Cupaniopsis anacardioides 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Sapindales	Sapindaceae

Common name carrot weed (English), carrotwood (English), tuckeroo (English)

Synonym
Cupania anacardioides , A. Rich.
Cupania anacardioides , A. Rich. var. *parvifolia* F.M.Bailey
Cupaniopsis anacardioides , (A.Rich.) Radlk. var. *parvifolia* (F.M.Bailey) Domin
Cupaniopsis anacardioides , (A.Rich.) Radlk. forma *parvifolia* (F.M.Bailey) Radlk.
Cupaniopsis anacardioides , (A.Rich.) Radlk. forma *genuina* Radlk.

Similar species

Summary *Cupaniopsis anacardioides* commonly known as carrotwood is an evergreen tree that is usually single-trunked and grows to 10.7m tall. It is capable of invading herbaceous and scrub communities. Once introduced, carrotwood forms dense monocultures, crowding out and out-competing native plants for available light and nutrients. Birds disperse the seeds and contribute to a rapidly expanding wild population that includes isolated islands.

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Species Description
C. anacardioides or carrotwood has been described as a usually single-trunked evergreen tree. It grows to a height of 10.7m tall. The outer bark is dark grey, but the inner bark is orange coloured, hence the name carrotwood. *C. anacardioides* leaves are compound, alternate, and usually even-pinnate (a compound leaf whose terminal leaflets are a pair). Petioles (leaf stalks) are swollen at the base. Leaflets 4-12 in number, are stalked, oblong, leathery, shiny yellowish-green, upto 20.3cm long and 7.6cm wide, with untoothed margins, and tips rounded or slightly indented. Carrotwood bears numerous white to greenish yellow flowers in branched clusters upto 35.6cm long during winter months in Florida. Fruit are the most striking identifying characteristic, being a short-stalked woody capsule to 2.54cm across, with 3 distinctly ridged segments, yellow orange when ripe, drying to brown and splitting open to expose 3 shiny oval black seeds covered by a yellow-red aril (Langeland, 2003).

Notes
Plant alternatives to *C. anacardioides*: Recommendations from the South Florida Water Management District and a Naples nurseryman include the following: paradise tree (*Simarouba glauca*), pigeon plum (*Coccoloba diversifolia*), inkwood (*Exothea paniculata*), gumbo limbo (*Bursera simarouba*), Jamaican dogwood (*Piscidia piscipula*), magnolias (*Magnolia virginiana* or *M. grandiflora*), loblolly bay (*Gordonia lasianthus*), mahogany (*Swietenia mahogani*), laurel cherry (*Prunus caroliniana*) and a relative of *C. anacardioides* which is native to the Florida Keys, *Cupania glabra* (A. Ferriter & W. Jones., pers. com., 1996).

Lifecycle Stages
According to Lockhart *et al.* (1999), \"in Florida, flowering occurs in the winter, from January to March, and the fruit starts to ripen in May.\"

Uses
Gilman and Watson (1993) state that, \"*C. anacardioides* is truly a durable, urban-tolerant tree, able to grow even in confined planting pits in downtown sidewalks. Perhaps it is best used in these areas. Selected, upright branches in the crown can be removed to allow for more light penetration and better turf growth under the crown. If not, the dense canopy will shade out all but the most shade-tolerant plants. The wood is bright apricot-coloured in cross-section, and resists breakage because it is hard. If you cut one down, save the wood. Wood-workers enjoy turning it on a lathe and making spindles and bowls.\" Lockhart *et al.* (1999) states that, \"*C. anacardioides* has also been used ornamentally in California, but there are no reports of naturalized populations there, perhaps due to their drier climate. Cold tolerance may limit its potential distribution.\"

Habitat Description
C. anacardioides is capable of invading herbaceous and scrub communities. These include wetlands, coastal prairies, dunes, coastal strands and other similar communities (Gordon 1998; Lockhart *et al.* 1999). Langeland (2003) adds the following habitats that this species invades: spoil islands, marshes, tropical hammocks, pinelands, and mangrove and cypress swamps. Lockhart *et al.* (1999) state that, \"*C. anacardioides* is tolerant of salt, poor soils, poor drainage, sunlight and shade. *C. anacardioides* can adapt to dry areas, and appears in disturbed and undisturbed sites.\"

Reproduction
Lockhart *et al.* (1999) state that, \"*C. anacardioides* is a prolific seed producer, and the brightly coloured fruits are very attractive to birds which disperse it widely. Bird dispersal explains isolated island populations and seedlings under trees and telephone poles. Seedlings have also been found along estuary rack lines. Clumps of seedlings suggest dispersal by small mammals. In its native range, *C. anacardioides* is pollinated by bees, which are the likely pollinators in Florida.\"

General Impacts
Once introduced, carrotwood forms dense monocultures, crowding out and out-competing native plants for available light and nutrients (Lockhart, *et al.* 1999) . Gordon (1998) includes *C. anacardioides* with several other species of non-indigenous trees that, \"invade predominantly herbaceous (wetland, coastal prairie, dune, *etc.*) or scrub (coastal strand) communities, adding an infrequent or new life-form to those communities and changing the vertical structure of the vegetation\". Lockhart *et al.* (1999) state that, \"*C. anacardioides*, seedlings to medium-sized trees have become established in disturbed sites as well as undisturbed natural areas. Birds disperse the seeds and contribute to a rapidly expanding wild population that includes isolated islands.\" The authors further state that, \"The presence of *C. anacardioides* tends to be associated with a temporary increase of species richness in some habitats like mangroves (which changes as the alien outcompetes native species) and may cause a reduction of species richness in tropical hammock communities.\"
Langeland (2003) observes that carrotwood is especially a problem in low moist areas. It is salt tolerant, and has become a pest to mangrove ecosystems (Coile, 1997). Mangrove habitats are recognized as extremely important coastal habitats and are already heavily impacted by coastal development and invasion by other exotic plants. Lockhart *et al.* (1999) state that, \"Because mangroves provide critical habitat for wading and diving birds, (some of which are designated Species of Special Concern), and serve as nursery grounds for crabs, other crustaceans, invertebrates and commercial and recreational fish; the impacts of *C. anacardioides* establishment are serious and far-reaching. Coastal hammocks and mangroves are continually losing ground to development and are also impacted by natural forces such as tropical storms and hurricanes. Alteration of species composition and competition by invasive exotic species increases stress to the remaining hammocks. Because *C. anacardioides* is a popular, fast-growing landscape tree that is widely planted and very adaptable, the impacts to mangroves and other habitats are expected to increase. *C. anacardioides* has also been found growing among other aggressive, invasive exotic trees.\" Langeland (2003) states that, \"*C. anacardioides* freely seeds from plantings (Menninger, 1964). Consumption by fish crows is particularly important because seeds are carried from inland feeding sites to coastal islands where they are deposited and germinate (Lockhart *et al.* 1999).\" The author adds a variety of habitats that *C. anacardioides* invades not previously listed: spoil islands, marshes, tropical hammocks, pinelands, and mangrove and cypress swamps.

Management Info
Preventative measures: A Risk Assessment of *Cupaniopsis anacardioides* for Hawai'i and other Pacific islands was prepared by Dr. Curtis Daehler (UH Botany) with funding from the Kaulunani Urban Forestry Program and US Forest Service. The alien plant screening system is derived from Pheloung *et al*. (1999) with minor modifications for use in Pacific islands (Daehler *et al.* 2004). The result is a score of 6 and a recommendation of: \"The species has been assessed using the WRA system; however, no assessment of risk can be provided at this time because 1) crucial information is missing from the assessment or 2) the species possesses a combination of traits and characteristics that make its likely behaviour difficult to assess using the WRA system.
Chemical: Langeland (2003) suggests cutting down trees and treating the stumps with an approved herbicide to prevent regrowth (referred to as cut stump herbicide application). The herbicide can be poured directly from the container onto the freshly cut stump or applied with a paint brush. Brush-B-Gon and Roundup Super Concentrate are effective and available in retail stores in quantities as small as pints. Both of these herbicides are applied without diluting. Property owners with large numbers of trees can use Garlon 3A, which has the same active ingredient as Brush-B-Gon but is more concentrated and is diluted to 10% with water. Garlon 3A is only available from certain farm supply stores. Alternatively, *C. anacardioides* trees can be controlled without being cut down by applying certain herbicides to the bark at the base of the tree (referred to as basal bark application). Trees can be removed when dead or left in place to decay, a low-impact option sometimes used by natural area managers. Pathfinder II, which is ready-to-use, or Garlon 4 diluted to 10%-20% with special penetrating oil, can be used for basal bark applications. Pathfinder II, Garlon 4, and penetrating oils are only available at certain farm supply stores. Herbicides should always be applied according to the instructions on the label.\"
Mechanical: Langeland (2003) suggests that after herbicide treatment, \"Dispose of any debris that contains *C. anacardioides* seed in such a way that seeds will not be introduced to new areas. For example, dispose of on site where seeds can be monitored for germination and seedlings pulled and destroyed or in a landfill where they will be incinerated.

Pathway
According to Lockhart (1999), *C. anacardioides* is a popular ornamental in Florida and California.

Principal source: Lockhart, C. S., D. F. Austin, W. E. Jones, and L. A. Downey., 1999. Invasion of carrotwood (*Cupaniopsis anacardioides*) in Florida natural areas (USA).
Langeland, K. A. 2003. Natural Area Weeds: Carrotwood (*Cupaniopsis anacardioides*). University of Florida, Institute of Food and Agricultural Sciences (UF/IFAS).

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Daniel F. Austin, Ph.D. Research & Conservation Department Book Review Editor, Economic Botany. Arizona-Sonora Desert Museum USA

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BIBLIOGRAPHY
13 references found for **Cupaniopsis anacardioides**

Managment information
Daehler, C.C; Denslow, J.S; Ansari, S and Huang-Chi, K., 2004. A Risk-Assessment System for Screening Out Invasive Pest Plants from Hawaii and Other Pacific Islands. Conservation Biology Volume 18 Issue 2 Page 360.
Summary: A study on the use of a screening system to assess proposed plant introductions to Hawaii or other Pacific Islands and to identify high-risk species used in horticulture and forestry which would greatly reduce future pest-plant problems and allow entry of most nonpests.

European and Mediterranean Plant Protection Organization (EPPO), 2006. Guidelines for the management of invasive alien plants or potentially invasive alien plants which are intended for import or have been intentionally imported. EPPO Bulletin 36 (3), 417-418.
Gilman, E. F., and D. G. Watson. 1993. *Cupaniopsis anacardiopsis: Carrotwood*. University of Florida, Institute of Food and Agricultural Sciences (UF/IFAS).
Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
Available from: http://edis.ifas.ufl.edu/ST221 [Accessed 06 August 2004]
Gordon, D. R. 1998. *Effects of Invasive, Non-Indigenous Plant Species on Ecosystem Processes: Lessons from Florida*. Ecological Applications 8(4): 975-989.
Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
ISB (Institute of Systematic Botany) 2003. *Cupaniopsis anacardioides* Atlas of Florida Vascular Plants [Online Database].
Summary: This page includes synonyms and a close up picture of the plant.
Available from: http://www.plantatlas.usf.edu/main.asp?plantID=47 [Accessed 22 December 2003]
Langeland, K. A. 2003. *Natural Area Weeds: Carrotwood (Cupaniopsis anacardioides)*. University of Florida, Institute of Food and Agricultural Sciences (UF/IFAS).
Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
Available from: http://edis.ifas.ufl.edu/AG111 [Accessed 06 August 2004]
Lockhart, C. S. 1999. *Carrotwood: Cupaniopsis anacardioides (A. Rich.) Radlkf.*. Plant Conservation Alliance, Alien Plant Working Group.
Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
Available from: http://www.nps.gov/plants/alien/fact/cuan1.htm [Accessed 06 August 2004]
Lockhart, C. S., A. W. Jones, and L. Downey. 1996. *The Invasion of Carrotwood (Cupaniopsis anacardioides) in Natural Areas (in review)*. Habitat Specialists.
Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
Available from: http://members.aol.com/habitatsp/cw_quickie.html [Accessed 06 August 2004]
Lockhart, C. S., D. F. Austin, W. E. Jones, and L. A. Downey. 1999. *Invasion of carrotwood (Cupaniopsis anacardioides) in Florida natural areas (USA)*. Natural Areas Journal 19(3): 254-262.
Summary: Information on description, economic importance, distribution, habitat, history, growth, and impacts and management of species.
PIER (Pacific Island Ecosystems at Risk) 2003. *Cupaniopsis anacardioides*
Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.
Available from: http://www.hear.org/pier/species/cupaniopsis_anacardioides.htm [Accessed 06 August 2004]

General information

ITIS (Integrated Taxonomic Information System), 2004. Online Database *Cupaniopsis anacardioides*
Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.
Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=565105 [Accessed December 31 2004]
USDA-GRIN (Germplasm Resources Information Network). 2004. *Cupaniopsis anacardioides*. National Genetic Resources Program [Online Database] National Germplasm Resources Laboratory, Beltsville, Maryland.
Summary: Information on common names, synonyms, and the distributional range of species.
Available from: http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl?Cupaniopsis+anacardioides [Accessed 06 August 2004]
USDA-NRCS (Natural Resource Conservation Service). 2004. *Cupaniopsis anacardioides*. The PLANTS Database Version 3.5 [Online Database] National Plant Data Center, Baton Rouge, LA.
Summary: Available from: http://plants.usda.gov/java/nameSearch?mode=Scientific+Name&keywordquery=Cupaniopsis+anacardioides&go.x=6&go.y=6 [Accessed 06 March 2006]