

## **BELLAMY MITIGATION PLAN**

### **(Calhoun Co. Airport Mitigation)**

**April 23, 2009**

#### **Background:**

As part of its mission to protect water resources in the Florida Panhandle, the NFWFMD owns and manages for ecological integrity 7,377.27 acres of floodplain wetlands and associated upland buffers along the upper Chipola River north of Florida Caverns State Park. Acquisition (fee-simple) of the 338.70-acre Bellamy Property from the International Paper Company (IP) will increase the protected acreage to 7,715.97 acres and is part of a larger goal of bringing some 14,000 acres within the Chipola basin under NFWFMD-ownership and ecological stewardship. Located in a karst area of Jackson County and adjacent to the Chipola River, the Bellamy tract consists of high-quality bottomland forest, tupelo/cypress floodplain sloughs, a 2<sup>nd</sup> order magnitude spring, small sinkholes on the floodplain, and limited transitional mesic forested upland buffers. It is bounded by the Chipola River and existing NFWFMD lands to the west and the Arborgen Bellamy Seed Orchard to the east.

A 50-acre portion of this property will be dedicated as offsetting mitigation for impacts associated with the Calhoun County Airport.

#### **Objectives:**

Preservation, enhancement, and implementation of ecological management of bottomland hardwood wetland forest within the Chipola River watershed, a major tributary to the Apalachicola River.

#### **Habitat Cover**

- 48 acres Bottomland Forest – FLUCCS 615
- 1 acre Oak/Pine/Hickory – FLUCCS 423
- 1 acre Sand Pine / Spruce Pine / Cedar – ~FLUCCS 413

#### **Site Selection Criteria:**

This mitigation site is within the same watershed as the impact (Chipola River watershed), replaces similar wetland types (forested palustrine wetlands), has direct surface hydrologic connection to navigable waters of the United States (i.e., the Chipola River), and is part of a larger NFWFMD effort to protect the water resources, including springs and wetlands, of the Chipola River watershed.

### **Site Protection Instrument:**

The NFWFMD, a governmental entity created by the Florida Water Resources Act of 1972, given taxing authority by a Florida constitutional amendment in 1973, with jurisdictional boundaries covering 16 counties established in Florida Statutes 373.069, manages over 208,000 acres in the Florida Panhandle for water resources protection and ecosystem integrity. Florida Statutes 373.1391 mandates ecological management of NFWFMD lands while allowing for multiple uses. It is the policy of the NFWFMD Governing Board to prioritize the conservation, protection and restoration of water resources and natural ecosystems over other uses such as public access.

In accordance with § 332.7(a) and § 230.97(a) (i.e., site protection clauses) of the USACE/EPA compensatory mitigation Final Rule, title to this site (fee-simple) will be held in perpetuity by the NFWFMD and managed as conservation/mitigation lands.

### **Baseline Information:**

Maps (see attached)

- Bellamy property and Calhoun Co. Airport within SWIM basin
- 2007 DOQ of Entire Bellamy Property
- 2007 DOQ
- 1940 B&W Aerial
- LiDAR
- Soils (NRCS)
- NWI
- 100-Year Floodplain
- UMAM mitigation polygons

This mitigation area is primarily high-quality bottomland wetland forest (48 acres), a high-quality, 2<sup>nd</sup> order magnitude spring, several small sinkholes within the floodplain, and limited upland buffers (1 acre of transitional, mesic slope forest and 1 acre of degraded sandhill community with offsite sand pine, spruce pine and cedar. There are minor occurrences of exotic and/or invasive species in the wetland and upland buffers (e.g., *Lygodium japonicum*, *Ligustrum sinense*, *Sapindus saponaria*, *Lonicera japonica*). Relic cypress stumps suggest logging along the Chipola River in the distant past.

### **Determination of Credits:**

Mitigation credits were estimated by the Uniform Mitigation Assessment Method (UMAM). Based on a field visit of 3/18/09 and in-house assets (NWI maps, NRCS soils maps, LiDAR data, current and historic aerials), NFWFMD staff estimate that preservation and

management of this 50-acre mitigation area will yield 2.32 UMAM credits.

The preservation value of this property is enhanced by the presence of a high-quality, 2<sup>nd</sup> order magnitude spring that forms a spring run to the Chipola River, adjacency to existing preservation lands (i.e., the Chipola River WMA), and high species diversity. Absent acquisition for preservation, this site would be subject to degradation including lack of management of exotic/invasive plant species, nuisance faunal species (e.g., feral pig and beaver), logging of hardwood species on the floodplain and associated soil disturbance, uncontrolled vehicular access to the spring with accompanying water quality impacts such as erosion, dumping and litter problems, and potential development within upland buffers areas.

### **Detailed Work Plan:**

The site will be preserved in perpetuity in a natural state as part of the NFWMD Chipola River Water Management Area (WMA). Exotic/invasive species have been observed along the upland periphery (*Lygodium japonicum*, *Ligustrum sinense*, *Sapindus saponaria*, and *Lonicera japonica*), will be treated with appropriate wetland approved herbicides after acquisition. Management of exotic/invasive plant species and nuisance faunal species (e.g., feral pig and beaver) will be perpetual. Quarterly reports will be generated for feral pig and beaver control and included in the annual report. Land ownership signage will be clearly posted along the property boundaries. Prescribed fire will be implemented, in adjacent upland buffers on a 3-5 year burn regime.

### **Maintenance Plan:**

After implementation of mitigation, this site will be actively maintained by NFWMD lands management personnel as part of an extensive conservation land management program within the Chipola River WMA. This site is expected to be largely self-sustaining.

### **Performance Standards:**

#### (Enhancement Success Criteria)

- EC1 – Desired species showing evidence of stable or increasing coverage
- EC2 – No more than 1% coverage of invasive exotic and 5% nuisance native and non invasive exotic species unless otherwise specified in a management plan
- EC3 – Increase or stable appropriate species diversity
- EC4 – Kind and total coverage of species appropriate for management goals and target natural community
- EC5 – Kind and total coverage of herbaceous species appropriate for management goals and target natural community
- EC6 – Kind and total coverage of tree species appropriate for management goals and target

natural community

EC7 – Maintain the ecological conditions so that the mitigation UMAM scores are met for each of the specified community types

**Monitoring:**

Monitoring protocols necessary to ensure effective preservation, enhancement and management will be conducted annually for five years from the start of mitigation activities or as required by USACE permit conditions. Photo-points and meandering vegetation surveys by a qualified biologist are expected to comprise the monitoring for this site. Annual reports will be generated and provided to the USACE (Jacksonville District) for the duration of the monitoring period.

**Long-term Management:**

Long-term management will include exotics control and prescribed fire in the sandhill uplands on 3-5 year intervals. The NFWFMD is responsible for ensuring the perpetual management of mitigation lands. Florida Statutes sections 373.1391(1)(a) and 373.59(3) mandate the ecological management and restoration, to the extent practicable, of lands owned by the NFWFMD. Mitigation lands owned by the NFWFMD will be managed in perpetuity for ecological integrity in accordance with the “Management Policies for Water Management Areas of the Northwest Florida Water Management District” (NFWFMD 1998).

**Adaptive Management Plan:**

If changes in the implementation of this mitigation plan become necessary due to the stochastic nature of ecological processes, the NFWFMD will first obtain approvals from the USACE.

**Financial Assurances:**

The NFWFMD is a governmental entity created by the Florida Water Resources Act of 1972 with the mission of protecting water resources protection and ecosystem integrity. Funds are specifically earmarked to implement and maintain mitigation.

**Other Information:**

Any additional information requested by the USACE to determine the appropriateness, feasibility, and practicability of this compensatory mitigation project will be provided.



Bellamy 2<sup>nd</sup> Order Magnitude Spring



Bellamy Bottomland



Bellamy Bottomland



Bellamy Bottomland

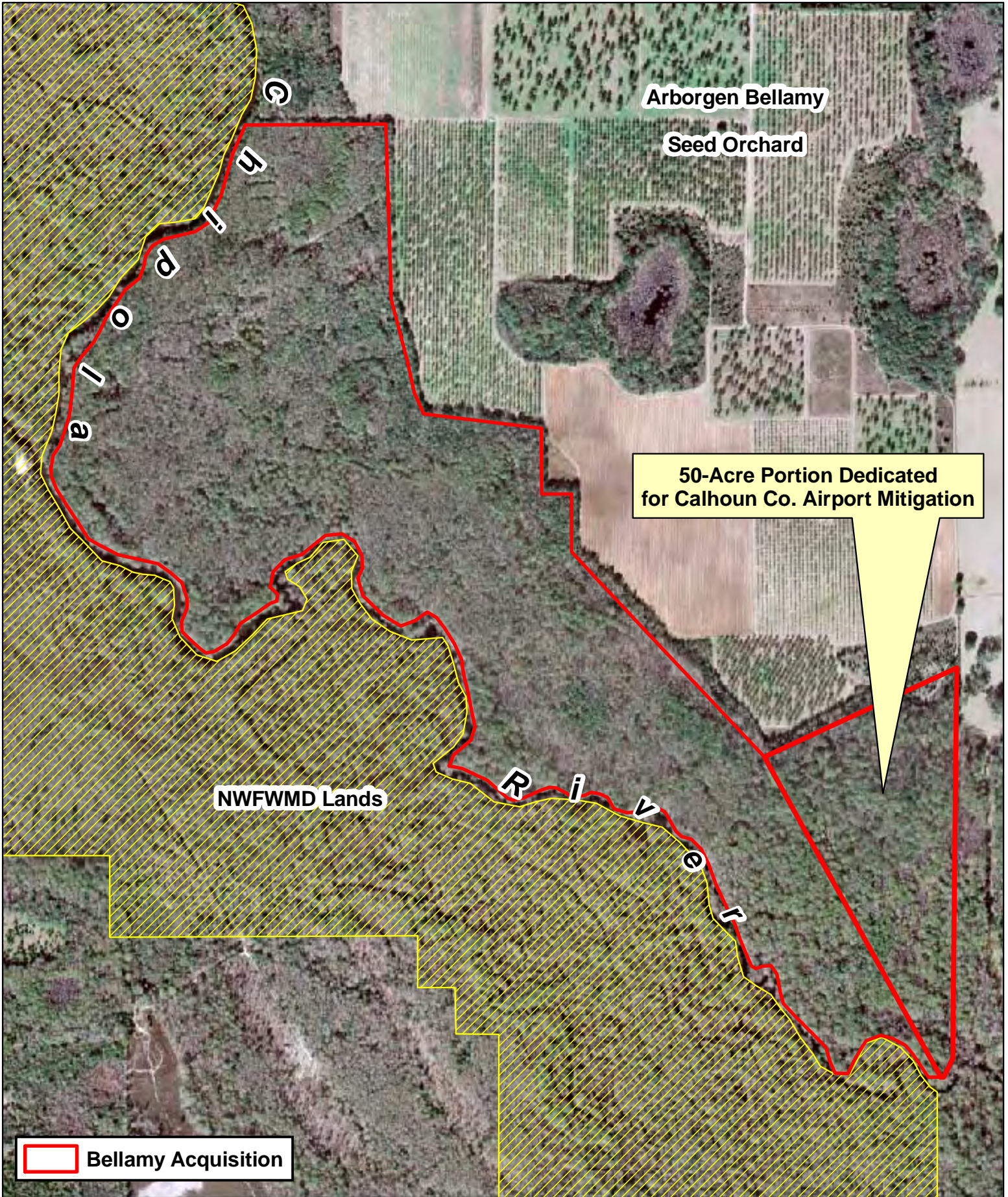
# Location of Bellamy Property



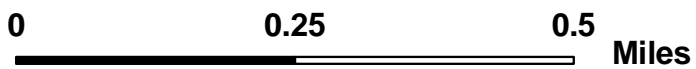
0 25 50 Miles



# Bellamy Property (338.7 +/- Acres)



2007 DOQ



2007 DOQ



50 Acres

0

500

1,000

Feet



# 1940 B&W Aerial



Chippole  
River

50 Acres

0

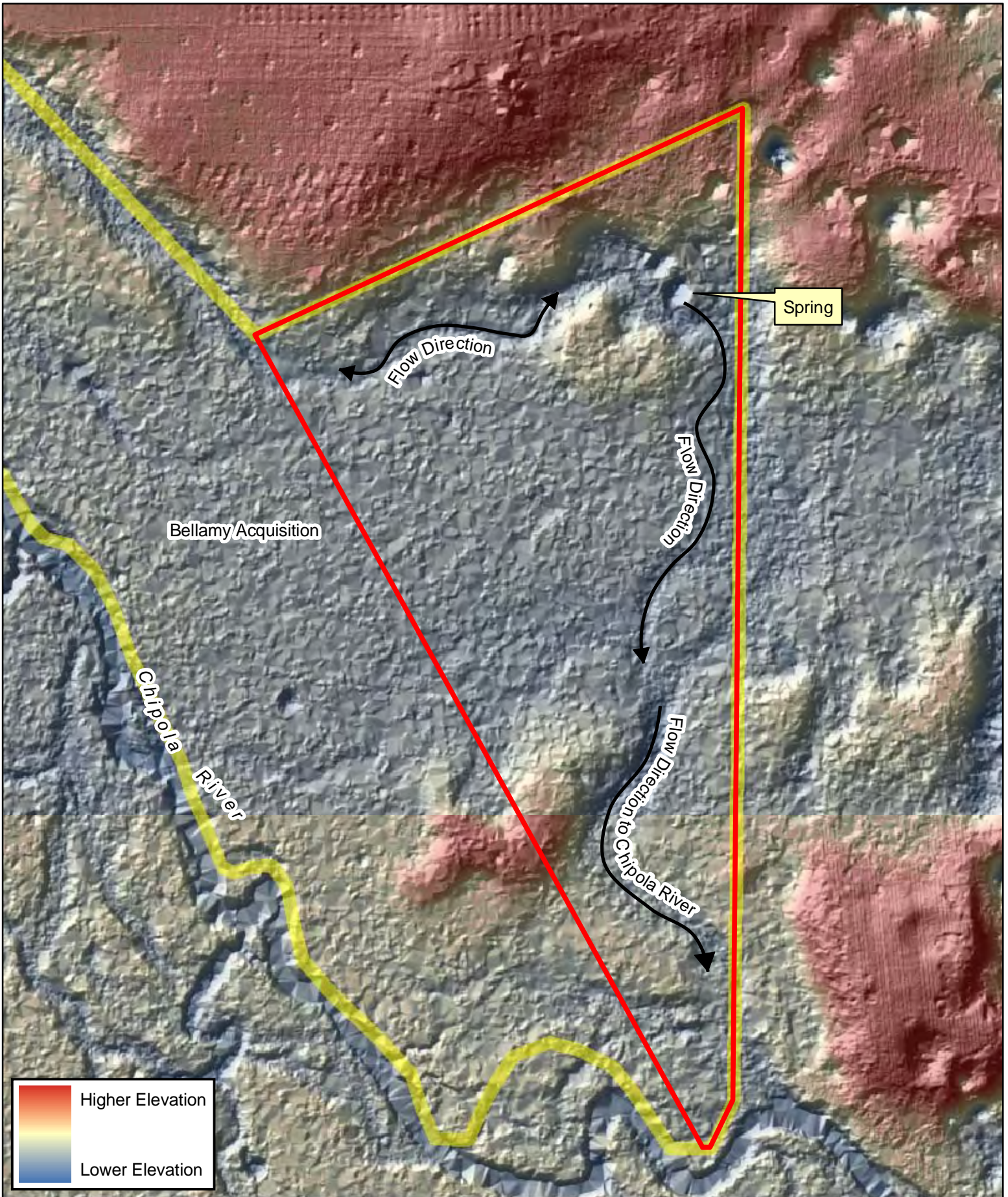
500

1,000

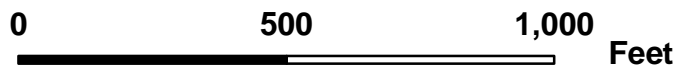
Feet



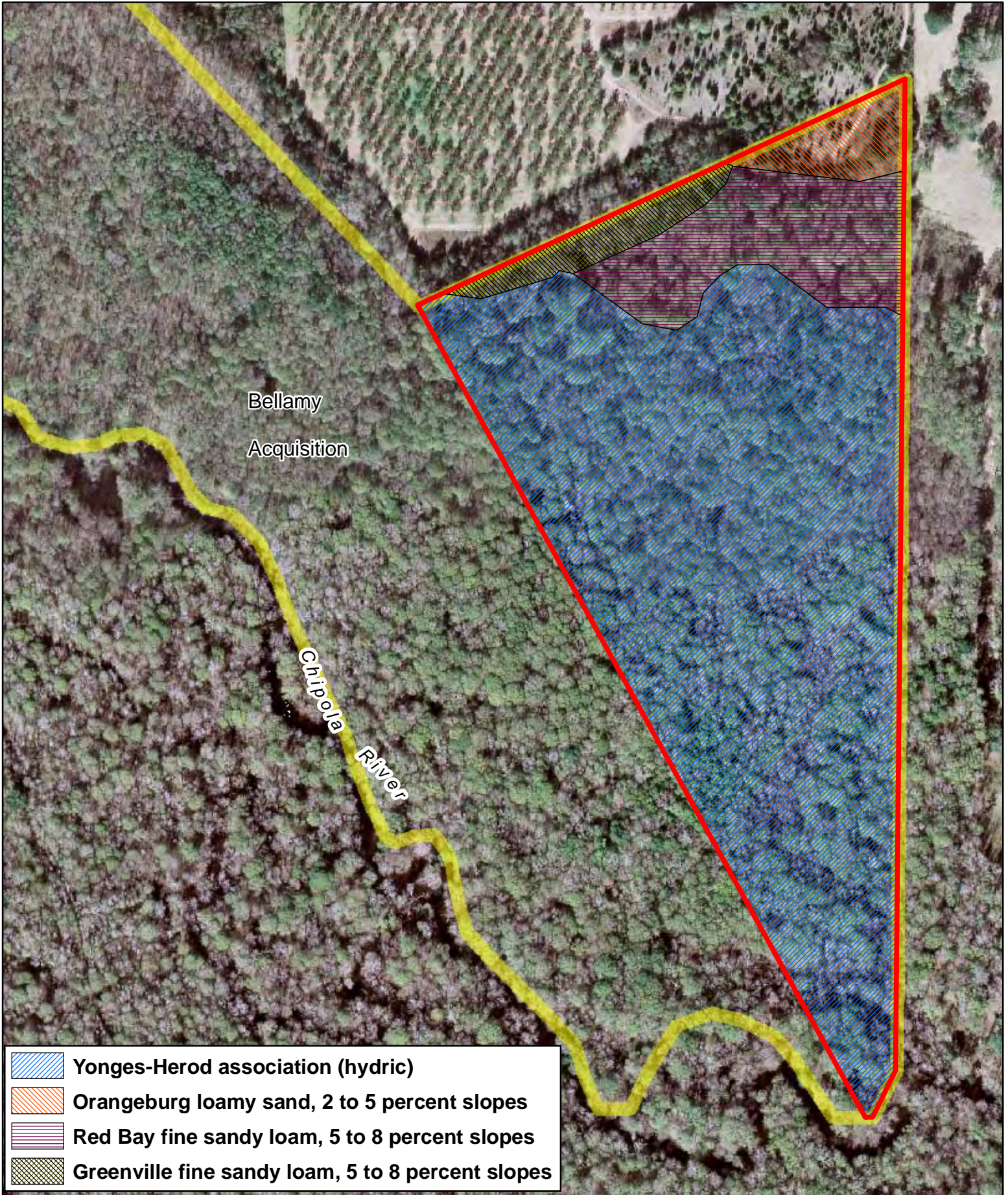
# LIDAR



50 Acres



# Soils



50 Acres

0

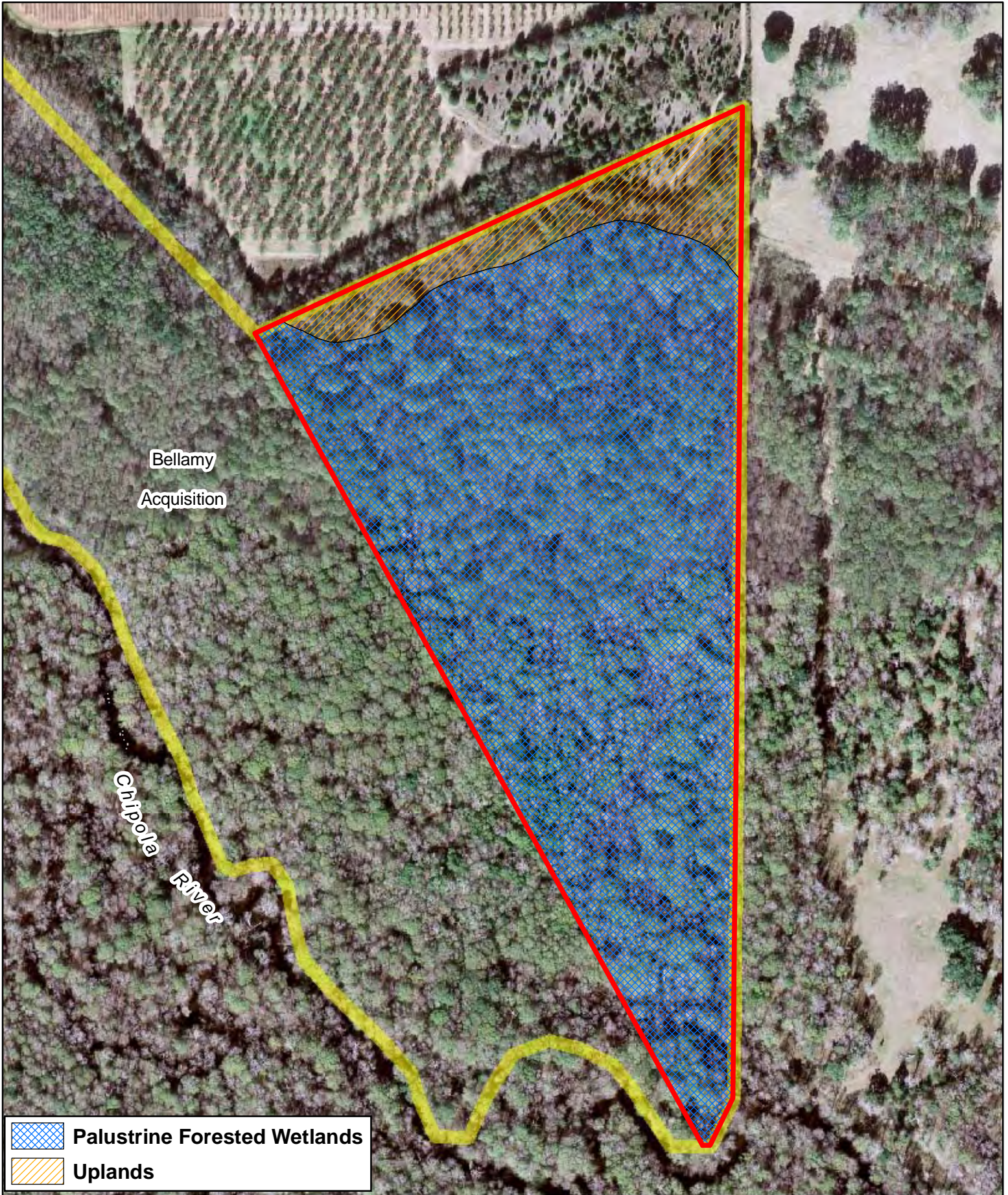
500

1,000

Feet



# NWI Wetlands



50 Acres

0

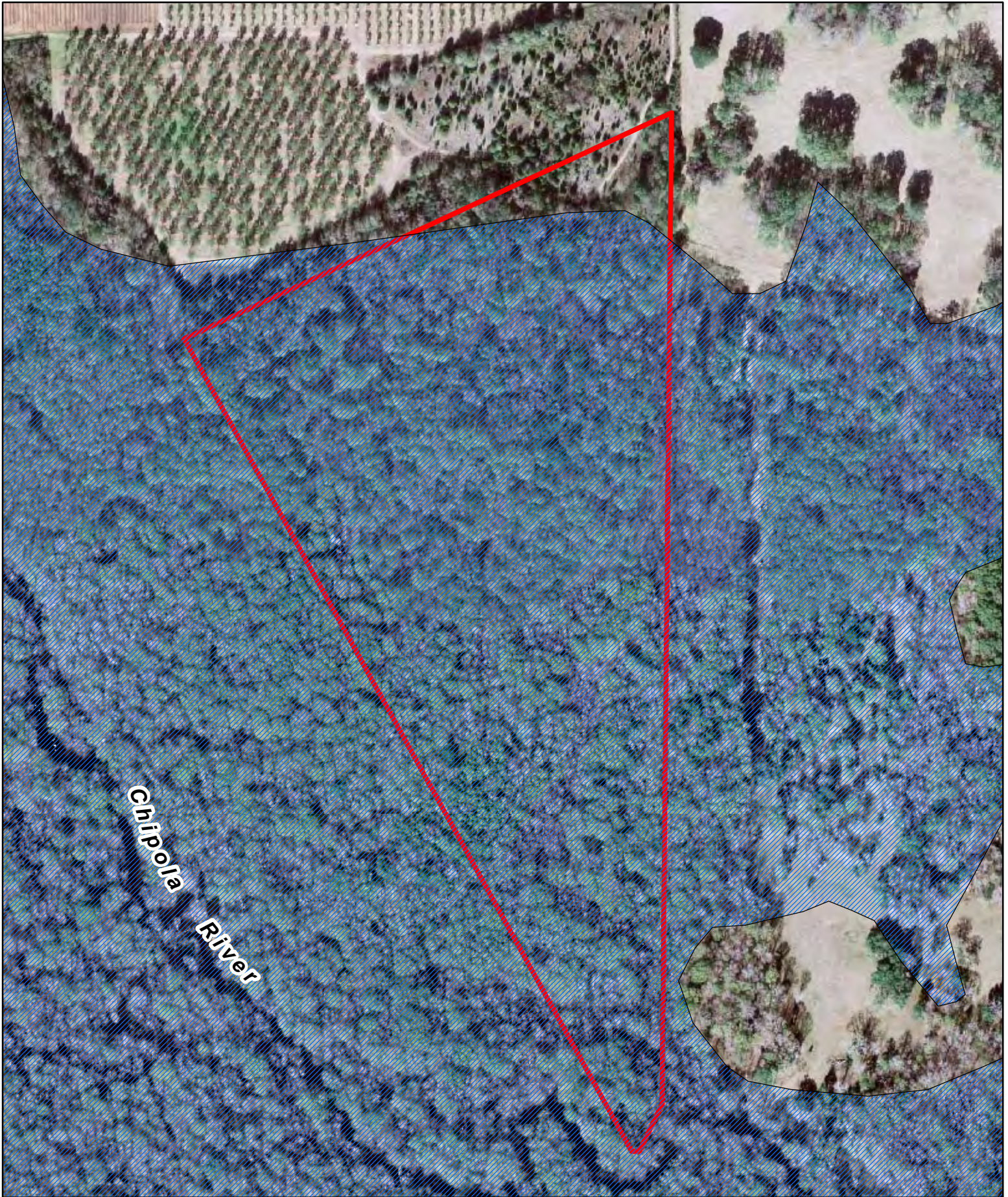
500

1,000

Feet



# 100-Year Flood Zone (FEMA)



50 Acres

0

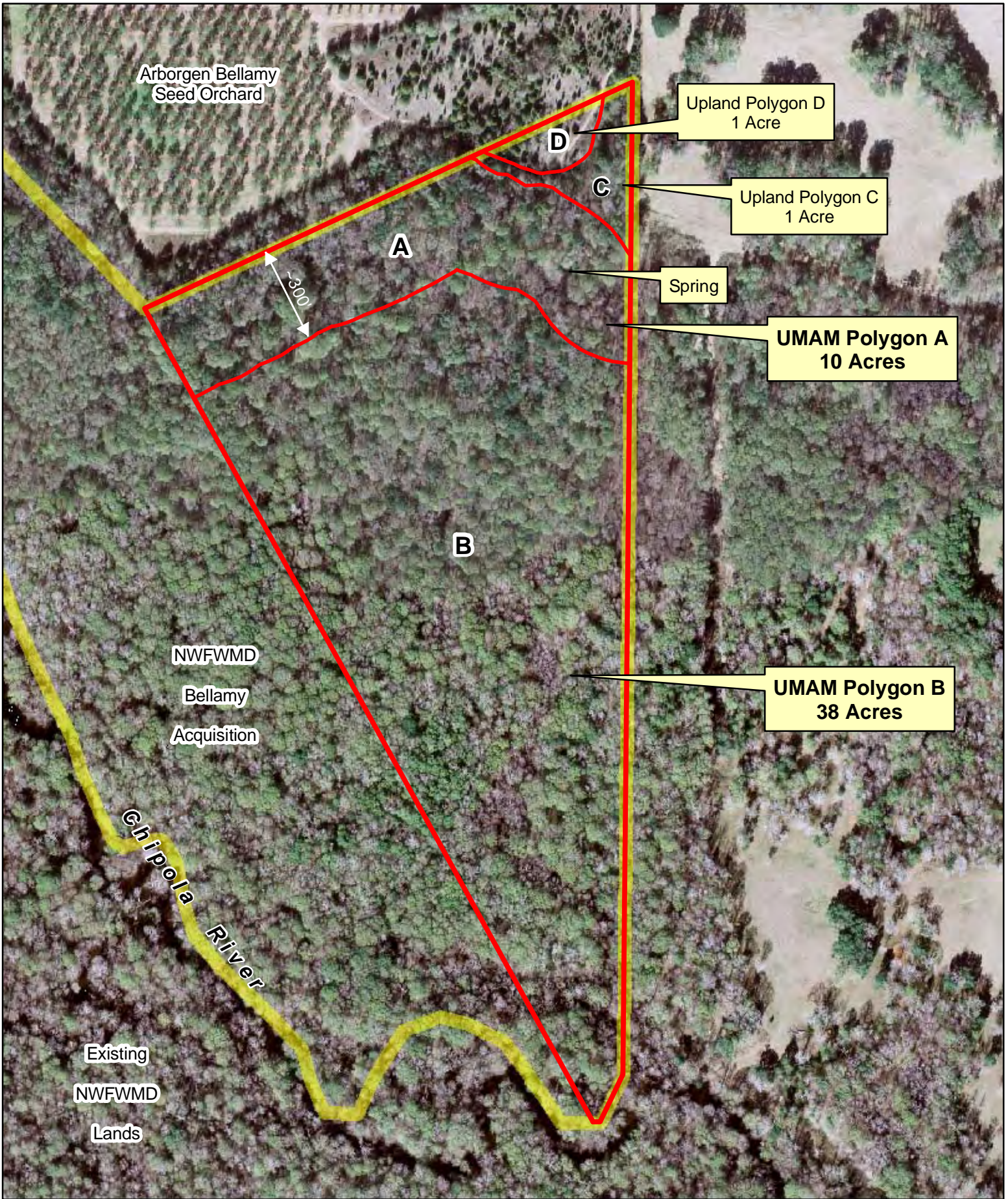
500

1,000

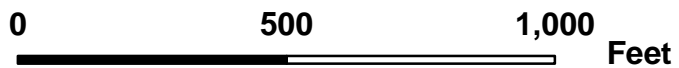
Feet



# UMAM Polygons



50 Acres  
2007 DOQ



**PART I – Qualitative Description  
(See Section 62-345.400, F.A.C.)**

Site/Project Name <b>Bellamy</b>		Application Number <b>Not Applicable</b>		Assessment Area Name or Number <b>Polygon A</b>	
FLUCCs code <b>615</b>		Further classification (optional) <b>---</b>		Impact or Mitigation Site? <b>Mitigation</b>	
Assessment Area Size <b>10 Acres</b>		Basin/Watershed Name/Number <b>Apalachicola River and Bay</b>		Affected Waterbody (Class) <b>III</b>	
				Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) <b>OFW</b>	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands <b>Contiguous to Chipola River.</b>					
Assessment area description <b>Forested palustrine wetlands; 2nd order magnitude spring; occurs within 300' of upland buffers.</b>					
Significant nearby features <b>Chipola River; NFWMD lands; Florida Caverns State Park</b>			Uniqueness (considering the relative rarity in relation to the regional landscape.) <b>Typical Habitat</b>		
Functions <b>Water quality; protection of recharge areas; floral and faunal habitat.</b>			Mitigation for previous permit/other historic use <b>None Known</b>		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found ) <b>Shrew, beaver, opossum, flying squirrel, bobcat, mink, wood rat, white-tailed deer, rice rat, cotton mouse, raccoon, gray squirrel, gray fox.</b>			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) <b>Coville's rush (state endangered).</b>		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): <b>Otter, squirrel, mourning dove, crayfish chimney, blue grey gnatcatcher.</b>					
Additional relevant factors: <b>---</b>					
Assessment conducted by: <b>NFWMD Staff</b>			Assessment date(s): <b>3/18/2009</b>		

**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name <b>Bellamy Property</b>	Application Number <b>Not Applicable</b>	Assessment Area Name or Number <b>Polygon A</b>
Impact or Mitigation <b>Mitigation</b>	Assessment conducted by: <b>NWFWMMD</b>	Assessment date: <b>3/18/2009</b>

<b>Scoring Guidance</b> The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed
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<b>Optimal (10)</b> Condition is optimal and fully supports wetland/surface water functions	<b>Moderate(7)</b> Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	<b>Minimal (4)</b> Minimal level of support of wetland/surface water functions	<b>Not Present (0)</b> Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support	<b>Without Mitigation</b> - No exotics management; Potential for timber operations. <b>With Mitigation</b> - Management of exotics; Elimination of timber operations potential; Perpetual protection of 2nd order magnitude spring.				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">8</td> <td align="center">9</td> </tr> </table>	w/out mit	with mit	8	9	
w/out mit	with mit				
8	9				
.500(6)(b)Water Environment (N/A for Uplands)	<b>Without Mitigation</b> - Appropriate hydrology. <b>With Mitigation</b> - No change.				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">10</td> <td align="center">10</td> </tr> </table>	w/out mit	with mit	10	10	
w/out mit	with mit				
10	10				
.500(6)(c)Community structure  Vegetation and/or Benthic Community	<b>Without Mitigation</b> - Potential for timber operations, lack of exotics management. <b>With Mitigation</b> - Preservation of forest structure and implementation of exotics management, restoration of upland buffers.				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">7</td> <td align="center">9</td> </tr> </table>	w/out mit	with mit	7	9	
w/out mit	with mit				
7	9				

Score = sum of above scores/30 (if uplands, divide by 20)	
w/out mit	with mit
0.83	0.93

If preservation as mitigation	
Preservation adjustment factor =	n/a
Adjusted mitigation delta =	n/a

For impact assessment areas	
<b>N/A</b>	

Delta = [with - w/out]	
<b>0.10</b>	

If mitigation / restoration	
<b>Time Lag Factor (t) = 1.00</b>	
<b>Risk factor (r) = 1.25</b>	

Polygon Acreage =		10
For mitigation assessment areas		
<b>Mitigation Credits (Delta/(t*r) * Acres) =</b>		<b>0.80</b>

**PART I – Qualitative Description  
(See Section 62-345.400, F.A.C.)**

Site/Project Name <b>Bellamy</b>		Application Number <b>Not Applicable</b>		Assessment Area Name or Number <b>Polygon B</b>	
FLUCCs code <b>615</b>		Further classification (optional) <b>---</b>		Impact or Mitigation Site? <b>Mitigation</b>	Assessment Area Size <b>38 Acres</b>
Basin/Watershed Name/Number <b>Apalachicola River and Bay</b>	Affected Waterbody (Class) <b>III</b>		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) <b>OFW</b>		
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands <b>Contiguous to Chipola River.</b>					
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Additional relevant factors: <b>---</b>					
Assessment conducted by: <b>NFWMD Staff</b>			Assessment date(s): <b>3/18/2009</b>		

**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name <b>Bellamy Property</b>	Application Number <b>Not Applicable</b>	Assessment Area Name or Number <b>Polygon B</b>
Impact or Mitigation <b>Mitigation</b>	Assessment conducted by: <b>NFWFMD</b>	Assessment date: <b>3/18/2009</b>

<b>Scoring Guidance</b> The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed
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.500(6)(a) Location and Landscape Support	<b>Without Mitigation</b> - Potential for timber operations and impact to adjacent wetlands. <b>With Mitigation</b> - Preservation and elimination of potential threats to adjacent wetlands.				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td>9</td> <td>10</td> </tr> </table>	w/out mit	with mit	9	10	
w/out mit	with mit				
9	10				
.500(6)(b)Water Environment (N/A for Uplands)	<b>Without Mitigation</b> - Appropriate hydrology. <b>With Mitigation</b> - No change.				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td>10</td> <td>10</td> </tr> </table>	w/out mit	with mit	10	10	
w/out mit	with mit				
10	10				
.500(6)(c)Community structure  Vegetation and/or Benthic Community	<b>Without Mitigation</b> - Potential for timber operations, lack of exotics management. <b>With Mitigation</b> - Preservation of forest structure and implementation of exotics management, restoration of upland buffers, erosion stabilization.				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td>9</td> <td>10</td> </tr> </table>	w/out mit	with mit	9	10	
w/out mit	with mit				
9	10				

Score = sum of above scores/30 (if uplands, divide by 20)				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td>0.93</td> <td>1.00</td> </tr> </table>	w/out mit	with mit	0.93	1.00
w/out mit	with mit			
0.93	1.00			

If preservation as mitigation
Preservation adjustment factor = 0.6
Adjusted mitigation delta = 0.04

For impact assessment areas
<b>N/A</b>

Delta = [with - w/out]
<b>0.07</b>

If mitigation / restoration
<b>Time Lag Factor = 0</b>
<b>Risk factor = 0</b>

Polygon Acreage = 38		
For mitigation assessment areas		
<table border="1"> <tr> <td><b>Mitigation Credits (Adj Delta * Acres) =</b></td> <td align="center"><b>1.52</b></td> </tr> </table>	<b>Mitigation Credits (Adj Delta * Acres) =</b>	<b>1.52</b>
<b>Mitigation Credits (Adj Delta * Acres) =</b>	<b>1.52</b>	

Bellamy Property  
 UMAM Credit Assessment (NFWFMD Staff)

DO NOT ENTER DATA ON THIS PAGE  
 ENTER SCORES ONLY ON INDIVIDUAL POLYGON PAGES

Polygon	Acres	L1	L2	W1	W1	C1	C2	W/Out Score	With Score	Raw Delta	Time Lag	P Factor	Risk	Adjusted Delta	UMAM Credits
A	10	8	9	10	10	7	9	0.83	0.93	0.10	1	N/A	1.25	0.08	0.800
B	38	9	10	10	10	9	10	0.93	1.00	0.07	0	0.6	0	0.04	1.520
Uplands	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	54														2.32

- L1 = Location and Landscape Support - Without Mitigation
- L2 = Location and Landscape Support - With Mitigation
- W1 = Water Environment - Without Mitigation
- W2 = Water Environment - With Mitigation
- C1 = Community Structure - Without Mitigation
- C2 = Community Structure - With Mitigation

Raw Delta = w/mit score - without mitigation score  
 Adjusted Delta = Raw Delta / (Time Lag \* Risk)  
 UMAM Credits = Acres \* Adjusted Delta

Table 1. Floodplain Forest (Polygon A and B)

<b>Wildlife Observed: Otter, squirrel, mourning dove, crayfish chimney, blue grey gnatcatcher,</b>					
<b>Scientific Name</b>	<b>Common Name</b>	<b>Tree</b>	<b>Shrub</b>	<b>Vine</b>	<b>Herb</b>
<i>Acer floridanum</i>	Florida maple	X			
<i>Acer rubrum</i>	Red maple	X			
<i>Aesculus pavia</i>	Red buckeye		X		
<i>Arisema dracontium</i>	Green dragon				X
<i>Arisema triphyllum</i>	Jack-in-the- pulpit				X
<i>Arundinaria gigantea</i>	Giant cane				X
<i>Bignonia capreolata</i>	Cross vine			X	
<i>Callicarpa americana</i>	Beauty berry				X
<i>Campsis radicans</i>	Trumpet vine			X	
<i>Carex gigantea</i>	Sedge				X
<i>Carpinus caroliniana</i>	Ironwood	X			
<i>Carya aquatica</i>	Water hickory	X			
<i>Celtis leavigata</i>	Sugarberry	X			
<i>Cephalanthus occidentalis</i>	Button bush		X		
<i>Cornus foemina</i>	Swamp dogwood		X		
<i>Crataegus aestivalis</i>	May haw		X		
<i>Crataegus marshallii</i>	Parsley haw		X		
<i>Dichanthelium sp.</i>	Witch grass				X
<i>Diospyros virginiana</i>	Persimon	X			
<i>Galium tinctorium</i>	Stiff marsh bedstraw				X
<i>Gelsemium rankinii</i>	Swamp jessamine			X	
<i>Halesia diptera</i>	Two-winged silver bells		X		
<i>Hydrocotyle verticillata</i>	Swamp pennywort				X
<i>Hymenocallis sp.</i>	Spider-lily				X
<i>Hypericum sp.</i>	St. Johns wort				X
<i>Ilex opaca</i>	American holly	X			
<i>Iris sp.</i>	Iris				X
<i>Juncus gymnocarpus*</i>	Coville's rush				X
<i>Liquidambar styraciflua</i>	Sweet gum	X			
<i>Ludwigia sp.</i>	Rattlebox				X
<i>Magnolia grandiflora</i>	Southern magnolia	X			
<i>Nyssa sylvatica</i>	Black gum	X			
<i>Onoclea sensibilis</i>	Sensitive fern				X
<i>Pinus glabra</i>	Spruce pine	X			
<i>Platanus occidentalis</i>	Sycamore	X			
<i>Quercus laurifolia</i>	Laurel oak	X			
<i>Quercus lyrata</i>	Overcup oak	X			
<i>Quercus michauxii</i>	Basket oak	X			
<i>Quercus nigra</i>	Water oak	X			
<i>Rhaphidophyllum hystrix</i>	Needle palm		X		
<i>Rhus copallinum</i>					
<i>Sabal minor</i>	Bluestem palm		X		
<i>Samolus ebracteatus</i>	Water pimpernel				X
<i>Sebastiania fruticosa</i>	Sebastian bush		X		
<i>Smilax laurifolia</i>	Cat briar			X	
<i>Symplocos tinctoria</i>	Horse sugar		X		
<i>Taxodium distichum</i>	Bald cypress	X			
<i>Toxicodendron radicans</i>	Poison ivy			X	

<i>Ulmus americana</i>	American elm	X			
<i>Ulmus rubra</i>	Slippery elm	X			
<i>Vaccinium corymbosum</i>	High bush blueberry		X		
<i>Viburnum dentatum</i>	Arrow wood		X		
<i>Viburnum obovatum</i>	Walter's viburnum		X		
<i>Viola affinis</i>	Florida violet				X
<i>Vitis rotundifolia</i>	Wild muscadine			X	
<i>Yeatesia viridiflora</i>	Green-flowered yeatesia				X

\* State Endangered , \*\*State Threatened, \*\*\* Nuisance exotic

Table 2. Mesic Hammock Edge and transition (Polygon C)

<b>Wildlife Observed: cardinal, brown thrasher, wren, Cooper's hawk, red shouldered hawk, fence lizard.</b>					
<b>Scientific Name</b>	<b>Common Name</b>	<b>Tree</b>	<b>Shrub</b>	<b>Vine</b>	<b>Herb</b>
<i>Aesculus pavia</i>	Red buckeye		X		
<i>Arisaema dracontium</i>	Green dragon				X
<i>Arisema triphyllum</i>	Jack-in-the- pulpit				X
<i>Arundinaria gigantea</i>	Giant cane				X
<i>Asplenium platyneuron</i>	Ebony spleenwort				X
<i>Callicarpa americana</i>	Beauty berry				X
<i>Carpinus caroliniana</i>	Ironwood	X			
<i>Carya cordiformis</i>	Bitternut hickory	X			
<i>Celtis laevigata</i>	Sugarberry	X			
<i>Chaerophyllum procumbens</i>	Spreading chervil				X
<i>Crataegus marshallii</i>	Parsley haw		X		
<i>Cornus foemina</i>	Swamp dogwood		X		
<i>Galium tinctorium</i>	Stiff marsh bedstraw				X
<i>Hypericum sp.</i>	St. Johns wort				X
<i>Juniperus virginiana</i>	Red cedar	X			
<i>Ligustrum sinense</i> ***	Chinese privet		X		
<i>Liquidambar styraciflua</i>	Sweet gum	X			
<i>Lonicera japonica</i> ***	Japanese honey suckle			X	
<i>Lygodium japonicum</i> ***	Japanese climbing fern			X	
<i>Prunus angustifolia</i>	Chicka saw plum		X		
<i>Prunus caroliniana</i>	Cherry laurel	X			
<i>Prunus serotina</i>	Black cherry	X			
<i>Quercus hemisphaerica</i>	Diamond oak	X			
<i>Quercus virginiana</i>	Live oak	X			
<i>Rhus copallinum</i>	Winged sumac		X		
<i>Sabal minor</i>	Bluestem palm		X		
<i>Sapindus saponaria</i> ***	Soap berry	X			
<i>Smilax bonna-nox</i>	Green briar			X	
<i>Toxicodendron radicans</i>	Poison ivy			X	
<i>Ulmus americana</i>	American elm	X			
<i>Viola affinis</i>	Florida violet				X
<i>Vitis rotundifolia</i>	Wild muscadine			X	

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Table 3. Springs and surrounding uplands

Wildlife Observed: Squirrel, Otter, kingfisher, fish crow					
Scientific Name	Common Name	Tree	Shrub	Vine	Herb
<i>Acer floridanum</i>	Florida maple	X			
<i>Acer rubrum</i>	Red maple	X			
<i>Acer saccharinum</i>	Silver maple	X			
<i>Aesculus pavia</i>	Red buckeye		X		
<i>Arundinaria gigantea</i>	Giant cane				X
<i>Asplenium platyneuron</i>	Ebony spleenwort				X
<i>Bignonia capreolata</i>	Cross vine			X	
<i>Callicarpa americana</i>	Beauty berry				X
<i>Carpinus caroliniana</i>	Ironwood	X			
<i>Celtis laevigata</i>	Sugarberry	X			
<i>Cercis canadensis</i>	Red bud	X			
<i>Chrysogonum virginianum</i>	Green N gold				X
<i>Cornus foemina</i>	Swamp dogwood		X		
<i>Cornus florida</i>	Flowering dogwood	X			
<i>Fagus grandifolia</i>	American beech	X			
<i>Halesia dipteral</i>	Two-winged silver bells		X		
<i>Hypericum sp.</i>	St. Johns wort				X
<i>Ilex opaca</i>	American holly	X			
<i>Juncus gymnocarpus*</i>	Coville's rush				X
<i>Juniperus virginiana</i>	Red cedar	X			
<i>Liquidambar styraciflua</i>	Sweet gum	X			
<i>Ludwigia sp.</i>	Rattlebox				X
<i>Magnolia grandiflora</i>	Souther n magnolia	X			
<i>Menispermum canadense</i>	Moonseed				X
<i>Nyssa sylvatica</i>	Black gum	X			
<i>Pinus glabra</i>	Spruce pine	X			
<i>Platanus occidentalis</i>	Sycamore	X			
<i>Polygala sp.</i>	Smart weed				X
<i>Prunus angustifolia</i>	Chickasaw plum		X		
<i>Rhus copallinum</i>	Winged sumac		X		
<i>Rubus trivialis</i>	Dewberry			X	
<i>Sabal minor</i>	Bluestem palm		X		
<i>Sebastiania fruticosa</i>	Sebastian		X		
<i>Smilax ecirrhata</i>	Upright carrion flower			X	
<i>Smilax laurifolia</i>	Green briar			X	
<i>Taxodium distichum</i>	Bald cypress	X			
<i>Toxicodendron radicans</i>	Poison ivy			X	
<i>Trillium decipiens</i>	Chattahoochee river wakerobin				X
<i>Ulmus alata</i>	Winged elm	X			
<i>Vaccinium corymbosum</i>	High bush blueberry		X		
<i>Viburnum obovatum</i>	Walter's viburnum		X		
<i>Viola affinis</i>	Florida violet				X
<i>Viola walteri</i>	Walter's violet				X

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Table 4. Uplands (Former Sandhill) Polygon D

Wildlife Observed: Squirrel, Otter, kingfisher, fish crow					
Scientific Name	Common Name	Tree	Shrub	Vine	Herb
<i>Agalinis sp.</i>	False fox glove				X
<i>Arundinaria gigantea</i>	Giant cane				X
<i>Gelsemium sempervirens</i>	Florida jessamine			X	
<i>Halesia diptera</i>	Two-winged silver bells		X		
<i>Hypericum sp.</i>	St. Johns wort				X
<i>Ilex opaca</i>	American holly	X			
<i>Ilex vomitoria</i>	Yaupon holly		X		
<i>Juniperus virginiana</i>	Red cedar	X			
<i>Lonicera japonica</i> ***	Japanese honeysuckle			X	
<i>Pinus clausa</i>	Sand pine	X			
<i>Pinus taeda</i>	Loblolly pine	X			
<i>Pityopsis sp.</i>	Shinners				X
<i>Prunus angustifolia</i>	Chickasaw plum		X		
<i>Prunus serotina</i>	Black cherry	X			
<i>Quercus virginiana</i>	Live oak	X			
<i>Rhus copallinum</i>	Winged sumac		X		
<i>Rubus cuneifolius</i>	Sand blackberry			X	
<i>Smilax bonn-nox</i>	Green briar			X	
<i>Toxicodendron radicans</i>	Poison ivy			X	
<i>Trichostema setaceum</i>	Narrow-leaved blue curls				X
<i>Vitis rotundifolia</i>	Muscadine			X	

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