

**JASMINUM LAURIFOLIUM (OLEACEAE) ADVENTIVE IN TEXAS,
WITH OBSERVATIONS ON ALIEN PLANT INVASIONS AND DISTRIBUTION
ON THE TEXAS GULF COAST BY PASSERINES**

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ABSTRACT

Jasminum laurifolium is reported as naturalized in Nueces County of the central Texas Gulf coast. A brief history of the genus in Texas and Florida is presented as well as information on the occurrence of *J. laurifolium*. Indications are that *Schinus terebinthifolius*, a major invasive plant on the Texas coast, may have facilitated this introduction by attracting migrating frugivorous birds and creating open niches that can be exploited by certain subtropical and tropical plants, including species yet to become established.

The genus *Jasminum* (Oleaceae) consists of 200+ species of trees and erect or scandent shrubs. These are native to Africa, Asia, Australia, South Pacific Islands, and one species in the Mediterranean region (Chang Mei-chen et al. 1996). They are widely used as ornamentals in the tropical and subtropical areas of the world. At least ten species of *Jasminum* have been imported into the USA (Read 1962) and a number of species have been used to a considerable extent in landscaping pursuits. However, the name “jasmine” has been liberally applied to numerous horticultural plants, commonly misidentified or listed in synonymy, such that correct names for numerous horticultural species versus trade names is confusing (Dickey 1949). The consequences of continued use of incorrect names provide a long history of misunderstanding regarding what species were originally cultivated. The most widely naturalized species both are yellow-flowered and known as yellow jasmine: *J. mesnyi* Hance of Alabama, Arizona, Florida, Georgia, Louisiana, and Texas and *J. nudiflorum* Lindl. of Alabama, Georgia, Missouri, Oklahoma, Tennessee, and Texas (Kartesz 2015). The remaining species are white-flowered, regardless of seasonal phenology, and occur in Florida.

Correll and Johnston (1970) mentioned that *Jasminum* is commonly cultivated in Texas and occasionally volunteers or escapes, but they cited no species names. Jones et al. (1997) included 6 species in their checklist of the Texas flora, but all were noted to be cultivated. Turner et al. (2003) did not map any species of the genus in their atlas, nor were any listed as adventive. *Jasminum mesnyi* (Hardin 1974) and *J. nudiflorum* (Diggs et al. 1999) are reported to be

adventive in Texas. *Jasminum laurifolium* (angel-wing jasmine, star jasmine, windmill jasmine, confederate jasmine), a native of Bangladesh and India (Green 1984), and introduced to the West Indies, Admiralty Islands, Papua New Guinea and China (Read 1962; Bailey & Bailey 1976; Green 1984; Wunderlin 1998; Chang Mei-chen et al. 1996; Nesom 2015 pers. comm.) is here reported as adventive to the central Texas coastal plain.

Jasminum laurifolium Roxburgh ex Hornemann (syn = *J. nitidum* Skan). Voucher: **TEXAS**. Nueces Co.: 1.3 mi E on Hwy 361 from jct of Hwy 90 (Commerce Street) and Hwy 361 in Aransas Pass; to Stedman Island, take first left onto dirt road (N side of Hwy 361), then right (east) paralleling bay for 10 m, 25 Feb 2015, *Singhurst 21,337* (BAYLU). Figure 1. Three multi-branch shrubs with vining-like stems were growing among and under *Schinus terebinthifolius* in the sandy coastal prairie and saline flats transition. Associated species include *Borrchia frutescens*, *Coreopsis nuecensoides*, *Gaillardia pulchella*, *Iva frutescens*, *Rayjacksonia phyllocephala*, *Thelesperma nuecense*, *Opuntia* sp., *Sophora tomentosa*, *Sisyrinchium* sp., *Linum* sp., *Distichlis spicata*, *Spartina spartinae*, *Schizachyrium littorale*, *Anagallis arvensis*, *Stenaria nigricans*, *Verbena xutha*, and *Verbena* sp.



Figure 1. *Jasminum laurifolium*, with white flower and large, long-acuminate, glossy, evergreen leaves. The foliage, rusty-red fruits, and branches of *Schinus terebinthifolius* serve as perching sites for passerines. Photo by Jason Singhurst, 25 February 2015, Nueces County.

This marks the second state of the USA in which *Jasminum laurifolium* has been documented. It is also known from Dade County, Florida, where it is mapped as adventive to Florida (Wunderlin 1998; Wunderlin and Hansen 2008; Kartesz 2015).

Jasminum laurifolium has escaped cultivation and been naturalized in Florida since the 1990s (Wunderlin 1998), vouchered from Dade Co. (*Craighead s.n.*, USF 64191). An accession of *J. laurifolium* plants, under the synonym *J. nitidum* Skan, received from Lemoine & Son of the city of Nancy, France, was recorded at the Plant Introduction Station in Miami during 1930 under P.I. 90315 (Read 1962). At least five species of *Jasminum* have documented importations into the United States via this facility (Read 1962). Known today as the Subtropical Horticulture Research Station (SHRS), this facility was originally envisioned for the importation, field trial, and distribution of plants (Popenoe 1922). Numerous plant species and their seeds were brought in for horticultural production in this country, in efforts to diversify gardens and reduce disease spread by imported plants (Fairchild 1934). Ironically, these criteria failed to specifically measure ecological penalties on native floral regimes.



Figure 2. *Jasminum laurifolium*, 25 February 2015, Nueces Co., Texas. Photo by Jason Singhurst.

Dispersal and establishment of adventives in Texas by passerines

Recent coastal discoveries in Texas, e.g., *Senna bicapsularis* (Singhurst et al., 2013) and *Jasminum laurifolium* (this report), have been found in proximity to *Schinus terebinthifolius*. Whether the association with *J. laurifolium* is related to disturbance, influence of a perturbation of *S. terebinthifolius* on ecological succession, or *S. terebinthifolius* merely acting as a nursery tree for other nonnatives is unknown. This association may simply occur as a feature of locally ubiquitous coastal presence of *S. terebinthifolius* in Texas or these coastal sites may provide unoccupied niche sites exploited by certain subtropical and tropical shrub species. This niche exploitation seems promoted by the arborescent nature of *S. terebinthifolius*, which appears to be attractive to perching birds (passerines), a primary dispersal agent of seeds (Ewel et al. 1982; Curnutt 1989). These bird species may be winter coastal residents or Neotropical migrants, yet both assemblages participate in some level of seasonal frugivory e.g., *Turdus migratorius*

(American Robin), *Bombycilla cedrorum* (Cedar Waxwing), *Dumetella carolinensis* (Gray Catbird), *Pipilo erythrophthalmus* (Eastern Towhee), *Vireo olivaceus* (Red-eyed Vireo), *Myiarchus crinitus* (Great-crested Flycatcher), and various other Turdids, Vireonids, Tyrannids and Cardinalids.

Additional recent exotic species discovered in the Texas coastal area, e.g., *Carissa macrocarpa* (Singhurst & Holmes 2010) and *Coccoloba uvifolia* (Singhurst & Holmes 2014), have life history attributes similar to *Schinus terebinthifolius*: trees serving as perching sites and fruit dispersal by various passerines (Ewel et al. 1982; Parrotta 1994; Mishra & Gupta 2005) and tolerance of saline coastal soils. The periodic irruptions by migratory frugivorous passerines, in combination with plant proximity to migratory landfalls and timing of fruit development, has the potential to expand colonization of these naturalized plant species. Other arborescent species, except palms, are not as abundant nor do they attain the density and size of *S. terebinthifolius*. Palms along the south Texas coast are mainly planted, generally in human residential areas, and lack a favorable fruit and growth form to attract passerines. Niche occupation by exotic fruiting plant species and rapid formation of novel mutualism with migrating passerines suggest that coastal Texas may be experiencing a dispersal lag-phase of these exotics and other nonnative fruit-bearers yet to come.

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