Mangrove Forests; A Florida Case Study

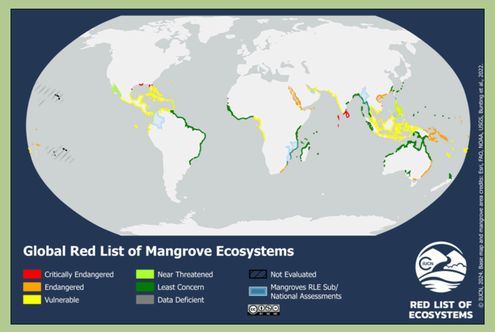
Student Symposium 2026

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Abstract

Florida's mangrove forests are biodiverse ecosystems that provide critical habitat for numerous species and essential services including coastal protection and carbon sequestration. This paper examines the three true mangrove species in Florida, their associated wildlife, and the escalating threats from climate change alongside human activities such as coastal development and mangrove trimming. While current legislation like the 1996 Mangrove Trimming and Preservation Act offers some protection, effective conservation requires integrated management approaches. Preserving these vulnerable ecosystems is essential for maintaining biodiversity and mitigating climate impacts in coastal regions.

Global Distribution



Definition

- Halophytic species of shrubs and /trees

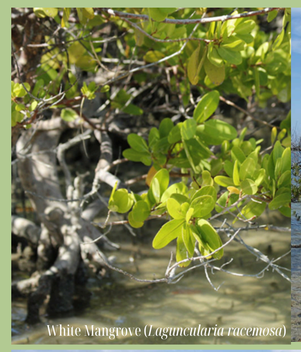
or

- Plant community with "true mangroves & mangrove "associates"

Ecological Roles & Ecosystem Services:

- Link between terrestrial & marine environments
- Nutrient provision
- Coastal protection (floods & erosion)
- Carbon sinks

Florida's True Mangrove Species


White Mangrove (*Laguncularia racemosa*)


Black Mangrove (*Avicennia germinans*)

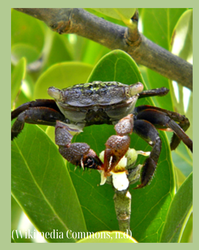

Red Mangrove (*Rhizophora mangle*)

(FDEP, 2019)

Florida Mangrove Forest Biodiversity


(Keith Ramos, n.d)


(Peter Hayrylshyn, 2015)


(Wikimedia Commons, n.d)


(Key West Aquarium, 2025)


(Raftery, 2025)


(Perrizello, n.d)


(Sartore, 2026)


(IUCN, 2021)

Types of Mangrove Forests

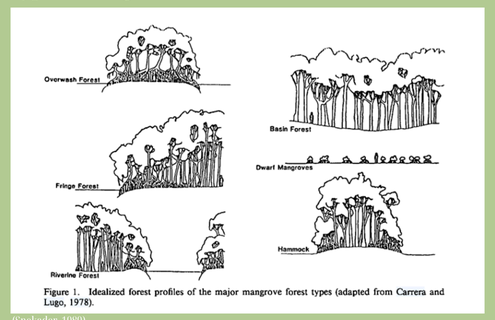


Figure 1. Idealized forest profiles of the major mangrove forest types (adapted from Carrera and Lugo, 1978).

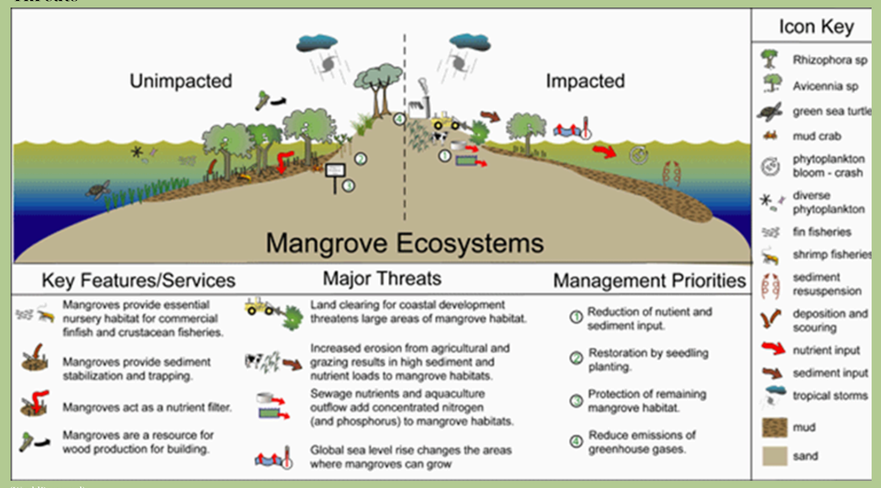
(Snekader, 1989)

Significance

Why protect mangrove forests?

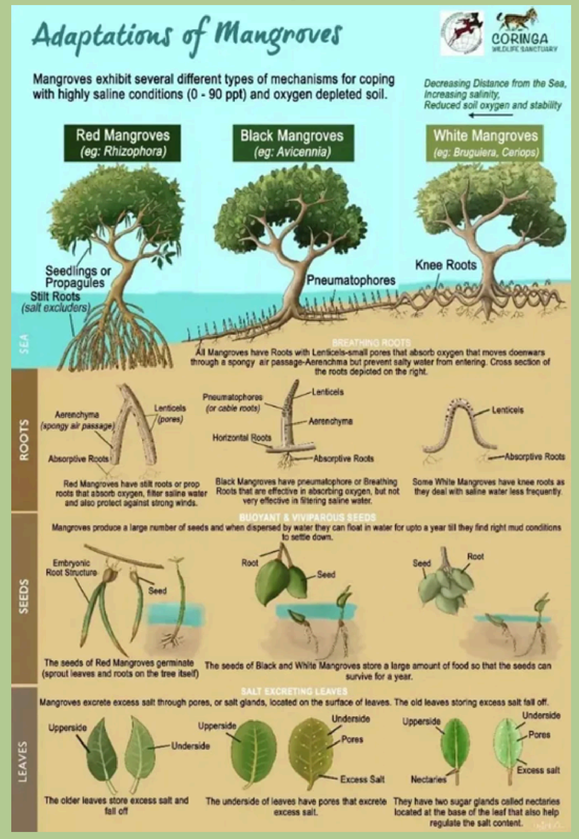
- Habitat for marine & terrestrial organisms.
- Nursery, breeding, nesting grounds.
- Support many ecosystems & biodiversity.
- Protection from coastal erosion & floods
- Carbon sequestration.
- Climate change mitigation.
- Increasing vulnerability due to climate change & anthropogenic stressors.

Threats



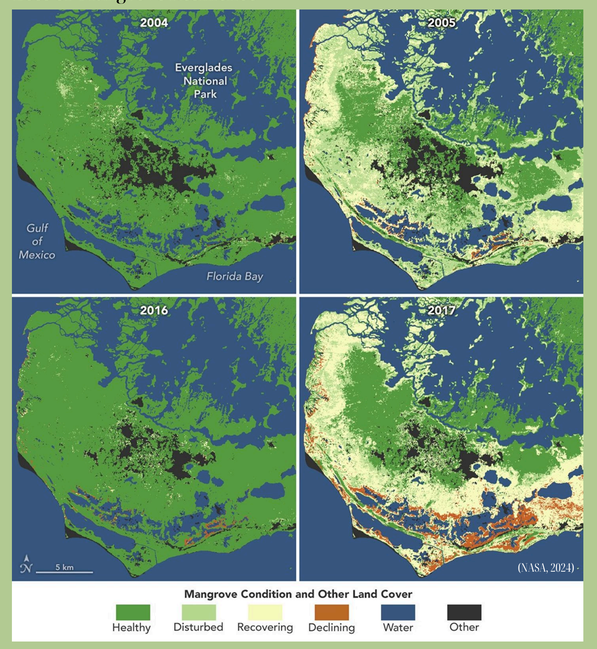
(WorldPress, n.d)

Key Adaptations



(Coringa Wildlife Sanctuary, n.d)

Loss of Mangrove Resilience



(NASA, 2024)

Current Mangrove Management

Florida Statute

- Section 403.9323 legislation for protection & preservation of Florida's mangrove forests
- Prohibits trimming & alteration on uninhabited islands and conservation areas
- Regulates mangrove destruction, defoliation, & removal

The Mangrove Trimming Act

- Regulates intervention by targeting homeowners
- Regulates trimming, which disrupts life cycle, shifts ecosystem functions, increases vulnerability to invasive species & mortality risk
- Provides rules and guidelines

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