

## TAXONOMY OF THE *HEDYOTIS ACEROSA* (RUBIACEAE) COMPLEX

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### ABSTRACT

*Hedyotis acerosa*, a species of the southcentral U.S.A. and northern México, is treated as having four morphogeographical varieties: var. *acerosa*, a widespread very common stiffly erect, fasciculate plant occurring mostly in Texas and Coahuila, México; var. *polypremoides*, an erect nonfasciculate plant of New Mexico, western trans-Pecos Texas and Chihuahua and westernmost Coahuila, México; var. *potosina* B.L. Turner, var. nov., a low, mat-forming taxon with elongate corollas, occurring from southernmost Coahuila to San Luis Potosí, México; and var. *tamaulipana* B.L. Turner, var. nov., an open, much-branched, wirey-stemmed plant with relatively small flowers occurring in westcentral Tamaulipas, México. A key to these taxa is provided along with maps showing their distribution.

KEY WORDS: Rubiaceae, *Hedyotis*, *Houstonia*, Texas, México, systematics

Attempts to classify Mexican collections of *Hedyotis acerosa* assembled at LL, TEX has prompted the present study. Terrell (1991) provided a brief overview of this complex, which he included in his concept of the genus *Houstonia*. While not pretending to understand fully the taxonomic limits of these two closely related genera, my taxonomic intuition, after comparing representative species of the groups concerned, is that they are best treated as but a single genus, *Hedyotis* having priority.

Distributional maps are based upon specimens on file at LL, TEX, all of these annotated accordingly.

### KEY TO THE *HEDYOTIS ACEROSA* COMPLEX IN U.S.A.

1. Stems with leaves decidedly fasciculate; flowers mostly on pedicels 0.3-1.5 mm long; vestiture of stems various, but not uniformly minutely pubescent with down curved hairs; Culberson Co., Texas and eastwards. .... var. *acerosa*
1. Stems with leaves not fasciculate, or very weakly so; flowers, at least some of them, on pedicels 2.0-20.0 mm long; vestiture of stems uniformly minutely pubescent with down-curved hairs ..... var. *polypremoides*



KEY TO THE *HEDYOTIS ACEROSA* COMPLEX IN MEXICO

1. Stems with internodes much-shortened, forming low pulvinate mat-like plants mostly 2-5 cm high; corolla tubes mostly 8-10 mm long; southernmost Coahuila and southwards to San Luis Potosí.....var. *potosina*
1. Stems not as described in the above, mostly 5-15 cm high, forming well-defined rather naked stems; corolla tubes mostly 3-7 mm long.....(2)
  2. Leaves markedly fasciculate; pedicels 0.3-1.5 mm long (rarely not so on lanky new growth of secondary shoots); vestiture various, but not minutely pubescent with down-curved hairs; common in Coahuila and closely adjacent central Nuevo León. .... var. *fasciculata*
  2. Leaves weakly fasciculate, if at all; pedicels mostly 2-20 mm long; vestiture uniformly minutely pubescent with mostly down-curved hairs (rarely subglabrous in var. *tamaulipana*); Chihuahua, Coahuila and Tamaulipas. ....(3)
3. Corolla tubes mostly 3-4 mm long; calyx lobes 1.5-2.0 mm long; Tamaulipas. .... var. *tamaulipana*
3. Corolla tubes mostly (4-)5-6(-7) mm long; calyx lobes 3-4 mm long; Chihuahua, Coahuila..... var. *polypremoides*

*HEDYOTIS ACEROSA* A. Gray, *Pl. Wright*. 1:81. 1850.

*Houstonia acerosa* (A. Gray) Benth. & Hook. *f.* (for additional synonymy cf. Terrell 1991).

*HEDYOTIS ACEROSA* A. Gray var. *ACEROSA*

As described by Gray, this is a rigidly erect, fasciculate, sparingly branched plant ca. 15 cm high. Type material was collected by C. Wright in late June of 1849, presumably in present day Kinney or Val Verde County, Texas where Wright would have first encountered the taxon. Wright, in his protologue, also cited a specimen from near Buena Vista, Coahuila, collected by Gregg, among others alluded to; clearly lectotypification is needed, but from the description there is little doubt as to the application of the name.

This variety, in habit, is relatively uniform throughout its range, but its vestiture varies considerably as shown in Figure 2. In the latter illustration, specimens with a mixture of both long and very short, mostly straight hairs are depicted as open circles; those with  $\pm$  uniformly small straight hairs, and/or  $\pm$  glabrous are shown as closed circles; specimens intermediate to these extremes shown as half circles. At least a few of the specimens here accepted as var. *acerosa* were annotated by Terrell as subsp. *polypremoides* (e.g., Ector Co., Tex; Rowell 5605 [LL]).

*HEDYOTIS ACEROSA* A. Gray var. *POLYPREMOIDES* (A. Gray) W.H. Lewis, *Ann. Missouri Bot. Gard.* 55:397. 1969.

*Hedyotis acerosa* A. Gray var. *bigelovii* (Greenm.) W.H. Lewis

*Hedyotis polypremoides* (A. Gray) Shinnery

*Houstonia acerosa* A. Gray subsp. *polypremoides* (A. Gray) Terrell

*Houstonia polypremoides* A. Gray

*Houstonia polypremoides* A. Gray var. *bigelovii* Greenm.



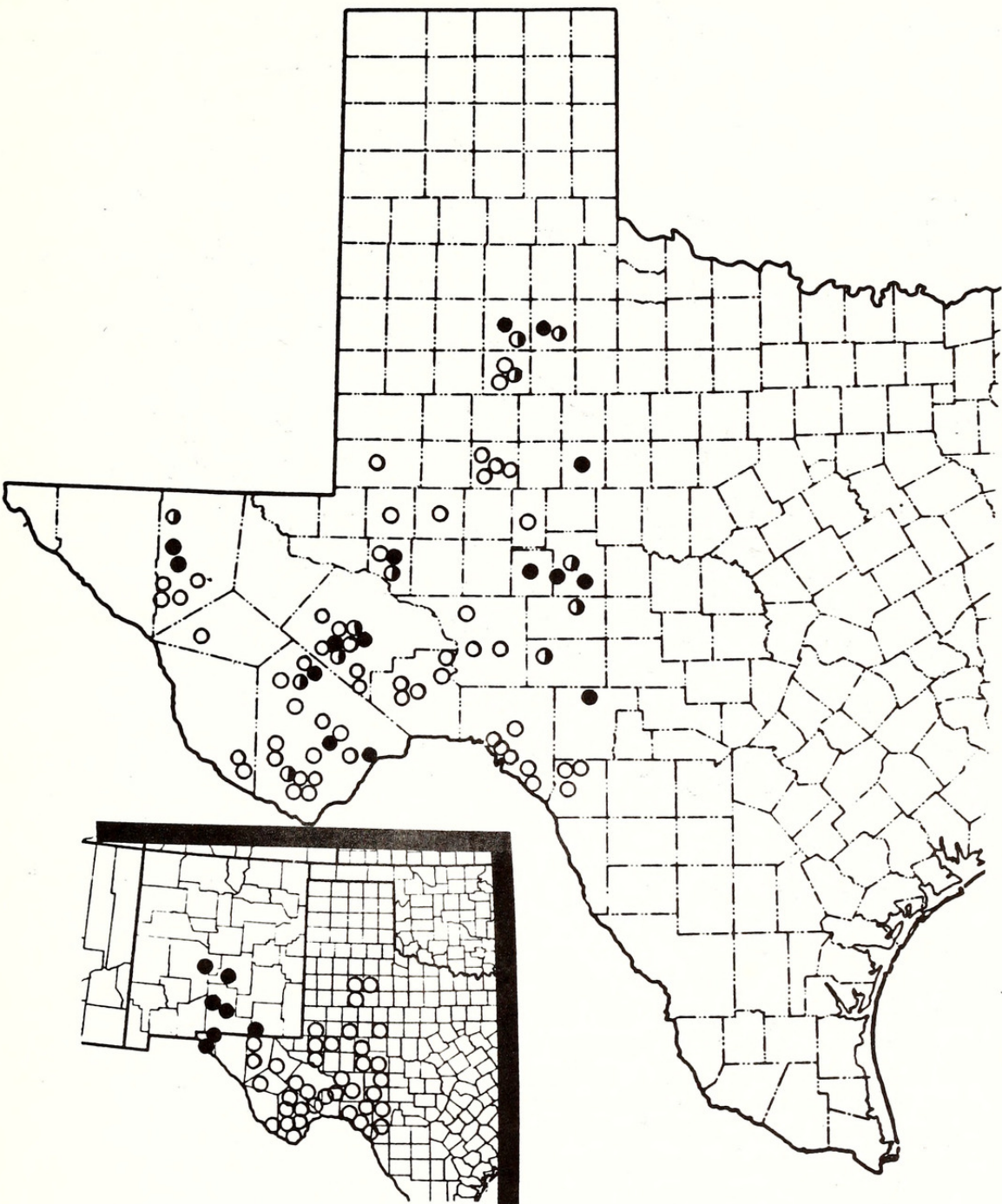


Figure 1. Distribution of *Hedyotis acerosa* var. *acerosa* in Texas: plants with both long and short hairs along the stem, the typical form (open circles); plants with rather uniformly minute straight hairs along the stem, or variously subglabrate (closed circles); plants with intermediate vestiture (half circles). Inset: Distribution of *Hedyotis acerosa* in the U.S.A.: var. *acerosa* (open circles); var. *polypremoides* (closed circles). Intermediates occur in regions of near contact.

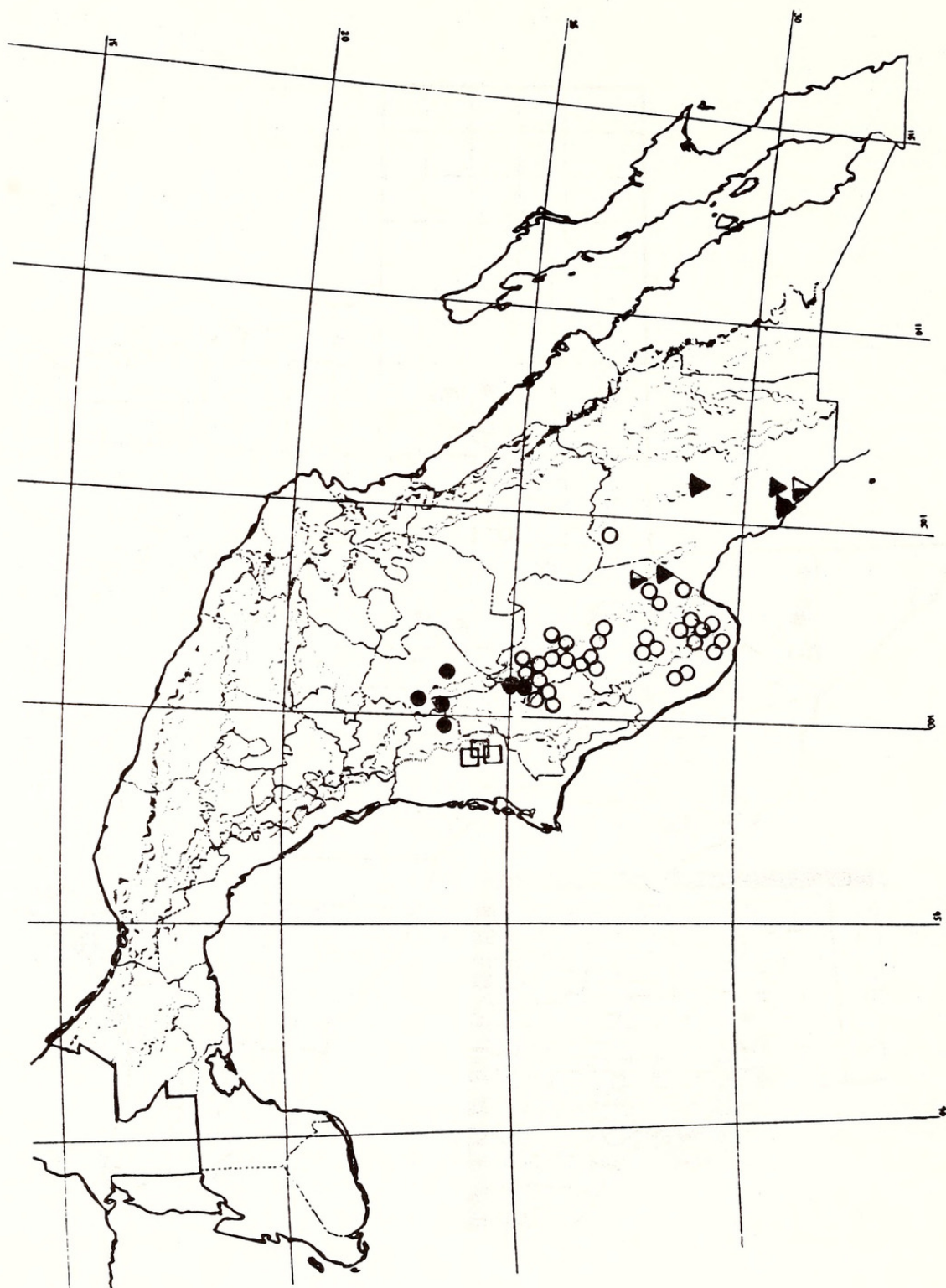


Figure 2. Distribution of *Hedyotis acerosa* in México: *var. acerosa* (open circles); *var. polypremoides* (closed triangles); plants  $\pm$  intermediate to *var. acerosa* but tending to *var. polypremoides* (half solid triangle); *var. potosina* (closed circle); *var. tamaulipana* (open square).



Lewis (1968) lectotypified this taxon by *Pringle 356* (GH), collected in the Santa Eulalia Mts., Chihuahua (ca. 28° 35' N, 105° 53' W). Shinnars (1949) accepted this taxon as a good species, but Lewis (1968, 1969) recognized it as but varietally distinct, although Terrell (1991) recognized it as a subspecies. Lewis (1969) took up the name *Hedyotis acerosa* var. *bigelovii* for this taxon, but the current code mandates the varietal name *polypremoides* as correct, much as inadvertently supplied by Lewis.

I accept its varietal status because the taxon clearly grades into the var. *acerosa* in the trans-Pecos region of Texas (e.g., *Whitehouse s.n.* [TEX]; *Young s.n.* [TEX]-both from the Guadalupe Mts.) and in México (e.g., western Coahuila, *Johnston 389* [LL]; etc.), mostly along the western periphery of var. *acerosa*, as noted by Terrell (1979).

Occasional plants of var. *acerosa*, either aberrant late-flowering, or cut-back shoots showing new growth, are apt to be mistaken for var. *polypremoides* but individuals of the former can be readily sorted out by their pubescence, as noted in my key.

**HEDYOTIS ACEROSA** A. Gray var. **POTOSINA** B.L. Turner, var. nov.

TYPE: MEXICO. San Luis Potosí: Charcas, Jul-Aug 1934, *C.L. Lundell 5048* (HOLOTYPE: LL!).

*H. acerosa* A. Gray var. *acerosa* similis sed plantae 2-4 cm altae (vice 5-15 cm), breves, ramosissimae e basi sunt, tubis corollarum plerumque 8-10 mm longis (vice 4-6 mm).

ADDITIONAL SPECIMENS EXAMINED: MEXICO. Coahuila: mouth of San Lorenzo Canyon, SE of Saltillo, 6200 ft, 2 Aug 1975, *Engard 690* (LL); 4 mi S of Saltillo, 6000 ft, 18 Nov 1958, *Rollins 58125* (LL). Nuevo León: 18 mi E of Matehuala, road to Dr. Arroyo, 5 Aug 1970, *Flyr 1536* (TEX). San Luis Potosí: 16 mi N of Matehuala, 11 Feb 1960, *Johnston 5088A* (TEX); 70 mi S of Matehuala, 2 Sep 1975, *Simpson 7036* (TEX). Tamaulipas: Mpio. Bustamante, 38.8 km N of Tula, 2 Jun 1983, *Barnett 83071* (TEX).

All of the above cited plants, including the type, were annotated by Terrell as subsp. *acerosa*. But, as indicated by label data on *Simpson 7036*, var. *potosina* is a mat-forming plant, having a very different growth habit than found in var. *acerosa*; additionally, the corolla tubes are nearly twice the length of those of the latter, and it occupies a decidedly different geographical region. While treated at the varietal level, it might ultimately prove to be specifically distinct, at least no clear intermediates were found linking var. *potosina* to var. *acerosa*, although the two taxa come in close proximity in the region about Saltillo, Coahuila.

**HEDYOTIS ACEROSA** A. Gray var. **TAMAULIPANA** B.L. Turner, var. nov.

TYPE: MEXICO. Tamaulipas: Mpio. Villagran, 1 mi E of Ejido de San Lazaro (ca. 24° 35' N × 99° 13' W), ca. 1500 ft, 11 Oct 1959, *M.C. Johnston* (with *J. Graham*) 4281k (HOLOTYPE: TEX!).



*H. acerosa* A. Gray var. *polypremoides* (A. Gray) W.H. Lewis similis, sed plantae laxe divaricateque ramosae sunt, lobis calycum brevioribus (plerumque 1-2 mm longis vice 3-4 mm), et tubis corollarum brevioribus (plerumque 2-4 mm longis vice 4-6 mm).

ADDITIONAL PLANTS EXAMINED: MEXICO. Tamaulipas: Mpio. San Carlos, 6 mi S of San Carlos on the road to Padilla, 1600 ft, calcareous terraces of Arroyo de San Carlos, 13 Dec 1959, *Johnston 5007A* (TEX); Mpio. Casas, "5 mi E of Casas on the new Victorio-Soto la Marina highway", 28 Sep 1960, *Johnston 5784B* (TEX).

This taxon resembles *Hedyotis acerosa* var. *polypremoides* but the plants are loosely divaricately branched, the calyx lobes shorter (mostly 1-2 mm long vs. 3-4 mm long), and have shorter corolla tubes (mostly 2-4 mm long vs. 4-6 mm long).

Terrell annotated all of the material cited above, including the type, as *Houstonia acerosa* subsp. *polypremoides*. Considering the differences between the latter and var. *tamaulipana*, as outlined in the above, and the disjunct nature of the populations concerned, varietal status for the latter seems justified.

#### ACKNOWLEDGMENTS

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#### LITERATURE CITED

- Lewis, W.H. 1968. Notes on *Hedyotis* (Rubiaceae) in North America. Ann. Missouri Bot. Gard. 55:31-33.  
Lewis, W.H. 1969. *Hedyotis acerosa* var. *bigelovii*, comb. nov. (Rubiaceae). Ann. Missouri Bot. Gard. 55:397.  
Shinners, L.H. 1949. Transfer of Texas species of *Houstonia* to *Hedyotis* (Rubiaceae). Field & Laboratory 17:166-169.  
Terrell, E.E. 1991. Overview and annotated list of North American species of *Hedyotis*, *Houstonia*, *Oldenlandia*, and related genera. Phytologia 71:212-243.



Turner, B. L. 1995. "Taxonomy of the *Hedyotis acerosa* (Rubiaceae) complex." *Phytologia* 79, 83–88.

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