

Appendix A

April 2012 Vegetation Transect Photographs



Deep Fork WMA (Bottomland Hardwood/Forested Wetland)



Brooken Cove Recreational Area (Bottomland Hardwood/Forested Wetland)



Mill Creek WMA (Bottomland Hardwood/Forested Wetland)



Mill Creek WMA (Emergent Wetland)



Blocker Road (Emergent Wetland)



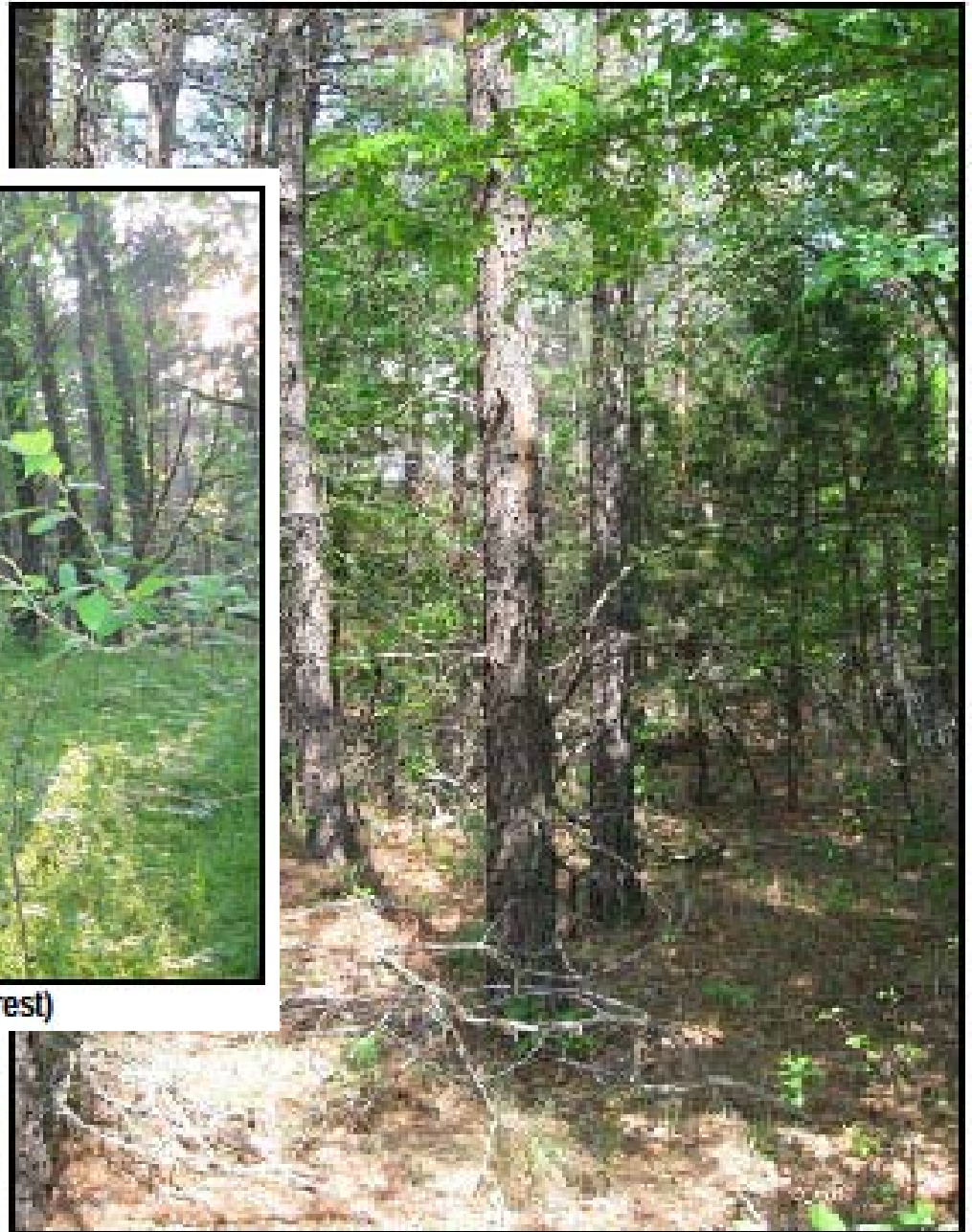
Duchess Creek WMA (Scrub-Shrub Wetland)



Gentry Creek Recreation Area (Scrub-Shrub Wetland)



Hickory Point Recreation Area (Oak-Pine Forest)



Roundtree Landing (Oak-Pine Forest)



Elm Point Recreation Area (Savanna)



Gentry Creek Recreation Area (Savanna)



Carlton Landing (Crosstimbers)



Deep Fork WMA (Crosstimbers)



Jones Creek Road (Oak-Hickory Forest)



North Canadian WMA (Oak-Hickory Forest)



E 1060 Road Prairie (Prairie)



Juniper Point Recreation Area (Prairie)

Appendix B

Shoreline Habitat Assessment (SHA) Master Data Tables

Table 1. Water Chemistry and Physical Properties for Shoreline Habitat Assessment Locations

Water Chemistry and Water Physical Properties											
Site	Water Temp (°C)	pH	Dissolved O ₂ (mg/L)	Conductivity (µS/cm)	Turbidity (NTU)	Water Odors	Water Scum/Oils	Water Color	Water Depth (ft)	Secchi Disk Disappears (ft)	Secchi Disk Reappears (ft)
Land-based Assessment Locations											
1	26.14	8.09	9.63	295	201	None	None	Brown	1.25	0.52	0.31
2	28.24	8.24	8.05	415	394	Fishy	Foam at shore	Brown	0.81	0.21	0.17
4	26.37	7.12	9.38	337	145	None	None	Brown	0.71	0.625	0.46
5	27.30	7.94	8.74	605	81.6	None	None	Brown	0.88	0.54	0.37
6	25.48	6.06	6.94	278	135	None	None	Brown	3.33	0.48	0.33
7	26.48	7.12	8.38	263	228	None	White foam	Brown	0.58	0.46	0.33
8	27.02	6.96	6.92	265	93.5	None	None	Brown	3.08	0.48	0.33
9	27.45	6.93	9.59	286	88.3	None	None	Brown	3.33	0.64	0.44
10	25.75	7.78	9.46	343	26.9	None	None	Brown/Green	2.58	1.67	1.25
11	26.96	8.14	8.82	352	36.5	None	None	Brown	11.42	Clear to bottom	Clear to bottom
12	25.40	8.52	11.00	344	32.6	None	None	Green	1.92	1.17	0.96
13	25.45	8.62	11.39	311	17.4	Fishy	None	Brown/Green	2	Clear to bottom	Clear to bottom
14	24.64	7.67	8.44	272	46.1	None	None	Brown	1.42	0.79	0.69
15	26.35	8.46	10.71	289	34.6	None	None	Brown	1.25	1.08	0.92
16	26.64	7.93	8.92	351	16.5	None	None	Brown/Breen	1.33	Clear to bottom	Clear to bottom
17	25.71	9.03	8.39	339	12.1	None	None	Brown/Blue	3.58	2.75	2.00
18	27.81	9.01	10.20	346	66.3	None	None	Brown	2.17	1.50	1.00
19	27.20	8.18	7.90	232	16.1	None	Foam	Brown/Green	3.33	2.50	2.10
20	24.14	8.54	10.26	328	12.2	None	None	Brown/Green	1.42	Clear to bottom	Clear to bottom
21	31.9	8.87	10.60	348	142.0	None	None	Brown	1.33	6.42	0.42
22	29.96	8.88	11.11	458	65.0	None	Foam	Brown/Green	3.25	1.08	0.71
24	25.08	7.09	9.17	350	43.8	None	None	Brown	1.58	0.83	0.54
25	25.30	8.98	9.89	203	39.5	None	None	Brown	1.33	0.83	0.67
26	25.75	8.27	8.48	182	49.0	None	None	Brown	3.92	1.50	1.17
27	29.00	9.64	12.19	164	85.8	None	Slick (Foam and Algae)	Brown/Green	1.67	1.25	1.08
28	30.51	9.70	10.90	136	84.0	None	Slight Foam	Brown	1.67	1.17	1.00
29	29.3	8.61	9.02	148	121.0	None	Slight Foam	Brown	1.67	1.33	1.17
30	29.15	8.32	8.81	104	48.7	None	None	Brown/Green	2.17	1.00	0.67
Boat-based Assessment Locations											
1	25.20	8.63	9.12	335	10.3	None	None	Green	21.92	6.17	5.67
2	24.71	8.34	8.40	336	9.3	None	None	Brown/Green	9.42	4.10	3.96
3	27.26	7.76	7.97	320	13.1	None	White foam	Brown/Green	2.67	Clear to bottom	Clear to bottom
4	26.84	8.17	8.43	318	10.5	None	None	Brown/Green	3.00	2.67	2.21
5	26.14	5.60	8.26	301	19.7	None	None	Brown/Green	2.02	1.62	1.50
6	27.27	7.68	8.60	298	16.3	None	None	Brown/Green	1.87	Clear to bottom	Clear to bottom
7	25.38	6.42	5.95	289	16.7	None	None	Brown/Green	16.58	3.02	1.87
8	27.81	7.91	9.76	299	18.5	None	None	Brown/Green	3.83	2.54	2.17

9	27.73	7.85	8.89	299	19.6	None	None	Brown/Green	2.62	2.46	2.25
10	27.99	7.19	8.58	300	12.6	None	None	Brown/Green	2.92	Clear to bottom	Clear to bottom

Table 4-X. Littoral Zone Properties for Shoreline Habitat Assessment Locations

Littoral Zone Properties																													
Aquatic Vegetation					Fish Cover								Fish Microhabitat Classification					Bottom Substrate				Visual Estimate of Grain Size							
Submergent	Emergent	Floating	Percnt Cover	Dominant Species	Aquatic / Inundated Vegetation	Woody Debris /Snags	Woody Brush/ Debris	Inundated Live Trees	Overhangs within 1m-Surf	Ledges/ Sharp Drop-offs	Boulders	Human Structures	Human Disturbance	Cover Class	Cover Types	Dominate Substrate	Odor	Deposits	Oils/Contamination	Color	Bedrock (> car)	Boulders (bsktball-car)	Cobble (tennis-bsktball)	Gravel (ladybug-tennis)	Sand (gritty)	Silt, Clay, Muck	Organic (detritus)	Woody Debris	
0=Absent, 1=Sparse, 2=Moderate,					0=Absent (<10%), 1=Sparse (10-40%), 2=Moderate (40-75%), 3=Heavy (40-75%), 4=Dense (>75%)																		0=Absent (<10%), 1=Sparse (10-40%), 2=Moderate (40-75%), 3=Heavy (40-75%), 4=Dense (>75%)						
Site	Land-based Assessment Locations																												
1	1	2	0	15	Buttonbush, Sedges	2	1	2	1	3	0	0	0	Low	Patchy	Vegetation, Woody	Sand/Gravel	Normal	Other-tar	Slight	80%Brn/20%Blk	0	0	0	3	1	2	0	1
2	0	3	0	40	Buttonbush	3	2	1	3	2	0	0	0	Moderate	Continuous	Vegetation, Woody	75%Mud/25% Sand	Fishy	Other-organic	None	Brown	0	0	0	0	2	3	1	2
4	0	1	0	2	None	1	1	2	0	1	0	0	0	Low	Patchy	Vegetation, Woody	Mud	Normal	None	None	Brown	0	0	0	1	2	3	2	3
5	1	2	0	10	Dead Buttonbush & Black Willow	1	3	1	0	1	0	0	0	Moderate	Patchy	Vegetation, Woody	Mud	Normal	None	None	Brown	0	0	0	0	1	4	1	2
6	0	1	0	<1	Buttonbush	1	1	1	1	2	2	3	0	Low	Patchy	Veg/Boulder/Woody	Cobble	Normal	None	None	Brown	0	2	3	2	1	1	0	1
7	1	2	0	30	Buttonbush, Green Algae	2	1	1	2	3	0	0	0	Moderate	Patchy	Vegetation	80% Mud/20%Sand	Normal	None	None	Brown	0	1	1	0	2	3	1	1
8	0	1	0	<1	Buttonbush	1	0	0	0	1	0	0	4	High	No/Little	Vegetation/Artificial	Mud	Normal	Silt	Slight	Brown	0	0	0	1	2	4	1	0
9	0	1	0	<1	None	1	1	2	0	1	0	3	0	None	Patchy	Veg/Boulder/Woody	Sand	Normal	None	None	Brown	0	2	2	3	3	1	0	1
10	0	0	0	0	None	0	0	0	0	0	1	4	2	High	No/Little	Boulders	Cobble	Normal	None	None	Brown	0	1	3	2	2	0	0	0
11	0	0	0	0	None	0	1	0	1	1	0	1	1	Moderate	No/Little	Boulders/Woody	Sand/Gravel	Normal	None	None	Brown	0	1	1	1	4	0	0	1
12	0	0	0	0	Green Algae	0	1	1	1	2	0	0	0	Low	No/Little	Woody	Sand/Gravel	Anaerobic	None	None	Brown	0	0	0	1	3	2	1	1
13	0	1	0	<1	Smartweed	0	1	1	0	0	0	0	2	Moderate	No/Little	Vegetation, Woody	Sand/Gravel	Anaerobic	None	None	Brown/Black	0	1	1	1	3	2	2	1
14	1	1	0	<1	Buttonbush, submerged grasses	1	1	2	1	1	0	0	0	None	Patchy	Vegetation/Woody	Mud	Normal	None	None	Brown	0	0	1	1	2	3	0	1
15	0	0	0	0	None	0	0	0	0	0	0	0	0	High	No/Little	None	Sand/Gravel	Normal	None	None	Brown	0	0	0	0	4	2	1	0
16	0	1	0	<1	Buttonbush	1	1	0	1	0	0	0	0	Low	No/Little	Vegetation/Woody	Sand	Normal	None	None	Brown	0	0	1	1	4	1	0	1
17	1	0	0	1	Green Algae	0	0	0	0	0	0	0	3	High	No/Little	Artificial	Sand/Gravel	Normal	None	None	Light Brown	0	0	0	1	3	0	0	1
18	0	0	0	0	Blue Green Algae Advisory	0	1	1	0	0	0	1	1	High	No/Little	None	Mud	Normal	Mud/Silt	None	Brown	0	0	1	2	3	1	0	1
19	0	1	0	<1%	None	0	1	0	0	0	2	2	0	Low	No/Little	Boulders	Gravel	Normal	None	None	Brown	0	1	2	3	2	0	0	0
20	0	0	0	0	None	0	1	2	1	1	0	0	1	Low	No/Little	Veg/Woody/Artificial	Mud	Normal	None	None	Brown/Red	0	0	0	0	1	4	1	1

21	0	1	0	5	Buttonbush	0	0	1	1	1	0	0	0	Moderate	No/Little	Vegetation/Woody	Mud	Normal	None	None	Brown/Black	0	0	0	0	0	4	1	2
22	0	1	0	<1	None Recorded	0	0	1	0	0	0	0	0	Low	No/Little	Vegetation/Woody	Mud	Normal	None	None	Brown/Gray	0	0	0	0	1	4	2	1
24	1	1	0	5	None Recorded	1	1	2	1	2	2	1	3	Moderate	Patchy	Veg/Boulder/Woody/Artificial	Sandy/Gravel	Normal	None	None	Brown	0	1	1	1	4	1	0	1
25	2	0	0	20	Green Algae	0	0	0	0	0	1	1	0	Low	No/Little	Boulders	Mud	Normal	None	None	Brown	0	0	0	0	1	4	1	0
26	0	2	0	30	Buttonbush, Green Algae	0	0	0	0	0	0	1	1	Low	No/Little	Boulders	Mud	Normal	None	None	Brown/Black	0	0	2	2	1	3	1	0
27	0	0	0	0	None Recorded	0	0	0	1	1	0	0	1	Low	Patchy	Vegetation	Mud	Normal	None	None	Brown/Black	0	0	2	2	1	3	1	0
28	0	0	0	0	None Recorded	0	0	0	1	1	0	0	1	None	No/Little	Boulders	Cobble	Normal	None	None	Brown	0	1	3	3	2	1	0	0
29	0	0	0	0	None Recorded	0	1	0	1	0	0	0	1	Low	No/Little	None	Mud/Sand/Gravel	Normal	None	None	Brown/Black	0	0	1	2	2	1	0	1
30	0	0	0	0	None Recorded	0	0	1	0	0	0	1	1	Low	No/Little	Boulder	Mud/Sand/Gravel	Normal	None	None	Brown/Black	0	0	1	2	2	1	1	1
Site	Boat-based Assessment Locations																												
1	0	0	0	0	None Recorded	0	1	0	0	0	3	3	0	None	Patchy	Boulders, Woody	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	0	0	0	0	None Recorded	0	3	1	0	1	2	2	1	Low	Patchy	Boulders, Woody	Sand/Gravel	N/A	N/A	N/A	N/A	0	2	1	2	3	1	0	2
3	0	3	0	55	Smartweed	3	1	1	1	1	0	0	0	None	Patchy	Vegetation, Woody	Sand	Anaerobic	None	None	Brown/Black	0	0	0	0	4	1	2	1
4	0	2	0	20	Smartweed	2	1	1	0	1	0	0	0	None	Patchy	Vegetation, Woody	Mud	None	None	None	Brown/Red	0	0	0	0	2	3	0	0
5	0	1	0	5	Smartweed	1	1	1	0	1	0	0	0	None	Patchy	Vegetation, Woody	Sand/Gravel	Normal	None	None	Brown	0	0	0	1	4	1	1	1
6	0	3	0	60	Smartweed, Buttonbush	3	1	1	1	2	1	2	0	None	Patchy	Vegetation, Boulders, Woody	Mud	Normal	None	None	Brown/Black	0	1	1	2	2	3	2	1
7	0	1	0	<1	Buttonbush	1	1	1	1	2	1	3	1	Low	Patch	Veg, Boulders, Woody, Artificial	Cobble	Normal	None	None	Brown	0	1	3	2	1	2	1	1
8	0	1	0	0	Buttonbush	1	2	1	1	2	3	3	0	None	Continuous	Boulders, Woody	Boulders	Normal	None	None	Brown/Black	1	3	2	2	1	0	0	1
9	0	1	0	<1	Smartweed	1	1	1	0	1	1	2	0	Low	Patchy	Veg, Boulders, Woody	Mud	Normal	None	None	Brown	0	2	2	1	1	3	1	1
10	0	1	0	<1	Smartweed	1	1	1	1	1	2	2	0	None	Continuous	Veg, Boulders, Woody	Gravel	Normal	None	None	Brown	0	2	1	3	0	2	1	0

Table 3. Riparian Vegetation Properties for Shoreline Habitat Assessment Locations

Riparian Vegetation Properties													
	Canopy Vegetation				Understory Vegetation				Groundcover				
	Type	Big Trees	Small Trees	Observed Species	Type	Woody Shrub/Saplings	Tall Herbs/Grasses	Observed Species	Woody Shrubs/Saplings	Herbs/grasses	Inundated Vegetation	Barren/Bare Dirt/Bldg	Invasive Species
Site	0=Absent, 1=Sparse (<10%), 2=Moderate (10-40%), 3=Heavy (40-75%), and 4=Dense (>75%)												
Land-based Assessment Locations													
1	Deciduous	2	3	Honey locust, sugary berry, red elm, post oak	Deciduous	3	2	Red mulberry, locust	2	4	2	1	None Observed
2	Deciduous	2	2	Black willow	Deciduous	3	1	Black willow/buttonbush	3	1	3	2	None Observed
4	Deciduous	2	3	Sycamore, shumard oak, river birch	Deciduous	3	2	Hickory	3	2	1	1	None Observed
5	Deciduous	1	2	Black willow, pecan, shumard oak	Deciduous	3	1	Black willow, buttonbush, persimmon	2	1	1	3	None Observed
6	Deciduous	1	2	Black hickory, black willow	Deciduous	2	1	Black willow, buttonbush	2	1	1	3	None Observed
7	Deciduous	1	2	Black willow, honey locust	Deciduous	3	1	Buttonbush, black willow	3	1	3	3	None Observed
8	Deciduous	1	2	Shumard oak, post oak	Deciduous	3	2	Trumpet creeper, redbud, red mulberry	3	3	1	1	None Observed
9	Deciduous	3	2	White oak, post oak, black hickory	Deciduous	2	2	Black willow, hickory	2	3	1	2	None Observed
10	Deciduous	1	0	Post oak	Deciduous	0	1	Blue stem	1	1	0	2	None Observed
11	Deciduous	2	1	Slippery elm, willow, post oak	Deciduous	1	2	Broom sedge, Indian grass	1	2	0	2	None Observed
12	Deciduous	3	2	Black willow, river birch, sycamore, silver maple	Deciduous	2	1	None Recorded	0	2	0	1	None Observed
13	Deciduous	2	0	Post oak, black willow, persimmon	Deciduous	2	1	Buttonbush	1	3	0	2	None Observed
14	Deciduous	1	2	Black willow	Deciduous	3	1	Buttonbush	2	1	1	2	None Observed
15	None	0	0	None	None	0	0	None Recorded	0	3	0	3	None Observed
16	Deciduous	3	1	None Recorded	Deciduous	2	1	None Recorded	1	2	0	2	None Observed
17	Deciduous	1	1	Willow	Deciduous	2	1	Chinese privet, buttonbush	0	0	0	1	Chinese privet
18	Deciduous	2	2	Post oak, cypress	Deciduous	1	1	Willow saplings, buttonbush, Paspalum spp.	1	1	0	0	None Observed
19	Deciduous	2	2	None Recorded	Deciduous	2	2	None Recorded	1	2	1	1	None Observed
20	Mixed	2	2	River birch, red cedar, black willow, post oak, shortleaf pine	Mixed	1	2	Little bluestem, winged elm	1	2	0	1	None Observed
21	Deciduous	2	2	Slippery elm, American elm, black willow	Deciduous	2	0	Buttonbush, honey locust	1	2	0	1	None Observed
22	Deciduous	2	1	Water oak, sycamore, river birch	Deciduous	1	0	None Recorded	1	3	1	1	None Observed
24	Deciduous	1	2	Black willow	Deciduous	2	2	Buttonbush, willow	2	3	1	2	None Observed
25	Deciduous	2	0	Post oak, slippery elm	Deciduous	1	2	None Recorded	0	2	0	2	None Observed
26	Deciduous	3	1	Post oak, red cedar, hickory, winged elm	Deciduous	2	0	Buttonbush	1	2	0	1	None Observed
27	Deciduous	2	1	Post oak, slippery elm	Deciduous	2	0	Buttonbush	1	2	0	0	None Observed
28	Deciduous	2	2	Post oak, slippery elm, black locust	Deciduous	1	2	Buttonbush, locust, little bluestem	1	2	0	0	None Observed
29	Deciduous	2	1	Sycamore, cypress, sugarberry	Deciduous	1	0	Locust, post oak, poison ivy	1	2	1	0	None Observed
30	Deciduous	2	1	Post oak, red cedar	Mixed	1	0	Red cedar, persimmon, buttonbush	1	2	1	0	None Observed
Boat-based Assessment Locations													
1	Mixed	2	3	Red cedar, post oak, hickory	Mixed	3	1	American elm	1	1	0	3	None Observed
2	Deciduous	3	1	Post Oak	Deciduous	2	2	Buttonbush	1	1	1	2	None Observed
3	Deciduous	3	1	Water Oak, river birch, post oak, black willow	Deciduous	2	2	Black willow	2	3	1	1	Japanese Silk Tree
4	Deciduous	3	1	Sycamore, shumard oak	Deciduous	3	2	Black willow	1	3	2	1	None Observed
5	Deciduous	1	3	Water oak, black willow	Deciduous	3	2	Black eyed Susan	2	3	1	3	None Observed
6	Mixed	3	2	Post oak, shortleaf pine, red cedar	Mixed	3	1	Buttonbush, red cedar, post oak	1	3	2	0	None Observed
7	Deciduous	3	1	Honey locust, oak, hickory	Deciduous	3	1	Indian grass, buttonbush, oak	1	3	1	1	None Observed
8	Deciduous	3	1	Post oak, sycamore	Deciduous	2	2	Buttonbush	1	3	1	0	None Observed
9	Deciduous	1	1	Post oak	Deciduous	1	2	Persimmon	1	4	1	1	None Observed
10	Deciduous	2	2	Post oak, persimmon	Deciduous	2	2	Buttonbush	1	3	1	2	None Observed

Table 4. Bank Features and Shoreline Substrate Properties for Shoreline Habitat Assessment Locations

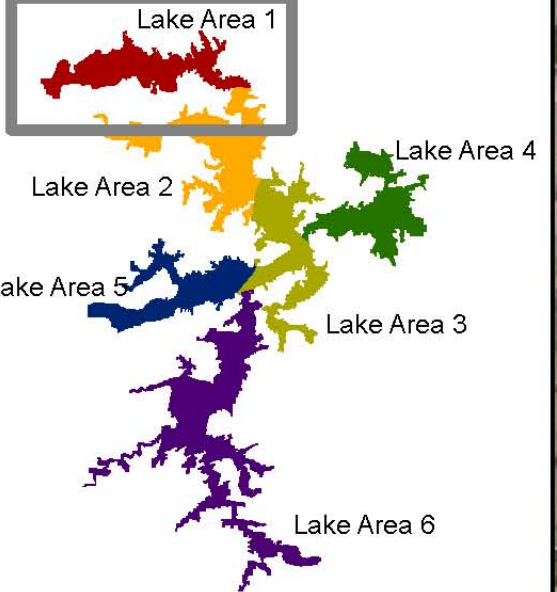
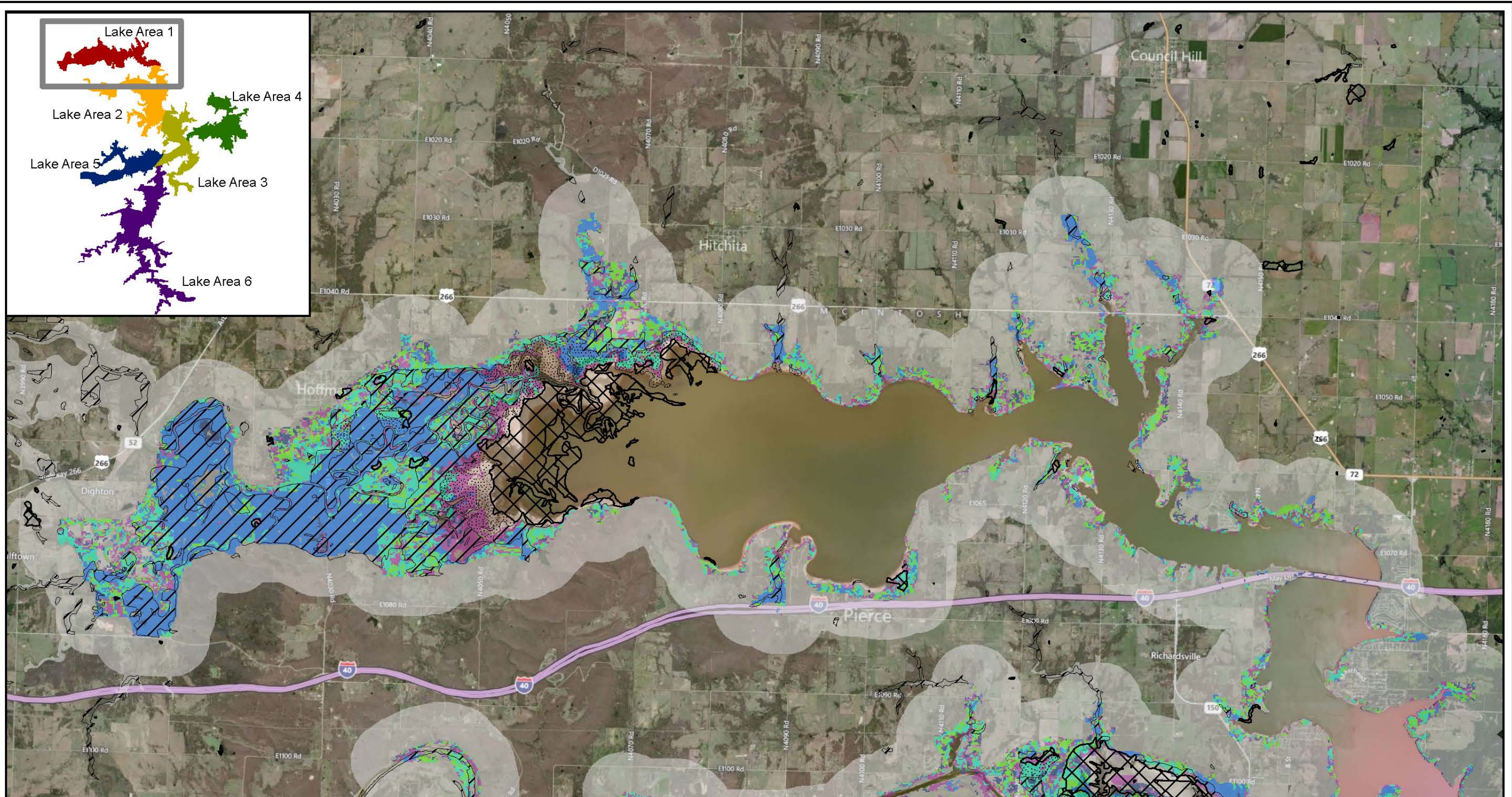
Bank Features and Shoreline Substrate Properties																		
	Angle	Distance form Waterline-High Water Mark	Bank Stability	Eco-Integrity	Observed Wildlife	Odors	Deposits	Oils/Contamination	Color	Bedrock	Boulder	Cobble	Gravel	Sand (gritty)	Silt, Clay, Muck	Organic	Woody Debris	
Site									Brown, Black, Red	0=Absent, 1=Sparse (<10%), 2=Moderate (10-40%), 3=Heavy (40-75%), and 4=Dense (>75%)								
Land-based Assessment Locations																		
1	Flat	<0.5 ft. vertical, 9 ft. horizontal	Optimal	Good	Great blue heron, grackle, red-bellied woodpecker, fritillary butterfly	No	Black, tar-like	Black, tar-like	Brn/Blk	0	0	0	2	3	1	0	2	
2	Flat	<0.5 ft. vertical, 43 ft. horizontal	Optimal	Good	Dead fish (catfish/buffalo), mussel shells, mayflies, American crow	Fishy	Organic matter	No	Brn	0	0	0	0	3	2	2	2	
4	Gradual	3 ft. vertical, 12 ft. horizontal	Suboptimal	Good	Blue butterfly, herring gull, northern flicker, jumping fish, snapping turtle, raccoon/deer (tracks), crow, armadillo	No	No	No	Brn	0	0	0	1	3	2	2	3	
5	Flat	1 ft. vertical, 23 ft. horizontal	Optimal	Excellent	Blue heron, cormorant, e. towhee, white-eyed vireo, red-headed woodpecker, green frog	No	No	No	Brn	0	0	0	0	4	2	1	2	
6	Flat	1.5 ft. vertical, 35.5 ft. horizontal	Optimal	Good	Herring gull, indigo bunting, robin, blue jay, American crow	No	No	Slight black tar	Brn/Blk	0	2	3	2	1	1	0	1	
7	Flat	<0.5 ft. vertical, 14.5 ft. horizontal	Optimal	Good	Grackle, gnatcatcher, flycatcher, cardinal, giant floater, raccoon/armadillo (tracks)	No	White foam	No	Brn	0	1	2	1	3	2	1	1	
8	Gradual	3.5 ft. vertical, 5 ft. horizontal	Suboptimal	Fair	Leopard frog, shallow tail butterfly, dragonfly, raccoon/deer (Tracks)	No	No	Slight black tar	Brn	0	0	0	1	3	3	1	1	
9	Gradual	5.5 ft. vertical, 23.5 ft. horizontal	Suboptimal	Good	Five-lined skin, Carolina chickadee, cardinal, prothonotary warbler, Florida cooter, e. towhee, b. vulture	No	No	No	Brn	0	3	2	3	1	1	0	1	
10	Gradual	1-2 ft. vertical, 5 ft. horizontal	Optimal	Fair	Red-eared slider	No	No	No	Brn	0	2	1	2	3	0	0	1	
11	Gradual	12 ft. vertical, 30 ft. horizontal	Suboptimal	Good	None Recorded	No	No	No	Brn	0	1	1	1	4	1	1	2	
12	Flat	<1 ft. vertical, 20 ft. horizontal	Optimal	Good	Killdeer, small fish fumping, red bellied woodpecker, scarlet tanager	No	Organic	No	Brn	0	0	0	0	4	0	1	2	
13	Gradual	1 ft. vertical, 15 ft. horizontal	Suboptimal	Good	Dead fish, scissor-tailed flycatcher, dead turtle, freshwater mussel shells	No	No	No	Brn	0	1	1	0	2	3	1	1	
14	Flat	<0.5 ft. vertical, 29.5 ft. horizontal	Optimal	Excellent	Great egret, racer, barred owl, grebe, tarantula, small fish jumping, n. cardinal, kingfisher, mussel shells	No	No	No	Brn	0	0	1	2	2	3	0	2	
15	Flat	<1 ft. vertical, 10 ft. horizontal	Suboptimal	Poor	Dead fish, red-winged blackbird	No	No	No	Brn	0	0	0	1	4	0	1	0	
16	Steep/Near Vertical	3-4 ft. vertical, 50 ft. horizontal	Marginal	Fair	Flycatcher, dead fish, brown thrasher, dark-eyed junco	No	No	No	Brn/Red	2	0	1	1	4	0	1	1	
17	Flat	1 ft. vertical, 12 ft. horizontal	Marginal	Fair	None Recorded	No	No	No	Light Brn	0	0	0	1	3	0	0	1	
18	Flat	1.5 ft. vertical, 15 ft. horizontal	Marginal	Poor	None Recorded	No	No	No	Light Brn	0	0	1	1	3	0	0	1	
19	Gradual	1-2 ft. vertical, 5ft. horizontal	Optimal	Good	Cooper's hawk, prothonotary warbler	No	No	No	Brn/Red	1	2	2	2	2	0	0	0	
20	Gradual	2-3 ft. vertical, 50 ft. horizontal	Suboptimal	Good	Armadillo, dead fish	No	No	No	Brn/Red	0	0	0	1	3	1	0	2	
21	Gradual	1-2 ft. vertical, 20 ft. horizontal	Optimal	Good	Wood duck, crayfish, Treefrog, bald eagle, dead turtle	No	No	No	Brn	0	0	0	2	2	2	1	3	
22	Flat	<0.5 ft. vertical, 12 ft. horizontal	Optimal	Excellent	Fence lizard, jumping fish, raccoon, bird guano, papershell mussels, dead turtles, wading bird tracks	No	No	No	Brn	0	0	0	0	2	4	1	1	
24	Flat	0.5 ft. vertical, 34 ft. horizontal	Suboptimal	Good	Great blue heron, raccoon/deer (tracks), gnatcatcher, flycatcher, tree swallow, jumping fish (larger and small)	No	No	No	Brn	0	1	1	1	4	1	0	2	
25	Flat	1-2 ft. vertical, 15 ft. horizontal	Suboptimal	Fair	None Recorded	No	No	No	Brn	0	1	2	1	4	0	1	0	
26	Flat	1 ft. vertical, <5 ft. horizontal	Optimal	Good	Dead fish, woodpecker	No	No	No	Brn	0	1	1	2	1	0	1	1	
27	Flat	<1 ft. vertical, 25 ft. horizontal	Optimal	Good	Songbirds	No	No	Yes	Brn	0	1	2	2	1	0	1	1	
28	Flat	1-2 ft. vertical, 10-20 horizontal	Optimal	Good	Songbirds	No	No	No	Brn	1	1	3	3	2	0	1	1	
29	Flat	<1 ft. vertical, 10-15 ft. horizontal	Optimal	Good	None Recorded	No	No	No	Brn	0	0	2	3	2	0	1	1	
30	Flat	1-2 ft. vertical, 10 ft. horizontal	Optimal	Good	Adjacent emergent wetland with raccoon/deer tracks	No	No	No	Brn/Blk	0	1	2	2	1	0	1	0	
Boat-based Assessment Locations																		
1	Near Vertical	5 ft. vertical, <0.5 ft. horizontal	Optimal	Excellent	Jumping fish, magpies, bank swallows, high plant diversity	No	No	No	Brn	3	3	1	1	0	0	0	2	
2	Gradual	1-2 ft. vertical, 15 ft. horizontal	Optimal	Excellent	Sand bass, little blue heron, bluebird, kingfisher, cormorant, grackles, bald eagle	No	No	No	Brn	0	3	2	1	2	2	N/A	3	
3	Flat	<0.5 ft. vertical, 25 ft. horizontal	Optimal	Excellent	Green heron, white-breasted nuthatch, great blue heron, grackle, Canada goose, jumping fish, white-eyed vireo, cricket frog	No	No	No	Brn	0	0	2	1	4	1	1	1	
4	Gradual	1 ft. vertical, 10 ft. horizontal	Suboptimal	Excellent	Green heron, great blue heron, American crow, red-shouldered hawk, fish jumping, turtle, turkey vulture	No	No	No	Brn/Red	0	0	0	1	4	1	0	2	
5	Gradual	2.5 ft. vertical, 12.5 ft. horizontal	Suboptimal	Excellent	N. flicker, red-bellied woodpecker, savannah sparrow, crow, w.e. vireo, grackle, raccoon tracks, tufted titmouse, pileated woodpecker	No	No	No	Brn	0	0	1	2	3	0	1	1	
6	Gradual	1 ft. vertical, 15 ft. horizontal	Optimal	Excellent	Tufted titmouse, large/small mussels, American crow, northern parula, butterflies, largemouth bass, pileated woodpecker	No	No	No	Brn	1	2	2	3	1	1	1	1	
7	Gradual	2.5 ft. vertical, 18.5 ft. horizontal	Optimal	Excellent	Spotted bass, threadfin shad, red-tailed hawk, brown creeper, deer (tracks), red-eared slider	No	No	No	Brn	1	3	2	2	1	0	0	1	
8	Gradual	1.5 ft. vertical, 12 ft. horizontal	Optimal	Excellent	Snapping turtle, Carolina chickadee, Carolina wren, scarlet tanager	No	No	No	Brn/Blk	1	3	2	3	1	0	0	2	
9	Gradual	1.5 ft. vertical, 10 ft. horizontal	Optimal	Excellent	Northern flicker, prothonotary warbler (nesting), northern parula	No	No	No	Brn/Red	1	2	1	1	1	1	1	2	
10	Gradual	<1 ft. vertical, 8 ft. horizontal	Optimal	Excellent	Gray fox, white eyed vireo, turkey vulture, northern parula, largemouth bass, minnows, sunfish	No	No	No	Brn	0	3	1	3	1	1	1	2	

Table 5. Human Influences for Shoreline Habitat Assessment Locations

Human Influences																				
Site	Human Influences															Lake Management				
	Buildings	Commercial	Park Facilities/Beaches	Docks Boats	Walls, Dikes, Revetments	Landfill/Trash	Roads/Railroads	Power Lines	Row Crops	Past/Range/Hayfield	Orchard	Maintained Lawns	Pipes/Drains	Logging/Brush Clearing	Construction	Liming	Chemical Treatments	Angling Pressure	Macrophyte Control	Water Level Flucts
O=Absent, P=Present Outside Plot, C=Present Inside Plot															L=Low intensity, M=Medium intensity, H=High intensity					
Land-based Assessment Locations																				
1	O	O	C	P	O	P	P	O	O	O	O	P	O	P	O	L	L	M	L	L
2	O	O	P	O	P	C	P	O	O	O	O	O	O	P	O			M		L
4	O	O	P	O	O	P	P	O	O	O	O	O	O	O	O	L	L	L	L	L
5	O	O	P	P	O	O	P	O	O	O	O	O	O	P	O			M		L
6	P	O	O	O	O	O	P	O	O	O	O	O	O	P	O			L		L
7	O	O	P	O	O	C	P	O	O	O	O	O	O	O	O			L		L
8	P	O	C	P	O	P	P	O	O	O	O	C	O	C	O	L	M	M	M	L
9	O	O	O	P	O	P	P	O	O	O	O	O	O	O	O	L	L	M	L	L
10	O	O	C	O	C	O	P	O	O	O	O	P	O	P	O			L	L	L
11	P	O	C	P	O	O	P	O	O	O	O	P	O	P	O			L		
12	O	O	C	O	O	O	P	O	O	P	O	O	O	P	O		L			
13	P	O	O	C	C	P	P	O	O	O	O	C	P	P	O		L	M		
14	O	O	O	O	O	O	P	P	O	P	O	O	O	P	O			L		L
15	O	O	P	O	O	C	P	O	O	P	O	P	O	P	O		M	M	O	O
16	P	O	O	P	O	O	P	O	O	O	O	P	O	P	O			L		
17	P	O	P	C	P	O	O	O	O	O	O	O	O	O	O					
18	C	O	C	O	O	O	O	O	O	O	O	C	O	P	O					
19	O	O	O	O	O	P	O	O	O	O	O	O	O	O	O			L		
20	O	O	P	P	C	O	P	O	O	O	O	P	C	P	O			L		
21	O	O	O	O	O	P	P	O	O	P	O	O	P	O	O			L		
22	O	O	O	O	O	O	O	O	O	O	O	O	O	P	O			L		
24	O	O	O	O	P	P	C	O	O	O	O	O	O	O	P	L	L	M	L	L
25	O	O	C	P	O	O	P	O	O	O	O	O	C	P	O			L		
26	O	O	O	P	P	O	P	O	O	O	O	O	O	P	O			L		
27	O	O	O	C	C	C	C	O	O	O	O	O	O	O	O			L		
28	O	O	O	P	O	C	P	O	O	O	O	O	O	O	O			L		
29	O	O	O	C	O	C	P	P	O	O	O	O	O	O	O			L		
30	O	O	P	C	C	C	P	O	O	O	O	O	O	O	O					
Boat-based Assessment Locations																				
1	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			M		M
2	O	O	O	P	O	O	O	O	O	O	O	O	O	O	O					
3	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			L		
4	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			L		
5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			L		L
6	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			L		
7	O	O	O	P	O	O	O	O	O	O	O	O	O	O	O			L		
8	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O					
9	O	O	O	O	O	O	P	O	O	O	O	O	P	C	P		L	L		
10	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			L		

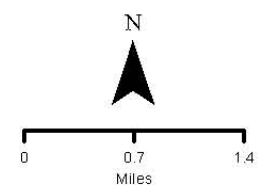
Appendix C

Terrestrial and Aquatic Habitat Maps



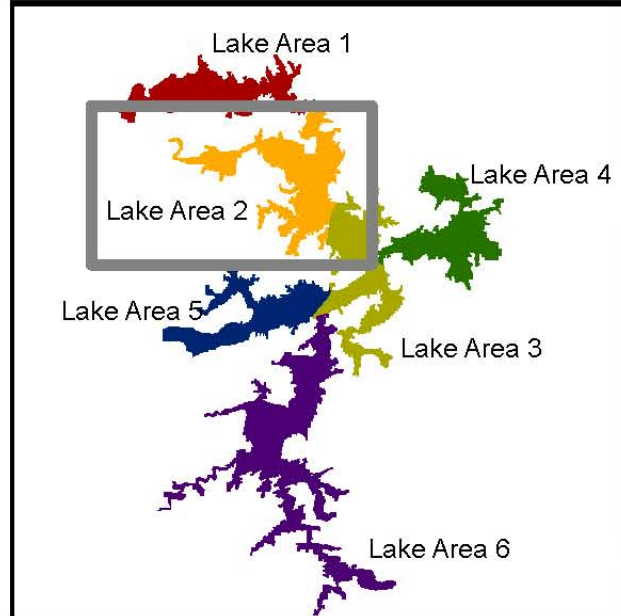
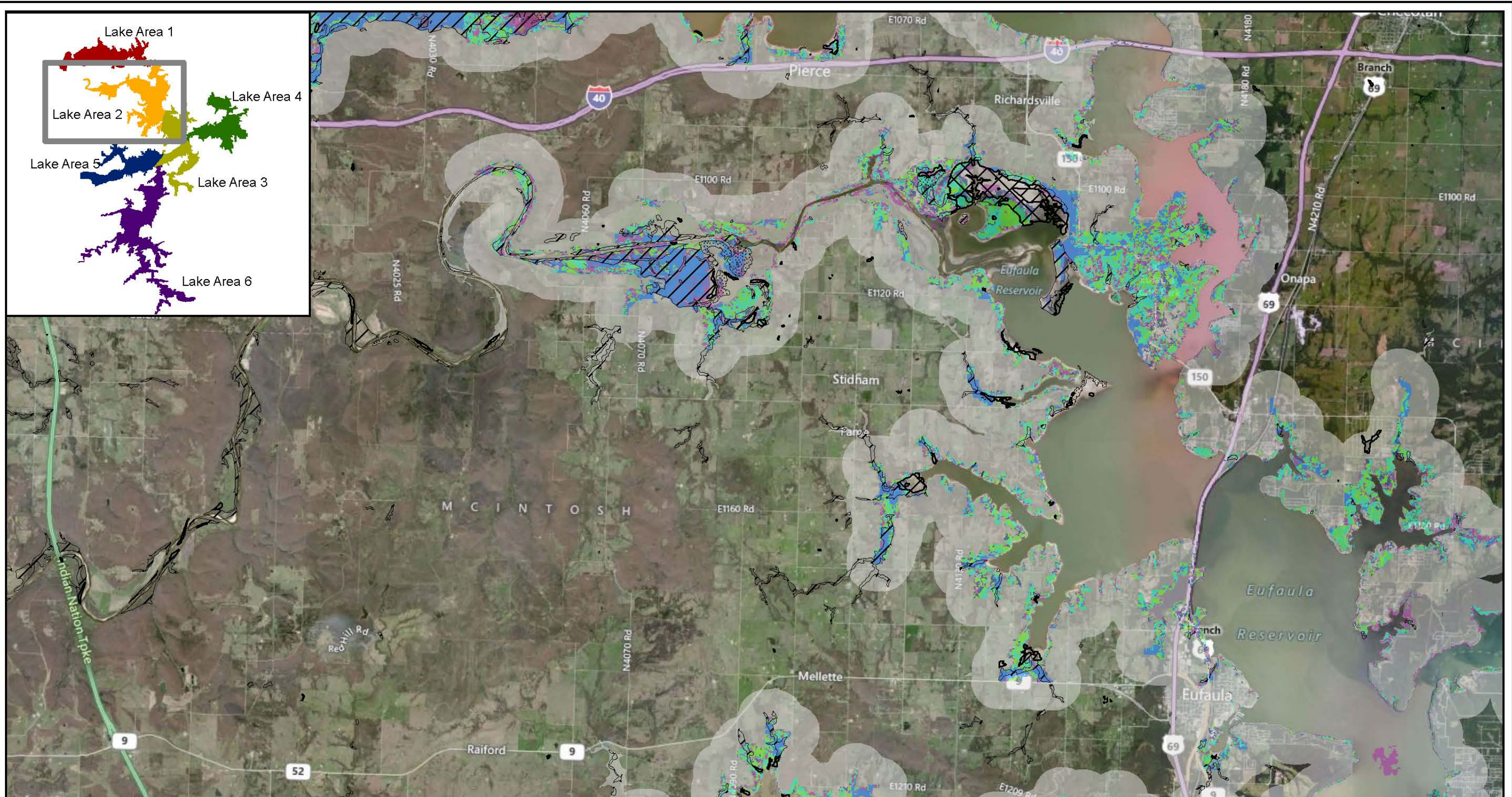
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 - NWI Wetlands Type**
 - Freshwater emergent wetland
 - Freshwater forested wetland
 - Freshwater scrub-shrub wetland

- Oak - Pine Forests
- Oak - Hickory Forests
- Bottomland Forests
- Crossttimbers
- Savanna
- Prairie



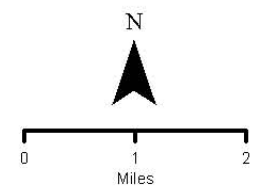
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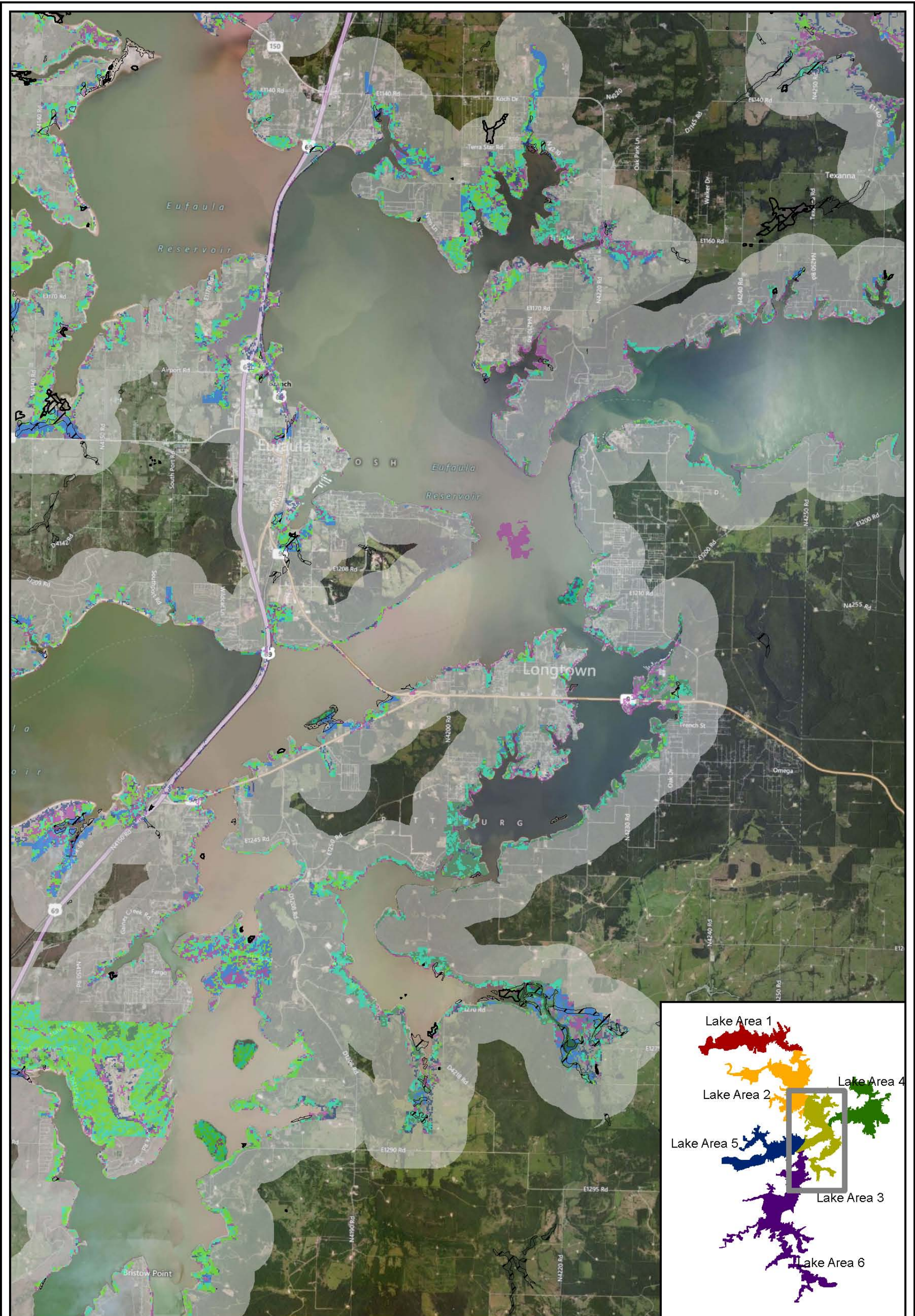
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 - NWI Wetlands Type**
 - Freshwater emergent wetland
 - Freshwater forested wetland
 - Freshwater scrub-shrub wetland

- Oak - Pine Forests
- Oak - Hickory Forests
- Bottomland Forests
- Crossttimbers
- Savanna
- Prairie

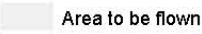
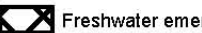
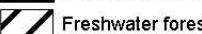
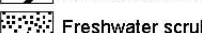


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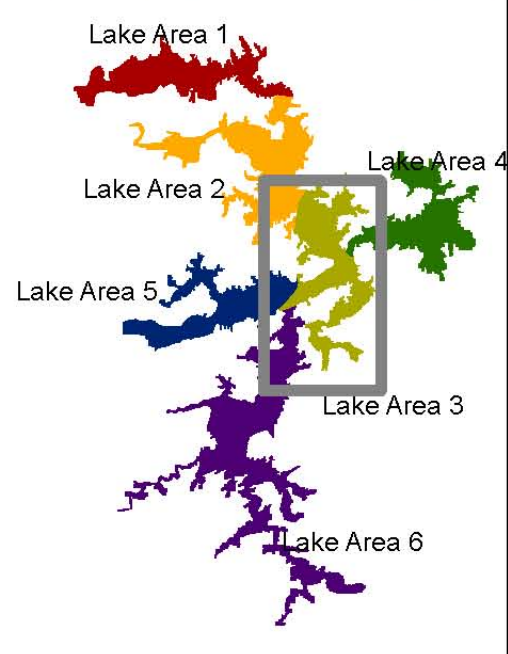
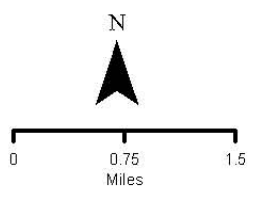
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Legend

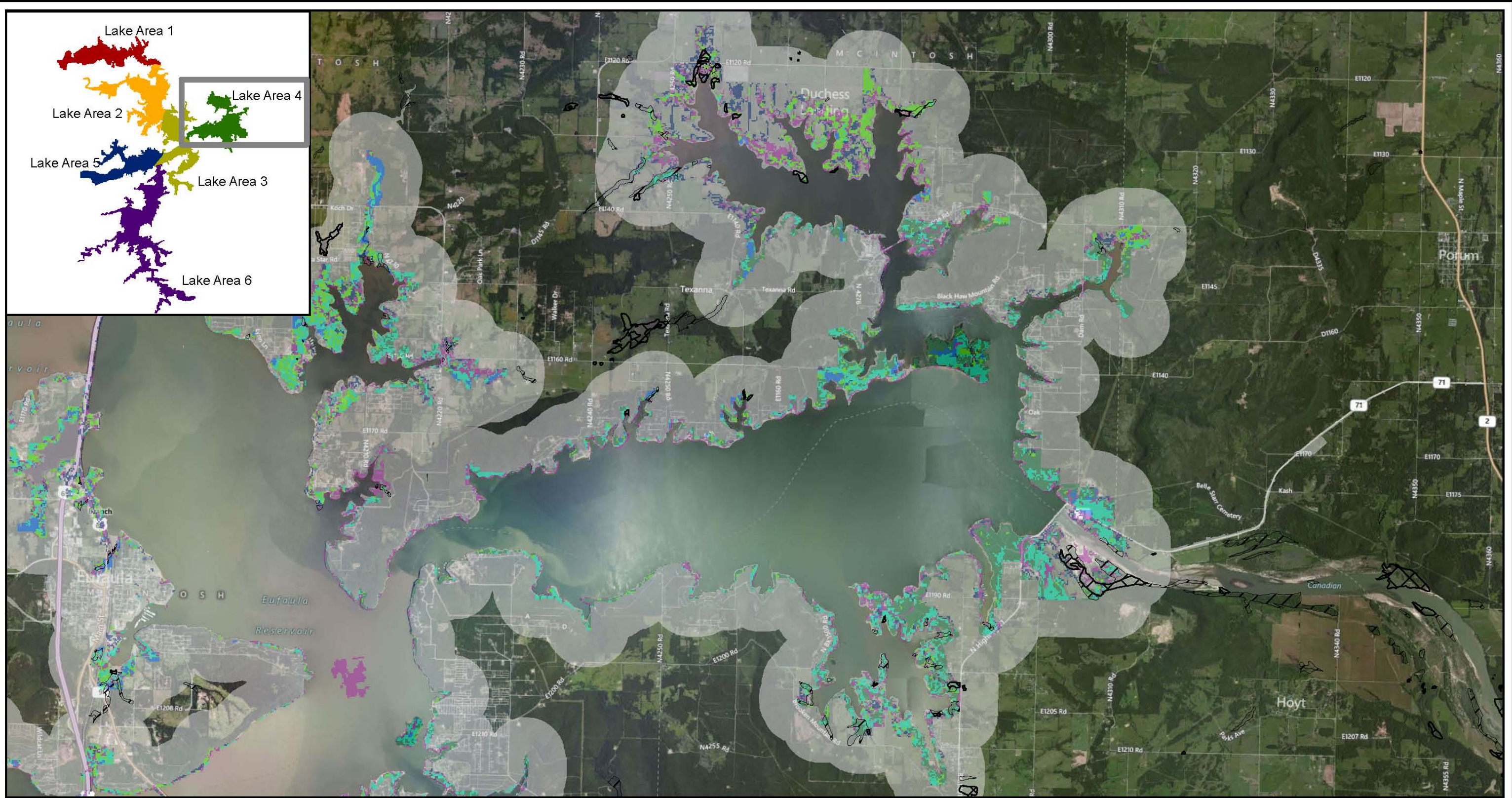
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-  Freshwater forested wetland
-  Freshwater scrub-shrub wetland

-  Oak - Pine Forests
-  Oak - Hickory Forests
-  Bottomland Forests
-  Crosstimbres
-  Savanna
-  Prairie



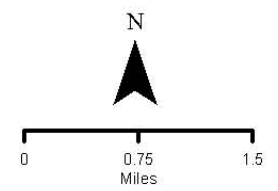
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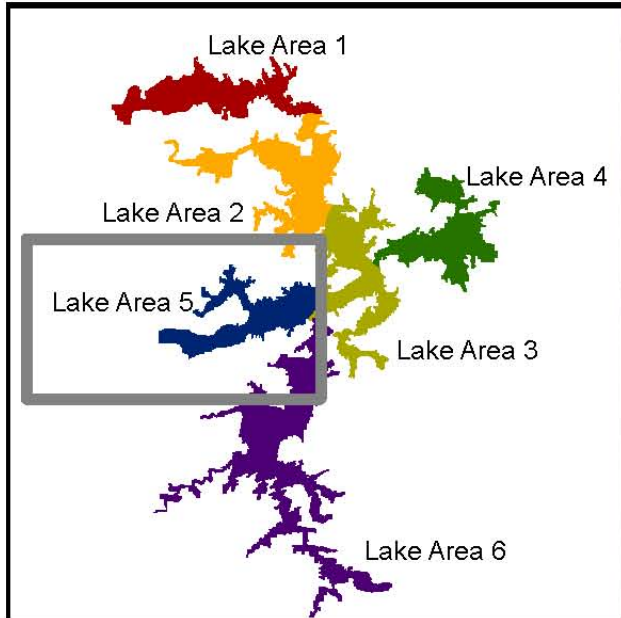
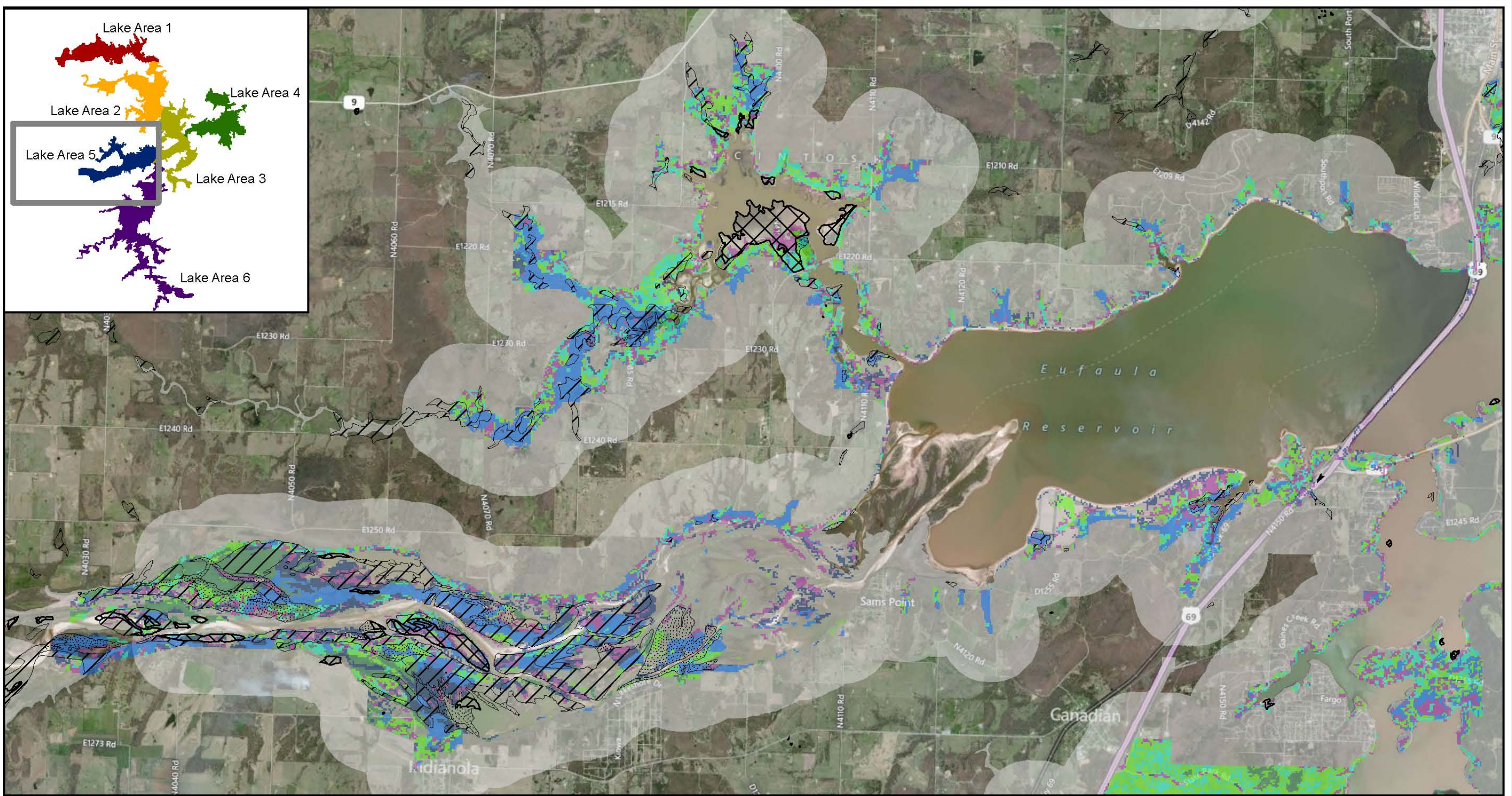
Legend

Area to be flown	Oak - Pine Forests
NWI Wetlands Type	Oak - Hickory Forests
Freshwater emergent wetland	Bottomland Forests
Freshwater forested wetland	Crossttimbers
Freshwater scrub-shrub wetland	Savanna
	Prairie



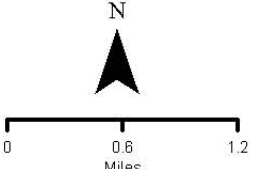
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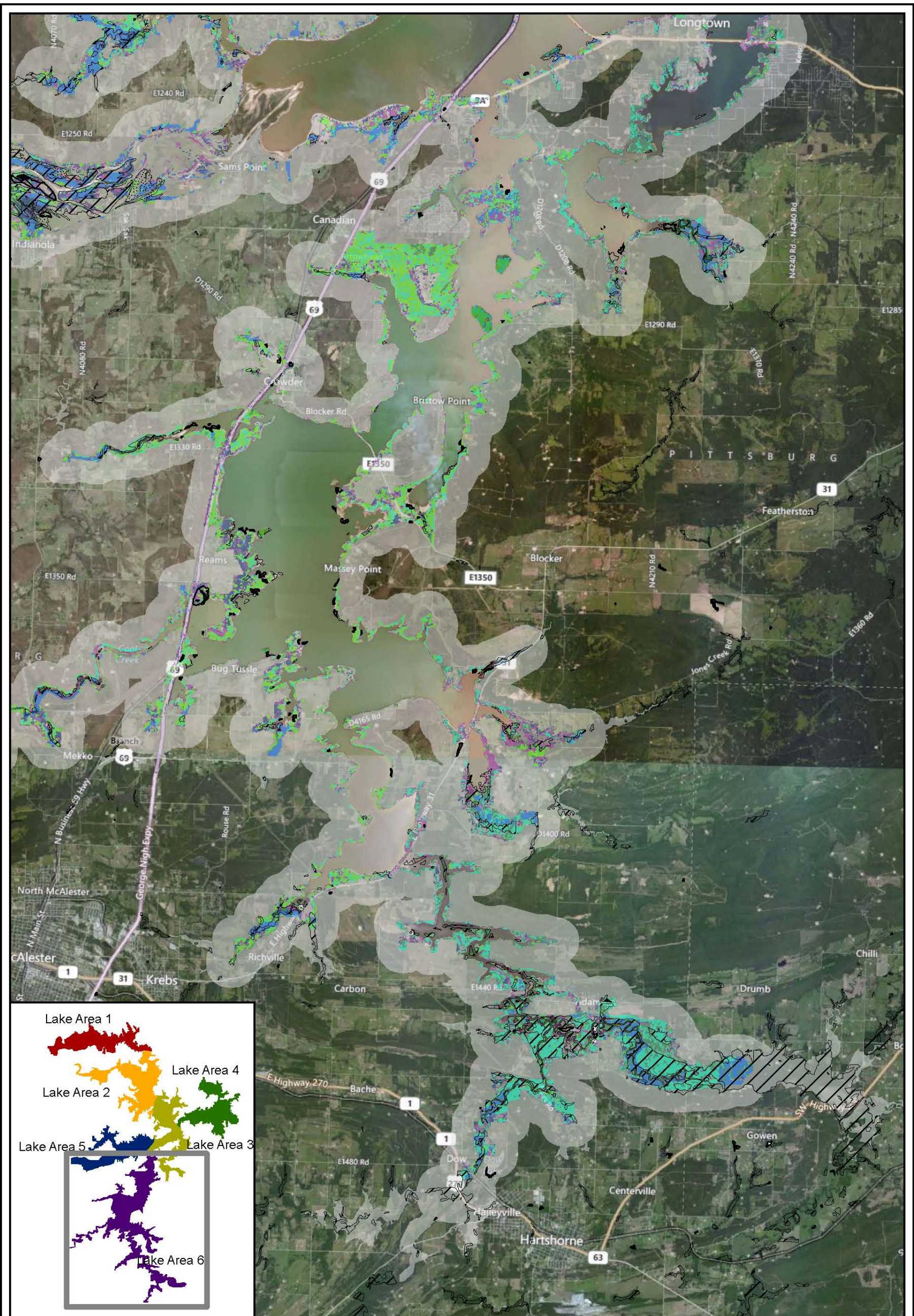
- Legend**
- Area to be flown
 - NWI Wetlands Type**
 - Freshwater emergent wetland
 - Freshwater forested wetland
 - Freshwater scrub-shrub wetland

- Oak - Pine Forests
- Oak - Hickory Forests
- Bottomland Forests
- Croswtimbers
- Savanna
- Prairie












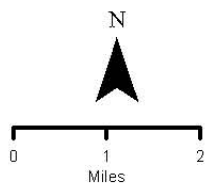
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Legend

-  Area to be flown
-  Freshwater emergent wetland
-  Freshwater forested wetland
-  Freshwater scrub-shrub wetland
-  Oak - Pine Forests
-  Oak - Hickory Forests
-  Bottomland Forests
-  Cross-timbers
-  Savanna
-  Prairie



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