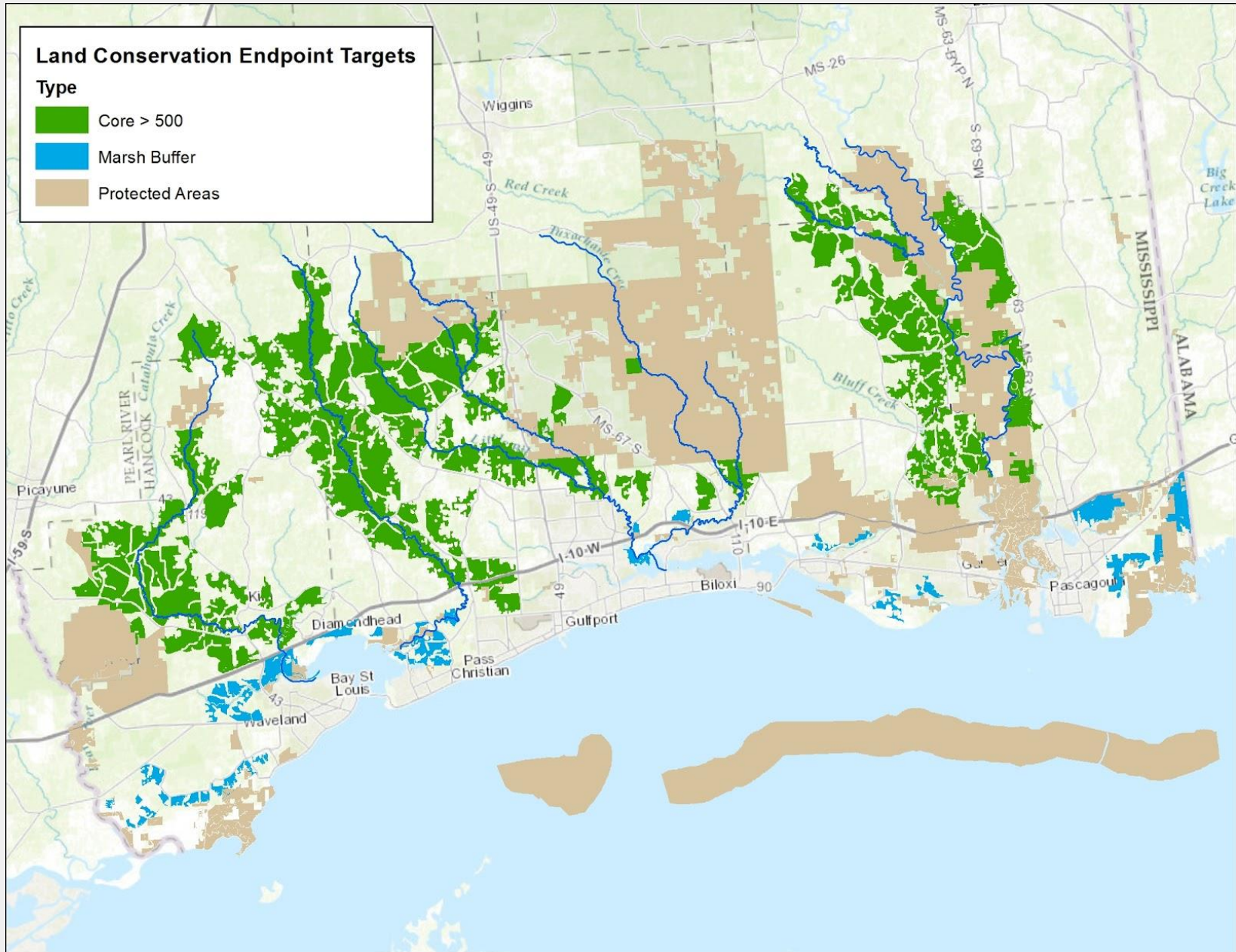# LAND CONSERVATION PROGRAM

ALINA F. YOUNG-NFWF PROJECT MANAGER
MDEQ OFFICE OF RESTORATION
STEPHEN PARKER-NRDA PROJECT MANAGER
COVINGTON CIVIL AND ENVIRONMENTAL, LLC

Land Conservation Endpoint Targets

Type
- Core > 500
- Marsh Buffer
- Protected Areas

WHERE ARE WE RIGHT NOW?

Mississippi Department of Marine Resources
  Coastal Preserves Program
Ideal: +/- 72,000 acres

Current inclusion: 35,000 acres,
includes Gulf Islands National Seashore

Current Investments in Coastal Preserves Program
  NRDA – Restoration Plan #1 –
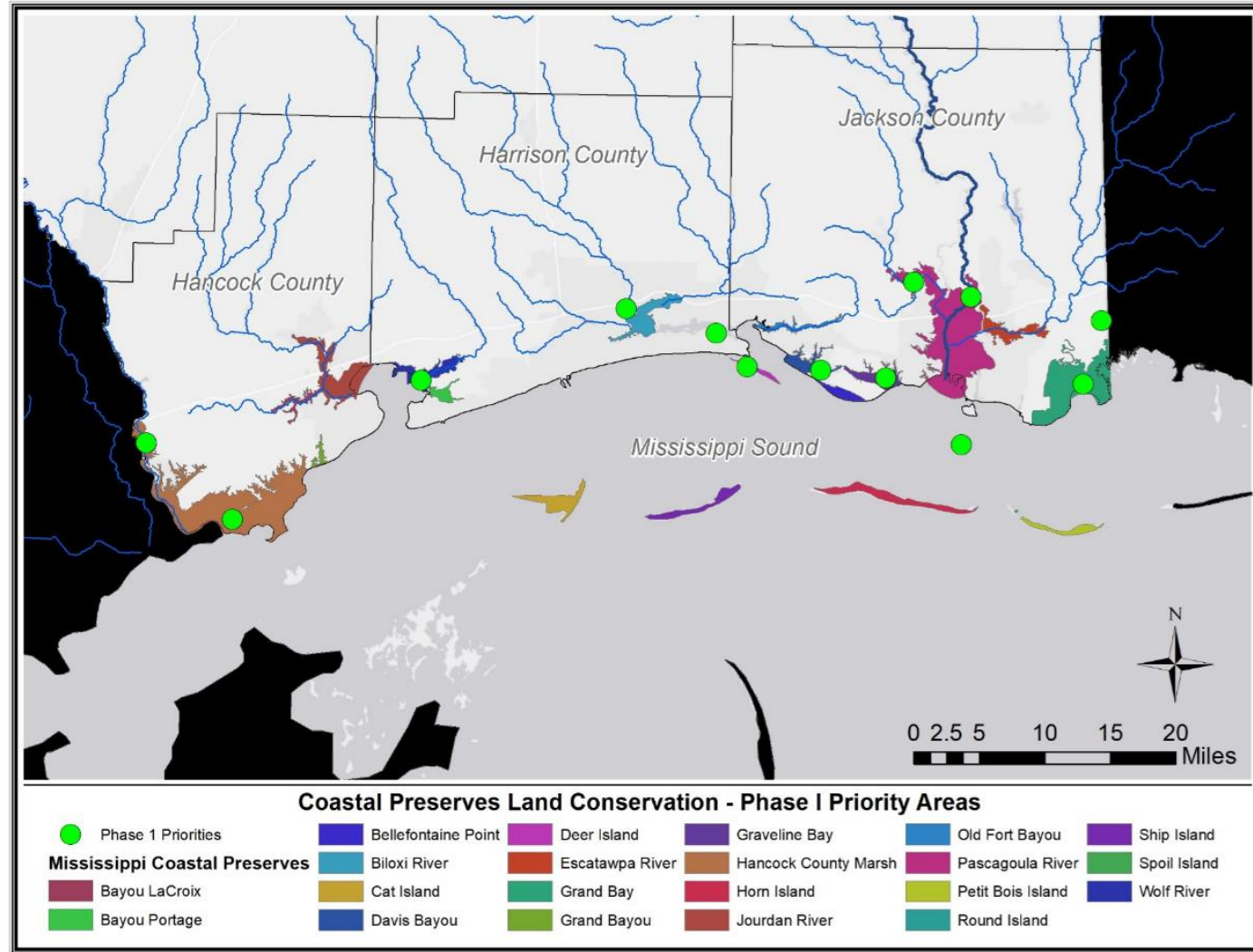Grand Bay/Graveline
Approximately $17 million

  RESTORE – FPL – Strategic Land Acquisition
Gulf Islands/Grand Bay
Approximately - $2 – 6 million

  NFWF - Coastal Connectivity
Approximately $15 million available for
acquisition of high and strategic priority tracts

Coastal Preserves Land Conservation - Phase I Priority Areas

● Phase 1 Priorities	Bellefontaine Point	Deer Island	Graveline Bay	Old Fort Bayou	Ship Island
Mississippi Coastal Preserves	Biloxi River	Escatawpa River	Hancock County Marsh	Pascagoula River	Spoil Island
Bayou LaCroix	Cat Island	Grand Bay	Horn Island	Petit Bois Island	Wolf River
Bayou Portage	Davis Bayou	Grand Bayou	Jourdan River	Round Island	

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Programmatic input: ACQUIRE HABITAT TO BUFFER FOR MARSH MIGRATION

Program: Land Conservation and Management
Objective: Conserve Priority Habitats

Restoration Action: CONSERVATION OF BUFFERS TO FACILITATE THE NATURAL MIGRATION OF COASTAL MARSH HABITAT INLAND IN RESPONSE TO SEA LEVEL RISE

Scientific Gap: Is there information or scientific data needed previous to project implementation to ensure success?

Restoration Effort Index: Any root causes that need investigation?

Project Development: Site Specific Criteria/Conditions

MCERT Restoration Effort Index (REI)

Restoration Effort
- Very Low
- Low
- Moderate
- High
- Very High

Planning Units vetted through project site-specific criteria using MCERT tools
- Adjacent to marsh
- Willing seller (s)
- Adjacent to other protected land
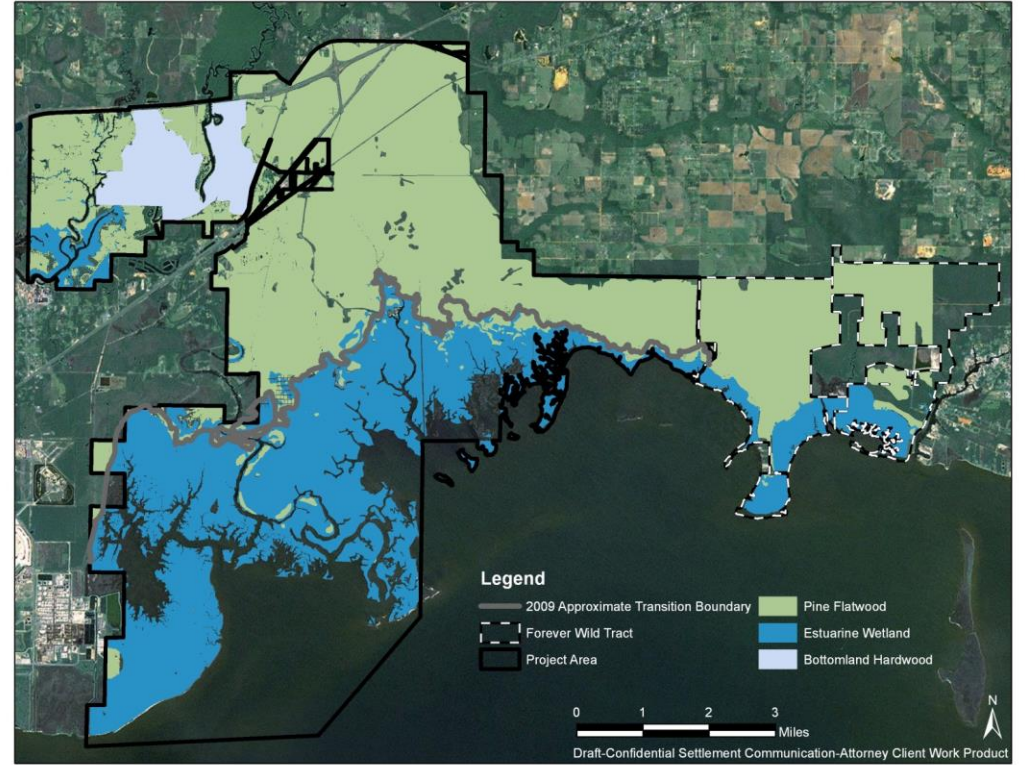- Hub and corridor size
- Low development pressure

Target Area
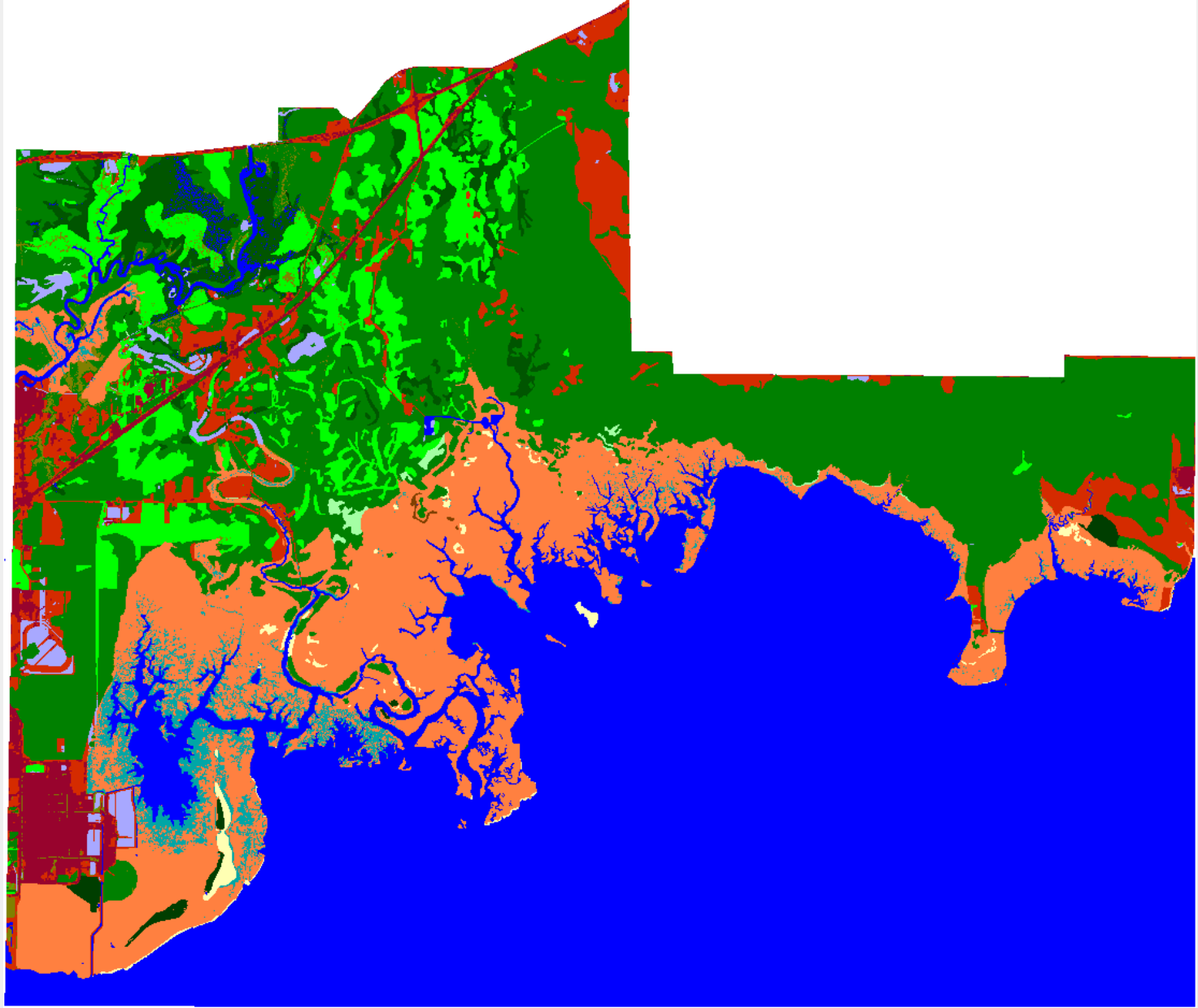- Primary
- Secondary

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Habitat Migration
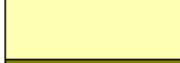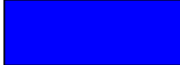
2009

	Estuarine Open Water
	Forested Wetlands
	Irregularly-flooded Marsh
	Inland Fresh Marsh
	Undeveloped Dry Land
	Cypress Swamp
	Developed Dry Land
	Inland Open Water
	Estuarine Beach
	Transitional Salt Marsh
	Regularly-flooded Marsh
	Tidal Flat

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2100

	Estuarine Open Water
	Forested Wetlands
	Irregularly-flooded Marsh
	Inland Fresh Marsh
	Undeveloped Dry Land
	Cypress Swamp
	Developed Dry Land
	Inland Open Water
	Estuarine Beach
	Transitional Salt Marsh
	Regularly-flooded Marsh
	Tidal Flat

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Marsh Migration Models in Grand Bay NERR/NWR
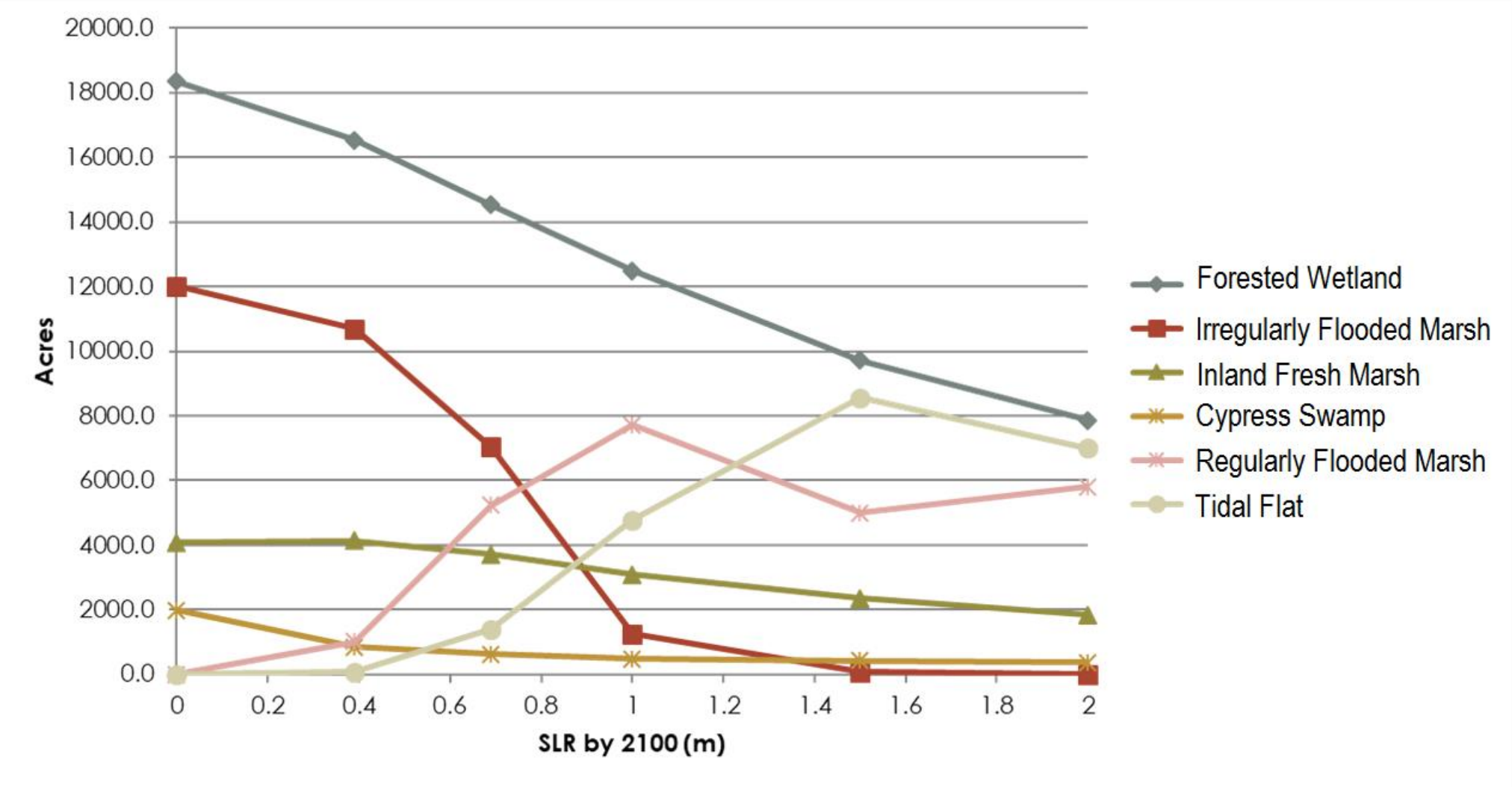
GRAND BAY LAND ACQUISITION AND HABITAT MANAGEMENT

IMPLEMENTING TRUSTEES: MDEQ and DOI

PROJECT PARTNERS: MDMR Coastal Preserves/Grand Bay NERR, USFWS

ALLOCATION: $6,000,000

LEVERAGING: RESTORE, NFWF GEBF

PDARP GOALS:
- Restore and Conserve Habitat: Wetlands, Coastal, and Nearshore Habitats
- Replenish and Protect Living Coastal and Marine Resources: Birds
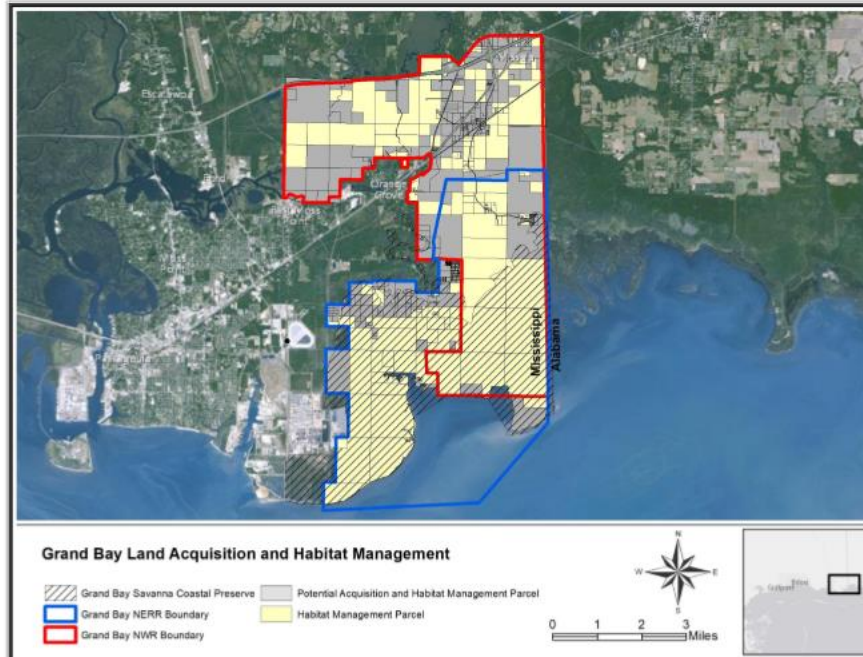
PROJECT OVERVIEW
- Preserve up to 8,500 acres and enhance up to 17,500 acres of habitat
- Acquisition of land from willing sellers
- Performance monitoring will be conducted to evaluate the success of the project

RESTORATION MEASURES AND MANAGEMENT ACTIVITIES
- Preservation/Acquisition
- Mechanical Clearing
- Chemical Treatment
- Prescribed Fire

Grand Bay Land Acquisition and Habitat Management

Grand Bay Savanna Coastal Preserve
Grand Bay NERR Boundary
Grand Bay NWR Boundary
Potential Acquisition and Habitat Management Parcel
Habitat Management Parcel

0 1 2 3 Miles

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MECHANICAL TREATMENT

PRESCRIBED FIRE

CHEMICAL TREATMENT

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Spray Track
Spray Track Chemical Spread (5m
Cogon Grass Area

Trophic Levels	Management		16%
	Pre- (# of species)	Post (# of species)	Lift (# of species)
Flowering plants	170	197	27
Ferns	24	28	4
Insects	1471	1706	235
Reptiles	3	3	0
Amphibians	2	2	0
Birds	8	12	4
Mammals	3	4	1
Fish	18	21	3
	1699	**1973**	**274**

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COASTAL HEADWATERS: AT A GLANCE

- **Coastal Headwaters Program:**
  - The coastal headwaters program will invest in lands outside of the coastal preserves system.

  - Focus on **priority headwater areas** to protect water quality and quantity to **priority bays and estuaries**, as constrained by the respective funding sources.

  - Further the coastal headwaters program acquisitions will protect priority habitats that directly tie to injured resources from the *Deepwater Horizon* oil spill.

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INITIAL TARGETS FOR COASTAL HEADWATERS PROGRAM

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INITIAL TARGETS FOR COASTAL HEADWATERS PROGRAM
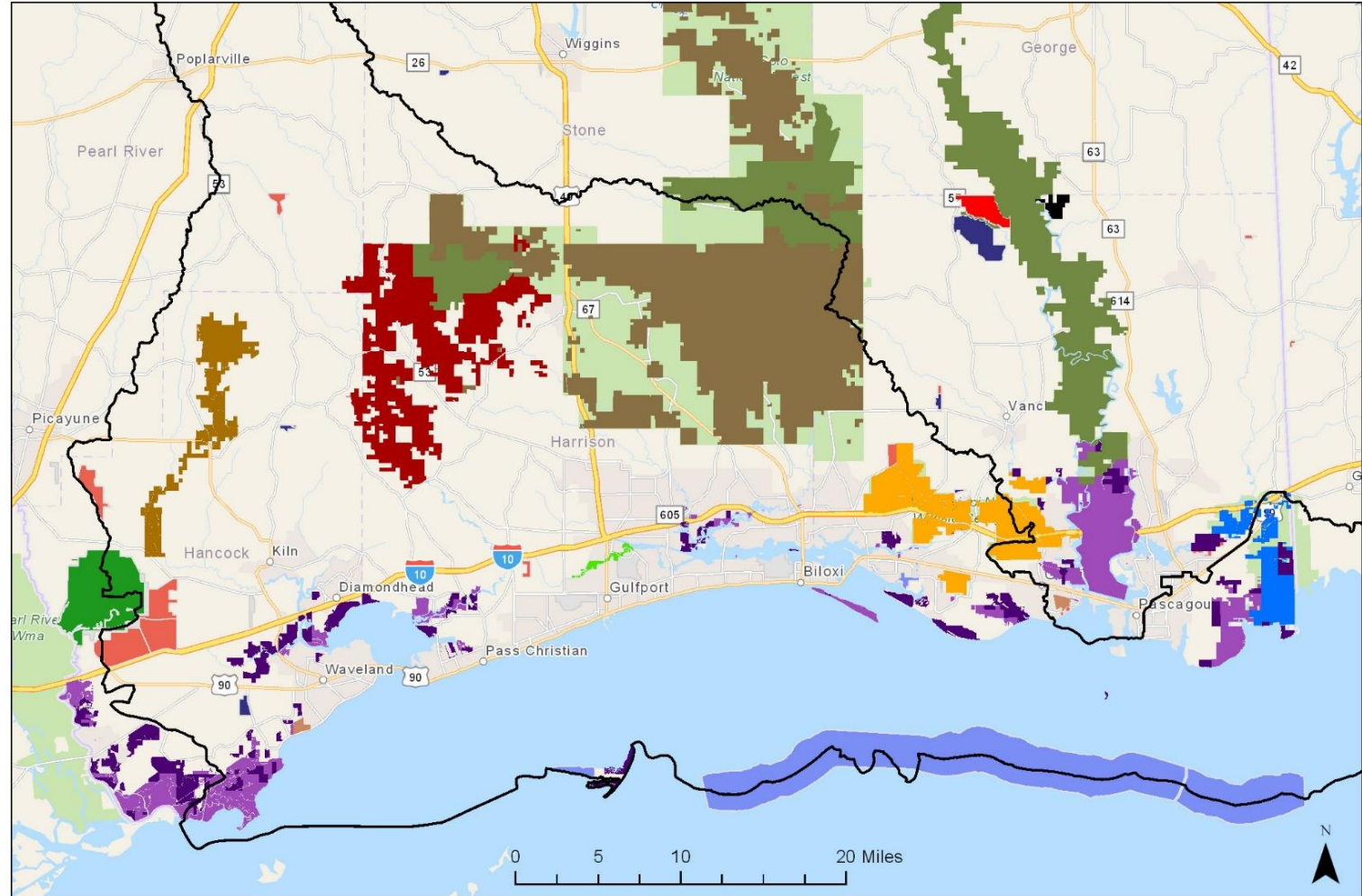
Legend:
- Weyerhaeuser Tracts
- Hickory Creek Corridor
- Land between the Creeks
- Griffith Tract
- Turkey Creek Priority
- State Parks
- MS Wildlife Management Areas
- MS Coastal Preserves Ownership
- MS Coastal Preserves Priority
- Stennis Space Center
- National Forest Ownership
- National Park Service
- Conservation Easements
- TNC Parcels
- Grand Bay NWR Ownership
- Mississippi Sandhill Crane NWR Ownership
- Coastal Streams HUC8

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MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

COASTAL HEADWATERS: AT A GLANCE

- **Unique Conservation Model:** Lands generate revenue through sustainable timber harvest to continue restoration and management of the land itself.

- Sustainable timber harvest will be carefully managed to maximize ecological return on investment yet still realize economic returns for restoration and management.

- Ecosystem services of water quality enhancement, wildlife habitat, and longleaf ecosystem dynamics will be maximized.

- This project could generate approximately $40-48 million in timber revenue over 25 years.

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GROUNDED IN SCIENCE

- The **Mississippi Comprehensive Ecosystem Restoration Tool (MCERT)** represents a suite of geospatial analysis models that provides data products to describe the terrestrial and marine and water quality conditions in south Mississippi.

- MCERT input criteria include:
    - Connected to riparian areas and/or headwaters of coastal streams draining into priority bays/estuaries;
    - Uplands directly adjacent to coastal marsh;
    - Scale that supports ecosystem processes;
    - Contribute or create ecological cores and corridors.

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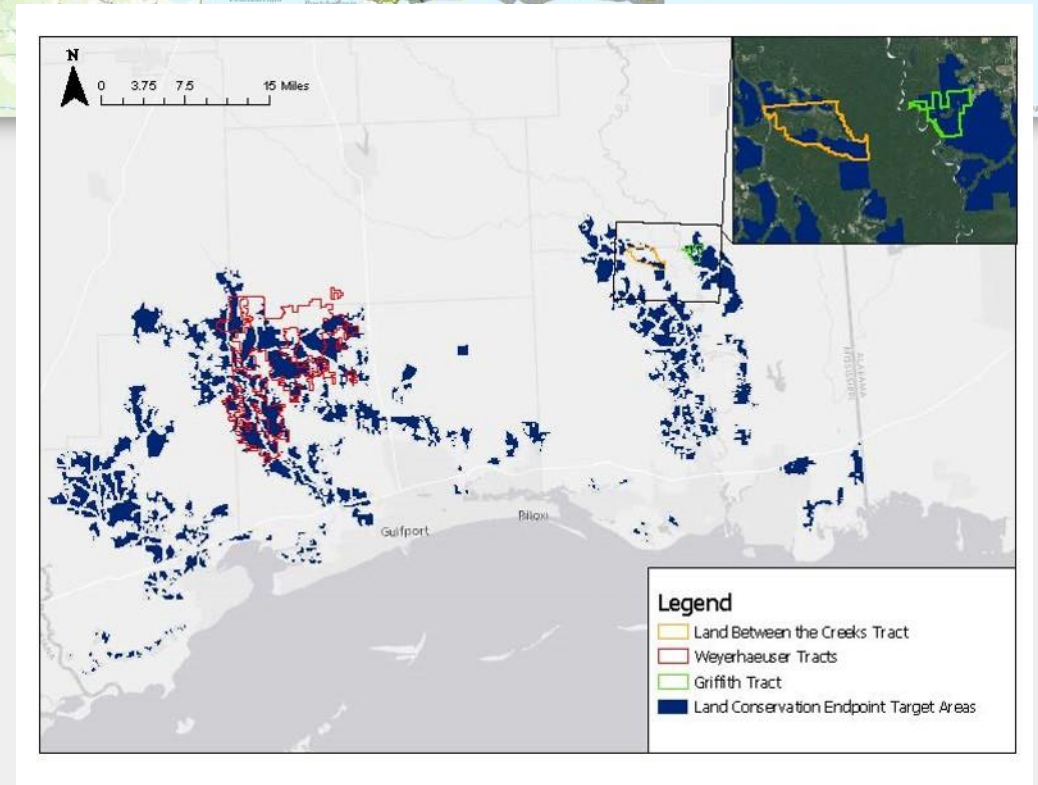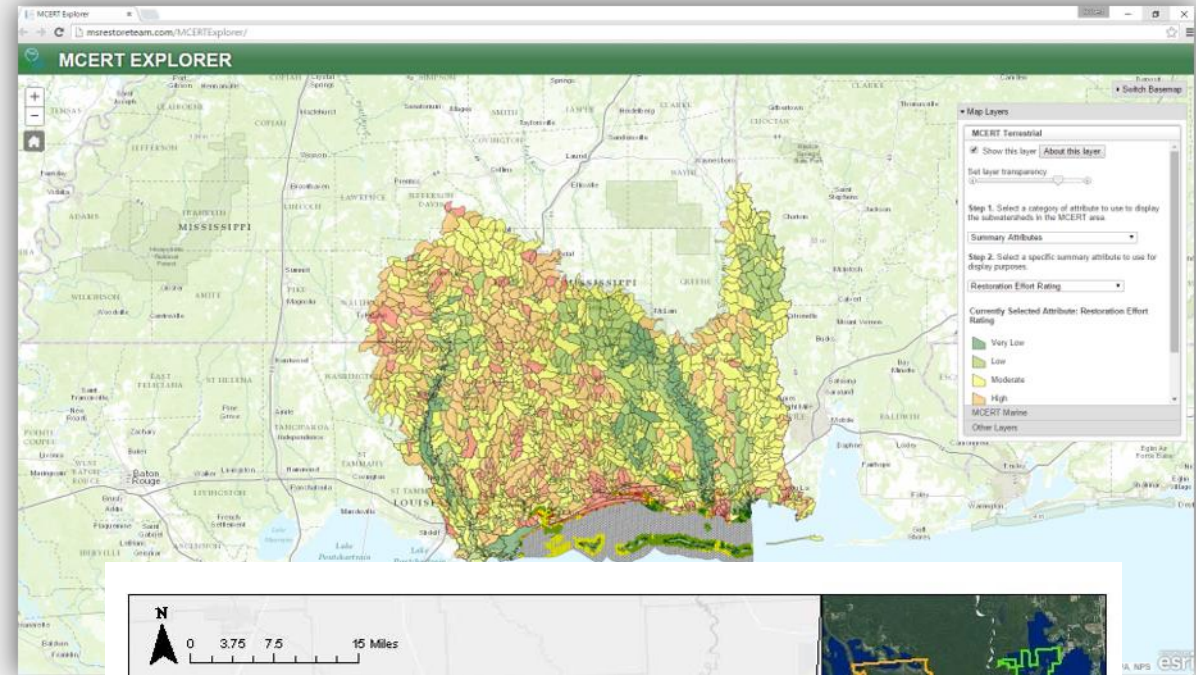
BY THE NUMBERS: HABITAT

Wolf River Watershed	
Habitat Type	Acreage
Pine	13,771.96
Riparian Zones	7,230.21
other	423
Biloxi River Watershed	
Pine	18,909.63
Riparian Zones	8,129.32
other	304

Pine: 32,680
Hardwood: 15,359
Total acreage: 48,277

Weyerhaeuser Landu...
- Riparian Zones
- Rivers
- Pine
- Hardwood
- Swamp
- Wildlife Openings
- Utility
- Landing Strip
- Right of Way

0 1 2 4 Miles

WY Forest Lands
Stand Age
- 2 - 6
- 7 - 11
- 12 - 15
- 16 - 20
- 21 - 25
- 26 - 31
- 32 - 44
- 45 - 55
- 56 - 71
- 72 - 85

0 1 2 4 Miles

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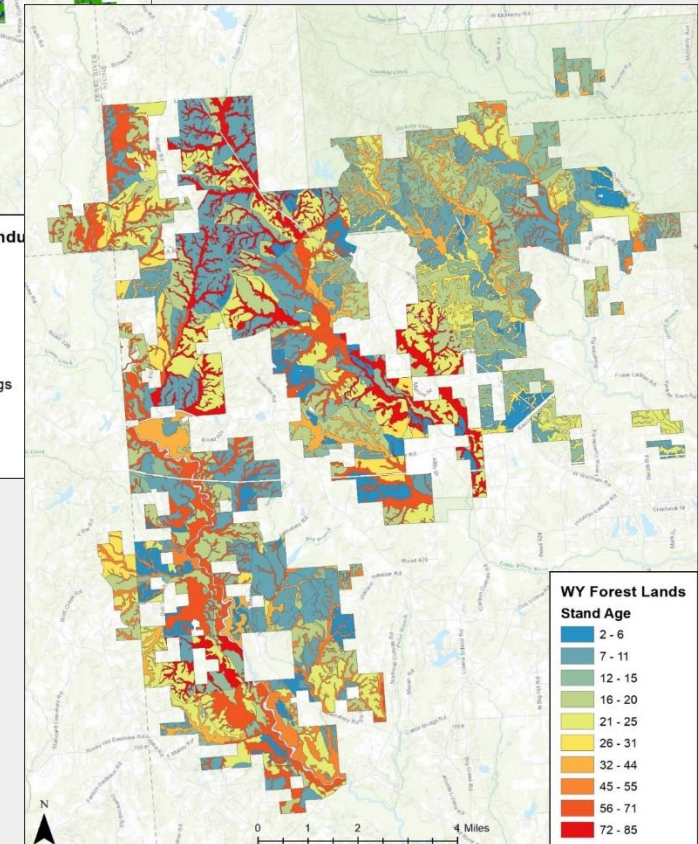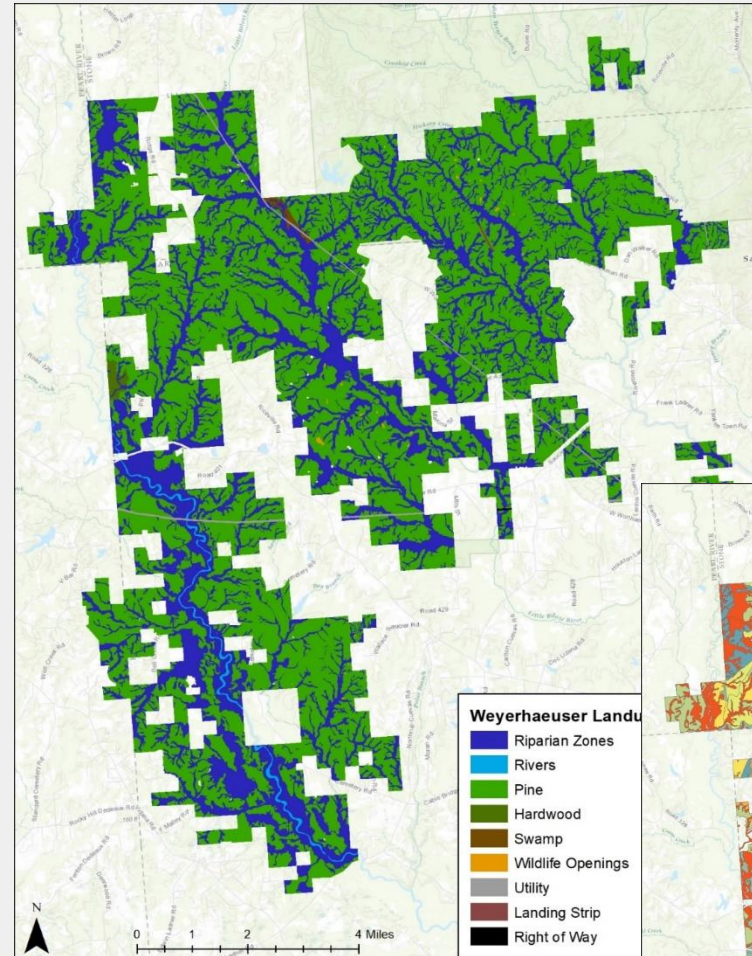
BY THE NUMBERS: STREAMS

- Stream Network Protection:
  - 594 miles of perennial, intermittent, and ephemeral streams

- Stream-Road/Culvert Analysis
  - Transportation networks, including roads, culvert, and bridges move water and sediment across landscapes, including streams.
  - Dust from unpaved roads has been traced to contamination of adjacent water bodies and an increase in turbidity, reducing the productivity of the aquatic ecosystem.
  - Restoration and management plans will identify those roads that require maintenance, restoration, as well as those roads that can be abandoned for vehicular traffic, maintained for access, and those that will be utilized as occasional fire lanes.

	Wolf River Watershed	Biloxi River Watershed
Miles of Road	126.53	158.13
Number of Culverts	9	31
Number of Bridges	9	8
Number of Stream-Road Intersections	157	111
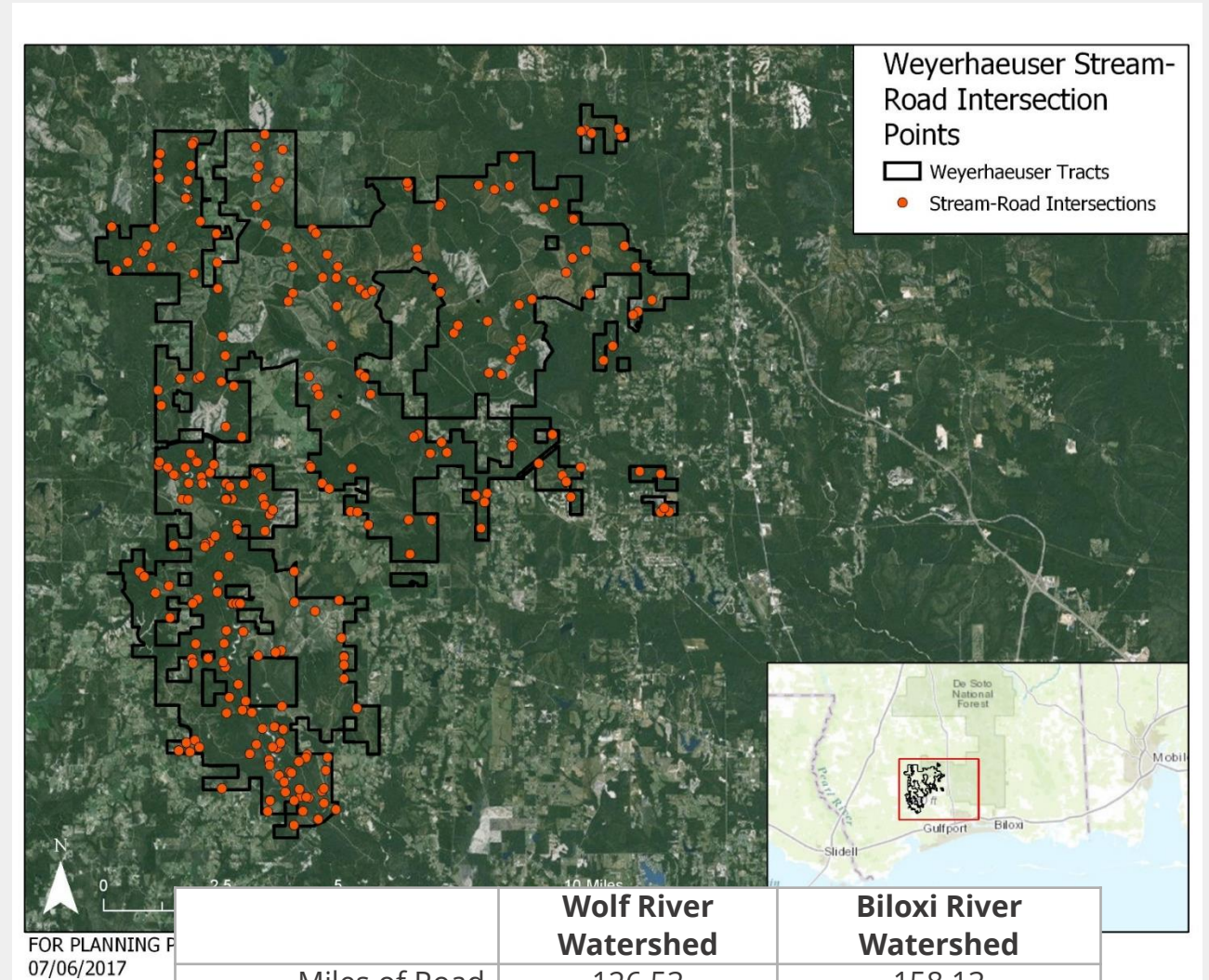
BY THE NUMBERS: WATER QUALITY

- Water quality analyses were run to determine the changes in water quality at the sub-watershed, reach, and pour-point scales

- Baseline: MDEQ purchases property
- Weyerhaeuser Actual: Current fertilization activities continue
- Scenario 1: Fertilize 4 years, extract hardwood 2 years, 3 years of regrowth
- Scenario 2: Fertilize 7 years, extract hardwood 2 years

	Weyerhaeuser Actual		Scenario 1		Scenario 2	
	Percent Change from Baseline %					
	Wolf	**Biloxi**	**Wolf**	**Biloxi**	**Wolf**	**Biloxi**
Nitrogen (kg/ha)	9.33	3.37	166.68	88.99	152.09	76.14
Organic P (kg/ha)	22.26	11.32	2140.36	633.21	1861.26	528.05
Organic N (kg/ha)	33.14	16.12	1318.56	455.63	1047.82	347.58
Sediment Yield (tons/ha)	64.23	16.29	2705.56	689.53	1984.29	493.58

Legend
- Stream Reaches
- Weyerhaeuser Tracts
- Wolf Subwatersheds
- Biloxi Subwatersheds
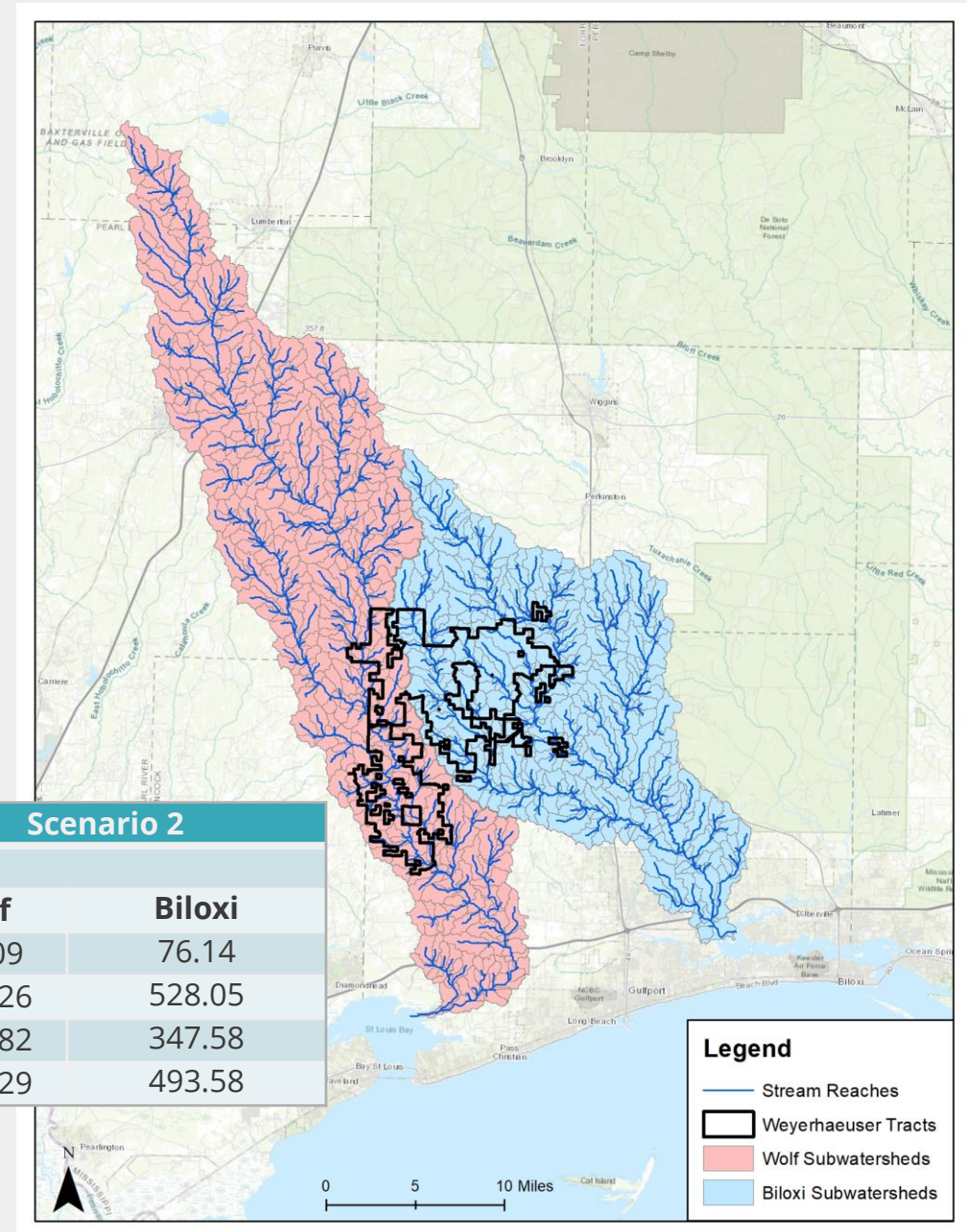
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BY THE NUMBERS: WATER QUANTITY

- Water quantity analyses were run to determine the changes in water quality at the sub-watershed, reach, and pour-point scales

- Baseline: MDEQ purchases property
- Weyerhaeuser Actual: Current fertilization activities continue
- Longleaf Restoration: Simulates a longleaf restoration ecosystem with associated Leaf Area Index (LAI)

	Weyerhaeuser Actual		Longleaf Restoration	
	Percent Change from Baseline (%)			
	Wolf	Biloxi	Wolf	Biloxi
Flow (cm/s)	0.04	0.25	8.1	14.6

Legend
- Stream Reaches
- Weyerhaeuser Tracts
- Wolf Subwatersheds
- Biloxi Subwatersheds

2017 RESTORATION SUMMIT

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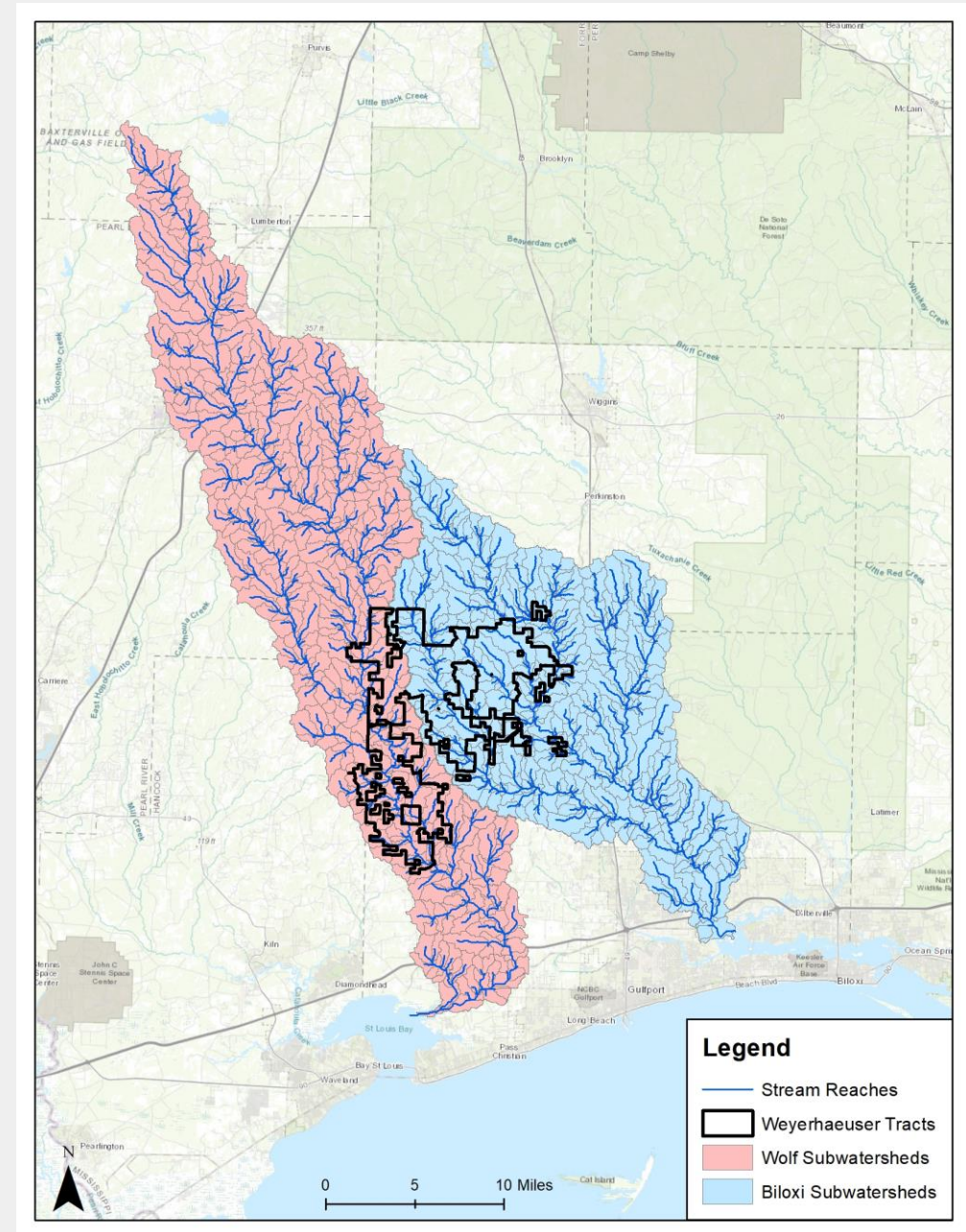
LEVERAGING TO IMPROVE WATER QUALITY

- **Water Quality Benefits**
  - **20,000 acres** of Long Leaf Restoration
  - High Recreation Use Potential
  - Several **Threatened and Endangered** Species
  - **Critical** Habitat Protection and Restoration
  - Significant **Quail Habitat**
  - Protection of a **Key Blueway**
  - Connectivity to **500,000 acres** of De Soto National Forest
  - Almost **60,000 acres** of connected Riparian and Long Leaf Habitat across three major drainage areas

  - MDEQ is committed to leveraging RESTORE funding for up to 20% of the overall acquisition to co-fund this **FIVE-STAR RESTORATION** project
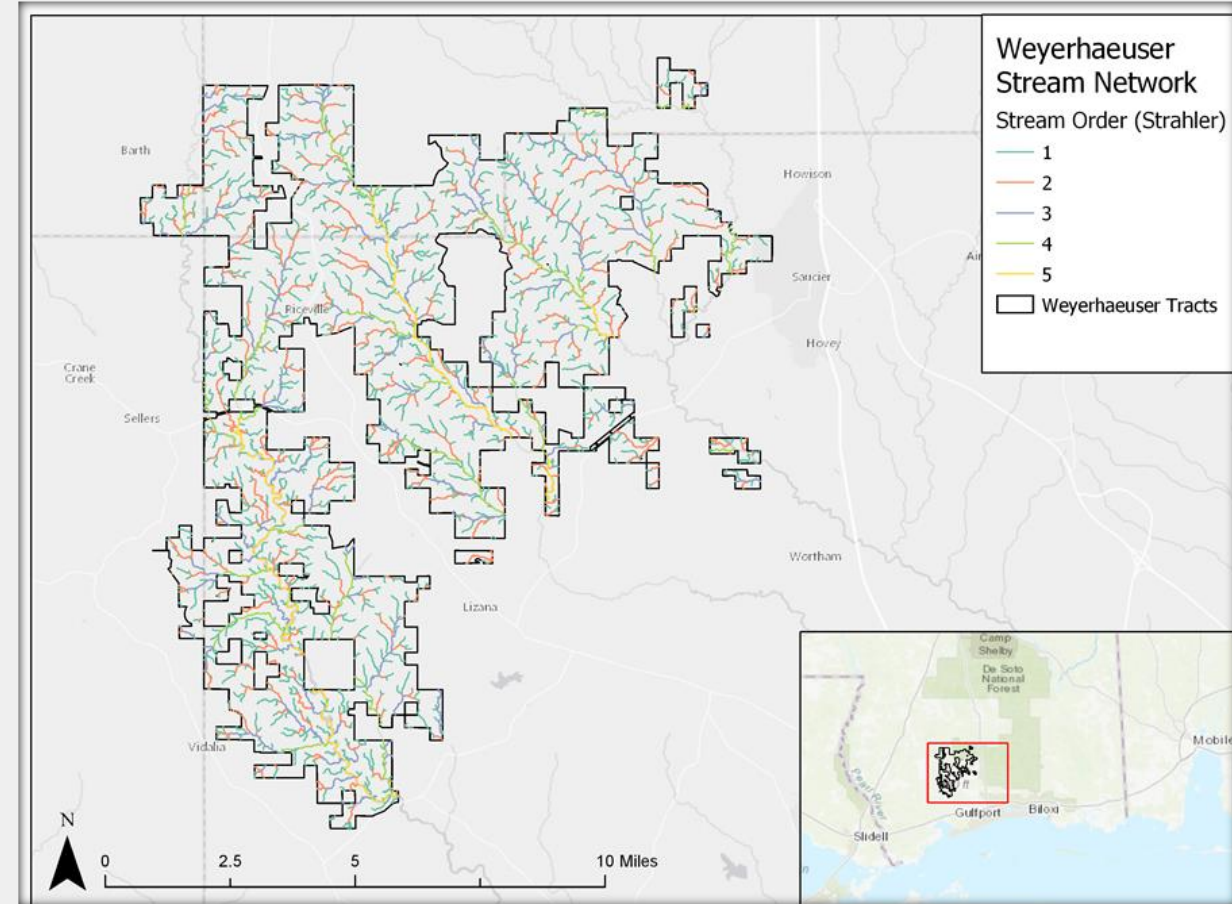
THANK YOU

For more information, visit www.restore.ms.