VARIETIES OF IPOMOEA TRICHOCARPA (CONVOLVULACEAE)

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In the past ninety-five years several varieties in the *Ipomoea trichocarpa* alliance have been named. The first of these was proposed by Gray (1878) under the species *I. trifida*. Both Shinners (1953) and O'Donell (1960) have indicated the distinctness of *I. trichocarpa* and *I. trifida;* I will discuss their distinctness further in another paper (Austin, in preparation). During the same year that Shinners transferred Gray's variety to *I. trichocarpa,* O'Donell (1953) described a new variety of this species from South America. Little has been written about the South American taxon since (O'Donell, 1959). During my studies of the genus *Ipomoea* (Abel & Austin, 1973; Austin, 1973, 1974, in preparation) I have examined specimens of all these named varieties; a resumé now seems in order.

The type of *I. trichocarpa* originated in the Carolinas of the eastern United States (Dillenius, 1732). Linnaeus used the Dillenius specimen as the basis for his *Convolvulus carolinus* (Linnaeus, 1753: 154; see also Schmidt, 1965), the senior synonym for *Ipomoea trichocarpa.* As Gray (1878) and Shinners (1953; Correll & Johnston, 1970) have pointed out, there are two distinctive morphological variations of *I. trichocarpa* in Texas. The eastern morph is the tautonymic variety, while the western morph is var. *torreyana.* Shinners (1953) proposed that, while these two intergrade at their point of contact, they ought to be recognized as distinct taxonomic units.

O'Donell (1953) questioned the distinctness of var. *torreyana* from var. *trichocarpa.* His major basis for this was the occurrence of glabrous forms known to him from Florida (Shinners, 1953). I have seen and collected glabrous forms in Florida; my student W. E. Abel has studied glabrous forms in South Carolina; and I have examined herbarium material of the glabrous forms from Louisiana. Thus far every glabrous "*I. trichocarpa*" we have seen from Florida and South Carolina has been a hybrid between *I. trichocarpa* and *I. lacunosa* (Abel & Austin, 1973). Glabrous forms are rare in Louisiana, but those seen usually occur with integrades of var. *torreyana* and var. *trichocarpa.* Hybrids have also been found between *I. lacunosa* and both *I. trichocarpa* varieties (Abel, in preparation).

Shinners neglected to point out as supporting evidence that the two U.S. varieties occupy different ecological habitats in Texas. It is only where the Plains and Prairies meet the Deciduous Forest that the morphs intergrade.

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In fact, var. *torreyana* is a population almost exclusively contained in the Plains and Prairies provinces of Texas (Fig. 1). Some Texas plants of this variety are known from east of the major line of integrades, but Shinners (Correll & Johnston, 1970) suggested that they were introduced. The var. *trichocarpa* is mostly contained within the boundaries of the Deciduous Forest vegetation. Again, those few collections of var. *trichocarpa* from west of this floristic province are most likely introductions by man (Fig. 1). *Ipomoea trichocarpa* is easily dispersed outside its home range in the United States as witnessed by casual plants from northwestern Mexico (Matuda, 1963), Cuba (Leon & Alain, 1957), Jamaica (Adams, 1970), and Guatemala, Honduras, and Colombia (Austin, in preparation).

Shinners (1953) was of the opinion that the presence of glabrous forms in Florida represented a natural bicentric distribution of var. *torreyana* as is known in some other families. This hypothesis cannot be substantiated with the present data, nor can it be completely negated. It has been our observation that the glabrous forms outside central Texas occur in some association with a man-made disturbance, e.g. motel trash dumps, filling stations, roadside ditches. Our data suggest that var. *torreyana* did not exist east of Texas until man became the major dispersal agent for the species.

The South American var. *australis* is known only from a phytogeographic association called the "Chaco." The earliest collections were apparently made in the 1880's; the "Chaco" has been an area of difficult access, and few botanists visited it until fairly recently. Morphologically this population is similar to var. *trichocarpa,* and its origin appears to have been an introduction and naturalization of that population.

TAXONOMY

IPOMOEA TRICHOCARPA Ell., Bot. S.C. & Ga. 1: 258. 1817.
Type: based on Convolvulus folio hederaceo, etc. *Dillenius* collection (lectotype OXF).

Convolvulus carolinus L., Sp. Pl. 154. 1753. Based on the *Dillenius* specimen at Oxford (Schmidt, 1965).

Ipomoea carolina (L.) Pursh, Fl. Amer. Sept. 1: 145. 1814, not L. (1753) nom. illegit.

I. commutata Roem. & Schult., Syst. Veg. 4: 228. 1819. New name for *C. carolinus* L.

I. caroliniana Pursh in Small, Fl. Southeast. U.S. 963. 1903. New name for *I. carolina* (L.) Pursh.

According to O'Donell (1953) the Dillenius specimen was at Oxford in the 1950's. In 1974 the Curator of the Herbaria, Dr. F. White, was unable to locate the type specimen. The format of Linnaeus' discussion of *Convolvulus carolinus* (1753: 154) indicates that he had the Dillenius specimen when the description was prepared, thus the plate should not be chosen as the lecto-

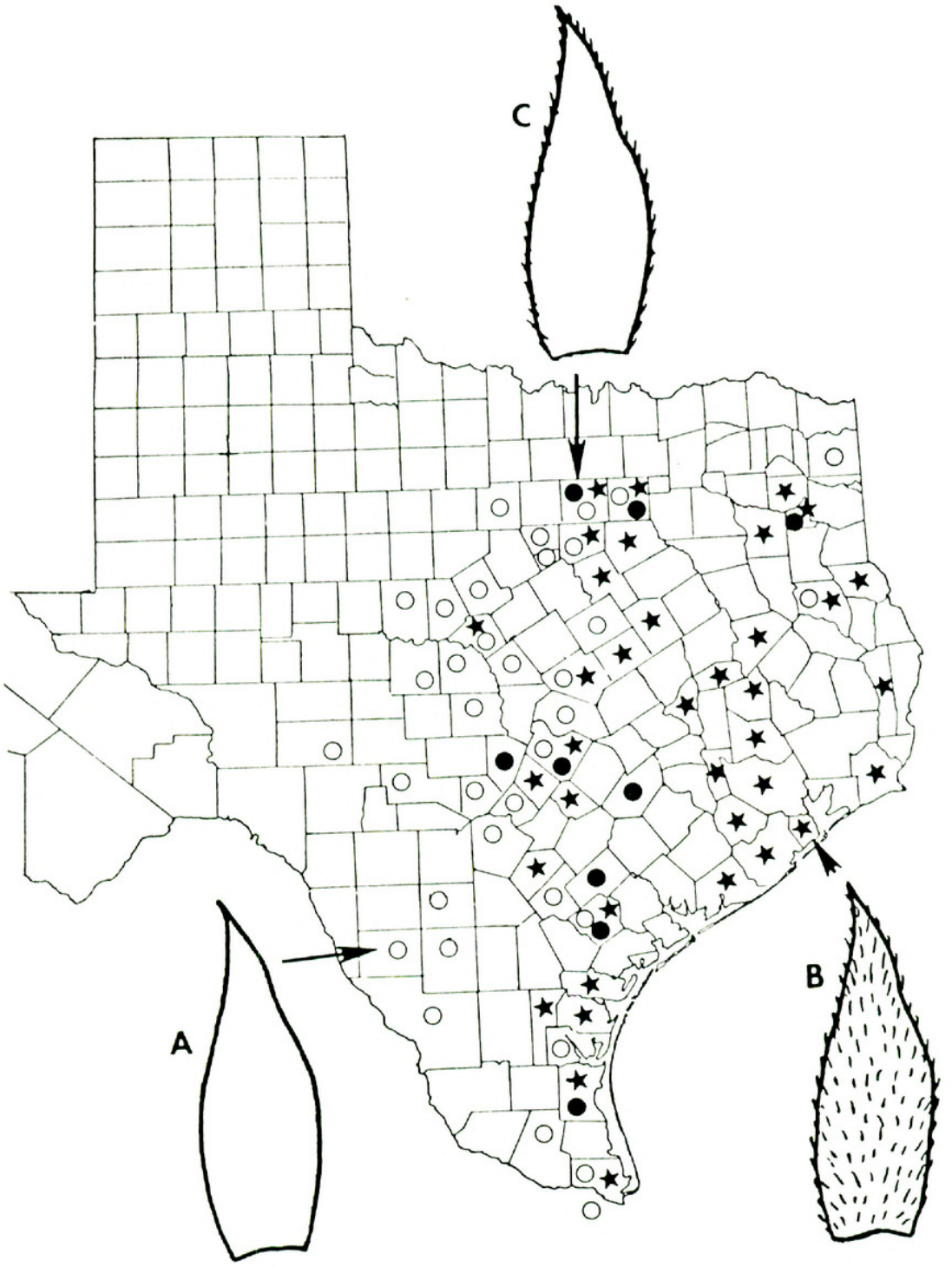

Fig. 1. Distribution of varieties of *Ipomoea trichocarpa* in Texas. A. variety *torreyana* (Gray) Shinners; B. variety *trichocarpa;* C. intergrades. Symbols: open circle = var. *torreyana;* closed circle = intergrades; star = var. *trichocarpa.* Note that the major focus of intergrades follows a line about parallel with the border of the Deciduous Forest and the Plains and Prairie provinces.

type. The Dillenius collection was effectively chosen as lectotype by Schmidt (1965: 82).

The type specimen and plate are not typical of var. *trichocarpa* and O'Donell (1953) suggested that the type could represent the same population as *I. lacunosa* f. *purpurata* Fernald. The type specimen of this form (*Fernald & Long 7580* GH) I believe to be a backcross hybrid segregate of *I. lacunosa* and *I. trichocarpa*. The type of *I. trichocarpa* is also probably of hybrid origin. Due to introgressive hybridization between *I. lacunosa* and *I. trichocarpa* (Abel & Austin, 1973; Abel, in preparation), pure populations of *I. trichocarpa* appear to be rare if not non-existant.

KEY TO VARIETIES

a. Sepals glabrous . . . . . 2. var. *torreyana*
aa. Sepals pubescent or at least ciliate.
  b. Pedicels muricate; leaves 3-5-lobed, mostly 3-lobed with the base of the median lobe contracted . . . . . 1. var. *trichocarpa*
  bb. Pedicels smooth, rarely somewhat muricate; leaves entire to 3-lobed, rarely 5-lobed, the middle lobe not contracted at the base. . . . . 3. var. *australis*

1. *I. trichocarpa* var. *trichocarpa*

A native of the southeastern United States, this variety is found in the Coastal Plain Province of the Eastern Deciduous Forest. Sepals are pubescent on the backs or at least ciliate. Those with only ciliate margins are mostly intergrades with var. *torreyana*. This variety ranges from eastern Texas to southern North Carolina, south into southern Florida.

2. *I. trichocarpa* var. *torreyana* (Gray) Shinners, Field & Lab. 21: 164. 1953.
Basionym: *I. trifida* var. *torreyana* Gray, Syn. Fl. N. Amer. 2(1): 212. 1878.

Lectotype: Rio Grande, western Texas, anno 1848, *Wright s.n.* (GH).

Syntypes: Sept. 1849, *Lindheimer s.n.* (GH, MO, NY); *Bigelow,* (presumably GH, not found); *Schott s.n.* (NY).

Synonym: *I. trifida* var. *berlandieri* Gray, Syn. Fl. N. Amer. 2(1): 212. 1878.
Type: Bexar, Texas, *Berlandier 546 (1931)* (holotype GH; isotypes MO, NY).

When he published var. *berlandieri* Gray suggested that it might be only a depauperate form. The type is but one of the apparently ecophenotypic variations of the species.

The glabrous var. *torreyana* is normally found within the Plains and Prairies Provinces of Texas and adjacent Mexico (Tamulipas). Some of the locations in Mexico (Chihuahua, Mazatlan, Guaymas) are introductions. There are a few plants known from east of Texas in the United States.

3. *I. trichocarpa* var. *australis* O'Donell, Bol. Soc. Argentina Bot. 4: 260. 1953.

Type: *Lillo 12909* (holotype LIL, not seen; isotype NY).

Additional specimens seen: Argentina: *Peirano 9497* (NY); *Schreiter 946* (NY). Paraguay: *Morong 253* (NY).

O'Donell's variety is known only from the Gran Chaco region of Bolivia, Paraguay, and Argentina. From the specimens that I have seen, this variety also has larger trichomes on the calyx, and sepals which are more herbaceous than var. *trichocarpa*.

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