

CONSERVATION UNDER THREAT

MAXIMIZING CONSERVATION SUCCESS IN FLORIDA

Introduction

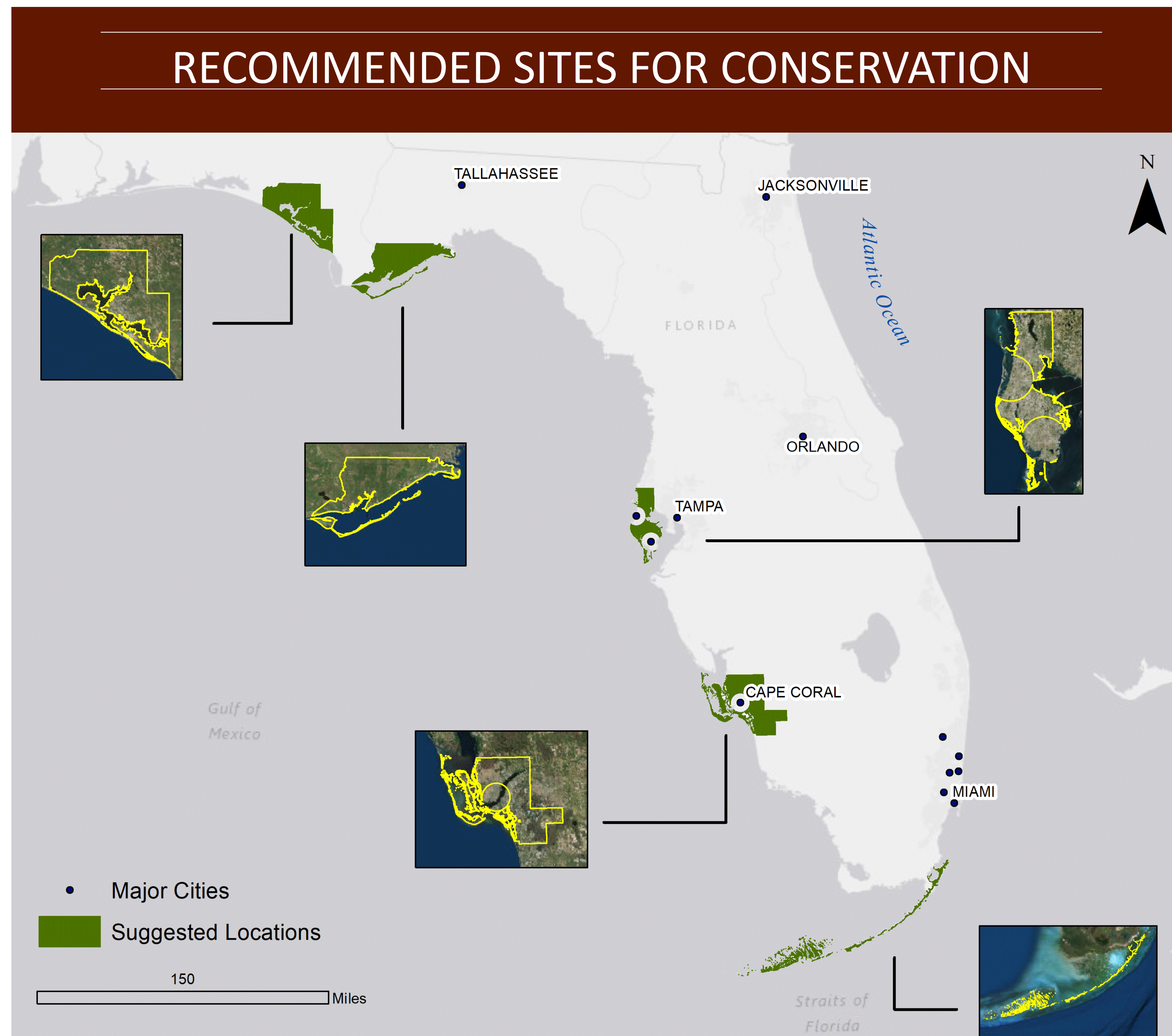
As climate change becomes more and more of a pressing reality each year, the demand for action becomes more urgent. Coastal ecosystems are of the most dire cases, many already showing signs of stress and degradation. Temperatures and sea levels have begun to rise and are expected to continue doing so in the coming decades, threatening coastal communities and habitats. While some populations are able to migrate and avoid the greatest risks, others, particularly those that depend on a limited food or particular water source, are left to adapt to the changes humans have forced on them.

If there is potential for change, we must act with immense forethought and intention. There are limited resources available for conservation, posing a challenge of where to invest. This project proposes that there are certain areas that are more ecologically important to others and should be prioritized to ensure that our conservation efforts have the largest impact they possibly can. This project identifies those areas within the state of Florida.

Methods

This project collated a series of environmental datasets and used a scoring system to determine the best areas for conservation. First, the threatened and endangered species living in each county were obtained. As an important aspect of this project was to focus on coastal areas, only counties with threatened coastlines were analyzed further. Areas that are already protected, specifically national and state parks were also excluded, along with all highly urban areas; urban areas present unique challenges that make conservation projects inefficient. Counties considered were also required to come in contact with sea turtle nesting sites, as sea turtles are often apex predators. Within the county layer, the number of threatened or endangered mammals, birds, reptiles, amphibians, insects, clams, and snails were added up to give the county an impact score. Note that gopher tortoises were given more weight due to their important ecological role. Bird nesting sites were added to the map and incorporated into a county's impact score. The counties were then sorted according to their species impact, with the top five being those that can be seen in the main map.

RECOMMENDED SITES FOR CONSERVATION



Conclusion

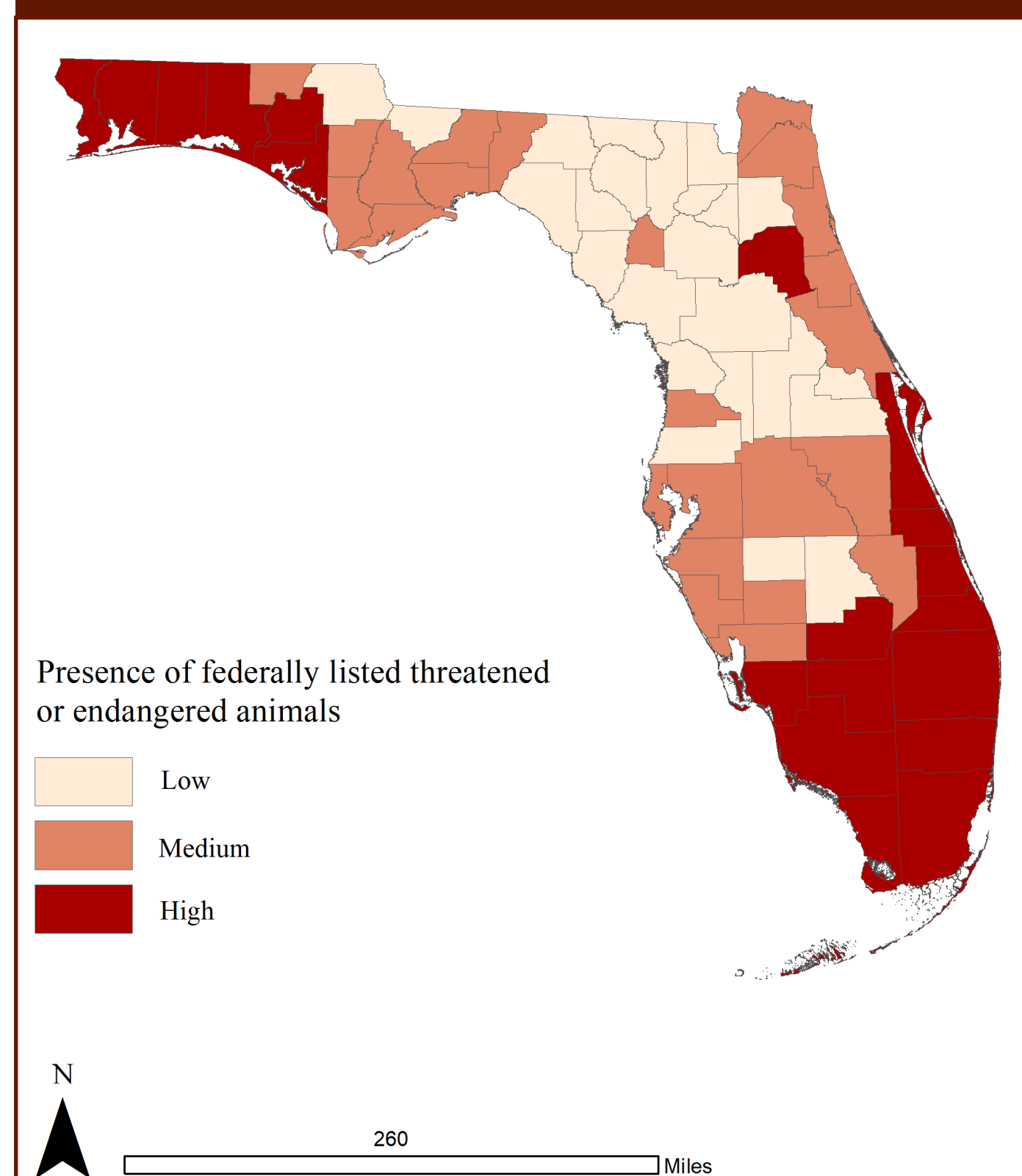
It is recommended that Monroe County undertake conservation efforts or that state or federal funds are directed towards conservation projects in Monroe County. While projects in any of these counties would maximize the conservation benefits given limited resources, the unique characteristics give Monroe a special role. The entire geographical area of the county qualifies as threatened coast; the entire ecosystem is expected to be underwater in the coming years. This means completely wiping out all amphibian and terrestrial animals in the habitat. Additionally, Monroe is significantly wealthier than the other identified counties, meaning the government is more likely to be able to direct resources into conservation and act without state or federal assistance, which only adds red tape to the process.

However, the fact that Monroe County's habitat does not include gopher tortoises are its relatively low species impact score make it less appealing as a final location. In this case, Bay or Franklin counties may be more suitable. Franklin County has the greatest species impact by far, though it is also the poorest of the selected counties, meaning it would likely need state or federal support. Bay County is wealthier, and while the species impact is lower than that of Bay County, it is still the second highest, making it an excellent candidate for conservation funding.

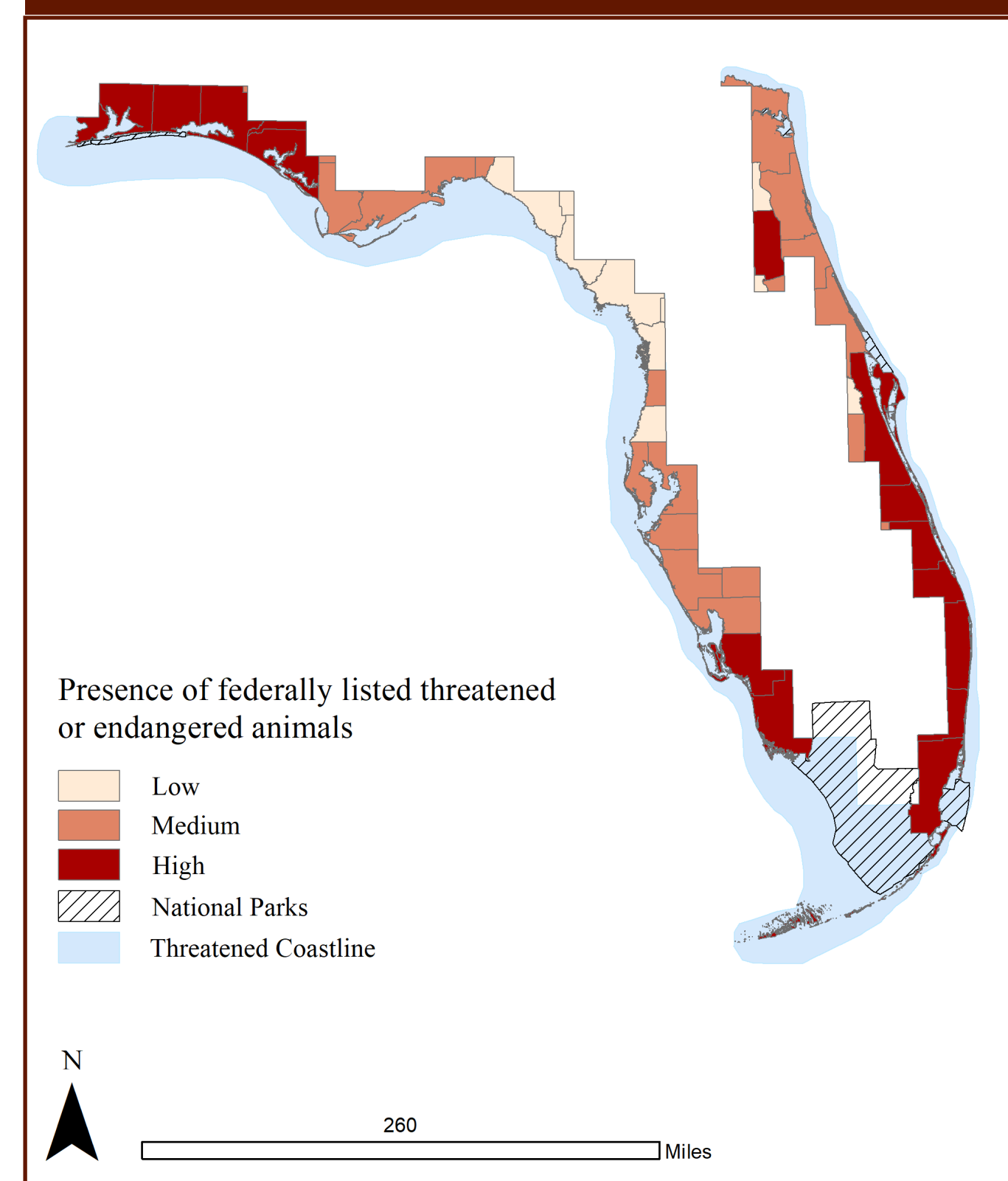
Limitations

This project was forced to work within the constraints of counties, meaning the areas identified by this project are quite large and may have little potential for blanket protection. Instead, this project should inspire further research into each county to find more manageable sites for smaller projects more likely to gain support. Working within county limits has an additional limitation; ecosystems rarely coincide with political boundaries. Many of the threatened or endangered species listed in each county travel among many different areas, all of which may be vital to their survival for different regions. I urge legislators and project managers to work with the surrounding areas to ensure that the projects are as successful as possible in reaching their goals.

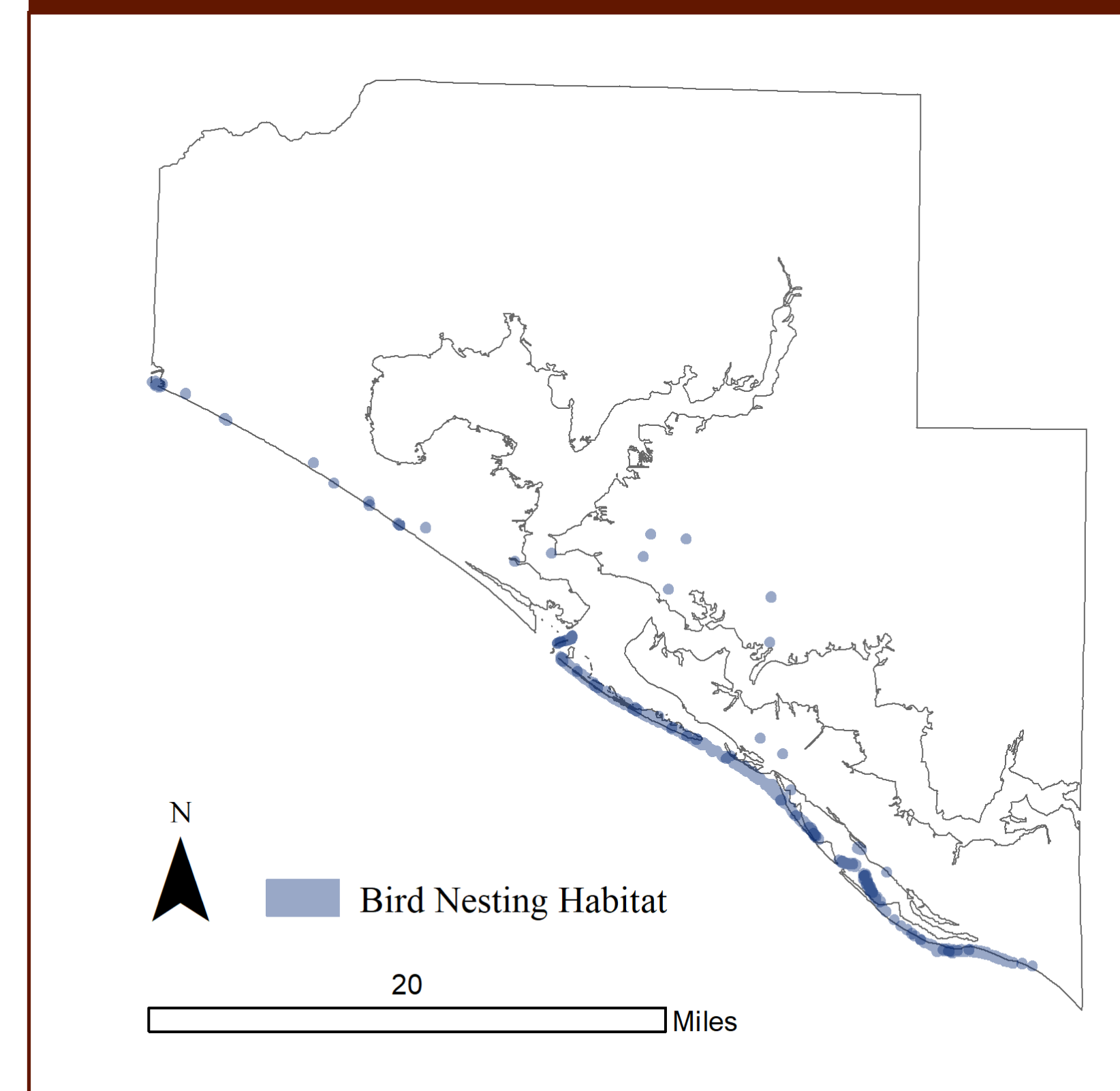
Presence of Threatened/Endangered Species by County



Counties with Threatened Coastline



Sample of Bird Nesting: Bay County with Nesting Sites



County	Average Income	Presence of Gopher Tortoises	Species Impact Score
Franklin	\$41,267	Yes	97
Bay	\$50,283	Yes	87
Pinellas	\$48,968	No	75
Lee	\$52,052	No	69
Monroe	\$63,030	No	58

Cartographer: Anna Morreale

Date: 5/6/2019

Sources: ESRI, Florida Geographic Data Library, United States Census Bureau, Florida Fish and Wildlife Conservation Commission, National Park Service

