

TEXAS SPECIES OF *RUELLIA* (ACANTHACEAE)

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ABSTRACT

A taxonomic study of the genus *Ruellia* (Acanthaceae) in Texas is rendered. Eleven species are recognized as native to the state: *R. caroliniensis* (Walt.) Steud., *R. corzoi* Tharp & Barkley, *R. drummondiana* (Nees) A. Gray, *R. humilis* Nutt. (with two varieties), *R. metzae* Tharp, *R. nudiflora* (Engelm. ex A. Gray) Urban (with three varieties), *R. occidentalis* (A. Gray) Tharp & Barkley, *R. parryi* A. Gray, *R. pedunculata* Torr. ex A. Gray, *R. strepens* L., and *R. yucatana* (Leonard) Tharp & Barkley; in addition, two species, *R. brittoniana* Leonard and *R. malacosperma* Greenman, are commonly cultivated, these sometimes escaping and persisting. A key to all of these taxa is constructed, and distributional maps are given for each. When relevant, their relationship to closely related taxa of northern México is discussed. The following new combination is made: *R. nudiflora* var. *runyonii* (Tharp & Barkley) B. Turner.

KEY WORDS: *Ruellia*, Acanthaceae, Texas

Many years of field work and sporadic attempts to identify the various Texas taxa of *Ruellia* using the treatments of Tharp & Barkley (1949), Wasshausen (1966), and Correll & Johnston (1970) has prompted the present reevaluation. The maps showing distribution are largely based upon a large suite of specimens on deposit at LL and TEX, which includes types of the taxa named by Tharp & Barkley.

According to Long (1970), *Ruellia*, with ca. 250 species, is the second largest genus of the Acanthaceae, rivaled only by *Justicia* with ca. 300 species. It is a difficult genus, some of the taxa showing considerable variation. Much of this complexity is perhaps due to the peculiar reproductive biology of some, if not many, of the species in which both chasmogamous and cleistogamous flowers are commonly produced. No doubt the resulting variation has been

compounded by at least occasional interspecific hybridization, as attested to by the experimental studies of Long (1970, and references therein).

Fernald (1945) rendered a fairly coherent treatment of *Ruellia* for the south-eastern U.S.A., which accounts for most of the species of easternmost Texas. He did not, however, attempt to treat the more difficult species of central Texas centering about *Ruellia nudiflora* (Engelm. ex A. Gray) Urban, in spite of the earlier cursory treatment of this complex by Leonard (1927).

Tharp & Barkley (1949), in an attempt to make sense of the *Ruellia nudiflora* complex in Texas (and closely adjacent México) provided a detailed study of the Texas material, much of this borrowed from 24 or more institutions, including types. For the time it was an excellent study, more so because the authors were working out of Austin, Texas, and both were rather intimately familiar with populations in the field. Thus, Tharp (and Barkley) repeatedly collected, and called to the fore, the well marked *R. metzae* Tharp, which previous workers had swept under the fabric of a highly variable *R. nudiflora*.

In spite of their familiarity with *Ruellia* in Texas, Tharp & Barkley recognized twenty species as native to Texas. Wasshausen (1966) recognized sixteen of these, excluding several which were known by only a few collections, these seemingly but forms of some of the more widespread taxa. Wasshausen's treatment was largely followed by Correll & Johnston (1970) who recognized fifteen species as native to the state.

In the present treatment I recognize eleven species as native to Texas, several of these possessing varietal elements, as noted in the above abstract. This does not diverge greatly from the treatment of Correll & Johnston, for I treat two of their species as a variety of *Ruellia nudiflora*. In short, I recognize thirteen native populational elements of *Ruellia* in Texas as deserving of nomenclatural recognition, eleven of these acting like species in the field.

Key to Texas species of *Ruellia*

1. Midstem leaves linear ovate to linear lanceolate, 4-10 times as long as wide, mostly 8-20 cm long; cultivated species (sometimes escaping). (2)
1. Midstem leaves variously ovate to elliptic and of various sizes but not as described in the above; native species. (3)
 2. Leaves ovate-lanceolate, spreading or somewhat reflexed, but scarcely held erect along the axis of the stem. *R. malacosperma*
 2. Leaves linear lanceolate, mostly held erect along the axis of the stem, scarcely spreading. *R. brittoniana*
3. Shrublets to 30 cm high, the stems corky white with age; trans-Pecos Texas. *R. parryi*

3. Suffruticose herbs or green stemmed shrublets.(4)
4. Flowers arranged in open or somewhat congested terminal panicles, except for reduced cleistogamous flowers which are often borne on divaricate branches arising from the base of the plants.(5)
4. Flowers arranged spikelike and terminal, or both axillary and terminal, but not borne in branched open panicles.(9)
5. Corollas white, 5-7 cm long. *R. metzae* (see also *R. noctiflora*)
5. Corollas pale lavender to purple, if white then 2-4 cm long.(6)
6. Plants mostly 10-30 cm high, the leaves mostly basal; lower nodes usually producing one or more conspicuous lateral branches with cleistogamic flowers or fruits; calyx lobes mostly 9-12 mm long; Southern Texas. *R. yucatanana*
6. Plants mostly 30-100 cm high, not producing lateral flowering branches from the lower nodes; calyx lobes mostly 12-20 mm long.(7)
7. Blades of midstem leaves broadly ovate to subdeltoid, mostly 1.0-2.5 times as long as wide, usually densely pubescent. *R. occidentalis*
7. Blades of midstem leaves ovate, elliptic to obovate, mostly 2.5-3.5 times as long as wide, sparsely to moderately pubescent.(8)
8. Stems mostly stiffly erect, 10-30 cm high; lower internodes with spreading white trichomes 1-3 mm long. *R. corzoi*
8. Stems mostly 30-100 cm high; lower internodes puberulent to glabrate, but not as described in the above. *R. nudiflora*
9. Leaves sessile or nearly so, those at midstem mostly 3-5 cm long. *R. humilis*
9. Leaves clearly petiolate, those at midstem mostly 5-10 cm long.(10)
10. Calyx lobes, near the middle, mostly 1.0-4.0 mm wide. *R. strepens*
10. Calyx lobes, near the middle, mostly 0.1-0.5 mm wide.(11)
11. Capsules glabrous.(12)
11. Capsules hirsutulous.(13)
12. Leaves sessile, the petioles 1-2 mm long. *R. pedunculata*
12. Leaves clearly petiolate, the petioles 2-6 mm long. *R. caroliniensis*

13. Midstem leaves mostly 3-6 cm wide; plants of central Texas.
 *R. drummondiana*
13. Midstem leaves mostly 1-3 cm wide; plants of eastern Texas.
 *R. pedunculata*

Ruellia brittoniana Leonard, J. Wash. Acad. Sci. 31:96. 1941. Fig. 11.

This taxon is cultivated in Texas and occasionally escapes to marshy or wet areas where it forms small localized rhizomatous colonies. Tharp & Barkley (1944) and Wasshausen (1966) maintained the species but it appears so closely related to *Ruellia malacosperma* Greenman that the two might be combined, the latter representing but a broad leaved populational variant of the former, or vice versa. Correll & Johnston (1970) suggest that *R. malacosperma* is of hybrid origin, perhaps with *R. brittoniana* as one of the parents.

Ruellia caroliniensis (Walt.) Steud., *Nom.*, ed. 2. 481. 1841. Fig. 1.

Ruellia caroliniensis (Walt.) Steud. var. *salicina* Fernald.

Ruellia caroliniensis (Walt.) Steud. var. *semicalva* Fernald.

Ruellia caroliniensis (Walt.) Steud. var. *serrulata* Tharp & Barkley.

This species is largely confined to the eastern U.S.A., but extends into easternmost Texas where it occurs in sandy soils of wooded regions. Tharp & Barkley (1944) and Wasshausen (1966) recognized three varieties for Texas, but these appear to be but habit, leaf, or floral forms of a highly variable *Ruellia caroliniensis*, as amply documented by Long (1971).

Texas material of this species can be readily distinguished from the superficially similar *Ruellia strepens* and *R. drummondiana* by its glabrous capsules, the latter possessing pubescent capsules, at least in Texas.

Ruellia corzoi Tharp & Barkley, Amer. Midl. Naturalist 42:49. 1949.

Ruellia drushelii Tharp & Barkley.

This taxon was accepted as specifically distinct by Wasshausen (1966) and Correll & Johnston (1970). While accepted as a species in the present treatment, my concept of the taxon is not the same as conceived by previous workers. Tharp & Barkley cited specimens from Bexar and Cameron counties, Texas which I would treat as but localized forms (or perhaps hybrid derivatives from *R. nudiflora* x *R. yucatanana*, at least in Cameron County). *Ruellia*

corzoi is typified by material from northcentral México, just south of Eagle Pass, Texas. It occurs in close proximity to *R. nudiflora* var. *runyonii* along the Rio Grande River, but I have not examined mixed populations of the two. *Ruellia corzoi* can be readily distinguished from the latter by its calyx lobes, which have glandular hairs much like the var. *nudiflora*, and by its rather stiffly erect stems, dwarf habit, and hirsute lower stems; such variation is perhaps a byproduct of ancestral hybridization with the more southeastern *R. yucatanana*. Nevertheless, I have examined very large, exceedingly uniform populations of *Ruellia corzoi* growing in Val Verde Co., Texas (e.g., on rocky calcareous hills near the entrance to Seminole Canyon State Park, Turner 16026 [TEX]) and no sign of intergradation of these plants toward *R. nudiflora* var. *runyonii* could be detected. The only other species to be found at this site was *R. parryi*. To the east of this area, *Ruellia nudiflora* may be found, mostly in deep calcareous soils.

Ruellia drushelii, the type from Muzquiz, Coahuila, northcentral México, appears to be a form of *R. corzoi* with large corollas. *Ruellia drushelii* var. *macrocarpa*, the type from ca. 40 mi. south of Monterrey, Nuevo León, appears to be a form of *R. yucatanana* with unusually pubescent lower nodes. Tharp & Barkley cited a Nealley collection of the *R. drushelii* var. *macrocarpa* from Texas, but I think this must be *R. corzoi* of the present treatment.

The *Ruellia nudiflora* complex (including *R. corzoi*) needs much additional study, especially in México, there being relatively few collections of this taxon in the herbaria from the latter region. Finally, it should be noted that Leonard (1917) cited *R. n.* var. *humilis* (type from Cuba) as occurring in Texas but the specimens cited appear to be *R. corzoi* of the present treatment.

Ruellia drummondiana (Nees in DC.) A. Gray, *Syn. Fl. N. Amer.* 2:326. 1886. Fig. 2. BASIONYM: *Dipteracanthus drummondianus* Nees in DC.

Dipteracanthus lindheimerianus Scheele.

This species is relatively common in shady wooded areas of central Texas, mainly along the Edwards Plateau where it occurs in relatively deep calcareous soils. It is a robust herb 50-100 cm high, about equally leafy from bottom to top.

Ruellia humilis Nutt., *Trans. Amer. Phil. Soc.* 5:182. 1837. Fig. 3.

Tharp & Barkley (1944) and Wasshausen (1966) recognized five varieties of this widespread, highly variable species for Texas. I can recognize only two of these varieties for the state, as indicated in the following key.

Fig. 1
Distribution of *Ruellia carolinensis* in Texas.



Fig. 2
Distribution of *Ruellia drummondiana* in Texas.



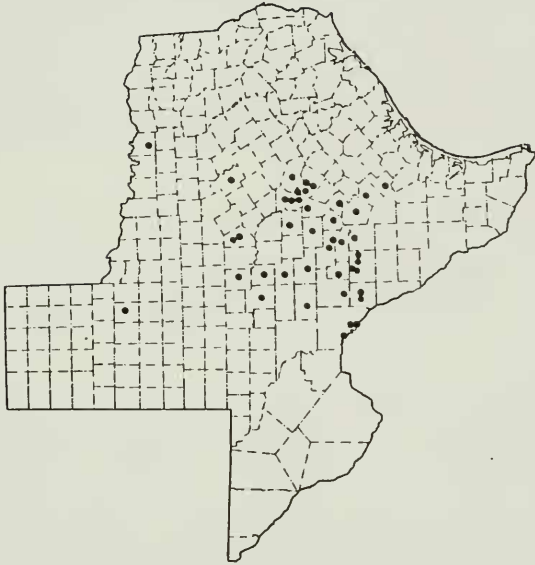


Fig. 4. Distribution of *Ruellia missillae* in Texas.

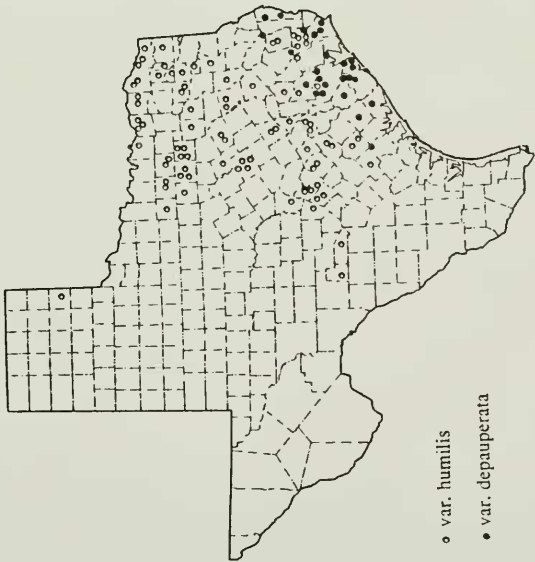


Fig. 3. Distribution of *Ruellia humilis* in Texas.

1. Plants mostly 20-60 cm high, the primary stems mostly stiffly erect and 2-5 mm in diameter; midstem leaves mostly 1.5-2.5 cm across, moderately to markedly pubescent, the marginal hairs often 1 mm long or more. var. *humilis*
1. Plants mostly 5-20(-30) cm high, the primary stems mostly depauperate, often ascending or recumbent and 1-2 mm in diameter; midstem leaves mostly 0.5-1.5(-2.0) cm across, mostly sparsely pubescent, the marginal hairs only rarely exceeding 1 mm in length. var. *depauperata*

Ruellia humilis Nutt. var. *humilis*.

Ruellia humilis Nutt. var. *expansa* Fernald.

Ruellia humilis Nutt. var. *frondosa* Fernald.

Ruellia humilis Nutt. var. *longiflora* (A. Gray) Fernald.

The several names listed in the above synonymy which have been applied to Texas plants appear to be but forms, sometimes populational, of a widespread highly variable var. *humilis*. This is implicit in the statements of Tharp & Barkley (1944), calling to the fore various and numerous intermediates between these, and more so because any attempt to find geographical integrity for the morphological forms involved becomes mired in guesswork, resulting in a meaningless hodge podge of overlapping distributional maps. It is possible that careful field work might reveal geographical trends that I have not detected, or perhaps the morphological picture has been clouded by occasional hybridization with yet other taxa, but this is not clear from the variation patterns available to me, *Ruellia humilis* itself being a relatively easily recognized species, with its glabrous capsules and nearly sessile leaves.

The var. *humilis* appears to intergrade in southeastern Texas with the var. *depauperata*, the latter a smaller, less pubescent, plant largely confined to the Gulf Coastal Grasslands or gumbo glades in regions of sandy soil. As noted by Wasshausen (1966), most of the plants recognized as *Ruellia ciliosa* Pursh by Tharp & Barkley (1944) belong to what has been called *R. humilis*.

Ruellia humilis Nutt. var. *depauperata* Tharp & Barkley, Amer. Midl. Naturalist 42:74. 1944.

As noted in the above account, and by the map showing distribution, this taxon is largely confined to clay soils of southeastern Texas. It intergrades over relatively short distances into the var. *humilis*, which largely occurs on lighter alluvial or sandy soils. The variety is only weakly differentiated and perhaps does not merit recognition.

Ruellia malacosperma Greenman, Proc. Amer. Acad. Arts 34:572. 1909. Fig. 11.

This cultivated taxon was maintained by both Tharp & Barkley (1949) and Wasshausen (1966) as distinct from *Ruellia brittoniana* but, as noted under the latter, these two Mexican taxa are probably no more than regional populational leaf variants of the same species. The type of *R. brittoniana* is from Xalapa, Veracruz and that of *R. malacosperma* is from San Luis Potosí.

Ruellia metzae Tharp, Amer. Midl. Naturalist 42:19. 1949. Fig. 4.

Ruellia metzae Tharp var. *marshii* Tharp & Barkley.

Ruellia muelleri Tharp & Barkley.

This is a very distinct taxon, readily distinguished by its low habit and large white flowers with tubes 3-5 cm long. It is largely confined to calcareous soils of central and northcentral Texas, but extends into northern México. Wasshausen (1966) reduced both *Ruellia metzae* var. *marshii* and *R. muelleri* to synonymy under this species, as do I. While their types are both from near Muzquiz, Coahuila, Tharp & Barkley cited specimens as occurring in Texas. Clearly the few specimens cited for these two names are but forms possessing characters attributable to an imaginary or artificial species.

Ruellia noctiflora (Nees) A. Gray, Syn. Fl. N. Amer. 2:326. 1878.

Tharp & Barkley (1949) cited a single questionable collection of this taxon from Texas. Wasshausen (1966) did not account for the species in his treatment of the Texas taxa, nor did Correll & Johnston (1970). Long (1971) mapped the species as occurring from southwesternmost Louisiana to southern Georgia and adjacent Florida, but did not note any collections from Texas, where it might yet be found in the swampy forestlands of Newton or Orange counties. The species should be readily recognized in this region by its large, white corollas (8-9 cm long).

Ruellia nudiflora (Engelm. ex A. Gray) Urban, Symb. Antill. 7:382. 1912. Fig. 5.

In Texas this is a commonly encountered, widespread, exceedingly variable species, distributed from central Texas, more or less east and south of the Edwards Plateau, occurring in mostly deep calcareous or alluvial soils. Leonard

(1927) also noted its considerable variability, commenting "The species is extremely variable in habit, in size and shape of flowers and leaves, and in the nature of the pubescence. These variations are sufficiently constant to permit the maintenance of several varieties." He thereupon provided a key and descriptions for eight varieties, three of these from Texas (*Ruellia nudiflora* var. *nudiflora*, the type from near Houston, Texas in Harris County; *R. n.* var. *occidentalis*, and *R. n.* var. *humilis*; the var. *occidentalis* is here treated as a distinct species, while his var. *humilis*, typified by material from Cuba, appears not to be part of the Texas complex, although Leonard cites two sheets from Texas, both of which apply to the *R. corzoi* of the present treatment).

Leonard's treatment of the *Ruellia nudiflora* complex was constructed without knowledge of populational variation in the field. A radically different, and much better, treatment of the complex was provided by Tharp & Barkley (1949), who, for the most part, had populational concepts of their species. These two authors recognized ten species from this complex as occurring in Texas, most of these newly described. Wasshausen (1966), in his treatment of *Ruellia* for the *Flora of Texas*, largely followed Tharp & Barkley's treatment, having himself at least some familiarity with populations in the field, although this is not apparent from his rather stereotyped published account of the complex. Correll & Johnston (1970) largely accepted Wasshausen's account of *Ruellia* in their treatment of the genus for the *Manual of the Vascular Plants of Texas*.

The *Ruellia nudiflora* complex was also studied by Long & Broome (unpublished), to judge from annotations of material housed at LL and TEX. These two authors were apparently not especially familiar with Texas populations of the group. Indeed, some of their annotations are incomprehensible, populationally speaking, for they have annotated almost identical specimens from southern Texas as either *R. nudiflora* or *R. glabrata* (Leonard) Tharp & Barkley.

I have been casually interested in the Texas ruellias for 30 years or more, both in the herbarium and in the field. Often frustrated with my attempts to use the treatments of Tharp & Barkley and Wasshausen, I finally decided to attempt an original reevaluation of the complex for Texas and closely adjacent Mexico.

Key to Texas varieties of *R. nudiflora*

1. Corollas (of chasmogamous flowers) mostly 4-5 cm long; calyx lobes having glandular hairs with the stalks elongate, 2-5 times as long as the capitate glands; pubescence of capsule not glandular pubescent throughout, or nearly so. var. *nudiflora*
1. Corollas mostly 3-4 cm long; calyx lobes having glandular hairs with the stalks short, about as long as or 1-2 times as long as the capitate

glands; pubescence of capsule glandular pubescent throughout, or nearly so. var. *runyonii*

Ruellia nudiflora (Engelm. ex A. Gray) Urban var. *nudiflora*

Dipteracanthus nudiflora Engelm. ex A. Gray

According to Leonard (1927), the type of this taxon is from near Houston, Texas in Harris County. The variety is largely restricted to eastcentral Texas where it commonly occurs in grasslands on heavy alluvial soils or in gumbo glades in the more eastern portion of its range. Southwards it appears to grade into the var. *runyonii*, which is largely restricted to the drier, calcareous or sandy calcareous, soils of the Tamaulipan Biotic Province. Intermediates seemingly occur along a relatively narrow belt from San Antonio in Bexar County southeastwards to about Corpus Christi. Both taxa appear to commingle to some extent along the coastal regions south of Corpus Christi, occasional specimens having characters of both taxa. Tharp & Barkley used corolla length as almost the sole criterion by which to distinguish between varieties *nudiflora* and *runyonii*, but as shown in my key, corolla length also correlates with yet other characters, and I have no doubt that the two taxa are regionally distinct. Nevertheless, occasional specimens of what appear to be var. *nudiflora* will possess short corollas, and vice versa, usually along regions of contact, but occasional specimens with either short or long corollas are found well removed from areas of immediate contact.

Finally it should be noted that *Ruellia nudiflora* (both varieties!) occur sympatrically with *R. yucatana* and *R. occidentalis* in southernmost Texas, and certainly these are likely to hybridize, given the opportunity; thus morphological evaluation of plants from this region are likely to be complicated by spurious variation resulting from such crosses, making difficult the ready interpretation of character states as presented in the above key.

Ruellia nudiflora (Engelm. ex A. Gray) Urban var. *runyonii* (Tharp & Barkley) B. Turner, *stat. & comb. nov.* BASIONYM: *Ruellia runyonii* Tharp & Barkley, Amer. Midl. Naturalist 42:52. 1949.

Ruellia runyonii Tharp & Barkley var. *berlandieri* Tharp & Barkley.

Tharp & Barkley (1949) and Wasshausen (1966) recognized this taxon as a distinct species, but it has all the attributes of an allopatric or partially sympatric variety which intergrades in regions of near sympatry or parapatry. This is discussed in more detail under the var. *nudiflora*.

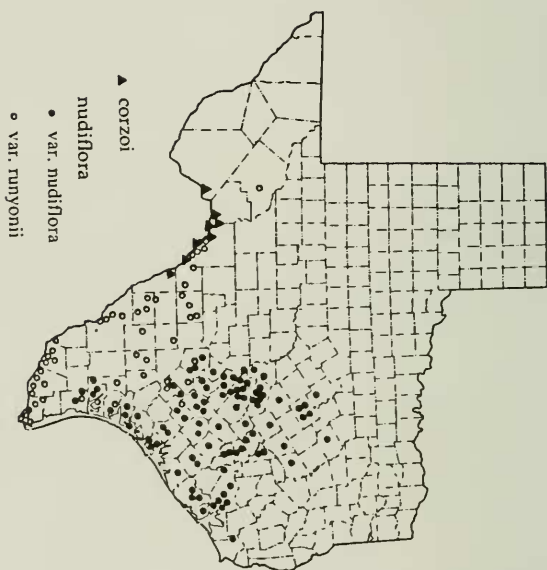


Fig. 5. Distribution of *Ruellia nudiflora* and *R. corzoi* in Texas.

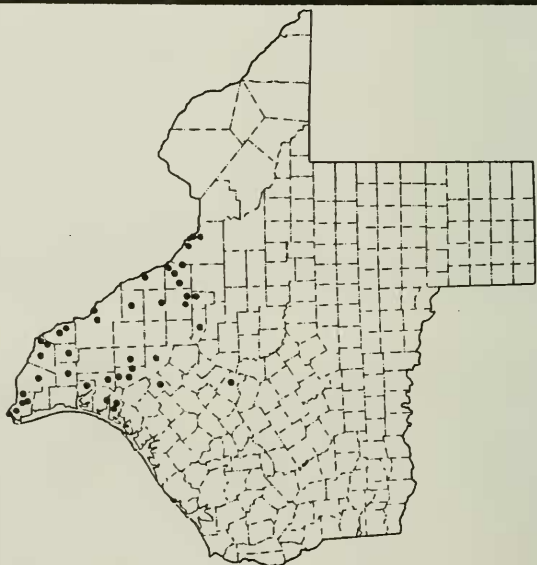


Fig. 6. Distribution of *Ruellia occidentalis* in Texas.

The var. *runyonii*, as noted in the above key, is recognized by a syndrome of characters, with occasional character states being intermediate, the latter occurring in regions of overlap. It should also be reemphasized here that var. *runyonii* may occur at a given site with both *Ruellia nudiflora* var. *nudiflora* and *R. yucatanana* (e.g., Nueces Co.: Petronilla Creek, 26 May 1946, *Wolcott & Barkley 16394, 16395T, 16397T, 16398T* (TEX)). Collectors of the aforementioned material were apparently unaware of the mixed collections at the site concerned at the time of their collections, but Tharp subsequently correctly annotated these, there being no clear indication that gene exchange might be taking place. Nevertheless, other collections from the same region suggests that gene exchange or intergradation between at least var. *nudiflora* and var. *runyonii* occurs, as exemplified by *Correll 20401* (LL) from Nueces County, near Corpus Christi, which has characters of both varieties.

The var. *berlandieri* appears to be a form of the species with very pubescent foliage, perhaps derived from hybridization with *R. occidentalis*. Finally, it should be noted that at least two collections of *R. nudiflora* examined by myself, both from the Dominican Republic in the Caribbean area, appear to belong to the var. *runyonii*, at least by the characters emphasized here. These may prove to be introductions to the region from southern Texas or adjacent México. Leonard (1927) assigned such plants to *R. nudiflora* var. *insularis* Leonard (type from Cuba), distinguishing these from the Texas-Mexican material, which he assigned to var. *nudiflora* (sensu lato), by the large open panicles and smaller corollas (ca. 3 cm long vs. 3-4 cm). If my surmise that *R. n.* var. *insularis* is synonymous with *R. n.* var. *runyonii*, then the former must serve as the correct name of the mainland populations. Regardless, at the present time, it appears more appropriate to recognize the Caribbean elements as a closely related but distinct variety.

Ruellia occidentalis (A. Gray) Tharp & Barkley, Amer. Midl. Naturalist 42:25. 1949. Fig. 6. BASIONYM: *Ruellia tuberosa* L. var. *occidentalis* A. Gray. *Ruellia nudiflora* (Engelm. ex A. Gray) Urban var. *occidentalis* (A. Gray) Leonard.

Ruellia occidentalis (A. Gray) Tharp & Barkley var. *wrightii* Tharp & Barkley.

Ruellia davisiorum Tharp & Barkley.

Ruellia strictopaniculata Tharp & Barkley.

This highly variable species is readily distinguished from its closest relative, *Ruellia nudiflora*, by its mostly taller habit, densely glandular pubescent vestiture and larger ovate to subdeltoid leaves. Plants with congested panicles and relatively small leaves have been segregated as *R. davisiorum*; the latter was retained by both Wasshausen (1966) and Correll & Johnston (1970), but such plants appear to be but forms of a variable *R. occidentalis*. *Ruellia strictopaniculata* was also included by the latter workers as a synonym of *R. occidentalis*, the name being applied to forms of the latter with a compact inflorescence. *Ruellia occidentalis* var. *wrightii* was not accounted for by either Wasshausen or Correll & Johnston, but the type (*Wright 431*, w/o locality, but probably from southcentral Texas) and only cited specimen, appears to be a large leafed variant of an otherwise typical *R. occidentalis*.

The types of *Ruellia davisiorum* and *R. strictopaniculata*, both from southernmost Texas, occur in a region where the closely related *R. occidentalis*, *R. nudiflora*, and *R. yucatanana* are sympatric and abundant. Field work in this area is needed to help resolve the populational interplay of these taxa. It appears likely that hybridization, followed by cleistogamic reproduction of selected clones, accounts for at least some of the aberrant variation in this region, and perhaps elsewhere.

Ruellia parryi A. Gray, *Syn. Fl. N. Amer.* 2:326. 1878. Fig. 7.

This western taxon is readily recognized by its low, stiffly branched habit, and the leaves rather small, somewhat indurate and mostly 1-2 cm long. The capsules may be either pubescent or glabrous. As noted under *Ruellia corzoi*, it occurs mixed with the latter on rocky limestone hills in Val Verde Co., Texas.

Ruellia pedunculata Torr. ex A. Gray, *Syn. Fl. N. Amer.* 2:325. 1878. Fig. 8.

This species is relatively common in sandy soils in wooded areas of easternmost Texas and is readily recognized by its peculiar branching propensity, the chasmogamous flowers borne single on mostly widely ascending lateral branches. Occasional depauperate plants resemble *Ruellia humilis*. Specimens with glabrous fruits and sessile leaves were recognized by Tharp & Barkley (1949) as *R. pinetorum* Fernald; the latter species was maintained for Texas by Wasshausen (1966) but he annotated most of the sheets concerned as *Ruellia pedunculata* (TEX, 1965). I agree with his initial assessment. *Ruellia pinetorum* is a taxon of the southeastern U.S.A. and has been treated as a subspecies of *R. pedunculata* by Long (1970). It is possible that the plants recognized in Texas as *R. pinetorum* are but hybrid derivatives of an occasional cross between *R. pedunculata* and *R. humilis*, at least the characters which

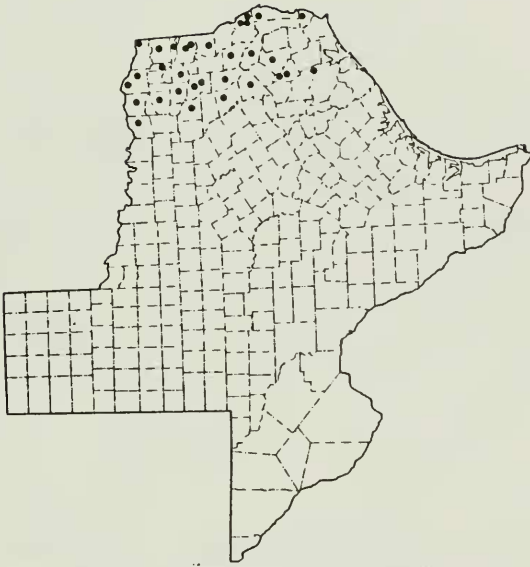


Fig. 8. Distribution of *Ruellia lasiangularis* in Texas.



Fig. 7. Distribution of *Ruellia parviflora* in Texas.



Fig. 9. Distribution of *Ruellia strepens* in Texas.

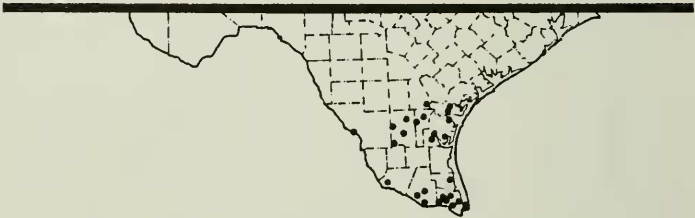


Fig. 10. Distribution of *Ruellia yucatanana* in Texas.

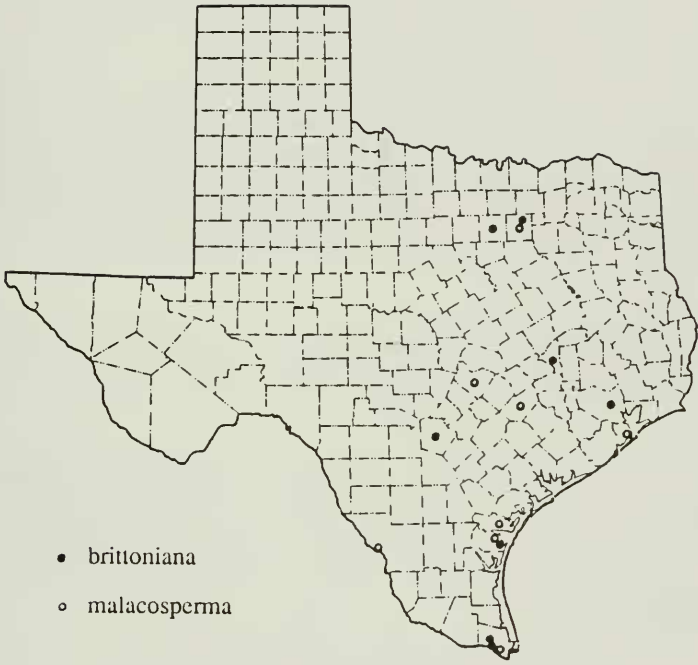


Fig. 11. Distribution of *Ruellia brittoniana* and *R. malacosperma* in Texas (both cultivated).

are said to mark *R. pinetorum* are found in *R. humilis*, and the hypothetical parents are mostly sympatric, at least in Texas.

Ruellia strepens L., *Sp. Pl.* 634. 1753. Fig. 9.

Ruellia strepens L. var. *cleistantha* A. Gray.

This species is largely confined to wooded floodplains in eastern Texas. Cleistogamic forms with fruits tightly clustered in the axils of leaves, and with shorter, usually broader, calyx lobes were treated at the varietal level by Tharp & Barkley (1944) and Wasshausen (1966), but in Texas these have no geographic integrity and clearly represent but forms of a widespread variable species.

Ruellia yucatana (Leonard) Tharp & Barkley, *Amer. Midl. Naturalist* 42:56. 1949. Fig. 10. BASIONYM: *Ruellia nudiflora* (Engelm. ex A. Gray) Urban var. *yucatana* Leonard.

This taxon extends along the Gulf Coastal Region from southernmost Texas to the Yucatán Peninsula of México. It is readily recognized by its tendency to produce prominent lateral branches from the lower nodes which produce cleistogamous flowers. I have treated as *Ruellia yucatana* some of the specimens annotated as *R. corzoi* by both Tharp & Barkley (1949) and Wasshausen (1966).

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