

LIVE OAK PENINSULA MITIGATION

UWRMP Section 5.3.5 Supplement

- **Lewis Parcel**
- **Lee Parcel**
- **Section 16 School Lands**
- **US 331 (US 98 to Choctawhatchee Bay) Impacts**

Revision: 8 February 2008

General Site Description of Live Oak Peninsula:

Located within Choctawhatchee Bay, Live Oak Peninsula contains approximately 1,000 acres of salt marsh (FLUCCS 642). Species include black needlerush (*Juncus roemerianus*), saltmarsh cordgrass (*Spartina alterniflora*), bulrush (*Scirpus* spp.) and big cordgrass (*Spartina cynosuroides*), with scattered pines and other transitional species occurring on hammocks within the marsh. A network of mosquito control ditches, dug by the South Walton Co. Mosquito Control District during the 1960s, is also within the salt marsh. Some Chinese tallow (*Sapium sebiferum*) has been noted on relic ditch spoil piles. To the east, the salt marsh grades into hydric pine flatwoods (FLUCCS 625) which is under intense development pressures. Functions associated with the Live Oak Peninsula wetlands include shoreline stabilization, buffering upland areas from storm surges, providing nursery and foraging habitat for a variety of aquatic organisms, bird habitat, and the natural filtering of runoff from adjacent uplands.

For past FDOT mitigation needs on US 98, the NFWFMD purchased ~320 acres of salt marsh at Live Oak Peninsula in 1999, followed by acquisition in 2001 of an additional ~132 acres from the State of Florida Board of Trustees (BOT). To further protection of wetland habitat and water resources within Choctawhatchee Bay, the NFWFMD has targeted additional acquisitions, especially hydric pine flatwoods threatened by development, at Live Oak Peninsula. All targeted acquisitions at Live Oak Peninsula are within the South Walton Area Mitigation Project (SWAMP) priority lands.

Lewis Parcel:

- ~40 acres
 - ~4 acres palustrine forested/emergent wetlands
 - ~29 acres estuarine emergent wetlands
 - ~7 acres seagrass beds / open water

Lee Parcel:

- ~20 acres
 - ~18 acres palustrine forested/emergent wetlands
 - ~2 acres estuarine emergent wetlands

Section 16 School Lands:

- ~220 acres estuarine emergent wetlands

Restoration Activities:

Native habitats, including freshwater marsh, salt marsh, and forested wetlands will be enhanced through perpetual ecological management including control of nuisance and exotic plant and animal species. Actual restoration techniques implemented will be dependent upon site-specific conditions and adaptive management strategies.

Success Criteria:

Success criteria will be derived from Chapter 11 of the UWRMP.

Monitoring:

Monitoring protocols to be implemented will be derived from Chapter 11.0 of the UWRMP in coordination with the CORPS/MRT.

Long-term Management:

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). Long-term management is described in Chapter 11 of the UWRMP.

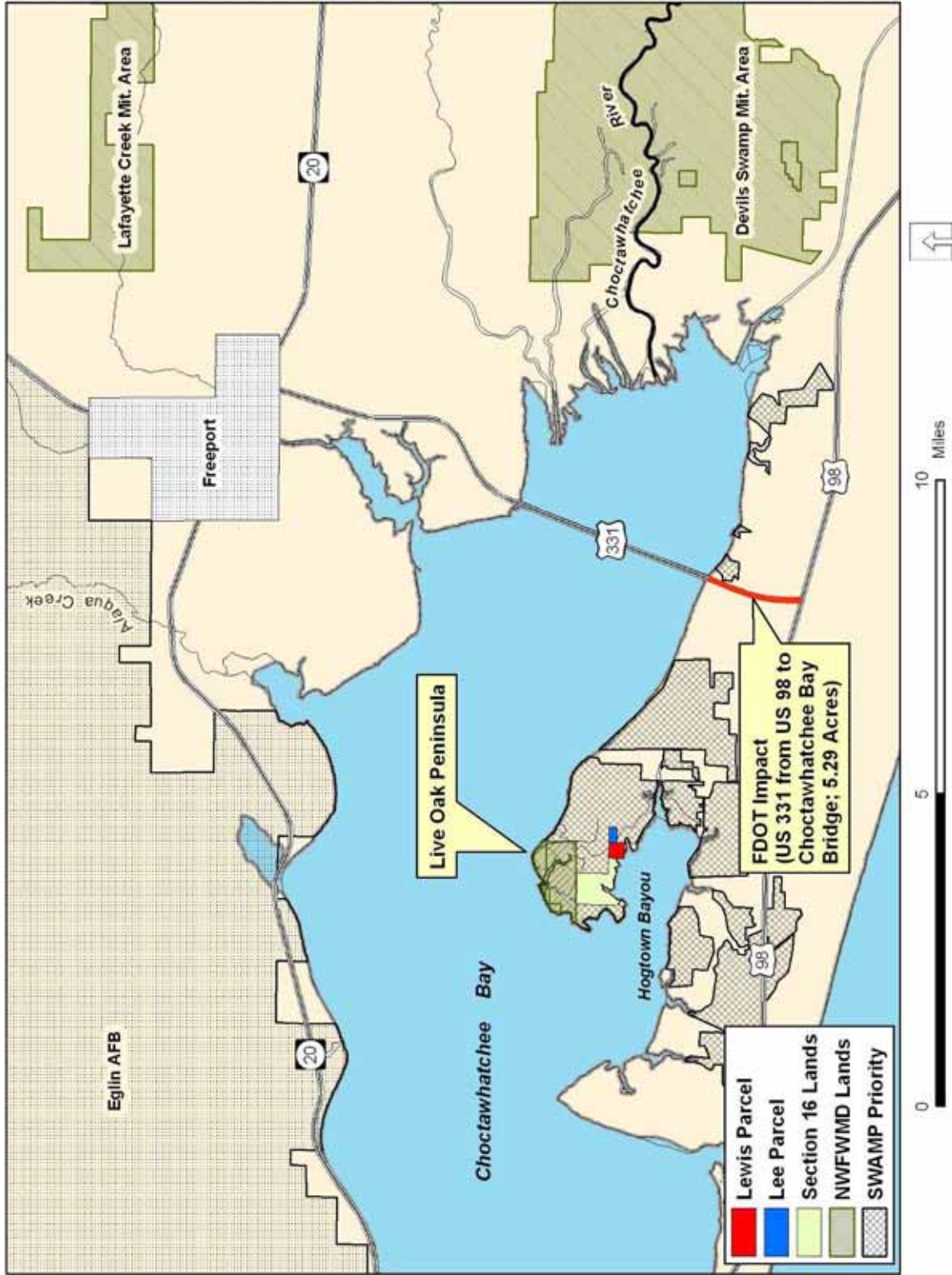
Status Reports:

Status reports of mitigation activities will be generated as mandated by the CORPS/MRT and posted at <http://www.nfwmdwetlands.com>.

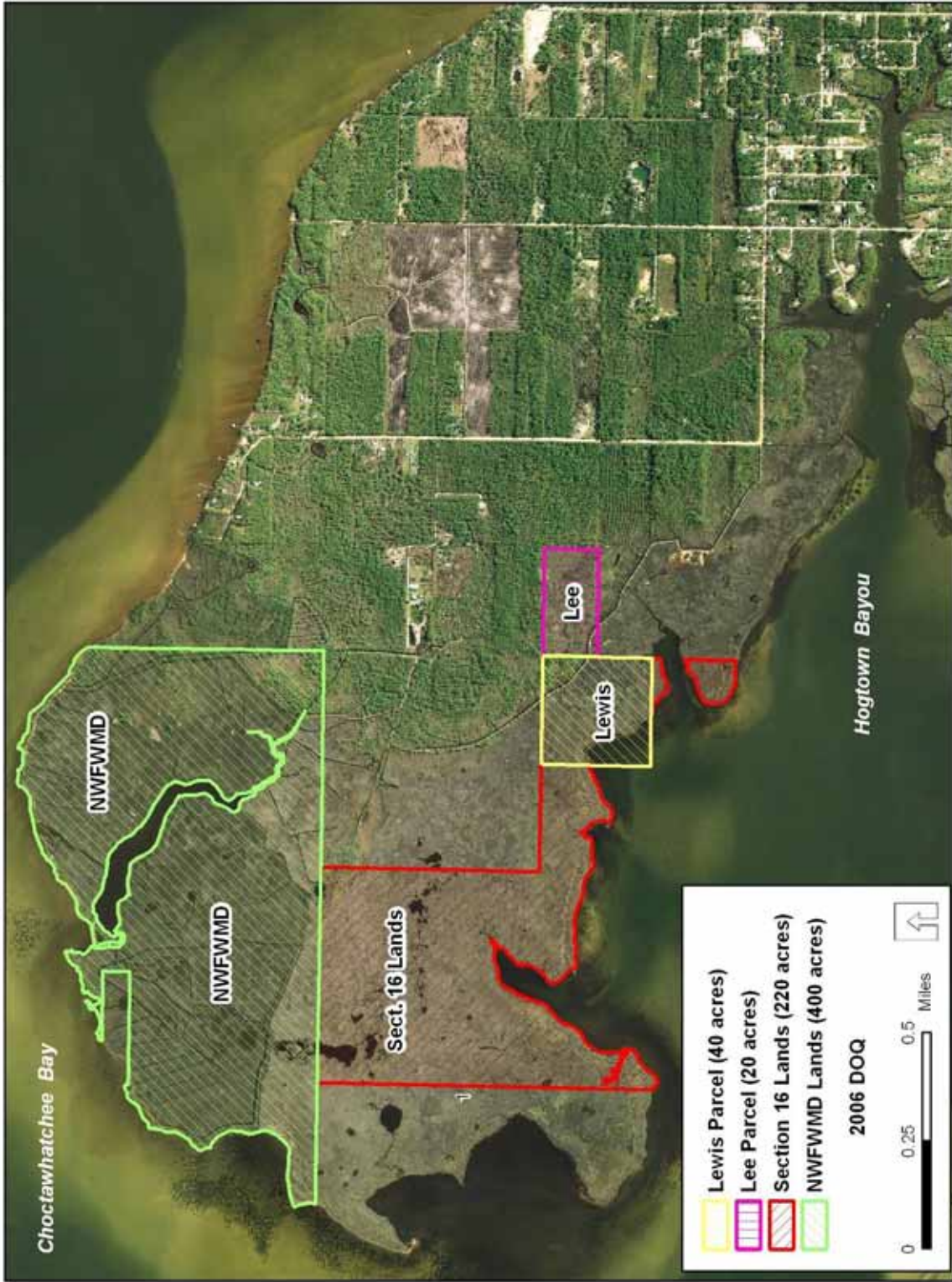
US 331 Impacts (from US 98 to the Choctawhatchee Bay Bridge):

Per CORPS permitting, the US 331 project will impact 5.29 acres of forested and freshwater marsh wetlands and result in a loss of 3.80 UMAM units.

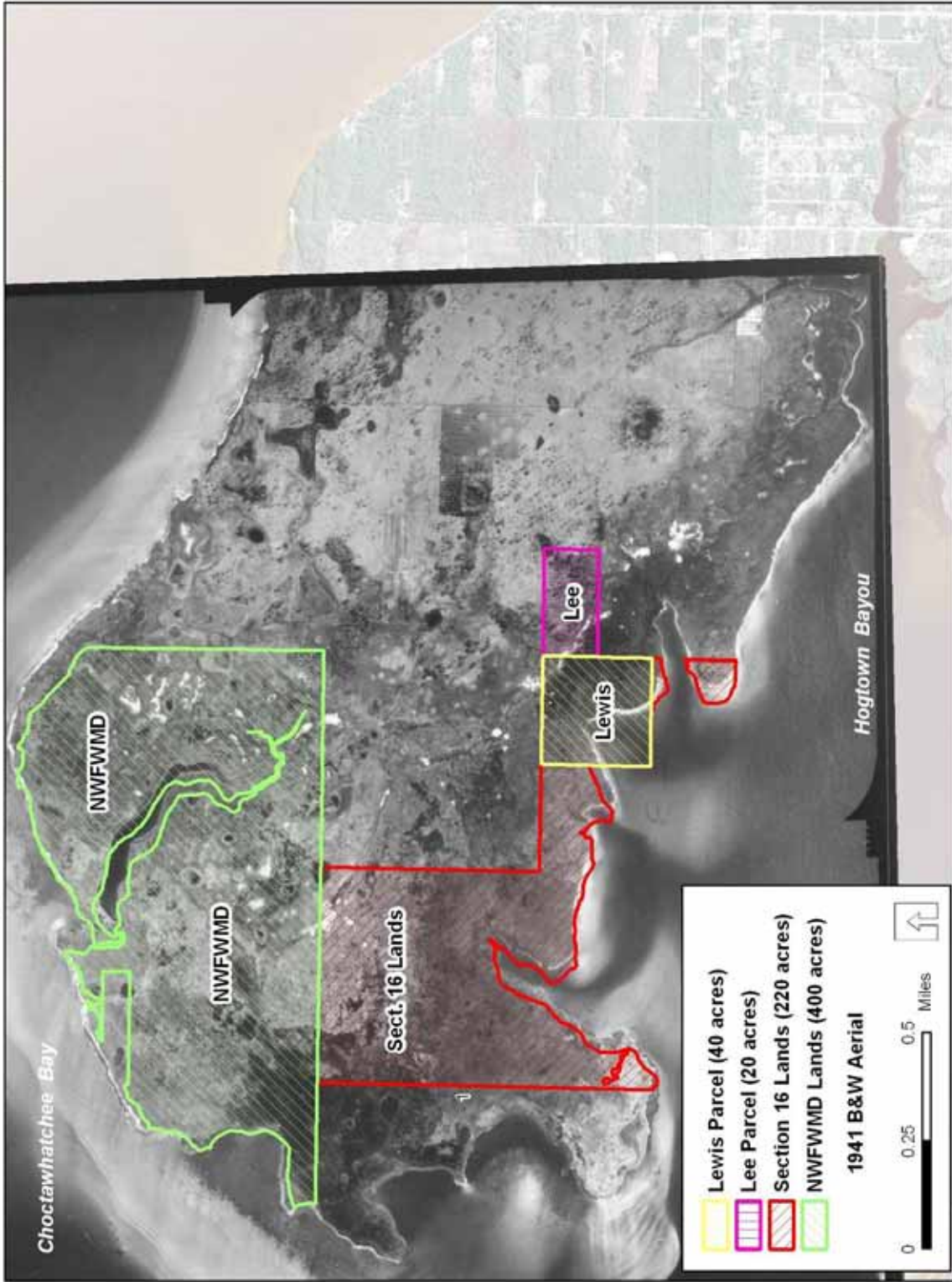
Location of Live Oak Peninsula in Relation to US 331 Impact



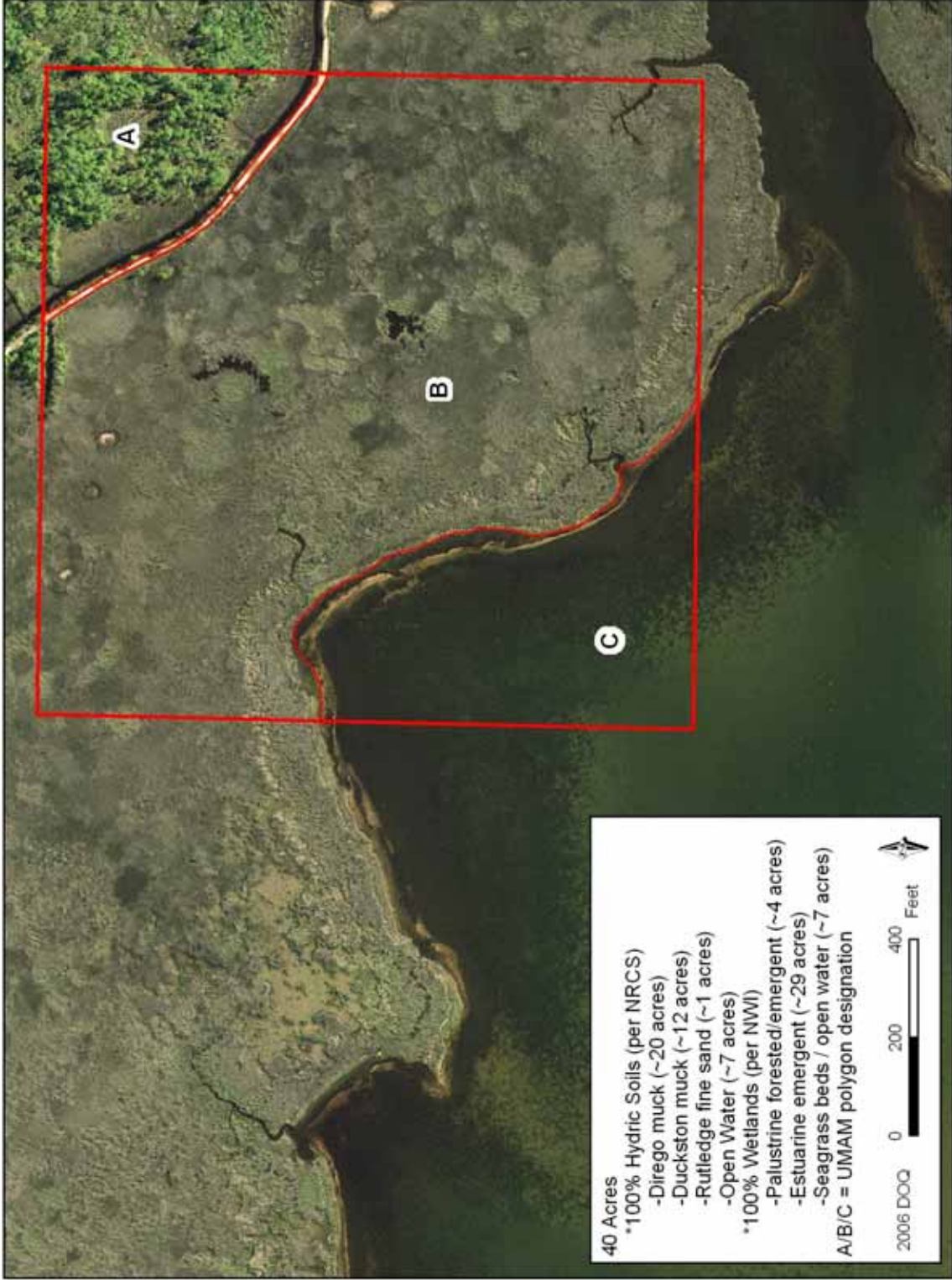
Live Oak Peninsula Mitigation Area - Existing NFWWMD Lands and Targeted Acquisitions



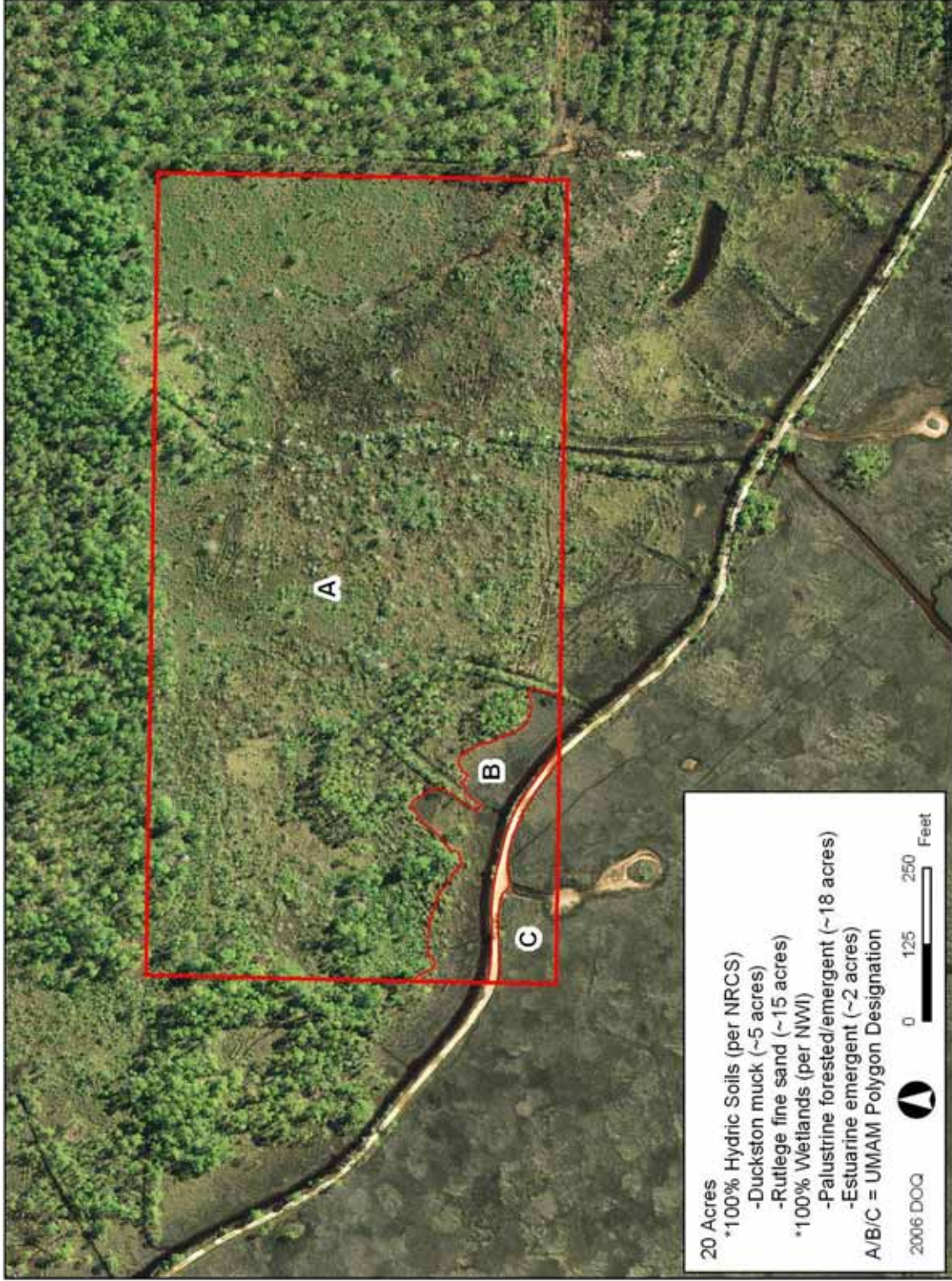
Live Oak Peninsula Mitigation Area - Existing NFWWMD Lands and Targeted Acquisitions



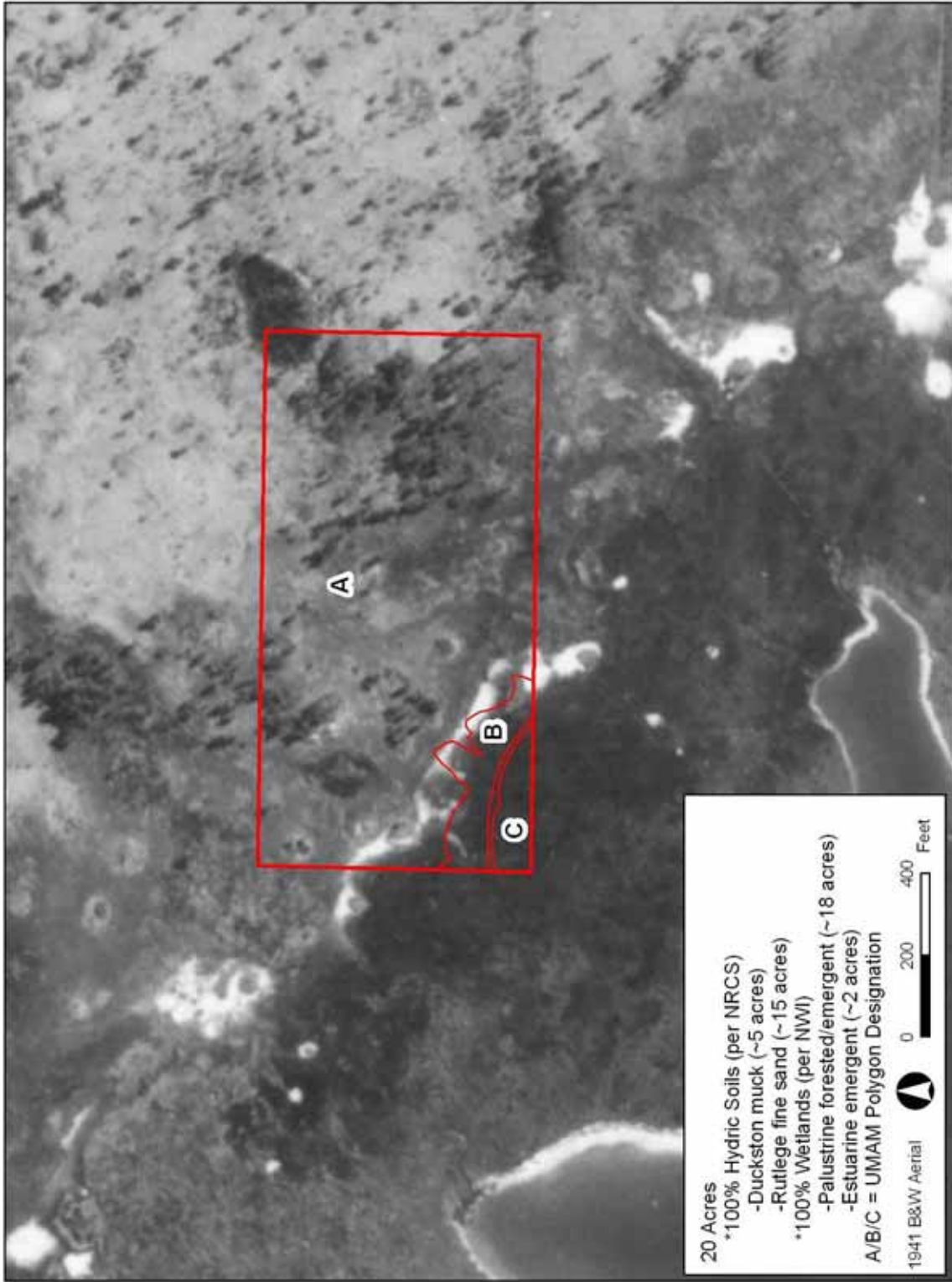
Lewis Parcel - Live Oak Peninsula Mitigation Area



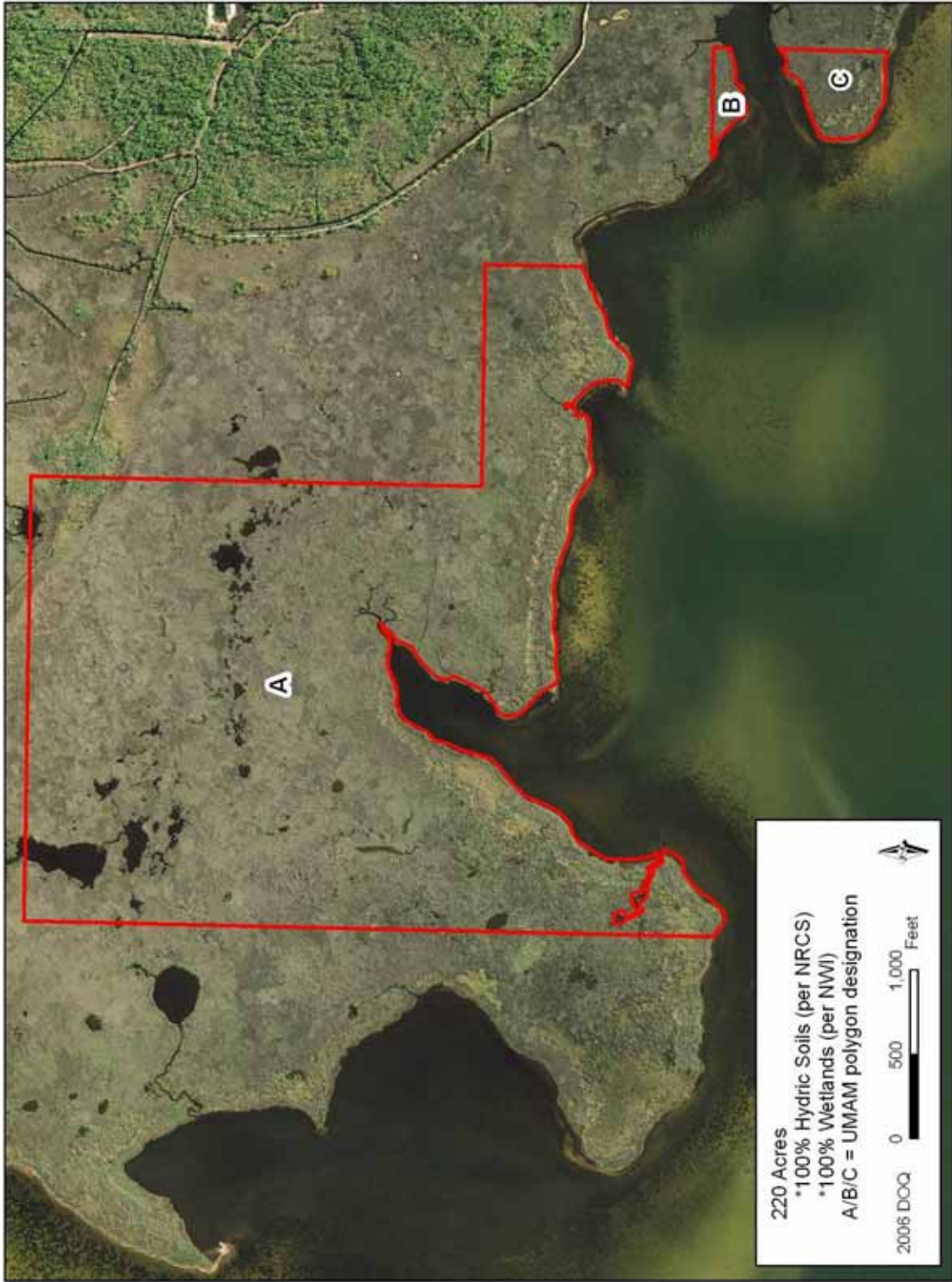
Lee Parcel - Live Oak Peninsula Mitigation Area



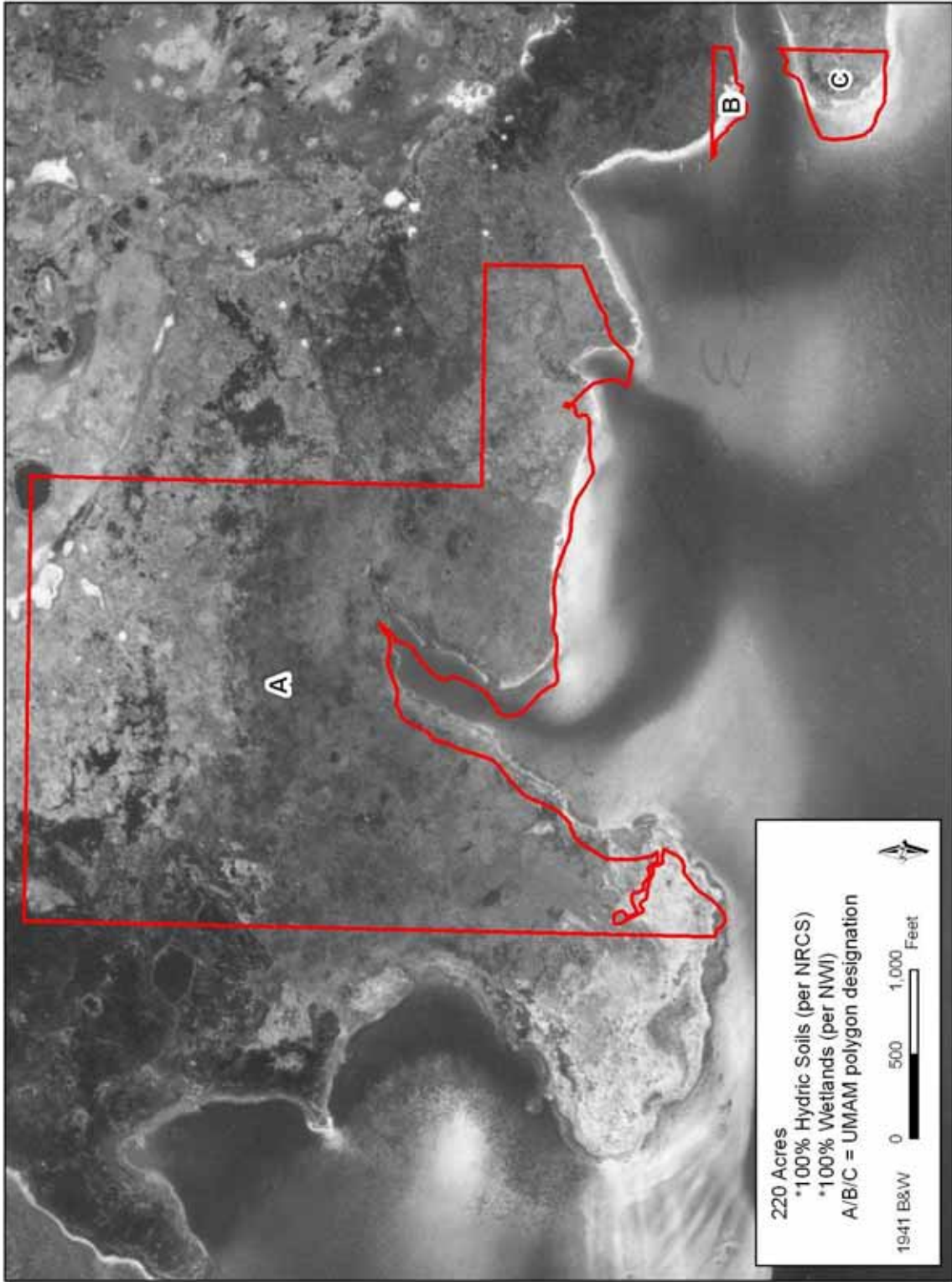
Lee Parcel - Live Oak Peninsula Mitigation Area



Section 16 School Lands - Live Oak Peninsula Mitigation Area



Section 16 School Lands - Live Oak Peninsula Mitigation Area



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

Site/Project Name Lewis Parcel		Application Number Not Applicable	Assessment Area Name or Number Lewis A
FLUCCs code 625/626	Further classification (optional) Hydric Pine Flatwoods / Savanna		Impact or Mitigation Site? Mitigation
Assessment Area Size 3.9 Acres			
Basin/Watershed Name/Number Choctahatchee Bay Watershed	Affected Waterbody (Class) III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Part of extensive estuarine and palustrine wetland complex in Choctawhatchee Bay.			
Assessment area description Mosaic of salt marsh and hydric pine flatwoods/savanna. Extensive mosquito control ditching in area.			
Significant nearby features Hogtown Bayou. Choctawhatchee Bay. Significant encroachment from development to east.		Uniqueness (considering the relative rarity in relation to the regional landscape.) Typical habitat.	
Functions Water quality; water storage; floral and faunal habitat.		Mitigation for previous permit/other historic use None known.	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Deer, possum, raccoon, bob cat, box turtle, black racer, oak toad, American toad, garter snake, diamond back rattler, cotton mouse, marsh rabbit, marsh snake.		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Scott's Seaside Sparrow	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):			
Additional relevant factors: Occurs within SWAMP (South Walton Area Mitigation Project)			
Assessment conducted by: NFWFMD Staff		Assessment date(s): 2/8/2008	

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

Site/Project Name Lewis Parcel	Application Number Not Applicable	Assessment Area Name or Number Lewis A
Impact or Mitigation Mitigation	Assessment conducted by: NFWFMD Staff	Assessment date: 2/8/2008

Scoring Guidance
 The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	Without Mitigation - No ecological management of adjacent polygons; road forms barrier to salt marsh. Further decline as surrounding area is developed. With Mitigation - Appropriate management in adjacent polygons; habitats of adjacent polygons will be improved as they are restored.culverts.	<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					
.500(6)(b)Water Environment (n/a for uplands)	Without Mitigation - Continued severance from salt marsh tidal flows and channelization of freshwater flows into the bay. With Mitigation - Placement of multiple culverts under road with spillways will reestablish connections with salt marsh and tidal flows under high tides. Freshwater flows are currently channelized in a series of ditches will be returned to more historic freshwater flows into the bay returning upper areas to freshwater influenced wetlands.	<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					
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	Without Mitigation - Substantial exotic species infestation due to continued spread of popcorn tree (<i>Sapium sebiferum</i>) and lack of lack of fire has allowed more woody vegetation such as yaupon to colonize area. With Mitigation - Appropriate management iof exotics control and re-introduction of fire.	<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">5</td> <td align="center">9</td> </tr> </table>	w/out mit	with mit	5	9
w/out mit	with mit					
5	9					

Score = sum of above scores/30 (if uplands, divide by 20)

w/out mit	with mit
0.63	0.90

If preservation as mitigation

Preservation adjustment factor = N/A
Adjusted mitigation delta = N/A

For impact assessment areas

N/A

Delta = [with - w/out]

0.27

If mitigation / restoration

Time Lag Factor (2 years) = 1.03
Risk factor = 1.25

olygon Acreage = 3.9

For mitigation assessment areas

Mitigation Credits [(Delta / (Time Lag * Risk)) * Acres] =	0.81
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**PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)**

Site/Project Name Lewis Parcel		Application Number Not Applicable	Assessment Area Name or Number Lewis B
FLUCCs code 642	Further classification (optional) Salt Marsh	Impact or Mitigation Site? Mitigation	Assessment Area Size 29.0 Acres
Basin/Watershed Name/Number Choctahatchee Bay Watershed	Affected Waterbody (Class) III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Part of extensive estuarine and palustrine wetland complex in Choctawhatchee Bay.			
Assessment area description Mosaic of salt marsh and hydric pine flatwoods/savanna. Extensive mosquito control ditching in area.			
Significant nearby features Hogtown Bayou. Choctawhatchee Bay. Significant encroachment from development to east.		Uniqueness (considering the relative rarity in relation to the regional landscape.) Typical habitat.	
Functions Water quality; water storage; floral and faunal habitat.		Mitigation for previous permit/other historic use None known.	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) American alligator, diamondback tarrapin, Gulf salt marsh water snake. Over 60 species of birds use habitats in needlerush marshes, great blue heron clapper rail, least bittern, short-billed marsh wren, sedge wren, American widgeon, great white heron, white ibis, marsh rabbit, cotton rat, raccoons, mink, otter		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Scott's Seaside Sparrow	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): None yet			
Additional relevant factors: Occurs within SWAMP (South Walton Area Mitigation Project)			
Assessment conducted by: NFWFMD Staff		Assessment date(s): 2/8/2008	

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

Site/Project Name Lewis Parcel	Application Number Not Applicable	Assessment Area Name or Number Lewis B
Impact or Mitigation Mitigation	Assessment conducted by: NFWFMD Staff	Assessment date: 2/6/2008

Scoring Guidance
 The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	Without Mitigation - No ecological management of adjacent polygons; road forms barrier to salt marsh. Further decline as surrounding area is developed. With Mitigation - Appropriate management in adjacent polygons; habitats of adjacent polygons will be improved as they are restored.culverts. Without Mitigation -	<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td>8</td> <td>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)	Without Mitigation - Continued severance from Polygon A. Historically freshwater flows and seepage from surrounding uplands gradually drained to the bay and much of the area was a freshwater marsh as observed from remant water lilly and mallow pieces observed in the surface peat. Mosquite ditches greatly altered flows, partially draining the site and channelizing water flows to the bay. With Mitigation - Culverts under road and added spilways will return freshwater inputs to more historic patterns while re-connecting to Polygon A.	<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td>7</td> <td>9</td> </tr> </table>	w/out mit	with mit	7	9
w/out mit	with mit					
7	9					
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	Without Mitigation - Based draining from ditching of freshwater flows as observed from historic photographs and observations of remnant marsh species in the peat, the historic pine flatwoods and freshwater marsh system was gradually replaced over time with an expanded black needle rush marsh With Mitigation - Restoring more historic freshwater flows patterns to the site will allow fresh water to flush the needle rush marsh allowing the site to re-hydrate, flush the salt out of the sediments and allow an expansion of the wet pine flatwood and freshwater marsh to return to previous coverages.	<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td>7</td> <td>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
0.73	0.90

If preservation as mitigation

Preservation adjustment factor = n/a
Adjusted mitigation delta = n/a

For impact assessment areas

N/A

Delta = [with - w/out]

0.17

If mitigation / restoration

Time Lag Factor (6-10 years) = 1.25
Risk factor = 1

Polygon Acreage = 29.0

For mitigation assessment areas

Mitigation Credits [(Delta / (Time Lag * Risk)) * Acres] =	3.87
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**PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)**

Site/Project Name Lewis Parcel		Application Number Not Applicable	Assessment Area Name or Number Lewis C
FLUCCs code 645	Further classification (optional) Submerged Aquatic Vegetation (sea grass beds)	Impact or Mitigation Site? Mitigation	Assessment Area Size 7 Acres
Basin/Watershed Name/Number Choctahatchee Bay Watershed	Affected Waterbody (Class) III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Part of extensive estuarine and palustrine wetland complex in Choctawhatchee Bay.			
Assessment area description Mosaic of salt marsh and hydric pine flatwoods/savanna. Extensive mosquito control ditching in area.			
Significant nearby features Hogtown Bayou. Choctawhatchee Bay. Significant encroachment from development to east.		Uniqueness (considering the relative rarity in relation to the regional landscape.) Typical habitat.	
Functions Water quality; water storage; floral and faunal habitat.		Mitigation for previous permit/other historic use None known.	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Brown Pelican, skimmer, common tern, laughing gull, double crested comerant, diamond backed terripin, various migratory, ducks		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Brown Pelican LS	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):			
Additional relevant factors: Occurs within SWAMP (South Walton Area Mitigation Project)			
Assessment conducted by: NFWFMD Staff		Assessment date(s): 2/8/2008	

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

Site/Project Name Lewis Parcel	Application Number Not Applicable	Assessment Area Name or Number Lewis C
Impact or Mitigation Mitigation	Assessment conducted by: NWFWM Staff	Assessment date: 2/6/2008

Scoring Guidance
 The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support	Without Mitigation - Portions of the surrounding landscape will be developed . With Mitigation - area preserved and restoration activities and perpetual management improve the surrounding habitat and landscape				
<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)	Without Mitigation - . Development of part of Liveoak point likely as adjacent properties have been developed. Associated docks and more intensive surrounding landuse which would like to increase nutrients and human impacts through increased boating in area. With Mitigation - Slight improvement to water enviroment through returning to more historic flow patterns and slight reduction in sedimentation from scouring of dtiches and ditch flow entereng bay during rain events.				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">7</td> <td align="center">8</td> </tr> </table>	w/out mit	with mit	7	8	
w/out mit	with mit				
7	8				

.500(6)(c)Community structure	Without Mitigation - It is probable that the community structure will remain about the same over time. With Mitigation - Restoration activities will not significantly improved the vegetativie community.				
<table border="1"> <tr> <td>1. Vegetation and/or</td> <td>2. Benthic Community</td> </tr> </table>	1. Vegetation and/or	2. Benthic Community			
1. Vegetation and/or	2. Benthic Community				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">8</td> <td align="center">8</td> </tr> </table>	w/out mit	with mit	8	8	
w/out mit	with mit				
8	8				

Score = sum of above scores/30 (if uplands, divide by 20)

w/out mit	with mit
0.77	0.83

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

For impact assessment areas
N/A

Delta = [with - w/out]
0.07

If mitigation / restoration
Time Lag Factor (2 years) = 1.03
Risk factor = 1

Polygon Acreage = 7.0	
For mitigation assessment areas	
Mitigation Credits [(Delta / (Time Lag * Risk)) * Acres] =	0.45

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

Site/Project Name Lee Parcel		Application Number Not Applicable	Assessment Area Name or Number Lee A
FLUCCs code 625-626	Further classification (optional) Hydric Pine Flatwoods / Savanna	Impact or Mitigation Site? Mitigation	Assessment Area Size 18.26 Acres
Basin/Watershed Name/Number Choctahatchee Bay Watershed	Affected Waterbody (Class) III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Part of extensive estuarine and palustrine wetland complex in Choctawhatchee Bay.			
Assessment area description Mosaic of salt marsh and hydric pine flatwoods/savanna. Extensive mosquito control ditching in area.			
Significant nearby features Hogtown Bayou. Choctawhatchee Bay. Significant encroachment from development to east.		Uniqueness (considering the relative rarity in relation to the regional landscape.) Typical habitat.	
Functions Water quality; water storage; floral and faunal habitat.		Mitigation for previous permit/other historic use None known.	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Deer, possum, raccoon, bob cat, box turtle, spotted skunk, black racer, oak toad, American toad, garter snake, diamond back rattler, cotton mouse, rabbit, squirrel.		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Indigo snake	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):			
Additional relevant factors: Occurs within SWAMP (South Walton Area Mitigation Project)			
Assessment conducted by: NFWFMD Staff		Assessment date(s): 2/8/2008	

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

Site/Project Name Lee Parcel	Application Number Not Applicable	Assessment Area Name or Number Lee A
Impact or Mitigation Mitigation	Assessment conducted by: NFWFMD Staff	Assessment date: 2/6/2008

Scoring Guidance 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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Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	Without Mitigation - Portions of the surrounding landscape will be probably be developed overtime . With Mitigation - area preserved and restoration activities and perpetual management improve the surrounding habitat and landscape				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">7</td> <td align="center">8</td> </tr> </table>	w/out mit	with mit	7	8	
w/out mit	with mit				
7	8				
.500(6)(b)Water Environment (n/a for uplands)	Without Mitigation - Property ditched for mosquito control, draining the property from east to west and north to south. . With Mitigation - Filling in of ditches will restore historic flow patterns and re-hydrate the site.				
<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				
.500(6)(c)Community structure	Without Mitigation - portions of this property would probably be developed. Some properties to the east dominated by wetlands with small upland inclusions have been permitted and it is likely that this development will expand in the future. In addition, the nuisance exotic species popcorn tree occurs within the site and without treatment will expand it's population and further degrade habitat quality. With Mitigation - Site is preserved and appropriate management is implemented. Filling of the ditches should help restore local hydrology and expand appropriate vegetation, along with fire management will greatly improve existing habitat. In addition n uisance species control will improve habitat quality.				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">4</td> <td align="center">9</td> </tr> </table>	w/out mit	with mit	4	9	
w/out mit	with mit				
4	9				

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 align="center">0.60</td> <td align="center">0.87</td> </tr> </table>	w/out mit	with mit	0.60	0.87
w/out mit	with mit			
0.60	0.87			

If preservation as mitigation
Preservation adjustment factor = N/A
Adjusted mitigation delta = N/A

For impact assessment areas
N/A

Delta = [with - w/out]
0.27

If mitigation / restoration
Time Lag Factor (2 years) = 1.03
Risk factor = 1.25

Polygon Acreage = 18.26	
For mitigation assessment areas	
Mitigation Credits [(Delta / (Time Lag * Risk)) * Acres] =	3.78

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

Site/Project Name Lee Parcel		Application Number Not Applicable	Assessment Area Name or Number Lee B
FLUCCs code 641	Further classification (optional) Freshwater Marsh	Impact or Mitigation Site? Mitigation	Assessment Area Size 1.09 Acres
Basin/Watershed Name/Number Choctahatchee Bay Watershed	Affected Waterbody (Class) III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Part of extensive estuarine and palustrine wetland complex in Choctawhatchee Bay.			
Assessment area description Mosaic of salt marsh and hydric pine flatwoods/savanna. Extensive mosquito control ditching in area.			
Significant nearby features Hogtown Bayou. Choctawhatchee Bay. Significant encroachment from development to east.		Uniqueness (considering the relative rarity in relation to the regional landscape.) Typical habitat.	
Functions Water quality; water storage; floral and faunal habitat.		Mitigation for previous permit/other historic use None known.	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) raccoon, possum, marsh rabbit, Great blue heron, great egret, little blue heron, tricolor heron, least bittern		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Wood stork E, White Ibis (LS), Little Blue Heron (LS)	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):			
Additional relevant factors: Occurs within SWAMP (South Walton Area Mitigation Project)			
Assessment conducted by: NFWFMD Staff		Assessment date(s): 2/6/2008	

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

Site/Project Name Lee Parcel	Application Number Not Applicable	Assessment Area Name or Number Lee B
Impact or Mitigation Mitigation	Assessment conducted by: NFWFMD Staff	Assessment date: 2/6/2008

Scoring Guidance 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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Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support	Without Mitigation - Portions of the surrounding landscape will be developed . With Mitigation - area preserved and restoration activities and perpetual management improve the surrounding habitat and landscape				
<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)	Without Mitigation - . Wetland drained by ditch. With Mitigation - .Ditch plugs were appropriate and breaching of the ditch along with the addition of a spillway will restore the natural freshwater flows to the bay. Hydrology will be restored to more historic conditions.				
<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				

.500(6)(c)Community structure	Without Mitigation - site will continue to be drained and wetland vegetation adapted to shorted hydroperiods than historically present will exist. With Mitigation - Historically the system was probably similar to other freshwater systems drained by the ditching on liveoak peninsula. These marshes were dominated by freshwater grasses and sedges, marsh mallows, saw grass and fragrant water lilies in the wet ponded areas. With mitigation and restoration of the hydrology it is likely that this vegetation would thrive once again.				
<table border="1"> <tr> <td>1. Vegetation and/or</td> <td>2. Benthic Community</td> </tr> </table>	1. Vegetation and/or	2. Benthic Community			
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<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)				
<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">0.73</td> <td align="center">0.90</td> </tr> </table>	w/out mit	with mit	0.73	0.90
w/out mit	with mit			
0.73	0.90			

If preservation as mitigation
Preservation adjustment factor = N/A
Adjusted mitigation delta = N/A

For impact assessment areas
N/A

Delta = [with - w/out]
0.17

If mitigation / restoration
Time Lag Factor (6-10 years) = 1.25
Risk factor = 1

olygon Acreage = 1.09
For mitigation assessment areas
Mitigation Credits [(Delta / (Time Lag * Risk)) * Acres] = 0.15

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

Site/Project Name Lee Parcel		Application Number Not Applicable	Assessment Area Name or Number Lee C
FLUCCs code 642	Further classification (optional) Salt Marsh	Impact or Mitigation Site? Mitigation	Assessment Area Size 0.60 Acres
Basin/Watershed Name/Number Choctahatchee Bay Watershed	Affected Waterbody (Class) III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Part of extensive estuarine and palustrine wetland complex in Choctawhatchee Bay.			
Assessment area description Mosaic of salt marsh and hydric pine flatwoods/savanna. Extensive mosquito control ditching in area.			
Significant nearby features Hogtown Bayou. Choctawhatchee Bay. Significant encroachment from development to east.		Uniqueness (considering the relative rarity in relation to the regional landscape.) Typical habitat.	
Functions Water quality; water storage; floral and faunal habitat.		Mitigation for previous permit/other historic use None known.	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) American alligator, diamondback tarrapin, Gulf salt marsh water snake. Over 60 species of birds use habitats in needlerush marshes, great blue heron clapper rail, least bittern, short-billed marsh wren, sedge wren, American widgeon, great white heron, white ibis, marsh rabbit, cotton rat, raccoons, mink, otter		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Scott's Seaside Sparrow	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):			
Additional relevant factors: Occurs within SWAMP (South Walton Area Mitigation Project)			
Assessment conducted by: NFWFMD Staff		Assessment date(s): 2/8/2008	

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

Site/Project Name Lee Parcel	Application Number Not Applicable	Assessment Area Name or Number Lee C
Impact or Mitigation Mitigation	Assessment conducted by: NFWFMD Staff	Assessment date: 2/6/2008

Scoring Guidance
 The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	Without Mitigation - No ecological management of adjacent polygons; road forms barrier to salt marsh. Further decline as surrounding area is developed. With Mitigation - Appropriate management in adjacent polygons; habitats of adjacent polygons will be improved as they are restored.culverts. Without Mitigation -	
	w/out mit 7	with mit 9

.500(6)(b)Water Environment (n/a for uplands)	Without Mitigation - Continued severance from PolygonB. Historically freshwater flows and seepage from surrounding uplands gradually drained to the bay and much of the area was a freshwater marsh as observed from remant water lilly and mallow pieces observed in the surface peat. Mosquite ditches greatly altered flows, partially draining the site and channelizing water flows to the bay. With Mitigation - Culverts under road and added spilways will return freshwater inputs to more historic patterns while re-connecting to Polygon B.	
	w/out mit 7	with mit 9

.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	Without Mitigation - Based draining from ditching of freshwater flows as observed from historic photographs and observations of remnant marsh species in the peat, the historic freshwater marsh system was replaced by black needle rush marsh With Mitigation - Restoring more historic freshwater flows patterns to the site will allow fresh water to flush the needle rush marsh allowing the site to re-hydrate, flush the salt out of the sediments and allow an expansion of the wfreshwater marsh to historic coverages.	
	w/out mit 7	with mit 9

Score = sum of above scores/30 (if uplands, divide by 20)

w/out mit 0.70	with mit 0.90
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If preservation as mitigation
Preservation adjustment factor = n/a
Adjusted mitigation delta = n/a

For impact assessment areas
N/A

Delta = [with - w/out]
0.20

If mitigation / restoration
Time Lag Factor (2 years) = 1.03
Risk factor = 1

Polygon Acreage = 0.60	
For mitigation assessment areas	
Mitigation Credits [(Delta / (Time Lag * Risk)) * Acres] =	0.12

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

Site/Project Name Live Oak - Section 16 Lands		Application Number Not Applicable	Assessment Area Name or Number S16
FLUCCs code 642	Further classification (optional) Salt Marsh	Impact or Mitigation Site? Mitigation	Assessment Area Size 220 Acres
Basin/Watershed Name/Number Choctahatchee Bay Watershed	Affected Waterbody (Class) III	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Part of extensive estuarine and palustrine wetland complex in Choctawhatchee Bay.			
Assessment area description Mosaic of salt marsh and hydric pine flatwoods/savanna. Extensive mosquito control ditching in area.			
Significant nearby features Hogtown Bayou. Choctawhatchee Bay. Significant encroachment from development to east.		Uniqueness (considering the relative rarity in relation to the regional landscape.) Typical habitat.	
Functions Water quality; water storage; floral and faunal habitat.		Mitigation for previous permit/other historic use None known.	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) American alligator, diamondback tarrapin, Gulf salt marsh water snake. Over 60 species of birds use habitats in needlerush marshes, great blue heron clapper rail, least bittern, short-billed marsh wren, sedge wren, American widgeon, great white heron, white ibis, marsh rabbit, cotton rat, raccoons, mink, otter		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Scott's Seaside Sparrow (LS)	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):			
Additional relevant factors: Occurs within SWAMP (South Walton Area Mitigation Project)			
Assessment conducted by: NFWFMD Staff		Assessment date(s): 2/8/2008	

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

Site/Project Name Live Oak - Section 16 Lands	Application Number Not Applicable	Assessment Area Name or Number S16
Impact or Mitigation Mitigation	Assessment conducted by: NWFWM Staff	Assessment date: 2/6/2008

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	Without Mitigation - No ecological management of adjacent polygons; road forms barrier to salt marsh. Further decline as surrounding area is developed. With Mitigation - Appropriate management in adjacent polygons; habitats of adjacent polygons will be improved as they are restored.culverts. Without Mitigation -	<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)	Without Mitigation - Continued severance from historic flows. Appears there may have been more freshwater marsh prior to mosquito contol ditches were installed. With Mitigation - No change.	<table border="1"> <tr> <td>w/out mit</td> <td>with mit</td> </tr> <tr> <td align="center">8</td> <td align="center">8</td> </tr> </table>	w/out mit	with mit	8	8
w/out mit	with mit					
8	8					
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	Without Mitigation - vegetative community will continue to decline from increased cover of popcorn tree a nuisance exotic species. With Mitigation - treatment of nuisance exotic species will ensure quality salt marsh and freshwater marsh habitat will continue to thrive onsite.	<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
0.77	0.87

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

For impact assessment areas
N/A

Delta = [with - w/out]
0.10

If mitigation / restoration
Time Lag Factor (2 years) = 1.03
Risk factor = 1

Polygon Acreage = 220	
For mitigation assessment areas	
Mitigation Credits [(Delta / (Time Lag * Risk)) * Acres] =	21.36

Live Oak Peninsula
 UMAM Credit Assessment - February, 2008
 (NWFWMMD)

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

Polygon	Acres	L1	L2	W1	W2	C1	C2	W/Out Score	With Score	Raw Delta	Time Lag	P Factor	Risk	Adjusted Delta	UMAM Credits
Lewis A	3.9	7	9	7	9	5	9	0.63	0.90	0.27	1.03	N/A	1.25	0.21	0.81
Lewis B	29	8	9	7	9	7	9	0.73	0.90	0.17	1.25	N/A	1	0.13	3.87
Lewis C	7	8	9	7	8	8	8	0.77	0.83	0.07	1.03	N/A	1	0.06	0.45
Lee A	18.26	7	8	7	9	4	9	0.60	0.87	0.27	1.03	N/A	1.25	0.21	3.78
Lee B	1.09	8	9	7	9	7	9	0.73	0.90	0.17	1.25	N/A	1	0.13	0.15
Lee C	0.6	7	9	7	9	7	9	0.70	0.90	0.20	1.03	N/A	1	0.19	0.12
Sect. 16	220	8	9	8	8	7	9	0.77	0.87	0.10	1.03	N/A	1	0.10	21.36
	279.85														30.53

- 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

P = Preservation Factor (assumption is that preservation polygons are enhanced by buffer restoration)

Adjusted Delta = Raw Delta / (Time Lag * Risk)

UMAM Credits = Acres * Adjusted Delta