

# MY COMMUNITY, OUR EARTH

## MIAMI

# Friends of the Environment: Pine Rocklands

Project Director: Jennifer Gambale  
Team Leader: Maya Douglas

**Problem Statement:** What is left of the pine rocklands and how are they important to the ecology of South Florida?

This project was to create the “Friends of the Environment” group, students ranging from 5 to 18 years old and adults, and to teach them about the natural habitats that exist around us, in South Florida. Also, by learning about these environments, this would encourage each person to be advocates for these habitats and become environmental stewards in general. The students visited a variety of local parks and sites around South Florida to learn about each of the local habitats.



Pine Shore Park  
Regeneration after recent human-caused fire  
at Pine Shore Park



Deering Estate  
Pine rockland at the Deering Estate



## Community Characteristics

<b>Soil:</b>	Rock outcrops and sandy flatlands
<b>Hydrology:</b>	seldom flooded more than few weeks/year
<b>Historic Area:</b>	5,180 km <sup>2</sup>
<b>Current Area:</b>	<654 km <sup>2</sup>
<b>Major areas:</b>	Big Cypress Swamp; Atlantic Coastal Ridge; and sandy flatlands north of Big Cypress and northeast Everglades
<b>Elevation:</b>	Several inches-feet higher than cypress; Atlantic Coastal Ridge 3-7.5 m (10-25 ft)
<b>Topography:</b>	Rough and solution pitted oolitic limestone
<b>Dominant plants:</b>	slash pine, hardwood trees, shrubs, palms, grasses; cabbage palm and saw palmetto; grasses ground cover beard grass, wiregrass, and panicgrass
<b>Common fauna:</b>	arthropods and other invertebrates, a variety of amphibians, reptiles, birds, and mammals such as the indigo snake, bobwhite quail, mice, squirrels, armadillos, and deer.
<b>Invasive:</b>	Cajeput, Brazilian pepper, Australian pine
<b>Threats:</b>	Urbanization; human-caused fire; agricultural development

## Background

The globally endangered pine rockland habitat (pinelands) are a unique environment found along the rocky limestone outcrops and sandy flatlands of Florida, the Bahamas, and Cuba. This unique environment exists at relatively high elevation along a rock ridge and was one of the first areas to be developed in Miami Dade County.

Historically, the pinelands were distributed in a continuous stretch extending southwest from Miami into Everglades National Park and covered approximately 654 km<sup>2</sup> in Miami Dade County. This habitat has been slowly destroyed in South Florida as it was cleared for urbanization and converted for agriculture.

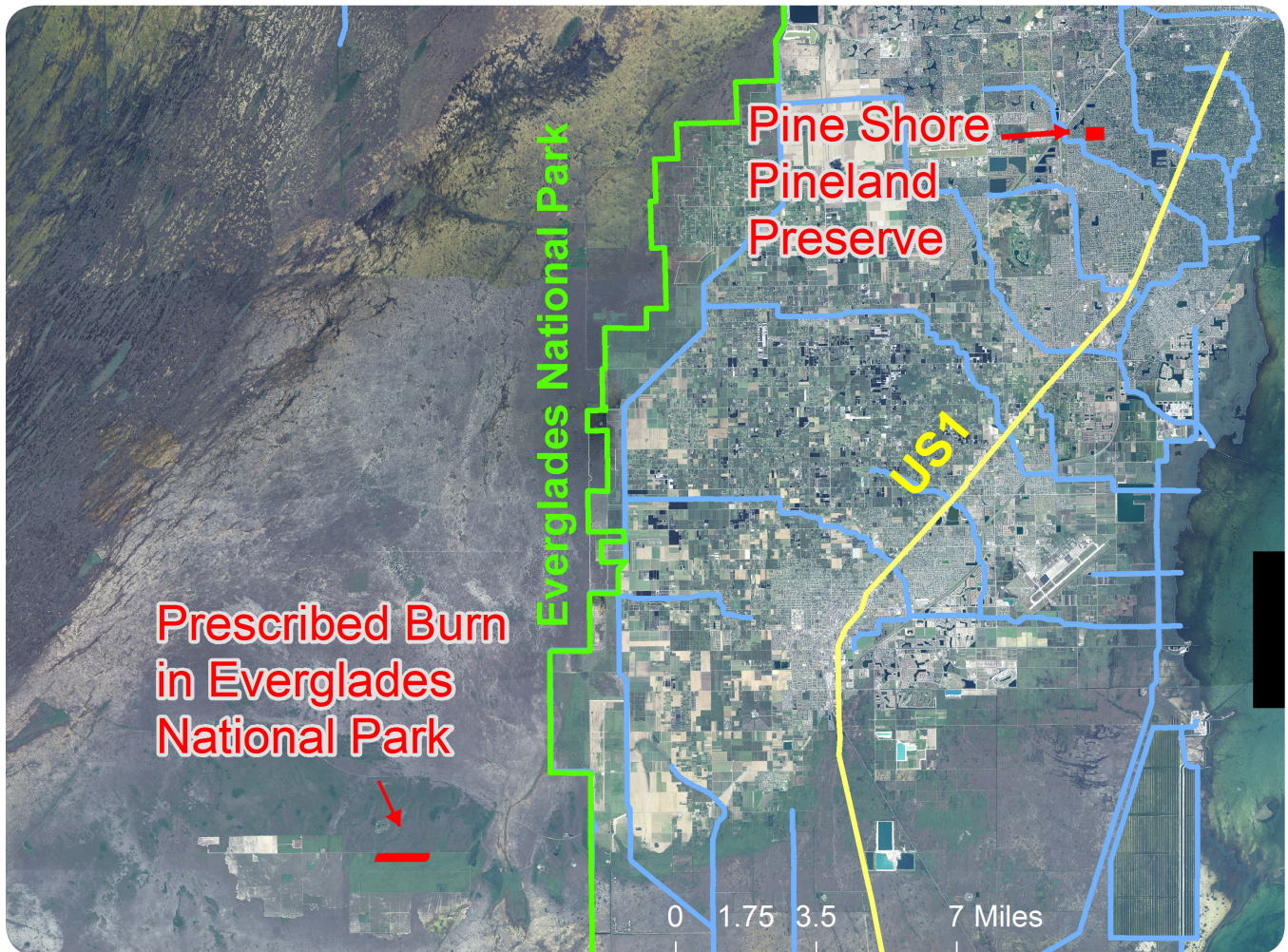
Today, 80 percent of Florida's pinelands are protected within the boundaries of Everglades National Park and less than two percent of Miami Dade County pinelands are outside the Park. Pinelands can also be found throughout Miami along the Miami Rock Ridge which runs through South Florida and the Florida Keys.

## Ecology

The pine rocklands are dominated by the South Florida slash pine (*Pinus elliottii* var. *densa*) and is resistant to fire with thick bark. Fire disturbance plays an important ecological role in maintaining the pine rockland habitat. In the absence of fire, pineland species are replaced through succession by hardwood hammock forests. Naturally occurring fires often occur during the wet season and are the result of lightning strikes. These fires tend to be low intensity and minimize competition from hardwood species.

## Threats

Urban development and human-caused fires are the two greatest threats to the pineland community. Although fire is an essential part of pineland ecology, human-caused fires tend to occur during the dry season and burn with greater intensity. A fire at Pine Shore Pineland Preserve, shown on the map, happened unexpectedly on April 8, 2013. Without the protection of saturated soils, fire can penetrate the soils, damage the roots, and kill the plants.



Within the boundaries of Everglades National Park, the pineland communities are preserved with intentional, controlled fires “prescribed” by park rangers. The bottom rectangle, shown on the map, is an area that is scheduled to be burned in May. In Everglades National Park, burns are prescribed every three to seven years and are an important disturbance that decreases the competition. Without fire, pineland communities would be replaced through succession by with a tropical hardwood hammock.

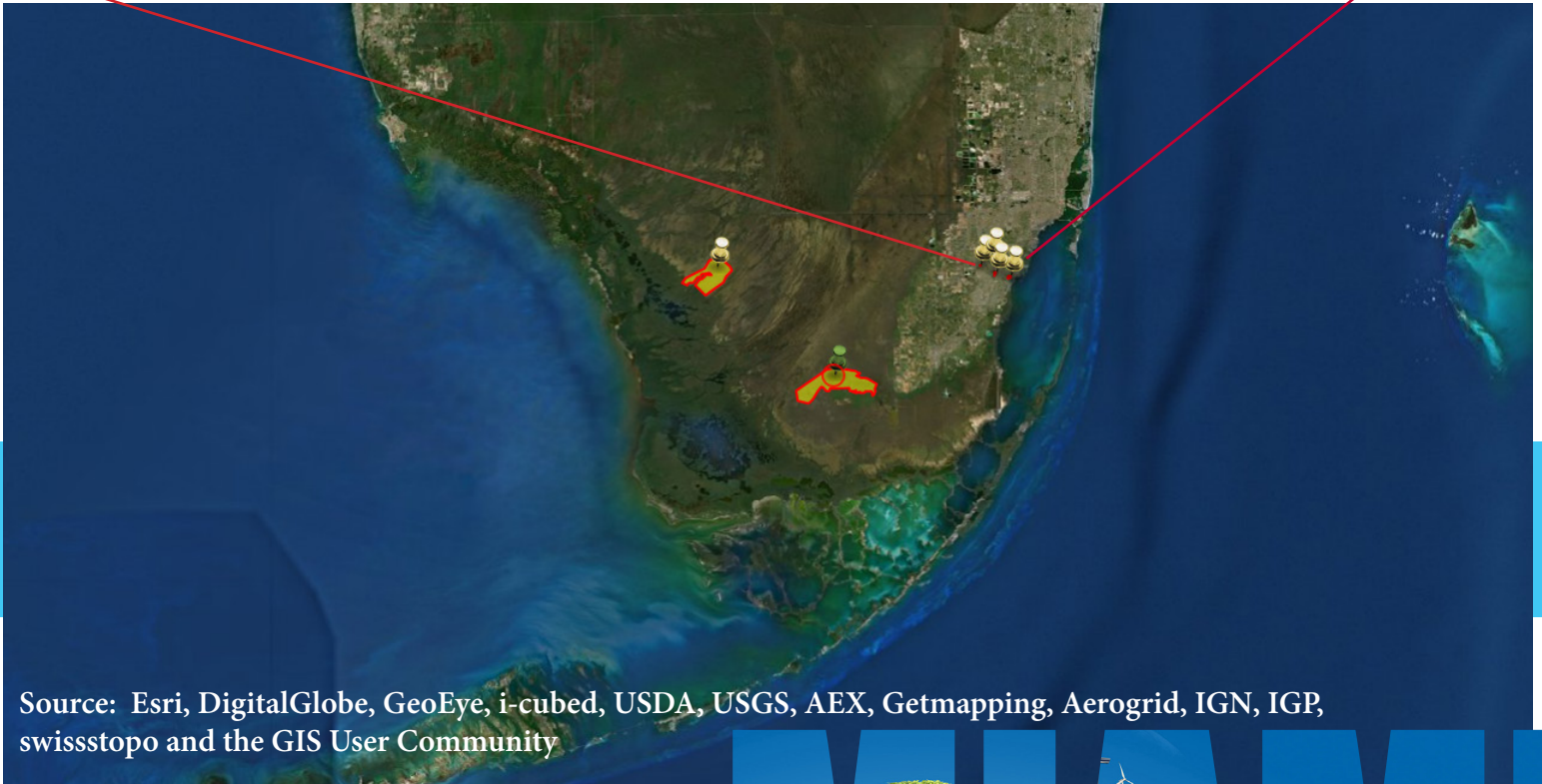
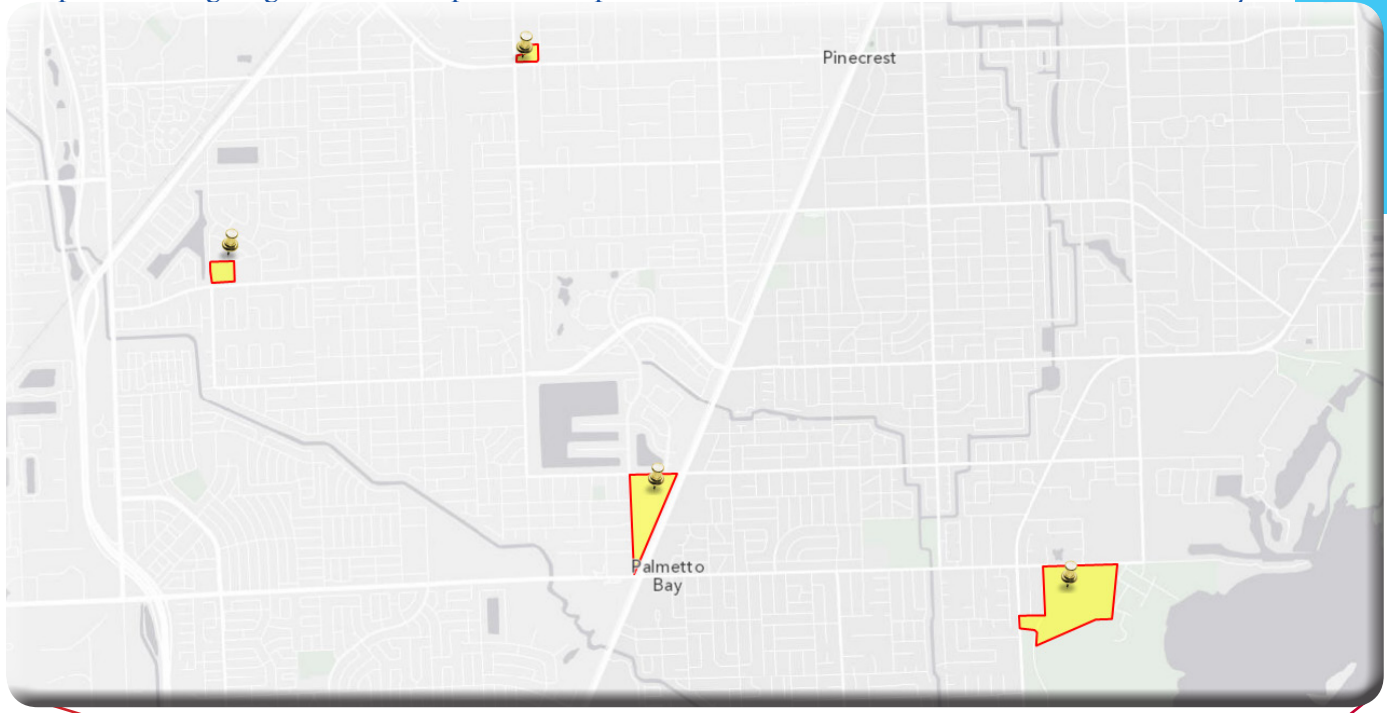
Other threats to pinelands include changes in hydrology and invasive species including the Cajuput tree (genus *Melaleuca*), Brazilian pepper, and Australian pine.

## Results & Conclusion

Friends of the Environment visited Pine Rockland habitats at Everglades National Park, the Deering Estate, Miami Dade College Nature Preserve, and Ron Ehman Park.

Our “Friends of the Environment” group discussed that we can make a difference by trying to preserve what is left of the pine rocklands and prevent further fragmentation. We can also educate our community to improve their understanding of how important preservation is for many endemic species that are only found in the pine rocklands.

Map illustrating fragmentation of prominent pine rockland communities in Miami Dade County



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo and the GIS User Community

