

# LAND CONSERVATION

## Land Acquisition to Address Saltwater Intrusion on Waccamaw National Wildlife Refuge



Forested Wetlands Donated to the Refuge/Diana Iriarte/Ducks Unlimited

## INTRODUCTION

Waccamaw National Wildlife Refuge (NWR) protects 38,000 acres of forested freshwater wetlands near the northeastern coast of South Carolina. As sea levels rise, ocean water seeps into freshwater systems near the refuge, a process known as saltwater intrusion. Forested wetlands on the refuge are transitioning to brackish marsh due to the increase in water salinity, causing a loss of native wildlife habitat. To address these concerns, refuge staff developed a novel technique to acquire land tracts with freshwater forests that would not be affected by saltwater intrusion in the near-term. These areas will continue to provide wildlife with forested wetland habitat despite a changing climate.

## KEY ISSUES ADDRESSED

Swallow-tailed kites (*Elanoides forficatus*) are a state endangered bird species that nest in freshwater forests. Black bears (*Ursus americanus*) also inhabit forested wetlands. Their populations are highly fragmented due to urbanization. Expanding the refuge to include land unaffected by saltwater intrusion in the near term will help protect their populations.

Certain tracts within Waccamaw NWR's acquisition boundary, the pre-approved area to purchase or lease land, have been urbanized, making them no longer suitable for conservation. Refuge staff executed a minor expansion of their acquisition boundary in 2001 and applied for a major expansion in 2008 with minimal forward progression. Land near the refuge was being rapidly purchased for development, increasing the urgency to find a solution.

## PROJECT GOALS

- Create a new boundary modification technique to acquire and protect forested wetlands that will not be affected by saltwater intrusion in the near future.
- Increase habitat within Waccamaw NWR for native wildlife.

## PROJECT LOCATION





## PROJECT HIGHLIGHTS

### Creating New Techniques for Land Acquisition:

In response to the limitations of the minor and major boundary expansion processes, refuge staff created Minor Boundary Modification, a process that allows refuges to eliminate land that has not been acquired from their acquisition boundary and replace it with parcels equal to or less than the size of the tracts removed. In 2019, Waccamaw NWR staff used Minor Boundary Modification to remove 6,849 acres and add 6,638 acres to their acquisition boundary.

**Strategic Land Acquisition:** Refuge staff collaborated with The Nature Conservancy (TNC), American Rivers, and the South Atlantic Landscape Conservation Cooperative to develop a Landscape Conservation Design which uses climate models to identify parcels of freshwater forested wetlands that should remain unaffected by near-term saltwater intrusion. Forested wetlands, which serve as nesting habitat for swallow-tailed kites, made up over 1,600 acres of the land added to Waccamaw NWR's acquisition boundary.

**Acquiring Land for Black Bears:** In 2019, refuge staff used Minor Boundary Modification to add the 2,110-acre Carver's Bay to Waccamaw's acquisition boundary. The bay is one of the most important black bear conservation areas in the state. In 2023, TNC transferred property ownership to Waccamaw NWR.



Endangered Swallow-Tailed Kites are Found on the Refuge/USFWS

## LESSONS LEARNED

Resisting saltwater intrusion by employing restoration and prevention efforts would have delayed the inevitable at Waccamaw NWR. In shifting toward a strategy of land acquisition and assisted migration, staff increased the amount of forested wetlands on the refuge by over 1,600 acres.

Partners like The Nature Conservancy, Ducks Unlimited, and the Open Space Institute purchased high-priority land parcels to give refuge staff time to finish the Minor Boundary Modification proposal and receive approval. After modifying the acquisition boundary, partners transferred ownership of various land tracts to Waccamaw NWR.

Refuge staff used boundary modification to connect with the Gullah Geechee community, the descendants of Africans enslaved on plantations from the coasts of North Carolina to Florida. In 2019, the refuge added Hasty Point Plantation, a 750-acre historic rice plantation and an important cultural resource for the Gullah Geechee, to their acquisition boundary. The refuge hired a cultural coordinator to connect with community leaders and better understand their needs. After three years of maintenance, the site opened for public access in 2023.

## NEXT STEPS

- The U.S. Fish and Wildlife Service will update its realty manual in summer 2024 to include Minor Boundary Modification as a new strategy for land acquisition. This will notify and encourage refuge managers to consider following Waccamaw NWR's example if they are facing similar issues.

## PARTNERS

- See online for full list of partners
- For more information, contact Marshall (Craig) Sasser: [marshall\\_sasser@fws.gov](mailto:marshall_sasser@fws.gov)



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Read the full  
Case Study:

