

# *Citharexylum caudatum*

Juniperberry

Verbenaceae

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## OVERVIEW

*Citharexylum caudatum*, juniperberry, along with *C. spinosum* which is a close relative, is a popular street or specimen tree in Hawai'i, prized for its attractive leaves which turn orange with the changing season. Both species are widely planted on Maui and both are spreading from initial plantings. *C. caudatum* was known to be a problem weed on O'ahu, but was previously thought to be absent on Maui. *C. caudatum* was found in both Ha'iku and near Kolea stream on the way to Hana in 1998. In both places, it is well established and would be difficult, if not impossible, to eradicate.

## TAXONOMY

**Family:** Verbenaceae (verbena family) (Wagner et al. 1999).

**Latin name:** *Citharexylum caudatum* L. (Wagner et al. 1999).

**Synonyms:** None known.

**Common names:** Juniperberry, fiddlewood (Wagner et al. 1999).

**Taxonomic notes:** *Citharexylum* is a genus of over 70 species from Bermuda, the West Indies, and southern United States through Mexico to South America (Wagner et al. 1999).

**Nomenclature:** The genus name, *Citharexylum*, is derived from the Greek word, *kithara*, meaning lyre, and *xylon*, meaning wood, after the English common name, fiddlewood (Wagner et al. 1999).

**Related species in Hawai'i:** *Citharexylum spinosum* is also cultivated and naturalized in Hawai'i (Wagner et al. 1999). It can be distinguished from *C. caudatum* by having leaves with pointed tips. This species also spreads from initial plantings.

## DESCRIPTION

"Large shrubs or small trees up to 20 m tall; branches nearly terete, glabrous. Leaves somewhat leathery, oblong to obovate or elliptic-oblong, 7-16 cm long, 3.5-5 cm wide, glabrous, upper surface glossy, lower surface dull, apex rounded or obtuse, base connate, petioles green, 1-2 cm long. Flowers in narrow, elongate-recurved racemes 4-10 cm long, pedicels usually 2-5 mm long; calyx campanulate, ca. 3 mm long, the rim unlobed and truncate in fruit; corolla white. Fruit purplish black, oblong-globose, ca. 5-8 mm long." (Wagner et al. 1999).

## BIOLOGY & ECOLOGY

**Cultivation:** *C. caudatum* is a specimen or street tree whose leaves turn orange. The light brown wood is used elsewhere for posts, not for musical instruments. This species is a honey plant (Little and Skolmen 1989).

**Invasiveness:** In Hawai'i, *C. caudatum* is spreading from initial plantings in moist to wet areas on Kaua'i, O'ahu, Maui, and Hawai'i. It is found naturalizing in pastures, gulches, roadsides, and disturbed forested areas. On O'ahu, *C. caudatum* is cultivated, naturalized, and rapidly spreading via bird dispersal out of Manoa Valley into the Ko'olau Mountains. *C. caudatum* produces many seeds which can germinate in very dark situations. It can even germinate on steep rock faces. *C. caudatum* is also capable of rooting at the nodes if a stem is pinned to the ground. Dog hair thickets of *C. caudatum* were observed in the moist area of Kolea Forest Reserve on Maui, one of the areas where it is well established.

**Pollination:** Unknown.

**Propagation:** *C. caudatum* can be propagated from seeds and cuttings.

**Dispersal:** Fruit eating birds readily disperse seeds of *Citharexylum* species. Trees are initially planted by humans.

**Pests and Diseases:** The coffee twig borer can be found in young shoots on O'ahu (P. Welton pers. comm.).

## DISTRIBUTION

**Native range:** *C. caudatum* is native from Mexico and Central America to northern South America and the West Indies (Wagner et al. 1999).

**Global distribution:** *C. caudatum* is cultivated and spreading in Hawai'i. It is also cultivated in Florida (Little and Skolmen 1989).

**State of Hawai'i distribution:** *C. caudatum* is invading on Kaua'i, O'ahu, Maui, and Hawai'i where it forms dense thickets in wet habitats (Nagata 1995, Wagner et al. 1999, Starr et al. 1999, Starr et al. in press). On O'ahu, it is spreading out of Manoa Valley into the Ko'olau Mountains (Wagner et al. 1999). On Hawai'i, it was recently collected as naturalized in the Hilo area. On Kaua'i, it was recently collected as naturalized in the Anahola area.

**Island of Maui distribution:** On Maui, *C. caudatum* has naturalized in Lahaina, Kihei, Ha'iku, and near Kolea stream on Hana Hwy. Most locations occur from seal level to 1,000 ft (305 m) elevation. In the drier sites of Lahaina and Kihei, *C. caudatum* is observed naturalizing in areas that are landscaped and are being irrigated. *C. caudatum* thrives in moist to wet lowland sites such as 'Ohia gulch and Kolea, Hana Hwy. where average annual rainfall is about 60-120 in (152-305 cm) (Juvik and Juvik 1998). In 'Ohia gulch and along West Kuiaha Road, Ha'iku, it appears as if a planting of both *C. caudatum* and *C. spinosum* escaped the confines of the garden and spread in all directions along roadsides, into pastures, and into nearby gulches. Near Kolea stream on the way to

Hana, *C. caudatum* can be seen at the wayside and in nearby roadsides, pastures, and gulches.

### **CONTROL METHODS**

**Physical control:** Seedlings and small *C. caudatum* plants can be pulled up by hand.

**Chemical control:** Little is known about chemical control methods for *C. caudatum*, but herbicides will undoubtedly be a part of any control strategy for fiddlewood.

**Biological control:** There are no known biological control agents for *C. caudatum*.

**Cultural control:** The residents of Maui could be informed not to plant *Citharexylum* species or other non-native species that have the potential to escape and become pests.

**Noxious weed acts:** *Citharexylum caudatum* is not on the Hawai'i state noxious weed list.

### **MANAGEMENT RECOMMENDATIONS**

On Maui, field crews and the public should familiarize themselves with *C. caudatum* and report new locations to USGS-BRD-MAUI. New locations should be locally controlled if possible. A list of all plants on Maui should be compiled, and constantly updated to find plants like *C. caudatum* before they become established and begin to spread.

### **REFERENCES**

- Juvik, S.P and J.O. Juvik. 1998. *Atlas of Hawai'i*. 3rd ed. Department of Geography, University of Hawai'i press, Honolulu, HI.
- Little, E.L. and R.G. Skolmen. 1989. *Common Forest Trees of Hawai'i*. Agriculture Handbook No. 679. United States Department of Agriculture, Washington, DC.
- Nagata, K.M. 1995. New Hawaiian plant records. IV. *Bishop Mus. Occ. Pap.* 42(2): 10-13.
- Starr, F., K. Martz, and L.L. Loope. 1999. New plant records from East Maui for 1998. *Bishop Mus. Occ. Pap.* 59:11-15.
- Starr, F., K. Starr, and L.L. Loope. 2003 (in press). New plant records for the Hawaiian Archipelago. *Bishop Mus. Occ. Pap.*
- Turner, R. J. Jr. and E. Wasson. 1997. *Botanica*. Mynah Publishing. NSW Australia. 1007 pp.
- Wagner, W.L., D.R. Herbst, and S.H. Sohmer. 1999. *Manual of the Flowering Plants of Hawai'i*. 2 vols. Bishop Museum Special Publication 83, University of Hawai'i and Bishop Museum Press, Honolulu, HI.