

Earleaf Acacia: An Invasive Threat to Florida¹

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This publication is intended for land managers, conservationists, educators, and members of the public who are concerned about invasive species in Florida. It aims to provide practical information about biology, distribution, ecological risks, and management strategies related to earleaf acacia.

Introduction

Invasive plants can have devastating effects on Florida's natural ecosystems by altering the native plant community and reducing biodiversity. One such invasive species is *Acacia auriculiformis* A. Cunn. ex Benth. (Fabaceae), commonly known as earleaf acacia, a deciduous, fast-growing tree native to Australia, Papua New Guinea, and Indonesia. This plant only grows at low elevations in tropical and subtropical regions, typically along riverbanks and in places with a high-water table (Morton 1985). Introduced to Florida as an ornamental plant in the early 1900s, it has since spread across various parts of the state (Figure 1 A and B), threatening native plants and sensitive habitats such as the Florida Everglades, which is one of the largest wetland ecosystems in the world (Langeland and Burks 1998; Sklar et al. 2005).



Figure 1. Invasive *Acacia auriculiformis* in Florida A) earleaf acacia tree in Fort Pierce; B) stand of earleaf acacia trees in South Naples.
Credit: S. Salgado MacDonald, UF/IFAS.

Plant Description

This invasive tree rapidly grows to a height of 80 to 90 feet with a trunk diameter of up to 20 inches. Its brittle trunks and branches, along with shallow roots spreading across the soil surface, make it structurally weak. It

typically has a single, thornless trunk, but some trees grow multiple stems with small branches that are thinner at their tips. This species has grayish to whitish bark that develops vertical cracks as the tree ages (Figure 2 A). The leaf arrangement is alternate, with linear or blade-like leaves that are slightly curved with parallel veins (Figure 2 B). Earleaf acacia has bright yellow spike flowers that occur singly or in clusters in the leaf axils. These bloom from spring to fall (Figure 2 C). The fruits are twisted, ear-shaped green pods that turn brown when ripe (Figure 2 D). When the pod opens, flattened, circular seeds dangle from spiraling bright orange threads (arils) (Figure 2 E) (Minter et al. 2020; Morton 1985).

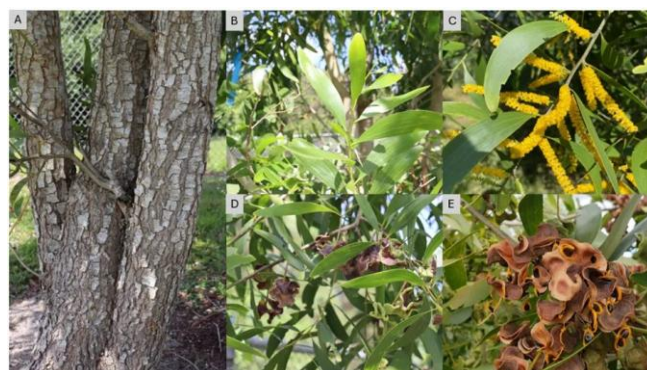


Figure 2. A) tree bark; B) alternate, linear leaves; C) bright yellow spike-like flowers; D) seed pods: green when immature and brown when mature; E) seeds hanging from the pod.
Credit: S. Salgado MacDonald, UF/IFAS.

Why Is Earleaf Acacia a Problem?

Earleaf acacia has characteristics that contribute to its success as an invasive species, including rapid growth, high seed production, early reproductive maturity, a high germination rate facilitated by herbivore dispersal, high survivorship in floodplains and coastal regions, and the ability to thrive in nutrient-poor soil by fixing nitrogen (Davis et al. 1997; Minter et al. 2020). Due to its ecological impact, the Florida Invasive Species Council (FISC) has designated earleaf acacia as a Category I invasive plant (Florida Exotic Pest Plant Council 2019). This classification is reserved for non-native species that

are altering native plant communities by displacing native species, changing community structure or ecological function, or hybridizing with native plants. Without proper management, earleaf acacia could spread uncontrollably, particularly in sensitive ecosystems like the Everglades (Boland et al. 1990).

Current Control Methods

The most common methods for controlling this invasive plant include hand-pulling seedlings, removing mature trees, and applying herbicides. [The UF/IFAS Center for Aquatic and Invasive Plants](#) recommends using 50% Garlon 3A (triclopyr amine) and 10% Milestone (aminopyralid) mix on cut stumps, as well as 10% Garlon 4 (triclopyr ester) for basal bark treatments (Center for Aquatic and Invasive Plants 2025). However, these methods are only practical on a small scale. High labor costs, the need for repeated herbicide applications, and difficulty of accessing plants near rivers and coastal regions make mechanical and chemical controls both costly and ineffective in the long term (Harris 1988).

Potential Spread and Ecological Impact

Earleaf acacia has the potential to expand further within the southeastern United States, particularly in regions with favorable environmental conditions (MacDonald et al. 2025). Its invasive characteristics present significant challenges to ecosystems and biodiversity by

- Altering nitrogen cycling
- Outcompeting native species
- Reducing habitat quality
- Disrupting ecological processes

Ecological Niche Modeling (ENM) for Predicting Species Distribution

What Is an ENM?

Ecological niche modeling (ENM) is a valuable tool that helps determine the geographic distribution of a species by analyzing environmental conditions where the species is known to occur (Phillips et al. 2006). ENM utilizes species occurrence data and environmental factors, such as climate variables, to predict where a species might establish and become problematic (Phillips et al. 2006; Sutton and Martin 2022).

ENM for Earleaf Acacia

Researchers have used ENM to predict the potential distribution of earleaf acacia across the Caribbean, Central America, and North America (Figure 3). The model indicates that various regions have climates suitable for earleaf acacia, including Florida and Louisiana in the United States, as well as Mexico, Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama. Although earleaf acacia often grows in areas with high water tables, it has not been reported in the Everglades ecosystem. This apparent absence could be due to limited surveys or underreporting in this vast and difficult-to-access region.

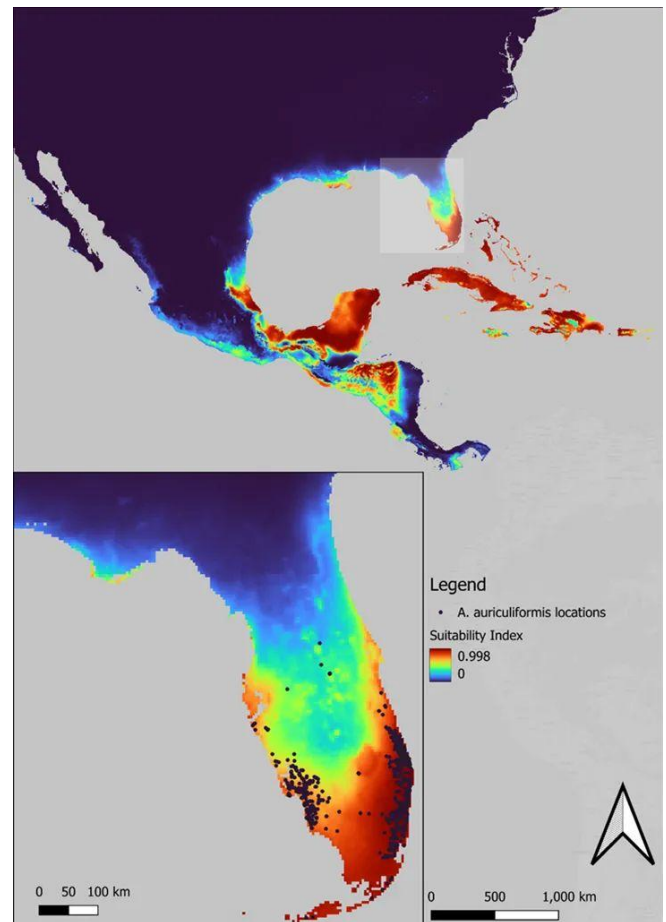


Figure 3. Model projections of habitat suitability for earleaf acacia in North America, Central America, and the Caribbean. Red and blue areas indicate high and low predicted suitability, respectively. Black dots represent the current distribution of earleaf acacia.

Credit: MacDonald et al. 2025.

Management Recommendations

Early Detection and Rapid Response (EDRR): It is crucial to detect new infestations of earleaf acacia as soon as possible to prevent the plant from establishing itself and spreading further.

Eradication and Control Measures: There are several methods for managing established populations of earleaf acacia:

- Removing seedlings and mature trees by hand or machine
- [Using herbicides](#)

Biological Control: Researchers are looking into using co-evolved natural enemies, such as the leaf feeder beetle *Calomela intemerata* and a bud galling wasp, *Trichilogaster* sp., as promising potential biological control agents to control earleaf acacia (Minteer et al. 2020). The TAG petition for *Calomela* is currently being processed and will be submitted soon. Research on *Trichilogaster* sp. is ongoing, with potential releases anticipated around 2028, pending regulatory approval.

Public Awareness and Education: It is important to educate the public and stakeholders about the risks of earleaf acacia, encouraging people to report sightings and take action against the spread of this invasive plant.

What Can We Do About It?

Help us to continue reporting earleaf acacia. Join our iNaturalist project and report sightings at the [earleaf acacia in Florida page at inaturalist.org](#) available at the QR code immediately below this paragraph. If you're not sure it's earleaf acacia, submit a photo anyway—our team can help identify it.



Further Reading

Biological Control Containment Facilities in Florida, <https://edis.ifas.ufl.edu/publication/IN509>

Biological Control of Weeds: Is It Safe? <https://edis.ifas.ufl.edu/publication/IN1342>

Conclusions

Earleaf acacia (*Acacia auriculiformis*) is a harmful invasive plant that threatens Florida's natural environment. It changes the habitat, competes with native plants, and disrupts the natural balance of ecosystems. Research shows that this plant could spread to other parts of the southeastern United States and beyond, making it urgent

to take action. To fight this invasive plant, we need to act quickly. The most effective response will include early detection of new plants, removing them, and exploring new ways to control them, like introducing host-specific natural enemies that target the plant. Public education and awareness are also crucial in getting people involved. Ongoing research, especially into using biological control methods, is important for finding sustainable long-term solutions to manage the spread of earleaf acacia. By acting together, we can protect Florida's native beauty—one tree at a time.

References

- Boland, D. T., K. Pinyopusarerk, M. W. McDonald, T. Jovanovic, and T. H. Booth. 1990. "The Habitat of (*Acacia auriculiformis*) and Probable Factors Associated with Its Distribution." *Journal of Tropical Forest Science* 3:159–180.
- Center for Aquatic and Invasive Plants. 2025. *Acacia auriculiformis* page in the plant directory. <https://plant-directory.ifas.ufl.edu/plant-directory/acacia-auriculiformis/> (accessed 4.3.25).
- Davis, S. M., J. C. Ogden, and W. A. Park. 1997. *Everglades: The Ecosystem and Its Restoration*. CRC Press, Boca Raton, Florida.
- Florida Exotic Pest Plant Council. 2019. Florida Exotic Pest Plant Council 2017 invasive plant list.
- Harris, P. 1988. "Environmental Impact of Weed-Control Insects." *BioScience* 38 (8): 542–548. <https://doi.org/10.2307/1310762>
- Langeland, K. A., and K. C. Burks. 1998. *Identification and Biology of Non-Native Plants in Florida's Natural Areas*. Gainesville: University of Florida Institute of Food and Agricultural Sciences.
- MacDonald, S. S., E. J. Le Falchier, L. P. Campbell, R. Zonneveld, and C. R. Minteer. 2025. "Climatic Suitability and Potential Distribution of Earleaf Acacia and Its Candidate Biological Control Agent *Trichilogaster* sp." *Biological Control* 205:105757. <https://doi.org/10.1016/j.biocontrol.2025.105757>
- Minteer, C. R., M. C. Smith, P. Madeira, et al. 2020. "Is Biological Control for Earleaf Acacia (*Acacia auriculiformis*) Feasible in the United States?" *Biocontrol Science and Technology* 30 (12): 1275–1299. <https://doi.org/10.1080/09583157.2020.1833305>

- Morton, J. F. 1985. The Earleaf Acacia, a Fast-Growing, Brittle, Exotic ‘Weed’ Tree in Florida.” *Proceedings of the Florida State Horticultural Society* 98:309–314.
- Phillips, S. J., R. P. Anderson, and R. E. Schapire. 2006. “Maximum Entropy Modeling of Species Geographic Distributions.” *Ecological Modelling* 190 (3–4): 231–259. <https://doi.org/10.1016/j.ecolmodel.2005.03.026>
- Sklar, F. H., M. J. Chimney, S. Newman, et al. 2005. “The Ecological–Societal Underpinnings of Everglades Restoration.” *Frontiers in Ecology and the Environment* 3:161–169. [https://doi.org/10.1890/1540-9295\(2005\)003\[0161:TEUOER\]2.0.CO;2](https://doi.org/10.1890/1540-9295(2005)003[0161:TEUOER]2.0.CO;2)
- Sutton, G. F., and G. D. Martin. 2022. “Testing MaxEnt Model Performance in a Novel Geographic Region Using an Intentionally Introduced Insect.” *Ecological Modelling* 473:110139. <https://doi.org/10.1016/j.ecolmodel.2022.110139>

¹This document is ENY-2141, one of a series of the Department of Entomology and Nematology, UF/IFAS Extension. Original publication date August 2026. Visit the Ask IFAS website at <https://ask.ifas.ufl.edu> for the currently supported version of this publication. © 2026 UF/IFAS. This publication is licensed under CC BY-NC-ND 4.0.

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