

CRYPTOSTEGIA GRANDIFLORA (APOCYNACEAE: ASCLEPIADOIDEAE),
A NEW NON-NATIVE WEED FOR TEXAS

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ABSTRACT

Cryptostegia grandiflora is naturalized in Starr County, Texas, where it has been observed at two localities along the Rio Grande. It is abundant at both sites and often densely covers entire trees.

RESUMEN

Cryptostegia grandiflora está naturalizada en el condado de Starr, Texas, donde ha sido observada en dos localidades a lo largo del Río Grande. Es abundante en ambos lugares y a menudo cubre densamente árboles enteros.

Cryptostegia grandiflora (Roxb. ex R. Br.) R. Br. (Apocynaceae, Asclepiadoideae; Palay rubbervine) has been discovered growing outside of cultivation in several places in Starr Co., Texas. It has not been previously reported or unequivocally confirmed as a naturalized member of the Texas flora (Nesom 2009).

TEXAS. Starr Co.: Roma, riparian vegetation along Rio Grande below Observation Deck of Roma Bluffs World Birding Center, completely and densely enshrouding ebanos (*Ebenopsis ebano*) up to 10 m high, fruiting, 17 Jan 2009, T.F. Patterson 2009-1 with E.C. Patterson (BRIT, TEX); Rio Grande City, riparian forest along the Rio Grande below Ft. Ringgold, fruiting, 17 Jan 2009, T.F. Patterson 2009-2 with E.C. Patterson (BRIT, TEX). ***Cryptostegia grandiflora*** was much earlier collected in south Texas, but it is not clear that this plant was growing outside of cultivation: **Cameron Co.:** Brownsville, sandy soil, alt. 30 ft, scandent shrub, 20 Oct 1923, Runyon 566 (TEX).

At the Roma Bluffs, *Cryptostegia grandiflora* densely covers 13 trees of popinac (*Leucaena leucocephala*), Berlandier ash (*Fraxinus berlandieriana*), and ebano (*Ebenopsis ebano*). Over an area of ca. 1 acre, growing from the banks of the Rio Grande up the slope to the backyards of houses lining the bluff. This Roma neighborhood may have been the source of the escaped Palay rubbervine.

The Ft. Ringgold site occurs ca. 22 miles downriver from the Roma Bluffs in a riparian forest far away from any houses in Rio Grande City. *Cryptostegia grandiflora* densely covers over 60 trees of salt cedar (*Tamarix aphylla*) and sugar hackberry (*Celtis laevigata*), spread over ca. 3 acres. Most of the rubbervine drapes salt cedars that occur on the first terrace above the river. The species also covers hackberries mostly in the riparian forest at the level of the river inland from the *Phragmites*-covered bank. Many of the most densely covered hackberries have died. Both areas are periodically flooded by the Rio Grande and it may have been during these floods that logs with attached *C. grandiflora* and the copious wind- and water-dispersed seeds transported the rubbervine downriver to Ft. Ringgold.

Cryptostegia grandiflora is native to Madagascar, where it occurs in riverine and seasonally flooded forests in the dry, southwest part of the country, and it is widely adventive in other parts of the world. It is reported to be invasive in the United States in the Florida Keys, Monroe Co. (Wunderlin & Hansen 2003, 2008) and it also is naturalized in Mexico, the West Indies, Australia, and Pacific Islands (PIER 2007). Standley (1924) reported that *C. grandiflora* was thoroughly naturalized in Sinaloa, and a "distributed query" to major herbaria with Mexican specimens (REMIB 2008) shows subsequent collections from Baja California Sur, Guerrero, Jalisco, Michoacan, Nayarit, Puebla, Sinaloa, Sonora, Tamaulipas, and Yucatán.

The genus *Cryptostegia* includes only two species, *C. grandiflora* and *C. madagascariensis* Bojer ex Decne. (Marohasy & Forster 1991), both endemic to Madagascar and both widely cultivated as ornamentals. Both species are naturalized and invasive in Florida and in Australia. In Hawaii, "Both species are usually identified

as *C. grandiflora* R. Br., but nearly all Hawaiian cultivated plants proved on careful inspection to be *C. madagascariensis*" (Staples et al. 2006). Apparently all or most reports for the Pacific area have been re-identified as *C. madagascariensis* in the Pacific Island Ecosystems at Risk account (PIER 2007) and previous reports of naturalized *C. grandiflora* should be evaluated in light of the possibility of confusion with its closely similar congener. Descriptions of both species are given on the pages in the PIER online database, and color photos of both also are available (PIER 2007; HEAR 2008). The following key, based on the work of Marohasy and Forster (1991), can be used to distinguish the species:

1. Stems with prominent, few lenticels; leaf blades with 14–16 pairs of secondary veins; corollas 3–4 cm long; corona filaments entire; follicles 5.8–9.9 cm long _____ ***Cryptostegia madagascariensis***
1. Stems with small, numerous lenticels; leaf blades with 11–13 pairs of secondary veins; corollas 5–6 mm long; corona filaments bilobed; follicles 10–15.4 cm long _____ ***Cryptostegia grandiflora***

Diagnostic features of *Cryptostegia grandiflora*: Climbing, lactiferous subshrubs; leaves opposite, simple, thick, evergreen, glabrous, blades broadly oblong to elliptic, 4–10 cm x 3–5 cm, apices abruptly acuminate; flowers 6–12 in terminal cymes, corollas reddish purple to pale pink, tubes campanulate, 2–4.5 cm long, lobes spreading, 2–4 cm long; follicles fusiform-ovoid, 10–15.4 cm long. "Large *C. grandiflora* can produce more than 8000 wind dispersed seeds in a single reproductive episode and can set seed at least twice per year. More than 90% of seeds will germinate within 10 days of moisture becoming available. Few, if any, seeds survive for more than 12 months in the soil" (Grice 1996).

In Australia, *Cryptostegia grandiflora* is "found in Queensland in the dry tropical areas often fringing streams and river systems including adjacent hills and pastures. It smothers vegetation replacing native species, particularly in areas degraded by stock. [It] Hinders pastoralism and reported to be toxic to livestock" (Smith 2002, p. 47). A remarkable photo shows a vast area in north Queensland, including ground, shrubs, and trees, completely covered by the viny growth (Invasive Species Council 2008), and accompanying notes describe the species as "arguably Australia's worst weed." A small area at the Ft. Ringgold riparian site appears similar to the Queensland photo with *C. grandiflora* completely covering trees, shrubs, and ground. The viny undergrowth is impenetrable. The spread of Palay rubbervine should be of concern to both ranchers and the Lower Rio Grande Valley National Wildlife Refuge with refuge tracts from Falcon Dam to the mouth of the Rio Grande. Pastures and refuge tracts along the Rio Grande should be monitored for the first arrival of rubbervine, so it can be eradicated before it becomes established.

There apparently are no restrictions on the sale of either species of *Cryptostegia* in the United States, and both are included on recent versions of the "Nursery eligible plant list and plant price schedule" for Texas, Oklahoma, and New Mexico (FCIC 2008). *Cryptostegia grandiflora* is offered for sale by nurseries in Florida and Texas and was offered for "swap" on a 2006 Texas gardening forum on the internet.

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