

Cissus sicyoides C. Linnaeus (Vitaceae), a Potential Exotic Pest in the Lower Rio Grande Valley, Texas

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ABSTRACT

Cissus sicyoides C. Linnaeus, a perennial vine native to tropical Mexico, Central America, and the Caribbean, has recently been rediscovered in the Lower Rio Grande Valley, Texas. A dense population of this exotic species has been located in a brushy area along a canal network and in two adjacent citrus groves near Weslaco. This species produces a dense mantle that covers other vegetation, appears to be invasive, and may pose a potential weed problem in citrus in the Lower Rio Grande Valley.

RESUMEN

Cissus sicyoides C. Linnaeus, una enredadera perenne nativa de los trópicos de México, América Central y el Caribe, se ha redescubierto recientemente en el Bajo Valle del Río Grande, Texas. Una población densa de esta especie exótica ha sido localizada en una área de matorral a lo largo de una red de canales y en dos huertas adyacentes de cítricos cercanas a Weslaco. Esta especie produce un manto denso que cubre otra vegetación, es invasiva y puede tener el potencial de convertirse en una maleza problemática para el cultivo de cítricos en el Bajo Valle del Río Grande en Texas.

Additional key words: Cissus sicyoides, invasive species, Lower Rio Grande Valley

With the continuous incursion of indigenous floras by non-native invasive elements, it is important to document appearances of alien species. *Cissus sicyoides* was initially reported in Texas and Florida by Vines (1960). However, it was not listed by Correll and Johnston (1970), Hatch et al. (1990), Jones et al. (1997) or Jones and Wipff (2003). Although this species is apparently not widespread in subtropical Texas, there probably are no barriers to its spread.

Standley (1923) listed seven species of *Cissus* (Vitaceae) in Mexico including *C. sicyoides*. *Cissus sicyoides* is distributed throughout most of the tropical regions of Mexico, Central America, and the Caribbean (Standley 1923). Only one species, *C. incisa* Des Moulins, is common in Texas. Correll and Johnston (1970) indicated that no *C. sicyoides* specimens had been seen from Texas, but reported the species from Tamaulipas, Mexico.

Cissus sicyoides (waterwhite treebine, bejuco loco) is an elongated, perennial vine. All parts of the plant are odorless unlike the malodorous *C. incisa*. Immature stems are dark green and glabrous. Mature stems have swollen nodes and are characterized by a thin, peeling bark that is covered with reddish papillae and cream-colored lenticels. The peeling bark exposes dark green stems.

The leaves typically are large, simple, alternate, glabrous, and succulent (Fig. 1A). They range from broadly rounded or ovate with rounded or cordate leaf bases. The margins are entire and the petioles are elongated. Conspicuous, firm tendrils are opposite some leaves and are present at the shoot apex. In contrast, *C. incisa* has much smaller leaves, and the margins are irregularly toothed.

The inflorescence is a densely flowered cyme that extends from the leaf axils. The calyx is light green, cup-shaped, and forms a rim around the ovary. The corolla includes four, yellow-green, connate petals that are attached to a floral disc. The androecium consists of four distinct white stamens. The pistil has one un-branched style and is subtended by a nectariferous disc. The superior ovary develops into a succulent black or purple berry that is similar to a small grape (Fig. 1B).

A dense population of *C. sicyoides* was found in anthesis and fruiting conditions in Hidalgo County, Texas, 4 November 2003 in a field reconnaissance along a canal network and in two citrus groves near Weslaco. This represents the first record of this species on citrus. The vine produces a dense, "kudzu-like" mantle that covers *Quercus virginiana* (live oak) (Fig. 1C), *Salix nigra* (black willow), *S. exigua* (sandbar willow), *Melia azedarach* (Chinaberry), *Sapium sebiferum* (Chinese

tallow), and *Carica papaya* (papaya). Propagule dispersal has allowed *C. sicyoides* to encroach onto a grapefruit and orange grove south of the canal (Fig. 1D). In early growth stages the vine is difficult to distinguish from the dark green foliage of the citrus canopy. However, once established, vines completely shrouded many of the trees and the citrus grower was forced to

launch a vigorous vine removal program in both groves.

The fleshy, grape-like fruits probably have been distributed by migratory birds. The combination of bird dispersal and the adjacent canal system appears to be important vectors for the potential dispersal of this aggressive species to other citrus production centers in the Lower Rio Grande Valley.



Fig. 1. Photographs of *Cissus sicyoides* in four settings: close-up of the leaves (A), the mature black to purple berries (B), engulfing a large live oak tree (C), and on an orange tree (D).

We are currently unaware of any herbicides or biological control agents that may be used to control this invasive species or of its tolerance to cold temperatures.

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LITERATURE CITED

- Correll, D.S. and M.C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner, TX. 1881 pp.
- Hatch, S.L., K.N. Gandhi, and L.E. Brown. 1990. Checklist of the vascular plants of Texas. Texas Agricultural Experiment Station. College Station. MP-1655. 158 pp.
- Jones, S.D., J.K. Wipff, and P.M. Montgomery. 1997. Vascular plants of Texas: a comprehensive checklist including synonymy, bibliography, and index. Univ. Texas Press. Austin. 404 pp.
- Jones, S.D. and J.K. Wipff. 2003. A 2003 updated checklist of the vascular plants of Texas. Botanical Research Center, Bryan, TX. 712 pp. (CD-ROM).
- Standley, P.C. 1923. Trees and shrubs of Mexico (Oxalidaceae-Turneraceae). Contr. from the United States National Herbarium. 23(3): 517-848.
- Vines, R. A. 1960. Trees, shrubs, and woody vines of the Southwest. Univ. of Texas Press, Austin. 1104 pp.