



Hydrologic
Restoration
in Big Cypress
Nat'l Preserve

Public
Scoping



Big Cypress National Preserve,
June 2021



Introductions



Big Cypress National Preserve,
June 2021

Opening Remarks



Big Cypress National Preserve,
June 2021

Water is a big part of ...



The beautiful scenery and public access of
Big Cypress National Preserve



Big Cypress National Preserve,
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Water was a big part of establishing the Preserve

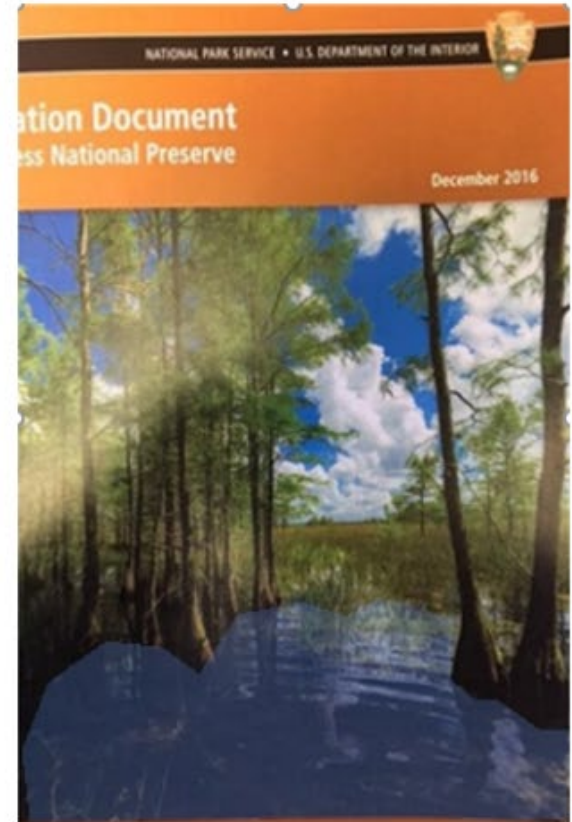


Jetport Report that led to
recommendation to
establish the Preserve

Enabling Legislation Public Law 93-440

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) in order to assure the preservation, conservation, and protection of the natural, scenic, **hydrologic**, floral and faunal, and recreational values of the **Big Cypress Watershed** in the State of Florida and to provide for the enhancement and public enjoyment thereof, the Big Cypress National Preserve is hereby established.

Enabling Legislation
that established the
Preserve



Preserve's
**Foundation
Document**

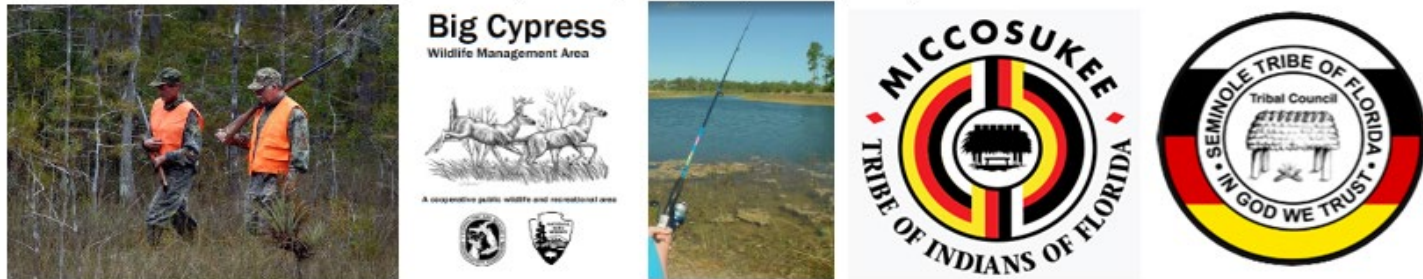


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Water supports a multi-use Preserve

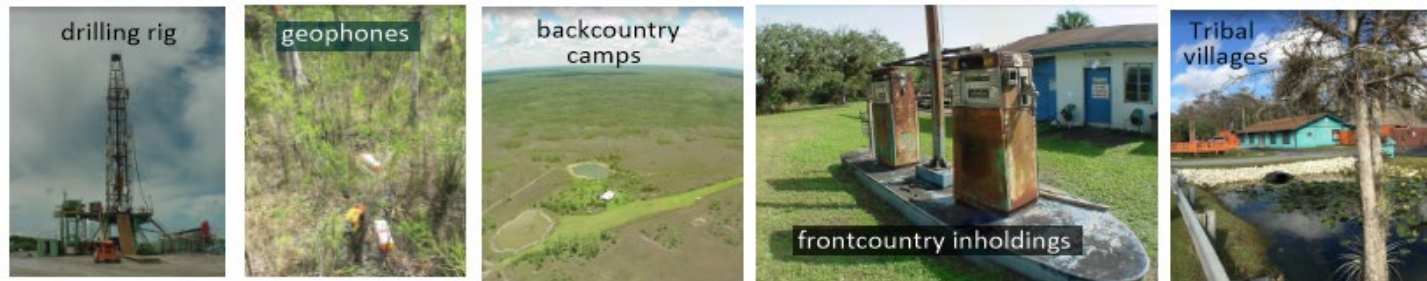


Motorized vehicles: including airboats, swamp buggies, UTVs/ATVs, and motor boats



Hunting and fishing

Usual and customary Tribal use and occupancy, and right of first refusal



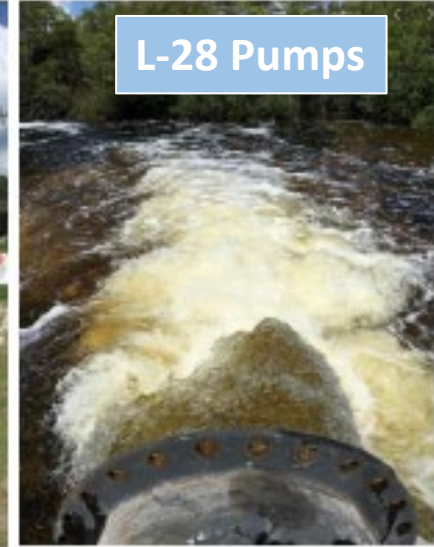
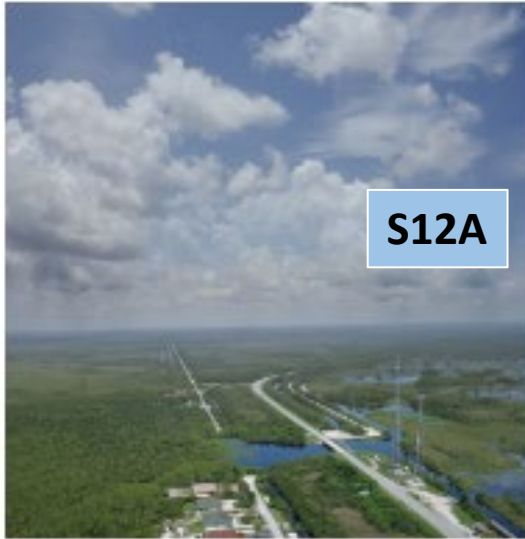
Exploration for and extraction of oil and gas

Private property inholder rights

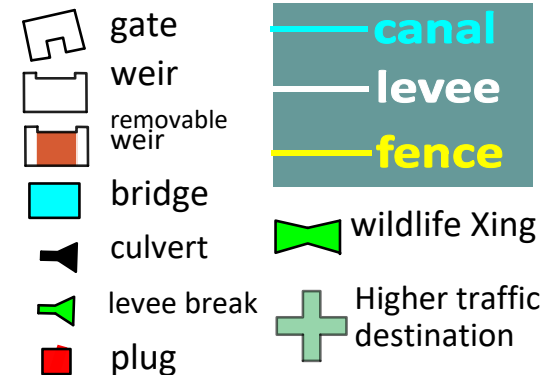
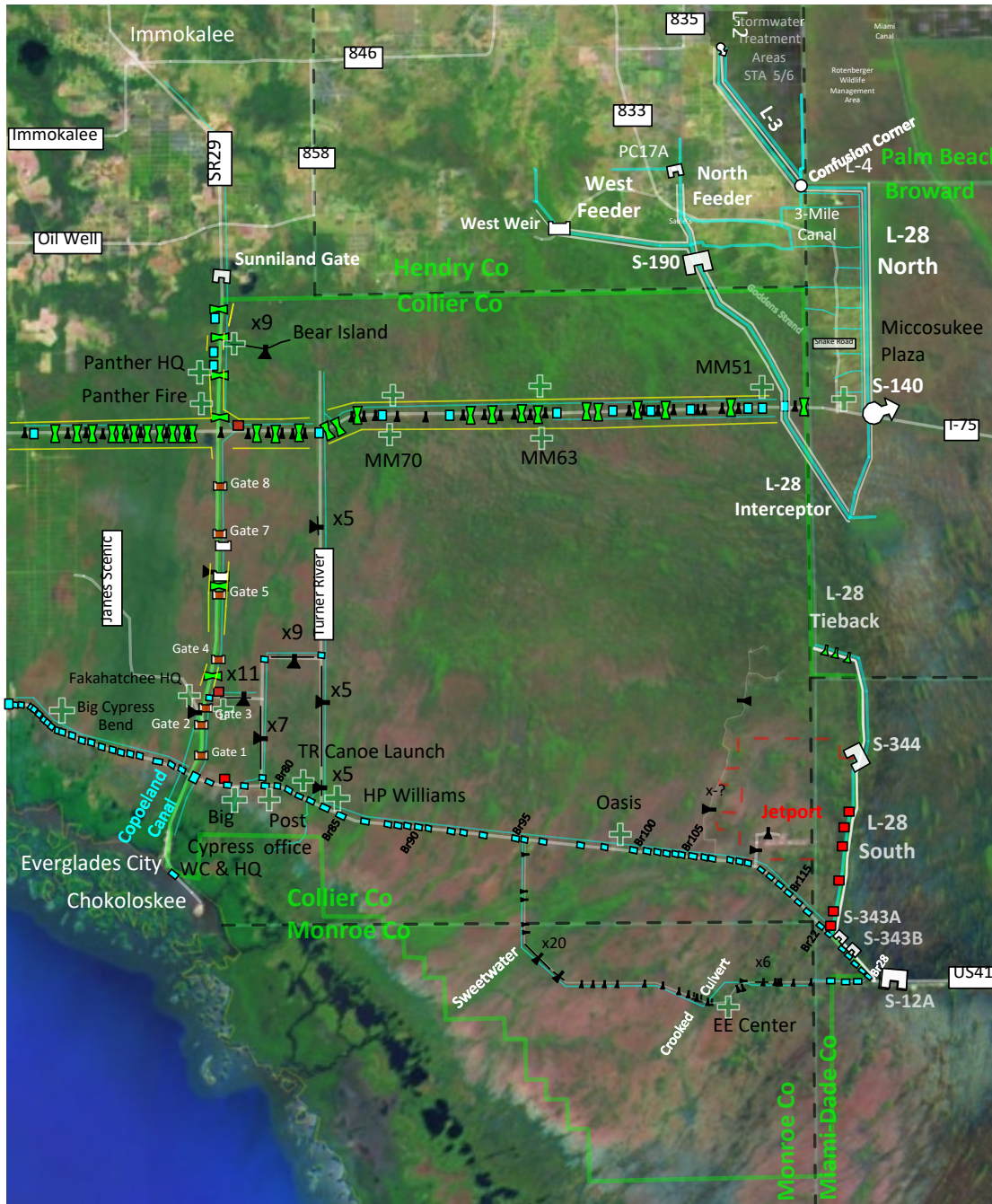


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The Preserve has a lot of water infrastructure



Overview of Water Infrastructure



~ 35 miles of water management canal and levee

+100 miles of transportation canal and levee



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That infrastructure affects this water



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Just ask these animals



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The fire regime knows it, too



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And so do the estuaries



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Main Point:



We cannot take the water for granted



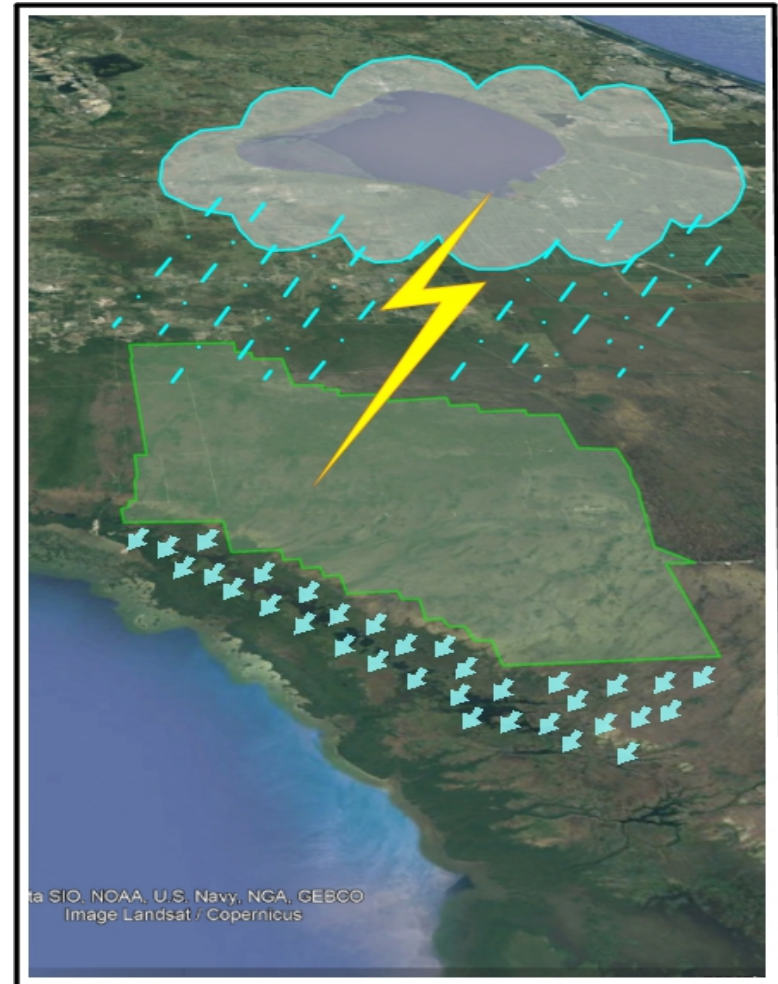
Overview of Problem



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Historically, the
Preserve was
understood as a
Rain-Driven and
Self-Contained
Watershed?

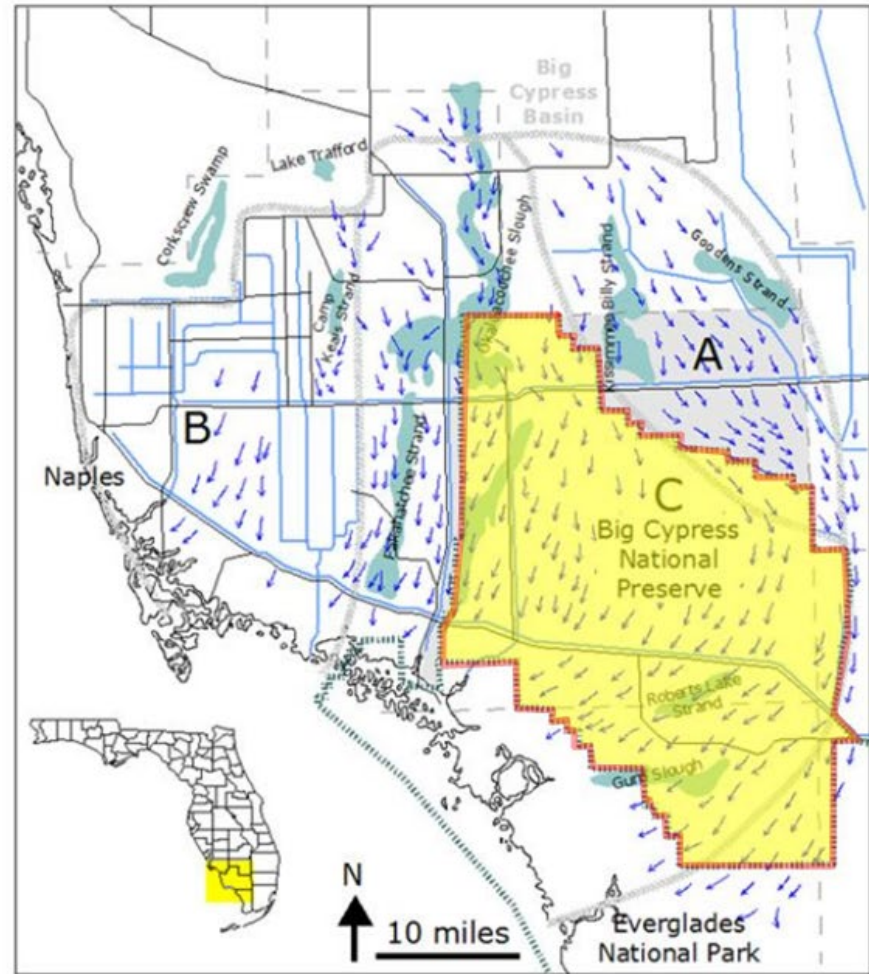
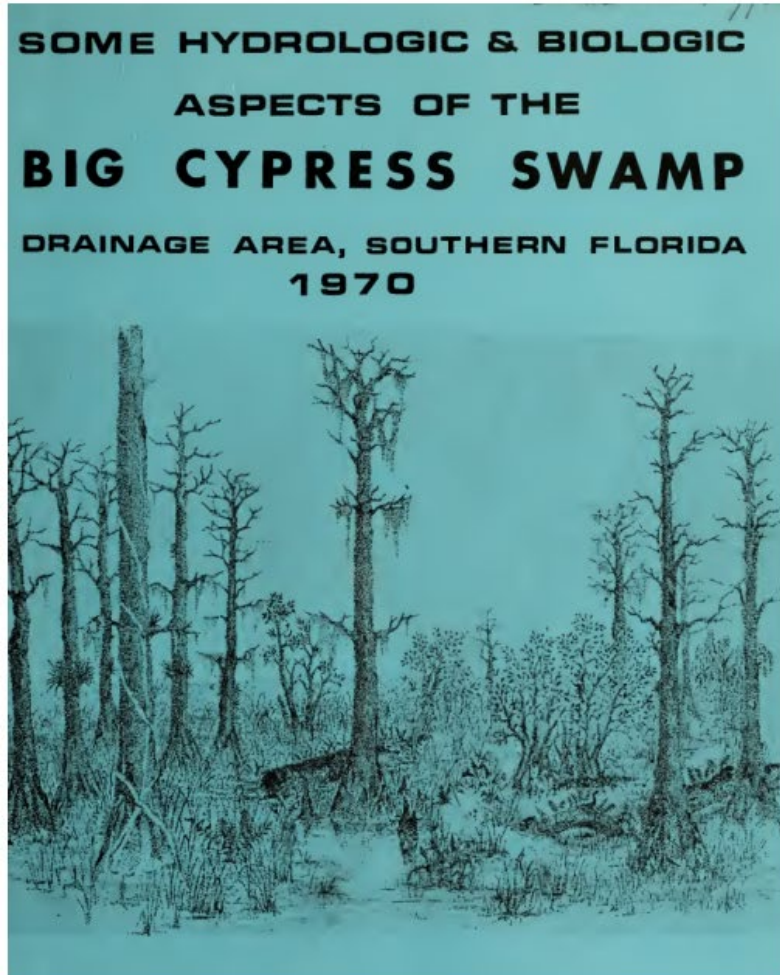
Often said,
But is it **true**?





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It Dates Back to the Preserve's Formation

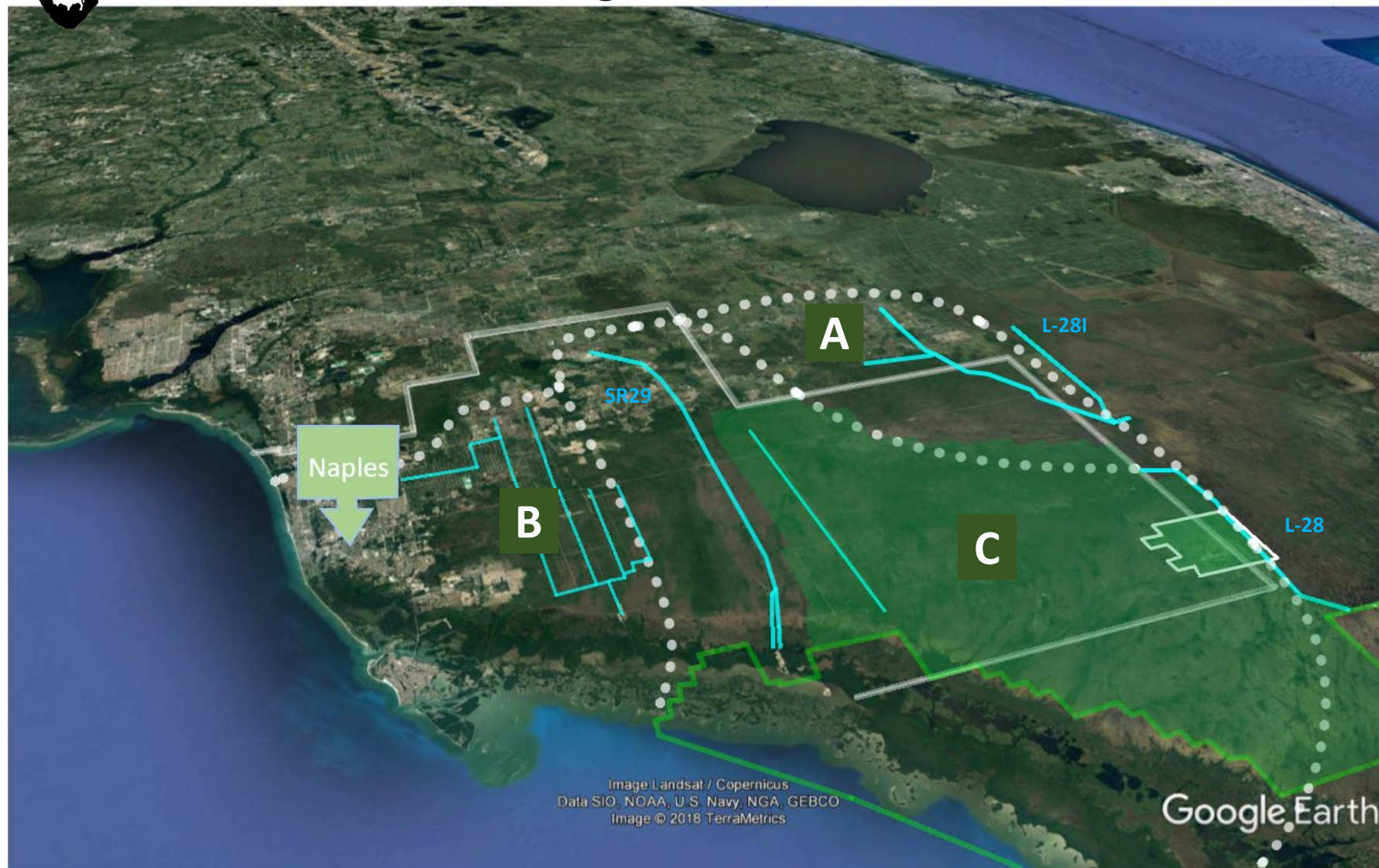


Klein USGS Report, 1970



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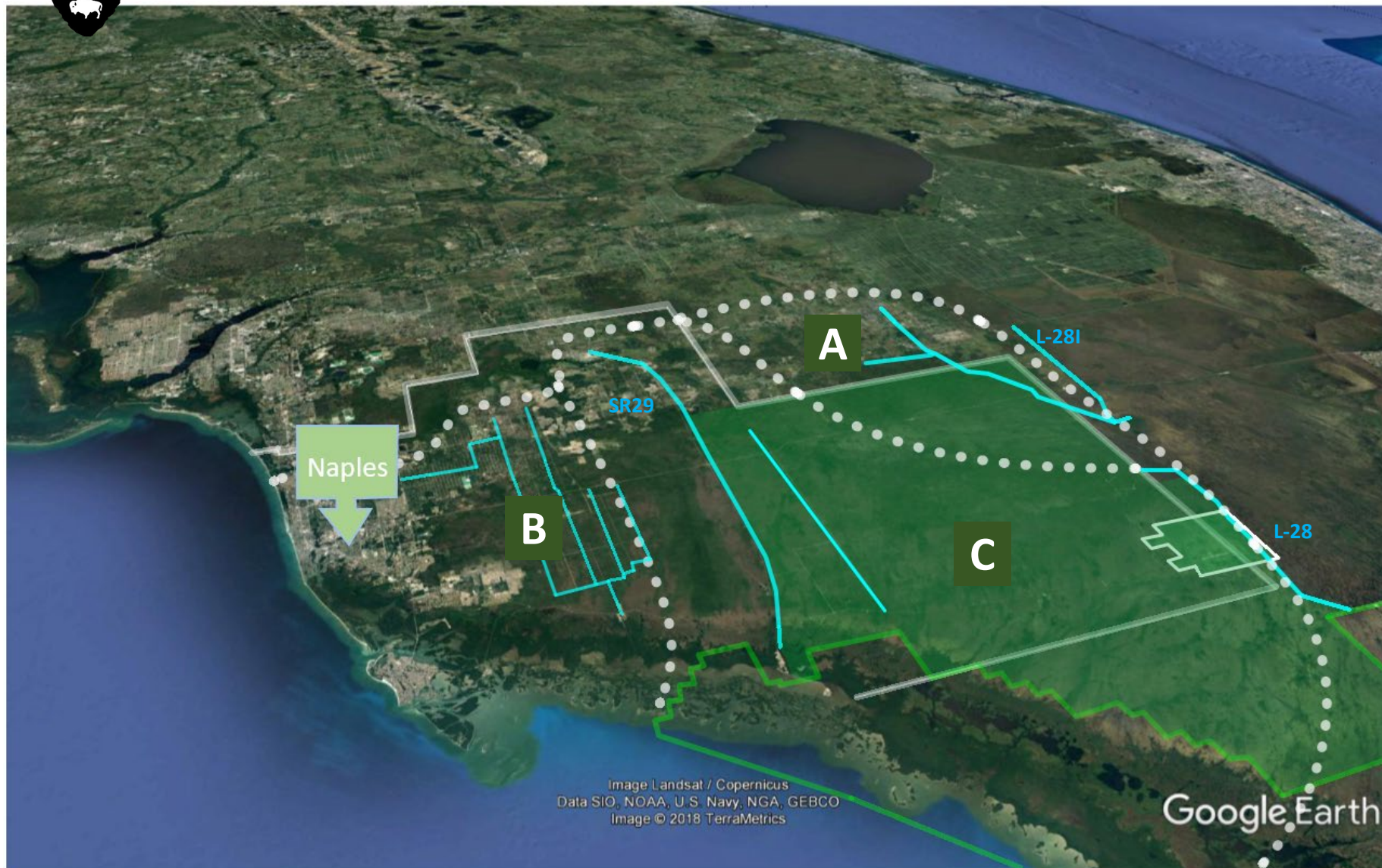
Original Preserve





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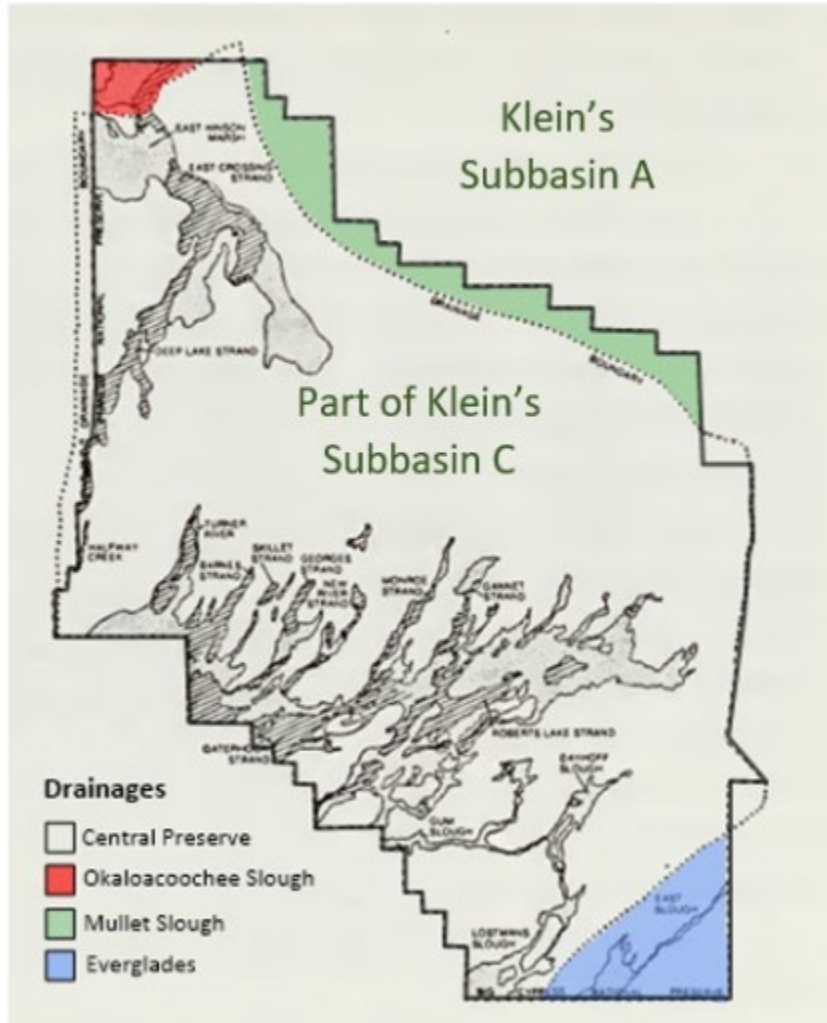
Modern-day Preserve



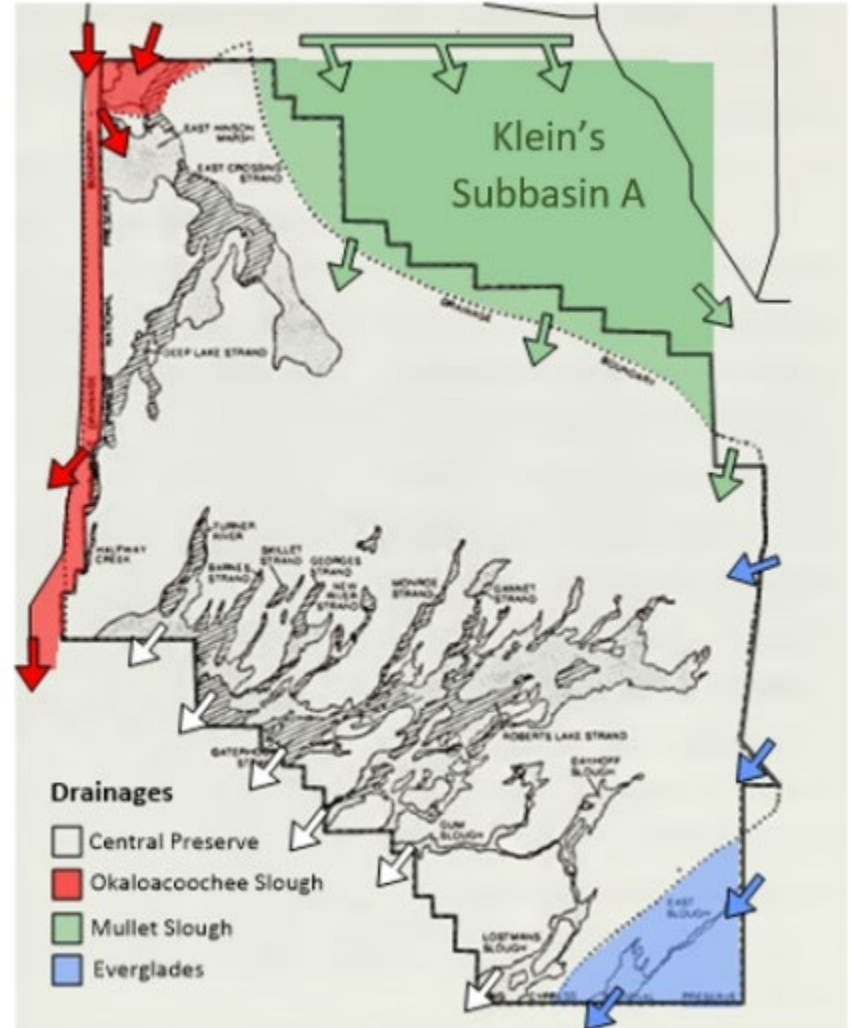


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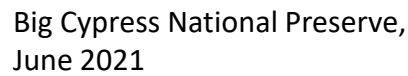
4 Major Watersheds



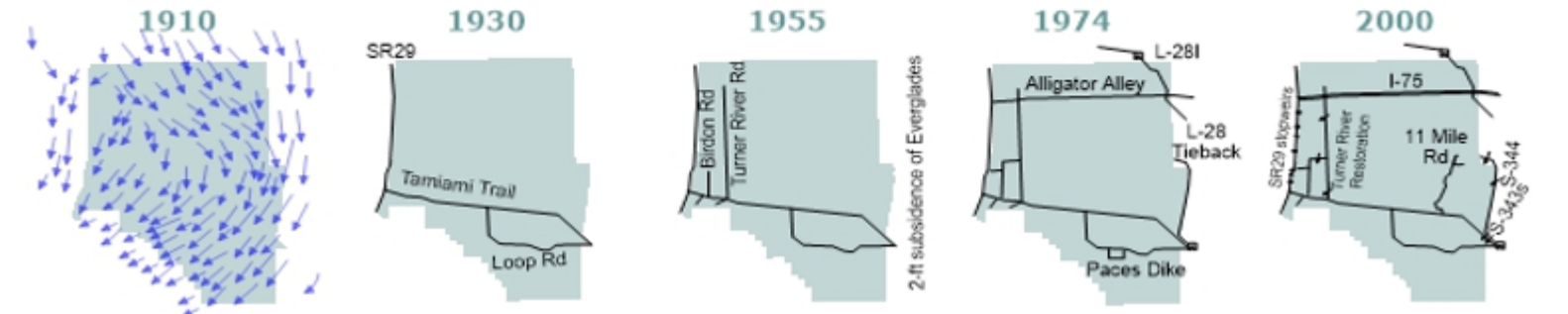
Original Preserve (1974)



Full Preserve (1988,1996)



Big Cypress
National Preserve
established





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Canals and levees Surround and Bisect the Preserve



Big perimeter canal



Small interior canal



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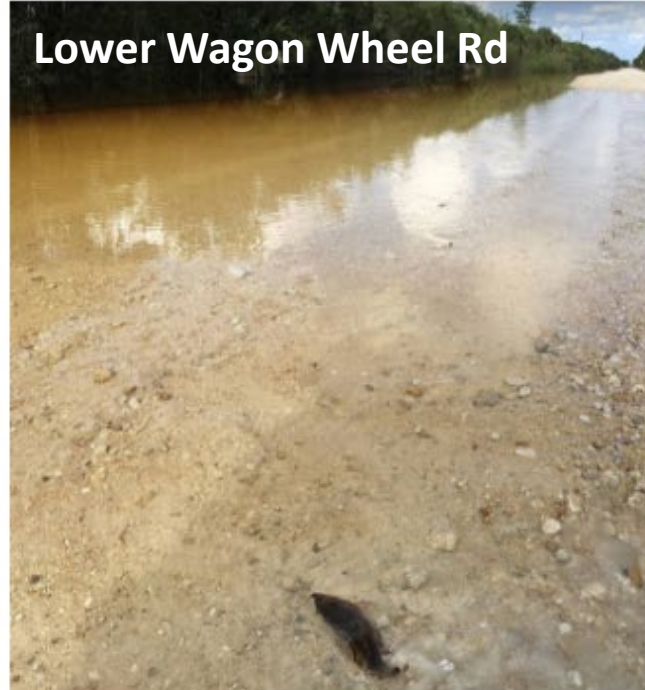
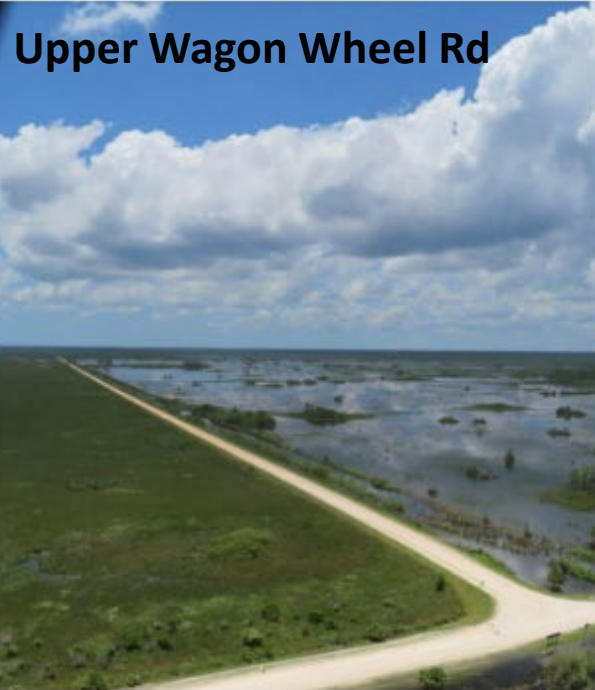
Canals Drain Water Out of the Swamp

Wet Season – Halfway Canal



Dry Season – SR29 Canal





Levees **block** the water's natural flow
and cause unnatural flooding



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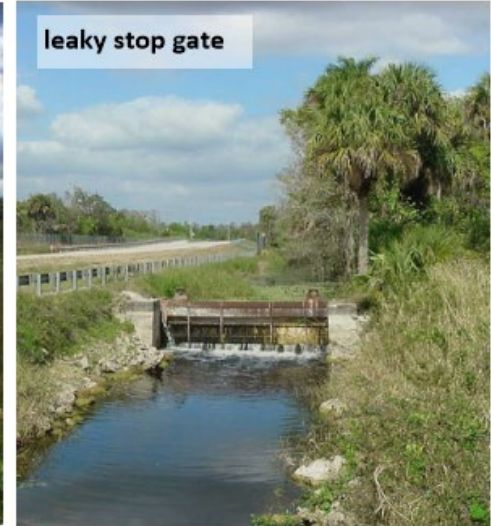
Infrastructure is Aging



failing culvert



washed-out plug



leaky stop gate

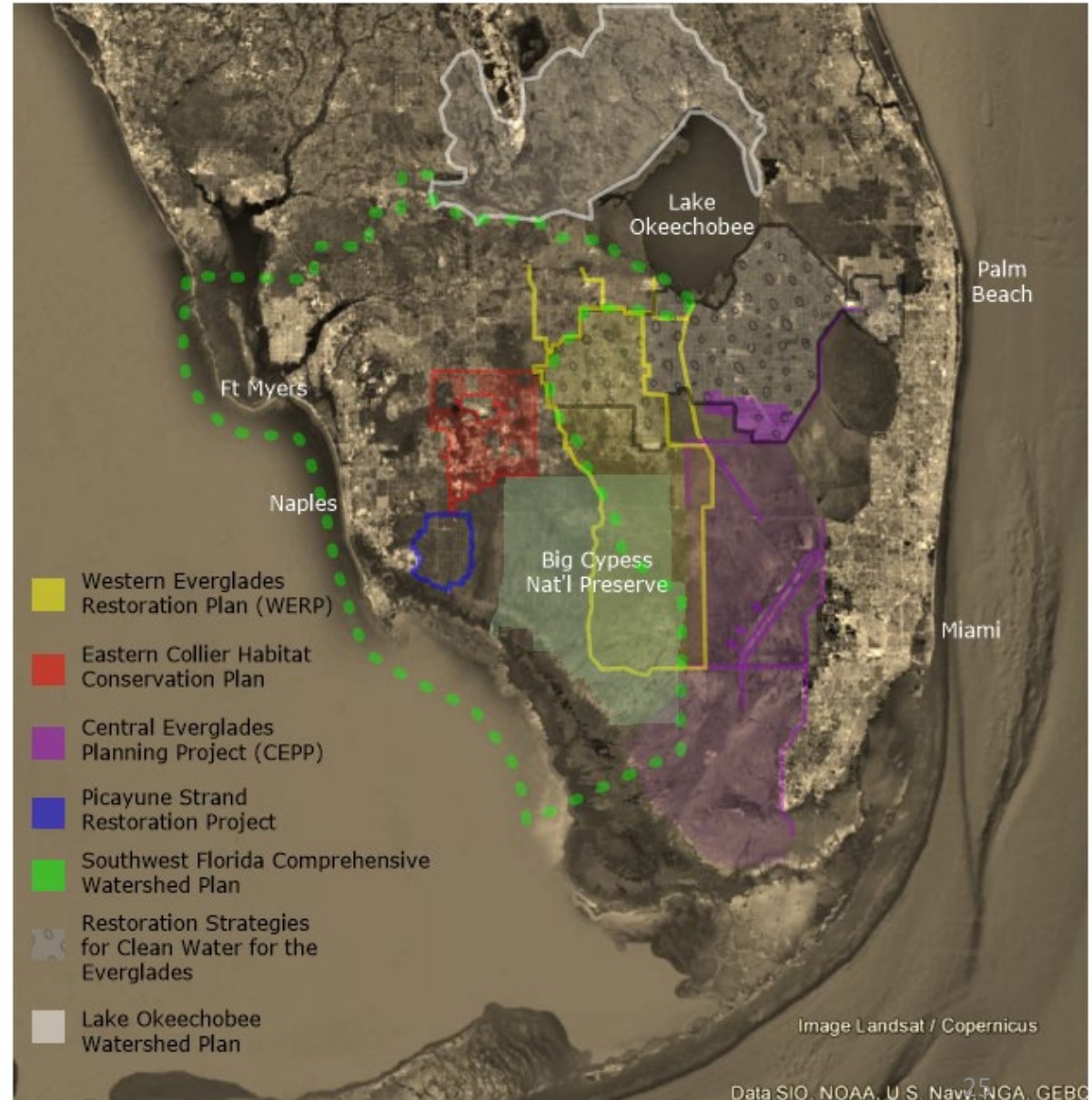


Clearing bridge vegetation (where necessary)



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Despite being
in the **center**
of the regional
water picture





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And Lots of Everglades Restoration Reports around the Preserve



Seminole Water
Conservation
Plan (1995)



L-28 Project
Modification
(1997)



Tamiami Trail
Culverts Project (1998)



Comprehensive
Everglades Restor-
ation Plan (1999)

Southwest Florida
Feasibility Study
starts in 2001



Southwest Florida
Comprehensive Watershed
Plan (2015)



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And Everglades Restoration Moving Ahead





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Big Cypress View is Outdated

?



?

Past Pre-Drainage

Current Condition

Future Restored



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The Preserve Needs Its Own Hydrologic Restoration Framework



Project Need

- Water is vital to the ecological function and public enjoyment of the Preserve
- The Preserve is a major watershed of the Greater Everglades Ecosystem
- Restoration of the Everglades Ecosystem depends on fixing hydrology on the Big Cypress half/side
- The Preserve currently lacks an overall restoration vision and strategy



Simply Stated

- Our understanding has changed
- The Preserve has changed
- Future change and challenges lie ahead
- We need to be ready and proactive



Project Purpose

To create an overall framework for:

- Fix **aging** infrastructure
- Make infrastructure “sheet flow **neutral**”
- Foster **healthy** floral and faunal habitats
- Improve freshwater **deliveries** to Everglades National Park, Fakahatchee Strand and 10,000 Islands
- Reduce the severity of drought and **wildfires**,
- Decrease vulnerability to **saltwater** intrusion,
- Decrease susceptibility to **invasive** exotics
- Enhance **recreational** opportunities where possible
- Support **Everglades** Restoration initiatives



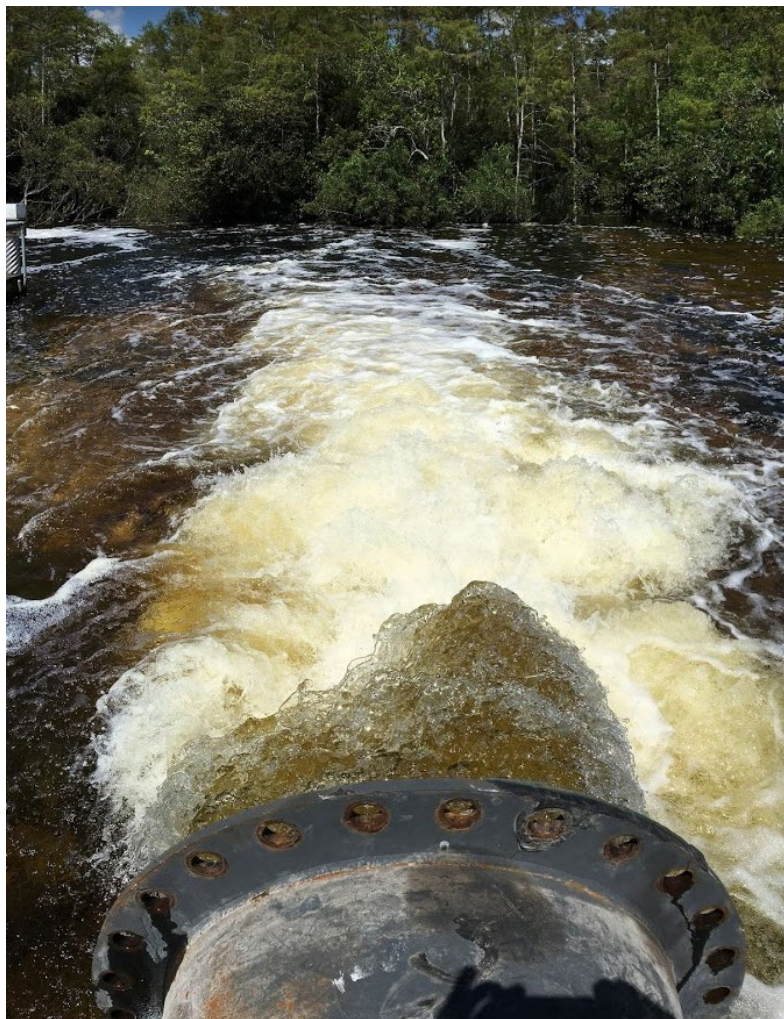
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Background Information



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Types of water



Adjacent Watersheds



Rainfall straight from the sky



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Types of habitats



Everglades



Big Cypress



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Types of Hydrologic Disruptions

Copeland Prairie looking North



Land
development

Tamiami Trail looking West



Transportation

S-344 looking North



Water
Management



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Types of Water Management



Active

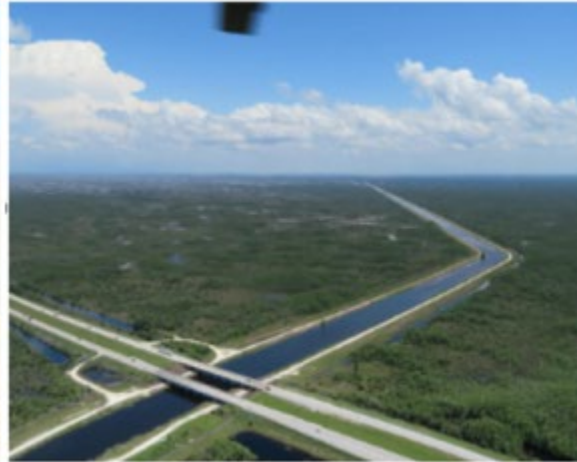


Passive



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The Challenge



What we can
take the **lead**
on changing

What we
must defer to
the lead of
others

The ability
to know the
difference



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Three Tier Ranking System



Tier 1:
Simplest

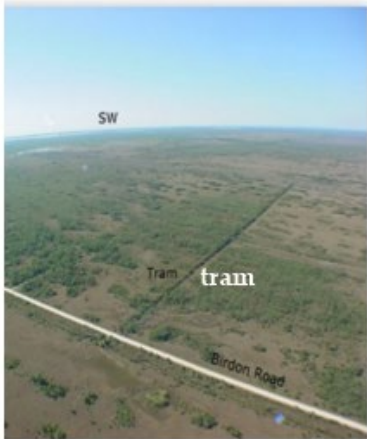
Tier 2:
Little Less Simple

Tier 3:
Complex

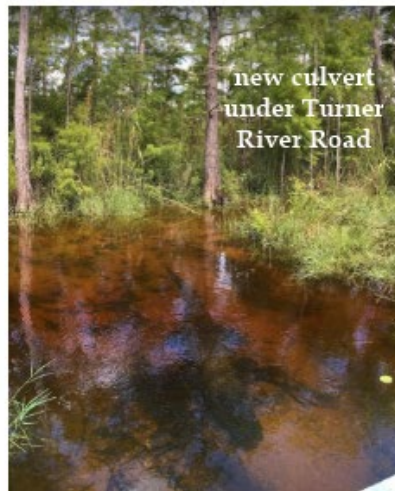


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Three Tier Ranking System



Tier 1:
Simplest



Tier 2:
Little Less Simple



Tier 3:
Complex



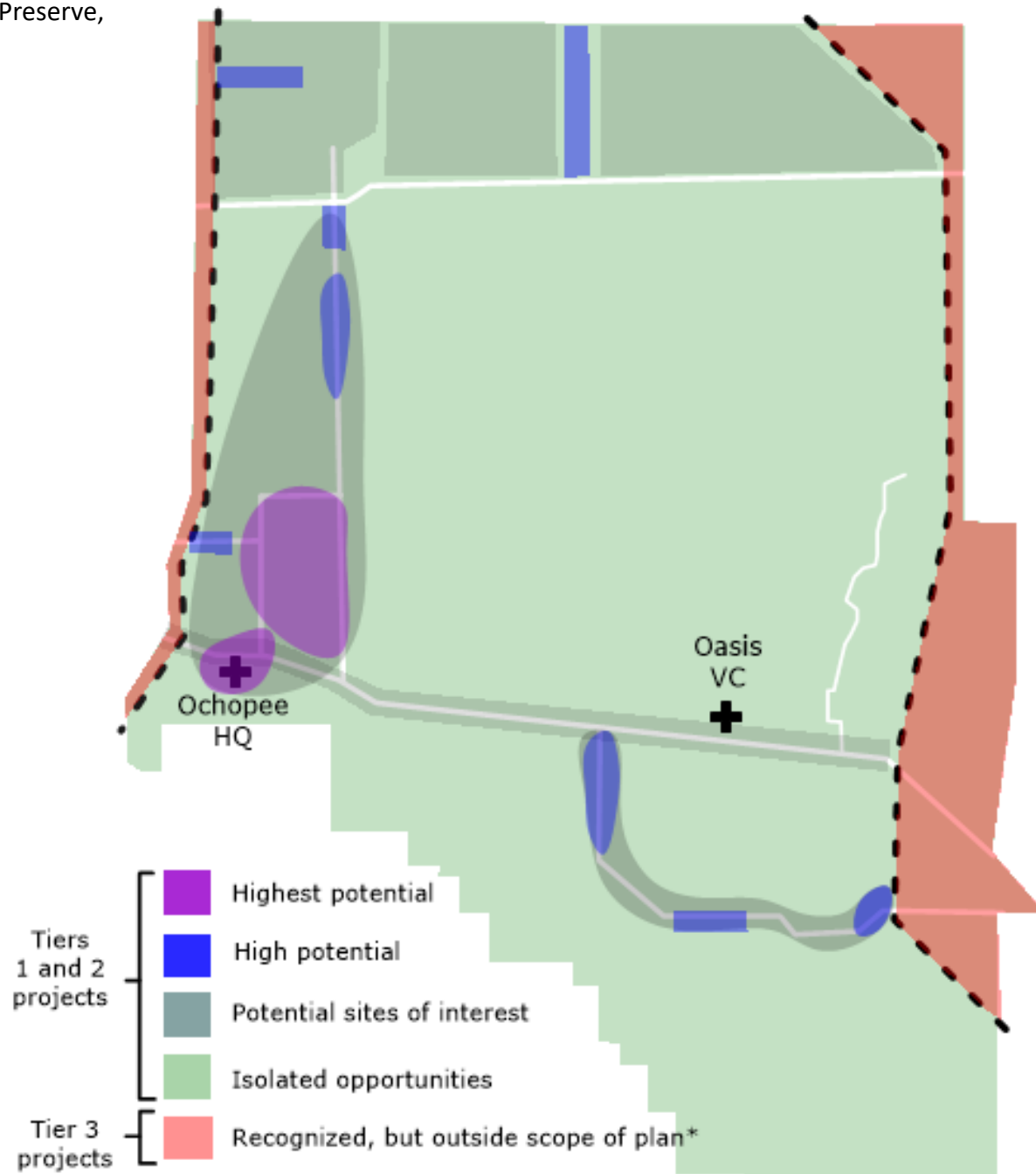
Table of Ranking System

Tier	Operational Status	Jurisdiction Authority	Water Quality Condition	Area of Impact	Feasibility Potential	Cost	Examples
1	passive	Preserve only	good	local	Highly feasible	\$10k's	Old farming berm
2	mostly passive	Preserve and right of way authority	good	minimal upstream or downstream considerations	Feasible	\$10k's to \$100k's	Turner River Road culverts and plugs
3	active	Many jurisdictions involved	Treatment required	significant upstream and downstream considerations	Not feasible	Multiple millions	WERP, SR29 Flow Way



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Map of Ranking System





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Strategic Scope

1 Relatively **simple** fixes



2 Using **passive** water management



3 Locations within **interior**





Goal:

To make the drainage
infrastructure in the Preserve
Sheet Flow Neutral



Sheet Flow Neutral

Definition:

“Allowing the natural lay of the land – not canals or levees – to dictate where water goes when it wants to go and stays when it wants to stay.”



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Preliminary Alternatives



No Action (Alternative A)

The Preserve would continue to manage water by maintaining existing infrastructure and modifying it on an ad hoc basis with opportunistic planning and management as funding permits.



Proposed Action (Alternative B)

Proposes to modify the existing canal and levee system using passive water management techniques with a more systematic and holistic approach. Includes two tiers of projects, Tier 1 and Tier 2.



Definitions

- Tier 1 projects** Focus primarily on land-development centric disruptions associated with historic logging, farming, and residential and commercial developments. These projects are contained entirely within and managed by the Preserve, without assistance from outside state or Federal agencies.
- Tier 2 projects** Focus primarily on transportation-centric disruptions, such as the more than one-hundred miles of paved and gravel (limestone) roads located within and adjacent to the Preserve. The projects would include water ways that may involve an additional jurisdiction but are not tied to regional and multi-use water management infrastructure and schemes that extend outside the Preserve.
- Passive Water Management Techniques** Passive water management involves simple actions that, once installed, do not require additional inputs or operational control, and except for routine maintenance, they can operate by themselves.



Alternative C

All elements of Alternative B, plus additional Tier 2 Site Specific projects including limited strategic road removal and bridge addition at major flow-ways that are intersected by limerock roads.



Ideas Not Currently Included in the Alternatives

- Active management
- Maximizing removal of roads, canals and levees
- Tier 3 Projects
 - SR29 Barron River Flow-way Restoration
 - Western Everglades Restoration Plan



Not Abstract

We have a
pilot project
for everyone
to look at



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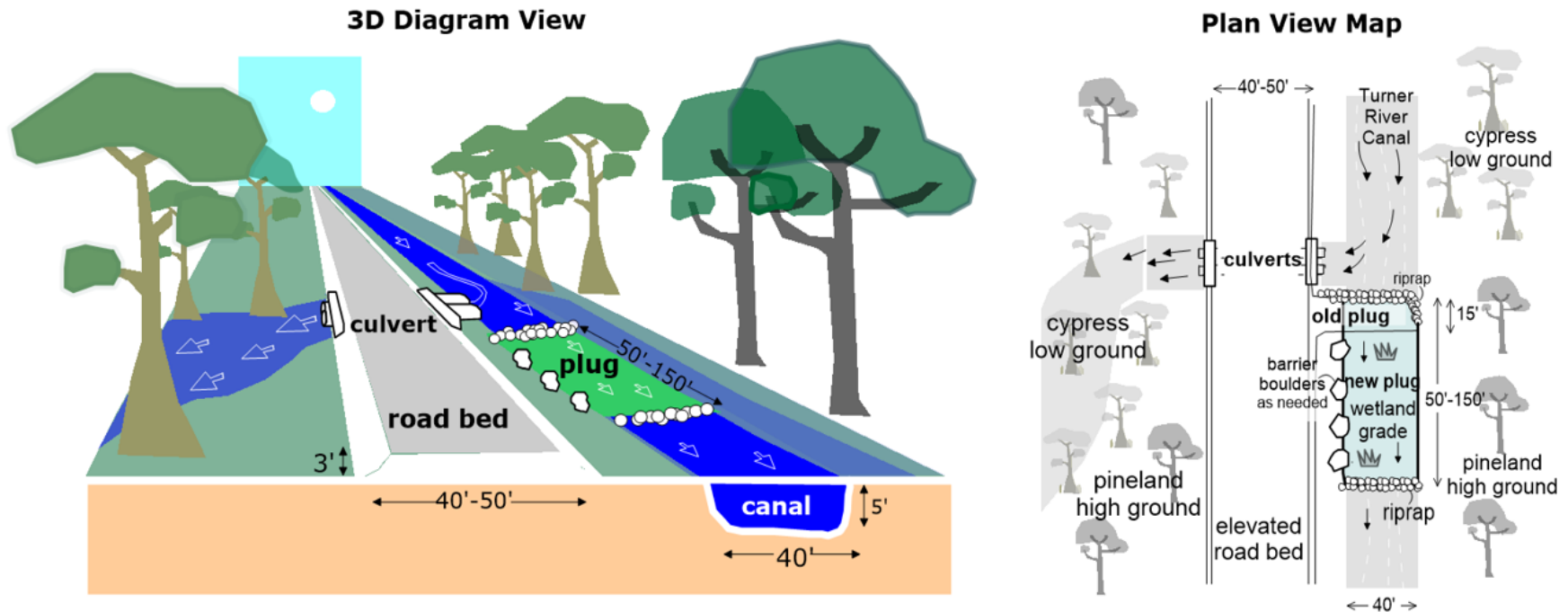
Ochopee Sheet Flow Restoration Project



Pilot Project



Passive Engineering Example



The "Culvert/Plug Pair" Concept



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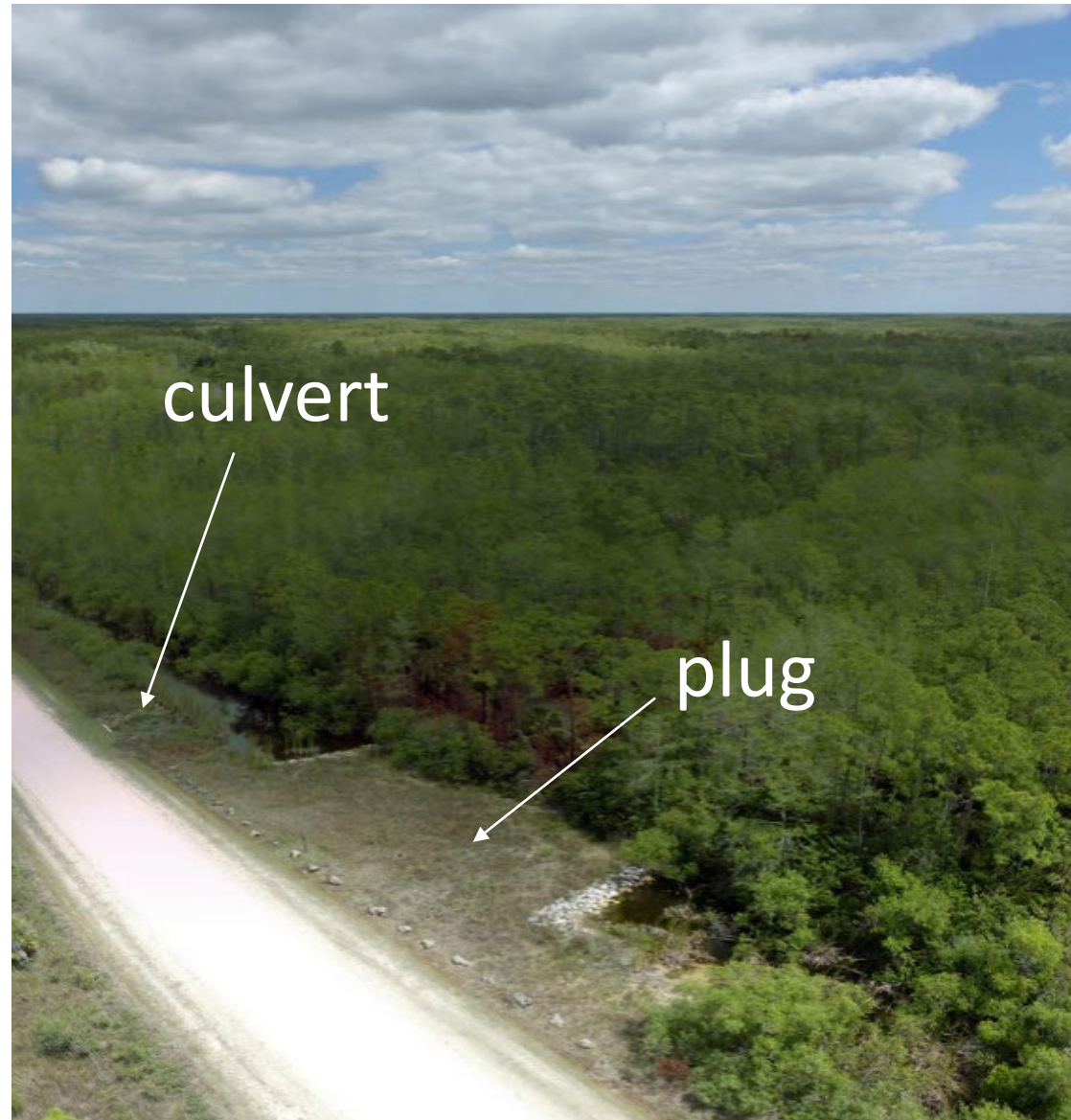
Photos of Culvert/Plug Pair





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Aerial view culvert/plug pair



Along Turner
River Road



Sequencing ideas

Allow flexibility to be nimble
and react where appropriate

- Expedite fixes where infrastructure is failing
- Target areas that maximize ecosystem benefits
- Target areas where other internal work is occurring
- Targeting projects types that have funding
- Target areas where other external work is occurring
- Avoid areas covered by other projects



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Lots of reasons and ways to get the water right

Getting
the water
right

nesting storks



habitat
health



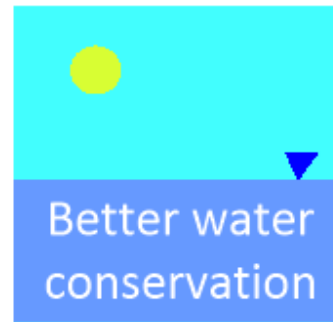
freshwater
discharge
to coast



enhancing
partnerships



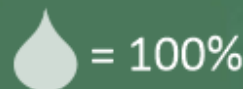
Better water
conservation



happy
gators



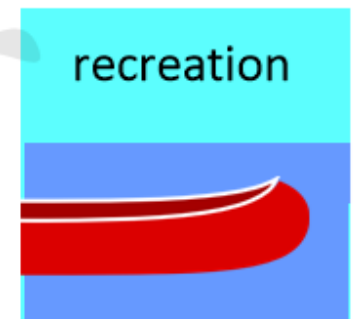
outreach
& education



fire-water
balance



recreation





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Next Steps

Schedule/Milestone	Public Input
June 14-July 13 Public scoping	Review the purpose, need, preliminary alternatives and potential impacts and provide your comments at https://parkplanning.nps.gov/BICY_hydro
Late Summer 2021 Analyze public comments and prepare the draft Big Cypress National Preserve Hydrologic Restoration Plan Environmental Assessment	
Fall 2021 Public review of the draft Big Cypress National Preserve Hydrologic Restoration Plan Environmental Assessment	Review the draft Big Cypress National Preserve Hydrologic Restoration Plan Environmental Assessment, attend public meetings, and provide your comments at https://parkplanning.nps.gov/BICY_hydro
Fall 2021 Prepare the final Big Cypress National Preserve Hydrologic Restoration Plan and Environmental Assessment	Stay up-to-date on the planning process at https://parkplanning.nps.gov/BICY_hydro
Late Fall 2021 Prepare the Finding of No Significant Impact	



How To Comment:

- Public scoping: June 14 – July 13. We want your comments on the scope of the plan, purpose and need, proposed action and preliminary alternatives.
- You may submit your comments electronically at the NPS Planning, Environment, and Public Comment (PEPC) website: https://parkplanning.nps.gov/BICY_hydro. Once on the website, select “Open for Comment” to provide comments.
- Comments may also be submitted in writing to the following address:
Superintendent
Big Cypress National Preserve
33100 Tamiami Trail East
Ochopee, Florida 34141-1000
- We anticipate that a plan and environmental assessment will be available for public review and comment later this summer or early fall.



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Feedback and Questions

If you have questions after
the meeting, please email to
robert_sobczak@nps.gov

Note that public comments
must still be submitted per
previous slide





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Thank you!



For more information

<https://www.nps.gov/bicy>