

TEXAS SPECIES OF *TRADESCANTIA* (COMMELINACEAE)**B. L. Turner**

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ABSTRACT

Tradescantia (including *Setcreasea*) is treated as having 13 species native to Texas. They are: *T. brevifolia*, *T. buckleyi*, *T. edwardsiana*, *T. gigantea*, *T. hirsutiflora*, (including *T. australis*), *T. humilis* (including *T. diffusa*, *T. eglandulosa* and *T. intermedia*), *T. leiandra*, *T. occidentalis* (including *T. vaginata*), *T. ohiensis* (including *T. difforme*), *T. pedicellata*, *T. reverchonii*, *T. subacaulis* (including *T. harbisonii*, and *T. texana*) and *T. wrightii*. An additional species, *T. crassifolia*, might also occur in Trans-Pecos (Chinati Mts.), but this needs confirmation. Keys to species, and comments regarding relationships and putative hybridization among them, are provided, along with distribution maps of the species concerned.

KEY WORDS: Commelinaceae, *Tradescantia*, *Setcreasea*, Texas.

Tradescantia is a notoriously difficult genus, especially in Texas where numerous taxa occur, many of these sympatric. Some workers have separated peripheral elements out of *Tradescantia*, giving these generic status (e.g. *Cuthbertia* Small, *Separothea* Waterfall and *Setcreasea* K. Schum. & Sydow), but I follow the more inclusive treatment of Hunt (1975, 1980) in which 8 sections are recognized. The Texas species occupy two of these sections: Sec. *Setcreasea* (with 3 species), and Sec. *Tradescantia* (with 10 species).

MacRoberts (1980) has produced a perceptive study of *Tradescantia* for the state of Louisiana in which 6 species are recognized. He comments that the only general treatment of *Tradescantia* for the U.S.A. is that of Anderson and Woodson (1935) "...a work with serious drawbacks," and while "tacitly assumed to be

adequately treated by [these workers]... this is by no means true." He goes on to add the following:

Anderson and Woodson (1935) managed to bring a degree of order into the genus. However, the deficiencies of this monograph are increasingly evident. One of the shortcomings is the exiguous number of specimens cited, only about 1100 in all, including only 15 authorial citations, and failure to cite and document the field work referred to in Anderson (1954). The descriptions and diagnostics are often vague or unrepresentative, and the strong bias of the senior author concerning the frequency of hybridization resulted in attributing to the effects of hybridization what is probably no more than normal variation. Due to the extreme morphological variation in *Tradescantia*, collections must be fairly dense as well as widespread if the range of variation is to be perceived.

As regards Texas plants, I would agree, in general, with many of the remarks posited by MacRoberts. Field work is critical in one's attempt to evaluate populational variation, especially in *Tradescantia* where petals are deliquescent, habit and pubescence exceedingly variable, and where root systems play an important part in their classification, to say nothing of the (at least) occasional hybrid between this or that species, making identification (as to the recognition of reliable key characters) difficult.

Correll and Johnston (1970) have provided the most recent treatment of Texas *Tradescantias*. In this they recognize *Setreasea* (with 3 species) as distinct. Within *Tradescantia* they recognized 11 species (excluding *T. micrantha* Torr., which Hunt (1975), positions in the genus *Callisia*). While the key to species provided by Correll and Johnston is difficult, and if religiously followed leads to frequent "misidentifications," their treatment is basically sound, although largely adapted from Anderson and Woodson's (1935) paper. Indeed, in the treatment that follows I have recognized 10 of the taxa accepted by Correll and Johnston, reducing to synonymy only *T. tharpüi*, which appears to be, as annotated by Anderson and Woodson, a hodge-podge of variable plants of low stature largely assignable to either *T. hirsutiflora* or *T. subacaulis*. The most recent treatment of

Tradescantia for Texas is that of Faden (2000), this within his broad study of the genus for the North American Flora. Our treatments for Texas are essentially the same, except that I question the occurrence of *T. crassifolia* in Texas.

The following key will, I hope, provide a more reliable means by which to identify the Texas species, at least more so than the key provided by Correll and Johnston. Along with the distributional maps, identification should be facilitated, although the occasional hybrid or introgressed population may be difficult to label.

KEY TO TEXAS SPECIES OF *TRADESCANTIA*

1. Midstems glabrous or nearly so (rarely minutely hispid along upper internodes)(2)
1. Midstems clearly and persistently pubescent.....(9)
 2. Flowers more or less completely enclosed in the subtending spathes, the pedicels mostly 1-8 mm long(3)
 2. Flowers well-exserted from the subtending spathes.....(5)
3. Stiffly erect herbs with fascicles of enlarged fibrous roots; midstem leaves 8-10 times as long as wide.....*T. leiandra*
3. Sprawling succulent trailing or weakly ascending herbs with slender roots, often rooting at lower nodes; midstem leaves 3-6 times as long as wide(4)
 4. Leaves pallid or pale green, those at midstem mostly 1.5-2.0 cm wide; ovary pubescent at apex; trans-Pecos Texas.*T. brevifolia*
 4. Leaves dark green to purplish, those at midstem mostly 2-3 cm wide; ovary glabrous; southern Texas.....*T. buckleyi*
5. Sepals pubescent throughout or nearly so (rarely not in nearly glabrous forms of *T. occidentalis* in trans-Pecos).....(7)
5. Sepals glabrous throughout or with only a tuft of long hairs at the apices
 6. Delicate, simple-stemmed plants 10-20 cm high; leaves mostly basal or subbasal (rarely not), at midsection mostly 2-6 mm wide; trans-Pecos.....*T. wrightii*
 6. Relatively robust plants, mostly 20-100 cm high; leaves rather evenly distributed along the stem, at midsection mostly 8-40 cm wide.....*T. ohioensis*
7. Spathes markedly gibbous below and evenly puberulent throughout, abruptly narrowed into a linear extension; sepals

- predominantly glandular.....*T. gigantea*
7. Spathes not as described in the above, mostly leaf-like and gradually tapered; sepals predominantly eglandular-pubescent
8. Plants robust, mostly 40-80 cm high; midstem leaves mostly 1.5-4.0 cm wide.....*T. edwardsiana*
8. Plants not robust, mostly 20-40 cm high; midstem leaves mostly 0.8-1.5 cm wide.....*T. occidentalis*
- 9(1). Sepals mostly pubescent with a vestiture of long tawny eglandular hairs 2-3 mm long; roots uniformly slender, not fleshy or swollen, mostly 0.5-2.0 mm wide*T. hirsutiflora*
9. Sepals mostly pubescent with a vestiture of short glandular or non glandular hairs mostly 0.2-0.5 mm high and much longer glandular hairs 0.5-2.0 mm long, sometimes with only long hairs; roots to some extent fleshy or swollen, not uniformly fibrous, some or most of them 2-8 mm wide
10. Midstems with at least a few long tawny or silky-white appressed hairs or spreading glandular trichomes 1.5-2.5 mm long(11)
10. Midstems rather uniformly short pilose with glandular or eglandular trichomes 0.1-0.5 mm long(12)
11. Roots rather uniformly thick and fleshy and densely ferruginous-tomentose for 3-8 cm below the caudex; midstems densely white-pilose to tomentose.....*T. reverchonii*
11. Roots conical to obconical, fleshy and densely ferruginous-tomentose for 1-3(4) cm below the caudex, or else lignescent and elongate-obconical; midstems sparsely to moderately pilose, rarely tomentose.....*T. subacaulis*
12. Midstem leaves mostly 2-5 cm wide, widest well above the base; plants robust, 40-80 cm high.....*T. edwardsiana*
12. Midstem leaves mostly 0.5-2.0 cm wide, widest near the base; plants smaller, 10-40 cm high
13. Leaf surfaces glabrous or nearly so; granitic soils of central Texas (Llano, Burnett, and Blanco counties).....*T. pedicellata*
13. Leaf surfaces variously pubescent; not in granitic soils of Central Texas..... *T. humilis*

TRADESCANTIA BREVIFOLIA (Torr.) Rose, Contr. U.S. Natl. Herb. 3: 323.1895. Fig.1

Neotrelasea brevifolia (Torr.) Rose

Setcreasea brevifolia (Torr.) Pilger
Setcreasea ovata (Coult.) Faruqi, Celarier & Mehra
Treleasea brevifolia (Torr.) Rose
Treleasea leiandra var. *brevifolia* Torr.
Treleasea leiandra var. *ovata* Coult.

Hunt (1975) has discussed the nomenclatural history of this taxon in considerable detail, noting that the name *Setcreasea ovata* is not validated by the arguments mounted by Faruqi et al. (1959), who applied the name *S. brevifolia* to what Hunt (1975) and I call *S. buckleyi*. The latter is readily distinguished from *S. brevifolia* by its glabrous ovary (vs pubescent apically).

TRADESCANTIA BUCKLEYI (I.M. Johnst.) D. Hunt, Kew Bull. 30: 451. 1975. Fig. 2

Setcreasea brevifolia var. *buckleyi* (I.M. Johnst.) Faruqi & Mehra
Setcreasea brevifolia var. *nanella* Faruqi & Mehra
Setcreasea brevifolia var. *pulchella* Faruqi & Mehra
Setcreasea buckleyi I.M. Johnst.
Tradescantia speciosa S.B. Buckley, not *T. speciosa* L.

Hunt (1975) has discussed this taxon in detail, especially as relates to *T. brevifolia*, with which it has been confused. *Tradescantia buckleyi* is a relatively rare taxon, having been collected only a few times in Texas and closely adjacent northeastern Mexico.

Faruqi et al. (1970) described a dwarf form (from Gonzales Co.) as var. *nanella*; they also have given the name var. *pulchella* to forms from Hidalgo and Nueces Co., the latter from whence came the type of *T. buckleyi*.

TRADESCANTIA EDWARDSIANA Tharp, Rhodora 34: 57. 1932. Fig. 4

This robust, mostly glabrate-stemmed, broad-leaved species is superficially similar to *T. occidentalis* and *T. gigantea*, but is amply distinct as noted by several workers. Originally thought to be confined to southcentral Texas, recent acquisitions (TEX) have been made in Fannin and Lamar counties in northeastern Texas.

Most collections of this species have their midstems glabrous, but occasional plants have stems clearly pubescent (e.g. Bexar Co., Carr 14572, TEX), mostly in the manner of *T. humilis*.

TRADESCANTIA GIGANTEA Rose, Contr. U.S. Natl. Herb. 5: 205.1899. Fig. 5

This species is readily recognized by its robust habit and enlarged sheaths which are uniformly puberulent. It is most commonly found in central Texas, but sporadic populations occur eastwards as far as Louisiana, as noted by MacRoberts (1980). To judge from herbarium sheets, it occasionally hybridizes with both *T. occidentalis* (Tharp 1256, TEX) and *T. ohiensis* (Hamric 7 TEX; Jackson 1, TEX), and probably yet other taxa with which it might co-occur.

TRADESCANTIA HIRSUTIFLORA Bush, Trans. Acad. Sci. St. Louis 14: 184. 1904. Fig. 6

Tradescantia australis Bush, type from Angelina Co., Tex.

Tradescantia tharpianii Anderson & Woodson [Texas material], type from Jasper Co., Arkansas

Anderson & Woodson (1935) stated that *T. hirsutiflora* (the type from Van Zandt Co., Texas) "is probably the most difficult and unsatisfactorily understood of the American representation of the genus." Apparently, they included in their concept of the species plants which I treat as belonging to yet other taxa, to judge from their description of the species. Indeed, they acknowledge the species to be "polymorphic" and with field study likely to be subdivided.

MacRoberts (1980a, 1980b) provides an excellent description and account of *T. hirsutiflora*, a common plant throughout much of east Texas, occurring mostly in sandy or sandy-loam soils. It is easily distinguished from most other species in Texas by its very slender fibrous roots, when dried ca 1 mm across, or less. MacRoberts (1980b) lists both *T. australis* and *T. eglandulosa* Bush (the type from Gillespie Co.) as synonymous with *T. hirsutiflora*, as did Anderson and Woodson (1935). However, I take the latter to be a synonym of *T. humilis*, *T. hirsutiflora* largely occurring to the east of the Edwards Plateau. My concept of *T. hirsutiflora*, at least in Texas, also contains elements of *T. tharpianii*, to judge by annotations of Anderson and Woodson on herbarium sheets at TEX.

TRADESCANTIA HUMILIS Rose, Contr. U.S. Natl. Herb. 5: 204.1899. Fig. 7

Tradescantia diffusa Bush, type from Bexar Co., Tex.

Tradescantia eglandulosa Bush, type from Gillespie Co., Tex.

Tradescantia intermedia Bush, type from Austin Co., Tex.

Tradescantia humilis, as conceived here, is a very variable species. Even within a given area numerous morphotypes are discernable, varying in habit (small or robust), sepal size, and degree of vestiture, etc. (cf. *Turner 94-70, 94-79, 94-89, 94-91*, TEX; all of these were collected ca 4 mi NW of Bellville in Austin Co.). It is possible that some or most of the variation mentioned in the forgoing is due to hybridization of *T. humilis*, past or present, with either *T. hirsutiflora* or *T. reverchonii*, if not both, for all three species are sympatric in the area concerned. In the vicinity of Houston, populations occur which have the habit and sepals of *T. hirsutiflora* but the stem pubescence of *T. humilis* (*Lundell 11033*, LL), and such plants occur sporadically southwards along the gulf coastal regions to Matagorda Co. (*Turner 80-36A*, TEX). I have annotated most of these as *T. humilis*, but they could be with equal validity called *T. hirsutiflora*, for even the fibrous roots of these collections are somewhat intermediate to the slender fascicled roots characteristic of *T. hirsutiflora*, and those of the elongate-tuberous type found in *T. humilis*.

TRADESCANTIA LEIANDRA Torr., Bot. Mex. Bound. Surv. 224. 1859. Fig.8.

Neotreleasea leiandra (Torr.) Rose

Setcreasea leiandra (Torr.) Pilger

Setcreasea leiandra var. *glandulosa* Correll

Tradescantia leiandra var. *glandulosa* (Correll) Gandhi

This species is typified by material collected at Paisano Pass by Bigelow in 1854. Paisano Pass is located ca 12 mi east of Marfa in Presidio County. *Tradescantia leiandra* is a relatively uncommon species occurring mostly in igneous soils of the Trans-Pecos, usually in bluffs along seeps. Forms from the Chinati Mts of Presidio County (on ledges about Capote Falls) have glandular hairs; such plants have been called var. *glandulosa*, although both eglandular and glandular forms occur in the area concerned.

TRADESCANTIA OCCIDENTALIS (Britt.) Smyth., Trans. Kansas Acad. Sci. 16: 163. 1899. Fig.9.

Tradescantia occidentalis var. *melanthera* MacRoberts

Tradescantia occidentalis var. *scopulorum* (Rose) Anderson & Woodson

Tradescantia scopulorum Rose

Tradescantia vaginata Bush

Tradescantia virginiana var. *occidentalis* Britt.

This taxon superficially resembles *T. ohiensis* but is easily recognized by its markedly glandular-pubescent sepals. Populations from Trans-Pecos westwards to Arizona have nearly glabrous sepals, displaying only a smattering of glandular hairs, if that. These have been recognized as var. *scopulorum* by various authors and such plants may deserve nomenclatural recognition; at least most of the Trans-Pecos plants appear to be distinguishable from the more eastern var. *occidentalis*.

TRADESCANTIA OHIENSIS Raf., Prec. des Decouv. 45. 1814. Fig. 10

T. caniculata Raf.

T. difforme Bush

T. ohiensis var. *foliosa* (Small) MacRoberts

T. ohiensis var. *paludosa* (Anderson & Woodson) MacRoberts

T. paludosa Anderson & Woodson

T. reflexa Raf.

As noted by Correll and Johnston (1970), who adopted the spelling "ohoensis" for the taxon, *T. ohiensis* is a widespread relatively common species, occurring throughout the eastern U.S.A. where it is frequently cultivated. MacRoberts (1980) reports *T. ohiensis* to be the most commonly encountered *Tradescantia* in Louisiana, recognizing within it several varieties, as noted in the above synonymy, none of which appears to have geomorphological validity. To judge from his account and map showing their distribution in Louisiana, these would appear to be but individual or populational forms of a highly variable species, perhaps compounded by occasional hybridization, past or present, with

yet other species (e.g., *T. ohiensis* x *T. occidentalis*, Tharp 1256 [TEX], as annotated by MacRoberts).

TRADESCANTIA PEDICELLATA Celarier, Field & Laboratory 24: 6. 1956. Fig. 11

This is a weakly differentiated localized endemic of the Central Mineral Region of Texas where it is largely confined to granitic soils. *Tradescantia pedicellata* is a relatively small narrow-leaved plant having the root system of *T. subacaulis* (a fascicle of linear-oblongate tuberous roots, thickened distally), but the stems and elongate pedicels are sparsely to moderately glandular-pubescent.

MacRoberts (1978), incorrectly I think, took up the earlier name *T. diffusa* Bush for this taxon, the latter name typified by material from Bexar Co., Texas. MacRoberts, not being able to locate type material, inferring much from an inadequate description, assumed that *T. diffusa* was the same as *T. pedicellata*. Unfortunately, he selected as a neotype for the former, material collected in Burnet County (3 mi E of Buchanan Dam) that is certainly the same as Celarier's *T. pedicellata*; indeed, the latter individual was party to its collection (*Gould, Brown & Celarier 5470*, TAES). I believe that *T. diffusa* is synonymous with *T. humilis*; were the former in need of neotypification, material from Bexar County would have been a better choice. Of course, material referable to *T. pedicellata*, sensu Celarier, has not been collected in Bexar Co., or adjacent counties, to my knowledge. In the spring of 1996 I found *Tradescantia pedicellata* to be relatively common in granite stream-side deposits along ephemeral streams leading into the Llano River (specimens deposited TEX). It is a very distinctive taxon and worthy of recognition.

TRADESCANTIA REVERCHONII Bush, Trans. Acad. Sci. St. Louis 14: 190. 1904. Fig. 12

As noted by MacRoberts (1980b), "This is a distinctive species among *Tradescantia*, unlikely to be confused with any other if the roots are seen." The roots consist of fascicles of elongate, fleshy, densely pubescent tubers up to 10 cm long and 0.5-1.0 cm thick (including vestiture), thicker near the top than towards the base. This contrasts with the roots of the superficially similar *T. subacaulis*, which has a fibrous root system of slender non-tuberous roots.

Tradescantia reverchonii nearly always occurs in deep loose sandy soils and in habit is stiffly erect having thick stems and relatively few long, markedly hirsute, leaves. It is typified by material collected in Smith Co., Texas, and extends eastwards into Louisiana.

TRADESCANTIA SUBACAULIS Bush, Trans. Acad. Sci. St. Louis 14: 185. 1904. Fig.13

Tradescantia harbisonii Bush

Tradescantia texana Bush

This taxon is superficially similar to *T. hirsutiflora*, both possessing rather large sepals with long eglandular hairs. They are, however, readily distinguished by their roots, *T. hirsutiflora* having fascicles of slender unenlarged roots, *T. subacaulis* having fascicles of elongate-clavate tuberous roots. The sepals of the latter are usually to some extent glandular-pubescent, but in northcentral Texas forms and/or populations occur that lack glandular hairs. In the southern coastal regions of Texas populational forms occur having smaller sepals with shorter hairs, and more enlarged relatively fewer clavate roots, the latter often intermixed with slender non-succulent roots. The distribution of such plants is depicted in Fig. 10, and future field studies are likely to show that these are deserving of nomenclatural recognition.

In the sandy soils of southern Bexar, Medina and northern Atascosa counties, *T. subacaulis* varies in the direction of *T. reverchonii* (e.g., *Johnston 3400*, TEX), and populations in this region might be deserving of varietal, if not specific rank, for the roots are weakly developed versions of *T. reverchonii*, but the sepals are small and pubescent in the manner of coastal populations of *T. subacaulis*; the vestiture of the stems is somewhat inbetween that found in typical forms of these two species. Finally, it should be noted that Anderson and Woodson (1935) included elements of what I take to be *T. subacaulis* in their concept of a "polymorphic" *T. hirsutiflora*, to judge from annotations of these authors on material at TEX.

TRADESCANTIA WRIGHTII Rose & Bush, Trans. Acad. Sci. St. Louis 14: 188.1904. Fig. 14

This taxon occurs on high ridges (2000-2600 m) of limestone scarps and mesas in the Trans-Pecos Texas, where it is relatively uncommon. It is represented by two varieties, a typical var. **wrightii**

(first collected by Wright in 1850 in the northern Trans-Pecos) which is glabrous throughout or nearly so, and var. **glandulopubescens** B.L. Turner (*Phytologia* 52: 370. 1983), of southern Brewster County and closely adjacent Mexico. Faden (pers. comm.), because the type of var. *wrightii* had few glandular hairs upon very close inspection, would not recognize var. *glandulopubescens*. The distinctions between these varieties are largely quantitative, the Big Bend and Mexican collections are very glandular pubescent, whilst the collections from elsewhere are essentially glabrous; since the character concerned is largely restricted to different geographic areas, I choose to recognize two morphogeographical elements, there being little intergradation between these.

UNCERTAIN SPECIES

TRADESCANTIA CRASSIFOLIA Cav., *Icon. Pl.* 1:54. 1791. Fig. 3

Faden (1993) makes a compelling case for the addition of this *Tradescantia* to the state's flora, noting that the first, and only known, collection of the species for Texas was reportedly made by V. Havard in October of 1880 from the Chinati Mountains of Trans-Pecos, Texas (Presidio Co.), presumably while serving as a Post Surgeon at Camp Eagle Nest in Presidio, Texas during the period Sep-Dec 1880. Nevertheless, in spite of numerous collection forays into the Chinati Mountains since that time by many workers (A.M. Powell, SRSC; Emily Lott et al., TEX; etc.), the species has not been recollected. While Faden contends that there is little evidence that Havard ever collected in Mexico, it is still possible that *T. crassifolia* was obtained by him in northern Mexico along the Rio Grande, perhaps in the high mountains along the border regions not too distant from Presidio, such specimens subsequently inadvertently mixed with his, undoubtedly, Chinati collections. It is noteworthy, that *Tradescantia crassifolia* is not listed among the 34 flowering herbs listed as occurring in the Chinati [Chenate] Mts. by Havard in his report of 1885 (*Proc. U.S. Natl. Mus.* 8: 492-493). Because of the uncertainty of the Havard collection, this species is not keyed in the present treatment, although its reported collection site is shown in Fig. 3. The species, however, might ultimately be found in this or that mountain range along the Trans-Pecos side of the Rio Grande.

ACKNOWLEDGEMENTS

I am grateful to Dr. R.B. Faden for providing me with an advanced version of his treatment of *Tradescantia* for the flora of North America, this after the account here was written, copy of which was provided him. The only significant conflict perceived by me in our two independent treatments is that I do not believe that *T. crassifolia* is documented with certainty as occurring in Texas. The distributional maps (Fig. 1-14) are based upon specimens housed at LL, SRSC, and TEX.

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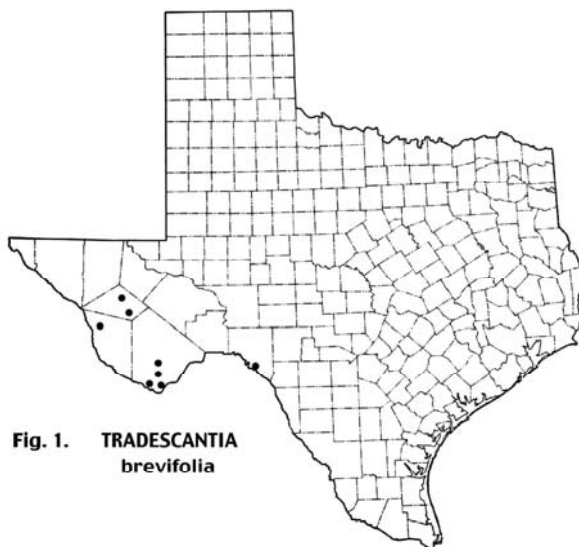


Fig. 1. *TRADESCANTIA*
brevifolia

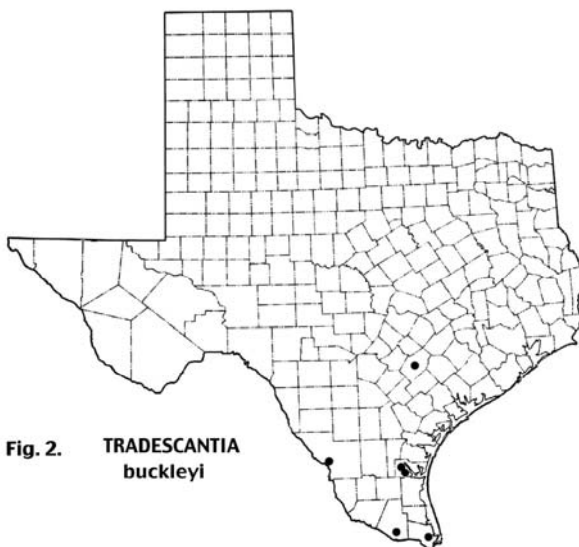


Fig. 2. *TRADESCANTIA*
buckleyi

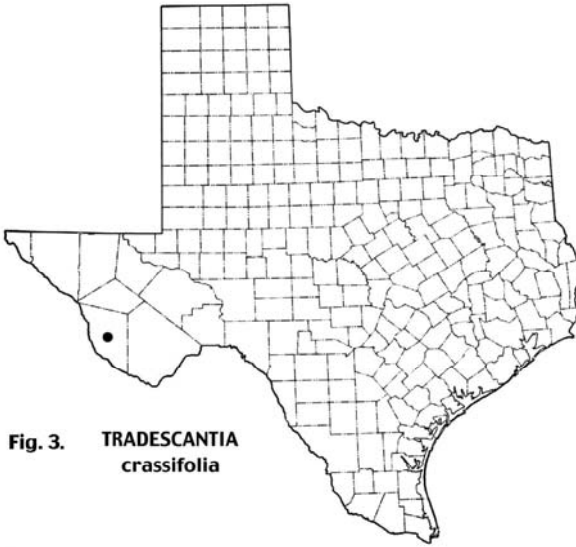


Fig. 3. TRADESCANTIA crassifolia

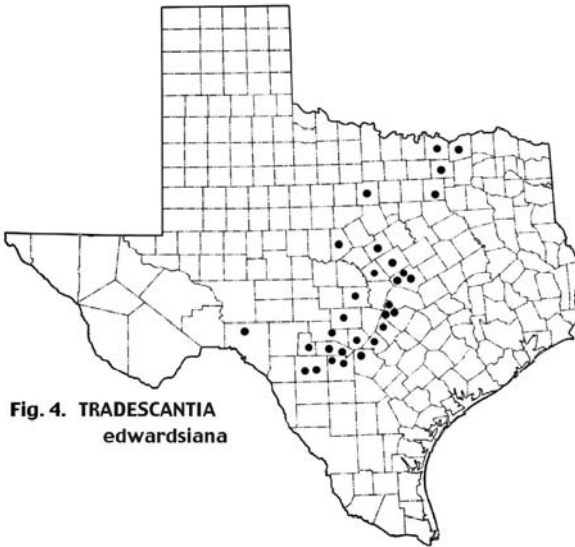
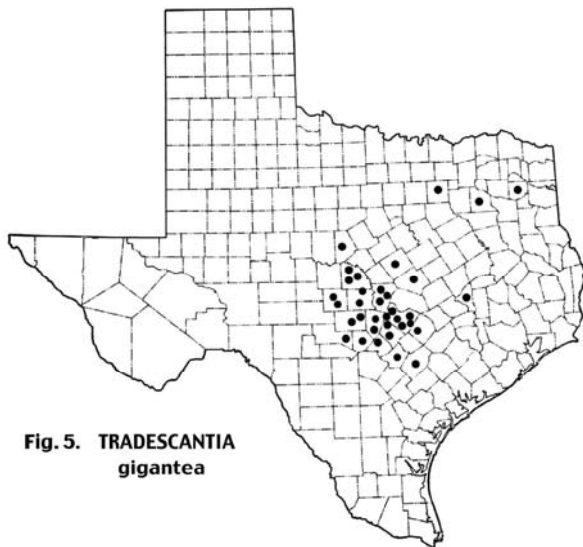
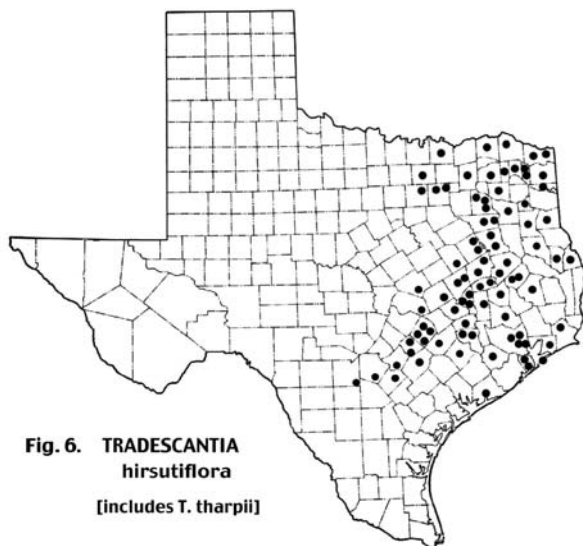


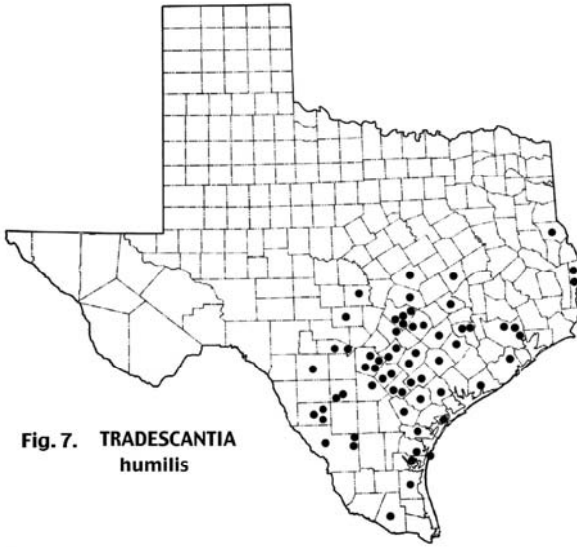
Fig. 4. TRADESCANTIA edwardsiana



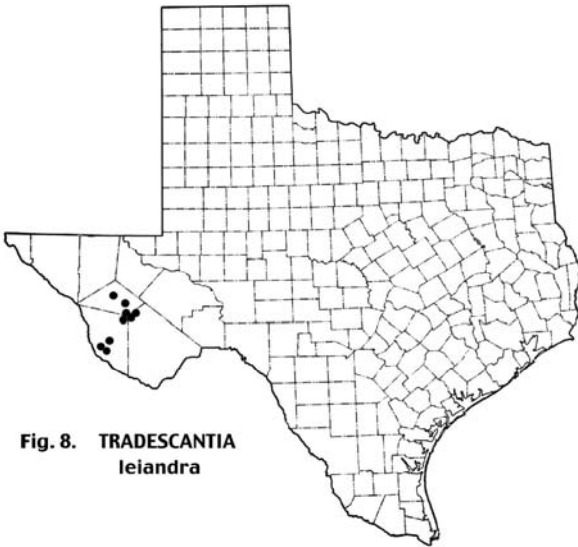
**Fig. 5. TRADESCANTIA
gigantea**



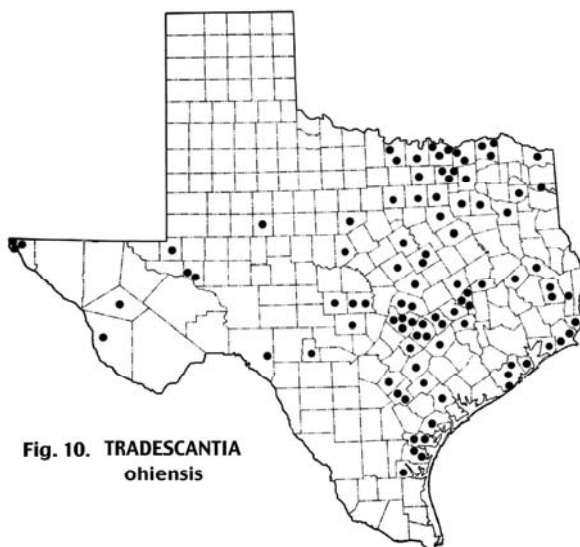
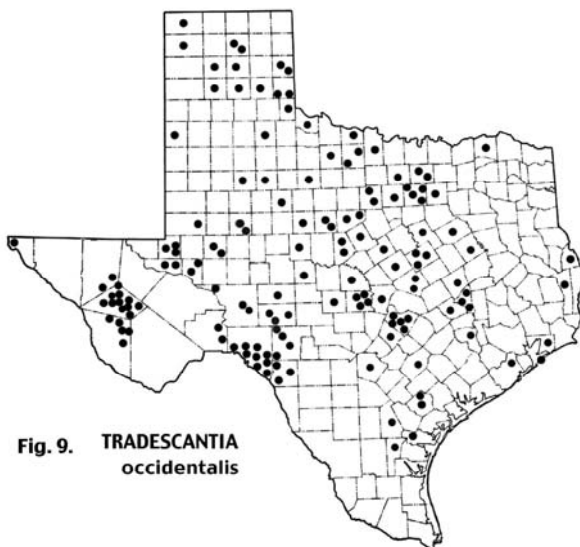
**Fig. 6. TRADESCANTIA
hirsutiflora
[includes *T. tharpii*]**

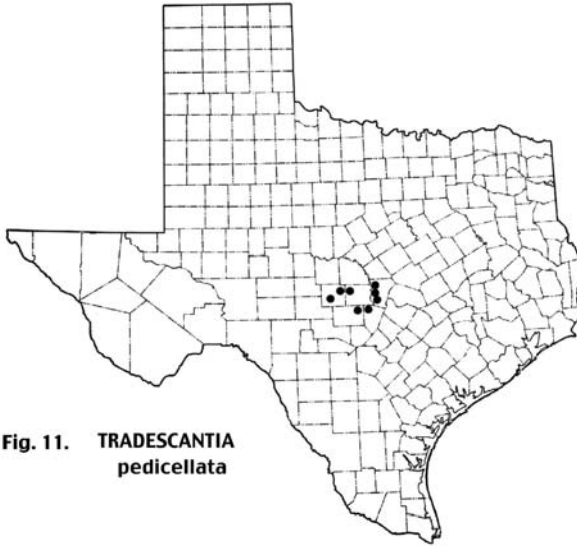


**Fig. 7. TRADESCANTIA
humilis**

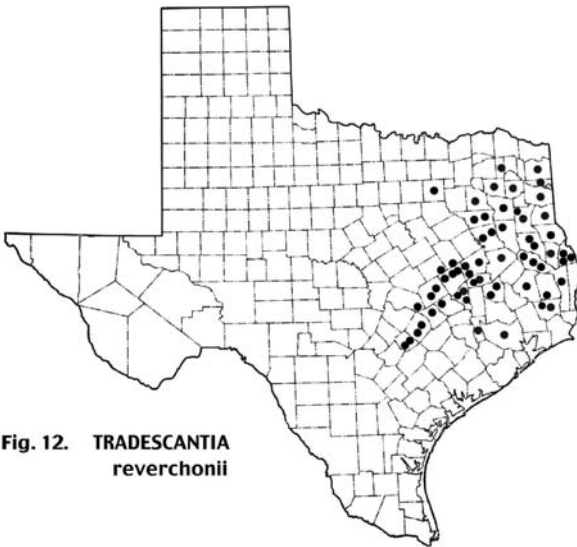


**Fig. 8. TRADESCANTIA
leiandra**

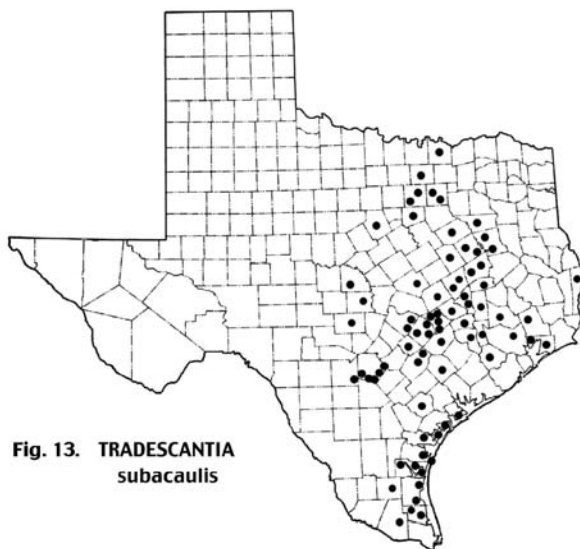




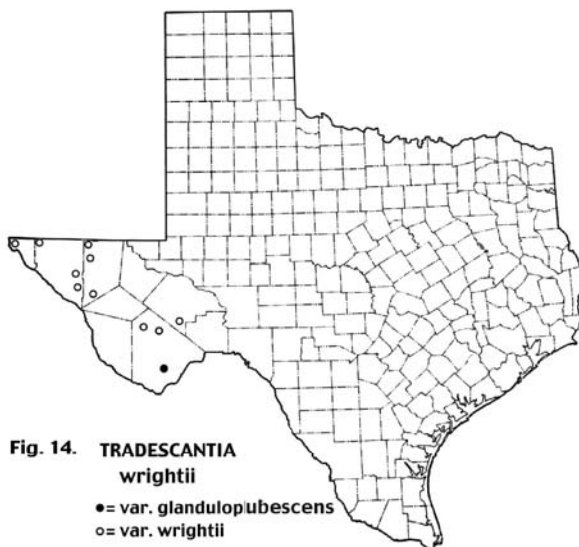
**Fig. 11. TRADESCANTIA
pedicellata**



**Fig. 12. TRADESCANTIA
reverchonii**



**Fig. 13. TRADESCANTIA
subacaulis**



**Fig. 14. TRADESCANTIA
wrightii**
● = *var. glandulopubescens*
○ = *var. wrightii*