

# Restoring the Gold Coast

Biodiversity Restoration and Community Engagement in Southeastern Florida

George D. Gann

Chief Conservation Strategist, The Institute for Regional Conservation  
International Policy Lead, Society for Ecological Restoration

with Cara Abbott

Education and Outreach Coordinator, The Institute for Regional Conservation

October 22, 2020

## Acknowledgements

- Becca Dougherty, Niki Desjardin, and the Treasure Coast Chapter of the FAEP.
- All the IRC folks, past and present, and all our funders and conservation partners.
- Photographers, including Roger Hammer, Beryn Harty, Erin Backus, Keith Bradley, Shirley Denton, James Johnson, and many others.
- Restoring the Gold Coast sponsors and collaborators, and special thanks to Niki Desjardin and Rick Harman.
- Special thanks to Rob Barron, for invaluable assistance and collaboration, and to Silent Native Nursery for many donations of native plants.



# Building a Coalition Since 2018

## Major Sponsors



## Sponsors

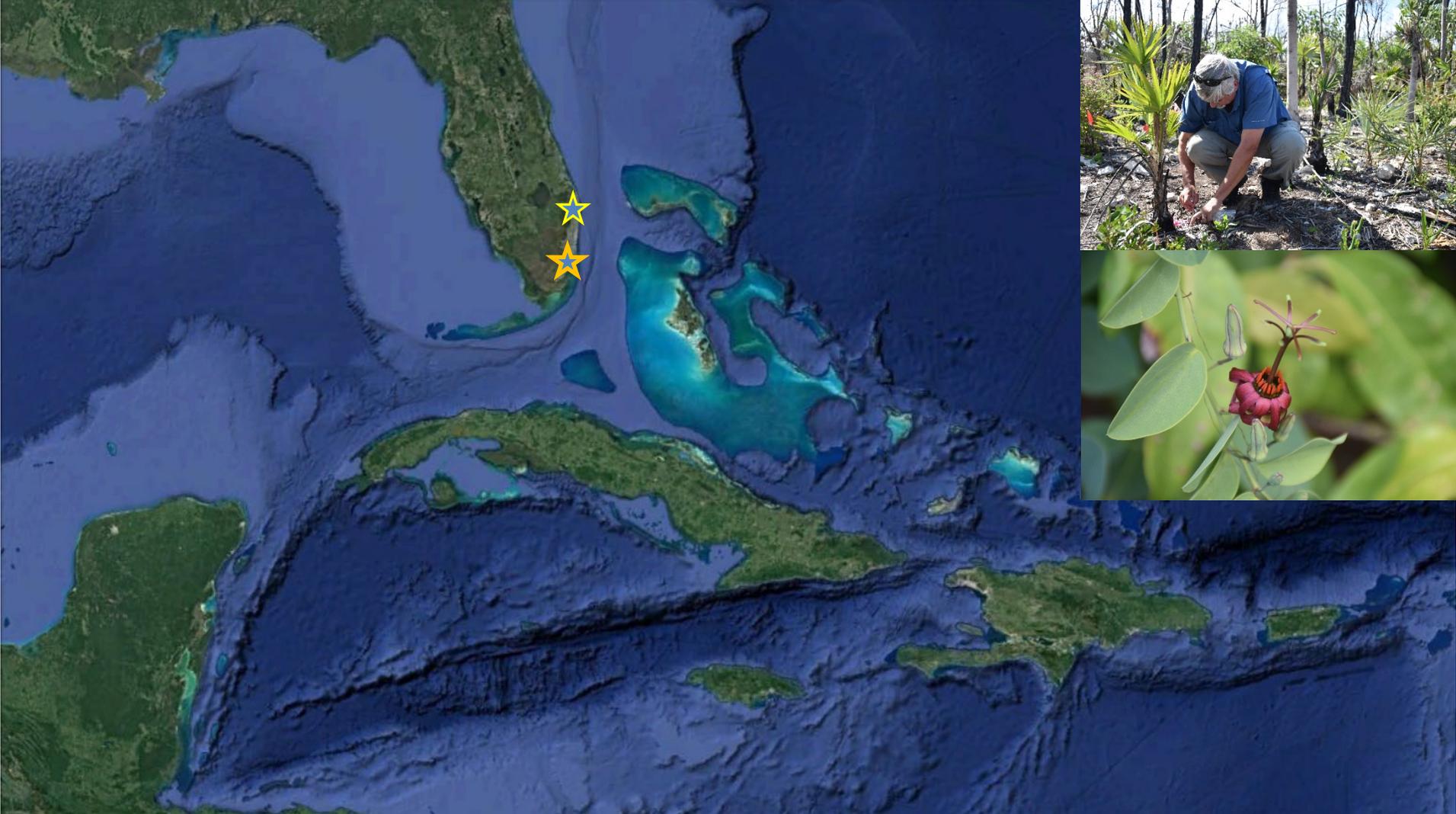


## Collaborators



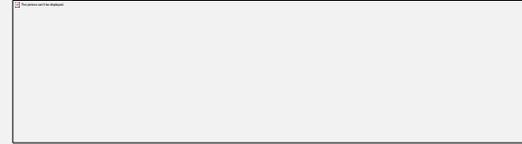
# Outline

- **Background on me, IRC and our mission.**
- **Conservation context in South Florida.**
- **Restoring the Gold Coast Program, its relevance, progress to date, and our future plans.**
- **Conversation!**



My Neighborhood

# Global and Local Policy



World Conference on Ecological Restoration  
Cape Town, South Africa 2019

International Policy Lead



Restoration site, No Name Key  
National Key Deer Refuge, FL, USA

Chief Conservation Strategist

# 40-years of experience in coastal upland restoration and research



Miami Beach, 1987

- Early 1980s – *Casuarina* removal on Cape Sable, ENP
- Late 1980s – 7.5 miles of beach dune and coastal strand restoration on Miami Beach; 5 miles of beach dune restoration on Captiva island
- 1989 to mid 2000s – Consultant to Town of Palm Beach concerning seagrape trimming at Sloan’s Curve and other coastal issues.
- 1990s – Consultant to American Littoral Society for restoration of Cape Florida following Hurricane Andrew.
- 1995 to 2007 – Consultant to and then Director of Gemini Botanical Garden in Manalapan.
- Mid 1990s-present – Rare plants, floristics management plans, restoration through IRC.

# IRC Background and Mission



IRC aims to protect, restore and manage all biodiversity on a regional basis, and to **prevent local extinctions of native plants, animals and ecosystems**. All conservation is ultimately local. **2019 was our 35<sup>th</sup> Anniversary Year**. Staff of 7, 13 Associates and 7 Board Members.

**Floristic and faunistic inventories**

**Rare species research**

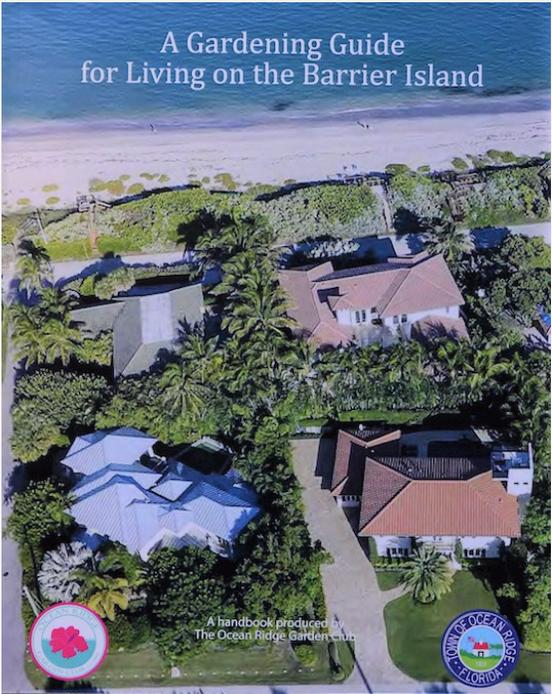
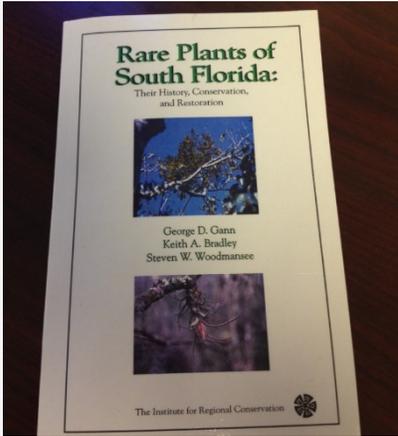
**Ecological restoration design and implementation**

**Educational training and workshops**

**Online tools and resources**

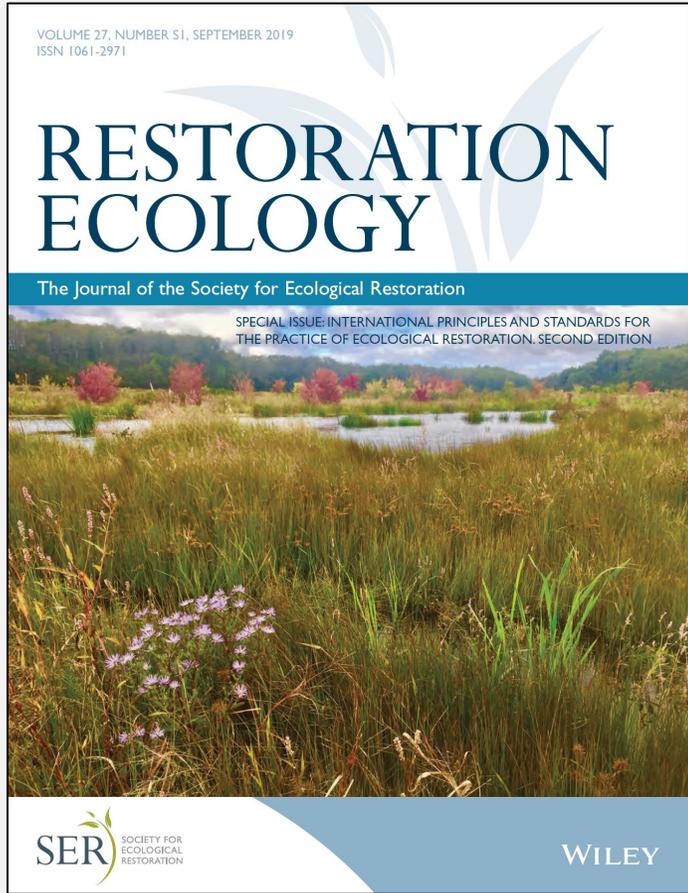
**International policy**

# Some IRC Resources



# Ecological Restoration and Community Outreach





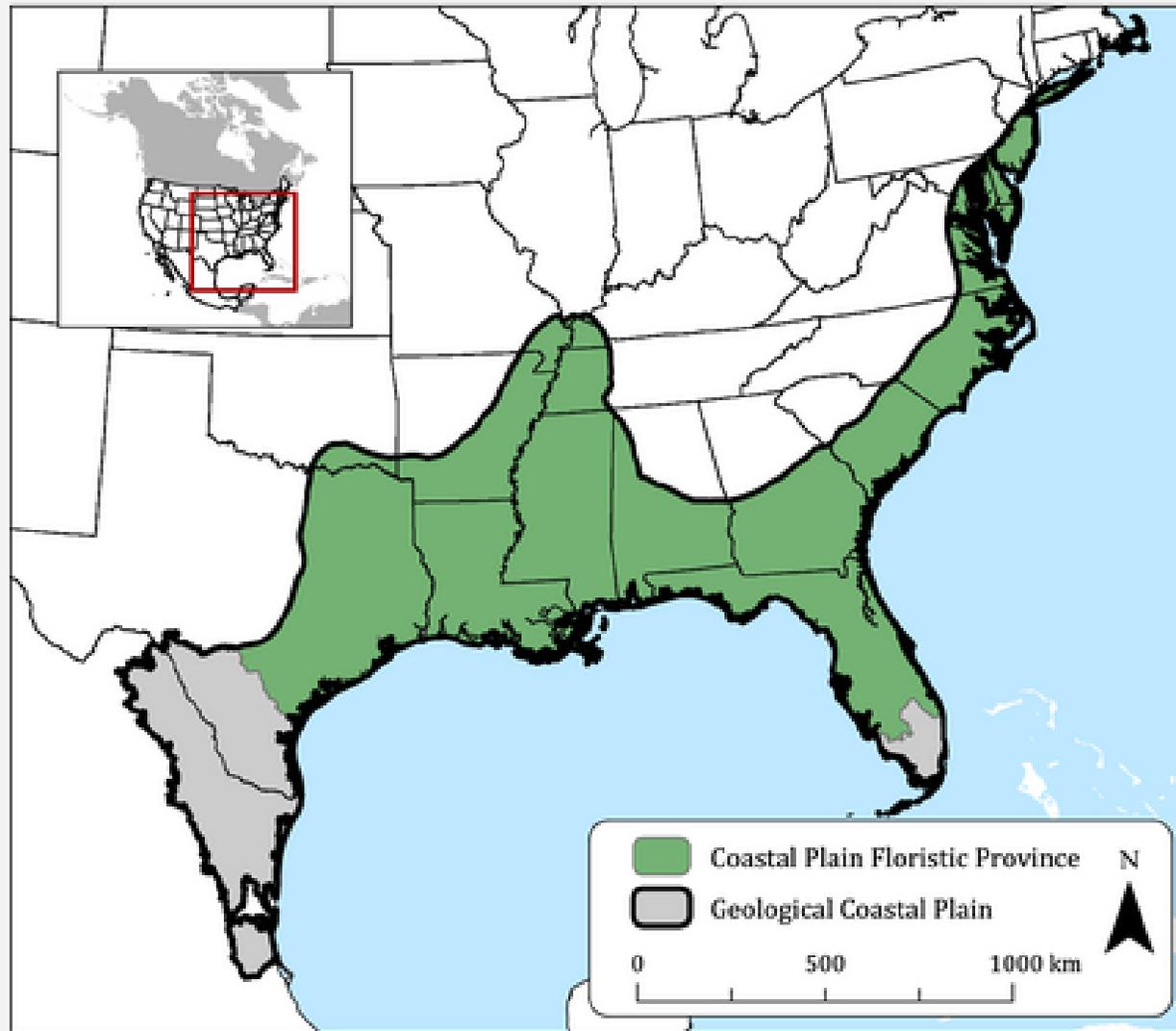
# International Policy Work on Ecological Restoration, Conservation, and Sustainability



[www.ser.org/Standards](http://www.ser.org/Standards)



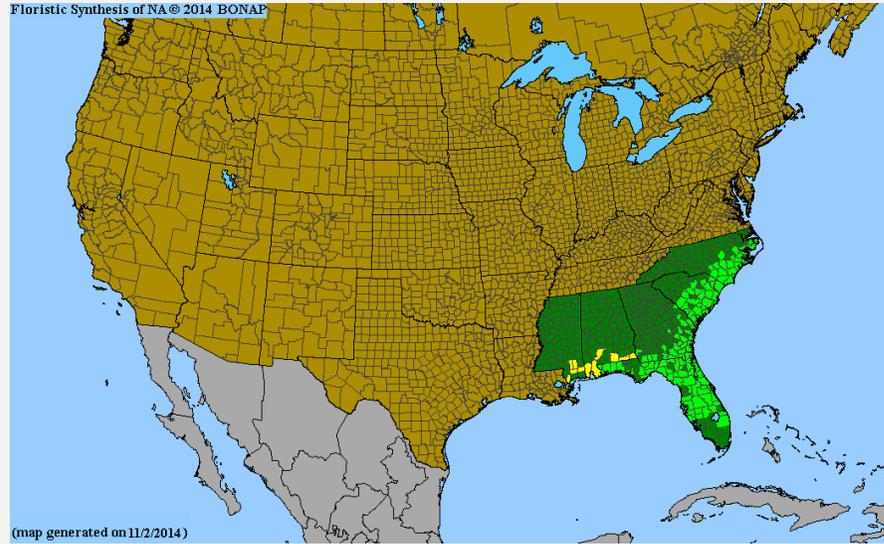
# South Florida Conservation Context



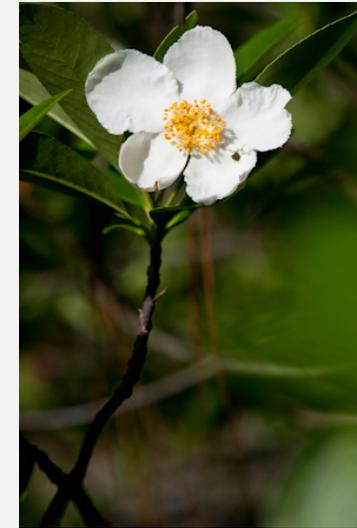
## North American Coastal Plain Global Hotspot

Noss et al. 2014

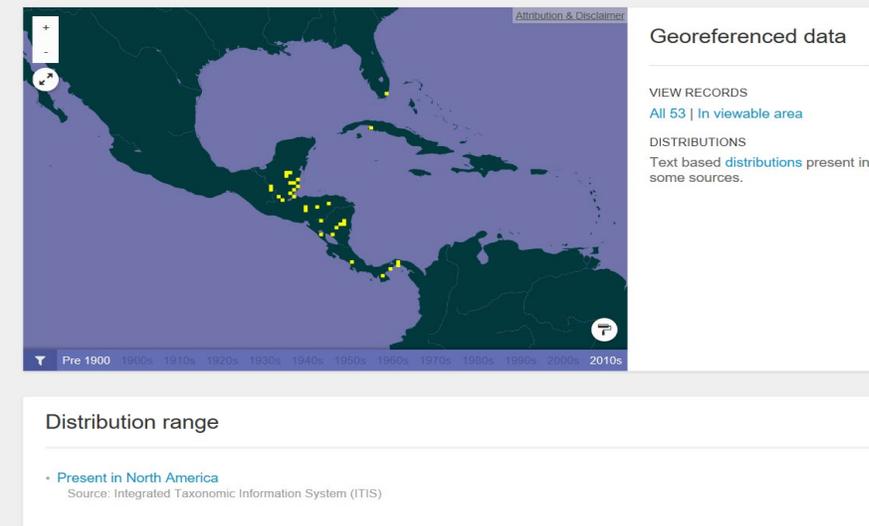
# South & North Range Limits in South Florida



*Gordonia lasianthus* (BONAP.org)



K. Bradley

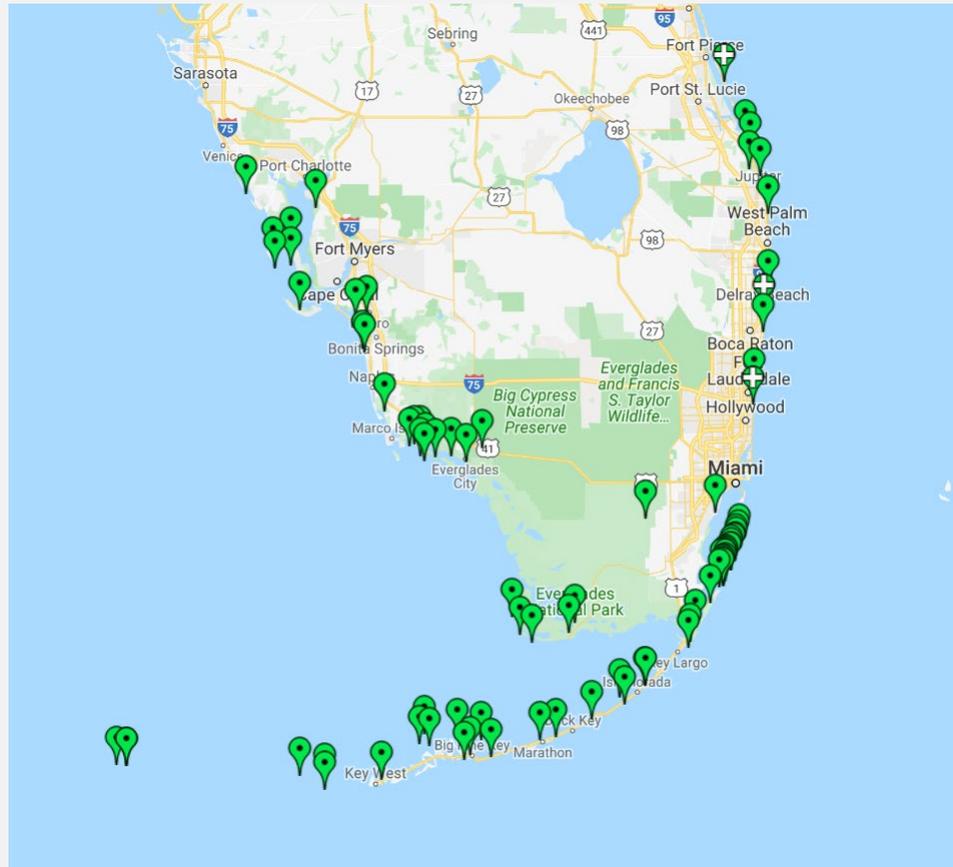


*Oncidium ensatum* (GBIF.org)



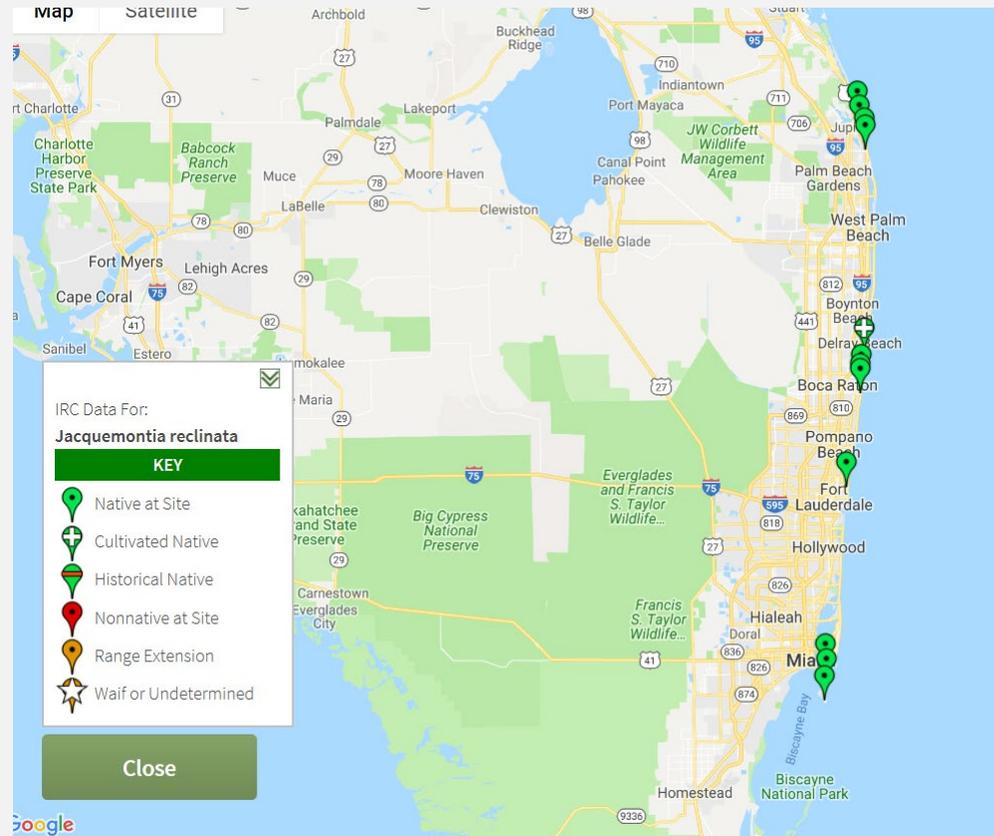
C. McCartney

*Agave decipiens*  
False sisal



Florida Endemics, >110 taxa in South Florida

# South Florida Endemics (probably >50)



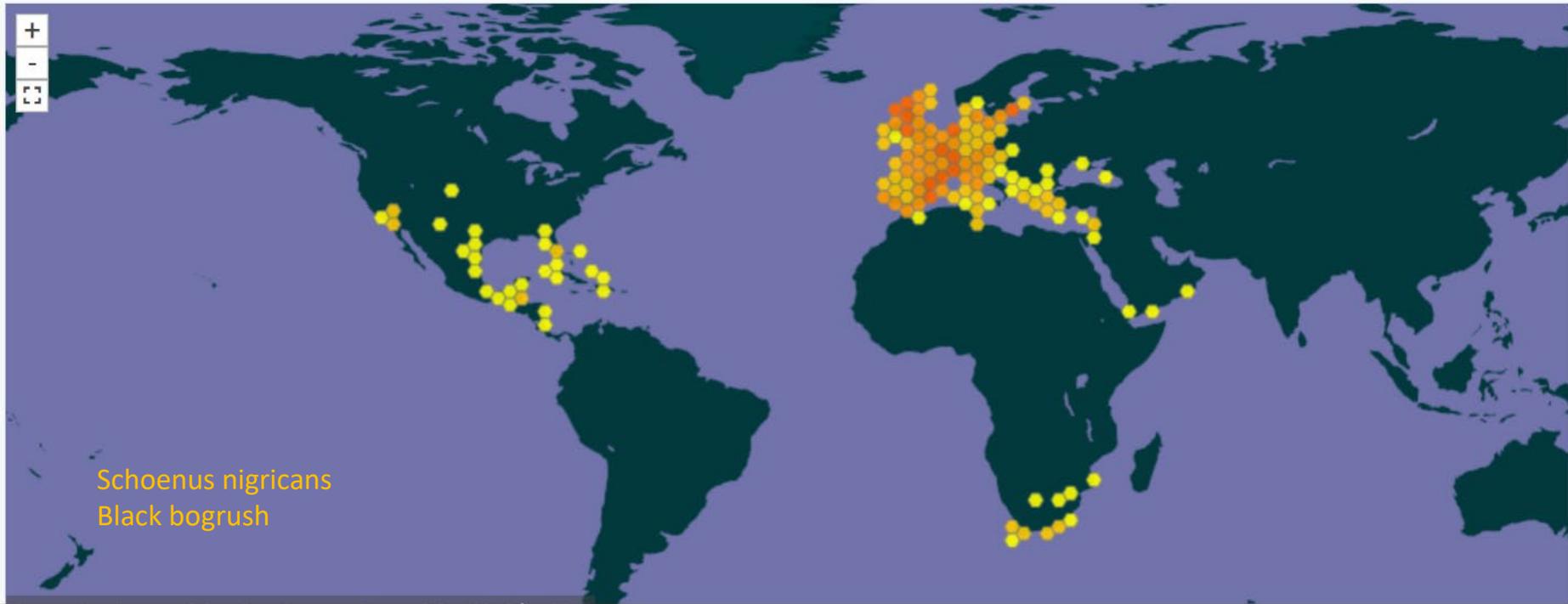
*Jacquemontia reclinata*  
Beach clustervine

1,311 OCCURRENCE RECORDS WITH IMAGES



[SEE GALLERY](#)

22,294 GEOREFERENCED RECORDS



# Local Biodiversity Matters



Species of Management Concern in Everglades National Park, hardwood hammocks.

# Plant Biodiversity is Key to Animal Biodiversity

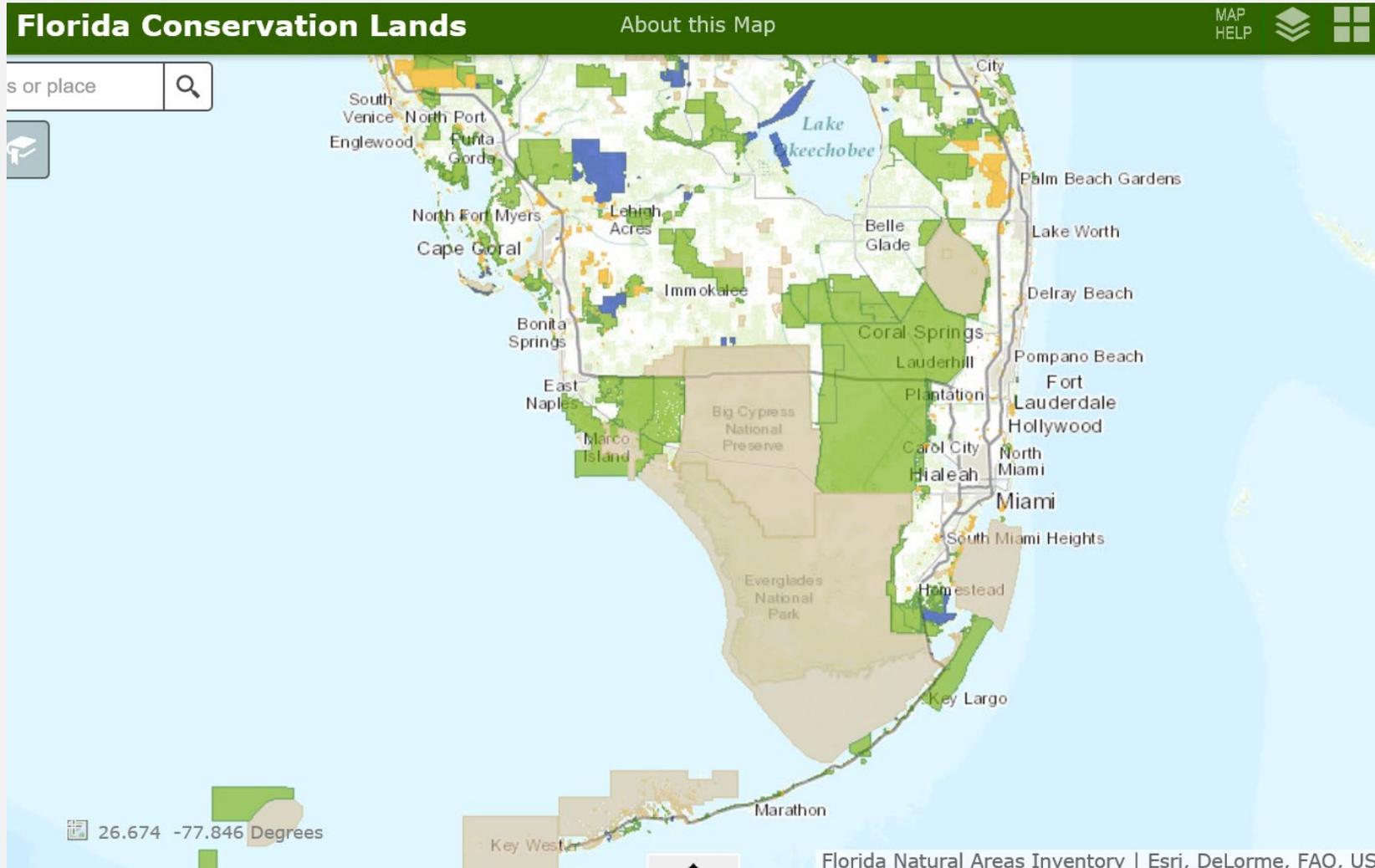


Cicada

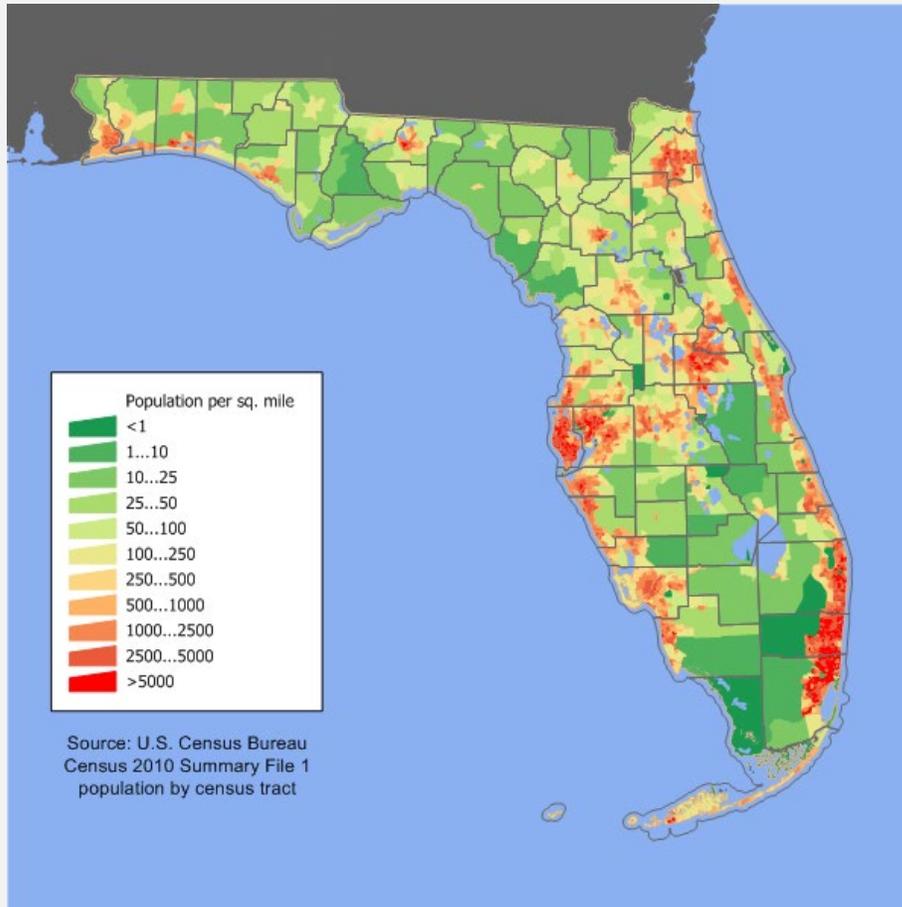


Ceraunus Blue

>50% of region in conservation; United Nations Convention on Biological Diversity (CBD) 2020 Protected Areas Target = 17%. So everything should be great.







[JimIrwin](#) at the [English Wikipedia](#), 2006

## Density and growth

Change since 2010 top 11 states

1.	New Jersey	1.3%
2.	Rhode Island	0.5%
3.	Massachusetts	5.4%
4.	Connecticut	-0.04%
5.	Maryland	4.7%
6.	Delaware	7.7%
7.	New York	0.8%
8.	<b>Florida</b>	<b>13.7%</b>
9.	Pennsylvania	0.8%
10.	Ohio	1.3%
11.	California	6.2%
24.	<b>Washington</b>	<b>12.1%</b>
26.	<b>Texas</b>	<b>14.1%</b>

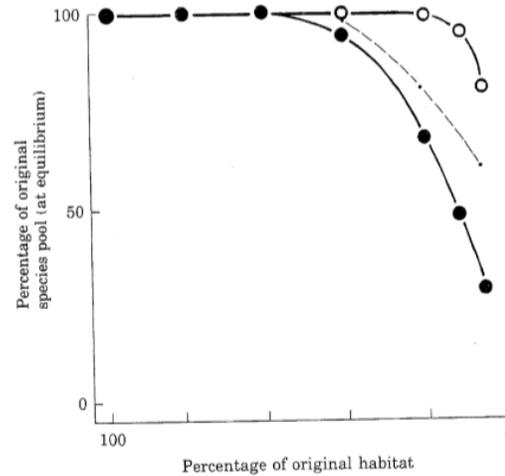
Wikipedia November 2, 2019

Martin County: 2010-2019 (est.) – 10.0%; Palm Beach County 2010-2019 (est.) – 13.4%

# Fragmentation leads to local extinction

no species are lost from either pool. As fragmentation proceeds we eventually reach some critical level of reduction and fragmentation where species begin to die out. The susceptible pool loses species earlier and loses more species in total than does the resistant pool. When the resistant pool begins to lose species, it loses them very rapidly, because by this time the fragments are small and there is little habitat left.

Insularization causes extinctions over and above those expected through reduction in the total area of habitat. More species persist at equilibrium if the remaining habitat is concentrated into a single large patch rather than distributed over many small fragments (Figure 4). We stress that the results in Figure 4 are equilibrium patterns; depending on the relative time scales of habitat destruction and species'



**FIGURE 4.** The number of species remaining in each species pool as fragmentation proceeds. Closed circles show the pool of species with large area requirements and low vagility. Open circles show the species with less stringent area requirements. The small dots connected by the dashed line depict the proportion of the first pool that would be present when the habitat is minimally fragmented. (From McLellan et al., 1986.)

Some species and groups go faster.

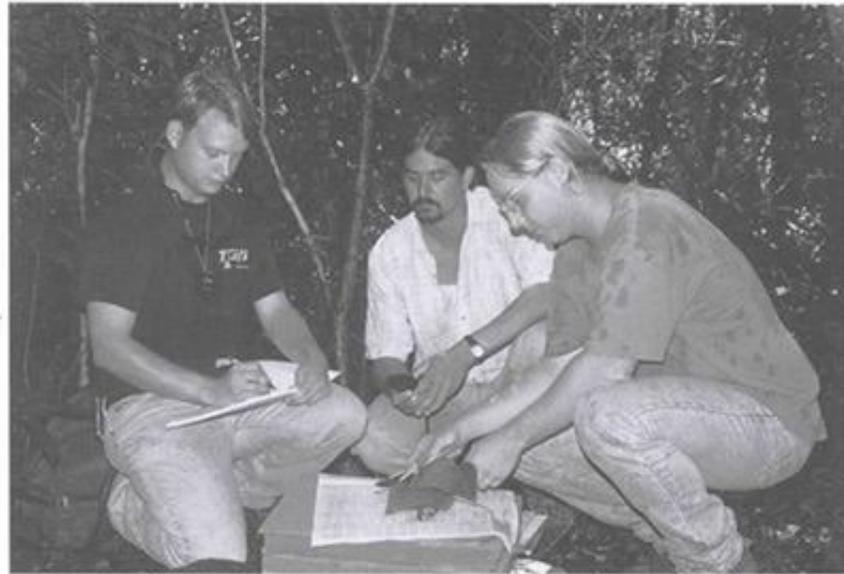




# Documenting extinctions and rarity since 1996

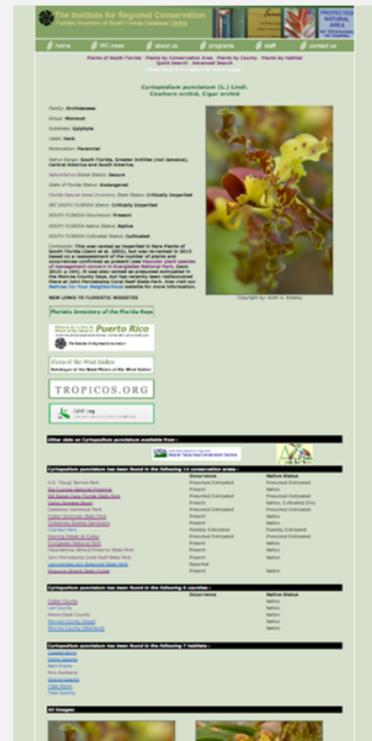
## The Floristic Inventory of South Florida

Afield celebrates...  
Orion



80 Species To Be Added to Florida's  
Endangered Species List

The Floristic Inventory of South Florida  
1995 – present, Online since 2001



Castellow Hammock Park

County: Miami-Dade County  
Size: 114.29 acres  
Latitude: 25.59872° Longitude: -80.45528°  
Section: 17 Township: 36 Range: 29  
Notes: Historically specified as Castellow Hammock or Castellow's Hammock. For a map and more information click [here](#).  
Managing Agency: Miami-Dade County Department of Parks and Recreation

There are 379 taxa reported for Castellow Hammock Park

Group By Family:  Show Results

Scientific Name	Occurrence:	Native Status:	Introduced Status:	Invasive Status:	Cultivated Status:	Reference:	Voucher:
<b>Acanthaceae</b>							
<i>Belvisia discolor</i>	Present	Not Native, Naturalized	Introduced	Potentially Invasive		2122	2122
<i>Besleria discolor</i>	Present	Not Native, Naturalized	Introduced	Ruderal		1472	
<i>Besleria discolor</i>	Present	Not Native, Naturalized	Introduced	Potentially Invasive		1472	
<i>Besleria discolor</i>	Present	Native	Not Introduced			1472	
<b>Amaranthaceae</b>							
<i>Amaranthus spinosus</i>	Present	Not Native, Naturalized	Introduced	Ruderal		1472	
<i>Amaranthus spinosus</i>	Present	Not Native, Naturalized	Introduced	Ruderal		1472	
<b>Anacardiaceae</b>							
<i>Miconia acuminata</i>	Present	Not Native, Naturalized	Introduced	Invasive		1472	
<i>Miconia acuminata</i>	Present	Native	Not Introduced	Native		1472	
<i>Miconia acuminata</i>	Present	Not Native, Naturalized	Introduced	Invasive		1472	
<i>Miconia acuminata</i>	Present	Not Native, Naturalized	Introduced	Invasive		1472	
<i>Miconia acuminata</i>	Present	Native	Not Introduced	Native		1472	
<b>Anemaceae</b>							
<i>Anemone pulchella</i>	Present	Native	Not Introduced	Native		1472	
<b>Annonaceae</b>							
<i>Annona glabra</i>	Present	Native	Not Introduced	Native		1472	
<b>Apiaceae</b>							
<i>Conium maculatum</i>	Present	Not Native, Naturalized	Introduced	Ruderal		1472	
<b>Apocynaceae</b>							
<i>Strobilanthus biflorus</i>	Present	Native	Not Introduced	Native		1472	
<i>Strobilanthus biflorus</i>	Present	Not Native, Naturalized	Introduced	Invasive		1472	
<i>Strobilanthus biflorus</i>	Present	Native	Not Introduced	Native		1472	
<i>Strobilanthus biflorus</i>	Present	Not Native, Naturalized	Introduced	Ruderal		1472	
<i>Strobilanthus biflorus</i>	Present	Native	Not Introduced	Native		1472	
<i>Strobilanthus biflorus</i>	Present	Native	Not Introduced	Native		1472	
<b>Aquifoliaceae</b>							
<i>Ilex glabra</i>	Present	Native	Not Introduced	Native		1472	
<i>Ilex glabra</i>	Present	Native	Not Introduced	Native		1472	
<b>Araceae</b>							
<i>Araceae</i>	Present	Not Native, Cultivated Only	Not Introduced				
<i>Araceae</i>	Present	Not Native, Naturalized	Introduced	Invasive	Cultivated	1472	
<i>Araceae</i>	Present	Not Native, Cultivated Only	Not Introduced	Native Only	Cultivated	1472	

### SOME QUESTIONS

- Are very small, fragmented conservation areas important?
- How well does the current conservation system protect rare vascular plants?
- Have there been regional extirpations/extinctions?

# Methods of the FISF

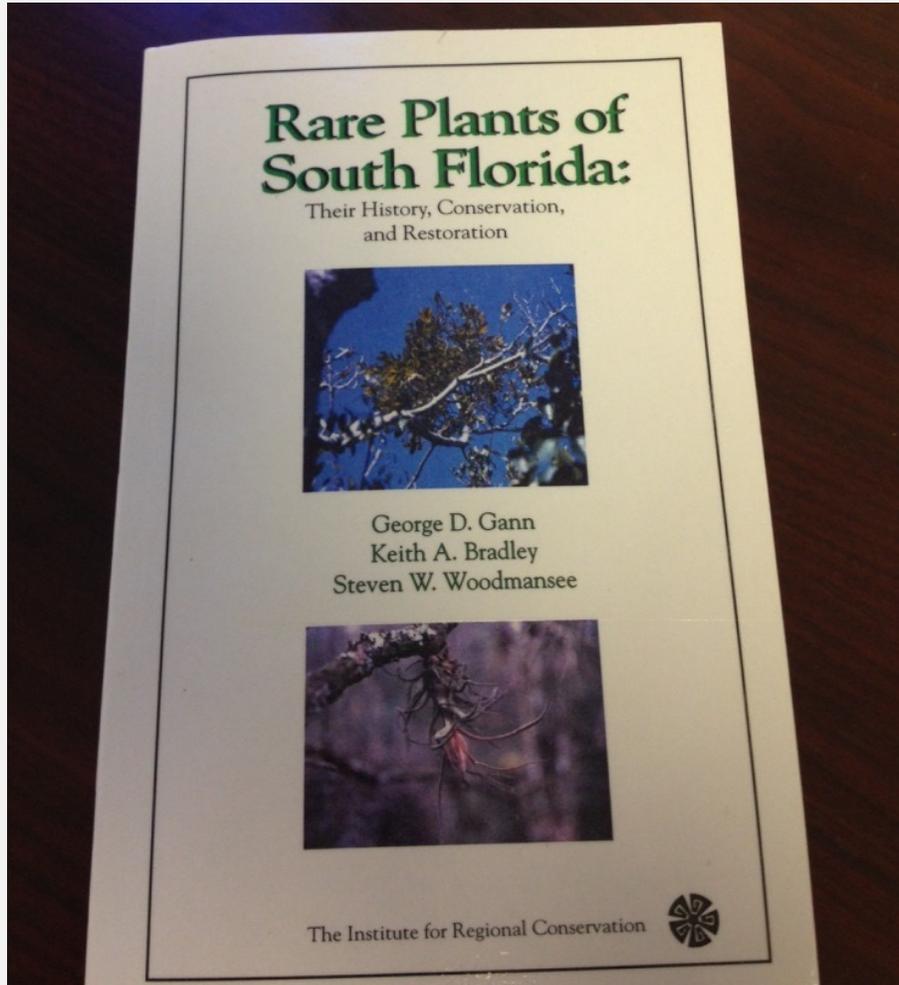


Botanist George Avery, c. 1970s  
Courtesy Sally Channon

- Comprehensive (looks at all species in region)
- Collates all available data on conservation areas (published and unpublished, FNAI data, herbarium specimens, field notebooks, personal communications)
- Uses NatureServe assessment methods at a regional scale
- Filters for rarest species (SF1, SFH, SFX)
- Intensifies work on rarest species and conservation areas with little or no data



# 2002



*Bulbophyllum pachyrachis*

1 in 4 native plant species were critically imperiled or extirpated.

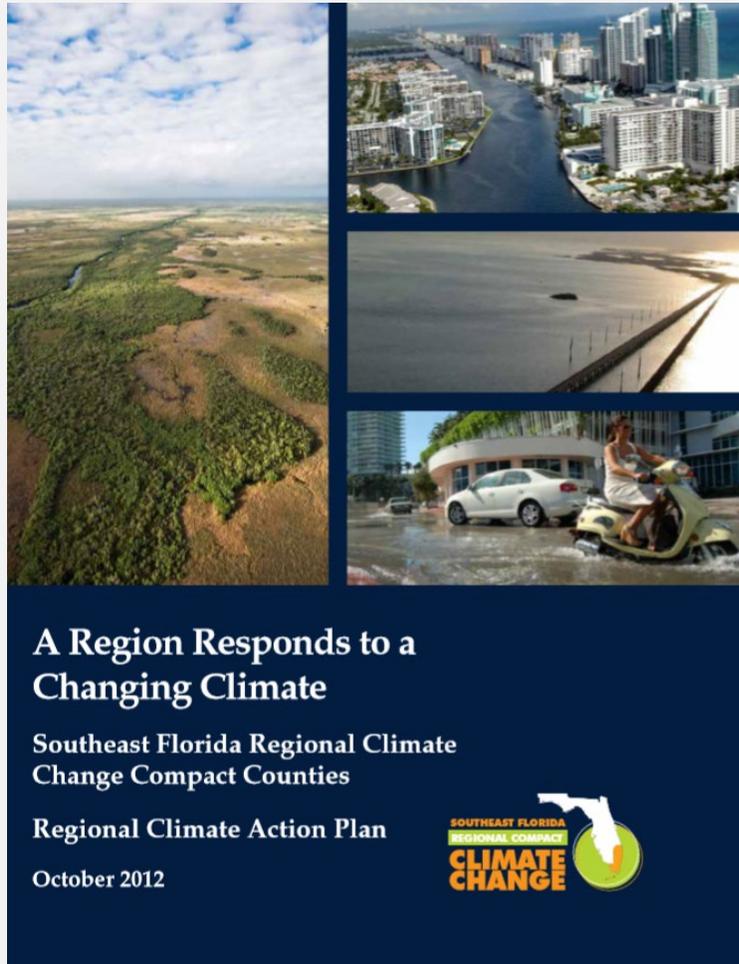
About 8% were reported as presumed or possibly extirpated or extinct (now 6%).

Four South Florida endemic taxa reported as extinct in Knapp et al. (2020) were documented by IRC in 2002.

# Restoring the Gold Coast Background

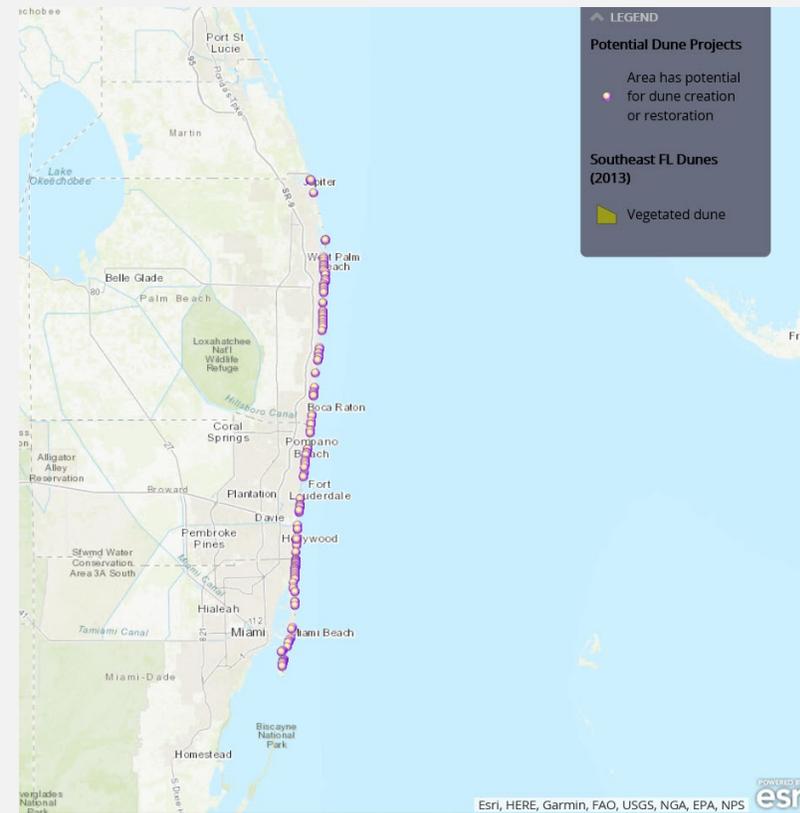
## Shoreline Resilience Working Group

### Southeast Florida Regional Climate Change Compact



### Beach/Dune Goals:

- A continuous, functional dune system complements every beach from Key Biscayne to Jupiter Inlet.
- Invasive exotic vegetation covers less than 5% of total vegetated area of the region's dunes.



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## Mayfield bill would revamp how state beach renourishment funding is decided

Dave Berman, Florida Today Published 5:00 p.m. ET Jan. 30, 2019 | Updated 9:51 a.m. ET Jan. 31, 2019

CONNECT TWITTER LINKEDIN COMMENT EMAIL MORE



Pipe is being positioned on Indian River County beaches just south of Sebastian Inlet to carry sand dredged from the inlet's sand trap for the Sebastian Inlet District's ongoing dredging and beach renourishment project. (Photo: SEBASTIAN INLET DISTRICT PHOTO)

Florida Sen. Debbie Mayfield has introduced a bill that would overhaul how state funding for beach preservation projects is decided.

Mayfield, a Melbourne Republican, said, under her coastal management bill, the Florida Department of Environmental Protection's "criteria for ranking beach and inlet sand management projects will be refined to better capture the economic importance of healthy beaches to tourism, storm damage reduction and resource protection."

Debbie Flack, president of the Florida Shore & Beach Preservation Association, which supports the bill, said Mayfield's proposal provides a "much more refined" set of criteria

**MORE STORIES**

- No arrests, names as investigators review circumstances in Port St. John shooting death  
March 18, 2019, 4:55 p.m.
- Carnival president touts pluses of Port Canaveral  
March 18, 2019, 6:15 p.m.
- 2 pets killed after fire in Rockledge home  
March 19, 2019, 7:49 a.m.
- House fire reported in south Brevard  
March 18, 2019, 4:54 p.m.
- Melbourne councilman wants to name street for Dr. Martin Luther King Jr.  
March 18, 2019, 3 p.m.
- West Melbourne man arrested after standoff, police report

"Our beaches are one of Florida's most valuable resources, serving as ***critical habitat for species of plants and animals***, attracting visitors and new residents to the state, as well as ***providing a line of defense during major storm events***," Florida Senator Debbie Mayfield, Melbourne. *Florida Today*, January 30, 2019

But No One Is Monitoring Biodiversity



## 2015 Survey and Assessment of Delray Beach

101 native dune species  
were recorded, but 7  
previously recorded are were  
possibly missing

An additional 75 species  
within native range were  
identified as missing and  
could be restored in area.

Our current list includes 235  
native dune species in  
southern Palm Beach  
County.



### East Coast lantana

*Lantana depressa* var. *floridana*

- Miami-Dade to St. Johns County along the east coast (endemic), but nearly extinct due to hybridization with the exotic weedy *Lantana camara*.
- Recorded for Atlantic Dunes Park (1993) but presumed extirpated there. Possibly present in Boca Raton but otherwise gone from South Palm Beach County.



### Red mulberry

*Morus rubra*

- Widespread in south Florida in both inland and coastal locations, but very rare in South Palm Beach County.
- Previously recorded for Atlantic Dune Park (1991) but apparently extirpated there. Present in Boca Raton in maritime hammocks.



### Partridge pea

*Chamaecrista fasciculata*

- Widespread in south Florida in both inland and coastal locations, but perhaps extinct on South Palm Beach County barrier islands.
- Provides food for birds. Larval host plant for ceratunus blue (*Hemiargus ceraunus*), cloudless sulphur (*Phoebis sennae*), little yellow (*Eurema lisa*), and gray hairstreak (*Strymon melinus*) butterflies.



### Spurred butterfly pea

*Centrosema virginianum*

- Widespread in south Florida in both inland and coastal locations, but very rare in South Palm Beach County.
- Previously documented at Atlantic Dunes Park (1991) but apparently extirpated.



### Forked bluecurls

*Trichostema dichotoma*

- Widespread in South Florida in both inland and coastal locations, but very rare in coastal South Palm Beach County.
- Previously documented at Atlantic Dunes Park (1991, 1993) but apparently extirpated.



### Marshhay cordgrass

*Spartina patens*

- Widespread in South Florida along the coast and sometimes planted in dune revegetation projects.
- Previously documented at Atlantic Dune Park (1991) but apparently extirpated there; present at Delray Municipal Beach.





## Focal Gold Coast Species

### Beach ragweed

*Ambrosia hispida*

- Florida Keys north to Brevard County, but nearly extinct along Florida east coast.
- Introduced at Atlantic Dunes Park (2016) and Delray Municipal Beach (1993; still present).



### Beach Clustervine

*Jacquemontia reclinata*

- Federally endangered. Miami-Dade to Martin County (endemic).
- Reintroduced to Atlantic Dune Park (2016) and introduced to Delray Municipal Beach (2002-2006; still present).



### Beach-tea

*Croton punctatus*

- Scattered and rare in southeastern Florida. Not common on re-nourished beaches.
- Present at Atlantic Dunes Park and Delray Municipal Beach. Plants added in 1995.



### Pineland Croton

*Croton linearis*

- Florida Keys to St. Lucie County. Nearly extinct north of Miami-Dade County. Sole larval host for two federally endangered and endemic butterflies.
- Planted at Delray Municipal Beach (1995) but introduction failed.



### Bartram's Scrub-hairstreak

*Strymon acis bartramii*

- Federally endangered. Monroe and Miami-Dade counties; extinct in Broward and Palm Beach counties.
- Larvae feed only on Pineland croton.



### Florida prairieclover

*Dalea carthagenensis* var. *floridana*

- Federally endangered. Southern mainland north to Palm Beach and Collier counties. Extinct in Palm Beach County.
- Collected in the Palm Beach area only in 1895 and 1918.



## Where Did the Native Biodiversity Go?



Southern Palm Beach County, circa 1970

# What We Have Done Well



move sand

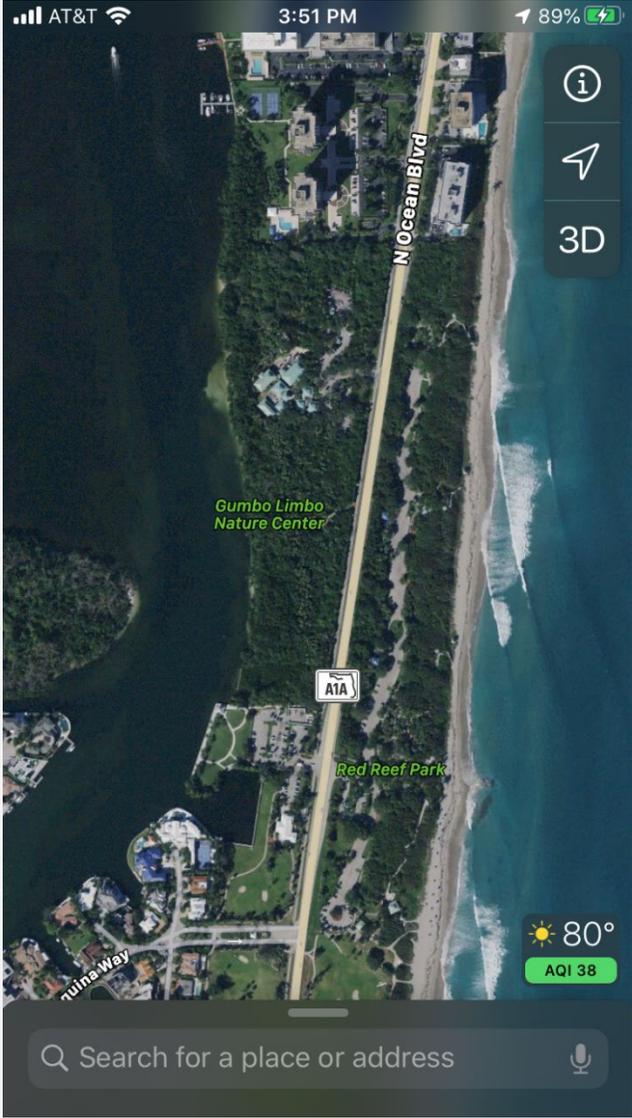


plant sea-oats and a few other species



recover sea turtles

# Some Key Areas Coastal Forests Protected



And Some Grassy Areas Intersect Those Forests



## But Coastal Strand (Shrub Zone) Heavily Impacted



Lighthouse Point Park, Volusia County



Ocean Ridge, Palm Beach County

Freshwater Wetlands Have All Been Destroyed  
(some species have been planted or could be restored in retention areas)



# Restoration Success Stories For Grassy Dunes



Miami Beach



Delray Beach



The Delray dune is loaded with rare plants.



But Limited Diversity is the Norm





Encroachment by seagrapes and invasive species is common; and human pressure on the foredune can be severe.

Coastal strand is being overwhelmed or destroyed



# Perception Weighted Toward Forests

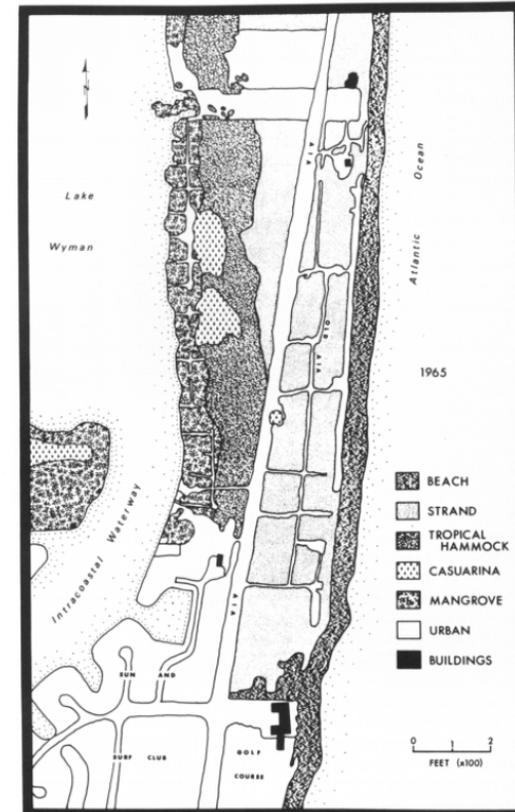


FIG. 2. Present plant associations on the Boca Hammock region with the major cultural features added. Based on 1965 aerial photography.

at the crest of the dune. Furthermore, the dune slopes gently toward the inland side, but slopes at a sharp angle on ocean side. There are some places where fires have burned up from the lower beach to the dune crest. Such burns eliminated

<https://www.jstor.org/stable/24320068>

# Trees in the Wrong Place Destroy Native Biodiversity



# Restoring the Gold Coast



# Section 2: Eight Principles that Underpin Ecological Restoration



# Biodiversity Restoration at Atlantic Dunes Park Restoration, 2016-present

Previous work completed under our  
“Green Delray” program

Special thanks to our sponsors:

- New York Life Foundation
- Pugliese Public Relations
- Keep Palm Beach County Beautiful
- Solid Waste Authority



# February 2019 Newsletter



## Monthly Conservation Notes

Join us for our new monthly Conservation Notes, where we discuss topics important to our work. If you have ideas about topics you would like to see covered, please [send us a note!](#)

## Diversity is Healthy

A diverse beach is a healthy beach! We have done well in southeastern Florida to re-nourish our beaches and restore sea turtle populations. Yet we have a long way to go to restore all of the native plant and animal diversity lost from our barrier islands in Dade, Broward and Palm Beach counties. The fact is that diverse dunes are more resilient to sea level rise and climate change. That's why it's critical they are restored based on native ecosystems able to support hundreds of species of native plants and animals, including rare and endemic species! Bringing together all of the stakeholders - landowners, community members, politicians, students - to support a *regional conservation* vision for the dunes of southeastern Florida is the goal of our new Restoring the Gold Coast program. Stay tuned to this newsletter for more updates!

A diverse dune is a healthy dune, and our first line of defense against sea level rise





Palm Beach County  
**Impact100**  
The Power of Women Giving as One

1007

Date April 17, 2019

Pay to the Order of The Institute for Regional Conservation \$ 100,000<sup>00</sup>  
One Hundred Thousand and \_\_\_\_\_ <sup>00</sup>/<sub>100</sub> Dollars

For 2019 Grand Awards Impact100 PBC  
Authorized Signature

1007 8829574221000 23456789 8829574221



## RESTORING THE GOLD COAST PROGRAM

### THE INSTITUTE FOR REGIONAL CONSERVATION



#### *What is the Restoring the Gold Coast Program?*

Restoring the Gold Coast is a collaborative initiative to restore the incredible diversity of native plants and animals native to coastal beaches and dunes in southeastern Florida, along the historic Gold Coast from Miami-Dade to Palm Beach County. This two-pronged project mobilizes partnerships within the community to teach children and adults about environmental advocacy as they also learn about the importance of protecting our coastal dunes and work toward restoring damage done. Participants will be provided with rich opportunities to learn how biodiversity keeps our Earth healthy and ultimately keeps us healthy too. In its first phase, participants will enjoy hands-on restoration activities as we help restore native coastal ecosystems in southern Palm Beach County from Boca Raton to Lake Worth.



## **Goals in Southern Palm Beach County**

Conduct outreach to municipalities and community groups

Assess coastal plant diversity

Conduct hands-on restoration & education events and workshops

Increase depleted populations of native plants

Engage public officials and other influencers

# June 2019 Rapid Assessment Town of Ocean Ridge

George Gann, Kimberlee Duke Pompeo,  
Commissioner Phil Besler, Lieutenant Scott McClure



# Building on Healthy Biodiversity



# Opportunities



# Areas of Outside of Scope



Areas with Poor Engineering



Areas of Active Erosion

# Events and Community Engagement

# Overview

- Our aim is to build and foster a community that cares about and advocates for coastal biodiversity and its restoration.
- We are working with K-12 students, college students, and adults, including thought leaders and other influencers.
- A variety of methods are employed including stakeholder meetings, presentations, and hands-on field trips and restoration events.



# School Presentations

- AICE Environmental Management class at Boca Community High
- Science National Honors Society at Atlantic Community High
- Guest lectures in all Earth Science classes at Atlantic Community High
- After school presentation to Milagro Center High Schoolers
- Presentation to Kindness Matters Club at Banyan Creek Elementary



# Presentations for Adults and Outreach to Influencers

- Presentation to Ocean Ridge Commission and Workshop at Ocean Ridge Town Hall
- Humana Senior Center Presentation
- Delray Beach Chamber Nonprofit Lunch and Learn
- Estates of Silverlakes Presentation
- Included in presentations at Florida Native Plant Society chapter meetings
- Held webinars of RGC and Biodiversity Starter Plant Kits in May
- Meetings with Delray Beach Commissioners about biodiversity, seagrape trimming, and invasive species
- Collaborations with City of Boca Raton at Red Reef Park and South Beach Park



# School Field Trips

- South Inlet Park with Boca Community High
  - Planted maritime hammock species
  - Students brainstormed ways to improve our dunes in the future
  - Special thanks to Rachel Wellman



# School Field Trips

- Multiple field trips with Atlantic Community High School to Delray municipal beach
  - Students planted coastal strand species, hand-removed invasive plants, and picked up trash
  - Special thanks to Chelsea Cantwell



# Community Organization Events

- Sea Turtle Adventures iCare Program at Gulf Stream Park
  - We led roughly 20 special needs participants from the iCare program and roughly 20 high school “buddies” from St. Vincent High School
  - Planted a variety of coastal strand species



# Public Events

- RGC Kick-Off Event in Delray municipal beach
  - Participants helped us create a “biodiversity hotspot” in the municipal beach inbetween Anchor Park and Sandoway Park



# Public Events

- International Coastal Cleanup at Atlantic Dunes Park
  - Built on the biodiversity hotspot we have been creating over the last several years at ADP
  - Also removed invasive plants and picked up trash



# Resources for Private Dune Owners

## Ad Images

### Biodiversity Starter Kits



The Institute for Regional Conservation

Written by Morgan Murphy [?] · May 4 at 4:06 PM ·

Enhance your coastal garden or beach dune landscape with a starter plant kit from the IRC. Each kit comes with hand-selected native plants that will help restore biodiversity in your backyard. For residents of south Palm Beach County.



REGIONALCONSERVATION.ORG

[View The Plant Kits](#)

Including butterfly kits!

Shop Now



The Institute for Regional Conservation

## BIODIVERSITY STARTER KITS



As part of our Restoring the Gold Coast Program, IRC is offering native biodiversity starter kits for gardens on barrier islands in southern Palm Beach County.

Each kit comes with hand-selected native plants perfect for enhancing your native beach dune system or coastal garden. This service helps make the restoration of native habitats on barrier islands cost effective and time efficient.

### What Each Starter Kit Contains

A single kit contains five native plants in 4" to 3-gal. containers, including at least one rare species not readily available on the open market. A double contains 10 native plants. Prices start at \$60 for DIY kits.

### Kits Are Available For:

- Beach dunes and coastal grasslands
- Coastal strand and shrublands (back dune)
- Tropical hammock forests and coastal gardens
- Butterfly attracting kits for a wide variety of coastal habitats

### How You Can Get Your Kit

We will be offering a monthly pickup service of these kits. Delivery and planting can be arranged for an additional fee. If you're interested in purchasing an IRC Biodiversity Kit, please visit our website at: [regionalconservation.org/donationrgc.html](http://regionalconservation.org/donationrgc.html)



# BIODIVERSITY STARTER PLANT KITS

"The natural world protects us so we must conscientiously protect it back."

*Kimberlee Pompeo, Barrier Island resident for 18 years, Florida Federation of Garden Clubs District X Vice Chair for the Barrier Islands*

IRC has the knowledge and tools to make our dunes healthier, more beautiful, and more resilient.

As part of our **Restoring the Gold Coast** program, IRC is offering native Biodiversity Starter Plant Kits for coastal gardens in southern Palm Beach County.

Each kit comes with hand-selected native plants perfect for enhancing your native beach dune system or coastal garden. This service helps make the restoration of native habitats on barrier islands cost effective and time efficient.



## Coastal Strand and Shrubland Starter Plant Kits

Each coastal strand starter kit contains 5 plants native to the beaches and dunes of southern Palm Beach County. Our Spring 2020 Kits contain: (1) **Silver saw palmetto**, (1) **Horizontal coco-plum**, (1) **Beach-creeper**, (1) **Seaside joyweed** or **Yellow joyweed**, and (1) rare plant surprise. Each kit contains (2) 10" containers, (1) 6" container, and (2) 3-4" containers. These kits are perfect for back dunes and areas protected from direct wind and salt spray. These species can also be used in sunny locations in any coastal garden. The price for each kit is \$85.00.



Four Larval Hosts – 10 Coastal Butterflies

Zebra Heliconian



Cassius Blue



Large Orange Sulphur



Martial Scrub-Hairstreak



Common Buckeye



Gray Hairstreak



Phaon Crescent



White Peacock



Gulf Fritillary



Julia Heliconian

# Natives For Your Neighborhood

Find out About the Unique Plants, Habitats, and Wildlife in Your Area.

Choose what you would like to search:

Florida Zip Code

By County

Plant

Animal

Search By Florida Zip Code

Start by entering a 5-digit South Florida ZIP Code here:

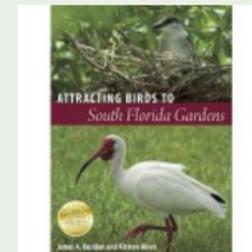
33435

Find

If you would like to learn more about native plants and the importance of conserving them, or [how to use this website](#), see the topics at right.

## Map

Originally designed for South Florida (counties from Lake Okeechobee southward), NFYN is now moving north with the aspiration of serving all of the state of Florida by 2020. Where complete, a list of the cultivated native plants that commonly occur throughout that each county will be provided. If



## Shrubs and Woody Groundcovers



Bahama nightshade

Solanum bahamense



Baycedar ▲

Suriana maritima



Beach-creeper, Golden-creeper, Coughbush ▲

Ernodea littoralis



Beach-elder, Seacoast marshelder ▲

Iva imbricata



Coco-plum ■

Chrysobalanus icaco



Common snowberry, Milkberry ▲

Chiococca alba



Coralbean, Cherokee bean ■

Erythrina herbacea



# 2020 Events Affected by COVID-19

- Presentation to 5 to 9-year-olds at Hagen Ranch Library
- Outdoor Youth Adventures guest presentation and field trips at Homeschool Fridays and summer camp
- Lake Worth Board of Education presentation
- Save Our Seas Workshop at Ocean Ridge
- Public planting in Boynton Beach at Oceanfront Park
- Public planting in Boca Raton
- Additional planting events at Atlantic Dunes Park and Delray Municipal Beach
- Save Our Seas event in Ocean Ridge
- Springfest in Boca Raton
- Lake Worth Festival of Trees
- Earth Day Celebration at Palm Beach Atlantic University

# New Public Events

- IRC worked with surf campers from Outdoor Youth Adventures to do a coastal planting in Delray Beach



# New Public Events

- The Palm Beach County Chapter of the Surfrider Foundation and New York Life sponsored a coastal dune planting at Oceanfront Park in Boynton Beach



# New Public Events

- Erin Deady Law, Central Park Taekwondo, and New York Life co-sponsored a restoration event at Atlantic Dunes Park in Delray Beach



# Professional Restoration Crew

- In collaboration with Fairchild Tropical Botanic Garden, we are restoring beach clustervine habitat at South Beach Park and Red Reef Park in Boca Raton.



2014



Before



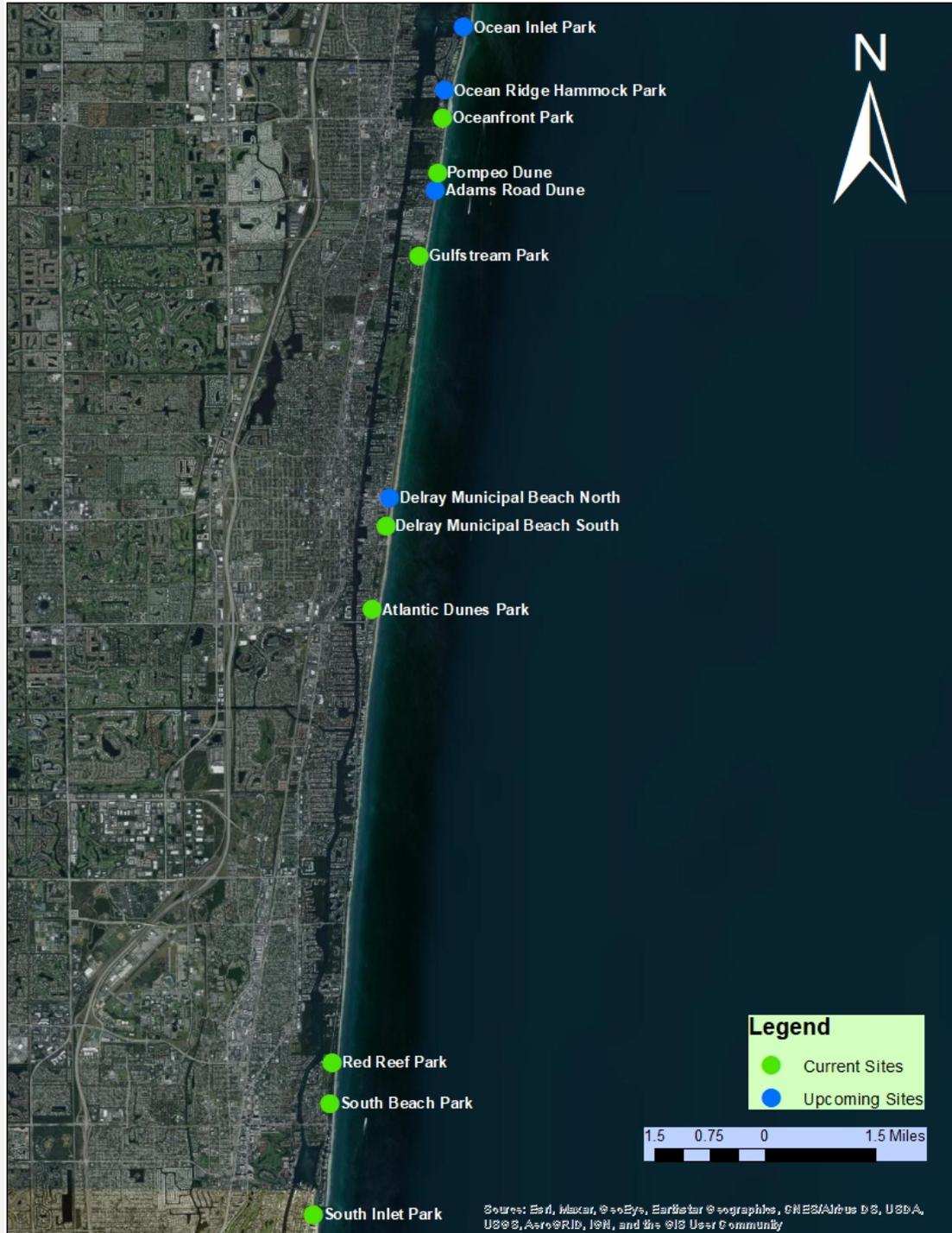
After

# Professional Restoration Crew

- We are continuing our restoration work at Atlantic Dunes Park and are collaborating with WGI and the City of Delray Beach on work at the municipal beach.



## Impact and Future Plans



# Restoring the Gold Coast Project Sites 2019 to present

# Excellent Opportunities for Connectivity



Delray Beach, Florida



iNaturalist Search Explore Your Observations Community Identify More

### Observations

Species Location

Bounding Box 40 OBSERVATIONS 35 SPECIES

Map Grid List Places of Interest Redo search in map

**Saw Palmetto**  
(*Serenoua repens*)  
Atlantic Dunes Par... • Mar 6, 2020  
Research Grade 3mo



Restoration design. Bringing coastal strand east by using cues from natural recruitment.

# Invasive Species Control



42 species planted



Seeds and plants collected

# Discoveries and Recovery

## Monthly Conservation Notes

### Biodiversity Explosion in Delray Beach

Since 2016 we have been working with dozens of volunteers and collaborators to reduce invasive species and restore native biodiversity at Atlantic Dunes Park (ADP) in Delray Beach. Starting as part of our Green Delray program, Atlantic Dunes Park is now one of the biodiversity hot spots in our Restoring the Gold Coast program. See a list of plant species at the park [here](#).

Work has been slow but steady, but over the last two years native plants have been showing up that have not been recorded there before, or which have not been seen at the park in decades, or which are recruiting and spreading into new areas. It is a remarkable example of the power of natural recovery in response to sound ecological restoration practice - in this case the restoration of coastal strand, the most impacted upland ecosystem in coastal Palm Beach County.



*Commelina erecta*, or whitemouth dayflower, has recruited en masse in the back dune just east of the seagrape line.



*Solanum bahamense*, or Bahama nightshade, had been buried under seagrapes, vines, and invasive species. It emerged in 2020.

On Friday, I was able to go back to ADP with four ecological restoration practitioner colleagues to follow up on some work that was delayed due to the shutdown. We are not yet ready to hold volunteer events, but we are moving the restoration forward with a professional crew in cooperation with the City of Delray Beach. Once again we found native plants that had not been recorded before, emerging from under what had been a smothering canopy of Brazilian-pepper and seagrape. In celebration of getting back outside and enjoying springtime, I am posting pictures of some of the cool native plants celebrating the restoration at Atlantic Dunes Park. Enjoy!

**George Gann**

*Founder and Executive Director*



We recorded *Piriqeta cistoides* subsp. *caroliniana*, or pitted stripeseed, for the first time on coastal dunes in Palm Beach County in 2019. This species is normally found growing in pine forests.



*Neptunia pubescens*, or tropical puff, is a very rare element of coastal dunes in southern Palm Beach County. We first recorded this at Atlantic Dunes Park on Friday.



This is one of the very few authentic historical populations of *Salvia coccinea*, or tropical sage, in South Florida. Every spring the red flowers barely poke out from the protecting shrubs of the coastal strand.

# Moving Forward

- Dune Assessments
- Workshops
- Restoration Activities
- Educational and Policy Tools
- Geographic Expansion



# Global Change and Closing Thoughts



[Climatic Change](#)

February 1999, Volume 41, Issue 2, pp 213–248 | [Cite as](#)

## Predicted Effects of Climatic Change on Distribution of Ecologically Important Native Tree and Shrub Species in Florida

Authors

[Authors and affiliations](#)

Elgene O. Box, David W. Crumpacker, E. Dennis Hardin

Article

1

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### Abstract

A previously developed plant species-climatic envelope model was evaluated further to predict effects of hypothesized climatic change on the potential distribution of 124

# Early(er) Climate Change Models 2001-2002

## Conservation Biology

### Implications of Climatic Warming for Conservation of Native Trees and Shrubs in Florida

### Implicaciones del Calentamiento Global en la Conservación de Árboles y Arbustos Nativos de Florida

David W. Crumpacker, Elgene O. Box, E. Dennis Hardin

First published: 21 March 2002 | <https://doi.org/10.1046/j.1523-1739.2001.0150041008.x> | Cited by: 25

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### Abstract

EN ES

**Abstract:** Ecological process models and empirical envelope models have been used to relate climatic-change predictions to effects on plant species and vegetation. Climatic-envelope models are useful for simultaneous investigation of many plant species whose range-limiting mechanisms are poorly known. They are most effectively applied in regions with strong temperature and moisture gradients and low relief. Their required databases are often relatively easy to obtain. We provide an example involving the effect of six annual warming scenarios, ranging from +1° C to +2° C and from +10% to -20% annual precipitation (some have greater warming in winter than in summer), on 117 native woody species in Florida (U.S.A.). Tree species at their southern range boundaries

# Climate Envelope Model to Predict Effects of Warming and Drying Scenarios on Florida Ecosystems

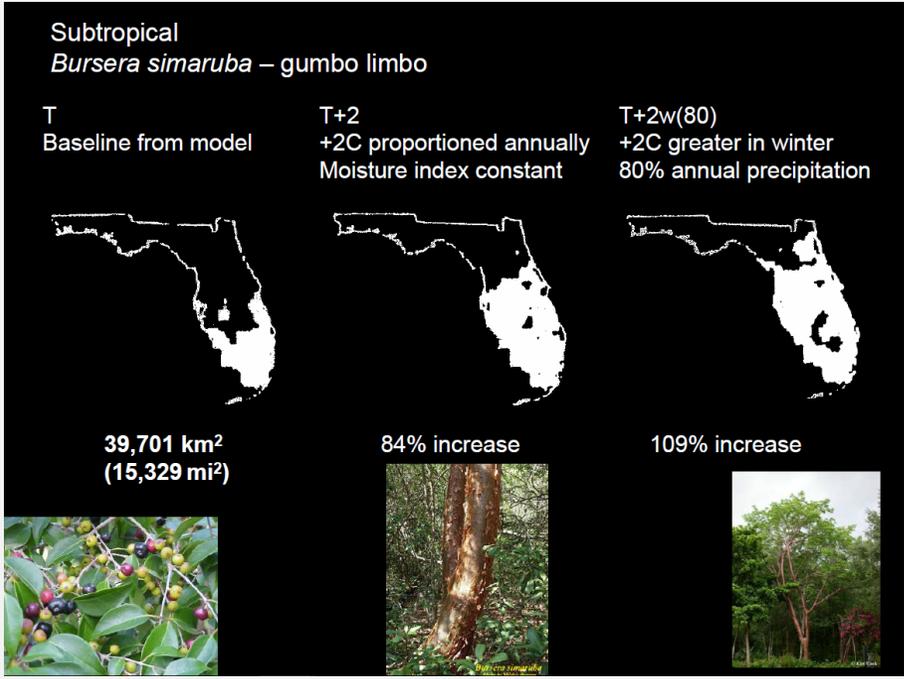
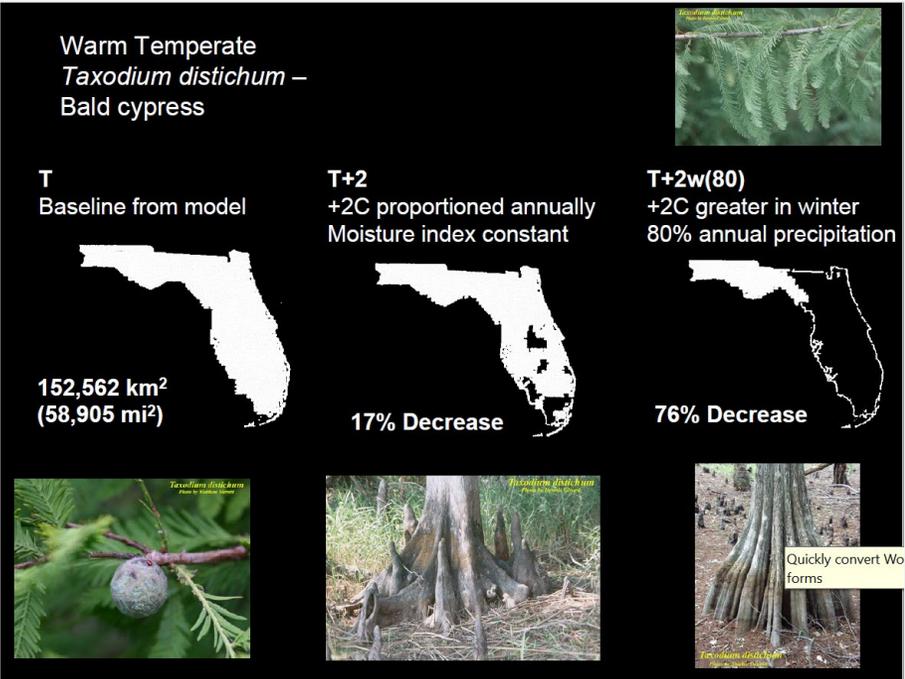
Coauthors:

D. Wilson Crumpacker, Dept. Environmental, Population and Organismic Biology, University of Colorado

Elgene O. Box, Dept. of Geography and Institute of Ecology, University of Georgia

E. Dennis Hardin, FL Dept. Agriculture & Consumer Services, Division of Forestry

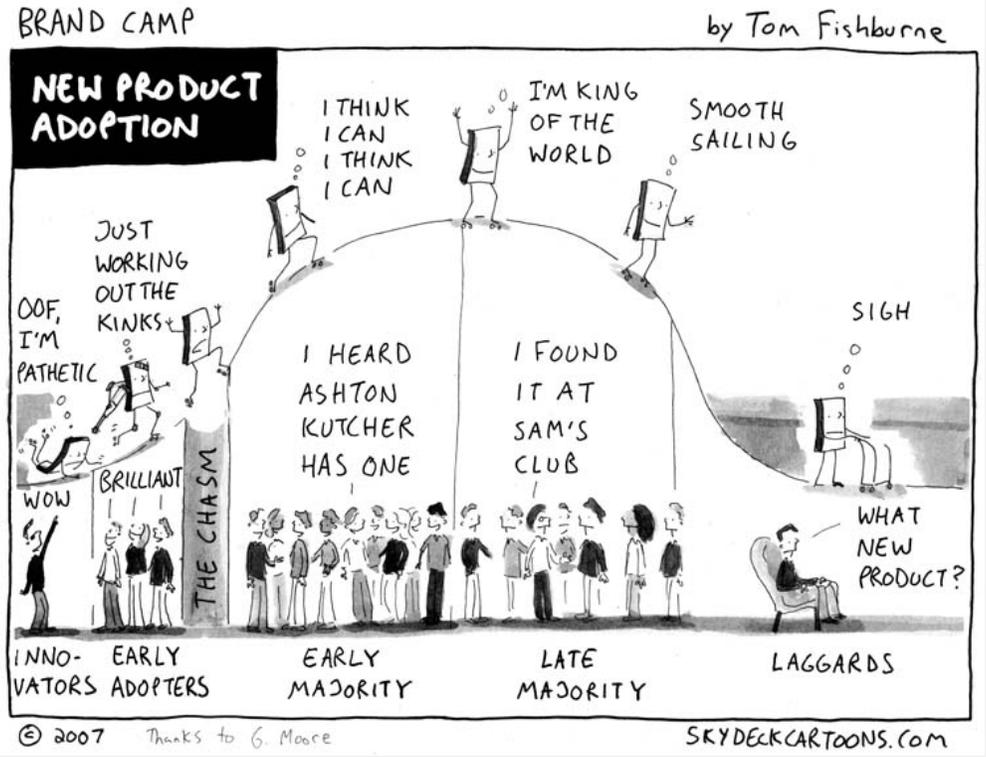
# THE FLORIDA PLANT SPECIES - CLIMATIC ENVELOPE MODEL (from Crumpacker et al.)



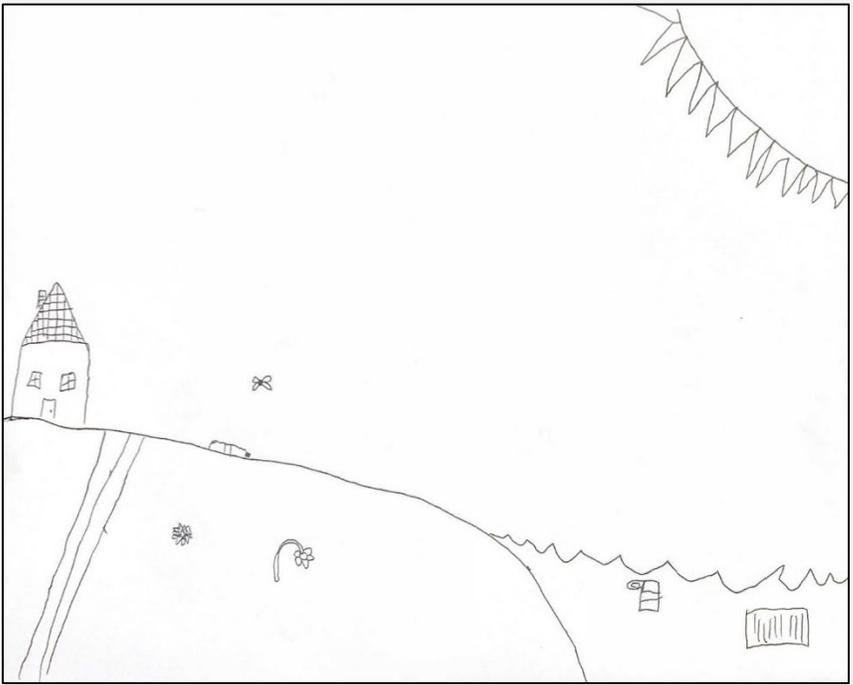
Hurricane Dorian “near miss”



# Play the Long Game



Degraded  
Dune



Restored  
Dunes



Banyan Creek  
Elementary  
Kindness Matters  
Club  
February 2020

We Need Your Support!



[www.regionalconservation.org](http://www.regionalconservation.org)  
gann@regionalconservation.org