Sweet (Swett) Lake Critical Habitat Designation Report

Bayfield County, WI

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April 2013

Critical Habitat Designation Program – Introduction

Wisconsites are concerned about the growing number of threats to sustainable healthy lakes in the state. Increases in shoreline development are changing lake ecosystems, and the conversion of natural lakeshore to residential development has greatly accelerated over the past 30 years. While many positive measures have been initiated within Wisconsin over the past few decades, habitat and water quality continue to be impacted.

Critical Habitat Designation is a program that includes formal designations of areas considered important to fish and wildlife. Critical Habitat is classified into three categories: sensitive areas, public rights features, and resource protection areas (uplands within the shoreline zone). These three elements combine to provide regulatory and management advice to the State of Wisconsin, counties, local units of governments, and others who are interested in protecting and preserving these unique habitats for future generations. Designation of Critical Habitat aims to serve four primary purposes:

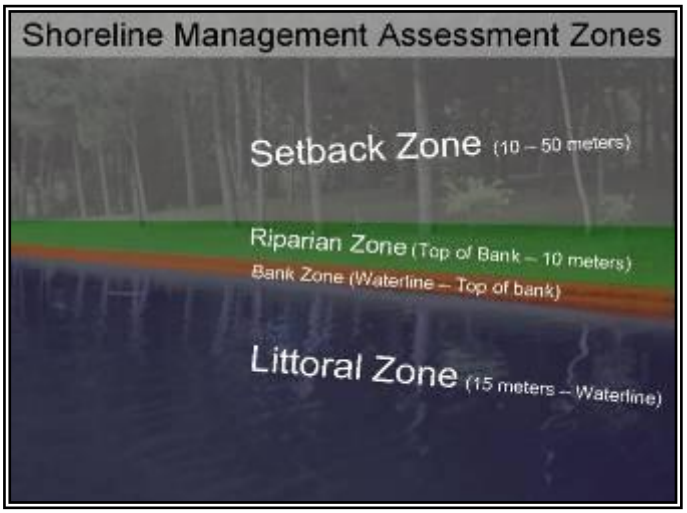
1) Resource protection through science based regulatory review.
2) Community-based resource protection through community education, planning and zoning.
3) As a guide to land-trusts and others acquiring land and conservation easements.
4) A mechanism to track long-term changes in these habitats.

Methods

Critical Habitat Designation occurred on Sweet Lake in Bayfield County during 2007 and 2008. Sweet Lake, which is an 88 acre lake with a max depth of 38 feet, is part of the Eau Claire Chain of Lakes and is the most upstream lake of the chain. Access to Sweet Lake is through navigable water from Shunenberg Lake via the public boat launch on Upper Eau Claire Lake.

Designations were conducted by a team consisting of the county fisheries biologist, water resources specialist, wildlife biologist, and critical habitat coordinator. Initially, DNR staff compiled and reviewed existing natural resource data that helped identify areas of focus related to fish, wildlife, endangered resources, and their habitats before going into the field. In the field, staff used existing natural resource data, delineation guidance, and professional judgment to establish the boundaries of the sites containing critical habitat. Critical Habitat Designation boundaries were recorded in the field using map grade Trimble Geo XM GPS Units. For each site, staff inventoried current shoreline management practices occurring along littoral, bank, riparian, and setback zones following standardized methods. Depending on the features of each area being delineated, standardized sampling of emergent and submergent aquatic vegetation, substrate, and woody habitat was also conducted.

Figure 1. Shoreline Management Zones



Note: A detailed description of the Critical Habitat Designation program, associated methods, and the values of Critical Habitat can be found at http://dnr.wi.gov/lakes/criticalhabitat/. Detailed assessments of each Critical Habitat area including raw sampling data and GIS shape files are available by contacting your local DNR office.

Management Recommendations

General Lakewide Recommendations: most of these management guidelines will be good for the lake regardless if the site is within a designated critical habitat area or not. Emphasis of or exceptions to these general recommendations are discussed in more detail in the specific lakewide and site management recommendations. For example, planting native vegetation along shorelines will generally be beneficial to the lake and property owner. Shorelines that are dominated by established lawn, however, may be out of compliance with current zoning standards and higher priority for restoration since those areas tend to pollute the resource more while simultaneously being devoid of natural fish and wildlife habitat.

Permanent Land Protection
Permanently protect designated critical habitat areas. Permanent land protection tools include: land acquisition, conservation easements, and mutual covenants. Competitive funding opportunities exist for parcels that are large and of particular conservation value. Voluntary protection or private funding sources may be the primary protection methods for smaller parcels. Specific lakewide and site recommendations emphasize priority areas for permanent land protection.

Shoreland Restoration
Leave natural shorelines undisturbed in accordance with local shoreland zoning rules. If the shoreline buffer does not exist or is disturbed, it should be replanted with native vegetation. The Bayfield County Land & Water Conservation Department may provide shoreline restoration technical and funding assistance. Additionally, the Wisconsin Department of Natural Resources offers competitive shoreline restoration grants. Some local landscaping businesses may be able to assist landowners with site planning, including native plant selection.

Runoff Control
Implement lake and river water quality protection tools like rainwater gardens, rain barrels, infiltration pits and trenches, grass swales, etc. that divert and/or infiltrate water before it enters the lake or river. Similar to shoreland restoration, the Bayfield County Land & Water Conservation Department may provide technical and funding assistance for these practices. Additionally, the Wisconsin Department of Natural Resources offers competitive lake protection grants. Some local landscaping businesses may be able to assist landowners with site planning, including plant selection.

Septic Systems
Inspect and maintain septic systems to prevent excess nutrient addition while protecting present water quality conditions. Ideally, a public sanitary sewer system should be constructed. Septic systems are not designed to remove the nutrients (i.e., phosphorous and nitrogen) that pollute water resources. Furthermore, septic water quickly moves through the local sandy soils and speeds delivery of potentially polluted water to the lake or river.

In-Lake Habitat Protection
Consider local recreational boating ordinances (i.e., slow-no-wake) within designated critical habitat areas. Specific lakewide and site recommendations emphasize priority areas for these ordinances.

In general, native aquatic plants should not be actively managed (i.e., no raking, herbicide use, or mechanized removal) and, if within a designated critical habitat site, will

require a permit for manual removal as well as chemical control. Lakewide and site specific recommendations describe exceptions to this general recommendation.

Near shore trees that fall into the water should be left in the water. Site specific recommendations discuss ideal locations for replacing lost woody habitat. There are opportunities with the DNR and Bayfield County Land & Water Conservation Department to implement a Fish Sticks project that replaces this valuable habitat.

Specific Lakewide Recommendations: these management guidelines would benefit all of Sweet Lake and are recommended based on lake type, geographic location, data collection results, and lakewide management opportunities and threats.

Riprap is not necessary because the wave energy is low for the entire lake. Low-energy sites are typically not eligible/authorized for riprap permits. If shoreline erosion is a problem, overland runoff from rooftops, driveways, and lawns or reckless motorboat use are the most likely causes.

Review current Bayfield County Lake Classification as a Class 1 (i.e. most developed) Lake and consider a proposal to reclassify as a Class 2 (i.e. moderately developed) Lake.

Design and implement a groundwater monitoring strategy to better understand local geology and hydrology.

Implement Fish Sticks project. There are many spring areas in Sweet Lake that make site-specific woody habitat project recommendations tough during an open-water survey because the sites may not freeze in winter to provide ideal project conditions. Therefore, consideration for placing Fish Sticks should occur on a case-by-case basis as interest arises. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities.

Specific Site Recommendations: these management guidelines are specific to the given site and only supersede general and specific lakewide recommendations if explicitly stated.

Sites

Nine areas are designated as Critical Habitat on Sweet Lake for a total of 39.3 acres (Figure 1; Tables 1 and 2). Four areas are classified as Sensitive Areas and five areas are classified as Public Rights Features.

Figure 2. Sweet Lake Critical Habitat Map

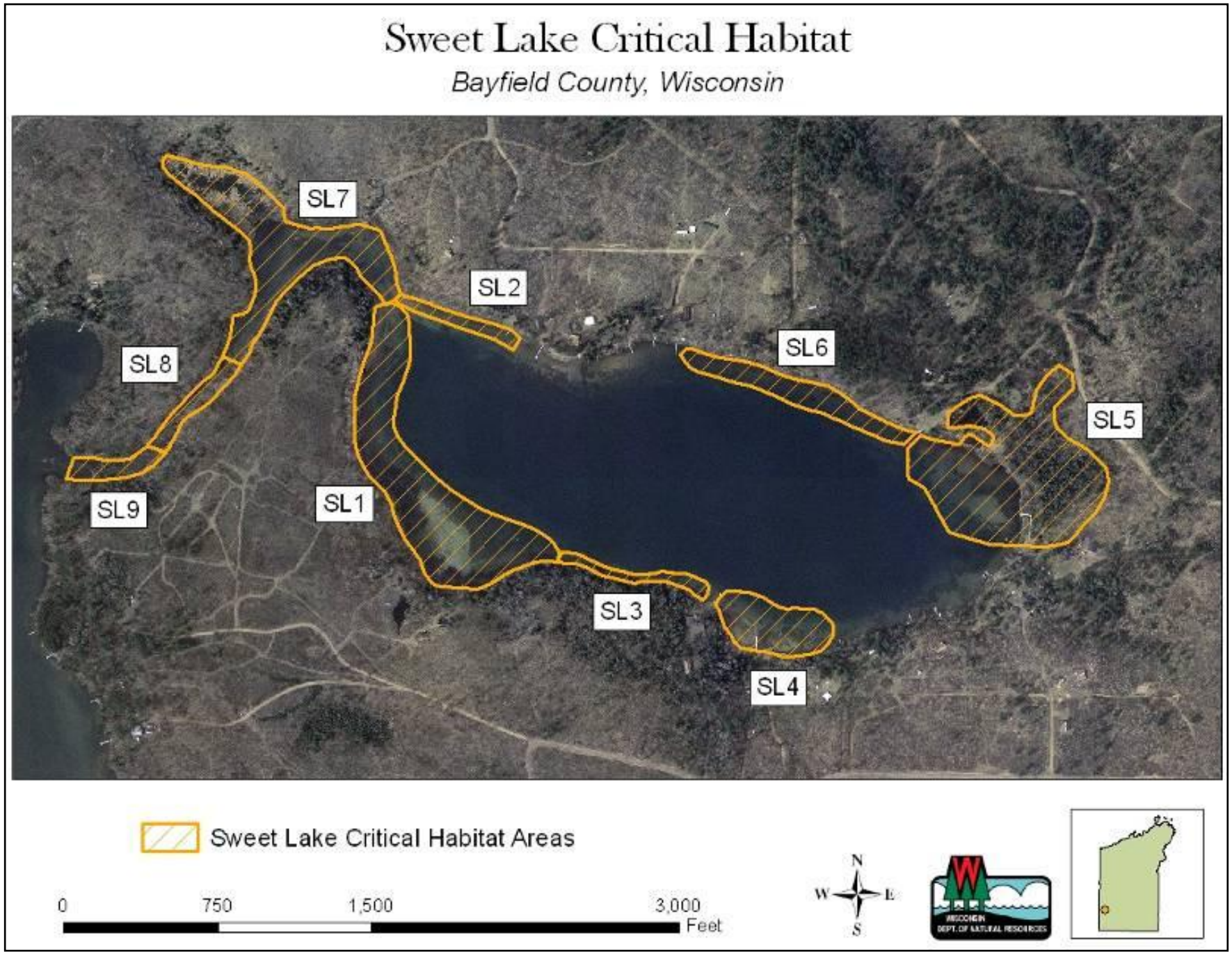
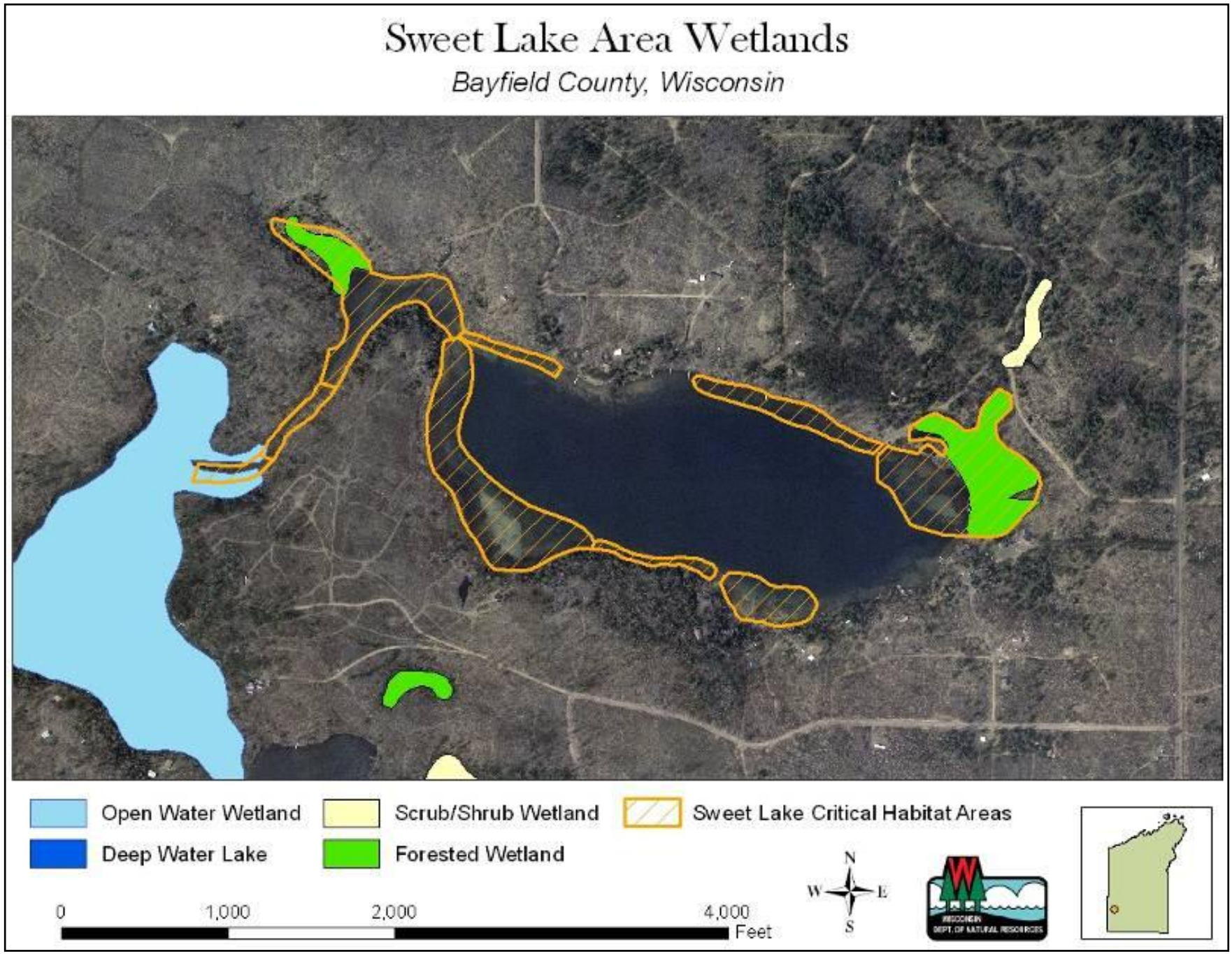


Table 1. Sweet Lake Critical Habitat Polygon Justifications						
Critical Habitat Polygon ID	**Acres**	**Justification**	**Justification**	**Justification**	**Justification**	**Classification**
SL1	10.3	4	2	7	-	Sensitive Area
SL2	0.9	7	8	-	-	Public Rights Feature
SL3	0.9	7	-	-	-	Public Rights Feature
SL4	2.9	2	4	-	-	Sensitive Area
SL5	11.8	2	6	-	-	Sensitive Area
SL6	2.8	7	9	-	-	Public Rights Feature
SL7	7.6	6	7	10	11	Public Rights Feature
SL8	1.1	8	7	11	10	Public Rights Feature
SL9	1.0	4	11	10	-	Sensitive Area

Table 2. Critical Habitat Justification Descriptions		
Justifications	**Justification Feature**	**Classification**
1	Bio-diverse Submerged Aquatic Vegetation (SAV)	Sensitive Area
2	SAV Important to Fish and Wildlife Habitat	Sensitive Area
3	Emergent and Floating Leaf Vegetation	Sensitive Area
4	Rush Beds	Sensitive Area
5	Wild Rice Bed	Sensitive Area
6	Extensive Riparian Wetland	Sensitive Area
7	Woody Habitat	Public Rights Feature
8	Spawning Substrate	Public Rights Feature
9	Water Quality (springs, etc)	Public Rights Feature
10	Natural Scenic Beauty	Public Rights Feature
11	Navigational Thoroughfare	Public Rights Feature

Figure 3. Sweet Lake Area Wetlands Map



Sweet Lake Critical Habitat Site SL1

Critical Habitat site SL1 is a Sensitive Area that was designated for its Rush Beds, Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat and its Woody Habitat. It is 10.29 acres in size and is located along the West shoreline.

Prioritize for permanent land protection.

Do not remove rush beds. Place piers outside of rushes, or if that's not possible extend the piers beyond the rushes for boat mooring. Restore/replant rush beds that have been destroyed in the past.

Implement Fish Sticks project. Contact local DNR Fisheries Biologist to investigate funding and technical assistance opportunities and initiate water regulation permit process.

Table 5 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of SL1.

Table 3. SL1 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Equisetum fluviatile	Water horsetail	Emergent	7	21.4
Schoenoplectus acutus	Hardstem bulrush	Emergent	5	11.9
Typha sp	Cattail	Emergent	1	Visual
Polygonum amphibium	Water smartweed	Floating Leaf	5	0.6
Potamogeton natans	Floating-leaf pondweed	Floating Leaf	5	1.9
Chara	Muskgrasses	Submergent	7	18.9
Elodea canadensis	Common waterweed	Submergent	3	10.1
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	2.5
Najas flexilis	Bushy pondweed	Submergent	6	11.3
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	3.8
Potamogeton friesii	Frie's pondweed	Submergent	8	2.5
Potamogeton gramineus	Variable pondweed	Submergent	7	1.3
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	6.9
Potamogeton robbinsii	Robbins pondweed	Submergent	8	1.3
Potamogeton zosteriformis	Flat-stem pondweed	Submergent	6	5
Stuckenia pectinata	Sago pondweed	Submergent	3	0.6

Table 4. SL1 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**SL1**
Total number of points sampled	85
Total number of sites with vegetation	81
Total number of sites shallower than maximum depth of plants	85
Frequency of occurrence at sites shallower than maximum depth of plants	95.294
Simpson Diversity Index	0.871
Maximum depth of plants (Feet)	16
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	85
Average number of all species per site (shallower than max depth)	1.87
Average number of all species per site (veg. sites only)	1.96
Average number of native species per site (shallower than max depth)	1.87
Average number of native species per site (veg. sites only)	1.96
Species Richness	15
Species Richness (including visuals)	16
Floristic Quality Index	22.50

Figure 4. SL1 Aquatic Plant Diversity Map

Figure 5. SL1 Rushes Map

Table 5. SL1 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
SL1-1	0	0	131.2	40	0.0	0.0
SL1-2	0	0	131.2	40	0.0	0.0
SL1-3	0	1	131.2	40	0.0	40.2
SL1-4	0	0	131.2	40	0.0	0.0
SL1 Total	0	1	524.8	160	0.0	10.1

Figure 6. SL1 Woody Habitat Transects Map

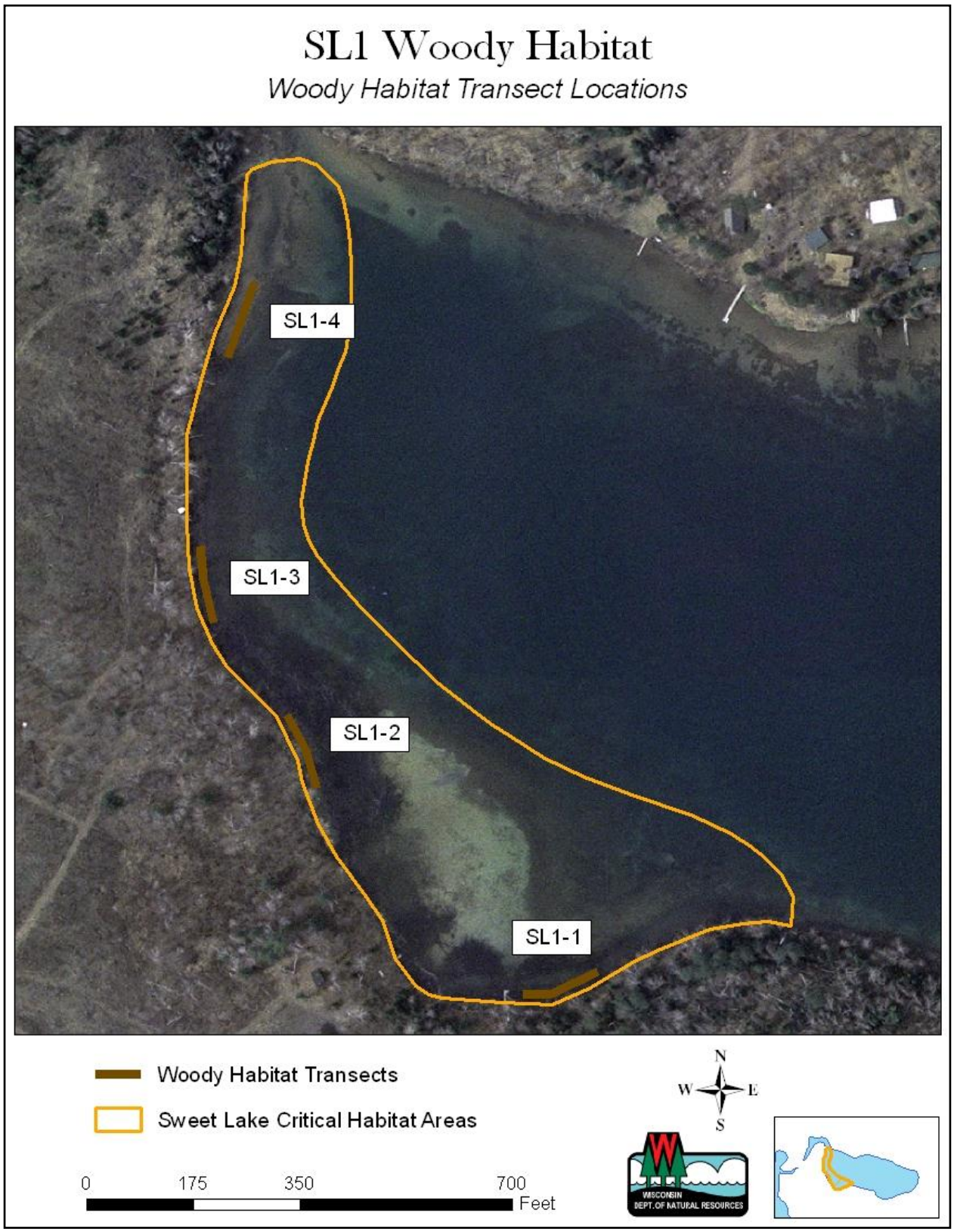


Table 6. Shoreline Assessment of SL1				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	2.5		
Accessory Structures	1	2.5		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			2034	96.9
Shrub Layer Removed			66	3.1
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			2099	100
Bank Zone				
Natural Bank			2099	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			2099	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	1	2.5		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Sweet Lake Critical Habitat Site SL2

Critical Habitat site SL2 is a Public Rights Feature that was designated for its Woody Habitat and Spawning Substrate. It is 0.88 acres in size and is located along the Northwest shoreline.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Buffers, overhanging vegetation and fallen trees should remain to provide cover and prevent shoreline erosion which could cause undesirable increases in sedimentation on this valuable walleye spawning shoal and bluegill nesting site, consisting of an abundance of cobble, gravel and sand.

Table 9 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of SL2.

Table 7. SL2 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
SL2-1	0	0	32.8	10	0.0	0.0
SL2-2	0	1	32.8	10	0.0	161.0
SL2-3	0	1	32.8	10	0.0	161.0
SL2-4	0	1	32.8	10	0.0	161.0
SL2 Total	0	3	131.2	40	0.0	120.7

Table 8. SL2 Spawning Substrate Sampling Transect Data

Transect Number	Quadrat Number	Band Start	Band End	Band Width (m)	Embeddedness	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Coarse Gravel	Cobble / Rubble	Small Boulder	Large Boulder	Bedrock
1	1	0	14	14						100						
2	1	0	2	2	4					10		75	15			
2	2	2	11	9	1					85	15					
2	3	11	15	4				70		30						
3	1	0	5.6	5.6	4						5	15	80			
3	2	5.6	10.2	4.6	1					20	80					
3	3	10.2	15	4.8				100								
4	1	0	5.6	5.6	3					5		35	60			
4	2	5.6	11.4	5.8	4						60	40				
5	1	0	3	3			50		50							
5	2	3	6.5	3.5	2					25		40	35			
5	3	6.5	10.4	3.9	3					20	60	20				
5	4	10.4	15	4.6	1					20	80					
6	1	0	2.4	2.4			50		50							
6	2	2.4	4.8	2.4	3						20	70	10			
6	3	8	13	5	2		10					50	40			
7	1	0	2	2			50		50							
7	2	2	15	13	5						5	90	5			
8	1	0	1.8	1.8			50		50							
8	2	1.8	15	13.2	4					5		75	20			
9	1	0	2.5	2.5						100						
9	2	2.5	5.5	3	2					5	20	50	25			
9	3	5.9	15	9.1	3					5	35	60				
10	1	0	3	3					5	95						
10	2	3	5.8	2.8	1				5	15	80					
10	3	5.8	15	9.2						5	15	50	30			

Figure 7. SL2 Spawning Substrate Transects Map

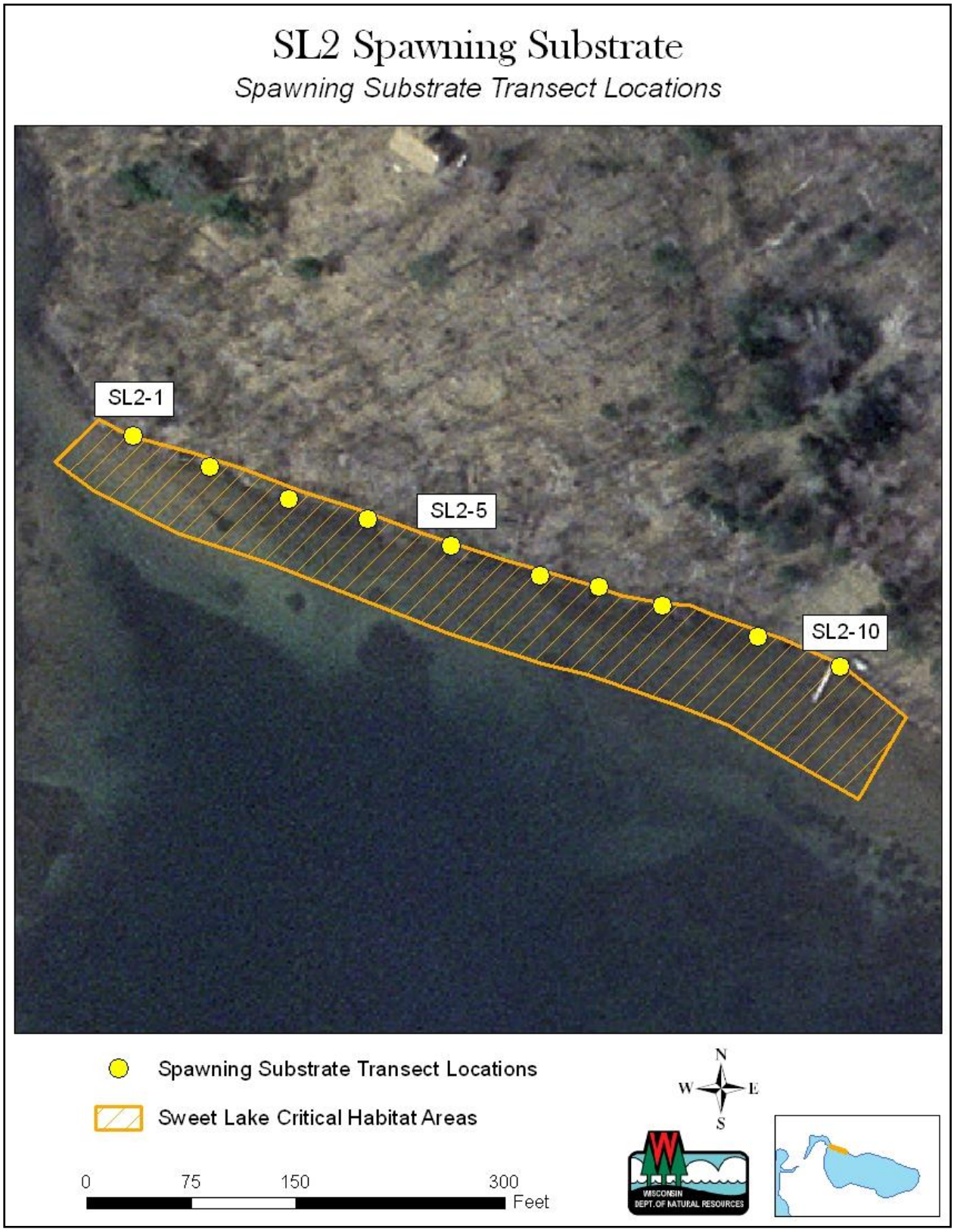


Figure 8. SL2 Woody Habitat Transects Map

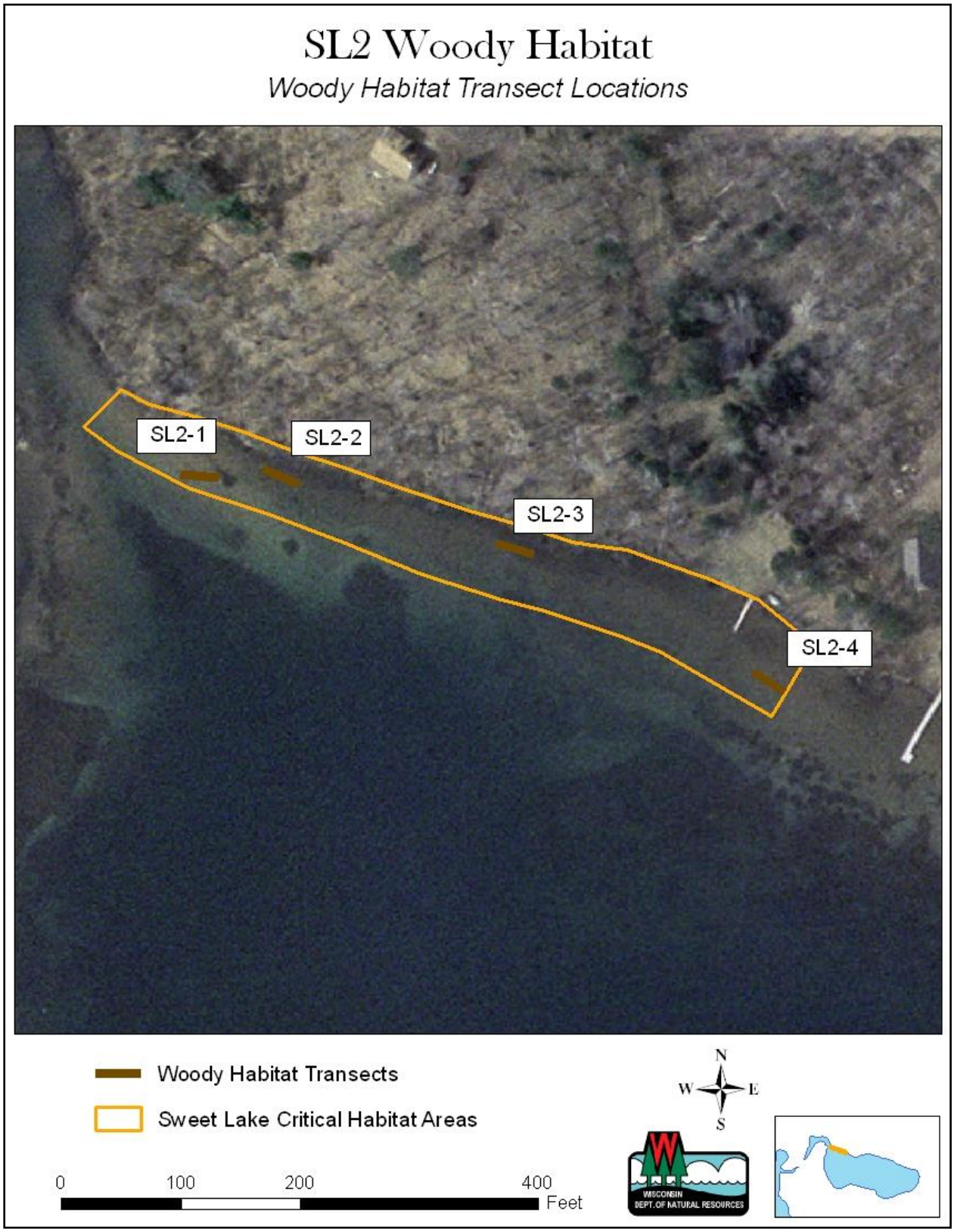


Table 9. Shoreline Assessment of SL2				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	8.7		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			492	81.1
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			115	18.9
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			607	100
Bank Zone				
Natural Bank			541	89.1
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			66	10.9
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			607	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	1	8.7		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Sweet Lake Critical Habitat Site SL3

Critical Habitat site SL3 is a Public Rights Feature that was designated for its Woody Habitat. It is 0.88 acres in size and is located along the South shoreline.

Leave fallen trees in the water.

Table 11 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of SL3.

Table 10. SL3 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
SL3-1	0	2	65.6	20	0.0	161.0
SL3-2	0	0	65.6	20	0.0	0.0
SL3-3	2	2	65.6	20	161.0	161.0
SL3-4	1	0	65.6	20	80.5	0.0
SL3 Total	3	4	262.4	80	60.4	80.5

Figure 9. SL3 Woody Habitat Transects Map

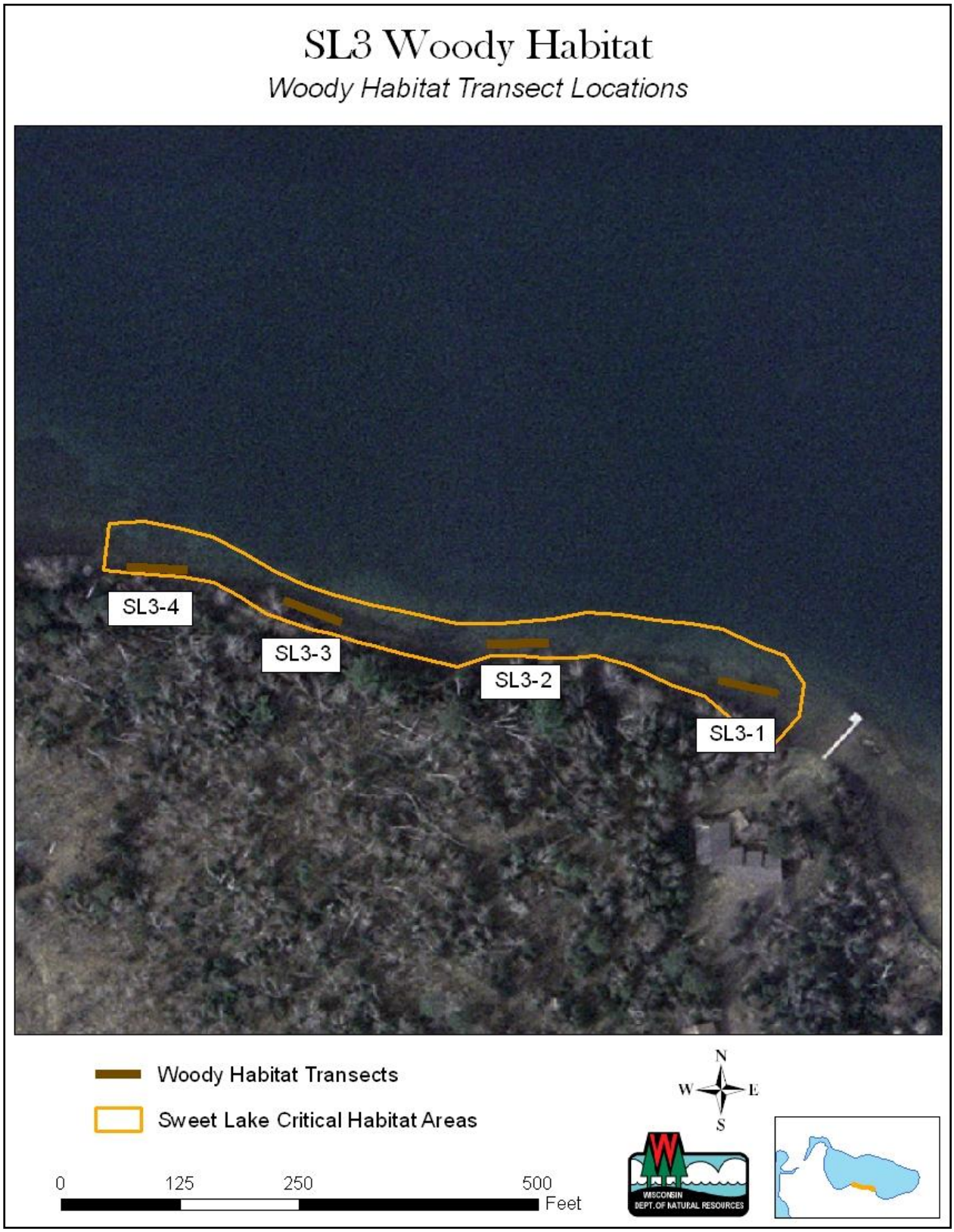


Table 11. Shoreline Assessment of SL3				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	7.2		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	2	14.3		
Commercial Buildings	0	0		
Natural vegetation			728	98.6
Shrub Layer Removed			10	1.4
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			738	100
Bank Zone				
Natural Bank			738	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			738	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	2	14.3		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	1	7.2		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Sweet Lake Critical Habitat Site SL4

Critical Habitat site SL4 is a Sensitive Area that was designated for its Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat and Rush Beds. It is 2.86 acres in size and is located along the South shoreline.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Remove riprap and implement shoreline restoration using native shoreline plants. Riprap is not necessary because the wave energy is low for the entire lake. Low-energy sites are typically not eligible/authorized for riprap permits. If shoreline erosion is a problem, overland runoff from rooftops, driveways, and lawns or reckless motorboat use are the most likely causes.

Do not remove rush beds. Place piers outside of rushes, or if that's not possible extend the piers beyond the rushes for boat mooring. Restore/replant rush beds that have been destroyed in the past.

Table 14 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of SL4.

Table 12. SL4 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Sagittaria sp	Arrowhead	Emergent	-	2.5
Schoenoplectus acutus	Hardstem bulrush	Emergent	5	2.5
Spirodela polyrhiza	Large Duckweed	Free Floating	5	2.5
Chara	Muskgrasses	Submergent	7	57.5
Eleocharis acicularis	Needle spikerush	Submergent	5	5
Elodea canadensis	Common waterweed	Submergent	3	7.5
Potamogeton friesii	Frie's pondweed	Submergent	8	2.5
Potamogeton gramineus	Variable pondweed	Submergent	7	17.5
Ranunculus aquatilis	Stiff water crowfoot	Submergent	7	2.5

Table 13. SL4 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**SL4**
Total number of points sampled	33
Total number of sites with vegetation	28
Total number of sites shallower than maximum depth of plants	33
Frequency of occurrence at sites shallower than maximum depth of plants	84.848
Simpson Diversity Index	0.6275
Maximum depth of plants (Feet)	15.5
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	33
Average number of all species per site (shallower than max depth)	1.21
Average number of all species per site (veg. sites only)	1.43
Average number of native species per site (shallower than max depth)	1.21
Average number of native species per site (veg. sites only)	1.43
Species Richness	9
Species Richness (including visuals)	9
Floristic Quality Index	16.62

Figure 10. SL4 Aquatic Plant Diversity Map

Figure 11. SL4 Rushes Map

Table 14. Shoreline Assessment of SL4				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	7.2		
Accessory Structures	4	28.6		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	1	7.2		
Commercial Buildings	0	0		
Natural vegetation			492	66.7
Shrub Layer Removed			164	22.2
Shrub & Ground Cover Removed			0	0
Established Lawn			82	11.1
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			738	100
Bank Zone				
Natural Bank			672	91.1
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			49	6.6
Pea Gravel Blanket			0	0
Established Lawn			16	2.2
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			738	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	4	28.6		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	3	21.5		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Sweet Lake Critical Habitat Site SL5

Critical Habitat site SL5 is a Sensitive Area that was designated for its Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat and Extensive Riparian Wetland. It is 11.81 acres in size and is located along the Northeast shoreline.

Prioritize for permanent land protection. This site also has historical/archeological significance in that it was a draw for moving lumber down the Eau Claire Lakes and eventually on to the St. Croix River and Stillwater, Minnesota during the intense logging era around the turn of the twentieth century.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Remove riprap and implement shoreline restoration using native shoreline plants. Riprap is not necessary because the wave energy is low for the entire lake. Low-energy sites are typically not eligible/authorized for riprap permits. If shoreline erosion is a problem, overland runoff from rooftops, driveways, and lawns or reckless motorboat use are the most likely causes.

Leave fallen trees in the water.

Table 17 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of SL5.

Figure 15. SL5 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Typha sp	Cattail	Emergent	1	4.5
Sparganium fluctuans	Floating-leaf-bur-reed	Floating Leaf	10	1.5
Spirodela polyrhiza	Large Duckweed	Free Floating	5	3.0
Chara	Muskgrasses	Submergent	7	37.9
Eleocharis acicularis	Needle spikerush	Submergent	5	6.1
Elodea canadensis	Common waterweed	Submergent	3	6.1
Myriophyllum sibericum	Northern water-milfoil	Submergent	7	6.1
Myriophyllum tenellum	Dwarf water-milfoil	Submergent	10	3.0
Najas flexilis	Bushy pondweed	Submergent	6	6.1
Potamogeton amplifolius	Large-leaf pondweed	Submergent	7	3.0
Potamogeton illinoensis	Illinois pondweed	Submergent	6	4.5
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	4.5
Ranunculus aquatilis	Stiff water crowfoot	Submergent	7	10.6
Stuckenia pectinata	Sago pondweed	Submergent	3	3.0

Table 16. SL5 Aquatic Plant Sampling Summary Statistics	
SUMMARY STATISTICS	**SL5**
Total number of points sampled	54
Total number of sites with vegetation	38
Total number of sites shallower than maximum depth of plants	54
Frequency of occurrence at sites shallower than maximum depth of plants	70.37
Simpson Diversity Index	0.82
Maximum depth of plants (Feet)	10.00
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	54
Average number of all species per site (shallower than max depth)	1.22
Average number of all species per site (veg. sites only)	1.74
Average number of native species per site (shallower than max depth)	1.22
Average number of native species per site (veg. sites only)	1.74
Species Richness	14
Species Richness (including visuals)	14
Floristic Quality Index	21.92

Figure 12. SL5 Aquatic Plant Diversity Map

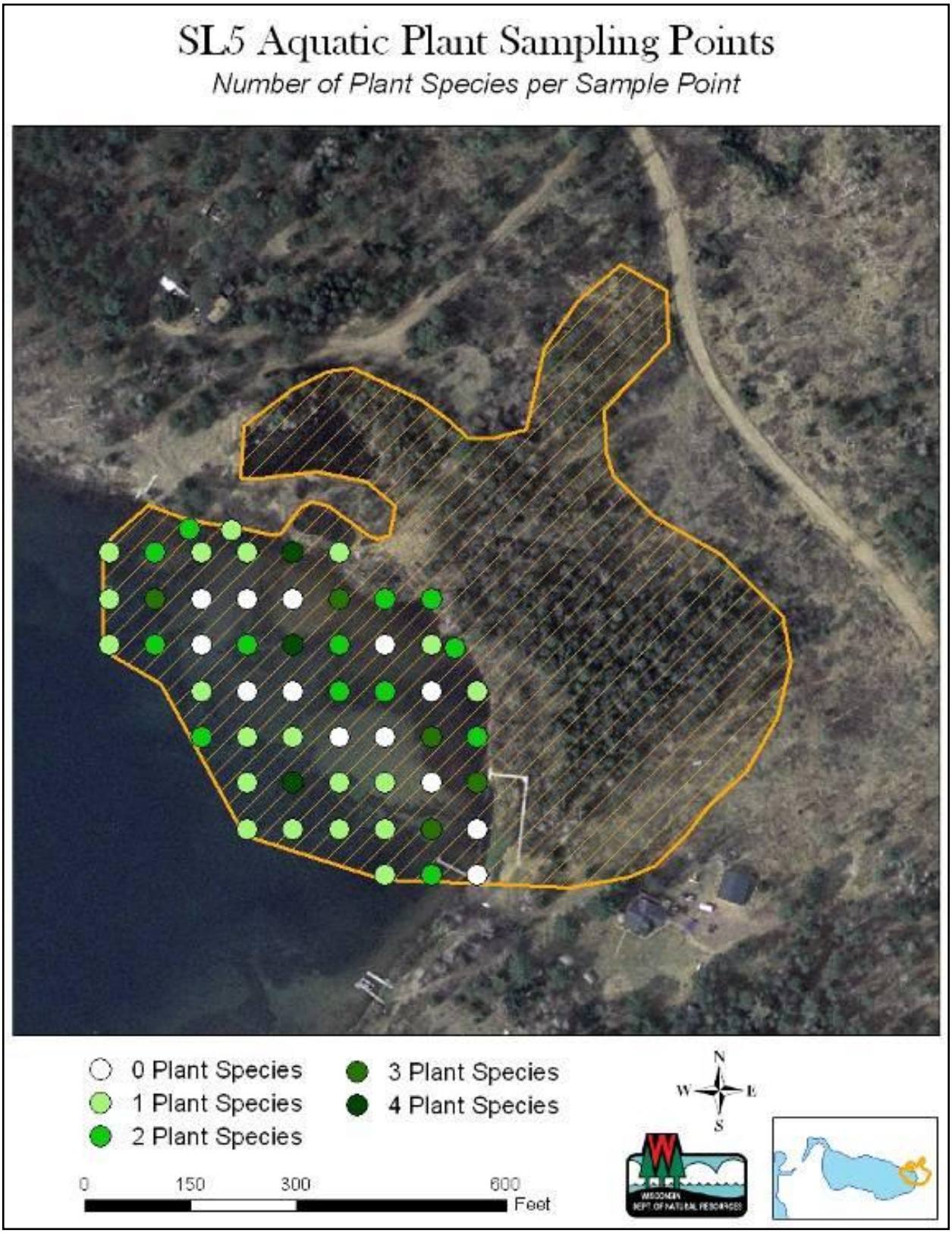


Table 17. Shoreline Assessment of SL5				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			558	65.4
Shrub Layer Removed			164	19.2
Shrub & Ground Cover Removed			0	0
Established Lawn			131	15.4
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			853	100
Bank Zone				
Natural Bank			738	86.5
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			33	3.9
Pea Gravel Blanket			0	0
Established Lawn			82	9.6
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			853	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	4	24.8		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Sweet Lake Critical Habitat Site SL6

Critical Habitat site SL6 is a Public Rights Feature that was designated for its Woody Habitat and Water Quality (Springs). It is 2.81 acres in size and is located along the North shoreline.

Monitor groundwater quality to determine if septic systems are polluting the lake. Should future development occur, consider alternative septic systems designs that would maximize water quality protection.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Consider consolidating piers and/or rafts for community rather than single-parcel use.

Leave fallen trees in the water.

Table 19 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of SL6.

Table 18. SL6 Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
SL6-1	0	9	65.6	20	0.0	724.4
SL6-2	0	0	65.6	20	0.0	0.0
SL6-3	0	2	65.6	20	0.0	161.0
SL6-4	0	11	65.6	20	0.0	885.4
SL6 Total	0	22	262.4	80	0.0	442.7

Figure 13. SL6 Woody Habitat Transects Map

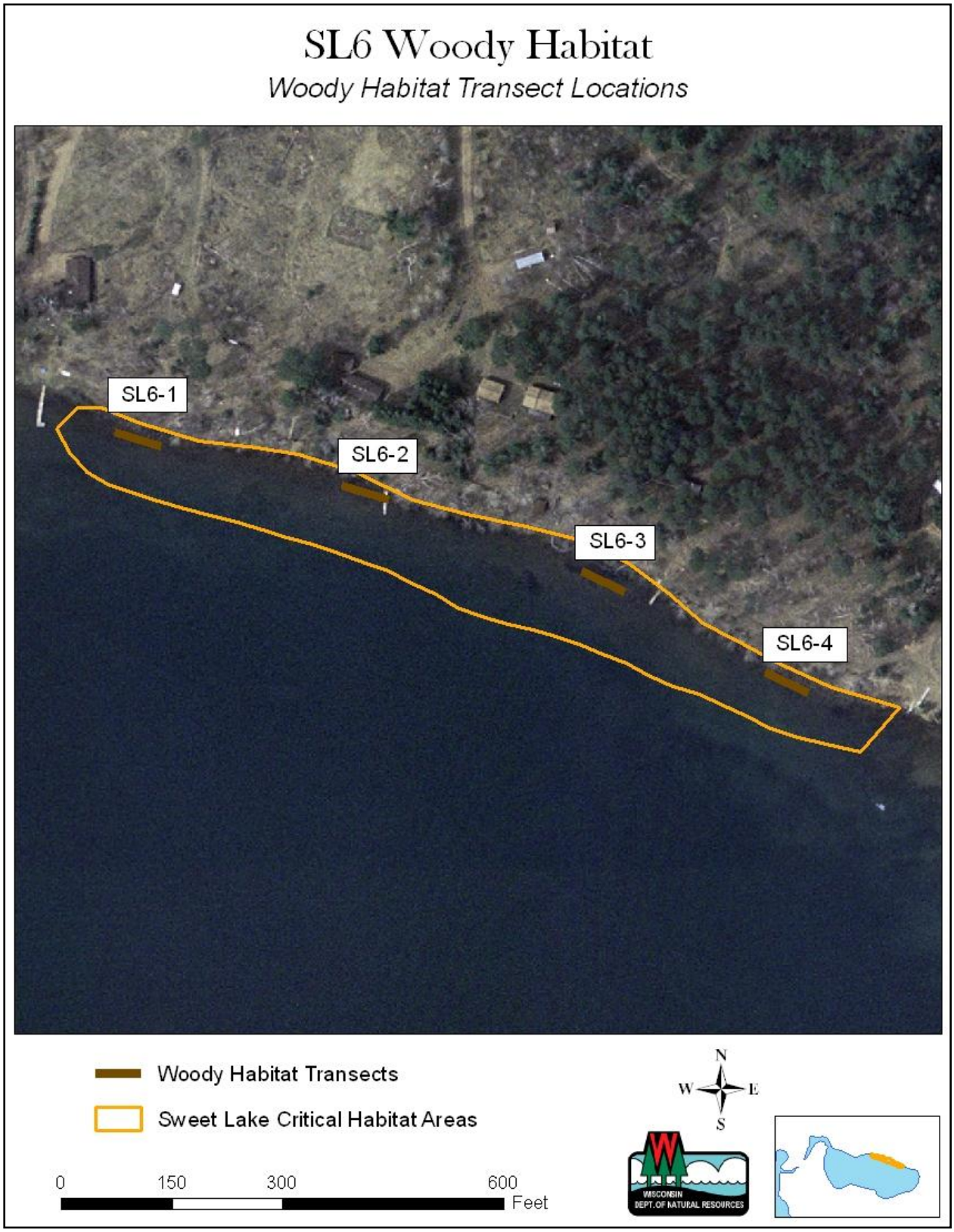


Table 19. Shoreline Assessment of SL6				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	4	17.9		
Accessory Structures	13	58.1		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	4	17.9		
Commercial Buildings	0	0		
Natural vegetation			853	72.2
Shrub Layer Removed			230	19.5
Shrub & Ground Cover Removed			0	0
Established Lawn			98	8.3
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			1181	100
Bank Zone				
Natural Bank			1000	84.7
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			180	15.2
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			1181	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	6	26.8		
Boat Lifts	1	4.5		
Swims Rafts/ Trampolines	3	13.4		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Sweet Lake Critical Habitat Site SL7

Critical Habitat site SL7 is a Public Rights Feature that was designated for its Extensive Riparian Wetland, Woody Habitat, Natural Scenic Beauty, and Extensive Public Use. It is 7.59 acres in size and is located along the Northwest part of the lake.

Prioritize for permanent land protection.

Established lawn within 50 feet of the water's edge should be replanted with native vegetation to comply with Bayfield County shoreland zoning ordinance, minimize erosion and pollution, and improve fish and wildlife habitat.

Leave fallen trees in the water unless they are impeding navigation.

Table 22 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of SL7.

Table 20. SL7 East Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
SL7 East-1	1	1	65.6	20	80.5	80.5
SL7 East-2	2	4	65.6	20	161.0	322.0
SL7 East-3	2	1	65.6	20	161.0	80.5
SL7 East-4	0	1	65.6	20	0.0	80.5
SL7 East Total	5	7	262.4	80	100.6	140.9

Table 21. SL7 West Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
SL7 West-1	4	1	98.4	30	214.6	53.7
SL7 West-2	0	2	98.4	30	0.0	107.3
SL7 West-3	0	0	98.4	30	0.0	0.0
SL7 West-4	0	0	98.4	30	0.0	0.0
SL7 West Total	4	3	393.6	120	53.7	40.2

Figure 14. SL7 Woody Habitat Transects Map

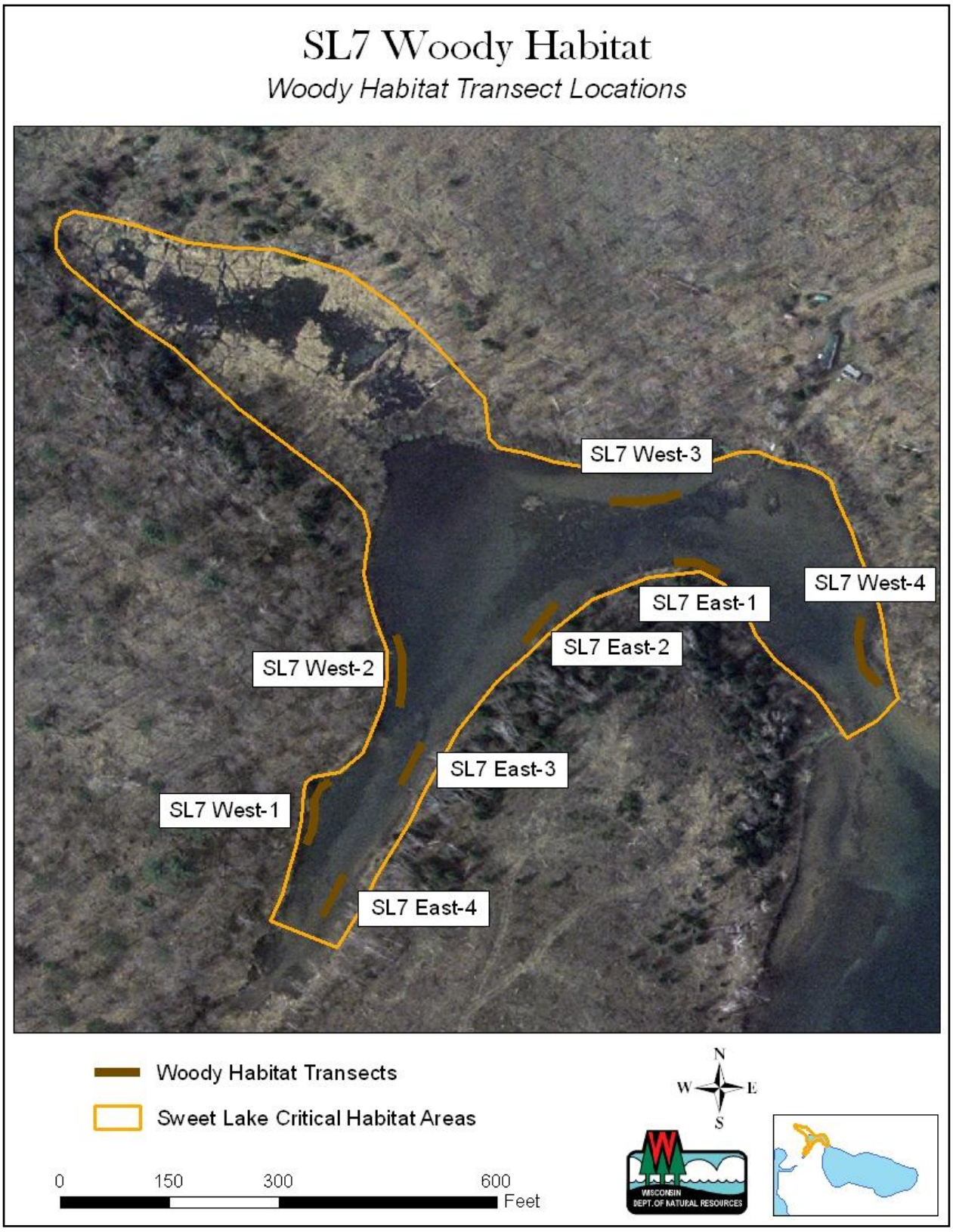


Table 22. Shoreline Assessment of SL7				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	1	2.0		
Accessory Structures	2	3.9		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			2699	99.7
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			7	0.3
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			2706	100
Bank Zone				
Natural Bank			2706	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			2706	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	1	2.0		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Sweet Lake Critical Habitat Site SL8

Critical Habitat site SL8 is a Public Rights Feature that was designated for its Spawning Substrate, Woody Habitat, Extensive Public Use, and Natural Scenic Beauty. It is 1.10 acres in size and is located along the channel between Sweet Lake and Shunenberg Lake.

Prioritize for permanent land protection.

Buffers, overhanging vegetation and fallen trees should remain to provide cover and prevent shoreline erosion which could cause undesirable increases in sedimentation on this valuable walleye spawning shoal, consisting of an abundance of cobble, gravel and sand.

Leave fallen trees in the water unless they are impeding navigation.

Table 26 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of SL8.

Table 23. SL8 East Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
SL8 East-1	0	0	32.8	10	0.0	0.0
SL8 East-2	0	0	32.8	10	0.0	0.0
SL8 East-3	2	0	32.8	10	322.0	0.0
SL8 East-4	1	2	32.8	10	161.0	322.0
SL8 East Total	3	2	131.2	40	120.7	80.5

Table 24. SL8 West Woody Habitat Sampling Transects

Transect	# Big Logs	# Small Logs	Transect Length (feet)	Transect Length (m)	Big Logs per Mile	Small Logs per Mile
SL8 West-1	0	0	32.8	10	0.0	0.0
SL8 West-2	3	1	32.8	10	482.9	161.0
SL8 West-3	1	8	32.8	10	161.0	1287.8
SL8 West-4	2	0	32.8	10	322.0	0.0
SL8 West Total	6	9	131.2	40	241.5	362.2

Table 25. SL8 Spawning Substrate Sampling Transect Data

Transect Number	Quadrat Number	Band Start	Band End	Band Width (m)	Embeddedness	Marl	Detritus	Clay	Silt	Sand	Fine Gravel	Coarse Gravel	Cobble / Rubble	Small Boulder	Large Boulder	Bedrock
1	1	0	5.5	5.5					80	20						
1	2	5.5	9	3.5	2					95	5					
1	3	9	10.8	1.8						100						
1	4	10.8	18.1	7.3			10		80	10						
2	1	0	3.5	3.5	1				70	10	10	10				
2	2	3.5	8.2	4.7	2					10	60	20	10			
2	3	8.2	21.8	13.6			20		80							
2	4	21.8	23	1.2			100									
3	1	0	1.4	1.4					80	5	5	5	5			
3	2	1.4	5.8	4.4	2					15	80		5			
3	3	5.8	7.6	1.8	1				20	40	30		10			
4	1	0	0.8	0.8			100									
4	2	0.8	2	1.2	1				85	10	5					
4	3	2	6.9	4.9	2					10	55	35				
4	4	6.9	8.7	1.8	2				5	10	20	50	15			
5	1	0	0.7	0.7					80	20						
5	2	0.7	2	1.3	1					80	20					
5	3	2	3.8	1.8	4					5	10	70	15			
5	4	3.8	6.7	2.9					5	15	80					
6	1	0	10.3	10.3			10		90							
6	2	10.3	15	4.7	1				5	80	10		5			
6	3	15	25.7	10.7			5		95							

Figure 15. SL8 Spawning Substrate Transects Map

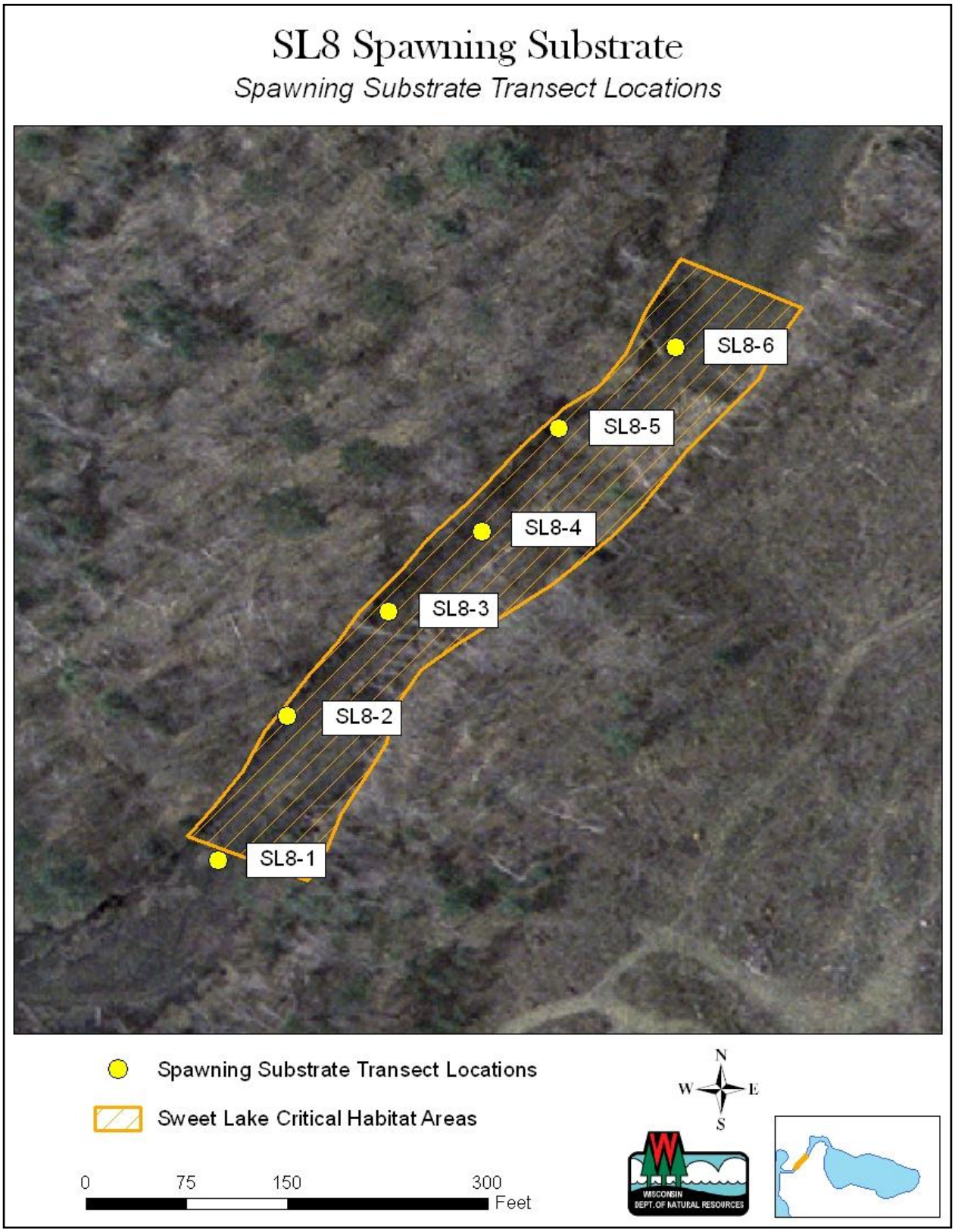


Figure 16. SL8 Woody Habitat Transects Map

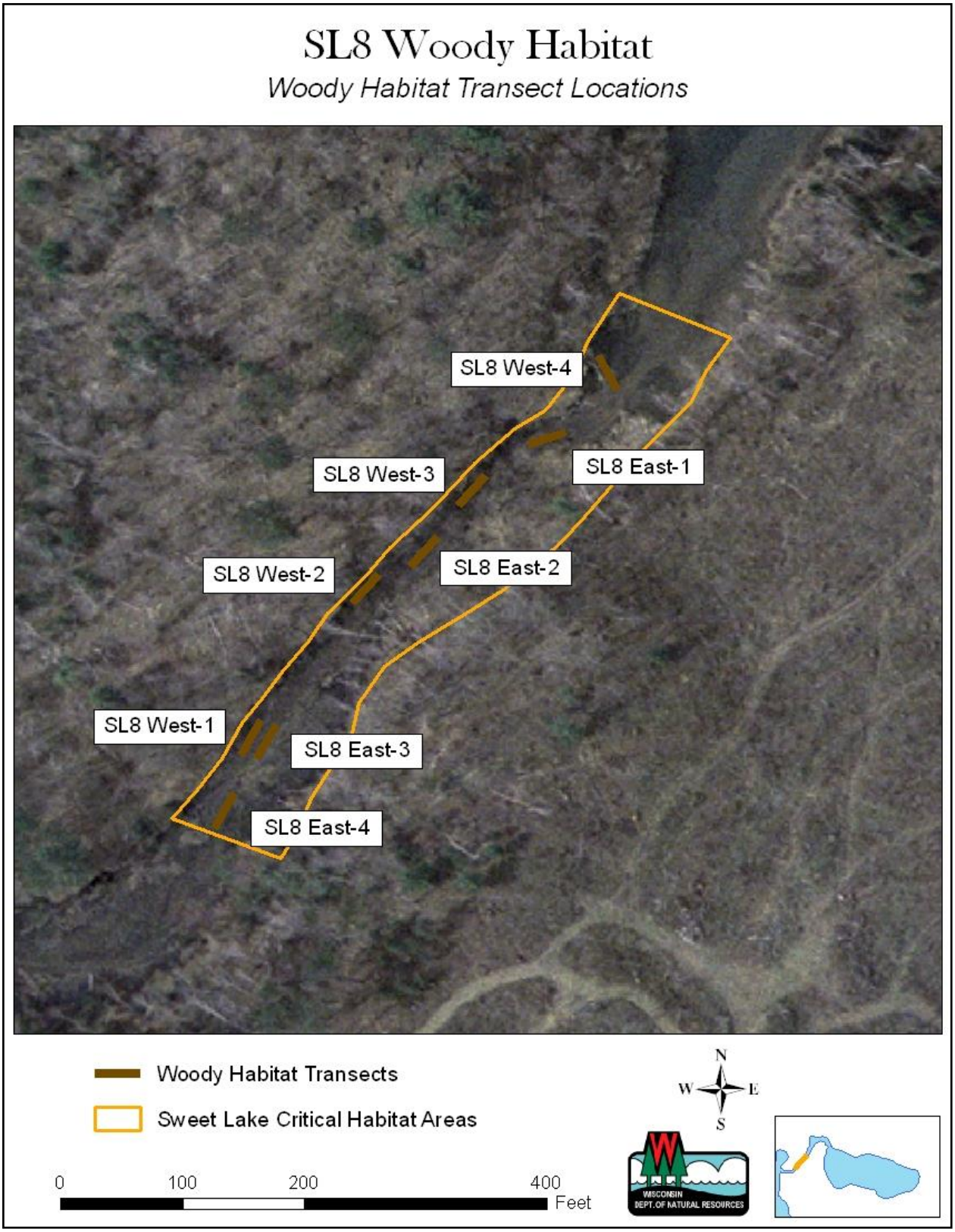


Table 26. Shoreline Assessment of SL8				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			1164	100
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			1164	100
Bank Zone				
Natural Bank			1164	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			1164	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	0	0		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Sweet Lake Critical Habitat Site SL9

Critical Habitat site SL9 is a Sensitive Area that was designated for its Rush Beds, Extensive Public Use, and Natural Scenic Beauty (Figures 4 & 5). It is 1.00 acres in size and is located along the channel between Sweet Lake and Shunenberg Lake.

Prioritize for permanent land protection.

Do not remove rush beds. Place piers outside of rushes, or if that's not possible extend the piers beyond the rushes for boat mooring. Restore/replant rush beds that have been destroyed in the past.

Leave fallen trees in the water unless they are impeding navigation.

Table 29 summarizes the current management practices within the Setback, Riparian, Bank and Littoral Zones of SL9.

Table 27. SL9 Aquatic Plants

Scientific Name	Common Name	Plant Type	FQI Coefficient	Relative Frequency
Carex sp	Sedges	Emergent	-	27.3
Equisetum fluviatile	Water horsetail	Emergent	7	18.2
Sagittaria sp	Arrowhead	Emergent	-	4.5
Schoenoplectus acutus	Hardstem bulrush	Emergent	5	22.7
Nymphaea odorata	White water lily	Floating Leaf	6	Visual
Iris versicolor	Northern blue flag	Forb	5	Visual
Elodea canadensis	Common waterweed	Submergent	3	13.6
Potamogeton friesii	Frie's pondweed	Submergent	8	4.5
Potamogeton richardsonii	Clasping-leaf pondweed	Submergent	5	4.5
Stuckenia pectinata	Sago pondweed	Submergent	3	4.5

Table 28. SL9 Aquatic Plant Sampling Summary Statistics

SUMMARY STATISTICS	SL9
Total number of points sampled	15
Total number of sites with vegetation	11
Total number of sites shallower than maximum depth of plants	15
Frequency of occurrence at sites shallower than maximum depth of plants	73.33
Simpson Diversity Index	0.814
Maximum depth of plants (Feet)	2
Number of sites sampled using rake on Rope (R)	0
Number of sites sampled using rake on Pole (P)	15
Average number of all species per site (shallower than max depth)	1.47
Average number of all species per site (veg. sites only)	2.00
Average number of native species per site (shallower than max depth)	1.47
Average number of native species per site (veg. sites only)	2.00
Species Richness	8
Species Richness (including visuals)	10
Floristic Quality Index	14.85

Figure 17. SL8 Aquatic Plant Diversity Map

Figure 18. SL9 Rushes Map

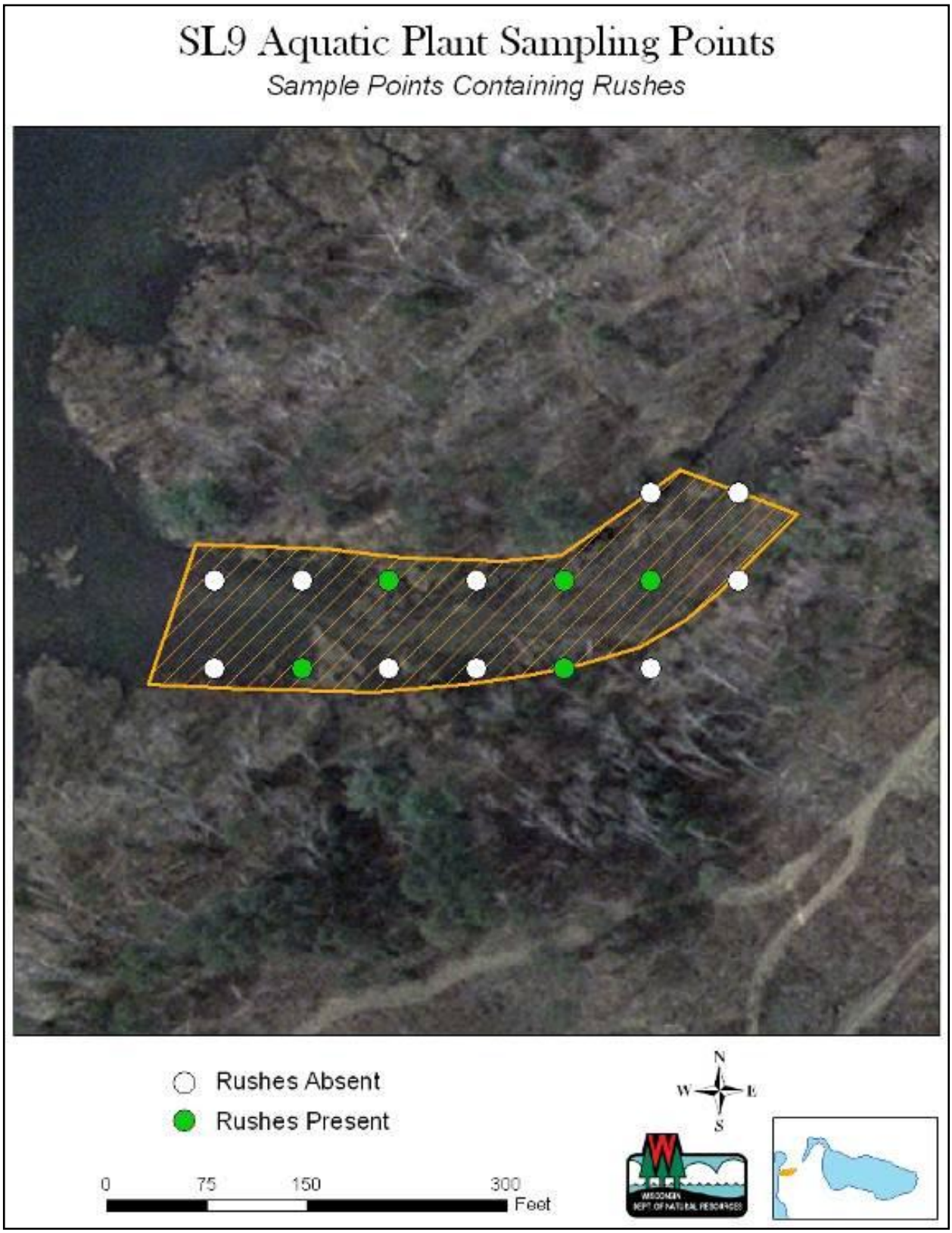


Table 29. Shoreline Assessment of SL9				
Feature	**Number**	**Density** (per mile)	**Shoreline Length** (feet)	**% of Shoreline**
Setback Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Riparian Zone				
Homes	0	0		
Accessory Structures	0	0		
Commercial Buildings	0	0		
Natural vegetation			935	100
Shrub Layer Removed			0	0
Shrub & Ground Cover Removed			0	0
Established Lawn			0	0
Pastureland			0	0
Row Crop			0	0
Beach			0	0
Impervious Surface (road, parking lots, etc.)			0	0
Other			0	0
Not Visible			0	0
Total Shoreline			935	100
Bank Zone				
Natural Bank			935	100
Soft bioengineering			0	0
Hard bioengineering			0	0
Riprap			0	0
Pea Gravel Blanket			0	0
Established Lawn			0	0
Artificial Beach			0	0
Seawalls			0	0
Total Shoreline			935	100
Boat Ramp	0	0		
Stormwater Outflow	0	0		
Littoral Zone				
Piers	0	0		
Boat Lifts	0	0		
Swims Rafts/ Trampolines	0	0		
Boathouses	0	0		
Mooring Buoys	0	0		
Dredge channels	0	0		
Commercial Marinas	0	0		
Bridges	0	0		
Plant removal devices	0	0		
Recreational/Public Beaches	0	0		

Appendix 1. Personnel and dates of Critical Habitat Designation, Sweet Lake, Bayfield County

Critical Habitat Designations occurred on 6/26/2007 by Scott Toshner, Pamela Toshner, Greg Kessler, and Paul Cunningham.

Shoreline management inventories occurred on 6/16/2008 by Alex Smith and Paul Riordan.

Aquatic plant sampling occurred on 8/5/2008 and 8/7/2008 by Alex Smith and Paul Riordan.

Woody habitat sampling occurred on 6/2/2008 and 6/4/2008 by Alex Smith and Paul Riordan.

Spawning substrate sampling occurred on 6/2/2008 and 6/4/2008 by Alex Smith and Paul Riordan.

Appendix 2: Notice of Public Information Meeting and Hearing for Proposed Critical Habitat Designation

The Department of Natural Resources has located areas that meet the criteria for Critical Habitat Designation on the Eau Claire Chain of Lakes in Bayfield and Douglas Counties. A public information meeting and hearing has been scheduled to discuss the proposed Critical Habitat Sites on Birch Lake, Bony Lake, Cranberry Lake, Devils Lake, Lower Eau Claire Lake, Middle Eau Claire Lake, Robinson Lake, Shunenberg Lake, Smith Lake, Sweet Lake, and Upper Eau Claire Lake in Bayfield and Douglas Counties.

Because the Critical Habitat Designations are in waters held in trust by the state for all citizens and may be adjacent to private lands, state law provides an opportunity for public input to the Department's decision.

The public informational meeting will be held Saturday, May 15, at 9:00 am at the Barnes Town Hall, 3360 Co Hwy N, Barnes, in Bayfield County. The informational meeting will be an open house format that will allow time to talk with DNR staff, ask questions, and provide written comments regarding the designations.

A public hearing will follow the informational meeting at 11:00 am for persons wishing to present oral testimony. During the hearing, the public can provide factual information about the waterway or the areas proposed for designations in light of the standards below.

Critical Habitat is of vital importance to water quality, hunting, fishing, and natural beauty of Wisconsin's lakes and streams. The Department has made a tentative determination that specific locations in the Eau Claire Chain of Lakes contain:

- Fish and wildlife habitat, including specific sites necessary for breeding, nesting, nursery, and feeding.
- Physical features that ensure protection of water quality.
- Reaches of bank, shore or bed that are predominately natural in appearance (not man-made or artificial) or that screen man-made or artificial features.
- Navigation thoroughfares or areas traditionally used for navigation during recreational boating, angling, hunting, or enjoyment of natural scenic beauty.
- Areas of aquatic vegetation offering critical or unique fish and wildlife habitat, including seasonal or lifestage requirements, or offering water quality or erosion control benefits to the body of water.

The identified locations are eligible for Critical Habitat Designation, and if approved, they will be sufficiently preserved to ensure healthy aquatic systems and protected to maintain the cultural/aesthetic value of lakes to Wisconsin.
Critical Habitat Designation means that special permit conditions or denial of permits may apply to landowners who wish to alter Critical Habitat Areas through activities such as dredging, installing or repairing riprap, grading, irrigation, building dams, or establishing culverts, piers, and docks. Furthermore, in designated Critical Habitat Areas, manual removal of aquatic plants may require a permit, and the chemical treatment or mechanical removal of native aquatic plants is unlikely to be approved.

Draft reports, maps, and more information on Critical Habitat Designations are all available at http://dnr.wi.gov/lakes/criticalhabitat/ or by contacting Alex Smith at (715) 635-4124.

Response to Public Comments on Critical Habitat Designations

Location: Eau Claire Chain of Lakes in Bayfield and Douglas Counties
Public Hearing Held: May 15, 2010 at Barnes Town Hall, Barnes, WI
Comment Period Ended: July 31, 2010

Thank you to everyone who took the time to submit oral and written comments. Seven individuals provided oral comments during the May 15 public hearing. Ten individuals submitted hearing forms but did not speak. During the comment period, the Department received 14 written comments. We organized descriptive comments into the general categories listed below, followed by specific comments and responses.

Category #1 – Comments related to the boundaries and justifications for each Critical Habitat Area

Comment 1 – This comment is in regards to UEC 20 on Upper Eau Claire Lake. The person disagreed that the shoreline to the south of the channel leading to Birch Lake offers any spawning habitat. They went on to say that the area experiences very, very intense pressure from swimmers and boaters as it is primarily sand bottom is this area.

Response 1 – The Barnes Conservation Club in cooperation with the Wisconsin DNR constructed an off shore spawning reef in this area. The intent of the designation in this area is to protect this off shore reef from becoming covered with silt and sand. Electrofishing surveys have documented walleye spawning in this site.

Comment 2 – Some individuals requested that DNR add Critical Habitat Areas to include the Fish Sticks projects.

Response 2 – Critical habitat sites were identified based on the features present during the survey. Fish Sticks projects are ongoing and will be captured if future surveys occur. Property owners who participate in Fish Sticks projects enter into agreements that the habitat structures will remain.

Comment 3 – This comment is in regards to BON 5 on Bony Lake. It was suggested that the DNR add the justifications of Submerged Aquatic Vegetation Important to Fish and Wildlife Habitat and Extensive Riparian Wetland to this area.

Response 3 – The aquatic plant sampling work done by the DNR and the Wetland Delineation work that was done on the Loon Echo Bay Condo property when a Bayfield County Conditional Use Permit was requested provide evidence to support adding these two justifications.

Comment 4 – The submerged island off of Pickle barrel Point on Middle Eau Claire Lake should be added as a Critical Habitat Area because there used to be bulrushes growing there in the shallow water.

Response 4 – A review of historical data and information did not result in evidence that would warrant adding this site. This comment will be considered for future reference and surveys. DNR welcomes any maps, historical narratives, or other evidence documenting the habitat features.

Category #2 – Comments related to our Management Recommendations

Comment 1 – One person would like to see the island on Upper Eau Claire Lake closed to camping due to the partying and erosion from foot traffic.

Response 1 – In the report, we recommended that the foot paths and stairways be repaired to help mitigate the foot traffic and erosion issues. DNR promotes public access and recreational opportunities. This is the only public camping site in the Eau Claire Lakes area.

Comment 2 – A few people commented on the excessive partying and swimming occurring at the mouth of the Eau Claire River and "Pickle Barrel Point," both on Middle Eau Claire Lake.

Response 2 – Swimming is a form of recreation protected by the Public Trust Doctrine. We cannot restrict this right as long as they are not trespassing. Law enforcement should be contacted if trespassing or rowdy behavior occurs.

Comment 3 – A few individuals commented that they disagree that riprap should not be used in certain Critical Habitat Areas.

Response 3 – Riprap is an unnatural structure that creates a physical barrier between the lake and upland areas, and often transfers erosion problems further along the shoreline. Even though properly installed riprap can prevent shoreline erosion, it often does not address the root causes of the shoreline erosion, usually disturbances and impervious surfaces upland from the lake. Naturally vegetated shorelines are the best for reducing erosion.

Natural shorelines along the lakes of Northern Wisconsin are wooded ecosystems. Terrestrial and aquatic animals have evolved with this ecosystem and it is essential to their life cycles. Shifting the near shore cover from vegetation to rock diminishes the ability of the ecosystem to sustain itself.

Comment 4 – One person commented that we add into our Management Recommendations a recommendation that the rivers and channels between the lakes on the Eau Claire Chain be reclassified to a more protective classification.

Response 4 – The Recommendations have been added to the reports.

Category #3 – Comments related to the shoreline restorations that have occurred since the initial field work in 2008

Comment 1 – Some individuals requested that DNR update the shoreline data to reflect the shoreline restorations that have occurred since 2008. Rip rap and seawalls have been removed and some lawns have been replanted since DNR conducted field work.

Response 1 – The recommendations regarding the removal of riprap have been removed from the reports. The riprap and lawn data remains in the tables however, and an asterisk has been added with a footnote stating that shoreline restoration work has occurred since the initial field work. This data is a snapshot in time, and we intend to revisit the lake in the future to make comparisons.

Category #4 – Comments related to navigable channel from Middle Eau Claire Lake to Bony Lake

Comment 1 – Some individuals commented that the channel from Middle Eau Claire Lake to Bony Lake needs to remain navigable as there is no public access on Bony Lake.

Response 1 – The channel between Bony and Middle Eau Claire Lakes is considered navigable.
Public lakes, rivers, and streams that have a bottom (bed) and side (bank), and enough water to float any boat, skiff, or canoe of the shallowest draft on a reoccurring basis are considered navigable. Occasionally, barriers such as wood or plant debris may impede actual navigation, but waters are public even when multiple portages are required to get around obstructions. A waterway does not need to be regularly used for recreational or other general purposes, but is a public waterway based on its *capacity* to be navigable and public. Provided a small boat can float, it is considered navigable. In other words, there is no requirement that the channel provide navigability to large watercraft or boats with inboard motors.

Category #5 – Comments related to Private Property Rights and Current Regulation

Comment 1 – It was stated that government is consistently imposing new regulation, restrictions, laws and taxes on citizens and that Critical Habitat Designations are a ruse of propaganda by the DNR to make a new power grab and infringe on our property rights.

Response 1 – The Critical Habitat Designation program is not designed to infringe upon the *private* rights of riparian citizens. Instead, the Designations are designed to protect the *public* rights held within the Public Trust Doctrine for all citizens, including those yet unborn.

Wisconsin law recognizes that owners of lands bordering lakes and rivers - "riparian" owners - hold rights in the water next to their property. These riparian rights include the use of the shoreline, reasonable use of the water, and a right to access the water. However, the Wisconsin State Supreme Court has ruled that when conflicts occur between the rights of riparian owners and public rights, the public's rights are primary and the riparian owner's secondary.

Comment 2 – County Zoning and the new statewide NR 115 Shoreland Zoning Ordinance are already in place to protect these lakes. If an effort was put into enforcing the regulations which are already on the books, the lakes would be protected.

Response 2 – The county zoning ordinances are specifically for the shoreland zone above the ordinary high water mark (OHWM). The counties only have jurisdiction above the OHWM. The DNR, and thus Critical Habitat Designations, only have jurisdiction below the OHWM.
The counties can and are encouraged to use our reports to further protect terrestrial areas.

Comment 3 - Why are some of the areas listed as “some of the most zoning non-compliant areas on the lake” and still be listed as Critical habitat areas with a long list of vegetation and fish habitat. Wouldn’t those areas have been destroyed?

Response 3 – Not necessarily. CHDs document in-lake habitat, scenic beauty, and wildlife features. It is correct that how people care for their properties can affect all of these things, but overall the Eau Claire Chain shoreline is in good shape. Eventually the cumulative impacts of unhealthy shoreline and land use management can tip the in-lake features out of balance. When this occurs, native fish and wildlife reproduction are reduced or stop altogether, natural scenic beauty diminishes, and water quality declines.

Comment 4 – It is important property owners have a right to enjoy the lake, including having a swimming area.

Response 4 – Property owners certainly deserve to enjoy the lakes. As such, DNR rules provide property owners an area up to 30 feet wide along their shoreline and out into the water where they may manually remove aquatic plants without a permit. Please note this 30-foot corridor correlates to the 30-foot access and viewing corridor that is allowed on the landward property through county zoning, as well.

Category #6 – Comments related to the support for the Critical Habitat Designation

Comment 1 – Many individuals commented on how they support the Designation. Most commented on how much the lakes have changed since they first started visiting the chain and they fully support protecting what is left for future generations.

Response 1 – Thank you for your support.

Comment 2 – Over the last 30 years I have seen the water quality decline on the whole Eau Claire Chain, (Sweet Lake & Upper Eau Claire in particular). I am pleased to see a proposal to maintain/improve shorelines/water quality for future generations. I feel that private property rights should not trump our children's right to clean lakes and rivers.

Response 2 – As previously stated, the Critical Habitat Program is rooted in the Public Trust Doctrine, which protects the public rights of all citizens including those yet unborn. The science shows shoreline disturbance impacts lake health. Critical Habitat Designation is a tool to protect and improve lake health. The tool is more powerful with community support.

Category #7 – Why did the DNR choose to Designate the Eau Claire Chain?

Comment 1 – Why did the DNR choose to do Critical Habitat Designations on the Eau Claire Chain of Lakes?

Response 1 – There are multiple reasons to do the Critical Habitat Designations on the Eau Claire Chain. First of, the Department knows these lakes are really special and would like to keep them that way. The lakes are classified as Outstanding Resource Waters (ORW), muskellunge recruitment waters, walleye recruitment waters, and have exceptional water quality. Also, both the Town of Barnes Comprehensive Plan and the Eau Claire Lakes Management Plan contain recommendations to have a Critical Habitat Designation completed on the Eau Claire Chain of Lakes.

However, the Eau Claire Chain is not alone in the Critical Habitat Process. The DNR has done Sensitive Area Designations on many lakes statewide. Legislative Act 118, which changed the program from Sensitive Area Designations focusing only on aquatic plants to Critical Habitat Designations considering all public rights features. Currently, several lakes in the area are in the process of having Critical Habitat Designations done as well. Some of those lakes include Amnicon Lake, Upper St. Croix Lake, Gordon Flowage, Minong Flowage, Nancy Lake, Granite Lake, and Beaver Dam Lake.

Closing Statement

While the purpose of the Critical Habitat Designations is to guide state decisions for the public waterway and inform lakeshore owners about the high quality habitat in the lake, we value the input given from local citizens and organizations during the process. State statutes grant primary management responsibilities over navigable waters to the DNR (except planning, land, acquisition, and boating ordinance development, where local units of government hold authority). As such, the DNR reviews all state permit applications relating to shoreline activities. Since the Critical Habitat Designations affect the state permit process, it does not significantly affect regulations administered by local

units of government unless they choose to alter their local regulations and ordinances to utilize the Designations.