III Wildlife Conservation Plan Unit 6 (Edward and Jennie Klee Tract) Draft

Revised 1-21-14 by Ron Hoffman

Location: Unit 6 is located at the southeast corner of T2S, R1E section 2. The east boundary is the section line between sections 1 and 2, the south boundary is Seymour Road except for four acres owned by the Klee family and, Unit 4 forms the west and north boundaries. The north west corner of Unit 6 is located at 42.32491° and 84.27621°.

Size: 46 acres

Soil Types: See Figure 1. Unit 6 soil map.

Soil Symbol, Name and Phases	Acres	Percent
14B Spinks sand, 0 to 6 percent slope	6.5	14.0
14C Spinks sand, 6 to 12 percent slope	5.6	12
20 Houghton muck	12.3	26.2
37 Palms muck	12.8	27.4
43A Dixboro very fine sandy loam, 0 to 3 percent slope	4.0	8.6
45 Martisco muck	2.7	5.8
47 Histosols and Aquents, ponded	2.8	5.9
Totals	46.7	100.0

Water: A spring at the southeast corner of Unit 6.05 (42.32185° 84.27007°) is the source of a low gradient stream that flows to the northwest ending in Mud Lake Marsh. Water in the stream then disperses into braided rivulets. A second small stream flow from the south side of Seymour Rd., under Seymour Rd. into Unit 6.09 and then joins the other stream in Unit 6.05

Presettlement Vegetation: (Comer et al. 1995 also see Presettlement Vegetation Map in *A Conservation Assessment of the Phyllis Haehnle Memorial Sanctuary*).

Oak Barrens - a savanna type of scattered trees and shrubs in a matrix of grass.

Conifer Swamp - a forested peatland dominated by tamarack, red maple, yellow birch, etc.

Inland Wet Prairie - a lowland grassland dominated by bluejoint, cordgrass, and sedges.

Periodic fire was an important component of all three of the presettlement cover types.

Present Vegetation:

Cover Type	Management Unit	Acres	Percent
Mesic Southern Hardwood	6.05	16.1	35
Upland Grass	6.07, 6.08, 6.10	10.2	22
Wetland Shrub	6.03, 6.09	9.9	22
Emergent Marsh (fen)	6.04	5.6	12
Oak Hardwood	6.02	3.3	7
Upland Conifer	6.06	0.7	2
Developed (parking lot)	6.01	0.1	<1
Total		45.9	100

Management Units: Unit 6 is divided into 10 management units based on plant cover types. See Figure 2. Unit 6 management units map.

Human Impacts: This unit was purchased by Michigan Audubon from the estate of Edward and Jennie Klee May 3, 2013. About 10 acres were once farmed, but now are dominated by cool-season grasses and invasive shrubs and trees. The Scotch pines planted in Unit 6.06 have reached maturity and are now dying. Piles of trash, an outbuilding and numerous hunting blinds are found on the property.

The previous owners retain two rights for using the 46 acres. A life lease is held by Kerry Klee-Tiesman on 5.7 acres (Figure 3) restricts access by the public to two times a year as long as she is living

in her house. Deer hunting rights for the first and second generation of descendants of Edward and Jennie Klee have been retained for 20 years. They may hunt with a gun only from November to January.

Unit 6 Goals, Objectives and Actions

Goal - is a general, broad outcome that is not measurable.

Objective - a subset of the goals that reflects the results needed to achieve a goal. They are measurable.

Actions - activities required to fulfill the objectives.

The relationship of goals, objectives, and actions are indicated by a numbering system. The goal number (1-3) is first, followed by a period, then the objective number i.e. 3.02 is goal #3, objective #2. Actions and policies are indicated with lower case letters. The same goal and objective numbers are used for all the sanctuary management units, but actions are not.

Only the objectives specific to Unit 6 are listed here. Some additional objects that pertain to the entire sanctuary are not listed here e.g. 1.03 Restore water levels to elevations that occurred prior to construction of the Portage River Drain or 3.01 Maintain an inventory of plants, insects and vertebrates.

Goal 1: Conserve native flora and fauna at the sanctuary, especially sandhill cranes.

- Objective 1.01: Maintain sanctuary boundaries.
- Objective 1.02: Restrict public access to environmentally sensitive areas including fens and wetlands used by cranes.
- Objective 1.04: Restore, enhance and maintain native biotic communities i.e. grasslands, savannahs, fens, wetlands.
- Objective 1.07: Reduce invasive plants and animals.

Goal 2: Increase public understanding of the sanctuary, its wildlife and their environment.

- Objective 2.02: Provide educational materials.
- Objective 2.03: Provide opportunities for self-guided wildlife viewing.

Goal 3: Increase scientific knowledge of wildlife and their environment though research.

- Objective 3.01: Maintain an inventory of plants, insects, fish, amphibians, reptiles, birds and mammals.

Unit 6.01 Parking Lot

Size: 0.1 acres

Soil: Spinks sand

Vegetation: Grass with mature oak trees along Seymour Rd.

Human Impacts: A narrow driveway off from Seymour Rd.

Objectives and Actions:

Objective 2.03: Provide opportunities for self-guided wildlife viewing.

- 2.03a Construct a parking area to accommodate 6 to 8 vehicles. Level area with a bulldozer. Define the boundary of the parking area with posts. Support a 2 x 4 crosspiece with 4 x 4 posts to restrict access to parking area. Complete by March, 2014
- 2.03b Place boundary signs along the property line bordering private property. Complete by October, 2013
- 2.03c Mow parking lot as needed. Ongoing
- 2.03d Erect a sign stating: "Phyllis Haehnle Sanctuary, Edward and Jennie Klee Tract, Michigan Audubon". Complete by April, 2014

Unit 6.02 Oak Hardwood Forest

Size: 3.3 acres

Soil: Spinks sand slopes down to a wetland along the northwest side of the unit.

Vegetation: Survey is incomplete. White and black oak are co-dominant. A small portion of the unit is grass. Some other prominent species include Black cherry and catalpa.
Human Impacts: A thick-walled concrete foundation supports a wooden barn. Several piles of trash dot the area and there are remains of deer hunting stands.
Objectives and Actions:
Objective 1.04: Restore, enhance and maintain native biotic communities i.e. grasslands, savannahs, fens, oak forest, wetlands.
1.04a Remove trash. Complete by March., 2014
1.04b Burn the barn and bury the cement foundation. Complete by March., 2014
Objective 1.07: Reduce invasive plants and animals.
1.07a Spot-spray and/or cut and treat stubs of invasive woody plants with a herbicide. Ongoing
Objective 2.03 Provide opportunities for self-guided wildlife viewing.
2.03a Place boundary signs along the land subject to the life lease. Accomplish by Oct., 2013
2.03b Develop a walking interpretive trail leading to benches overlooking Mud Lake Marsh. Complete by October, 2014
2.03c Maintain walking trail as needed. Ongoing
2.03d Construct two benches overlooking Mud Lake Marsh at end of trail. Complete by March., 2014
2.03e Maintain the benches. Ongoing

Unit 6.03 Wetland Shrub (possible fen)
Size: 8.5 acres
Soil: Mostly Houghton muck, some Palms muck
Water: A small stream originating in Unit 6.05 becomes braided before entering standing water in Mud Lake Marsh.
Vegetation: Survey is Incomplete. Silky dogwood, buttonbush, willow, blue flag, common cattail, poison sumac, larch
Human Impacts: None
Objectives and Actions:
Objective 1.02: Restrict public access to environmentally sensitive areas including fens and wetlands used by cranes.
1.02a Protection management is prescribed, including restricting access by the public. Ongoing

Unit 6.04 Emergent Marsh (fen)
Size: 5.6 acres
Soil: Martisco muck, Houghton muck, Histosols and Aquents ponded
Vegetation: Sedge meadow, shrubby cinquefoil and common cattail are co-dominant, larch, poison sumac, great bulrush
Human Impacts: A hunting platform supported by metal pipe anchored in cement
Objectives and Actions:
Objective 1.02 Restrict public access to environmentally sensitive areas including fens, and wetlands used by cranes.
1.02a Protection management is prescribed, including restricting access by the public. This unit should be managed in conjunction with the larger adjoining Unit 4.21 (fen) . Ongoing

Unit 6.05 Mesic Southern Hardwood Forest
Size:16.0 acres
Soil: Houghton muck, Palms muck, Dixboro sandy loam, Spinks sand

Water: A spring at the southeast corner of Unit 6.05 (42.32185° 84.27007°) is the source of a low gradient stream that flows to northwest through the unit. Vernal pond is present.
Vegetation: Survey is Incomplete. Diverse mix of trees, shrubs and flowers including yellow paper birch, tulip tree, sugar maple, beech, pawpaw, musclewood, bladdernut, spicebush, multi-flora rose, bloodroot, golden ragwort, round-leaved hepatic, oriental bittersweet, autumn olive. A Floristic Quality Index of 31 (based on 56 species of plants found as of July 26, 2013) indicates the flora in this unit have a high natural quality of richness (Herman et al. 1966:3-4). A plant list for Unit 6.05 is appended. Two of the trees, pawpaw and blue beech (American hornbeam), are candidates for the Jackson County Big Tree list.
Human Impacts: Hunting blinds, foot bridge over the stream before it flows out of Unit 6.05 (42.32347° 84.27528°)
Objectives and Actions:
Objective 1.01: Maintain sanctuary boundaries.

1.01a Post Michigan Audubon Sanctuary signs along the east property line and Seymour Rd. Complete by September 15, 2013

1.01b Place Restricted Access signs along the land subject to the life lease. Complete by Oct., 2013

Objective 1.02: Restrict public access to environmentally sensitive areas including fens and wetlands used by cranes.

1.02a Protection management is prescribed, including restricting access by the public until a better inventory of the plants is completed. Ongoing

Objective 1.07: Reduce invasive plants and animals.

1.07a Map the location of oriental bittersweet. Ongoing

1.07b Spot-spray and/or cut and treat stubs of invasive plants, especially oriental bittersweet, with a herbicide. Ongoing

1.07c Construct a foot-bridge across the stream near the southeast corner of the unit. This bridge would facilitate access for conducting plant surveys and invasive plant control. Complete by October, 2014

Unit 6.06 Upland Conifer
Size: 0.7 acres
Soil: Spinks sand 6 to 12 percent slope
Vegetation: Mature Scotch pine dominant, oriental bittersweet, wild black cherry
Human Impacts: Non-native Scotch pine planted
Objectives and Actions:
Objective 1.04: Restore, enhance and maintain native biotic communities i.e. grasslands, savannahs, fens, oak forest, wetlands.

1.04a Allow natural plant succession to proceed to a climax stage oak forest. Scotch pine is a short-lived species and some of the trees are beginning to die. In time, most of the pines will be replaced by native trees. Ongoing

Objective 1.07: Reduce invasive plants and animals.

1.07a Map the location of oriental bittersweet. Ongoing

1.07a Spot-spray and/or cut and treat stubs of invasive woody plants, especially oriental bittersweet, with a herbicide. Ongoing

Unit 6.07 Upland Grass/Shrub
Size: 4.8 acres
Soil: Spinks sand, Dixboro sandy loam

Vegetation: Cool-season grasses are dominant, brome grass, black locust, boxelder, white oak, Japanese knotweed, jack-in-the-pulpit, black cherry, autumn olive, multi-flora rose
Human Impacts: Once farmed and now is in old field stage of succession
Objectives and Actions:
Objective 1.01: Maintain sanctuary boundaries.
1.01a Post Michigan Audubon Sanctuary signs along the east property line. Complete before September 15, 2013.
Objective 1.04: Restore, enhance and maintain native biotic communities i.e. grasslands, savannahs, fens, oak forest, wetlands.
1.04a Allow natural plant succession to proceed to a climax stage oak forest. The unit is small so maintaining it as a grassland or oak barrens would have little value for species dependent on those plant communities. Furthermore, extensive hand labor would be need for management i.e. chemical application, planting native forbs, prescribed burns because the stream in Unit 6.05 prevents access with heavy equipment. Ongoing
1.04b Consideration might be given to planting seedling trees native to oak forests. Action will depend on available resources. If it is decided to proceed with this action, then a detailed plan should be prepared. Action pending
Objective 1.07: Reduce invasive plants and animals.
107a Map the location of Japanese knotweed. Ongoing
1.07b Spot-spray and/or cut and treat stubs of invasive plants, especially Japanese knotweed and black locust, with a herbicide. Ongoing

Unit 6.08 Upland Grass/Shrub
Size: 0.9 acres
Soil: Spinks sand
Vegetation: Cool-season grasses are dominant, brome grass, black locust, boxelder, multi-flora rose, white pine
Human Impacts: Once farmed and now is in old field stage of succession
Objectives and Actions:
Objective 1.01: Maintain sanctuary boundaries.
1.01a Post Michigan Audubon Sanctuary signs along the east property line and Seymour Rd.. Complete before September 15, 2013.
Objective 1.04: Restore, enhance and maintain native biotic communities i.e. grasslands, savannahs, fens, oak forest, wetlands.
1.04a Allow natural plant succession to proceed to a climax stage oak forest. The unit is very small so maintaining it as a grassland or oak barrens would have little value for species dependent on those plant communities. Ongoing
Objective 1.07: Reduce invasive plants and animals.
1.07a Spot-spray and/or cut and treat stubs of invasive woody plants, especially black locust and multi-flora rose, with a herbicide. Ongoing
1.07b Mow grass for parking to accommodate 2 to 3 vehicles. This parking area would be used only to provide access for working in Unit 6.05 - 6.07. Complete by March, 2014 and ongoing
Objective 2.03: Provide opportunities for self-guided wildlife viewing.
2.03a Construct a parking area to accommodate 3 or 4 vehicles. Obtain necessary driveway permit from the Jackson County Road Commission. Install a culvert if required. Define the boundary of the parking area with posts. Level area with a bulldozer. Support a 2 x 4 crosspiece with 4 x 4 posts to restrict access to parking area. Complete by October, 2014

Unit 6.09 Wetland Shrub

Size: 1.4 acres

Soil: Palms muck

Vegetation: Silky dogwood, sedges, autumn olive,

Human Impacts: A culvert under Seymour Rd. drains water into this unit.

Objectives and Actions:

Objective 1.01: Maintain sanctuary boundaries.

1.01a Post Michigan Audubon Sanctuary signs along Seymour Rd.. Complete before September 15, 2013.

1.01b Place Restricted Access signs along the land under the Life Lease. Accomplish by Oct., 2013

Objective 1.04: Restore, enhance and maintain native biotic communities i.e. grasslands, savannahs, fens, oak forest, wetlands.

1.04a Allow area to remain natural. Ongoing.

Objective 1.07: Reduce invasive plants and animals.

1.07a Spot-spray and/or cut and treat stubs of invasive woody plants, especially autumn olive and multi-flora rose, with a herbicide. Ongoing

Unit 6.10 Upland Grass/Shrub

Size: 4.5

Soil: Spinks sand

Vegetation: Cool-season grasses dominant with some invasion of shrubs, brome grass, autumn olive

Human Impacts: Once farmed and now is in old field stage of ecological succession. All of Unit 6.10 is subject to conditions of the life lease.

Objectives and Actions:

Objective 1.01: Maintain sanctuary boundaries.

1.01a Post Michigan Audubon Sanctuary signs along Seymour Rd.. Complete before September 15, 2013.

Objective 1.04: Restore, enhance and maintain native biotic communities i.e. grasslands, savannahs, fens, oak forest, wetlands.

1.04a Allow natural plant succession to proceed to a climax stage oak forest. The unit is small so maintaining it as a grassland or oak barrens would have little value for species dependent on those plant communities. Furthermore, intensive management is limited because access to Unit 6.10 is restricted to only two times a year. Ongoing

Objective 1.07: Reduce invasive plants and animals.

1.07a Spot-spray and/or cut and treat stubs of invasive woody plants, especially autumn olive and multi-flora rose, with a herbicide. Ongoing

Literature Cited

Comer, P. J. et al. 1995. Michigan presettlement vegetation as interpreted from the General Land Office Surveys 1816-1865. Michigan Natural Features Inventory, Lansing, MI digital map.

Herman, K. D. , L. A. Masters, M. R. Penskar, A. A. Reznicek, G. S. Wilhelm, and W. W. Brodowicz. 1966. Floristic quality assessment with wetland categories and computer application programs for the state of Michigan. MDNR. 49pp.

U.S. Dept. of Agriculture. 2013. Web soil survey. > http//websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx > (Accessed 17 July 2013).

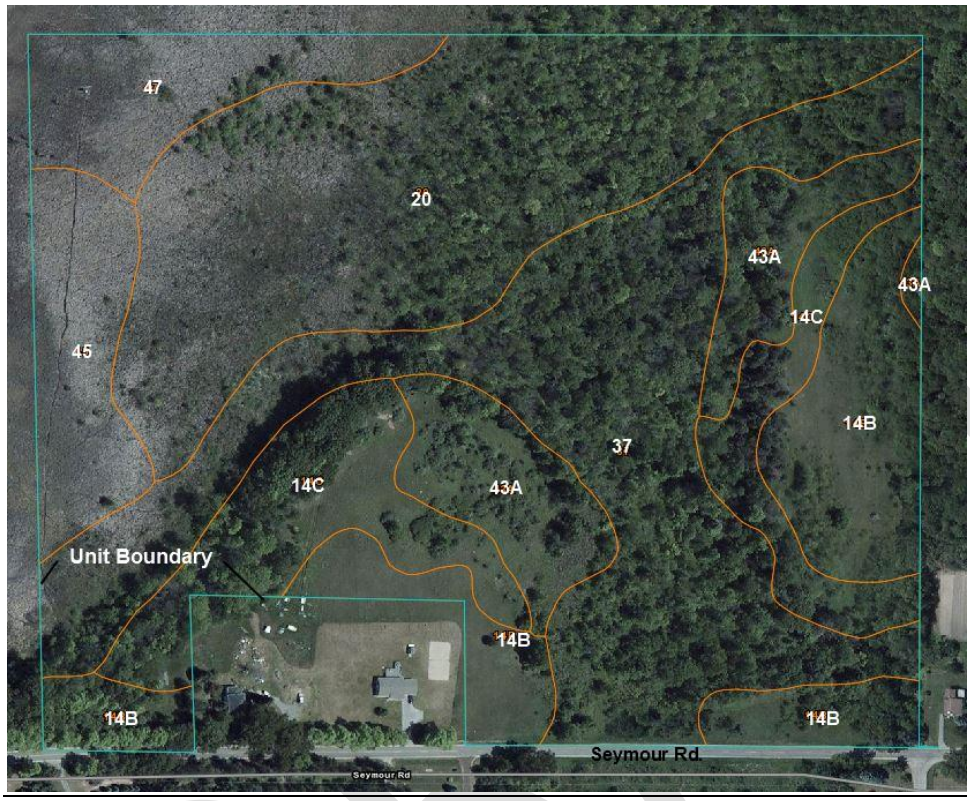

Figure 1. Unit 6 soil map (U.S. Dept. Agriculture).

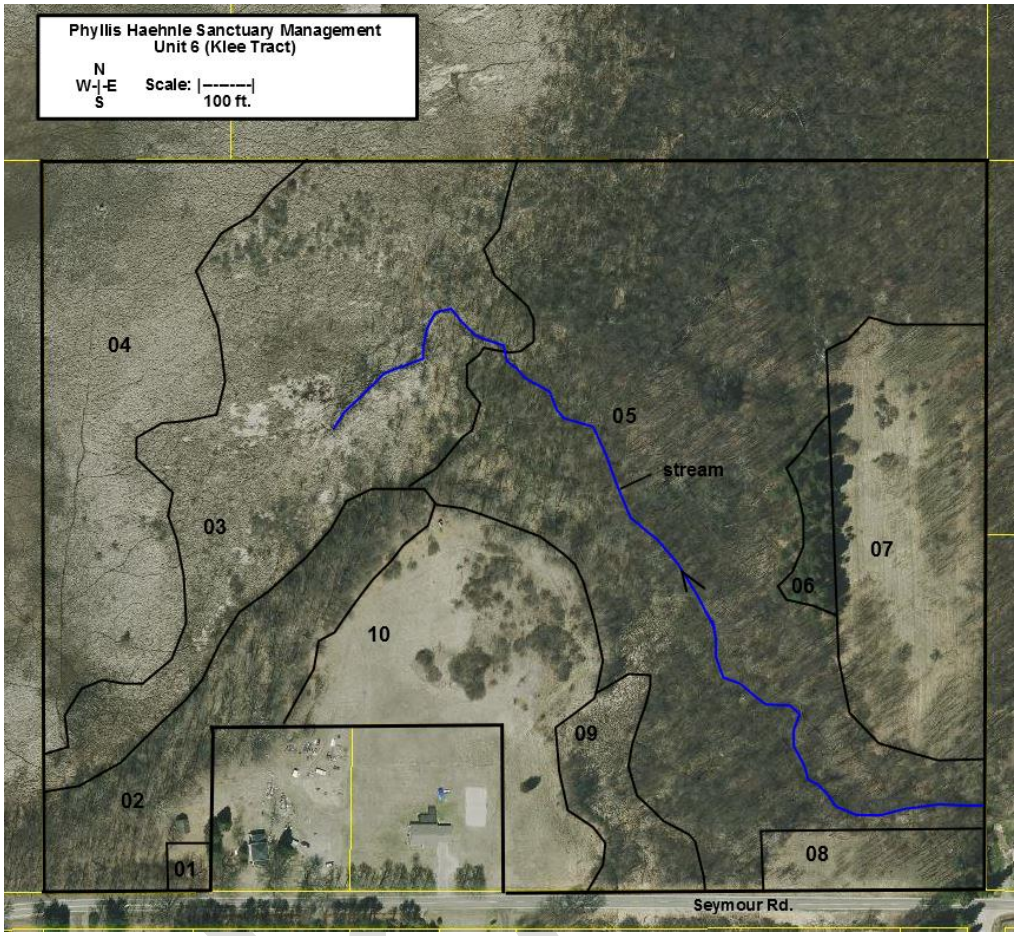

Figure 2. Unit 6 management units map.

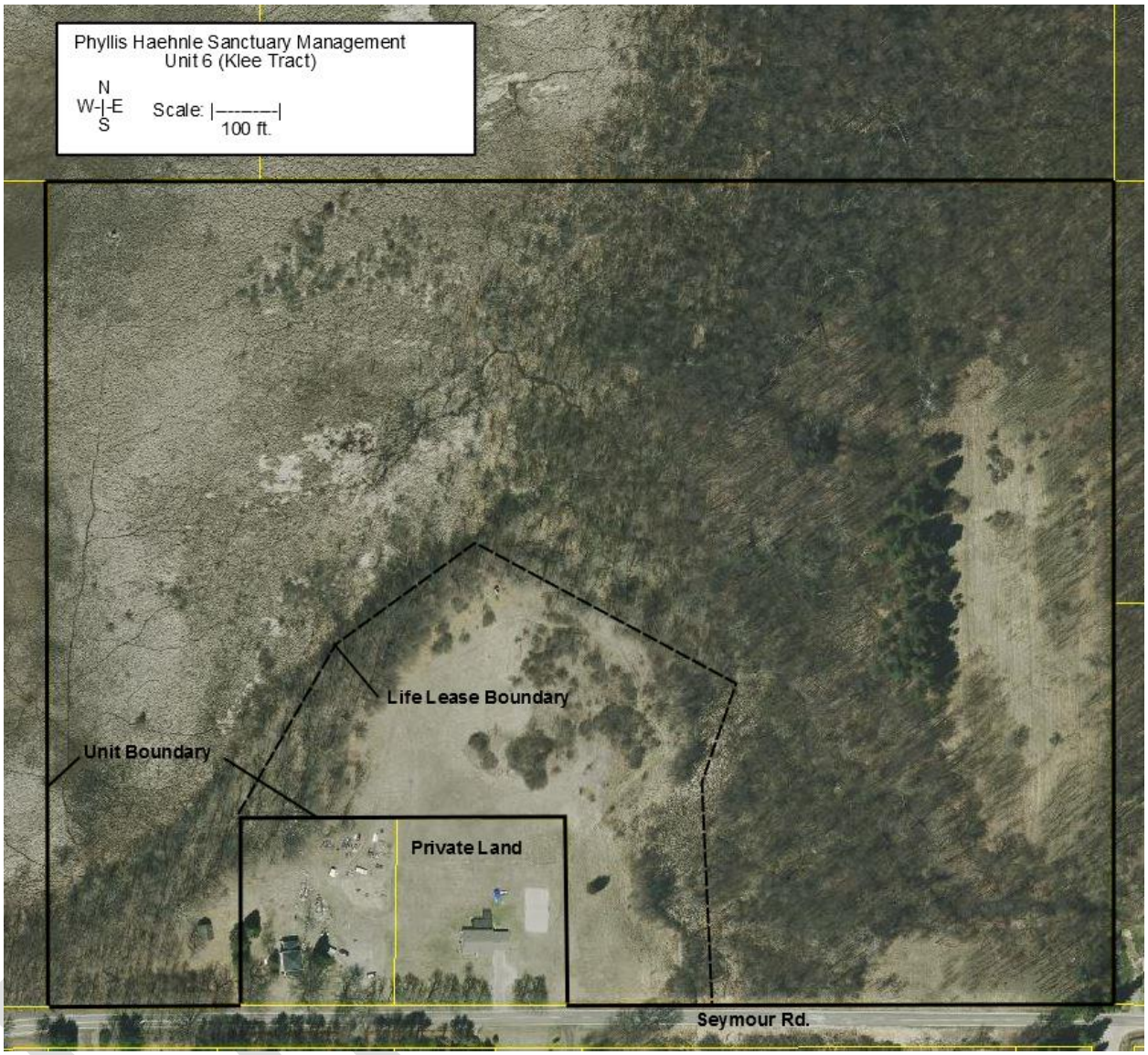

Figure 3. Map of Unit 6 restricted access area subject to the life lease.