This problem (along with informative illustrations) is amply discussed by Hemsley in his description of *Loeselia cordifolia*. Nevertheless, Brand (1907) maintained both *L. involucrata* (including elements of *L. cordifolia*) and *L. ciliata*, as did Standley (1924), who opined "There does not appear to be any essential difference between the two forms". While I have maintained *L. involucrata* as distinct from the very closely related *L. ciliata*, future workers might reduce *L. involucrata* to varietal status under the latter, the two taxa largely distinguished by habit and length of ciliations on the floral bracts.

I am unable to distinguish *Loeselia amplexens* from *L. involucrata*. Hemsley & Rose, in their original description of *L. cordifolia*, compared this with *L. amplexens*, noting that the former has a pubescent ovary and cordate nearly



sessile midstem blades. Indeed, a comparative sketch of *L. amplexens* was provided by Hemsley & Rose, along with their illustration of *L. cordifolia*. Comparison of the former with their illustration of *L. involucrata* (which follows their account *L. cordifolia*) will show little difference between the two, except that the upper leaves of *L. amplexens* are shown to be amplexicaule, a characteristic also found in a wide assemblage of plants referred to as *L. involucrata* in the present treatment.

As shown in Figure 2, I include here a single late-flowering collection from Chihuahua (Mpio. Batopilas, *Bye 3574* [TEX]) having very thick, nearly enervate floral bracts that perhaps represents an undescribed taxon.

9. *LOESELIA MEXICANA* (Lam.) Brand, *Pflanzenreich* 4(250):174. 1907. *Hoitzia mexicana* Lam., *Encycl. Meth. Bot.* 3:134. 1789. TYPE: MEXICO. w/o specific locality, date or collector (HOLOTYPE: P-JU; microfiche TEX!).

*Hoitzia coccinea* Cav., *Icon.* 4:44, t. 365. 1797. *Cantua coccinea* (Cav.) Poir., *Encycl. Meth. Bot.* 10:80. 1811. *Loeselia coccinea* (Cav.) G. Don, *Gen. Syst. Gard.* 4:247. 1837.  $\equiv$  *Cantua hoitzia* Willd., *Sp. Pl.* 1:878. 1797. TYPE: MEXICO. w/o state, 1787-1795, *Sessé & Moçino s.n.* (HOLOTYPE: MA; Isotype: F!).

*Loeselia mexicana* (Lam.) Brand var. *lutea* Brand, *Pflanzenreich* 4(250):174. 1907. TYPE: MEXICO. w/o state, w/o date, *Schaffner 110* (HOLOTYPE: B, destroyed).

This is a widespread exceedingly uniform species presenting few taxonomic problems. Based upon habit and fruit structure it appears to be most closely related to the narrow endemic, *Loeselia purpusii* T.S. Brandege.

Standley (1924) notes that "A form with yellow flowers, growing about the city of Mexico, is *L. mexicana lutea* Brand. A specimen from Tlaxcala [US!] is said to have nearly white flowers." In addition, Standley notes several common names for the species, as well as numerous economic uses, including its use by early inhabitants as a substitute for soap.

10. *LOESELIA NEPETIFOLIA* (Cham. & Schlecht.) G. Don, *Gen. Syst. Gard.* 4:248. 1837. BASIONYM: *Hoitzia nepetifolia* Cham. & Schlecht., *Linnaea* 6:385. 1834. *Loeselia glandulosa* (Cav.) G. Don var. *nepetifolia* (Cham. & Schlecht.) Brand, *Pflanzenreich* 4(250):176. 1907. TYPE: MEXICO. Veracruz: between "Misatlan" and "Calipana", Feb 1819, *Schiede & Deppe s.n.* (HOLOTYPE: B, destroyed).



While type material was not located, there is little doubt that the plant described is that of the eglandular, small-flowered taxon recognized here, this being abundant in the vicinity of Xalapa, Veracruz, where the type was obtained.

This taxon is closely related to *Loeselia glandulosa* and is distinguished from the latter by its eglandular stems, mostly smaller deep pink or lavender flowers, and geography (Figure 5). More intensive field studies may show the taxon to be worthy of only varietal rank under *L. glandulosa*, as treated by Brand.

11. *LOESELIA PUMILA* (Mart. & Gal.) Walp., *Rep. Bot.* 6:527. 1846. *Hoitzia pumila* Mart. & Gal., *Bull. Acad. Brux.* 12, ser. 2:275. 1845. TYPE: MEXICO. Oaxaca: Sola, Nov 1840, *H. Galeotti* 7132 (HOLOTYPE: BR!; Isotype: BR!).

*Loeselia intermedia* Loes., *Bull. Herb. Boissier* 7:567. 1899. TYPE: MEXICO. Oaxaca: Cerro de la Soledad, Nov 1889, *Seler* 1343, 1343G (type material not located), Loesener cited two collections in his protologue, as noted in the above. Type material should be at G-BOISS but communication with that institution revealed no such collections (L. Gautier, pers. comm. 1 Nov 1994).

This is a widely distributed variable species but readily distinguished from its closest relative, *Loeselia caerulea*, by its densely glandular-pilose vestiture. The disjunct collections of *L. pumila* from Sonora, as shown in Figure 6, is based upon *Gentry* 1101 (F); there is little doubt as to its identity.

12. *LOESELIA PURPUSII* T.S. Brandege, *Univ. Calif. Publ. Bot.* 3:389. 1909. TYPE: MEXICO. Puebla: vicinity of San Luis Tultitlanapa, rocks and cliffs, Apr 1908, *Purpus* 3118 (HOLOTYPE: UC; Isotype: F!).

This is a well-marked taxon readily recognized by its subshrubby habit, glossy rigid foliage and large multiovulate capsules. It is seemingly most closely related to *Loeselia mexicana* (based mainly upon fruit characters) and apparently confined to the drier regions of southernmost Puebla and probably closely adjacent Oaxaca. Originally known only by type material, it is now well represented in many herbaria, some of these cited here (LL, TEX): Puebla: Mpio. Caltepec, *Tenoria* 5064, 12469, 12476, *Villaseñor* 625; Mpio. Santiago, *Liston* 622-5.



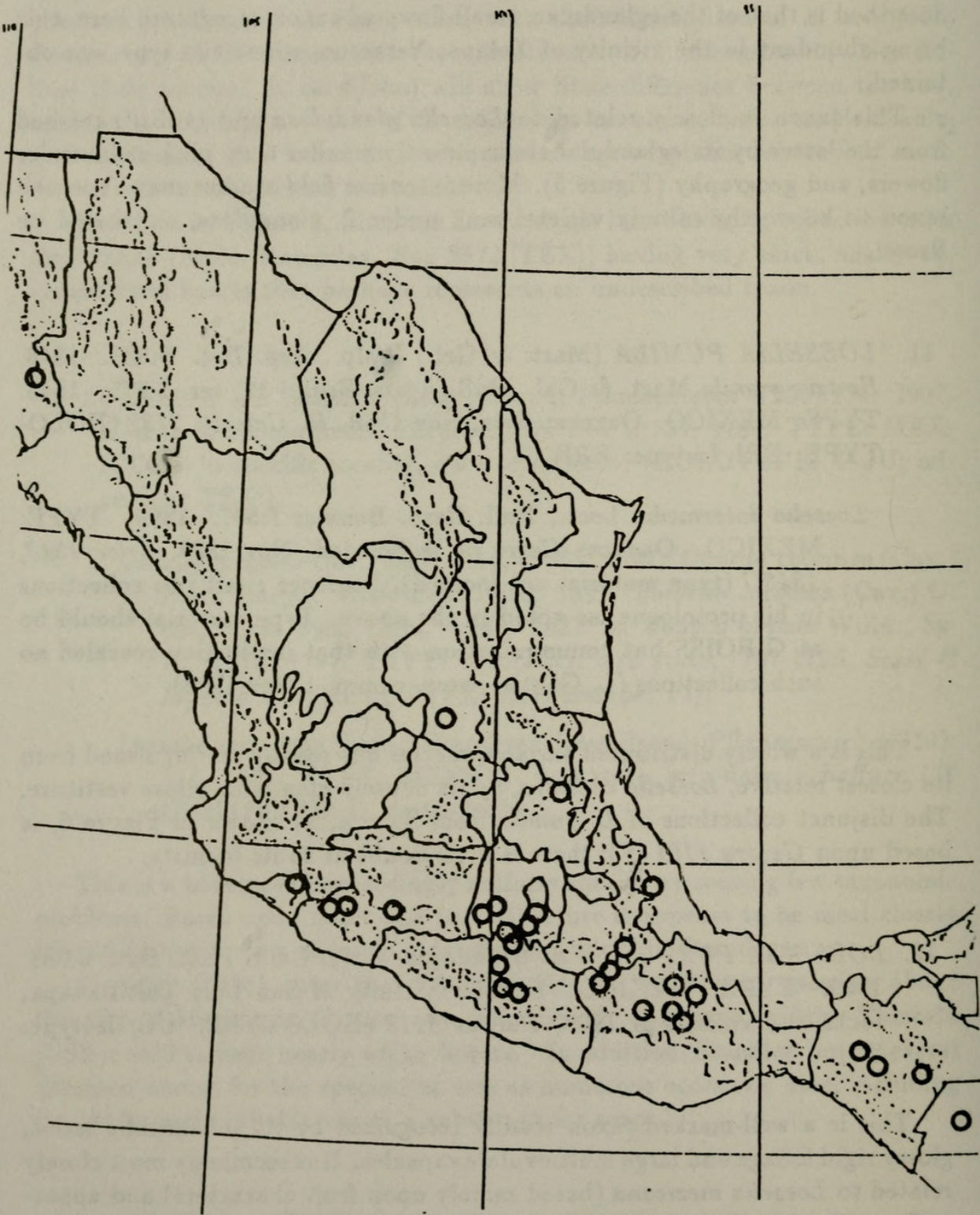


Figure 6. Distribution of *Loeselia pumila*.



13. *LOESELIA RUPESTRIS* Benth. in DC., *Prodr.* 9:319. 1845. *Loeselia caerulea* (Cav.) G. Don var. *rupestris* (Benth.) Brand, *Pflanzenreich* 4(250):278. 1907. TYPE: MEXICO. Oaxaca: Gneissfeisen von Penoles, 2300 m, Nov or Apr 1840, *H. Galeotti* 1448 (HOLOTYPE: K!; Photoisotype: F!).

*Hoitzia floribunda* Mart. & Gal., Bull. Acad. Sci. Brux. 12, ser. 2:275. 1845. TYPE: MEXICO. Oaxaca: Yavezia, Nov-Apr 1840, *H. Galeotti* s.n. (HOLOTYPE: BR!). This sheet is possibly from the same collection described by Bentham as *Loeselia rupestris*. While a collection of *Loeselia* with the number 1448 was not located at BR it seems likely that a duplicate of the present type was sent to K where it was described by Bentham, just prior to the publication of *Hoitzia floribunda*.

*Loeselia rupestris* is known to me only by type material of the above two names. In habit and foliage it much resembles *L. involucrata*, but the floral bracts are markedly 3-5 toothed and lack the fine marginal ciliations found in that species; additionally the stems are densely puberulopilose, the vestiture mostly 0.8-1.0 mm high.

14. *LOESELIA RZEDOWSKII* R. McVaugh, Acta Bot. Mex. 11:11. 1990. TYPE: MEXICO. Jalisco: above the mines N of Bolaños, precipitous west slopes, on rocks and cliff-faces, 17-18 Jan 1975, *R. McVaugh* 25830 (HOLOTYPE: MICH).

This very distinctive taxon was first collected by Diguët in the late 1800's, as noted by McVaugh in his original description, which is accompanied by an excellent illustration. A recent subsequent collection has been that of Flores & Flores 2692 (TEX) from Mpio. Totatiche, ca. 2000 m, 28 Jun 1991, where it is said to be a "frecuente" shrub 60-80 cm high.

Vegetatively the taxon superficially resembles a species of *Trixis*. It is unique in *Loeselia* in possessing yellow, arachnoid-tomentose, corolla lobes.

#### EXCLUDED NAMES

(Largely adopted from Grant 1959)

*Hoitzia linearis* Spreng. = *Collomia linearis* Nutt.

*Hoitzia squarrosa* Eschsch. = *Navarretia squarrosa* (Eschsch.) Hook. & Arn.

*Loeselia carionis* Peter = (not *Loeselia*, possibly Scrophulariaceae; cf. Brand 1907)



*Loeselia effusa* A. Gray = *Gilia effusa*

*Loeselia gloriosa* (T.S. Brandegees) I.M. Johnst. = *Ipomopsis gloriosa* (= *Acanthogilia*)

*Loeselia guttata* A. Gray = *Ipomopsis tenuifolia* (A. Gray) V. Grant

*Loeselia havardii* A. Gray = *Ipomopsis havardii*

*Loeselia matthewsii* A. Gray = *Langloisia matthewsii* (A. Gray) E. Greene (= *Loeseliastrum*)

*Loeselia schottii* A. Gray = *Langloisia schottii* (Torrey) E. Greene (= *Loeseliastrum*)

*Loeselia setosissima* A. Gray = *Langloisia setosissima* (Torrey & A. Gray) E. Greene

*Loeselia tenuifolia* A. Gray = *Ipomopsis tenuifolia* (A. Gray) V. Grant

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<i>Hoitzia scariosa</i> .....	1	<i>Loeselia scariosa</i> .....	1
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