SYSTEMATICS OF THE *RHYNCHOSIA SENNA* COMPLEX (FABACEAE)

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Abstract: The *Rhynchosia senna* complex is treated as having four species: *R. senna* and *R. azuaensis*, confined to South America; *R. prostrata*, confined to North America; and *R. texana*, occurring in both North and South America. One new combination, **Rhynchosia azuaensis** (Grear) B.L. Turner, **stat. nov**. is proposed. A key to the taxa is provided, along with maps showing their distribution.

Keywords: Fabaceae, North America, *Rhynchosia*, South America.

Routine identification of Mexican legumes has occasioned the present paper, largely as related to the biosystematics of the *Rhynchosia senna* species complex as comprehended by Grear (1978), which he treated as having 4 taxa: *R. senna* (with 3 varieties) and *R. prostrata*. Using the species precepts of Cronquist (1978), and many others, I treat all of these at the specific level. A key to the taxa concerned follows:

KEY TO SPECIES [largely adapted from Grear (1978)]

1. Stipels absent; floral bracts 1.0–1.5 mm long; leaflets 1.0–1.5 times as long as wide; Tamaulipas to Oaxaca . . . . . 2. *R. prostrata*
1. Stipels present (rarely not); floral bracts 0.5–1.0 mm long; leaflets (at least some) 1.5–5.0 times as long as wide (rarely not); widespread . . . . . (2)
2. Calyx 3.0–5.5 mm long; corollas 5–7 mm long; pedicels mostly 1–6 mm long; North and South America, where common and wide spread . . . . . 4. *R. texana*
2. Calyx 5–9 mm long; corollas 7–10 mm long; pedicels mostly 6–12 mm long; South America (n Argentina, s Brazil, Paraguay, Ecuador) . . . . . (3)
3. Pods 7–9 mm wide; stems villous; corolla pale yellow or greenish; Ecuador . . . . . 1. *R. azuaensis*
3. Pods 4–6 mm wide; stems variously pubescent; corollas yellow, tinged to some degree with purples or brown; n Argentina, s Brazil and Paraguay . . . . . 3. *R. senna*

1. **Rhynchosia azuaensis** (Grear) B.L. Turner, stat. nov.

Based upon *Rhynchosia senna* var. *azuaensis* Grear, Mem. N.Y. Bot. Gard. 31: 73. 1978.

TYPE: **ECUADOR. Azuay**: "valley of the rio Paute and Cuenca," 26 Mar 1945, *Camp E-2325*. (HOLOTYPE: NY).

As noted by Grear (1978), this taxon is known by only a single collection. Considering its morphological differentiation (from its presumed closest relative, *R. senna*), and geographical isolation (Fig. 2), I have little hesitancy in elevating this taxon to specific rank.

Grear provided an excellent sketch of the taxon, noting that it was known only by type material, and that it occurred in the same area as that of the *R. texana*, but at lower elevations.

2. **Rhynchosia prostrata** Brandegee, Zoe: 5: 246.1908.

TYPE: **MEXICO. Puebla**: "Esperanza," Jan 1907, *Purpus 2479*. (HOLOTYPE: UC).

As aptly noted by Grear (1978), this is a poorly collected taxon, mostly occurring in the eastern Sierras of Mexico (Fig. 1). Specimens from the state of Tamaulipas differ from those to the south in having, so far as known, non-apiculate leaflets.

FIG. 1. Distribution of *Rhynchosia prostrata*.

3. **Rhynchosia senna** Gilles ex Hooker, Bot. Misc. Hooker 3: 199. 1833.

TYPE: **ARGENTINA. Cordoba**: "Pampas, in province of Cordova," w/o date, *Gillies s.n.* (LECTOTYPE: K).

Grear (1978) treated this taxon as having three varieties. He noted that the varieties *senna* and *angustifolia* [= *R. texana*] occur together in Argentina without evidence of crossing. He also noted, "I have seen what appears to be a few transitional forms, which might indicate intergradation of the two, but this is relatively rare and does not appear to be genetically fixed." Regardless, considering the rarity of intermediates, if these occur at all, it seems that the taxa act like biological species in the field, consequently I treat the taxa as such, as noted in the above key, and comments under the taxa concerned. Distribution of *Rhynchosia senna* is shown in Fig. 2.

4. **Rhynchosia texana** Torr. & Gray, Fl. N. Am. 1: 687. 1838.

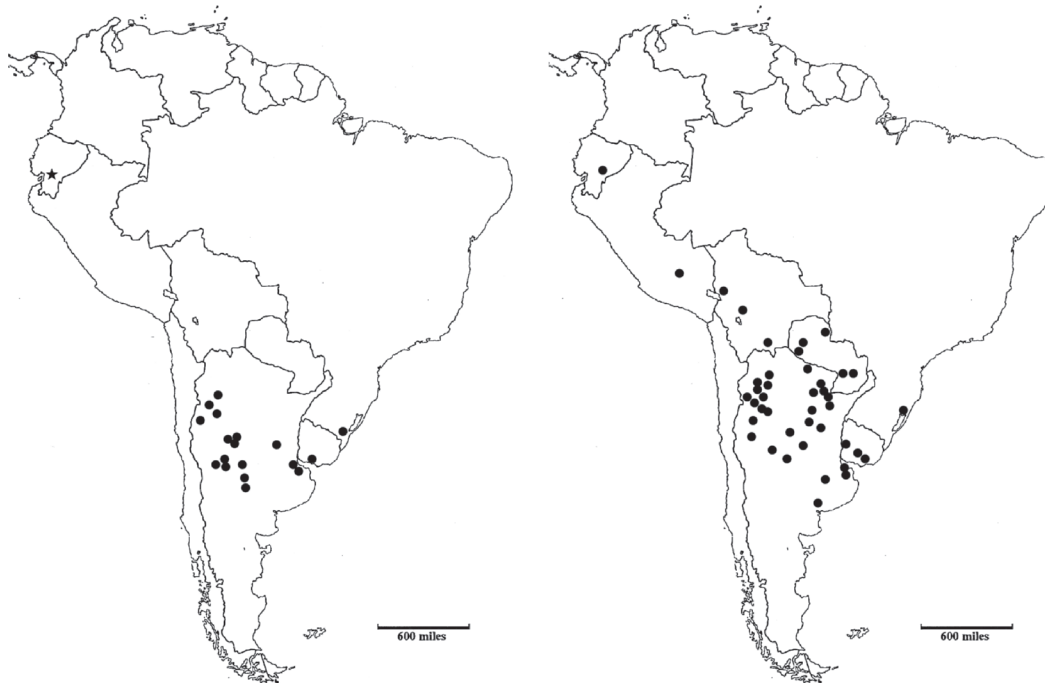

FIG. 2. Left: Distribution of *Rhynchosia azuaensis* (star) *and R. senna* (closed circle). Right *R. texana* in South America.

TYPE: **U.S.A. Texas:** w/o locality, w/o date, *Drummond s.n.* (HOLOTYPE: NY).

Lablab texanus Scheele 1848

Rhynchosia texana var. *angustifolia* (Engelm.) A. Gray 1852

Rhynchosia angustifolia Engelm. ex A. Gray 1898

Dolichus texanus var. *angustifolius* (A. Gray) Vail 1899

Dolichus texanus (Torr. & Gray) Vail 1899

Rhynchosia texana var. microphylla Hassler 1919

Rhynchosia senna var. *cordobensis* (Griesb.) Burk. 1967

Rhynchosia senna var. *angustifolia* (A. Gray) Grear 1978

Rhynchosia senna var. *texana* (Torr. & Gray) M.C. Johnston 1984

Grear (1978) treated this taxon as *Rhynchosia senna* var. *angustifolia*, calling attention to its bicentric distribution. Johnston (1984) correctly noted that if treated as a variety, the correct name should be var. *texana*. I accept the typical var. *senna* as a distint species, as noted above, and treat the var. *texana* as a sound biological species having a bicentric distribution, agreeing with Grear's geographical assessment (Figs. 2, 3).

In his formal description of var. *angustifolius*, Gray listed the type as an unnumbered Wright collection from the "Prairies of the Sabinal and Turkey Creek." He also listed a paratype of the taxon as from New Braunfels, collected by Lindheimer. Gray commented that the taxon "contains numerous intermediate specimens between this [var. *angustifolius*] and the described *R. texana*, showing that it is only a more luxuriant form. The leaflets of the lower leaves are mostly oval, rounded, or rhombic-ovate, varying from half an inch to more than an inch in length; while those of branches, especially the voluble ones, become lanceolate, linear-oblong, or even linear-lanceolate, of about the same length, or some of them, in Lindheimer's specimens

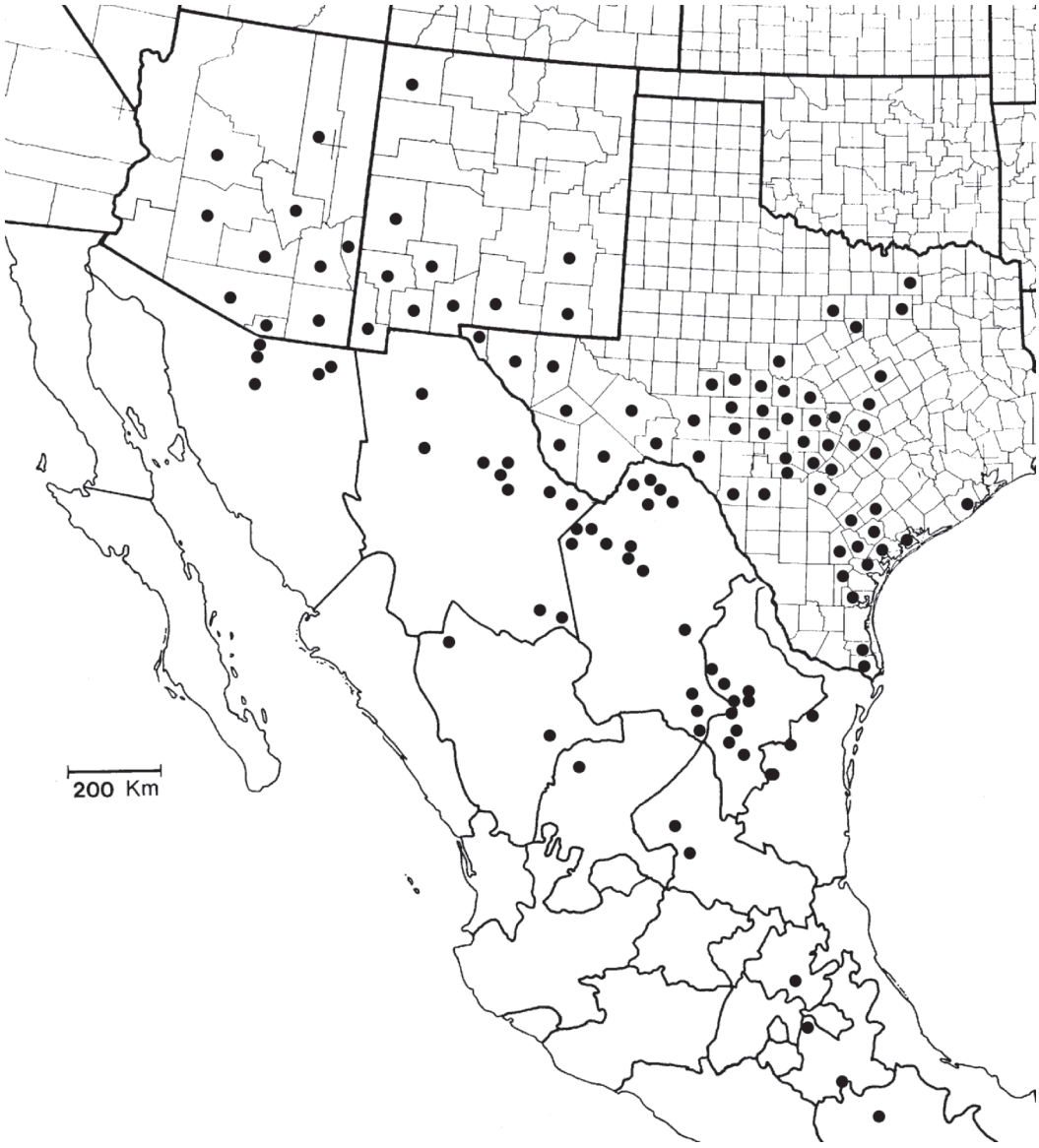

FIG. 3. Distribution of *Rhynchosia texana* in North America.

even two inches.'' Such leaf dimophisms also occur in the South American collections of *R. texana*.

Rhynchosia texana is a very common taxon in both hemispheres, showing parallel variation. Grear speculated that its amphitropical distribution might have resulted from introductions from South America into North America, there being many other taxa with such distributions. But the bicentric introductions, with equal logic, might have come out of the northern hemisphere. Regardless, the event or events most have been of long standing, considering the extent of their variation and geographical distribution on both continents, such occurrences discussed in more detail by Turner (1972). DNA studies will be needed to resolve the origin of such disjunctions.

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