What's Up Doc? The Invasive Carrotwood (Cupaniopsis anacardioides) in Southwest Florida Ecosystems

Carrotwood (Cupaniopsis anacardioides), an evergreen tree native to Australia, New Guinea, and Indonesia with a height of up to 33 feet, represents a significant ecological threat across Central and South Florida, with its impact acutely felt in the diverse natural areas of Southwest Florida. Introduced as an ornamental in the mid-20th century, this species has escaped cultivation as its seeds are readily dispersed by birds. It has rapidly established itself, leading to the degradation of sensitive coastal and terrestrial habitats. Carrotwood invades natural areas, forming dense monocultures and displacing native flora, making it a threat to critical coastal ecosystems such as mangrove ecosystems.

The integrity of Florida's native ecosystems is continually challenged by the introduction and spread of non-native, invasive plant species. Among the most aggressive invaders is the carrotwood tree, Cupaniopsis anacardioides. While its ornamental qualities—such as its evergreen foliage and attractive, colorful fruit—led to its introduction, these same characteristics now fuel its invasive success.

Southwest Florida, characterized by its unique blend of pine flatwoods, cypress swamps, coastal dunes, mangrove habitats, and marshes, is particularly vulnerable to invasive encroachment. The rapid proliferation of carrotwood threatens the biodiversity and ecological function of these fragile areas, leading to its classification as a Category I invasive species by the Florida Invasive Species Council (FISC) and as a Noxious Weed by the Florida Department of Agriculture & Consumer Services (FDACS).

Introduction and Spread

Carrotwood specimens have been documented in Florida as early as 1955 in eastern Florida, with a separate introduction occurring in Sarasota in 1968, leading to large-scale propagation as a landscape tree. By 1990, wild seedlings began appearing in natural areas across both Florida coasts. The primary mechanism for its widespread dispersal is the ingestion of its brightly colored fruits by birds, which then deposit the seeds widely away from the parent plant. This bird-mediated dispersal has allowed it to colonize habitats throughout central and south Florida.

Ecological Impact in Southwest Florida

The ecological threat posed by carrotwood stems from its aggressive growth habit and its ability to dominate native plant communities.

Habitat Invasion

Carrotwood is a highly adaptable species, capable of thriving in full sun or shade and exhibiting salt tolerance, allowing it to invade a broad spectrum of Southwest Florida habitats, including:

- Mangrove and cypress swamps
- Tropical hammocks
- Pinelands and scrub habitats
- Beach dunes and coastal strands
- Freshwater marshes

The most damaging impact is its tendency to form dense monocultures. By out-competing and crowding out native plants for essential light and

nutrients, carrotwood drastically alters the understory habitat structure. This reduction in native species diversity directly impacts wildlife that depend on the native flora for food and shelter. Coastal ecosystems, such as mangrove swamps—critical nursery grounds for marine life and habitat for wading birds—are under special threat due to carrotwood establishment. The alteration of species composition in these already stressed coastal areas increases overall ecosystem stress.

Management and Control Strategies

Due to its status as a prohibited Noxious Weed, the introduction, possession, movement, or release of carrotwood without a permit is illegal. Effective management requires preventing its establishment and removing existing populations.

Prevention and Seed Collection

Preventive measures involve **regular monitoring and removal of seedlings** before they mature and produce seeds. Homeowners should collect any mature fruits from the ground to prevent new sprouts.

Removal Techniques

Control methods vary depending on the size of the infestation:

- **Small Seedlings:** Can often be controlled by **pulling by hand**, ensuring the roots are removed.
- **Mature Trees:** Require cutting followed by immediate chemical treatment to prevent vigorous resprouting. If you cut it without treating the stump, it will resprout aggressively.
- **Cut-Stump Treatment:** Apply an herbicide containing **glyphosate** or **triclopyr** directly to the freshly cut stump, ensuring complete coverage, especially on the cambium layer just inside the bark.

• **Basal Bark Treatment:** Controlling mature trees by applying a **triclopyr herbicide** mixed with an oil diluent to the basal bark.

Do not dispose of the carrotwood with your vegetative waste- place it into heavy duty black plastic bags and place it with your regular trash for landfill disposal, not yard waste, to prevent spreading. Following removal, replacing the invasive tree with a native species such as Yaupon holly is recommended to aid in ecosystem restoration.