



Myakka River Management Coordinating Council

January 14, 2011



Topics

- **Overview**
- **Water Quality Monitoring Data**
- **Pine Level**
- **Wingate Extension**
- **SWFWMD Flatford Swamp Project**



Topics

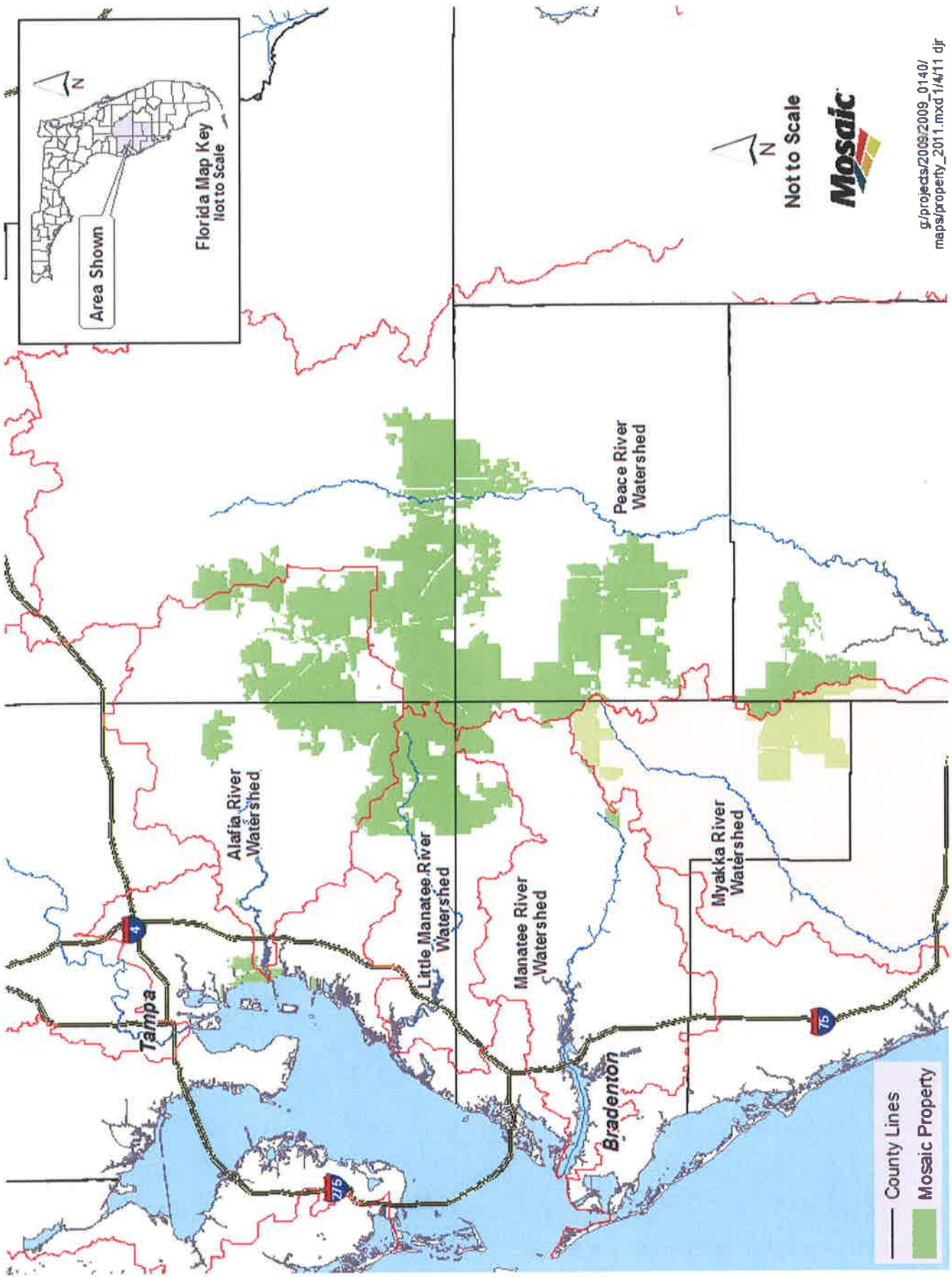
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Business & Mission

- Mosaic produces the majority of the phosphate used by American farmers
- Employs approximately 7,000 people worldwide, 3,000 in Florida

Mission

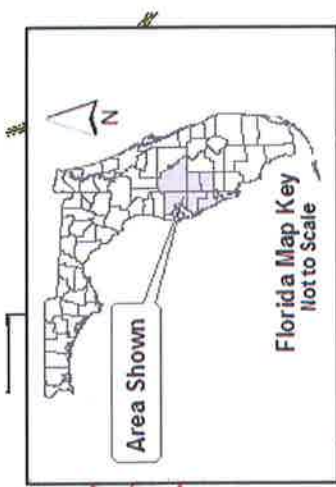
To help the world grow the food it needs.



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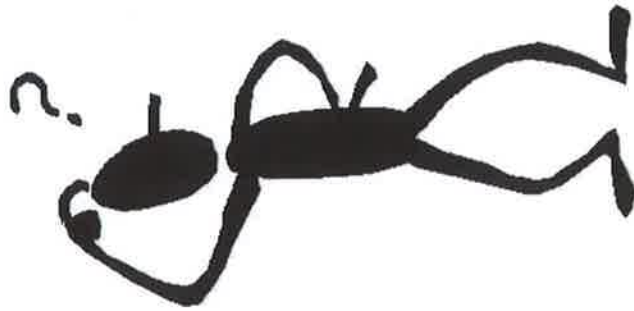
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Employment

- **Four Corners Mine - Direct Employment**
 - **Four Corners Mine Total Employees = 520**
 - **Direct Payroll = \$23 million**
 - **Average wage = \$44,230**
- **Indirect Employment**
 - **Vendors / Contractors: Purchase of Goods/ Services = \$476 million**
- **Phosphate is Largest Tonnage Shipped through the Port of Tampa**



Why Do We Need to
Mine Phosphate?

Mosaic: Key Role of Phosphate



- Phosphorus is essential to sustain all plant and animal life
- Required for Crop Production
- No Synthetic Substitute



How much crop yield is attributable to fertilization?

Agronomy Journal

Volume 97

January-February 2005

Number

FORUM

The Contribution of Commercial Fertilizer Nutrients to Food Production

W. M. Stewart,* D. W. Dible, A. E. Johnston, and T. J. Smyth

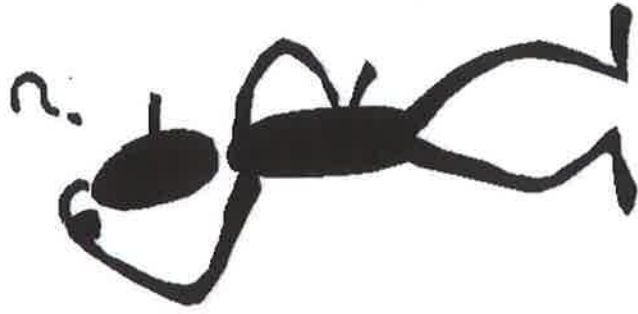
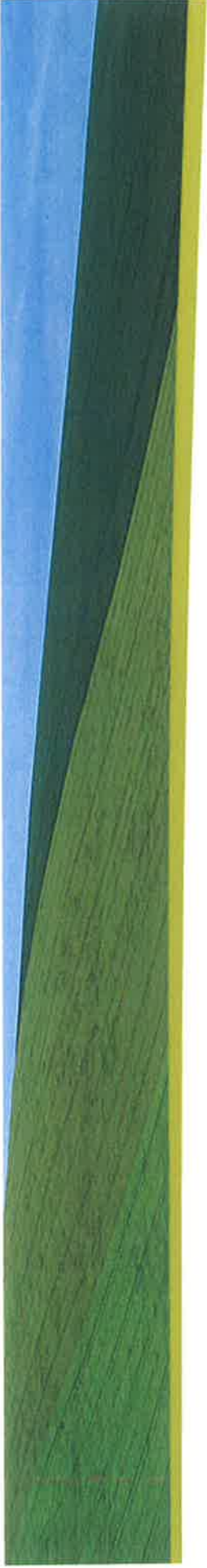
ABSTRACT

Nutrient inputs in crop production systems have come under increased scrutiny in recent years because of the potential for environmental impact from inputs such as N and P. The benefits of nutrient inputs are often minimized in discussions of potential risk. The purpose of this article is to examine existing data and approximate the effects of nutrient inputs, specifically from commercial fertilizers, on crop yield. Several long-term studies in the USA, England, and the tropics,

technology and intensified production often involve greater need for commercial fertilizer nutrients to avoid nutrient depletion and ensure soil quality and crop productivity. The need for increased inputs correctly raise questions about associated risks. Potential risks are often widely publicized while the associated benefits of an abundant, affordable, and healthful food supply can be overlooked or understated. To reduce any such risks,

- Based on long-term studies that integrate the effects of year, climate, pest and disease stress, etc. ...
- **40 to 60% of crop yield in the US is due to commercial fertilizer.**





Ok, if we Need
Phosphate,
Why Not
Organic Fertilizer?

Organics

- Recoverable Phosphate (P) in manure would only provide 31% of the P removed in harvested crops
- Most of the manure is not produced close to where crops and feed are grown – resulting in large transportation costs
- Lower phosphate application rates mean more farmland acres are needed – resulting in more land and habitat clearing

Summary

- We Need:
 - Phosphate
 - Mines in Florida
- We Need:
 - to work together to recover phosphate and be good environmental stewards





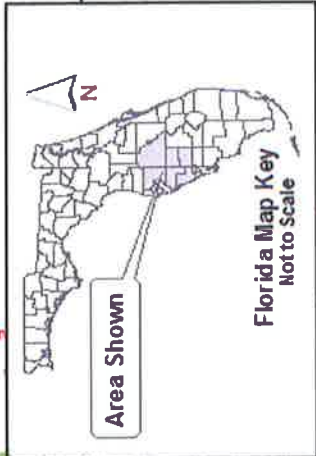
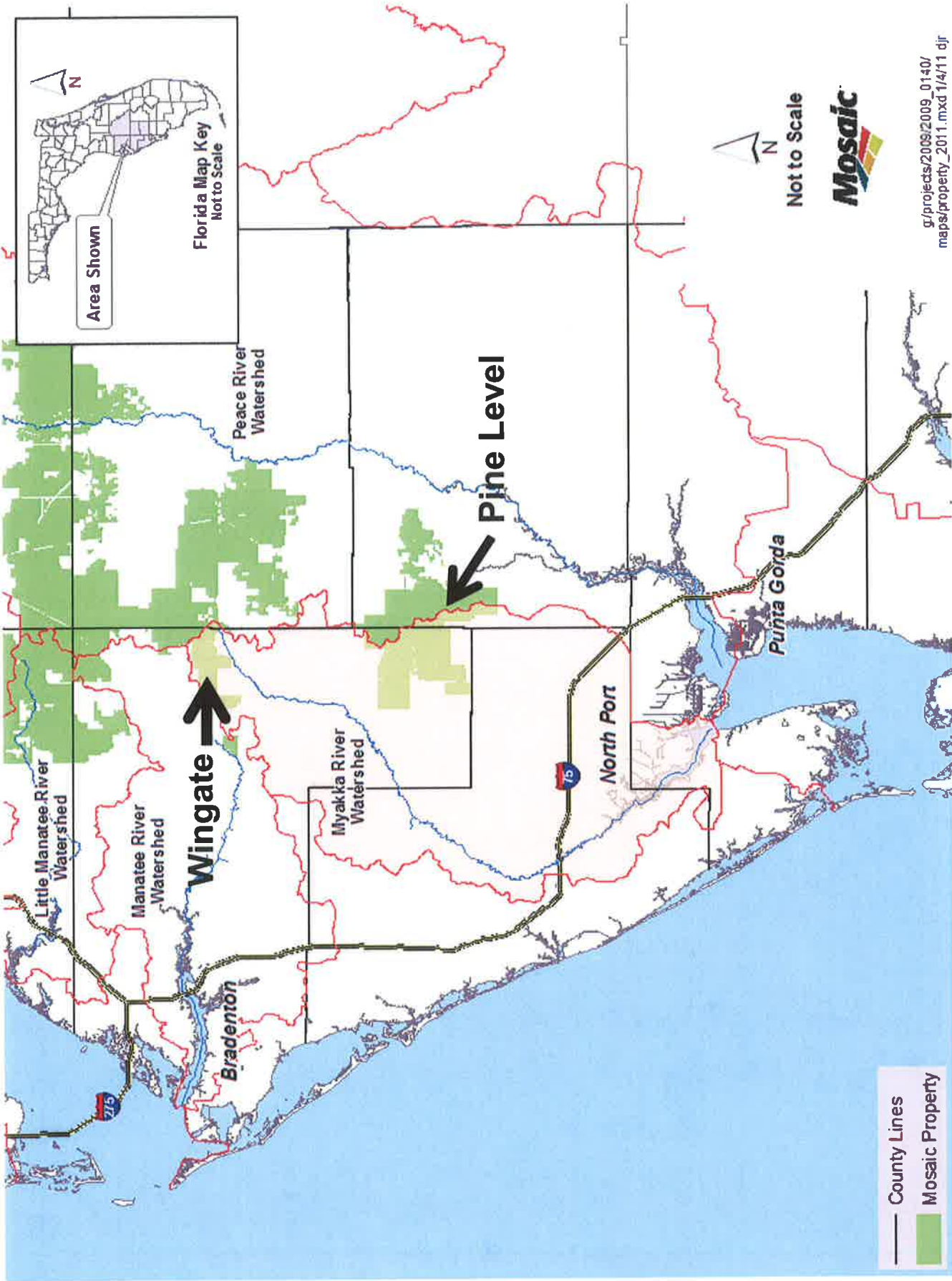
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Water Quality Monitoring

- Wingate Mine / Pine Level Tract





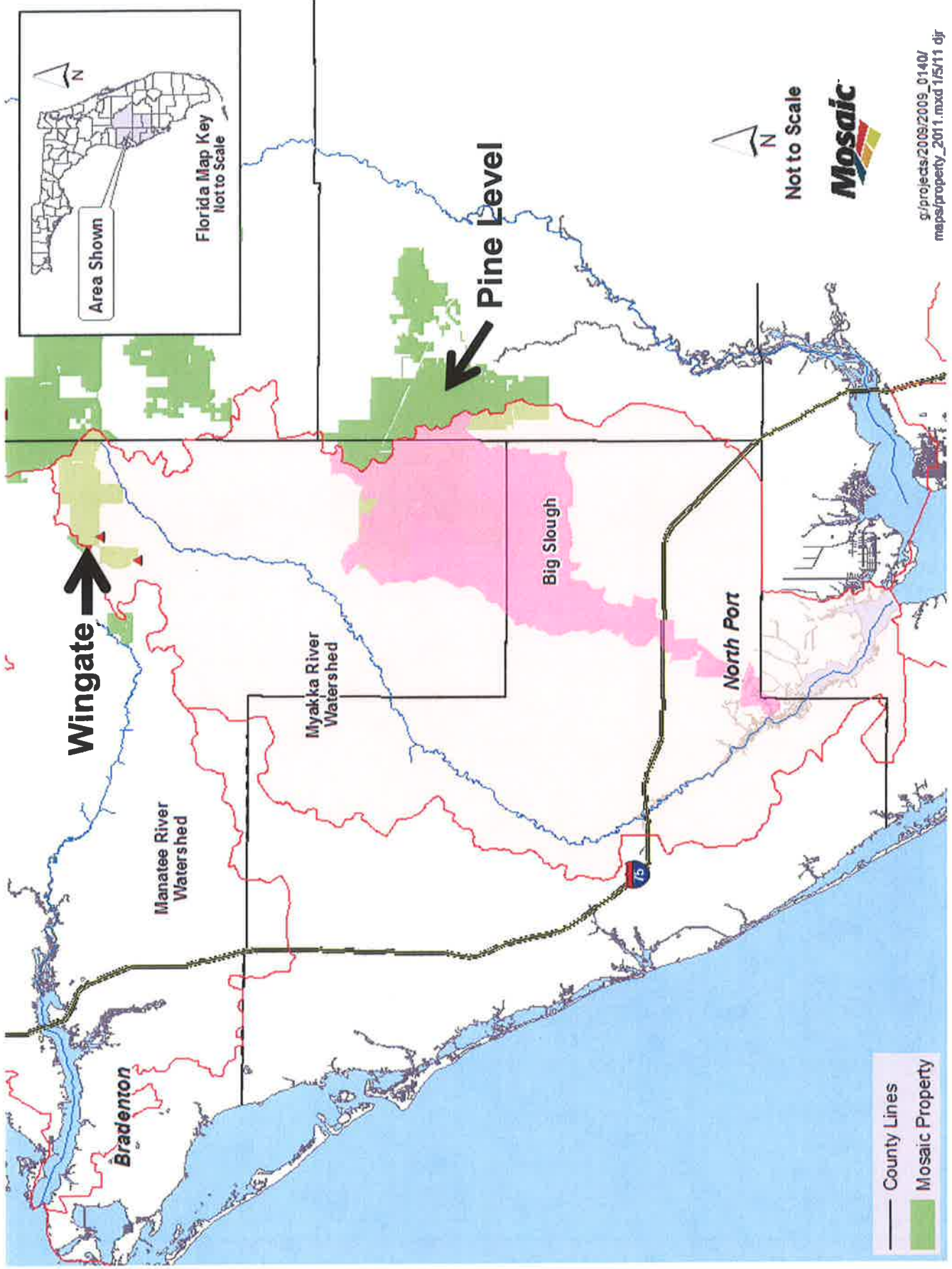
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County Lines

Mosaic Property

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Mosaic

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maps/property_2011.mxd 1/5/11 djr

County Lines
Mosaic Property

Water Quality Monitoring

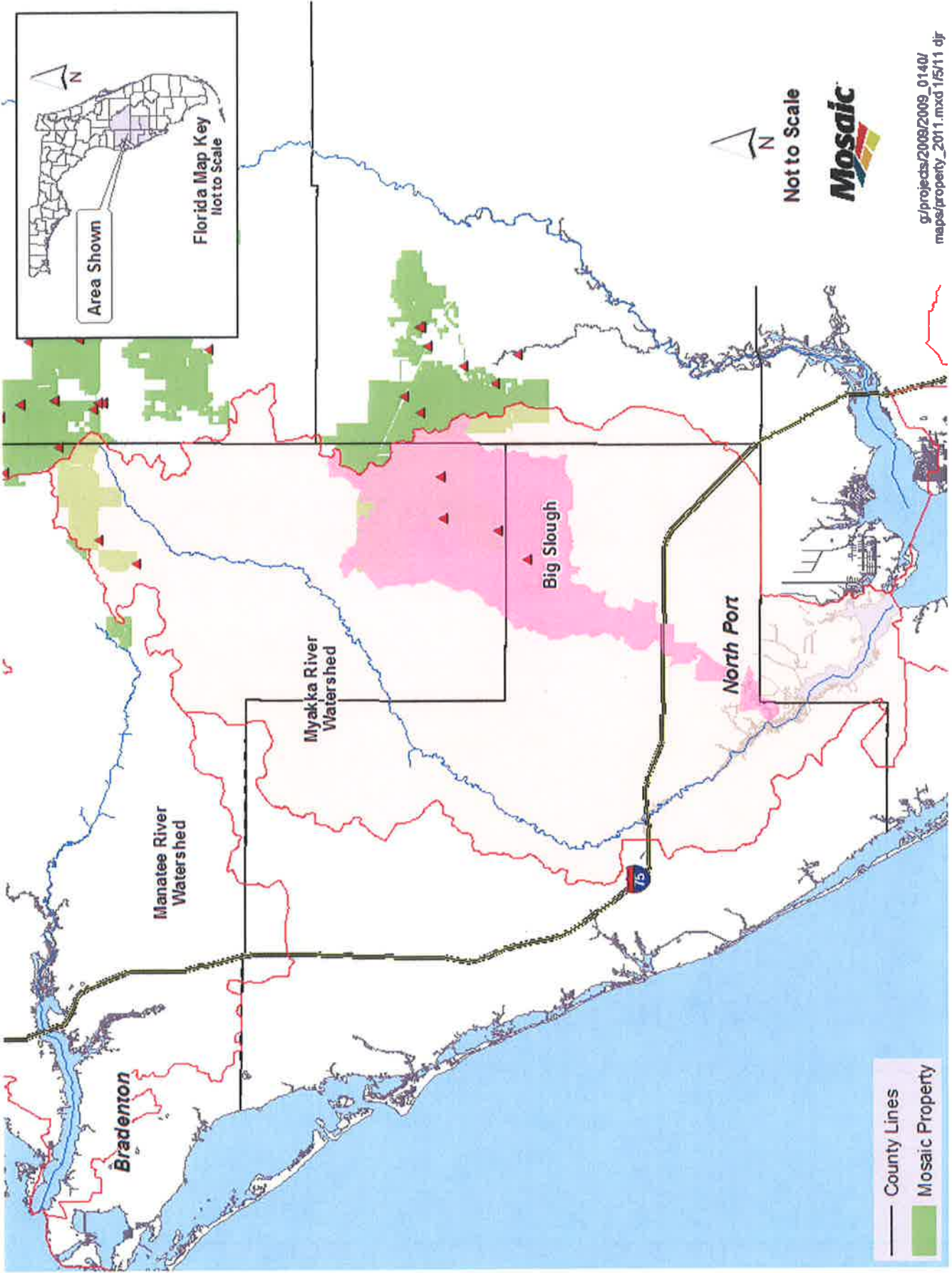
- Wingate Mine / Pine Level Tract
- NPDES Outfalls – (Wingate)



Water Quality Monitoring

- Wingate Mine / Pine Level Tract
- Wingate NPDES Outfalls
- Pine Level Surface Water Quality Monitoring Stations





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Area Shown
Florida Map Key
lot to Scale

- County Lines
- Mosaic Property

Wingate Discharge and Flatford Swamp Water Quality Comparison



<u>Parameter</u>	<u>Standard</u>	<u>Wingate*</u> <u>Discharge</u>	<u>Flatford</u> <u>Swamp</u>
pH (su)	6 to 8.5	7.12	5.2 to 7.8
Turbidity (NTU)	29	5.64	1.72 to 62
TSS (mg/L)	--	2.97	1.62 to 12.82
TP (mg/L)	--	1.26	0.30 to 0.63
SC (umhos/cm)	1275	504	538 to 876
DO (mg/L)	> 5.0	7.43	N/A
TN (mg/L)	--	0.97	0.54 to 0.99
Fluoride (mg/L)	10	N/A	0.26 to 0.52
Combined Rad (pCi/L)	5	1.54	N/A

* 13 Year Average
1/1997 to 6/2010



Pine Level and Big Slough Comparison Discharge Quality



<u>Parameter</u>	<u>Standard</u>	<u>Pine Level Surface Water Monitoring</u>	<u>Big Slough at SR72</u>
pH (su)	6 to 8.5	6.75	7.08
Turbidity (NTU)	29	3.94	4.69
TSS (mg/L)	--	NA	4.06
TP (mg/L)	--	0.34	0.40
SC (umhos/cm)	1275	740	748
DO (mg/L)	> 5.0	6.16	6.46
TN (mg/L)	--	1.35	1.41
Fluoride (mg/L)	10	0.73	0.72
Combined Rad (pCi/L)	5	1.79	1.60

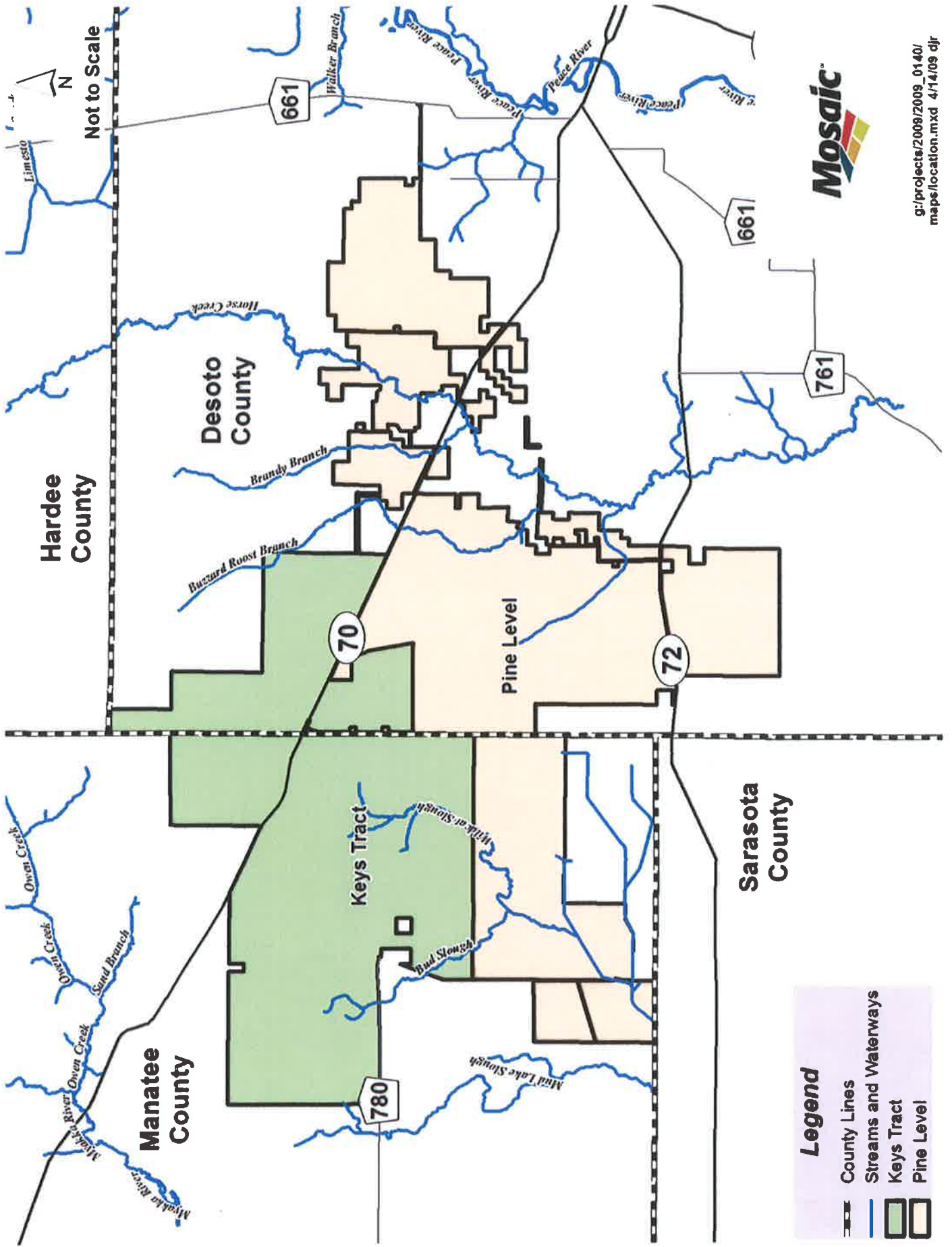
2001 – 2010
31 to 51 data points



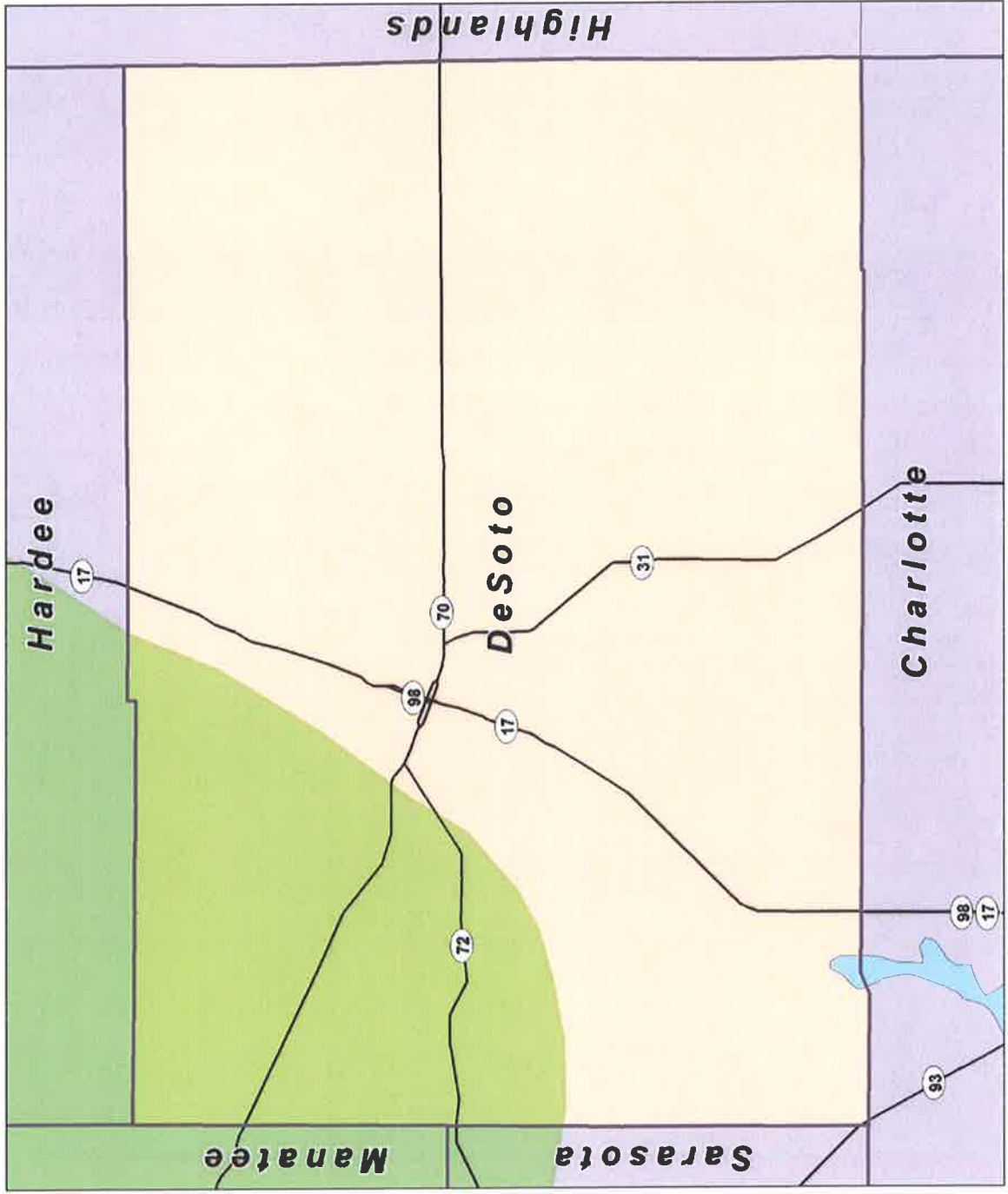


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DeSoto County Phosphate Deposits



Location Key

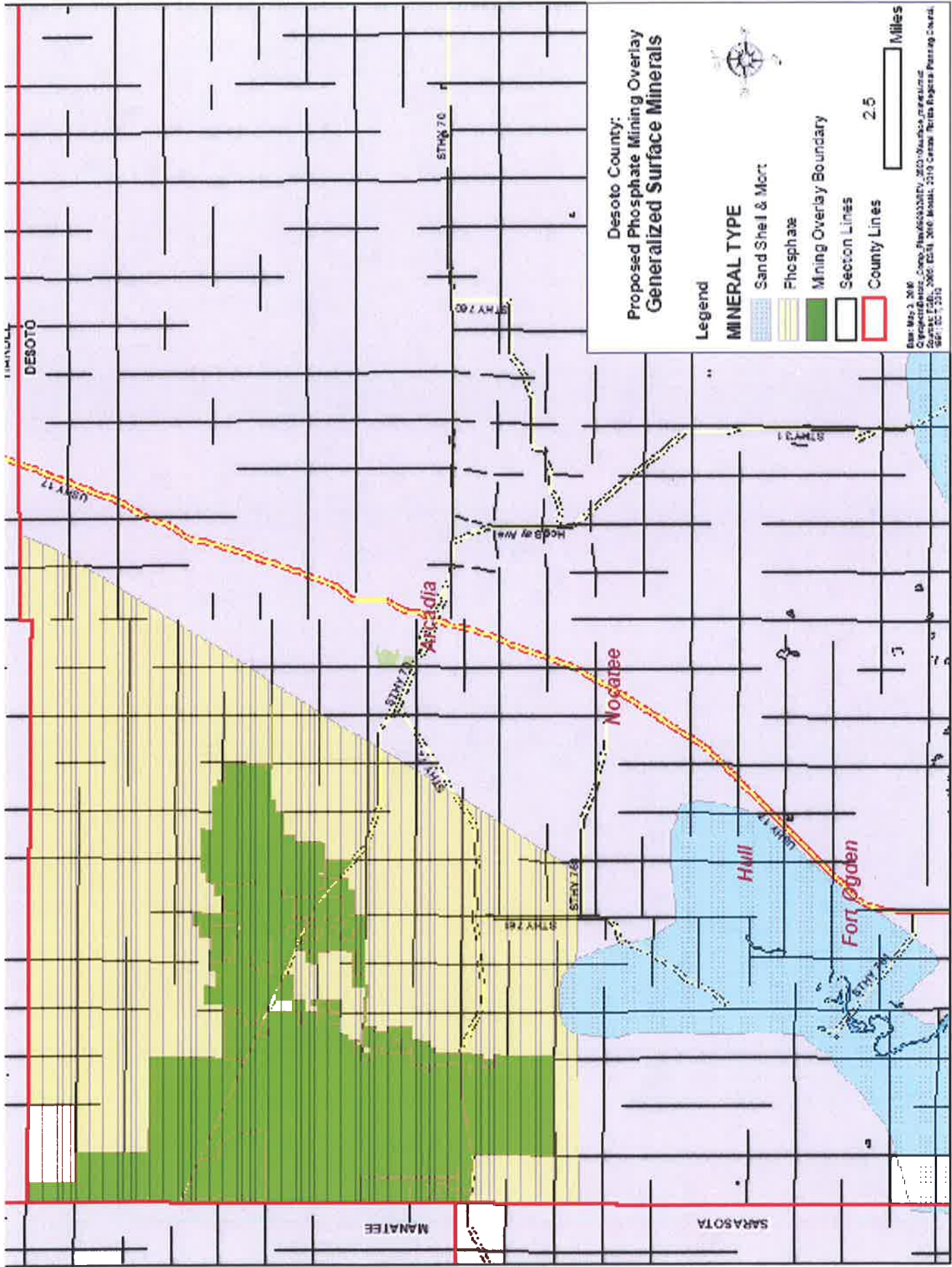


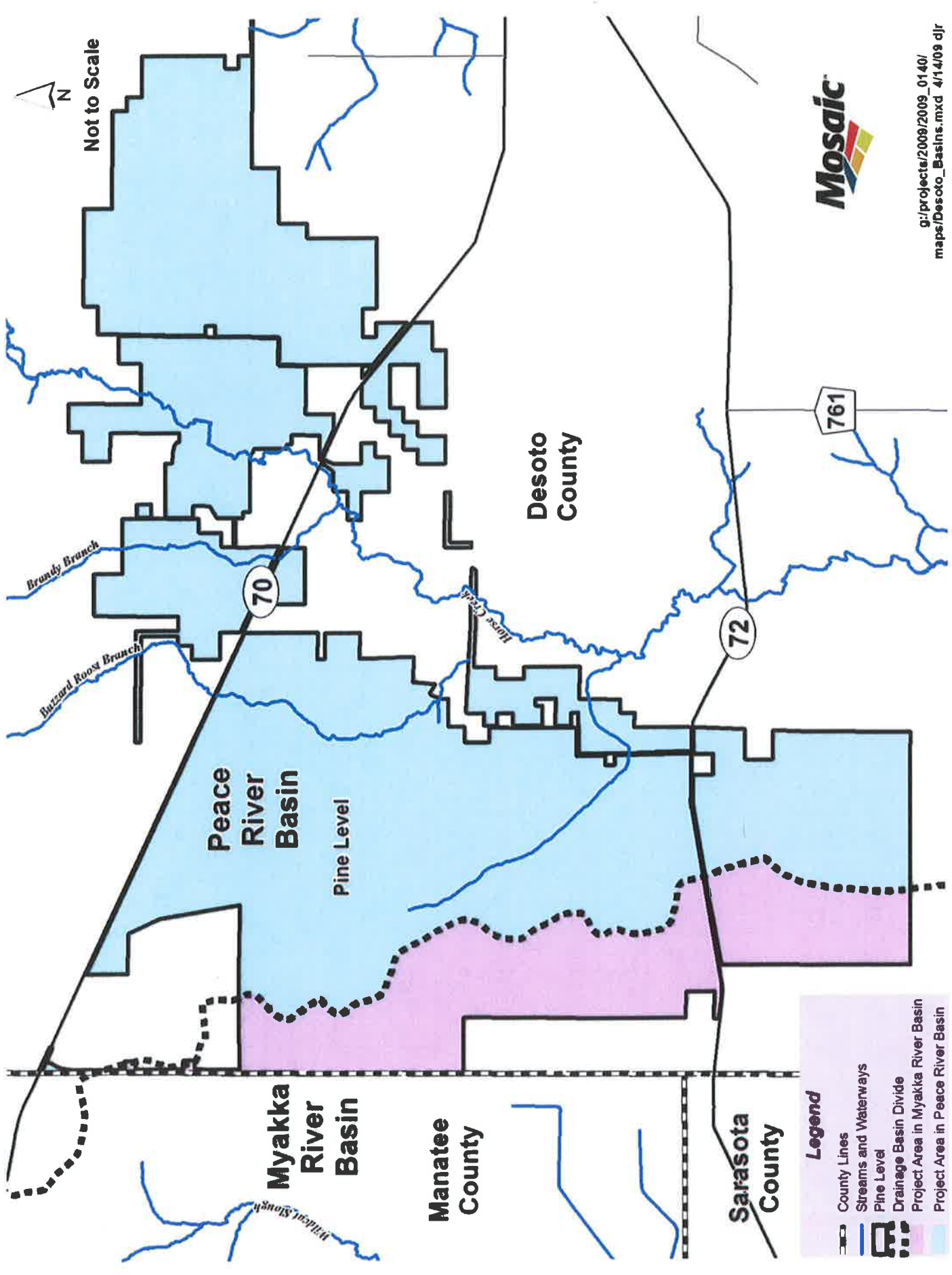
Legend

- County Lines
- Roads
- Bone Valley
- Other Counties
- DeSoto County



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Legend

- County Lines
- Streams and Waterways
- Pine Level
- Drainage Basin Divide
- Project Area in Myakka River Basin
- Project Area in Peace River Basin



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Mosaic



Regulatory Permits

**U.S. Environmental
Protection Agency**

**Florida Department
of Environmental
Protection**

**Florida Division of
Historical Resources**

**County Approval
DeSoto
Manatee**

**U.S. Fish and
Wildlife Service**

**Florida Department
of Community Affairs**

**Southwest Florida
Water Management
District**

**U.S Army Corps
of Engineers**

**Florida Fish and
Wildlife Conservation
Commission**

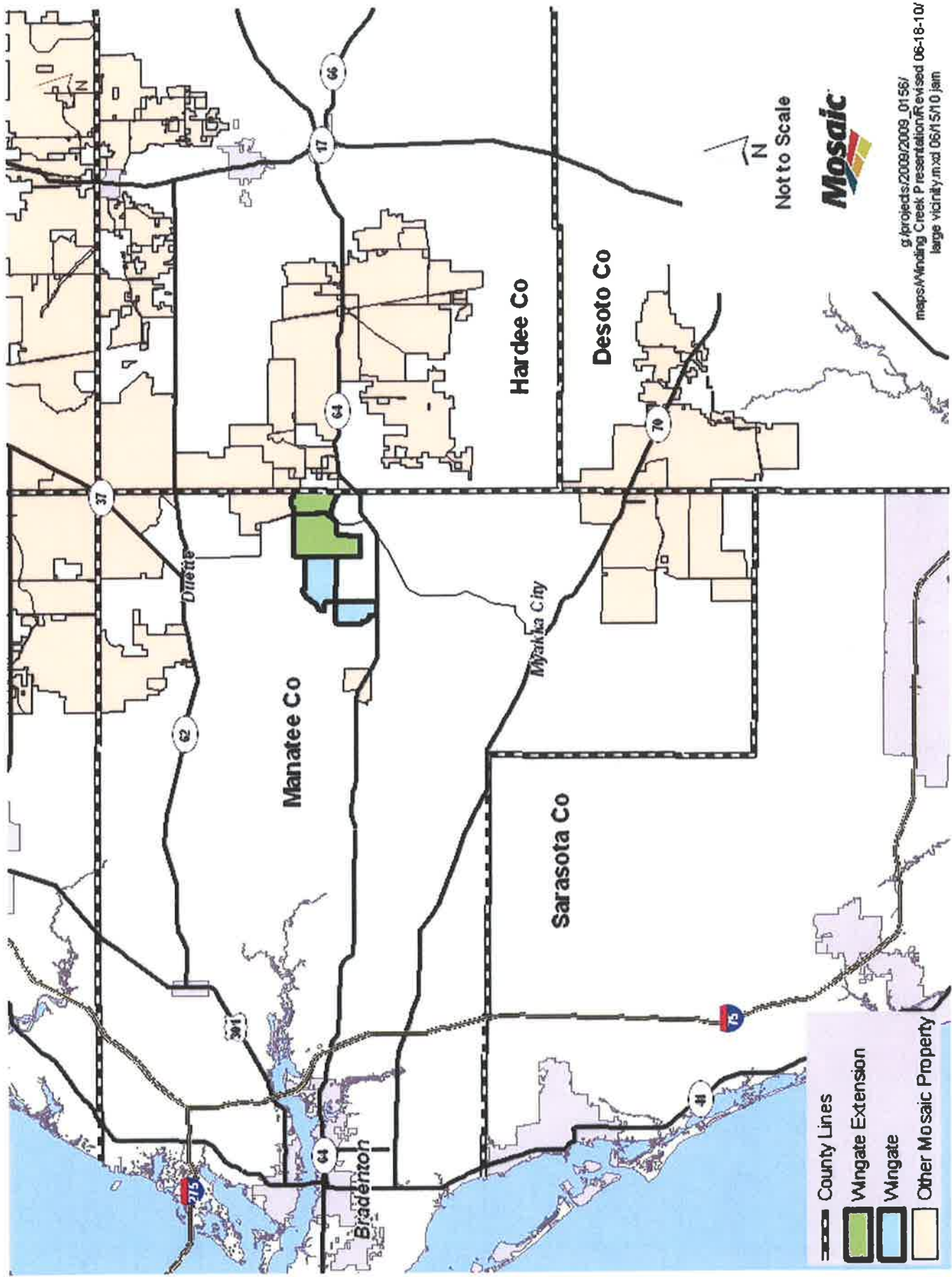
**Regional Planning Council
Central Florida
Tampa Bay**









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-  County Lines
-  Wingate Extension
-  Wingate
-  Other Mosaic Property

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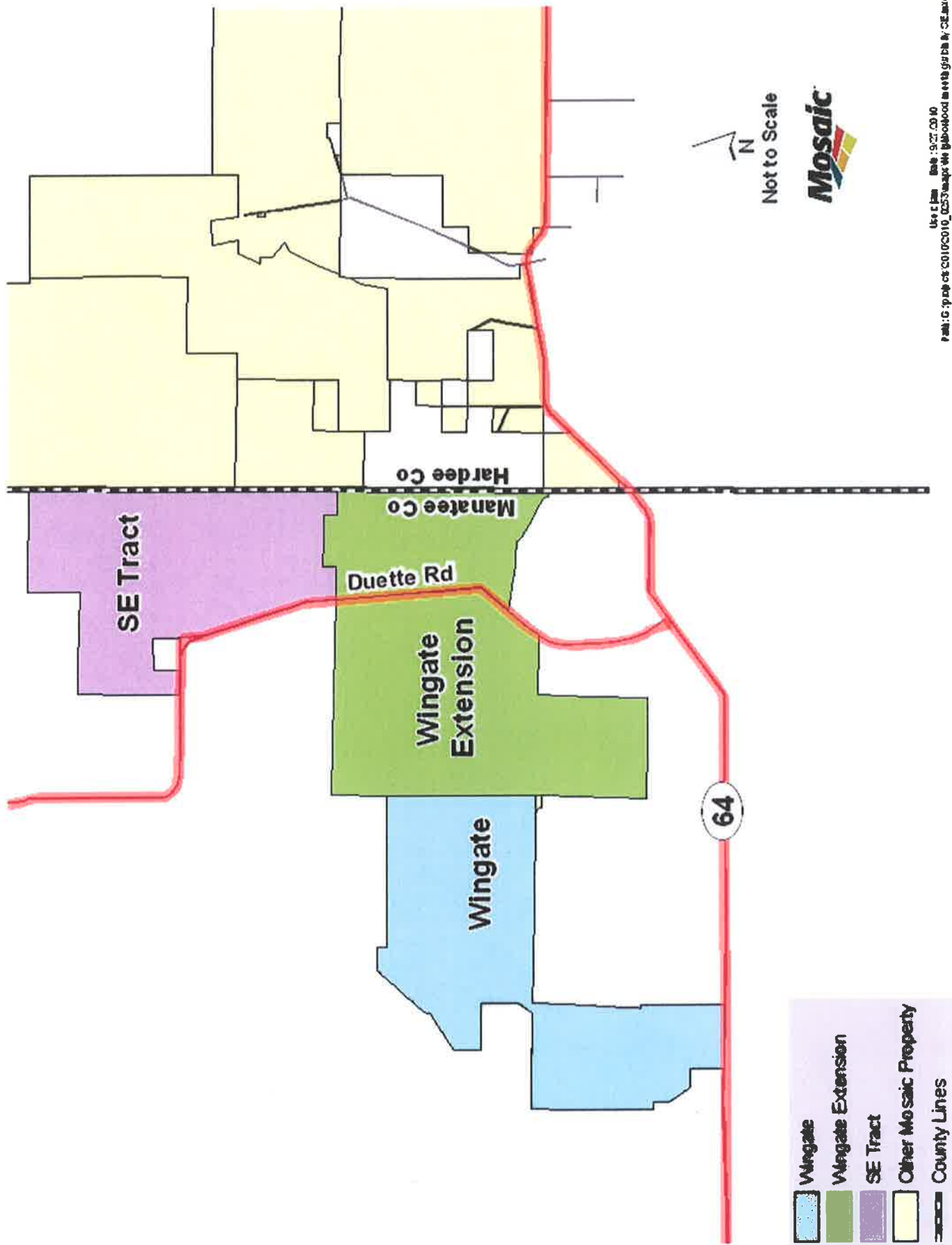


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 maps\Wingate Creek Presentation\Revised 06-18-10\
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Wingate

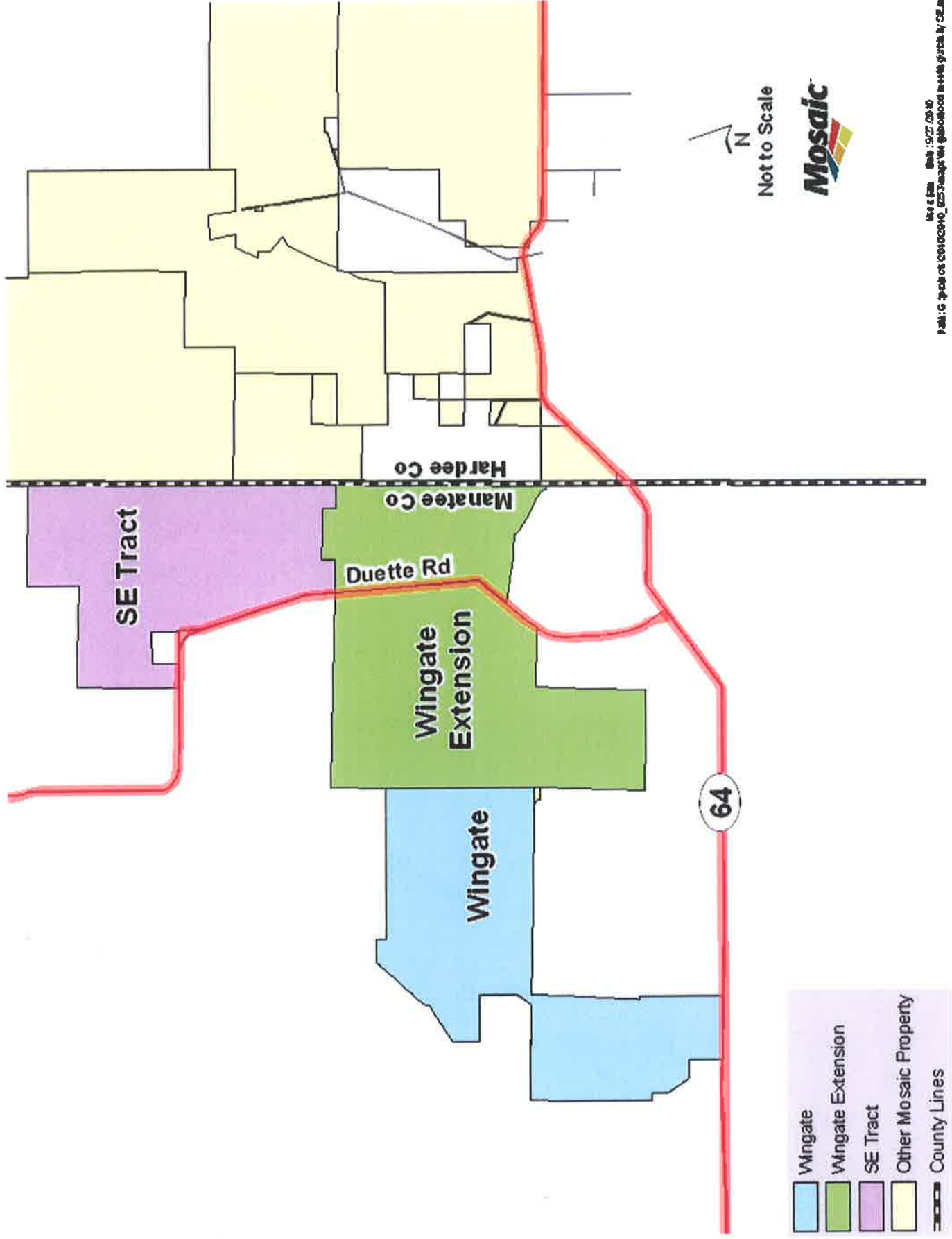
- Startup January 1981
- Permitted Boundary ~7,200 acres
- Located in Manatee County/ Myakka R. Basin
- Current Employees ~ 130 people
- Currently Operates 2 Dredges and 1 Dragline
- Current Production ~ 1.2MM tons per year





Use Case: 9-27-10
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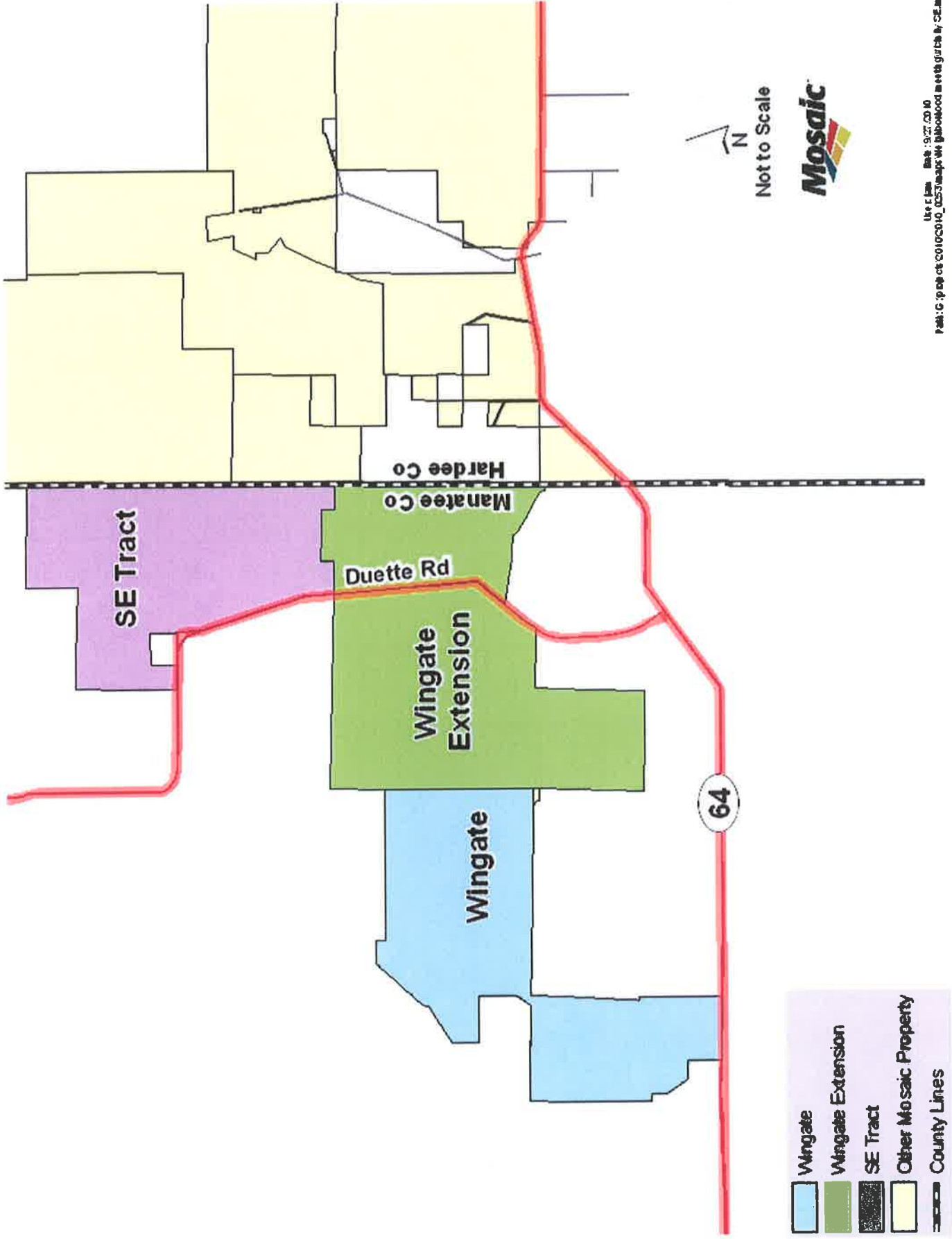




- Wingate
- Wingate Extension
- SE Tract
- Other Mosaic Property
- County Lines

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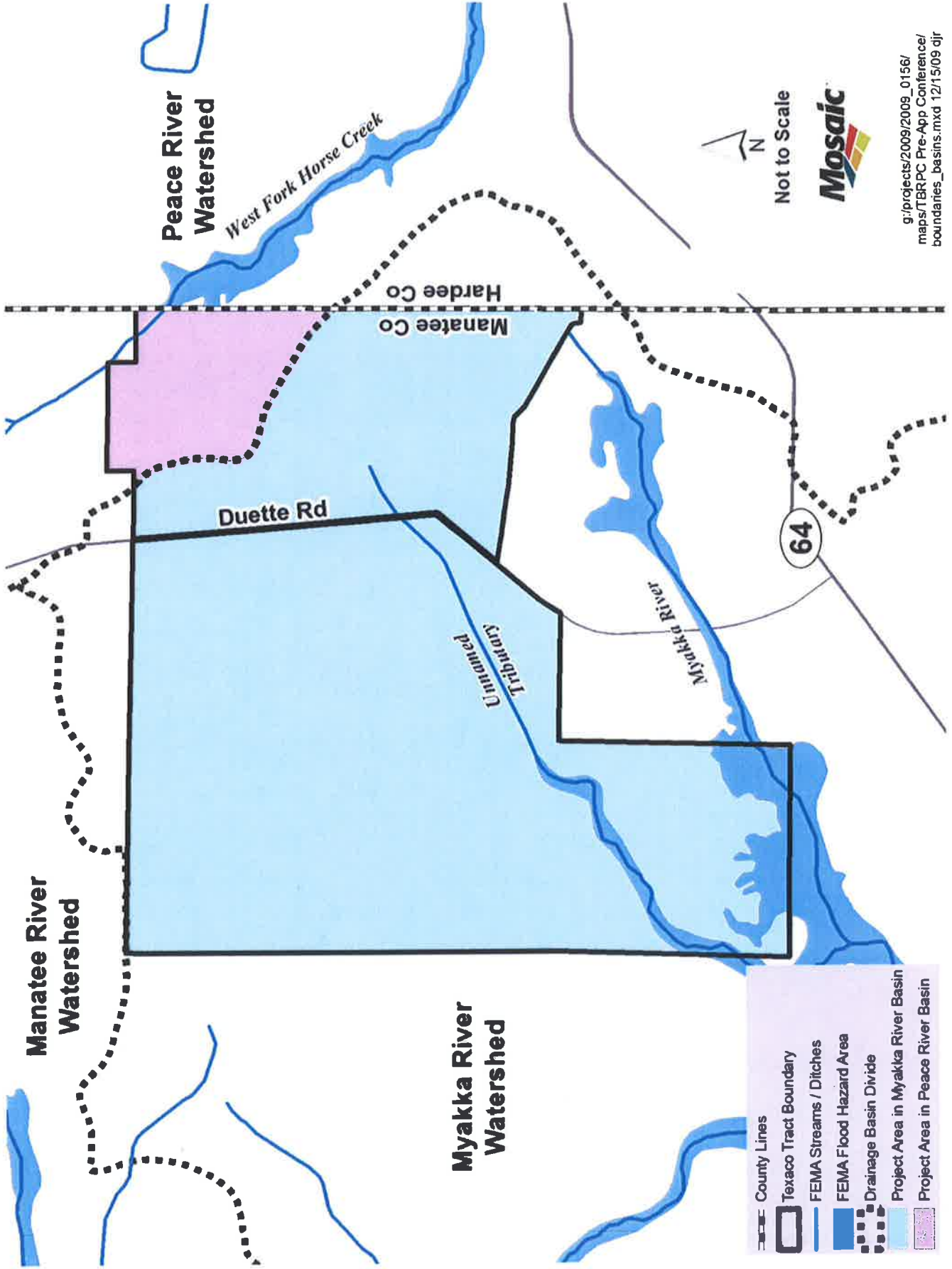



- Wingate
- Wingate Extension
- SE Tract
- Other Mosaic Property
- County Lines



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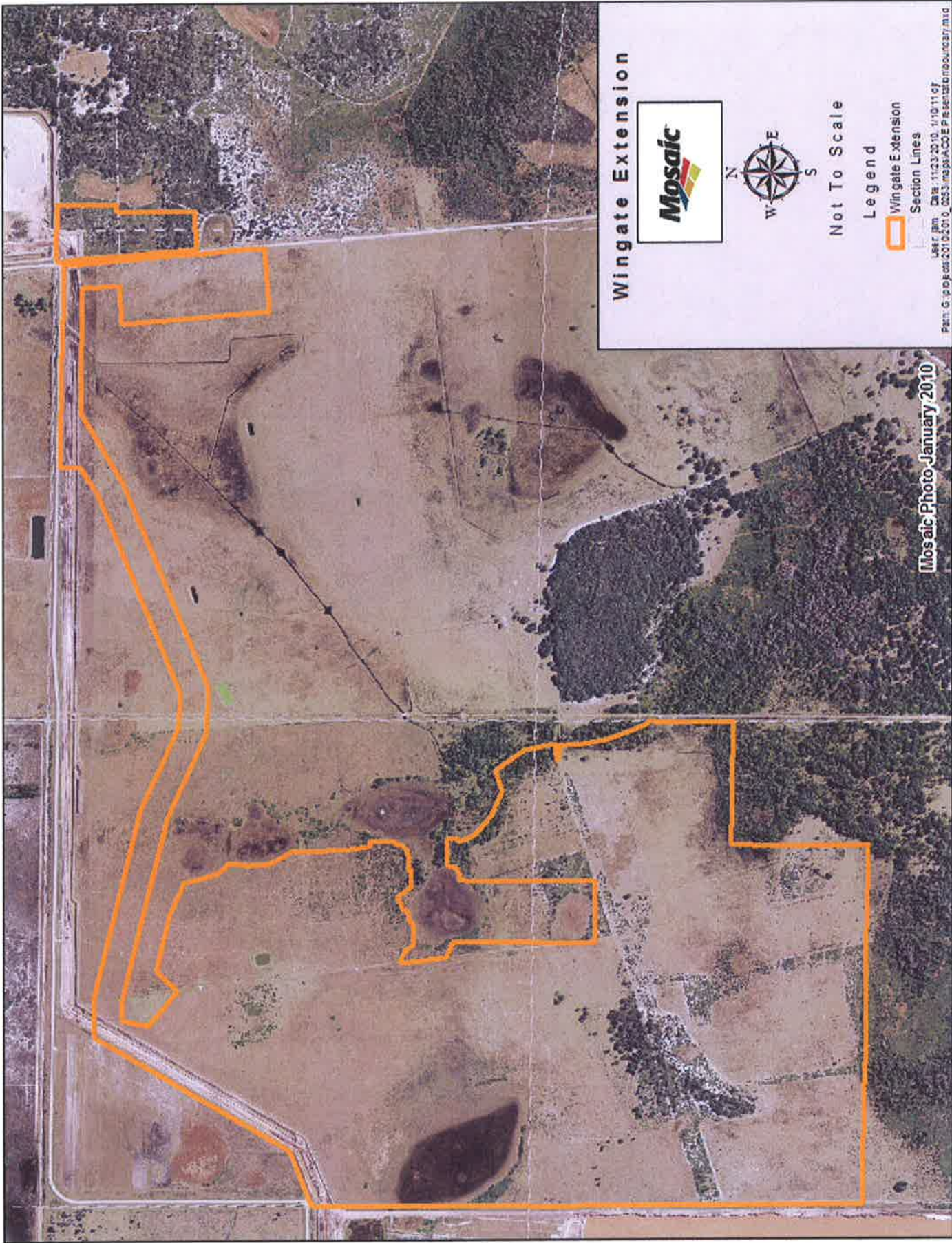
- County Lines
- Texaco Tract Boundary
- FEMA Streams / Ditches
- FEMA Flood Hazard Area
- Drainage Basin Divide
- Project Area in Myakka River Basin
- Project Area in Peace River Basin



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Wingate Extension



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Legend

-  Wingate Extension
-  Section Lines

Mosaic Photo-January, 2010

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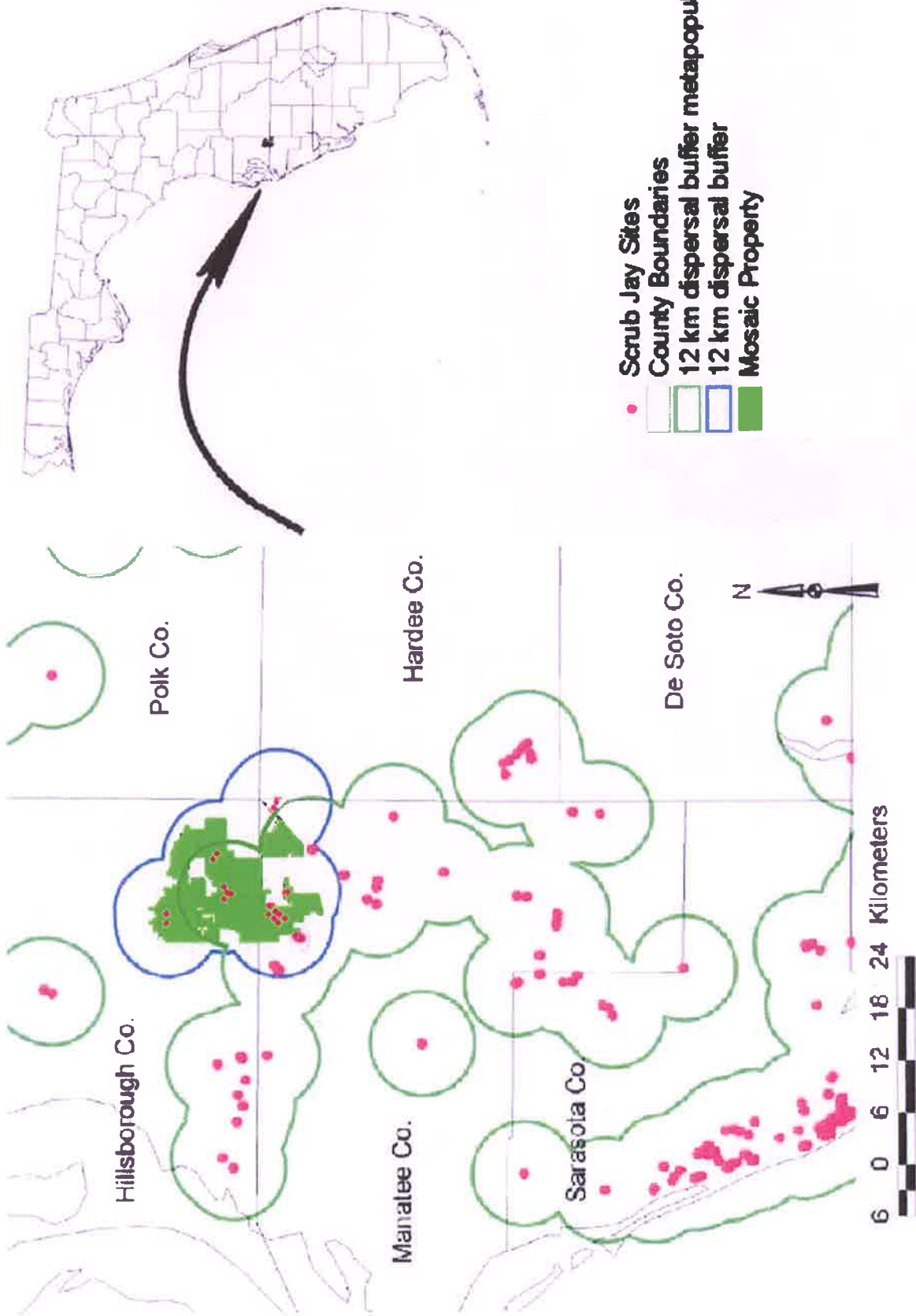


Wingate Extension - No Changes

- No Change to Water Use
- No Change to NPDES Outfalls
- No Change to Plant Capacity or processes
- No Change to Shipping Methods
- No Change to the level of employment

Florida Scrub Jay





- Scrub Jay Sites
- County Boundaries
- 12 km dispersal buffer metapopulation
- 12 km dispersal buffer
- Mosaic Property

Distribution of Florida Scrub Jays - West Central Florida

As of 1999



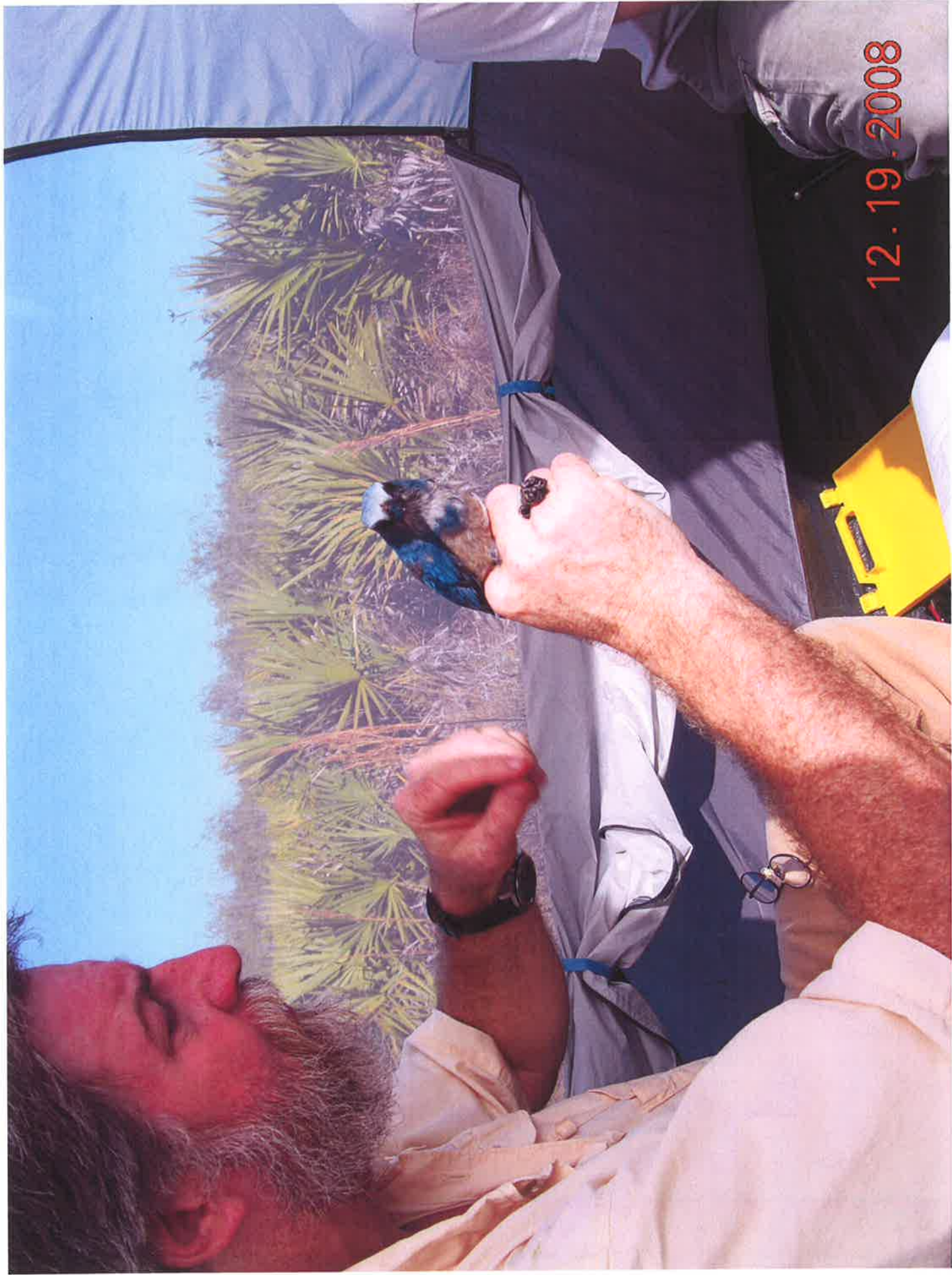


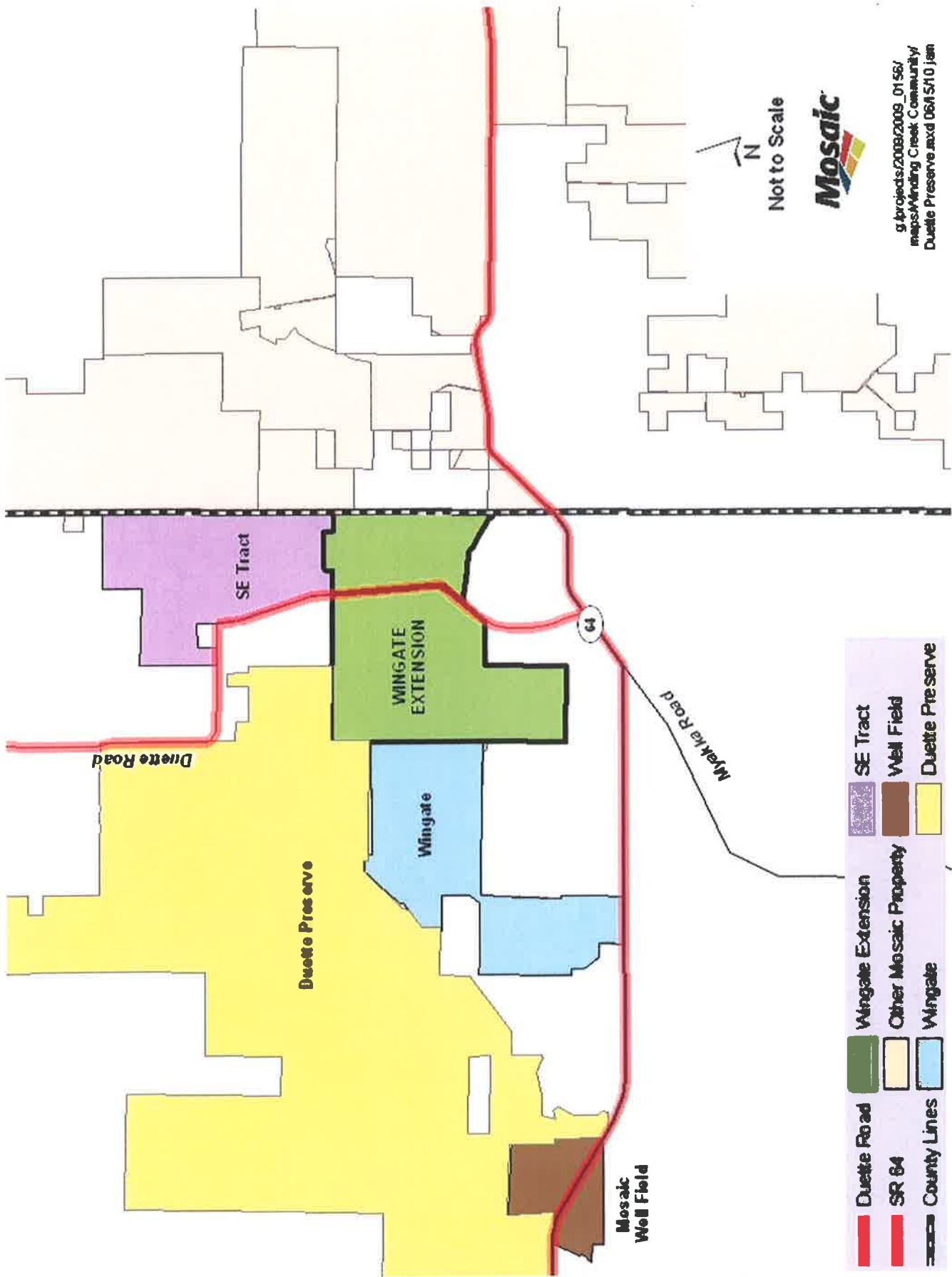


12.15.2008



12-15-2008





	Duetto Road		Wingate Extension		SE Tract
	SR 64		Other Mosaic Property		Well Field
	County Lines		Wingate		Duetto Preserve

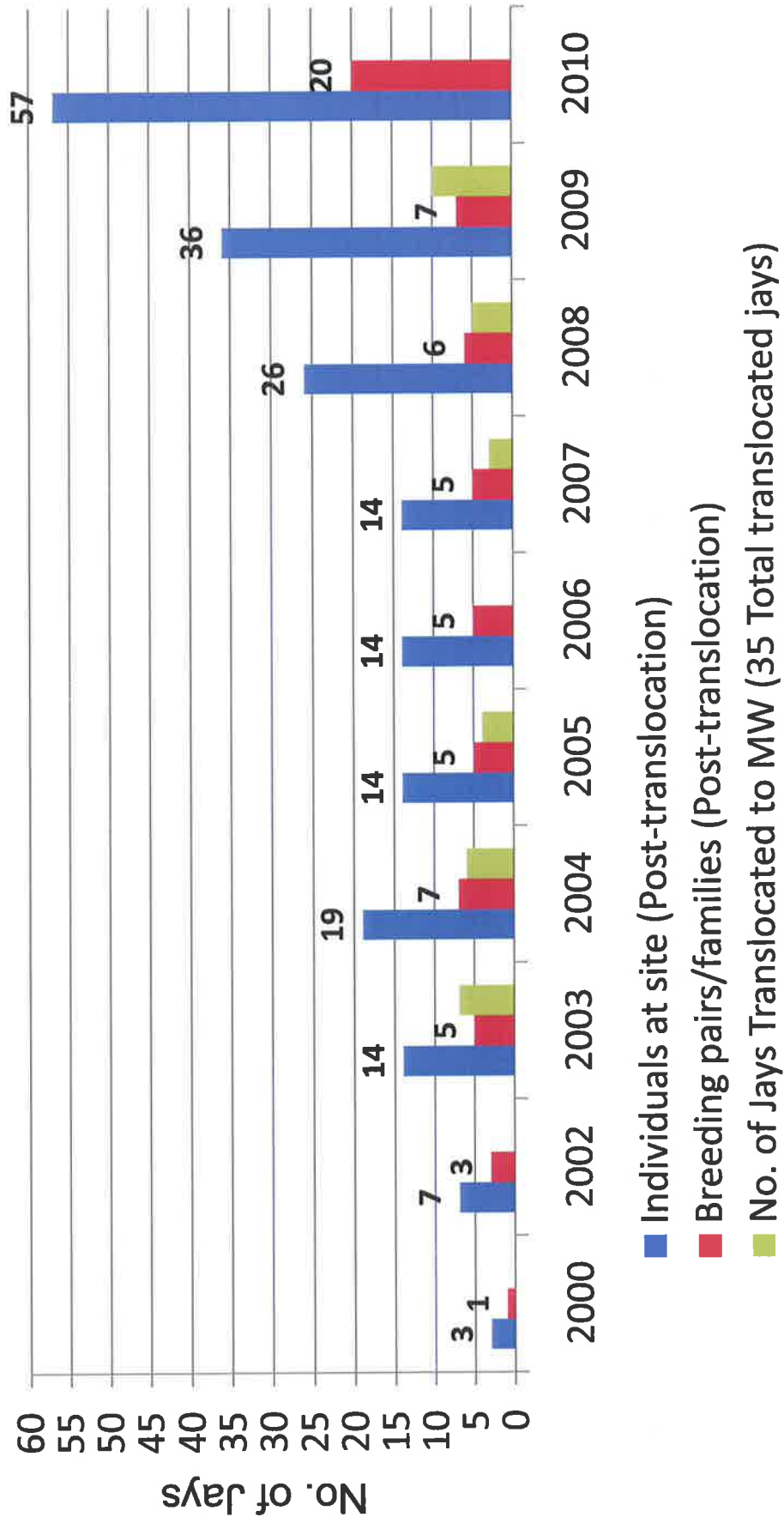
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Scrub-jay Population on Mosaic Wellfield and Adjacent Preserved Lands*

*Mosaic Wellfield, SWFWMD, and Duette Preserve



- Individuals at site (Post-translocation)
- Breeding pairs/families (Post-translocation)
- No. of Jays Translocated to MW (35 Total translocated jays)

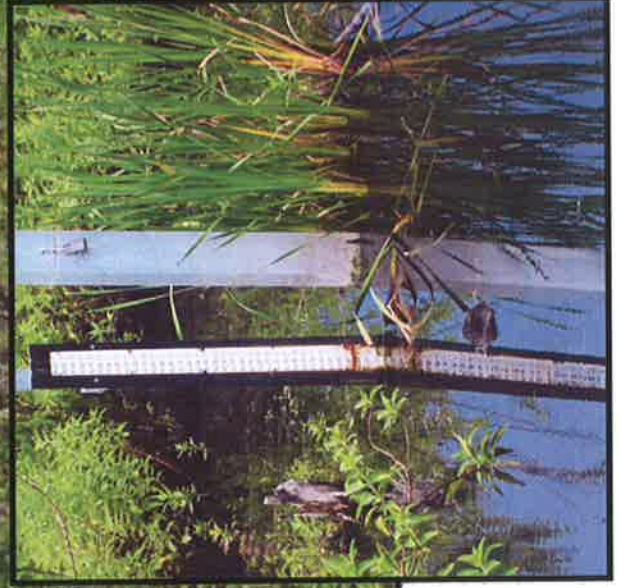


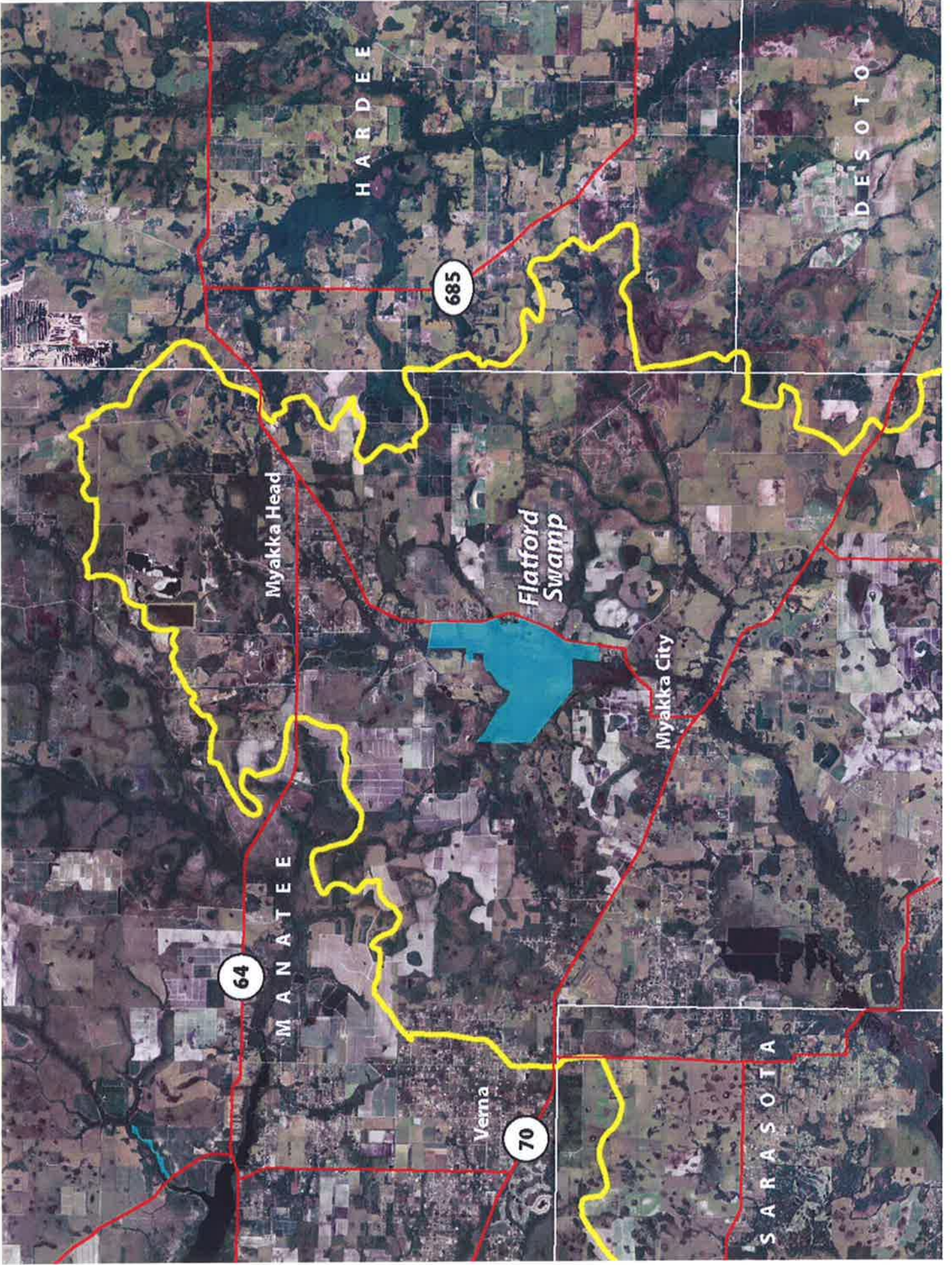


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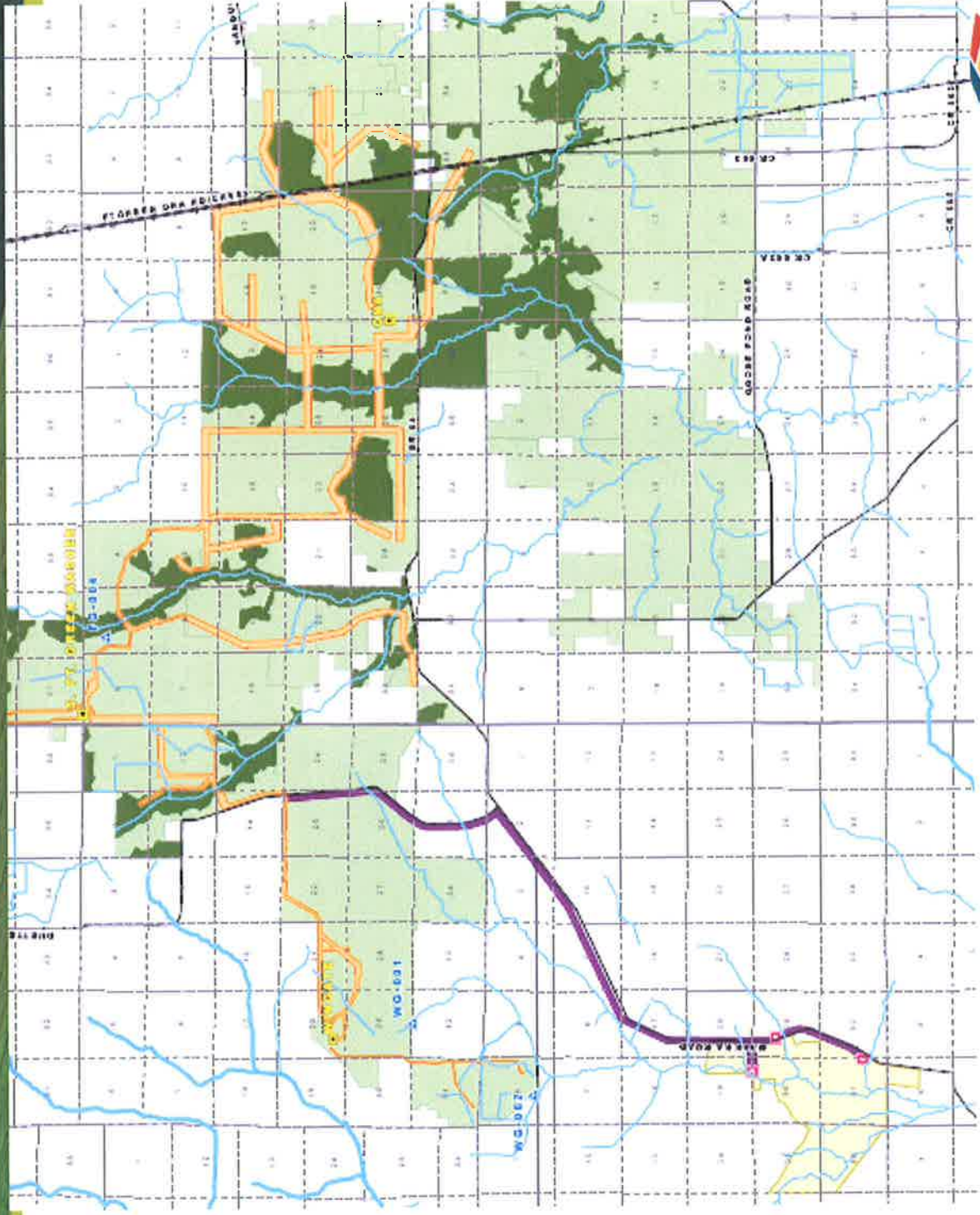
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SWFWMD – Myakka River Watershed Initiative





Mosaic Utility Corridor Network



11.5 miles



Mosaic / SWFWMD Feasibility Study

- Finalize Mosaic's water transfer delivery point alternative(s)
- Evaluate:
 - storage requirements, if any, to balance demand and supply timing;
 - intake and pumping requirements;
 - permits needed and other legal requirements;
 - water quality treatment requirements, if any; and
 - capital, operating, and maintenance requirements.
- RFQ – estimated duration 1 year



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