Preservation of Upland Habitat: Key to Florida Species' Survival

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Overview

Florida coastal ecosystems and the species that depend on them face a growing threat from rising sea levels and increasing storm surge. Many Florida coastal species are at risk of being trapped between these rising seas and areas of human development. They are limited in their ability to move landward because much of their coastal habitat has already been lost and degraded due to development and dense human populations along the coast.

Sandy beaches that are narrow, lack extensive dune systems, or are backed by armoring are also vulnerable to disappearing entirely. Undeveloped areas that might be suitable for species' landward migration are likely to be claimed by development as human populations retreat landward. Thus there is a critical need to proactively protect and manage upland habitats needed to enable adaptive habitat shifts by coastal species.

Fortunately, an effective tool – the U.S. Endangered Species Act – already exists to protect upland habitat for the twelve threatened and endangered species that depend on Florida's sandy shorelines to ensure that they are able to move inland as their habitats are inundated. The Endangered Species Act provides for the identification and protection of habitat essential for species conservation – including areas not currently occupied by the species

The first step will be to identify the upland areas that will become important habitat for the landward migration of these imperiled species as the coasts are inundated by projected sea level rise and intensified storm surge in this century. Once these areas are identified, the upland habitat vital to these species can be protected through the designation of critical habitat, and through consultation with wildlife management agencies.

Sea Level Rise Background

Mean global sea level is projected to rise by 1 to 2 meters on average within this century, while intensifying storms and storm surge will exacerbate the effects of sea level rise.[1-4] As the *New York Times* recently reported, Florida is by far the most vulnerable to this threat, "with roughly half of the nation's at-risk population living near the coast on the porous, low-lying limestone shelf that constitutes much of that state."[5] A 1-to-2-meter sea level rise poses significant inundation risks for the Florida coast, and would cause many coastal species to suffer extensive habitat loss, forcing them upland.

Areas of the Florida coast at or below 1 to 3 m in elevation.[6]

However, many coastal species are limited in their ability to move landward because so much coastal habitat has already been lost and degraded due to development and dense human populations along the coast.[7, 8] In Florida, population density along the coast is three times greater than in inland counties – thus coastal species are at risk of being trapped between rising sea levels and human developments.[9, 10] Sandy beaches that are narrow, lack extensive dune systems, or are backed by armoring are vulnerable to disappearing entirely.[11, 12] Undeveloped areas that might be suitable for species' landward migration are likely to be claimed by development as human populations retreat landward. Thus, there is a critical need to proactively protect and manage upland habitats needed to enable adaptive habitat shifts by coastal species.

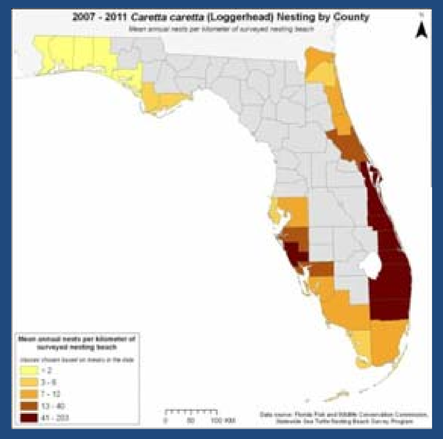
Endangered Species Act

Our nation's foremost biodiversity protection law, the Endangered Species Act, provides a powerful but under-utilized tool for proactively protecting habitat in response to climate change through the designation of "critical habitat." Under the Act, our federal wildlife agencies, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, must designate areas essential to the survival and recovery of threatened and endangered species as "critical habitat." These habitat areas receive protection from all federal agency actions that are likely to "destroy or adversely modify" them, including state or private actions that require federal permits, which provides safeguards against development and other potentially destructive activities. Critical habitat designation vastly improves species' recovery prospects. Species with critical habitat are more than twice as likely to be recovering as those without it. Importantly, in a climate change context, the Act allows the Services to designate critical habitat outside of a species' current range if those areas are needed for its conservation. Thus, in the case of sea-level rise, the Services can protect upland coastal habitat that will become essential to species' survival as the coasts are inundated. The Services are beginning to incorporate climate change considerations into critical habitat designations. However, proactive "climate-change-informed" critical habitat designation is still underutilized.

Twelve federally listed species depend on sandy beach habitat in Florida: green, loggerhead, leatherback, and Kemp's ridley sea turtles; piping plover and Caribbean roseate tern; beach jacquemontia and four-petal pawpaw; and Anastasia Island, Choctawhatchee, Southeastern, and St. Andrews beach mice. Sandy shoreline habitats on coasts and barrier islands, comprised of the surf zone, sandy beach, and dune systems, dominate the world's coastlines, are of high ecological importance, and are severely threatened by intense human use, development, and climate change.

Species Spotlight: Loggerhead Sea Turtles

The loggerhead sea turtle is widely distributed within its range, and makes some of the longest journeys of any sea turtle species. Originally listed as threatened range-wide, the Services recently divided the species into nine District Population Segments.[13] The Services are now required to designate critical habitat. Loggerhead sea turtles nest on beaches from Texas to Virginia, and face significant loss of nesting habitat due to sea level rise.[14, 15] About 90% of U.S. loggerhead nesting occurs in Florida, mainly in Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, and Sarasota counties.



Mean annual nests per kilometer of surveyed nesting beach.[16]

The critical habitat designation for the Northwest Atlantic Distinct Population Segment should include the upland habitat that will become necessary for turtle survival and recovery under rising sea levels.

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