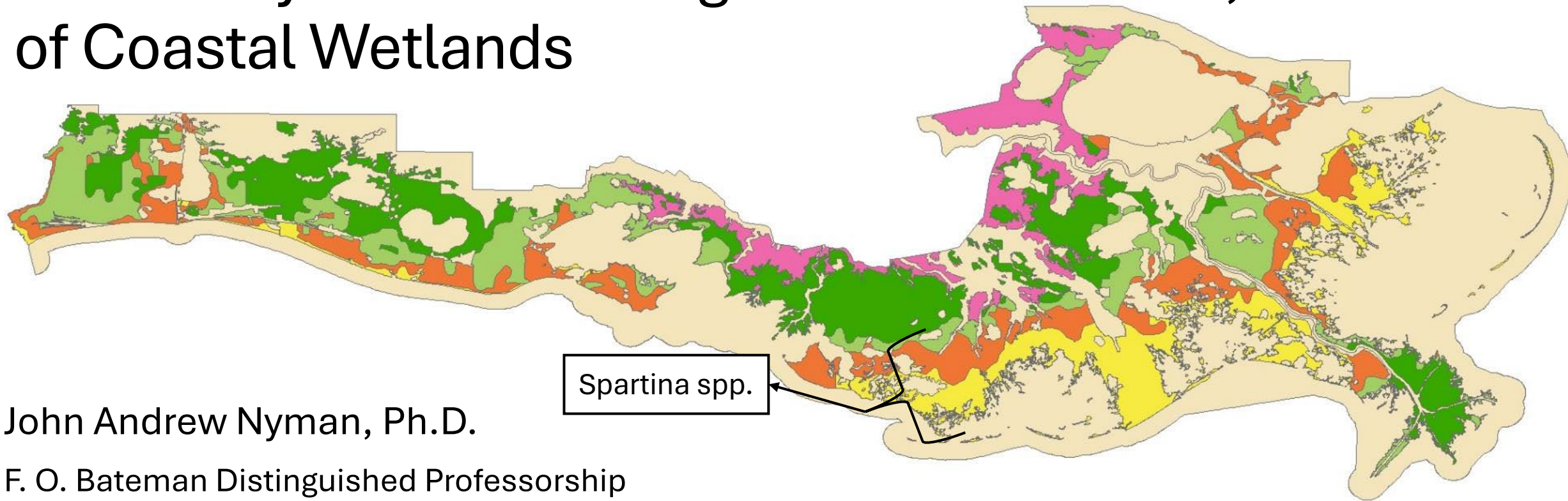


(Some) Success Controlling Ecosystem Damage Caused by Nutria and Hogs in Louisiana's 14,000 km² of Coastal Wetlands

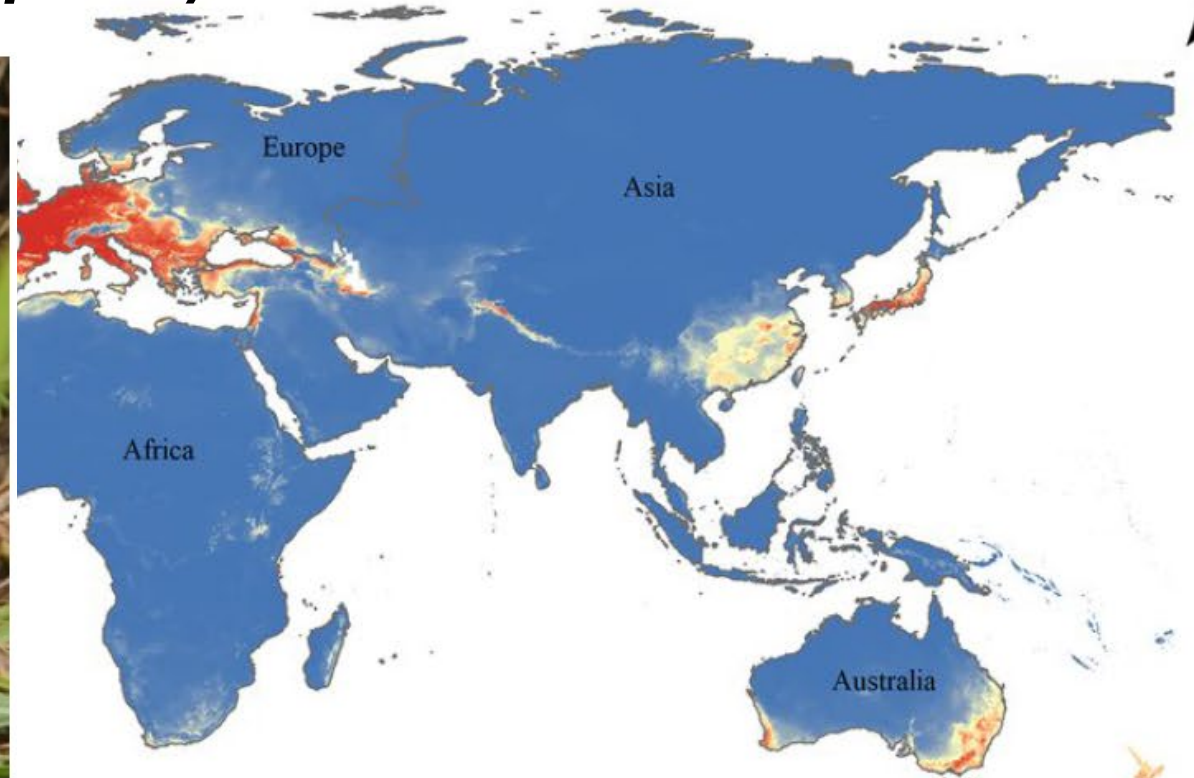


John Andrew Nyman, Ph.D.

F. O. Bateman Distinguished Professorship
School of Renewable Natural Resources & Coastal Studies Institute
Louisiana State University Agricultural Center & Louisiana State University

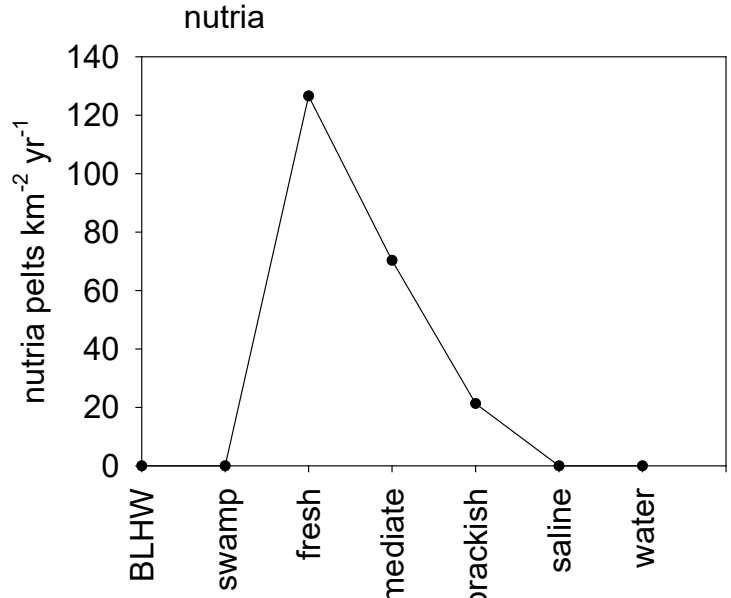
jnyman@lsu.edu

Nutria (*Myocastor coypus*)



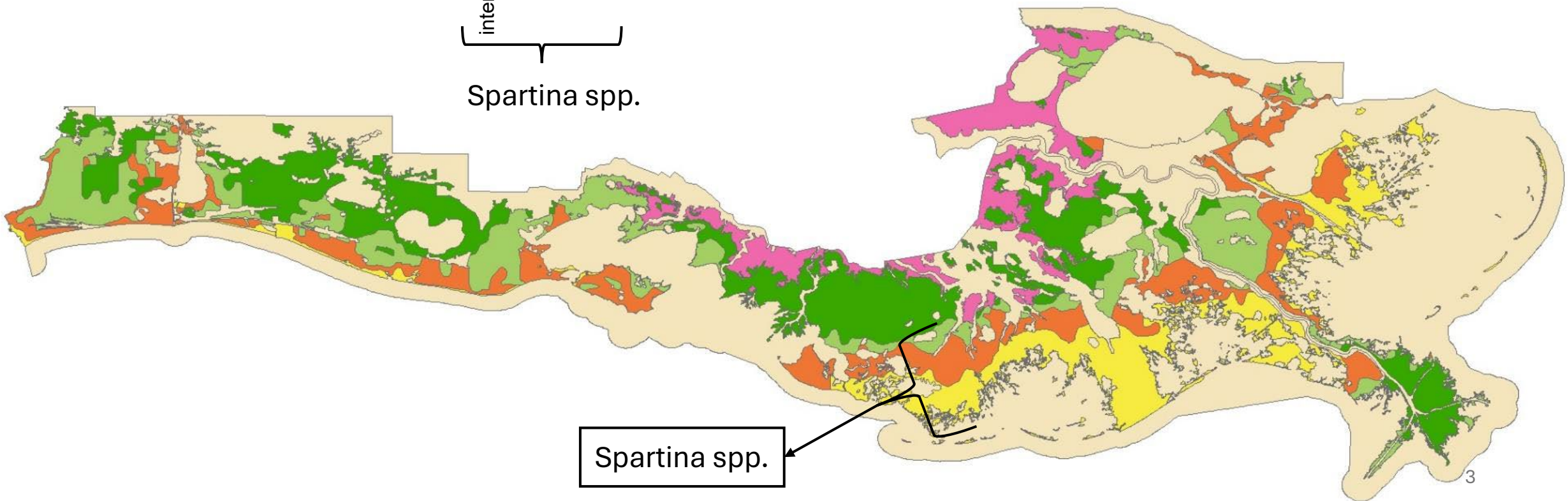
Listed among 100 of the World's Worst Invasive Alien Species

https://www.iucngisd.org/gisd/100_worst.php



Nutria prefer lower salinity marshes

Prefer = proportion used > proportion available



Nutria prefer plant species with higher N

Prefer = proportion used > proportion available

plant	utilized (%)	availability (%)	preference
<i>Bidens laevis</i>	0.1	0.7	0.1 (7.9 % protein)
<i>Alternanthera philoxeroides</i>	8.2	7.3	1.1 (8.8 % protein)
<i>Lemna minor</i>	55.5	37.2	1.5 (14.8% protein)

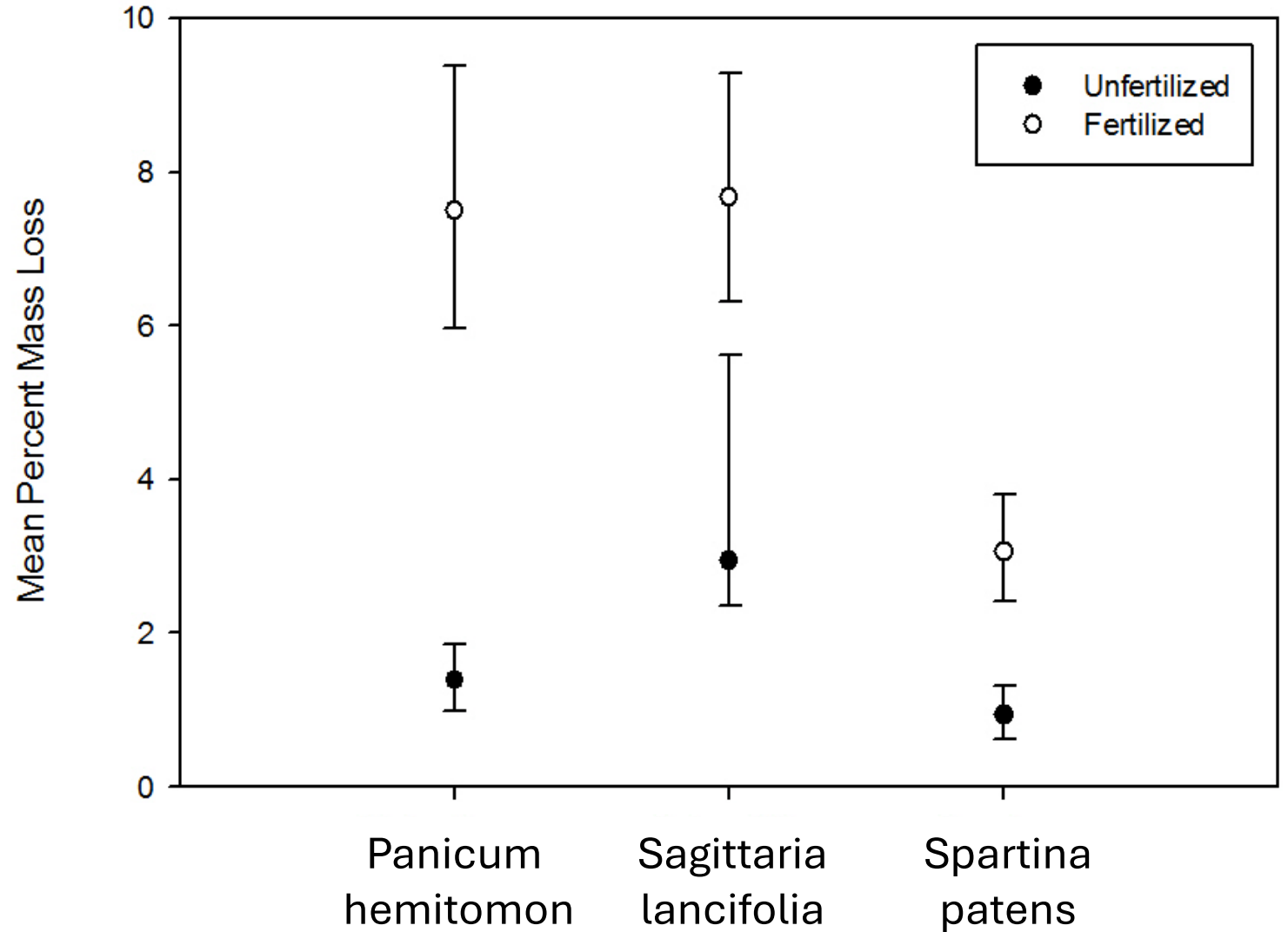
Wilsey and Chabreck 1991. Northeast Gulf Science 12:67-72.

DOI: 10.18785/negs.1201.08



Within plant species,
nutria prefer individual
plants with higher N

Prefer = proportion used > proportion
available



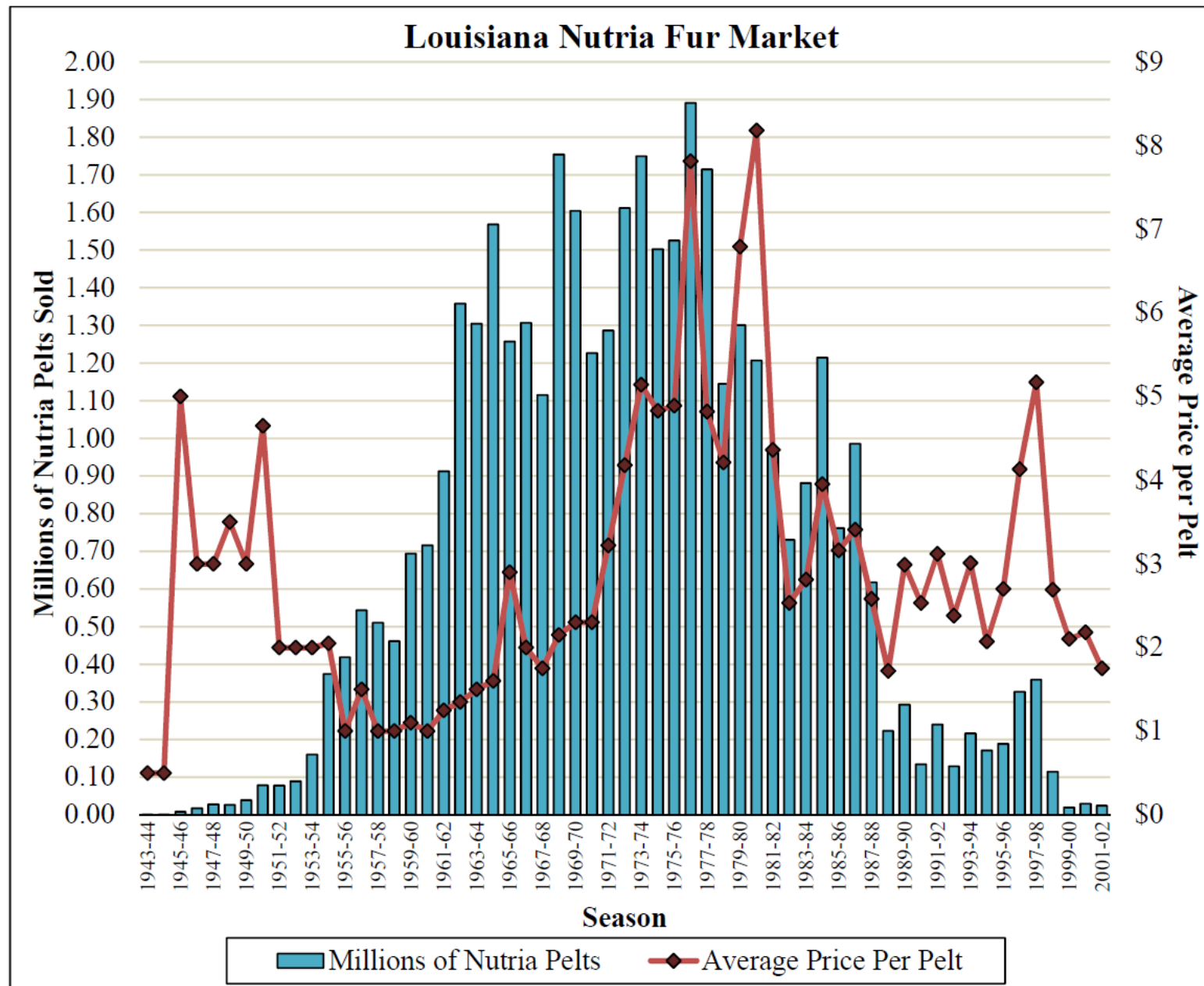
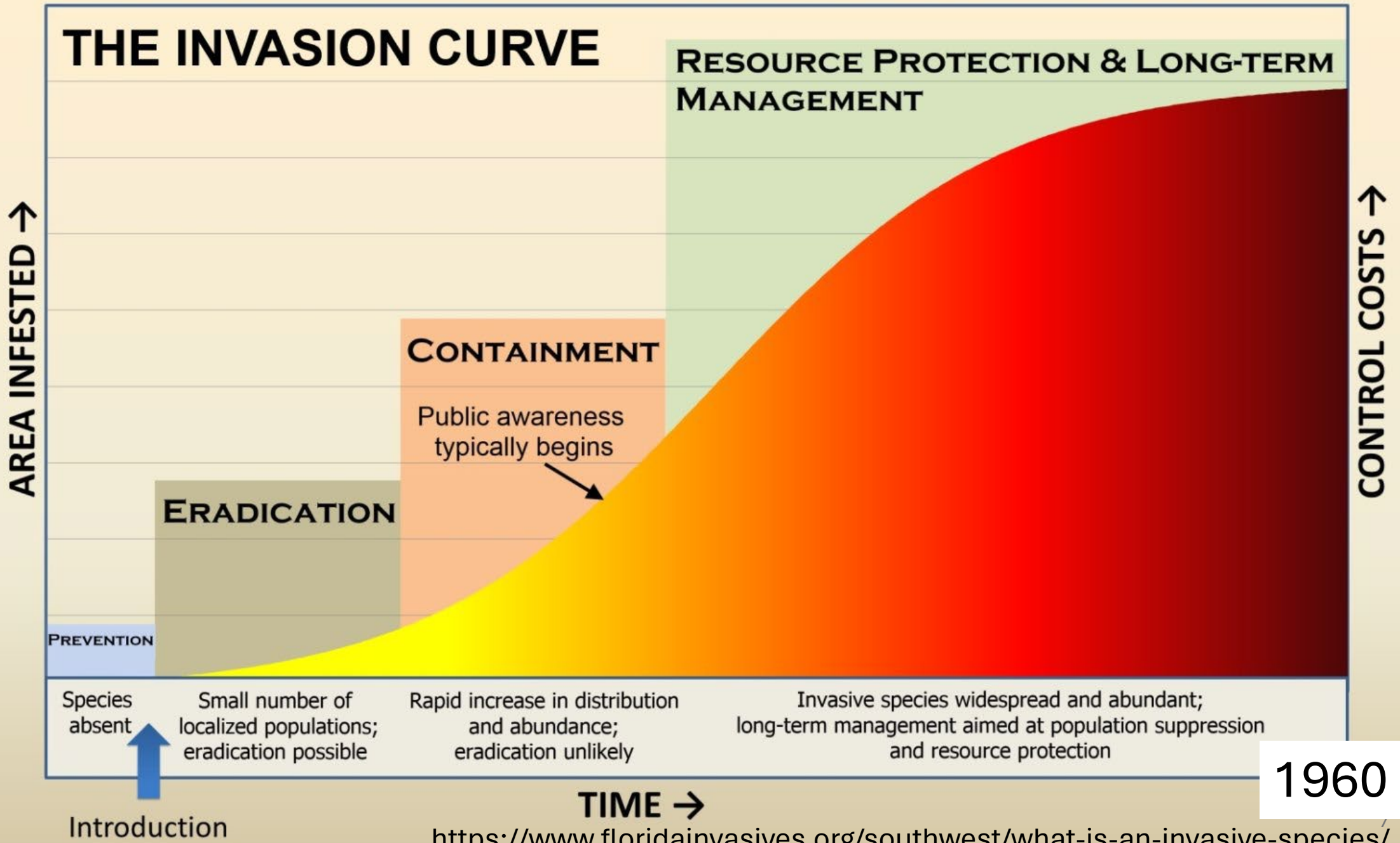
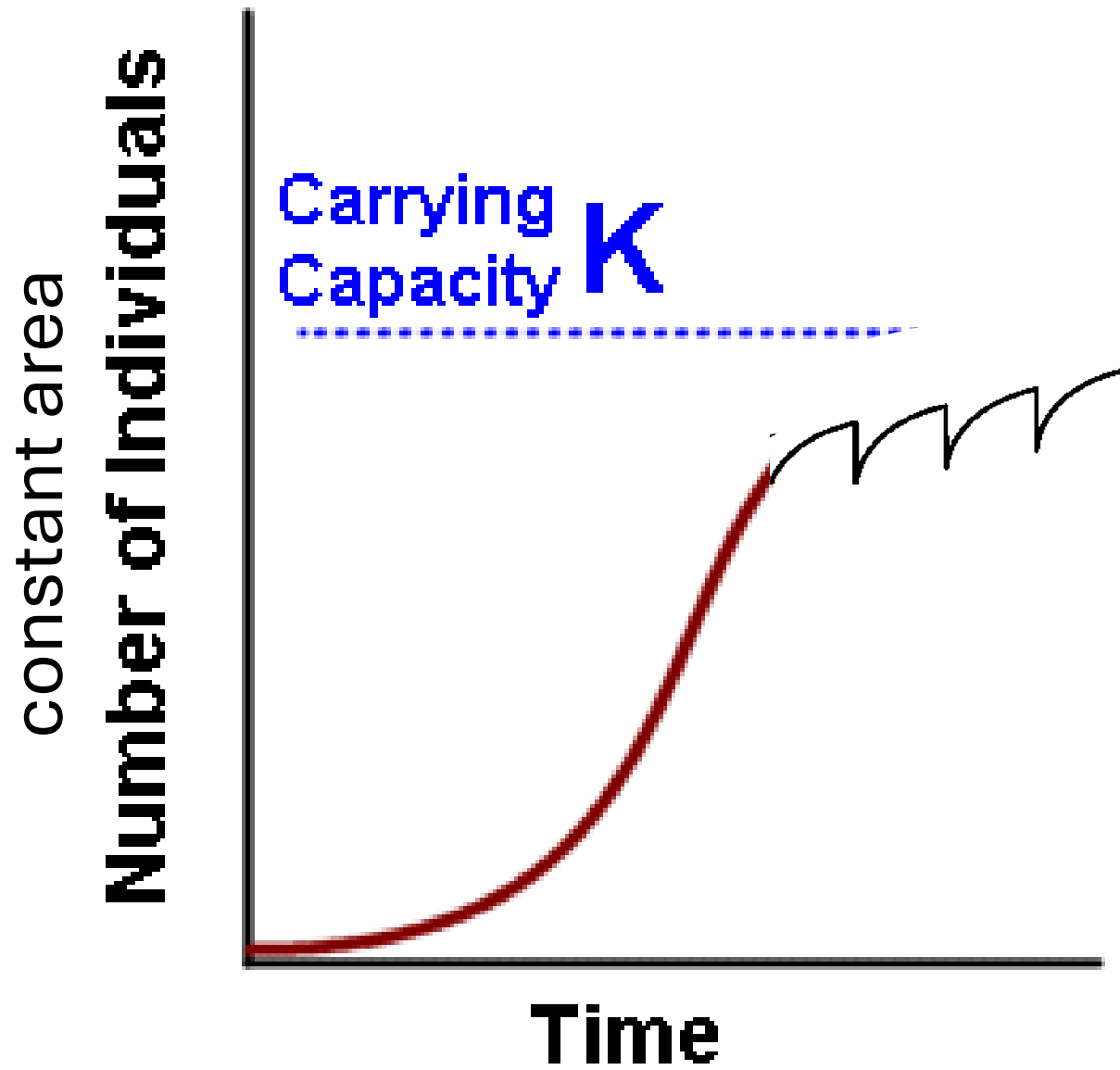


Figure 1. Louisiana fur market 1943 – 2002 (the season prior to CNCP implementation).

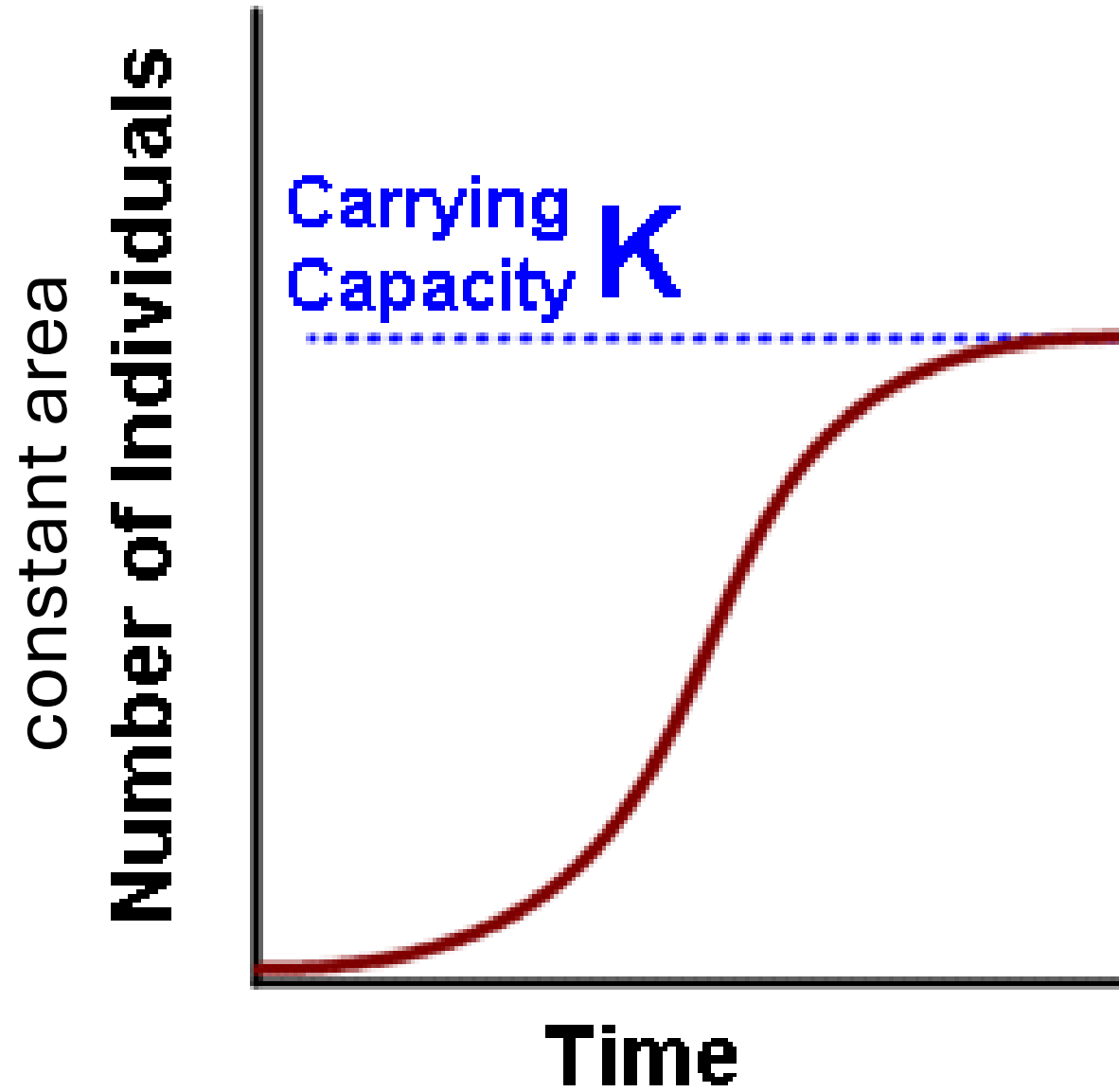
<https://nutria.com/nutria-control-program/program-updates/>

THE INVASION CURVE





1950s-1980:
commercial
nutria trapping
>400,000 nutria
annually



1990s: no
commercial
nutria trapping
<400,000 nutria
annually



Wetland Functions

- vegetation
- habitat for resident and migratory wildlife
- habitat for resident and estuarine-dependent nekton
- water quality improvement
 - river/surface/ground water
 - tidal water
- flood height reduction
 - river water
 - tidal water (forests more than marshes)
- carbon storage
- *offset subsidence and sea-level rise via peat formation and sediment trapping (coastal wetlands)*

functions benefit
landowner

functions benefit
people
downstream
and offsite



www.righteousfur.com



<http://www.marshdog.com>



It's our **Neaux**-est culinary hit!

Wild nutria are fussy herbivores, eating only the most nutritious parts of Louisiana plants. Their healthy diet gives you one too: High in protein and low in fat and cholesterol. And at less than \$1.00 a pound, nutria is a smart choice.

Nutria meat, also called ragondin, is very clean with a delicious game flavor similar to rabbit. Louisiana's greatest chefs are cooking and serving Neaux-tria!

Which has...	NUTRIA	TURKEY	CHICKEN	BEEF
the Most Protein?	22.1	21.8	21.4	16.6
the Least Fat?	1.5	2.9	3.1	26.6
the Lowest Cholesterol?	40.1	65	70	85

grams per 100 grams: Source: Pennington Biomedical Research Center

For more information contact:

Edmond Mouton
LA Department of Wildlife & Fisheries
tel: 337.373.0032

or LeAnne Weill
leanne@weillagency.com
tel: 225.769.7020

<http://www.nutria.com>



Coastwide Nutria Control Program (LA-03b)

- 2002 to present
- goal is to encourage the harvest of up to 400,000 nutria annually
- funded by tax payers
- ~~bounty~~ economic incentive payment of ~~\$4~~ ~~\$5~~ \$6 per nutria tail delivered to
 - registered participants
 - for nutria from approved/damaged areas

<https://nutria.com/nutria-control-program/>

<https://lacoast.gov/new/Projects/List.aspx>



Coastwide Nutria Control Program (LA-03b)

- Damage to wetlands now rare.
- Average of \$1,585,137 yr⁻¹ (2002-2021)
- Average of 310,470 nutria yr⁻¹ (2002-2021)
- Average of \$51.05 nutria yr⁻¹ (2002-2021)

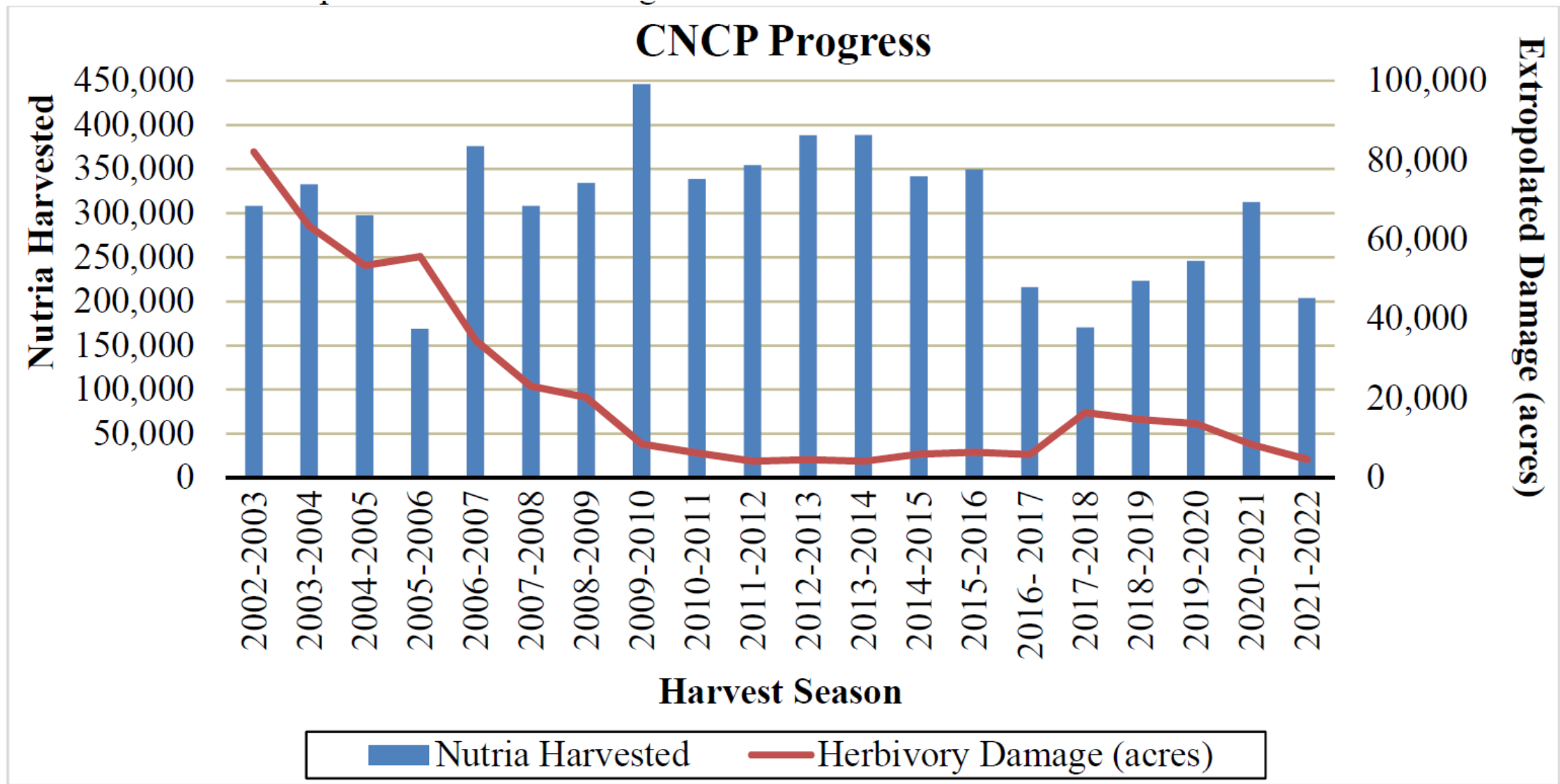
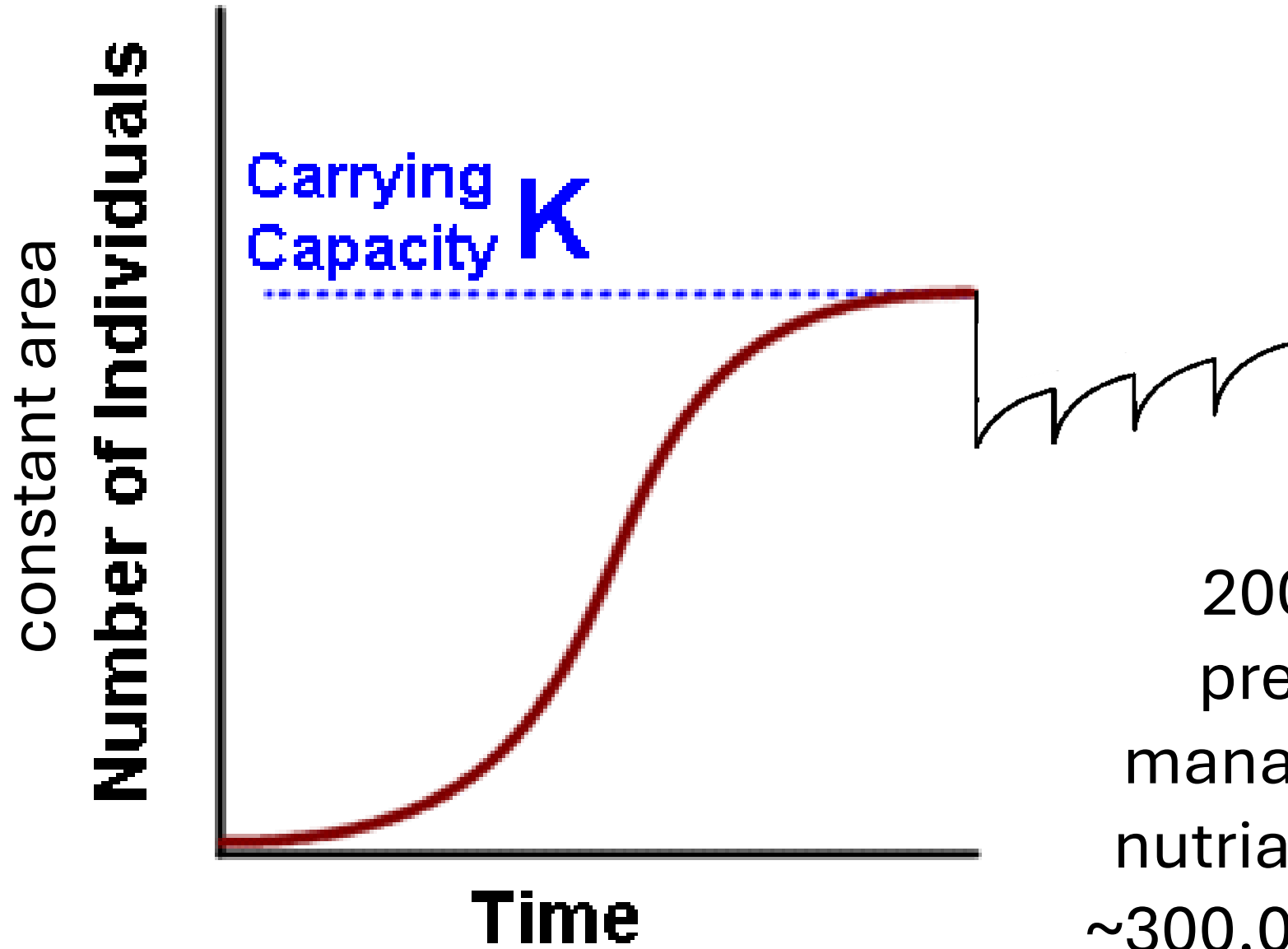


Figure 15. Nutria harvest and coastwide nutria herbivory damage. The low harvest during the 2005-2006 season is attributed to the coastwide disruptions caused by Hurricane Katrina in August 2005.



constant area

Number of Individuals

Carrying Capacity K

Time

2000's –
present:
management
nutria hunting
~300,000 nutria
annually

Reasons why the Coastwide Nutria Control Program is a success

- Program focuses on reducing nutria damage, not on eliminating nutria
 - Public support and \$\$\$ for coastal wetlands.
 - Data
 - Initial data relating nutria harvest to wetland damage.
 - Annual surveys for nutria damage.
 - Data used annually to revise harvest areas.

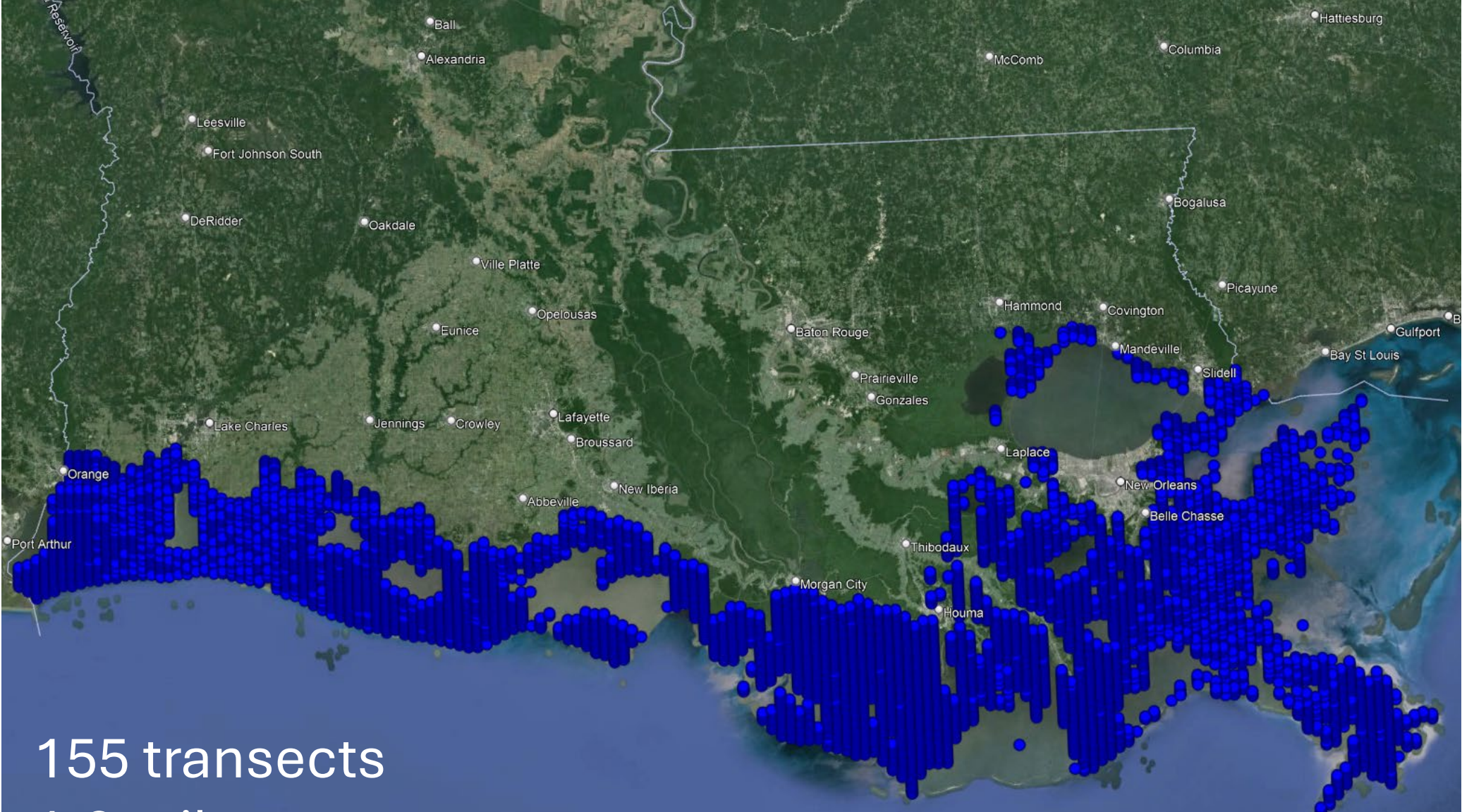


PROSPECT

155 transects
1.8 miles apart
2,354.7 miles (12,432,816 km) total
annually since 2003

Image © 2024 Maxar Technologies

Google Earth



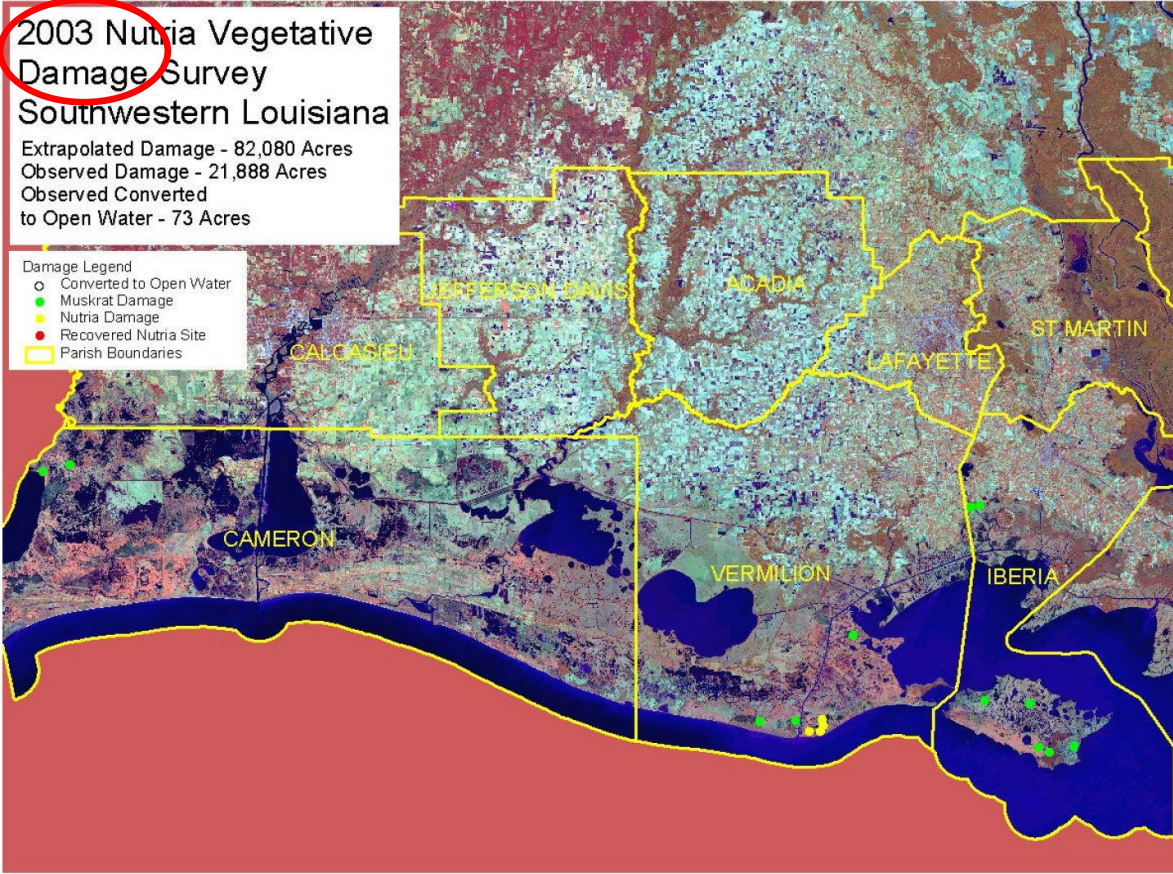
155 transects
1.8 miles apart
2,354.7 miles (12,432,816 km) total
annually since 2003

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Image © 2024 TerraMetrics

**2003 Nutria Vegetative
Damage Survey
Southwestern Louisiana**

Extrapolated Damage - 82,080 Acres
Observed Damage - 21,888 Acres
Observed Converted
to Open Water - 73 Acres

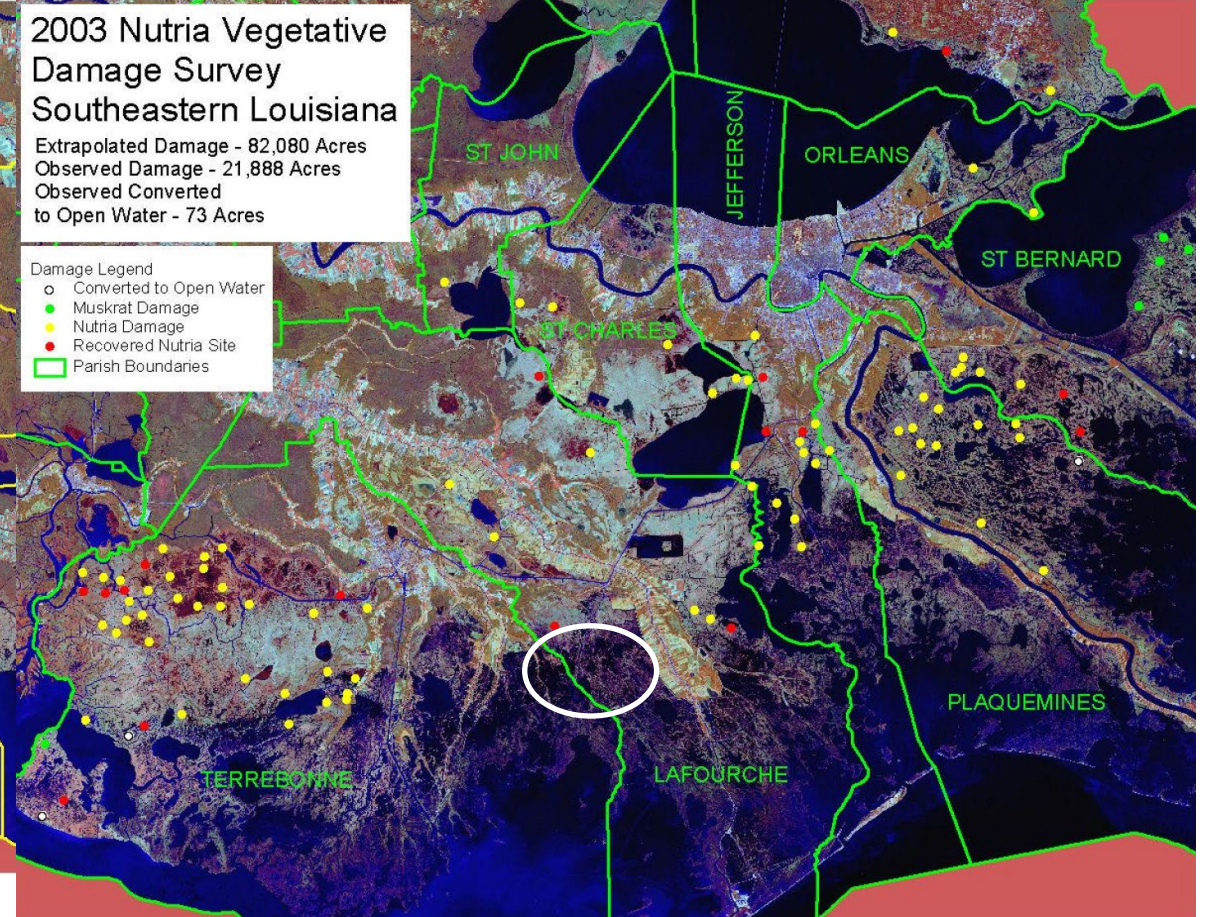
- Damage Legend
- Converted to Open Water
 - Muskrat Damage
 - Nutria Damage
 - Recovered Nutria Site
 - ▭ Parish Boundaries

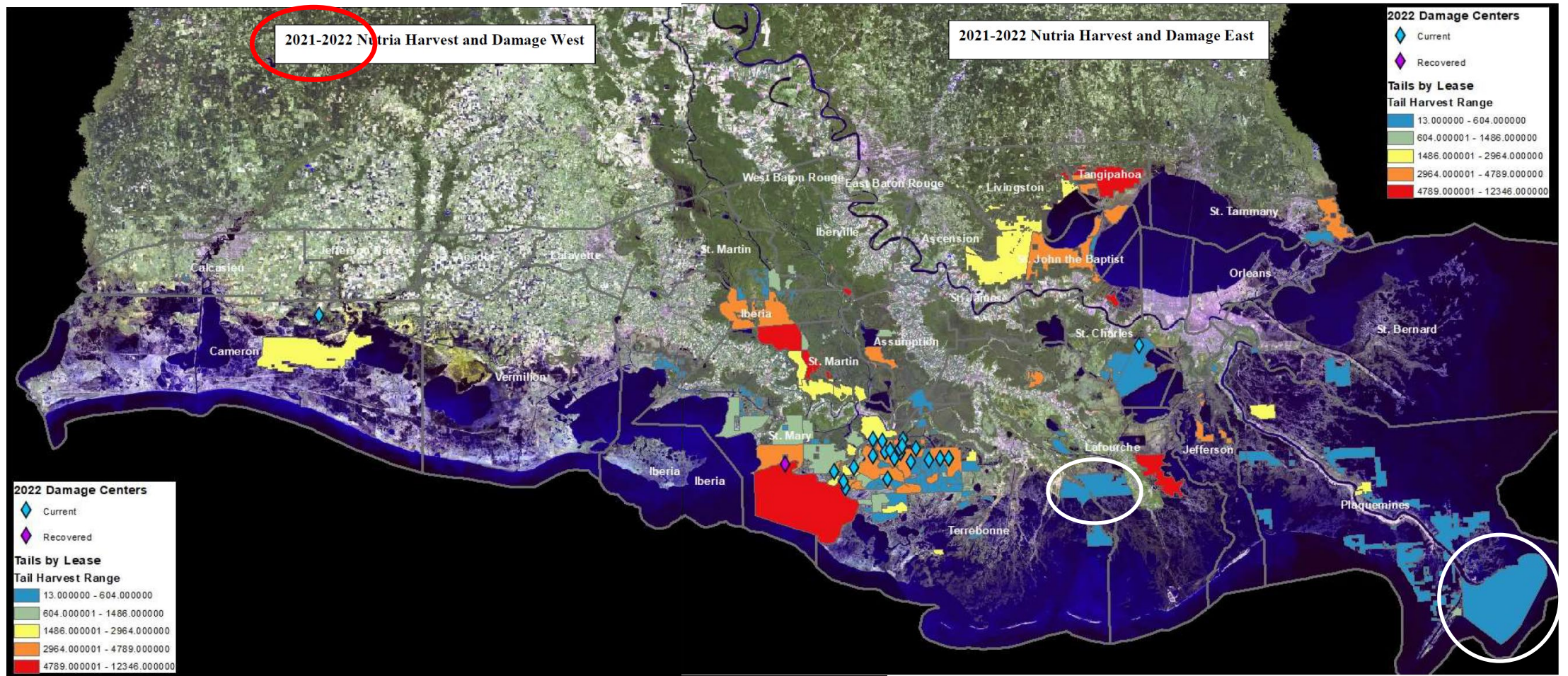


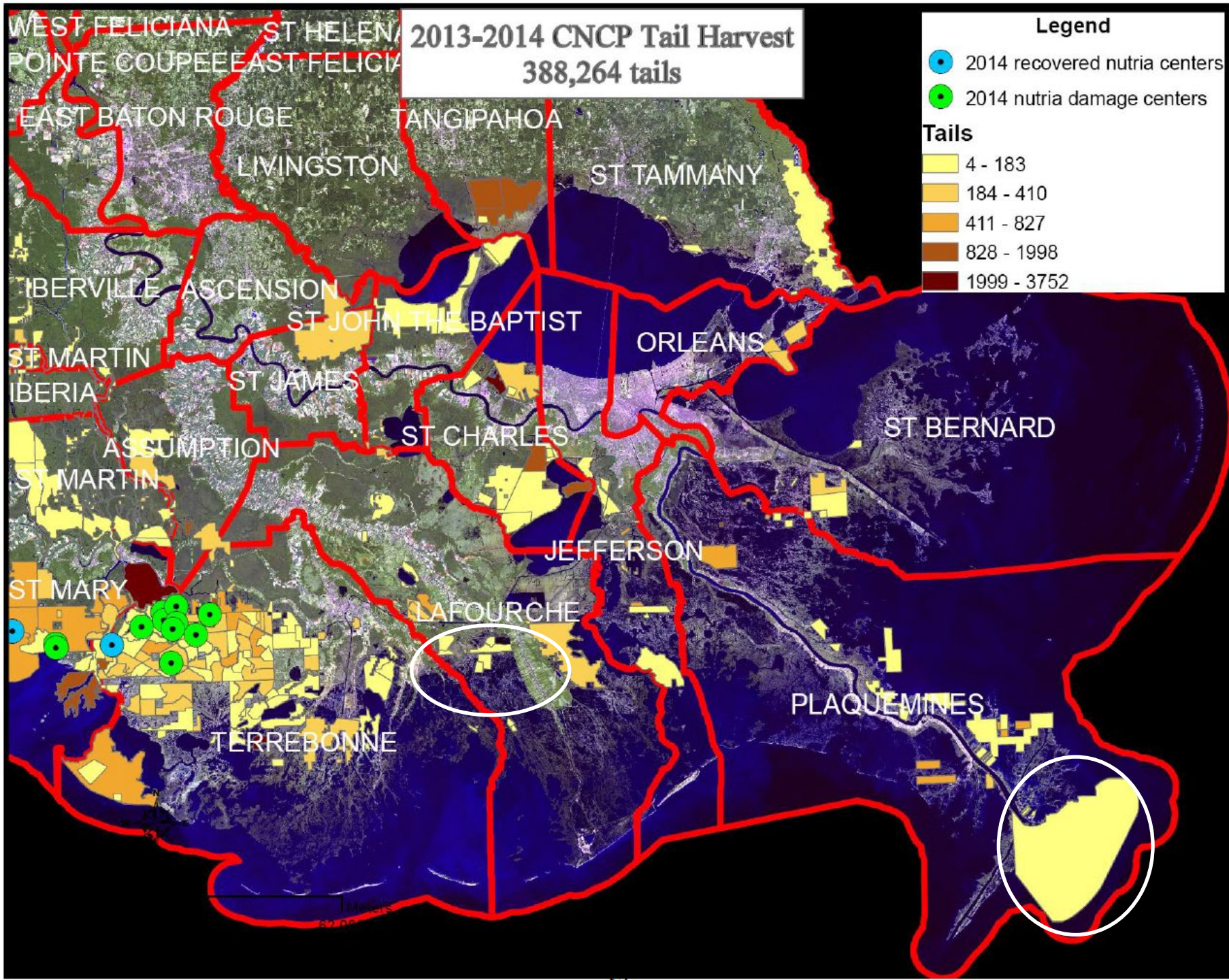
**2003 Nutria Vegetative
Damage Survey
Southeastern Louisiana**

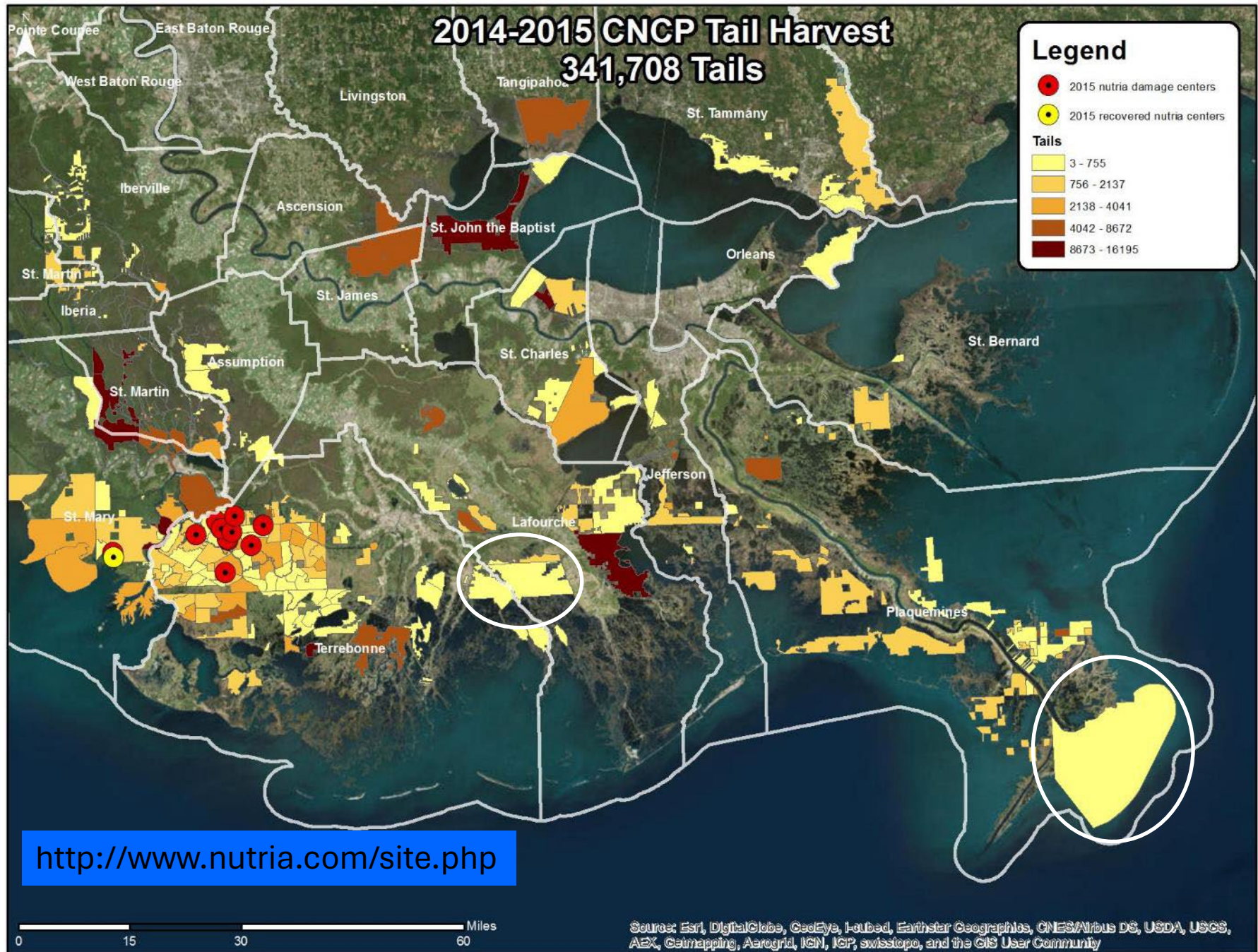
Extrapolated Damage - 82,080 Acres
Observed Damage - 21,888 Acres
Observed Converted
to Open Water - 73 Acres

- Damage Legend
- Converted to Open Water
 - Muskrat Damage
 - Nutria Damage
 - Recovered Nutria Site
 - ▭ Parish Boundaries











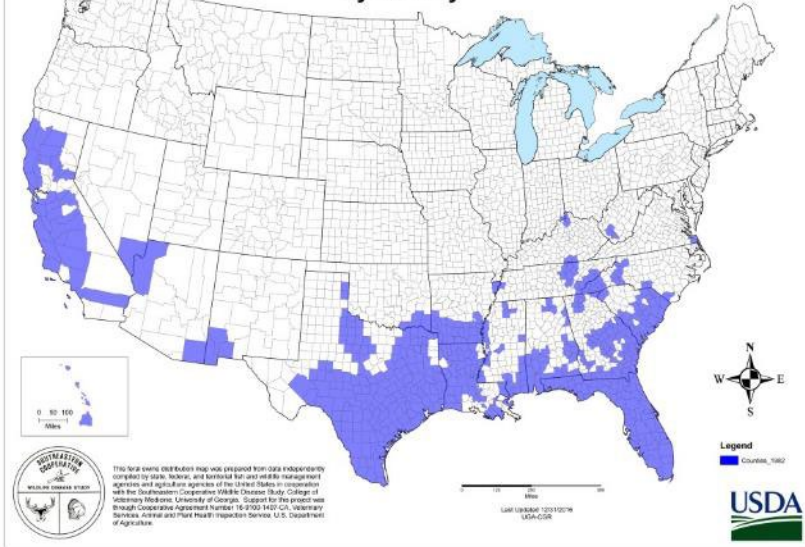
2014
exclosures at Pass
A Loutre WMA
revealed pervasive
impacts of nutria
on vegetation and
soil elevation.

Nutria impacts are
so ubiquitous that
people are blind to
them unless
exclosures are
used or damage is
extreme.

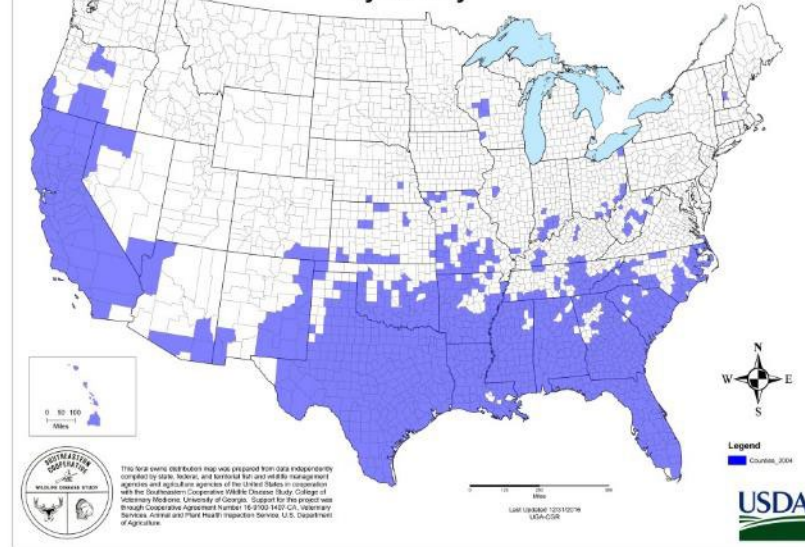


- Feral swine/hogs/pigs/boars (*Sus scrofa*, and *S. scrofa* - *S. domesticus* hybrids)
- Damage
 - agriculture (trees, crops and livestock)
 - Consume native wildlife and damage native wildlife habitat
- Damages and control cost \$1.5 billion annually.
- These damages and costs rise as feral swine populations rise.

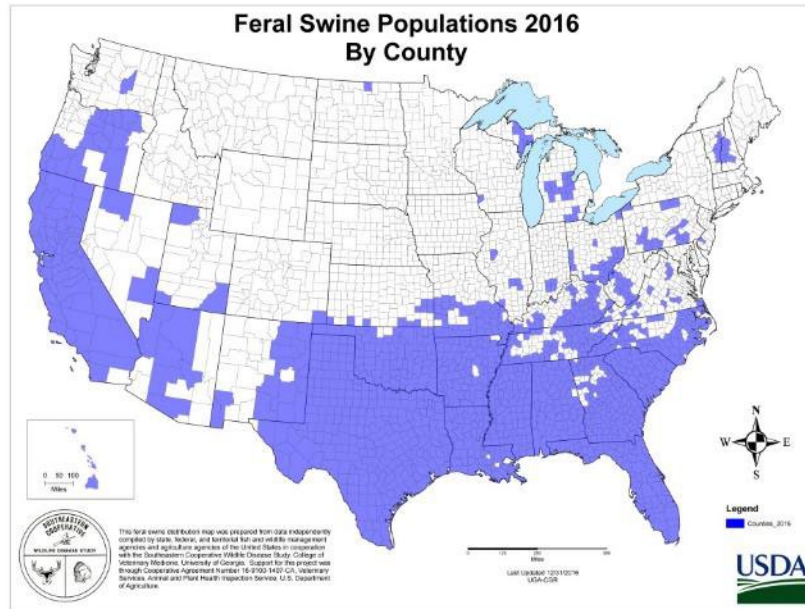
**Feral Swine Populations 1982
By County**



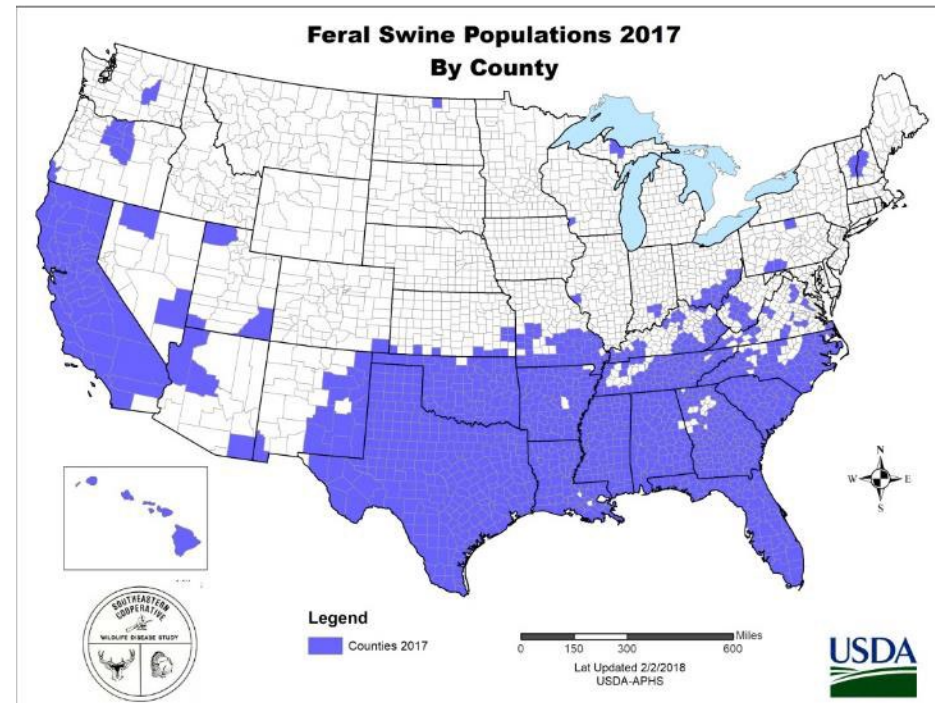
**Feral Swine Populations 2004
By County**



**Feral Swine Populations 2016
By County**



**Feral Swine Populations 2017
By County**















10 miles
16.1 km

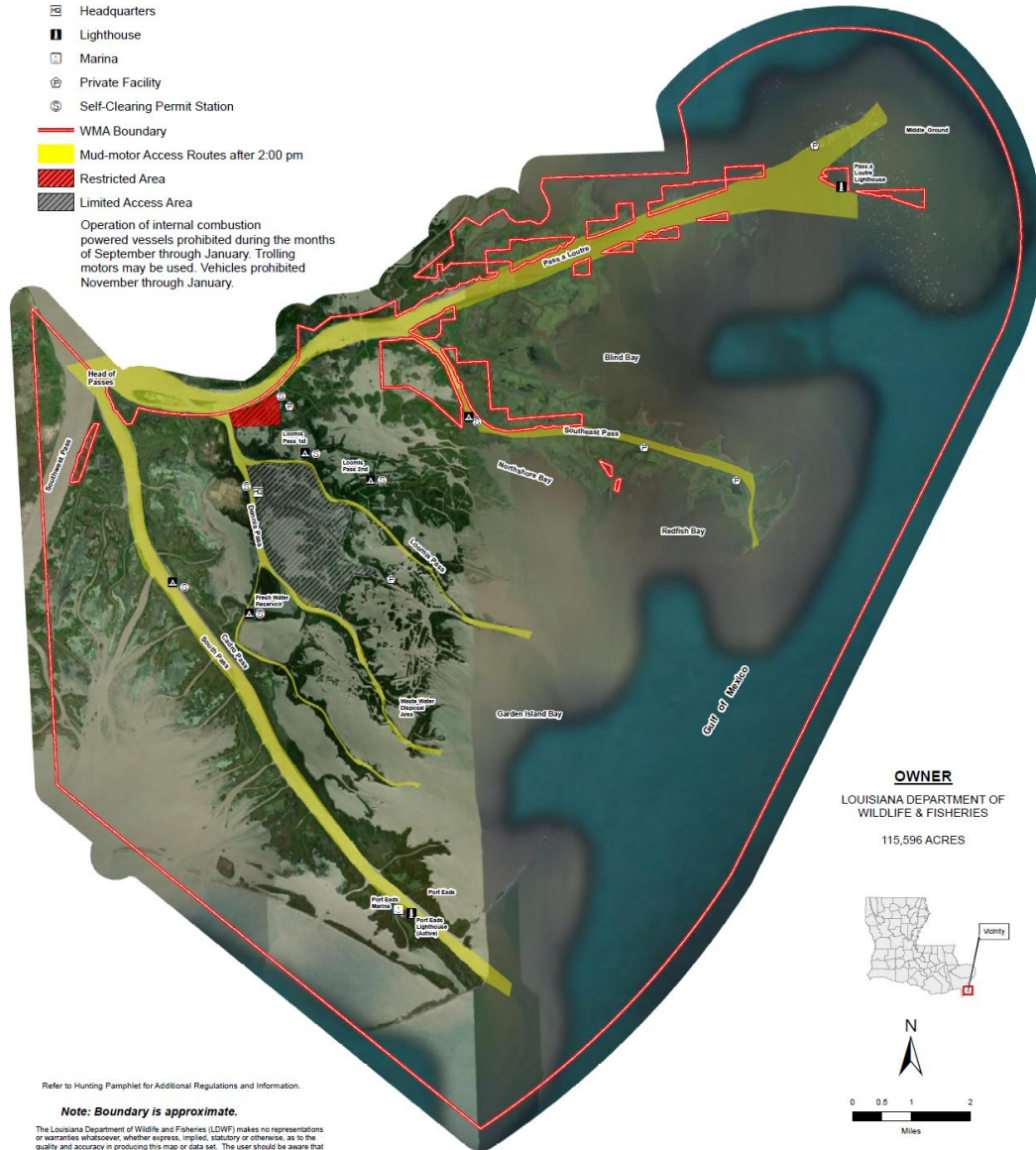
Copernicus Sentinel-2-L2A
6 Feb 2024

PASS A LOUTRE WILDLIFE MANAGEMENT AREA

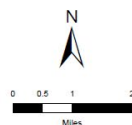
JUNE 2020

-  Camping
-  Headquarters
-  Lighthouse
-  Marina
-  Private Facility
-  Self-Cleaning Permit Station
-  WMA Boundary
-  Mud-motor Access Routes after 2:00 pm
-  Restricted Area
-  Limited Access Area

Operation of internal combustion powered vessels prohibited during the months of September through January. Trolling motors may be used. Vehicles prohibited November through January.



OWNER
LOUISIANA DEPARTMENT OF
WILDLIFE & FISHERIES
115,596 ACRES



Refer to Hunting Pamphlet for Additional Regulations and Information.

Note: Boundary is approximate.

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- Recreational hog hunting is allowed ~167 days yr¹ in 2013 and 2014.
- Recreational hunters were guesstimated to have taken ~ 38 hogs yr¹.

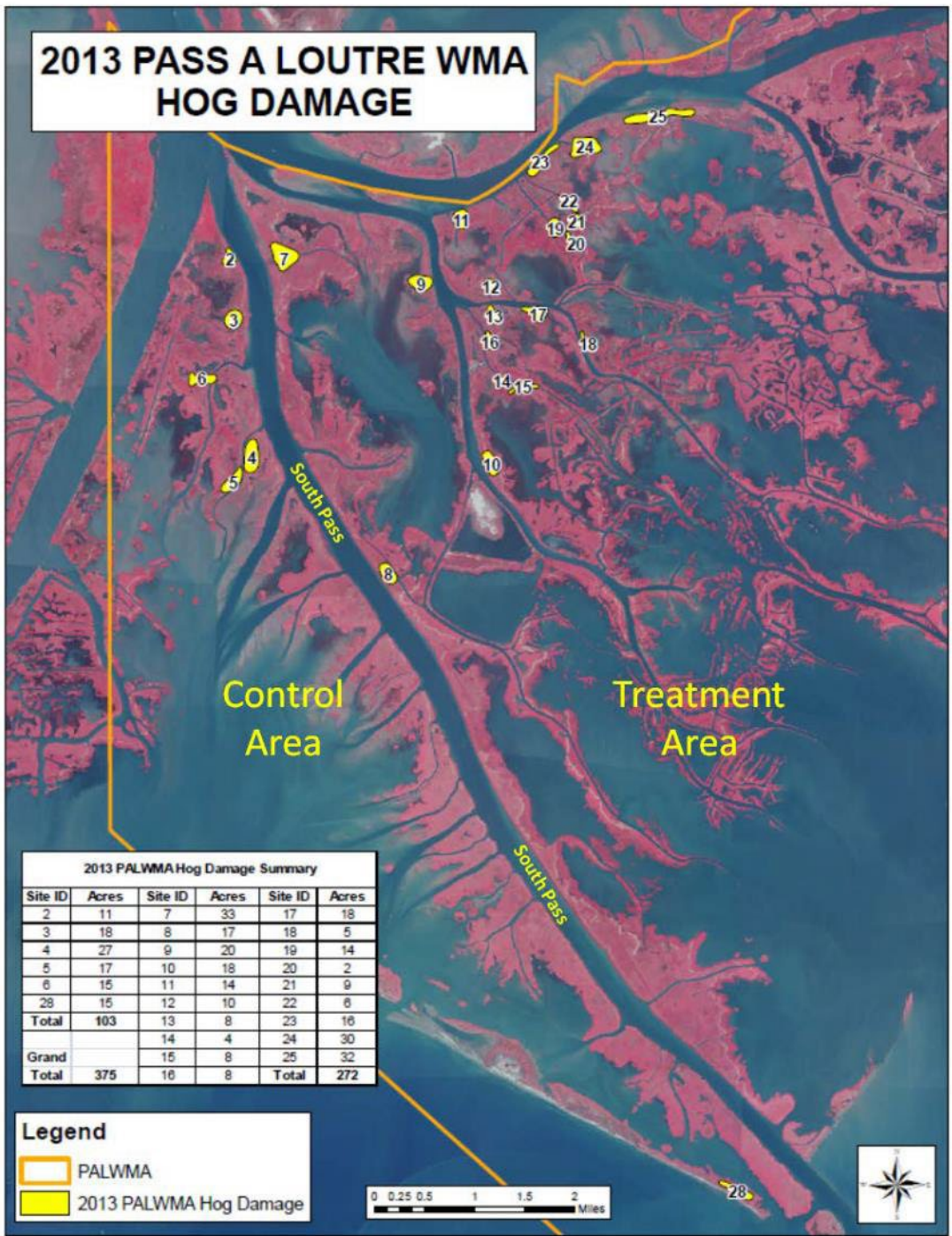


UTC 2013-03-05 13:36:33



UTC 2013-03-05 13:36:25

2013 PASS A LOUTRE WMA HOG DAMAGE



2013 PALWMA Hog Damage Summary

Site ID	Acres	Site ID	Acres	Site ID	Acres
2	11	7	33	17	18
3	18	8	17	18	5
4	27	9	20	19	14
5	17	10	18	20	2
6	15	11	14	21	9
28	15	12	10	22	8
Total	103	13	8	23	16
		14	4	24	30
Grand Total	375	15	8	25	32
		16	8	Total	272

Legend
 PALWMA
 2013 PALWMA Hog Damage



USFWS/LDWF Cooperative Endeavor Project

Hog Removal to Reduce Hog Marsh Damage and Restore Freshwater Habitat for Nesting Mottled Ducks and Secretive Marsh Birds in the Mississippi River Bird-foot Delta

Project Report

May 10, 2018

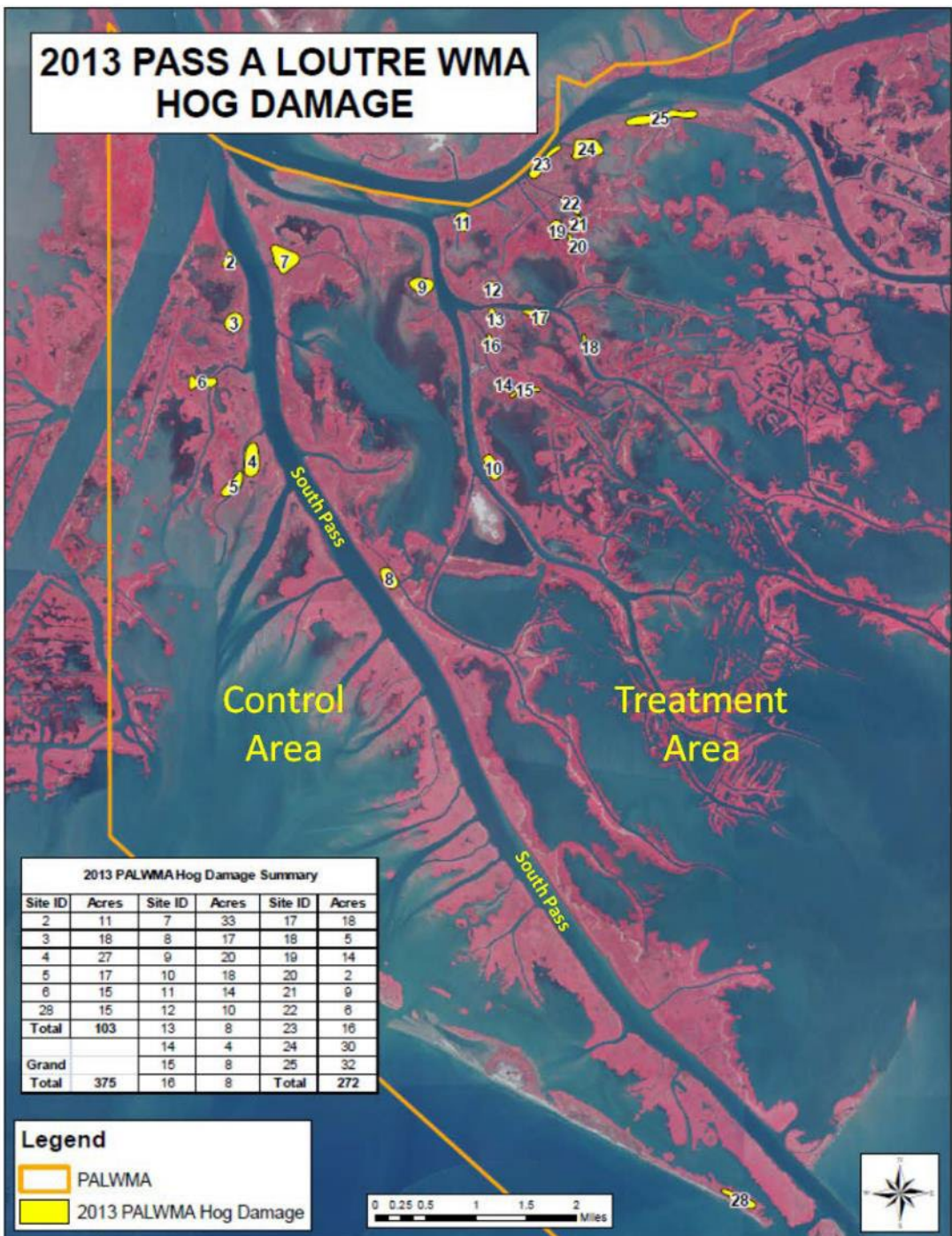


2103

145 hogs killed in
~18,900 ac (~7,650 ha)

130 ac/hog
53 ha/hog

2013 PASS A LOUTRE WMA HOG DAMAGE



2013 PALWMA Hog Damage Summary

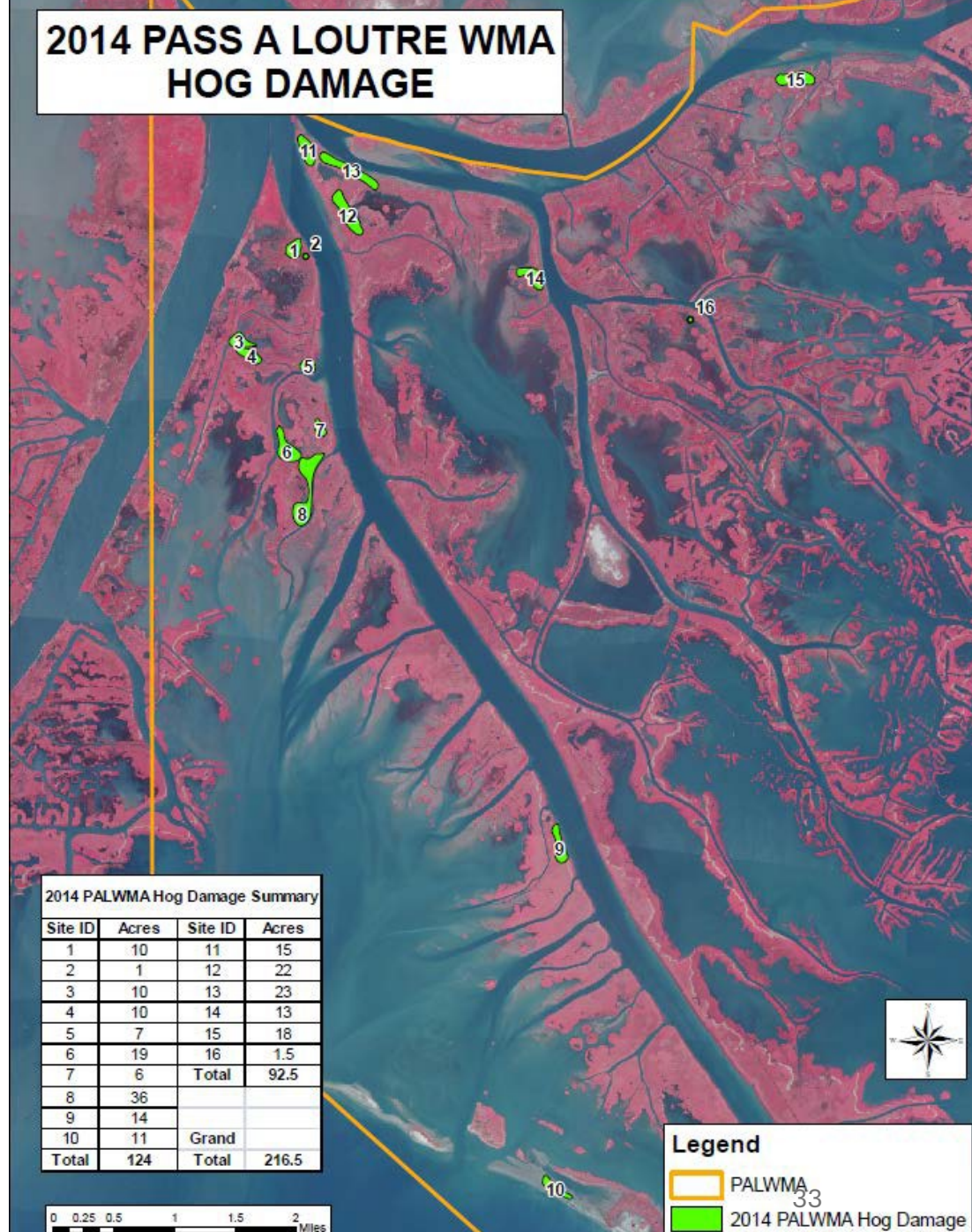
Site ID	Acres	Site ID	Acres	Site ID	Acres
2	11	7	33	17	18
3	18	8	17	18	5
4	27	9	20	19	14
5	17	10	18	20	2
6	15	11	14	21	9
28	15	12	10	22	6
Total	103	13	8	23	16
		14	4	24	30
Grand Total	375	15	8	25	32
		16	8	Total	272

Legend

- PALWMA
- 2013 PALWMA Hog Damage



2014 PASS A LOUTRE WMA HOG DAMAGE



2014 PALWMA Hog Damage Summary

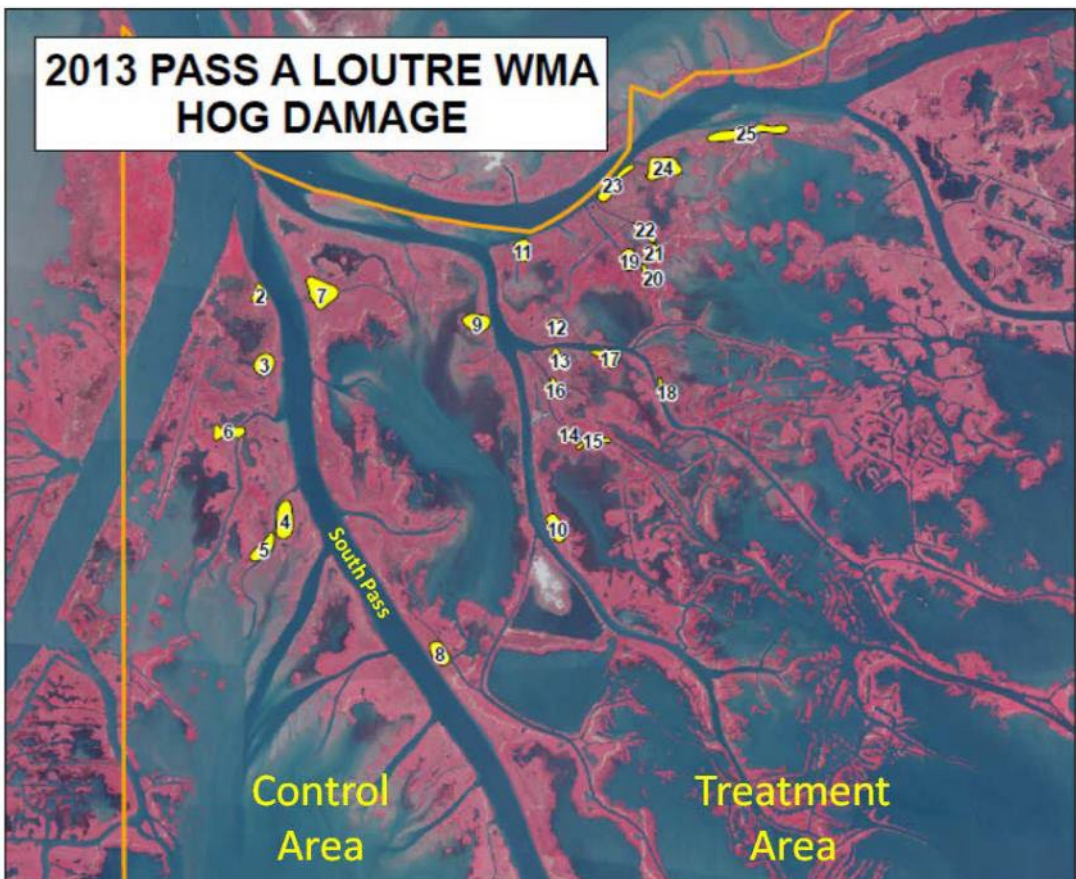
Site ID	Acres	Site ID	Acres
1	10	11	15
2	1	12	22
3	10	13	23
4	10	14	13
5	7	15	18
6	19	16	1.5
7	6	Total	92.5
8	36		
9	14		
10	11	Grand	
Total	124	Total	216.5

Legend

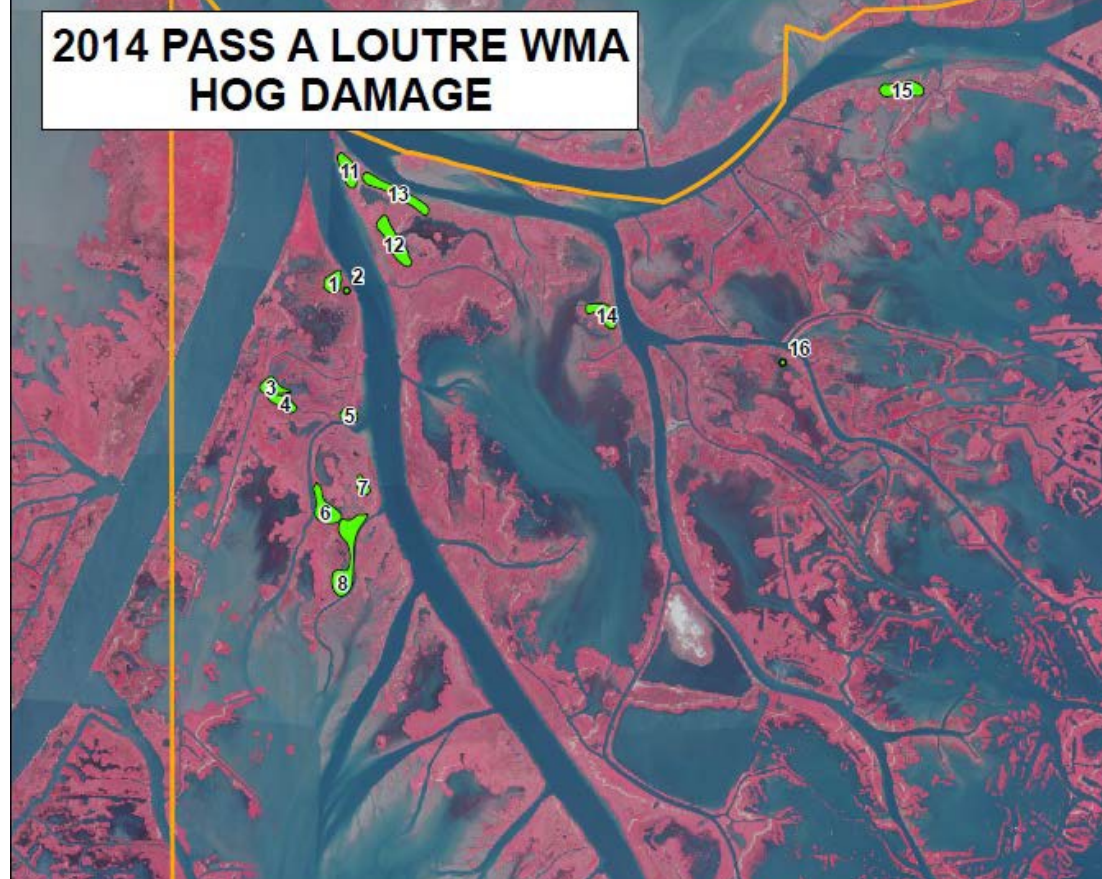
- PALWMA
- 2014 PALWMA Hog Damage



2013 PASS A LOUTRE WMA HOG DAMAGE



2014 PASS A LOUTRE WMA HOG DAMAGE



	damaged sites		damaged acres		damage severity		hogs killed
	treatment	control	treatment	control	treatment	control	control
2013	19	6	272	106	1.7	1.3	145
2014	6	10	92	124	1.1	1.0	65
% change	-68%	+67%	-66%	+20	-35%	-23%	-45%

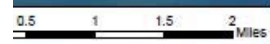
Site ID
2
3
4
5
6
28
Total
Grand Total

Legend
 PALWMA
 2013 PALWMA Hog Damage



>>\$290/hog

11	Grand
124	Total
216.5	



Legend
 PALWMA
 2014 PALWMA Hog Damage





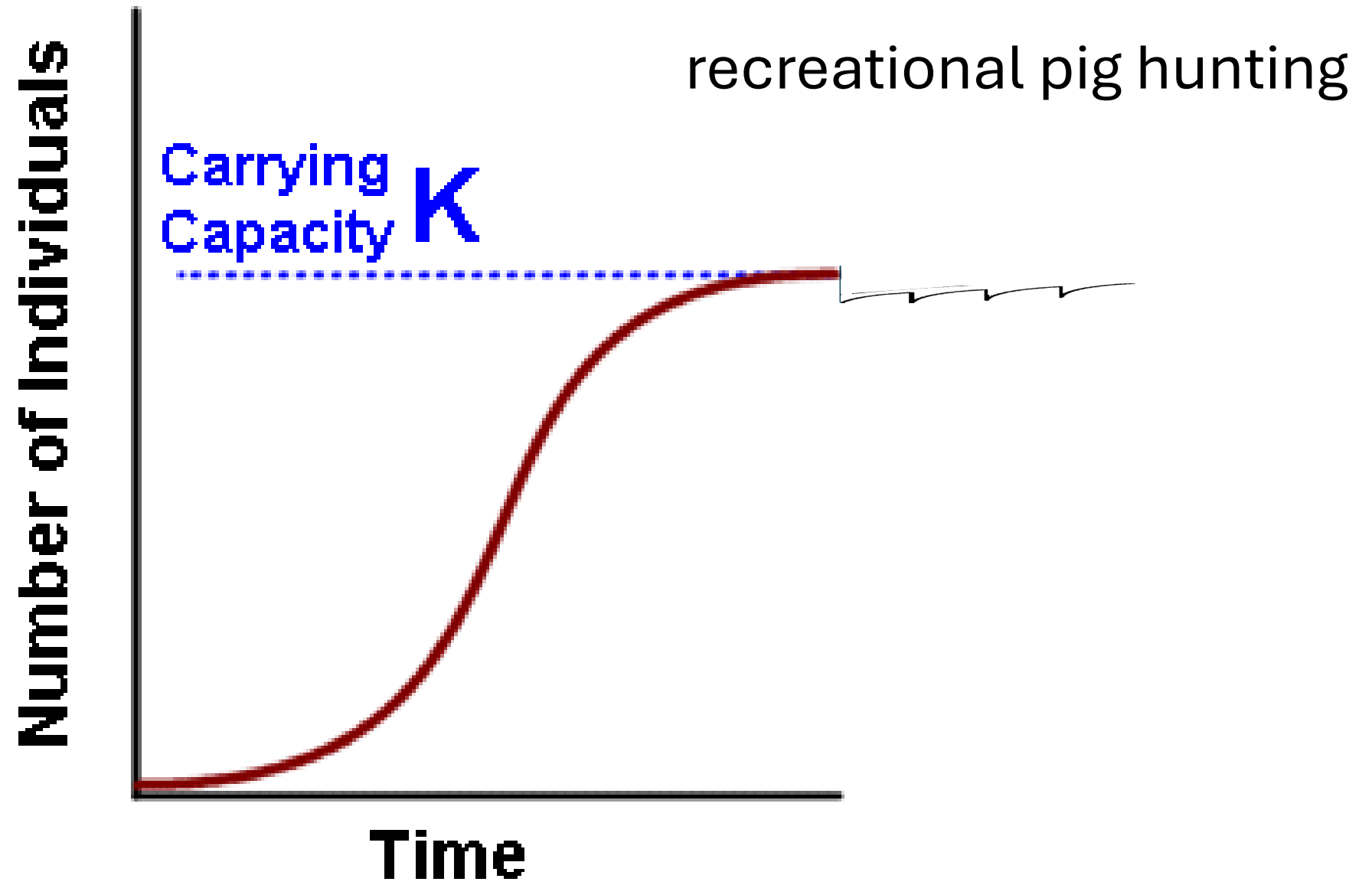
2013

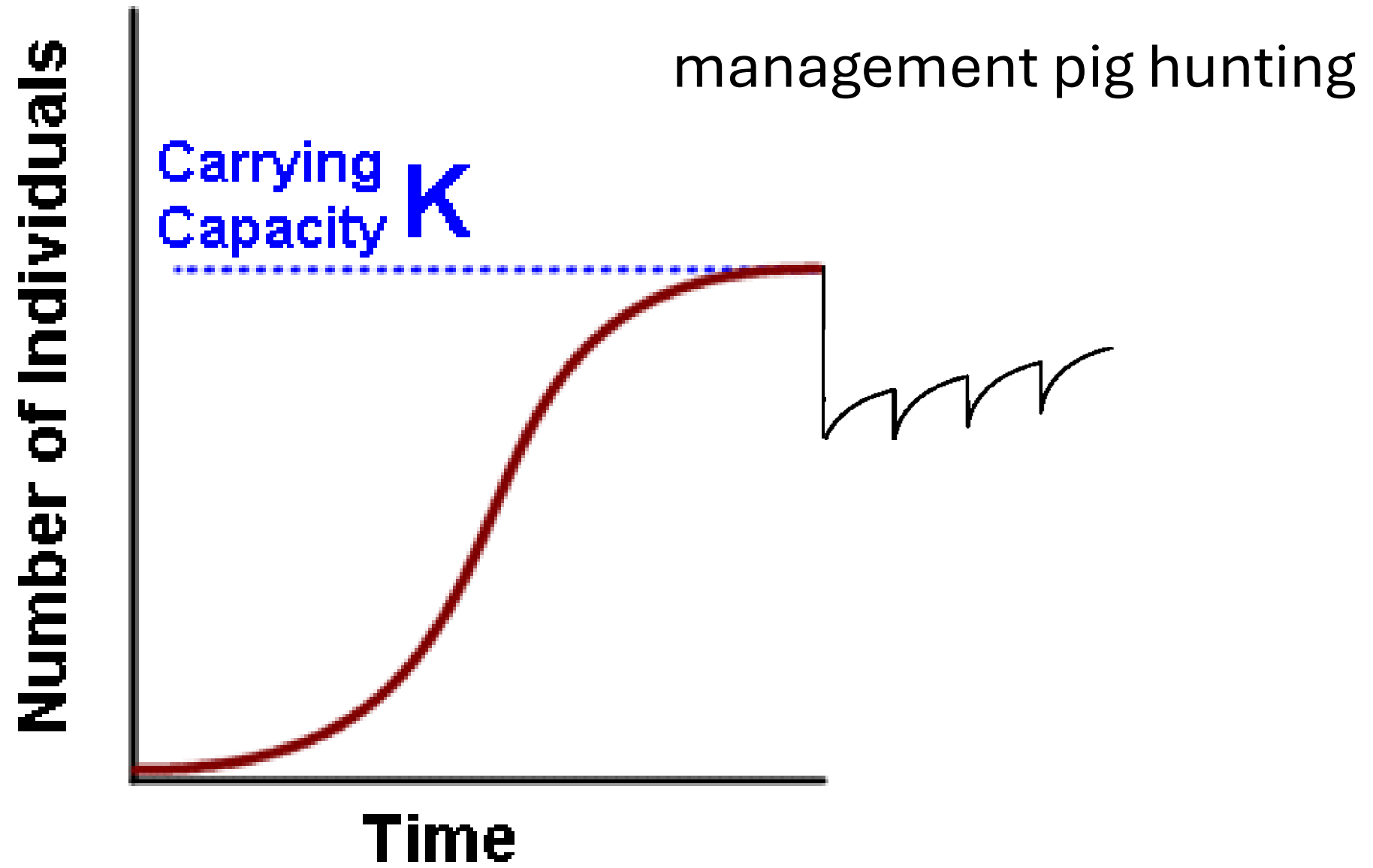
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2014



03.12.2014 18:03

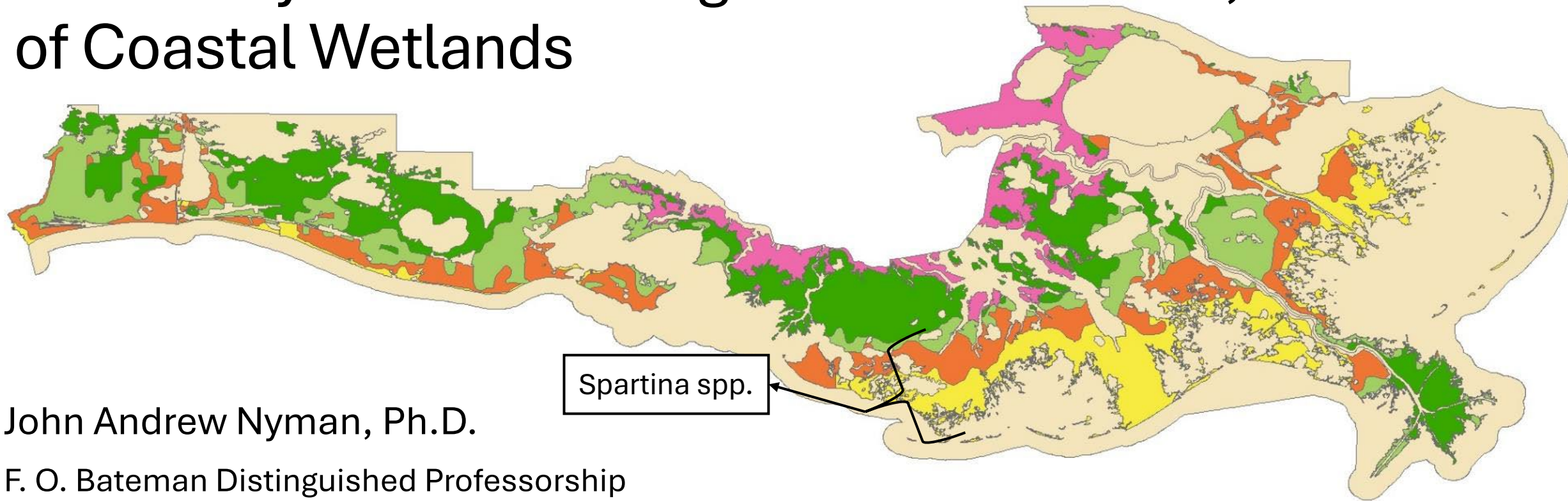




Successful control of hog damage in coastal Louisiana is spotty and temporary.

- There is no funding to annually monitor the extent of hog damage statewide to vegetation or to alligator nests.
- There is no funding to annually kill hogs statewide where they are damaging alligator nests or vegetation.
- Control depends on sporadic availability of funding from private landowners and public land managers.

(Some) Success Controlling Ecosystem Damage Caused by Nutria and Hogs in Louisiana's 14,000 km² of Coastal Wetlands



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