

“The Institute for Regional Conservation Conservation and Gardening in a Changing World”

Ocean Ridge Garden Club
March 8, 2021



International Policy Lead

George D. Gann
www.regionalconservation.org
www.ser.org



Chief Conservation Strategist

Acknowledgements

- **Carol Besler, Jackie Reed, and Mary Ann Cody** of the ORGC for the invitation and coordination.
- **Jerry Lower, Kimberlee Duke Pompeo, Kristine de Haseth, Phil Besler, Tracey Stevens, Ocean Ridge Town Commission, Mary Ann Cody,** and many others for support of our Restoring the Gold Coast program in Ocean Ridge. (Also, **Rebecca Harvey, Surfrider** and others in Boynton Beach and surrounds!)
- **Kimberlee Duke Pompeo, Jerry Lower, Rob Barron, Barbara Hadsell, Reina Snyder,** and **Patricia Binder** for collaboration on publication projects.
- **All the IRC folks,** past and present, and all our **funders** and **conservation partners.**
- **Photographers,** including Roger Hammer, Keith Bradley, Shirley Denton, James Johnson and many others.



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 35th Anniversary Year**. Staff of 8, 12 Associates and 7 Board Members.

Floristic and faunistic inventories

Rare species research

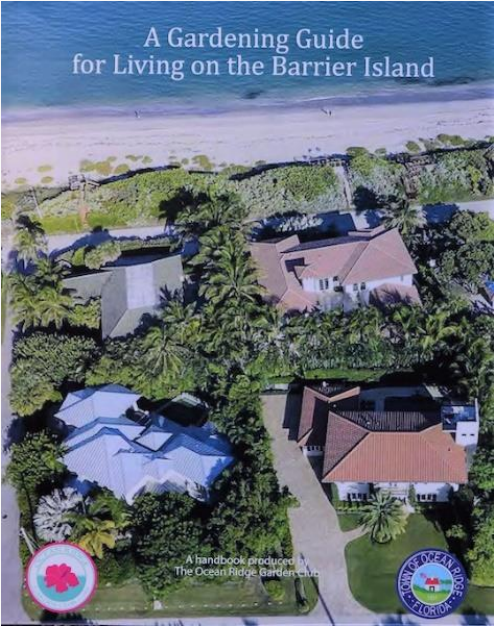
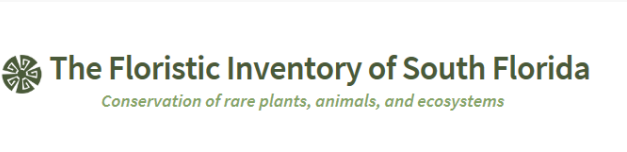
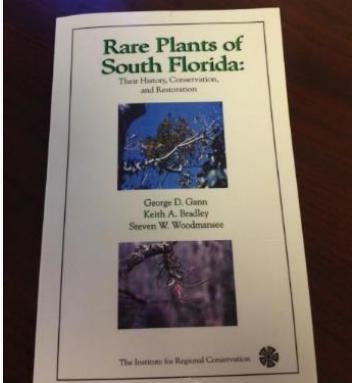
Ecological restoration design and implementation

Educational training and workshops

Online tools and resources

International policy

Some IRC Resources





The Institute for Regional Conservation

Get Your Hands in the Sand ~ Native is NOT a Dirty Word!

by Kimberlee Duke Pompeo, FFGC District X, PAT Committee,
Vice Chairman of Barrier Islands with George D. Gann, IRC Founder



Were you told as a youth not to play in the dirt? Good chance most of us were. Yet, I don't think our parents meant for us to stop caring about mother earth. Here's how the environment sees us. It's as simple as a multiple-choice question. When asked, do you crusade for the environment? ...which do you check?

Never Rarely Sometimes Always

If you checked the last box "Always" – read no more, go straight to the end where you'll find your like-minded [donate] button for a modest contribution towards nature's shouldered burden.

If you checked either of the first three than I'm afraid you have a little required reading to do. Don't worry, though. You're not alone. We're writing as a result.

People often view nature conservation and traditional views of gardening as having to choose one way or the other. It's simply not true. It's not a contrast like *hardscapes* – the stepping stones in your garden from the *softscapes* – the feathery, green ferns that delicately sway in the wind. Gardeners know that it resides in "the variety" of methods that make a visually appealing garden. Just as there are varieties of soil and dirt to grow particular flowers and foods, natives offer intrinsic beauty in a variation of colors and textures, forms and functions with the powerful contribution towards mitigating climate change.

**“The Institute for Regional Conservation
Conservation and Gardening in a Changing World”**

District X Fall Meeting, Florida Federation of Garden Clubs
October 8, 2020



International Policy Lead

George D. Gann
www.regionalconservation.org
www.ser.org



Chief Conservation Strategist

Special thanks to Maria Wolfe of the Wellington Garden Club!

THE NATIONAL gardener

WINTER 2021



**GROWING
FOOD AND
COMMUNITY
SPIRIT**

**-
THE RAINKEEP -
AN INSPIRED
INNOVATION**

**-
LET'S GET
GROWING!**



native gardening - THE POWERFUL CONSERVATION TOOL OF MANY

By George Gann

▲ Native plant gardening and ecological restoration may be more closely linked than you think. A coastal garden at a dune in Ocean Ridge, Florida, uses local native plants to restore a coastal shrub land. It is both beautiful and restorative. Photo by George Gann.

Looking at the many woes of the world, from COVID-19 to climate change, it is understandable to feel overwhelmed. Yet, we know from ample evidence that the sum of individual actions is as important as those of government, large businesses or big conservation organizations. This is especially true in urban and suburban areas, where our collective individual actions may make the difference between conservation success – or the lack thereof. This need for individual action has never been more urgent, no matter where you live, and is embraced by Plant America with Trees, an



▲ Photo by Kimberlee Duke Pompeo

emphasis of National Garden Clubs Inc.

At the international level, there is tremendous work being done to address not one, but three global environmental challenges: countering climate change, preventing the extinction crisis and

providing adequate ecosystem services to meet the needs of a sustainable world. Meeting these challenges requires transformational change; business as usual just won't work. We know that traditional conservation alone, what we think of as "protection" or "preservation," is insufficient to meet these challenges. Instead, we need

Seagrapes and Biodiversity



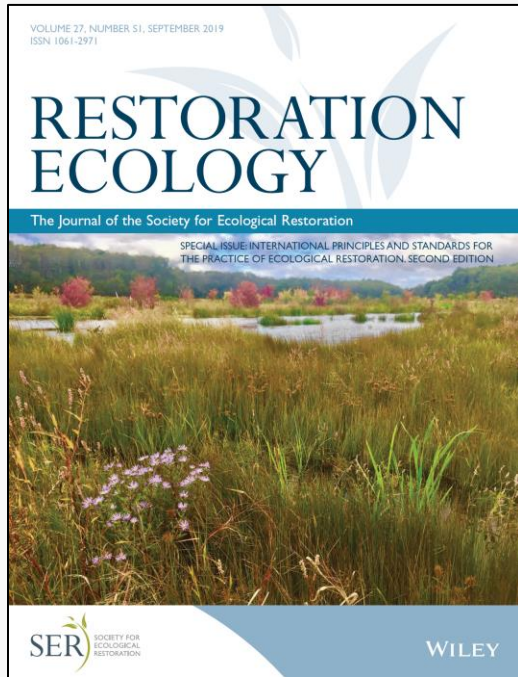
A workshop contributing to understanding the issues behind seagrape trimming, ecological restoration, and coastal conservation



December 9, 2020

Ecological Restoration and Community Outreach





International Policy Work on Ecological Restoration, Conservation, and Sustainability

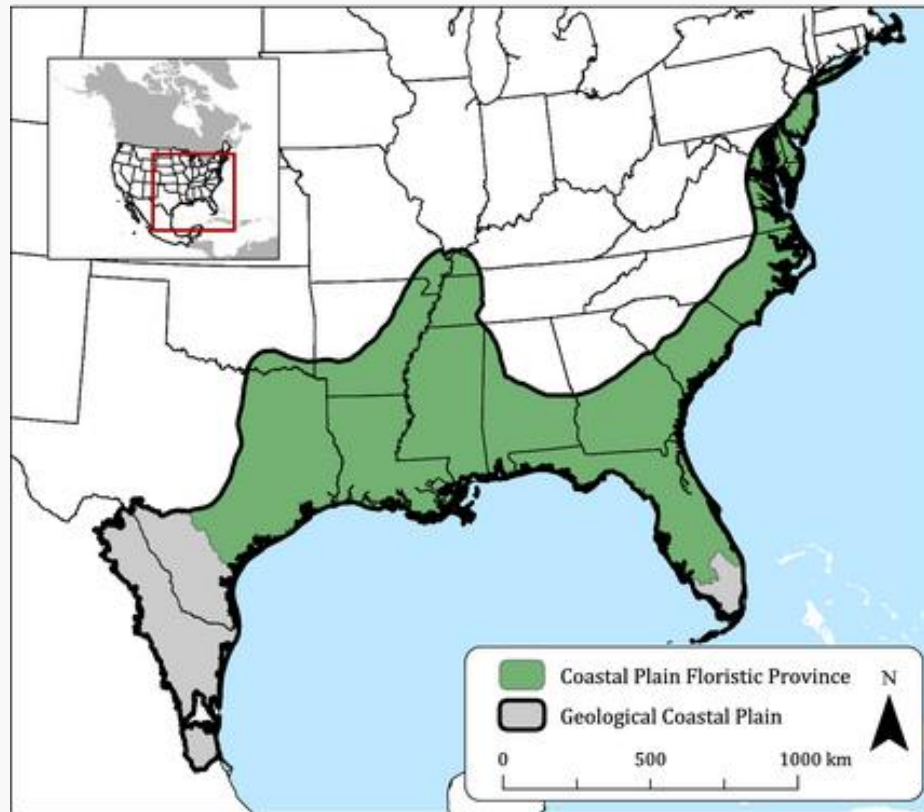


www.ser.org/Standards



Downloaded about 20,000 times in first 18 months

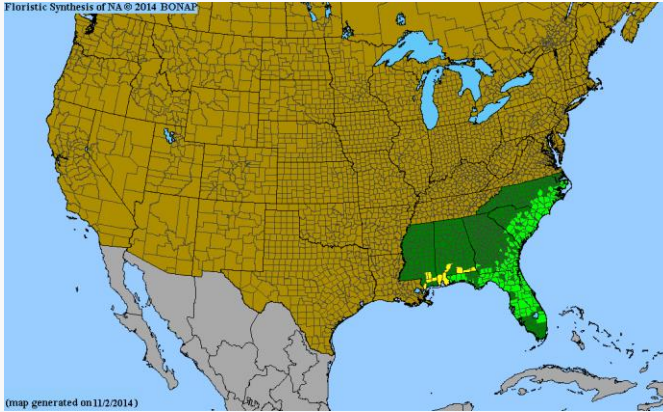
South Florida Conservation Context



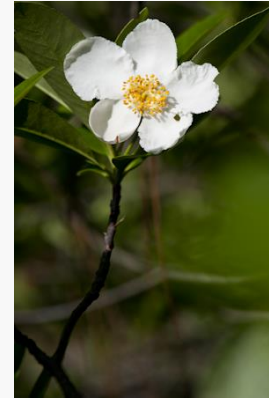
North American Coastal Plain Global Biodiversity Hotspot

Noss et al. 2014

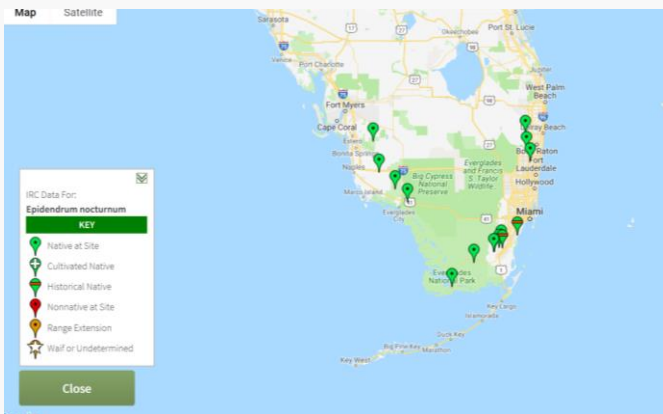
South & North Range Limits in South Florida



Gordonia lasianthus (BONAP.org)



K. Bradley

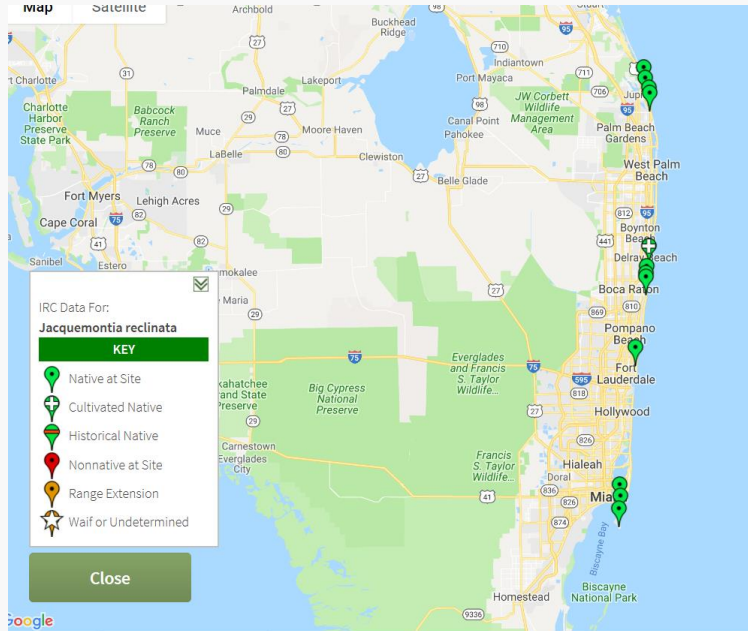


Epidendrum nocturnum (IRC)



R. Hammer

South Florida Endemics (probably >50)



Jacquemontia reclinata
Beach clustervine

Local Biodiversity Matters



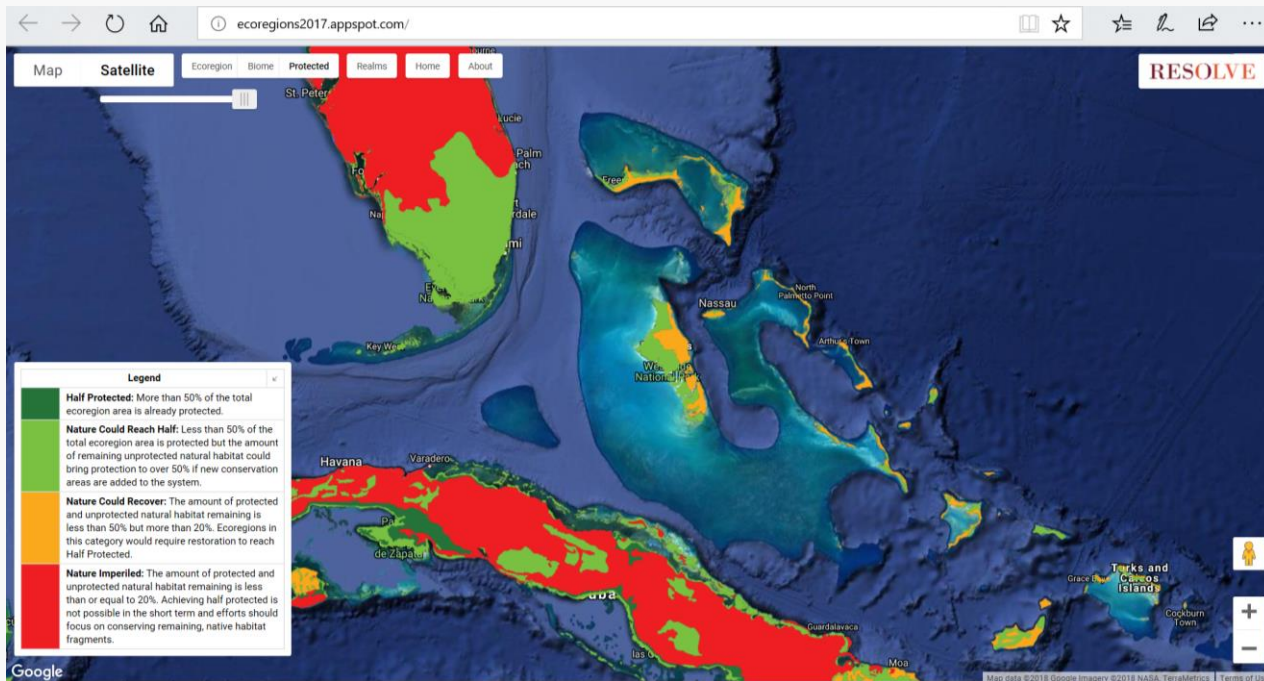
Species of Management Concern in Everglades National Park, hardwood hammocks.

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



Nature Needs Half

846 Ecoregions, Protect 50% by 2050



Fragmentation leads to inexorable loss

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'

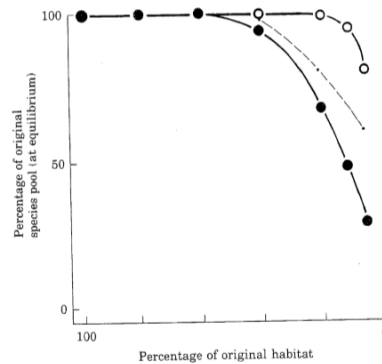


FIGURE 4. The number of species remaining in each species pool as fragmentation proceeds. Closed circles show the pool of species with large area requirements and low vagility. Open circles show the species with less stringent area requirements. The small dots connected by the dashed line depict the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

Wilcove 1986

Some species and groups go faster.





Some go slower.



© Shirley Denton

Plant Biodiversity is Key to Animal Biodiversity



Cicada

Images by Mary Trulio Fesmire



Ceraunus Blue

The Floristic Inventory of South Florida 1995 – present

The Institute for Regional Conservation
Florida, Ministry of South Florida Gardens, USA

Home | IBC News | About Us | Programs | Staff | Protected Natural Area | Home

Plants of South Florida | Plants by Conservation Area | Plants by County | Plants by Habitat | Quick Search | Advanced Search

Cypripedium punctatum (L.) Lindl.
Cowslip orchid, Cigar orchid

Family: **Orchidaceae**
Genus: **Orchid**
Subgenus: **Epiphyte**
Habit: **Tree**
Distribution: **Neotropical**

Native Range: **South Florida, Greater Antilles (Cuba, Jamaica), Central America and South America.**
Introduction: **Other Status: None**
State of Florida Status: **Endangered**
Florida Native Plant Society: **State Status: Critically Imperiled**
JAC-SOUTH FLORIDA Status: **Critically Imperiled**
SOUTH FLORIDA Document: **Present**
SOUTH FLORIDA Native Status: **Native**
SOUTH FLORIDA Cultivated Status: **Cultivated**

Comments: **This was revised as *imperfectum* in Flora Florida of South Florida (Volume 16 of 2012), but was reclassified to 2013 based on an examination of the number of plants and environmental conditions at several low elevation forest sites in 2013 (2013). It was also revised as *imperfectum* in the 2014 Florida Native Plant Society, but the name was re-revised to the original name in 2015. The name was re-revised to the original name for your convenience.**

More Links to Scientific Sources:

Florida Department of Agriculture

Puerto Rico
Puerto Rico Department of Agriculture

Florida Department of Agriculture

TROPICOS.ORG
The University of Arizona

USF
University of South Florida

Other data on *Cypripedium punctatum* available from:

Conservation | **Herbaria** | **Native Plant Society**

Cypripedium punctatum has been found in the following 14 conservation areas:

Conservation Area	Conservation Status	Native Status
A.S. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated
Ala. Vista (Barnes Park)	Presumed Extirpated	Native Extirpated

Cypripedium punctatum has been found in the following 1 occurrence:

Occurrence	Native Status
Ala. Vista (Barnes Park)	Native

Cypripedium punctatum has been found in the following 3 herbaria:

Herbarium	Native Status
Ala. Vista (Barnes Park)	Native
Ala. Vista (Barnes Park)	Native
Ala. Vista (Barnes Park)	Native

All Images:

Castellow Hammock Park

County: Miami-Dade County
Size: 114,739 acres
Latitude: 25.53972° Longitude: -80.43528°
Section: 17 Township: 36 Range: 39
Notes: Historically spelled as Castell's Hammock or Costello's Hammock. For a map and more information click [here](#).
Managing Agency: Miami-Dade County Department of Parks and Recreation

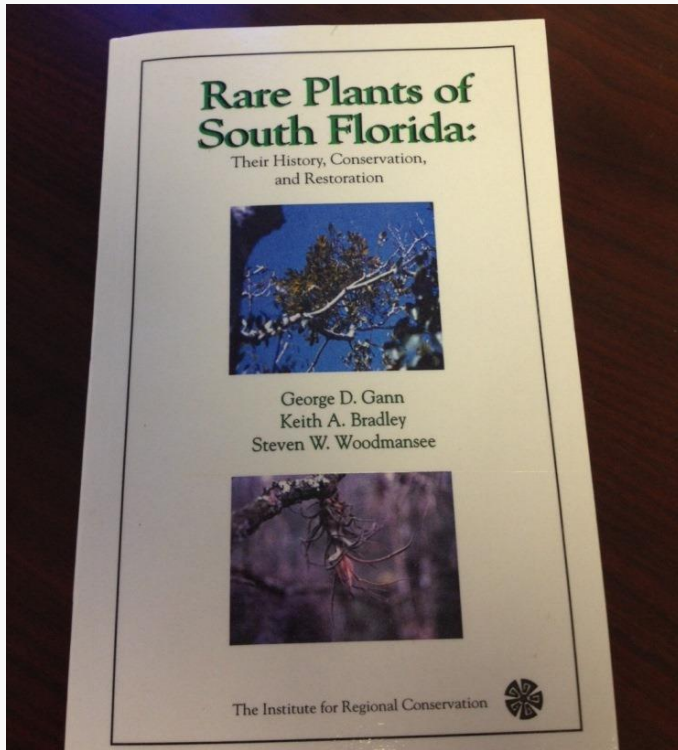
There are 379 taxa reported for Castellow Hammock Park

Group By Family: Show Results

Scientific Name:	Occurrence:	Native Status:	Introduced Status:	Invasive Status:	Cultivated Status:	Reference:	Voucher:
Acanthaceae							
Barleria pedicularis	Present	Not Native, Naturalized	Introduced	Potentially Invasive		2272	2272
Ruellia blechnum	Present	Not Native, Naturalized	Introduced	Ruderal		14737	
Ruellia strepera	Present	Not Native, Naturalized	Introduced	Potentially Invasive		14737	
Ruellia bicoloris	Present	Native	Not Introduced	Native		14737	
Amaranthaceae							
Achyrocline saturei var. saturei	Present	Not Native, Naturalized	Introduced	Ruderal		14737	
Amaranthus spinosus	Present	Not Native, Naturalized	Introduced	Ruderal		14737	
Anacardiaceae							
Miconia stipitata	Present	Not Native, Naturalized	Introduced	Invasive		14737	
Miconia tomentosa	Present	Native	Not Introduced	Native		14737	
Plus grandifolium	Present	Native	Not Introduced	Native		14737	
Schinus molle	Present	Not Native, Naturalized	Introduced	Invasive		14737	
Toxicaria radicans	Present	Native	Not Introduced	Native		14737	
Anemiaceae							
Anemia adiantifolia	Present	Native	Not Introduced	Native		14737	
Annonaceae							
Annona glabra	Present	Native	Not Introduced	Native		14737	
Apiaceae							
Cyclospermum leptophyllum	Present	Not Native, Naturalized	Introduced	Ruderal		14737	
Apocynaceae							
Anadenia berteroi	Present	Native	Not Introduced	Native		14737	
Asclepias tuberosa	Present	Not Native, Naturalized	Introduced	Invasive		14737	
Asclepias viridis	Present	Native	Not Introduced	Native		14737	
Cathartus rufus	Present	Not Native, Naturalized	Introduced	Ruderal		14737	
Sida umbellata	Present	Native	Not Introduced	Native		14737	
Marsippospermum	Present	Native	Not Introduced	Native		14737	
Aquifoliaceae							
Ilex cassine	Present	Native	Not Introduced	Native		14737	
Taxus floridana	Present	Native	Not Introduced	Native		14737	
Araceae							
Epipremnum pinnatum	Present	Not Native, Cultivated Only	Not Introduced	Invasive	Cultivated	14737	
Epipremnum pinnatum cv. Aureum	Present	Not Native, Naturalized	Introduced	Invasive	Cultivated	14737	
Monstera deltoidea	Present	Not Native, Cultivated Only	Not Introduced	Cultivated Only	Cultivated	14737	
Monstera deltoidea	Present	Not Native, Naturalized	Introduced	Invasive	Cultivated	14737	

- ### 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?

2002



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.



'Rarest of the rare' plants face endangerment in the Florida Everglades



Washington Post, March 2015. Many others around the world!

Ecological Restoration
The Key to Our Future

Restoration: a Global Perspective

35 Years Ago

“Particularly hazardous to Florida is the potential for a **global climate change** related to tropical deforestation and the excess burning of fossil fuels. A slight **rise in sea level** could destroy many of our native plant communities...”

“In the United States, and particularly in Florida, preservation has been the basis of the native plant movement. More recently, **restoration** as a conservation alternative has received some attention, although it is certainly not accepted by all.”

“By concentrating on **sustainable development**, rather than preservation, as a goal international conservation movements seem to be moving ahead in terms of meeting the environmental needs of the future.”



George 1985



United National Decade on Ecosystem Restoration 2021-2030
“There has never been a more urgent need to restore damaged ecosystems than now”



Global and Local Perspectives



World Conference on Ecological Restoration
Cape Town, South Africa 2019



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

Eight Principles Underpinning Ecological Restoration

1 ENGAGES STAKEHOLDERS

2 DRAWS ON MANY TYPES OF KNOWLEDGE



3 IS INFORMED BY NATIVE REFERENCE ECOSYSTEMS, WHILE CONSIDERING ENVIRONMENTAL CHANGE



4 SUPPORTS ECOSYSTEM RECOVERY PROCESSES



5 IS ASSESSED AGAINST CLEAR GOALS AND OBJECTIVES USING MEASURABLE INDICATORS



6 SEEKS THE HIGHEST LEVEL OF RECOVERY POSSIBLE



8 IS PART OF A CONTINUUM OF RESTORATIVE ACTIVITIES



7 GAINS CUMULATIVE VALUE WHEN APPLIED AT LARGE SCALES



THE RESTORATIVE CONTINUUM

Improving biodiversity, ecological integrity,
and ecosystem services



REDUCING
SOCIAL
IMPACTS

IMPROVING
ECOSYSTEM
MANAGEMENT

REPAIRING
ECOSYSTEM
FUNCTION

INITIATING
NATIVE
RECOVERY

PARTIALLY
RECOVERING
NATIVE
ECOSYSTEMS

FULLY
RECOVERING
NATIVE
ECOSYSTEMS

REDUCED IMPACTS

REMEDICATION

REHABILITATION

ECOLOGICAL RESTORATION

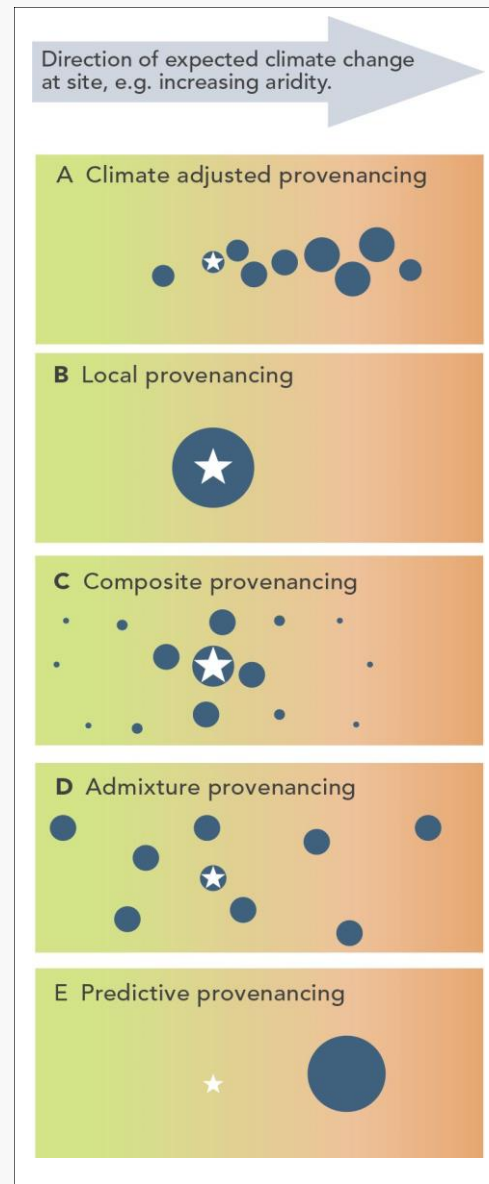
SER SOCIETY FOR
ECOLOGICAL
RESTORATION

All restorative activities matter, no matter how small. But some activities may not be restorative at all (e.g., some mitigation, afforestation of native savanna).



Provenancing strategies for revegetation (reprinted from Prober et al. 2015). The star indicates the site to be revegetated and the circles represent native populations used as germplasm sources. The circle size indicates the relative quantities of germplasm included from each population at the revegetation site.

These strategies can also be applied to animals and soil biota.



Restoring the Gold Coast

Major Sponsors



Sponsors



Collaborators



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

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





The Delray dune is loaded with rare plants.



But lots of things are missing!



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 renourished 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.



Dune Assessments



Opportunities



Excellent Opportunities for Restoration and Connectivity



Areas of Outside of Scope



Areas with Poor Engineering



Areas of Active Erosion

RGC Events



Resources for Private Dune Owners

Ad Images

Biodiversity Starter Kits

 **The Institute for Regional Conservation**
Written by Morgan Murphy (7) · 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

Thanks to Modsnap Design & Marketing

Four Larval Host – 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

50 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



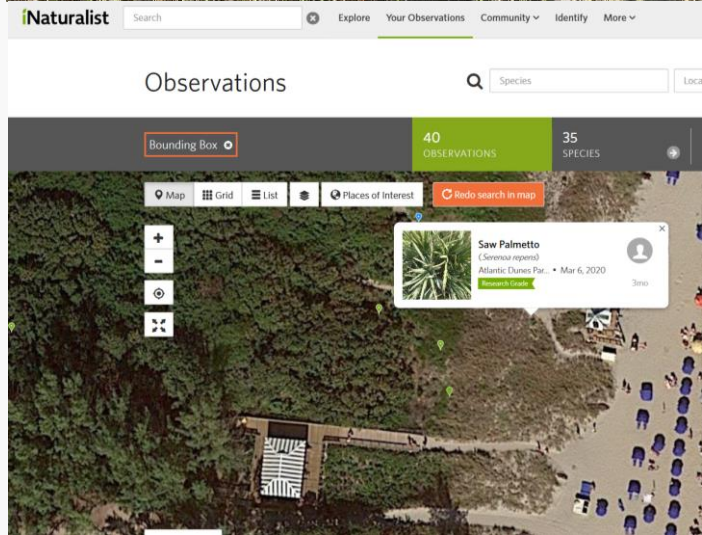
We recorded *Piriqueta cistoides* subsp. *caroliniana*, or pitted stripeseed, for the first time on coastal dunes in Palm Beach County in 2019. This species is normally found growing in pine forests.



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.



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

Additional Reference Sites

SER Principle 3: Is informed by native reference ecosystems while considering environmental change



Courtesy: Rob Barron



We Must Restore
Degraded Ecosystems, Small and
Large, Fragmented and Connected



Everglades National Park Florida

Plan Your Visit Learn About the Park Get Involved

INFO ALERTS MAPS CALENDAR RESERVE

NPS.gov / Park Home / Learn About the Park / Science & Research / Research Programs / Comprehensive Everglades Restoration Plan (CERP)

Comprehensive Everglades Restoration Plan (CERP)

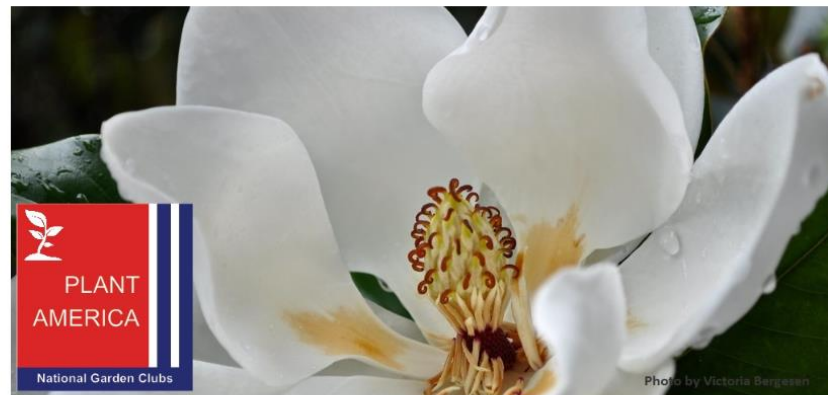
Image Courtesy of EvergladesPlan.org

The CERP was authorized by Congress in 2000 as a plan to "restore, preserve, and protect the south Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection." At a cost of more than \$10.5 billion and with a 35+ year time-line, this is the largest hydrologic restoration project ever undertaken in the United States.

Plant America

Inspiring Gardens Across the Americas

LEARN MORE ➔



The theme for President Gay Austin's administration is **Plant America**, a singularly focused initiative on gardens and gardening.

“Each One Plant One”

Expanding the Scope

Trees



Black ironwood ■



Blolly, Beeftree ■



Cabbage palm ■



Common torchwood, Sea torchwood ▲



Guiana-plum ▲



Gumbo-limbo ■



Inkwood, Butterbough ▲



Jamaica caper-tree ■

Krugiodendron ferreum

Guapira discolor

Sabal palmetto

Amyris elemifera

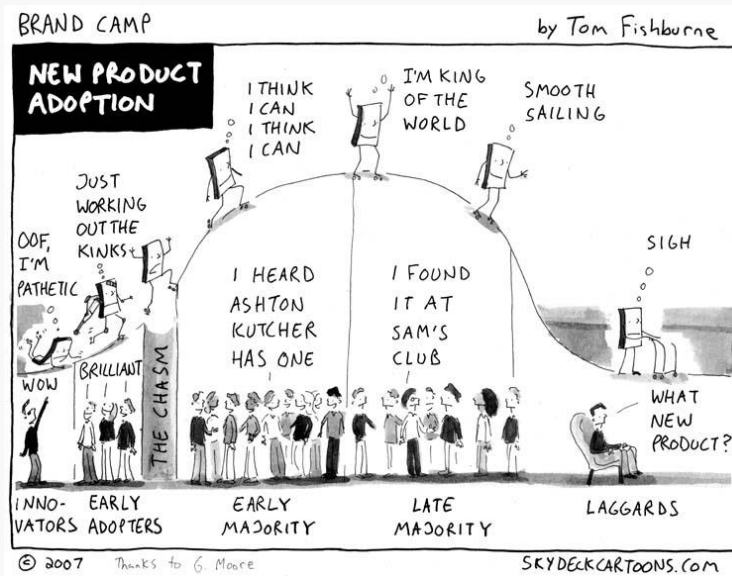
Drypetes lateriflora

Bursera simaruba

Exothea paniculata

Quadrella cynophallophora

Play the Long Game



We Need Your Support!



www.regionalconservation.org
gann@regionalconservation.org