

Rapid Ecological Assessment for the Ice Age National Scenic Trail for the Kettle Moraine Region

**An Addendum to the 2010 Kettle Moraine State Forest Biotic Inventory Report
Summarizing Recent Findings**

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Purpose and Objectives

The Wisconsin Natural Heritage Inventory (NHI) program completed a biotic inventory and assessment for the Kettle Moraine State Forest (KMSF) in June 2010. As with other biotic inventory projects, the goals were to identify and evaluate species, natural communities, and ecologically important sites. The final report provides baseline information for property master planning, highlighting ecological issues and opportunities to conserve biological diversity. The Kettle Moraine segments of the Ice Age National Scenic Trail (IANST-KM) overlaps closely with many of the forest units inventoried and analyzed within the Kettle Moraine State Forest (KMSF) biotic inventory report. The similarity goes beyond geographical proximity as many of the same management opportunities and conservation actions can be applied to the IANST-KM properties. Although many of the IANST properties are small in size, viewing them in the context of the larger KMSF landscape, or as part of a larger property (e.g. West Bend and Holy Hill Segments) highlights the importance of these properties for the native plant communities and species found here.

The primary objectives of this project were to collect biological inventory information relevant to the development of a Master Plan for the IANST-KM and to analyze, synthesize, and interpret this information for use by the master planning team. This effort focused on assessing areas of documented or potential habitat for rare species and identifying natural community management opportunities. The NHI program conducted a limited survey effort in 2009 and 2010, to 1) identify and evaluate ecologically important areas, 2) document rare species occurrences, and 3) document occurrences of high-quality natural communities. This document is meant only as a brief addendum to the KMSF 2010 biotic inventory report (Hyde et al. 2010); please refer to that document for more detailed ecological information.

Methods

The Wisconsin NHI program is part of the Wisconsin DNR's Bureau of Endangered Resources and a member of an international network of natural heritage programs representing all 50 states, as well as portions of Canada, Latin America, and the Caribbean. These programs share certain standardized methods for collecting, processing, and managing data for rare species and natural communities. NatureServe, an international non-profit organization (see <http://www.NatureServe.org> for more information), coordinates the network.

Natural heritage programs track certain *elements* of biological diversity: rare plants, rare animals, high-quality examples of natural communities, and other select natural features. The NHI Working List contains the elements tracked in Wisconsin; they include Endangered, Threatened and Special Concern plants and animals, as well as the natural community types recognized by NHI. The NHI Working List is periodically updated to reflect new information about the rarity and distribution of the state's plants, animals, and natural communities. The most recent Working List is available from the Wisconsin DNR Website (<http://www.dnr.wi.gov/org/land/er/wlist/>).

NHI's biotic inventory projects typically start with a coarse-filter assessment, followed by targeted surveys for priority taxa, then data processing, analysis, and dissemination. Survey scope and intensity corresponds to the study area size and resource availability. Based on 2009 survey results, target species and species groups were identified and included herptiles, breeding passerine birds, forest raptors focusing on red-shouldered hawk (*Buteo lineatus*), terrestrial invertebrates, rare plants, and high-quality natural communities. Surveys were limited due to the size of the individual parcels, as well as the overall quality and condition of the natural communities present. Surveys were to provide a coarse-level assessment of the area while documenting any rare species or high quality natural communities encountered.

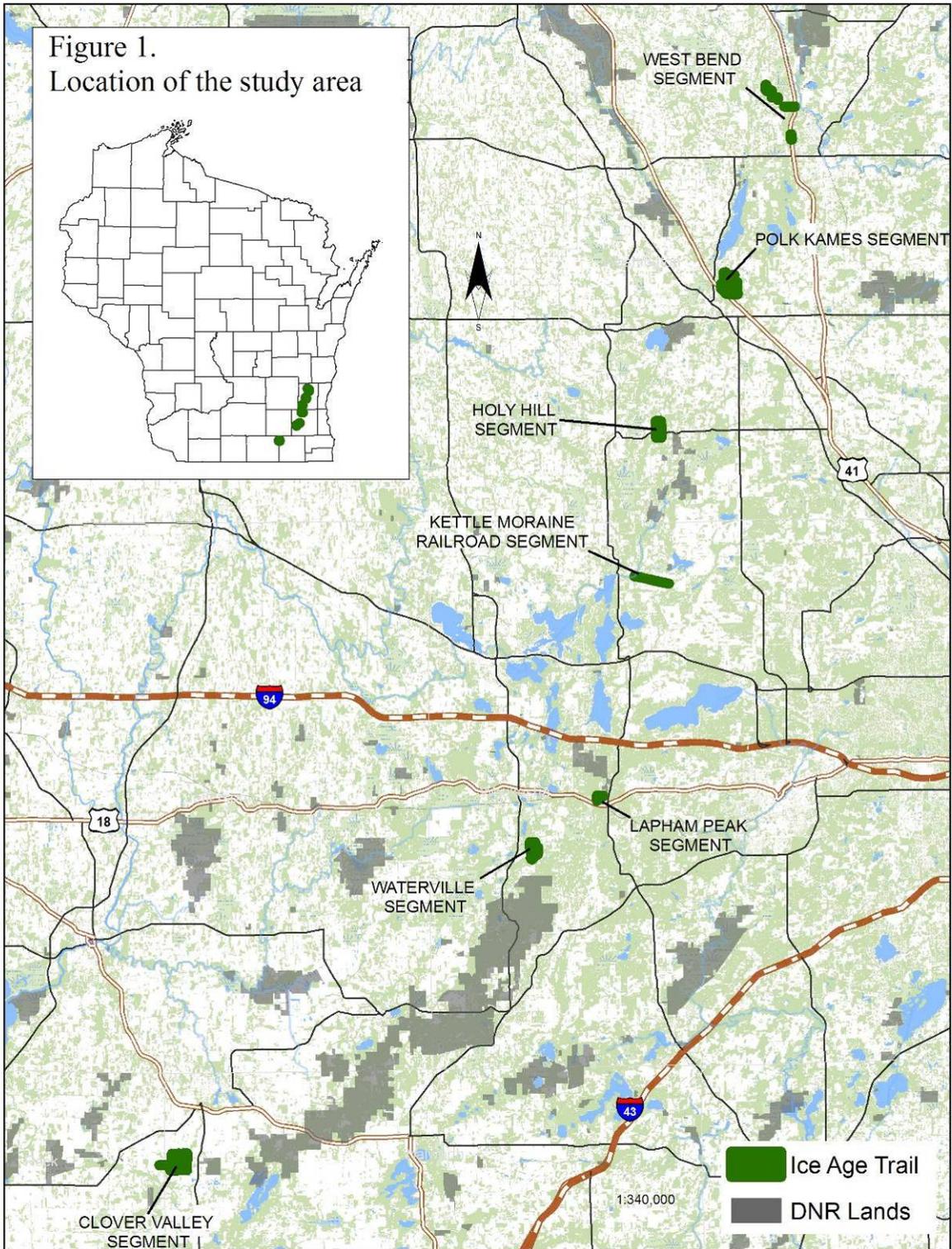
Surveys were guided using recent aerial photos, USGS 7.5' topographic maps, various GIS sources, information from past survey efforts, and the expertise of the biologists familiar with similar habitats in the region. Based on its location and ecological setting, key inventory considerations for the IANST-KM included identifying 1) high quality, closed canopy hardwood forests and their associated avian fauna, 2) relatively intact or restorable examples of oak opening, savanna, or woodland plant communities, 3) occurrences of fen communities and the state Endangered swamp metalmark butterfly (*Calephelis muticum*), and 4) location of ephemeral ponds and associated herptiles. Private lands surrounding the property were not surveyed.

General Background Information

The Ice Age Trail is a National Scenic Trail, one of 42 designated Wisconsin State Trails, and the only one specifically designated as a “State Scenic Trail” in Wisconsin. The planned trail stretches nearly 1,200 miles from Potawatomi State Park in Door County to Interstate State Park in Polk County. The IANST-KM segments¹ encompass approximately 870 acres distributed across 8 properties in close proximity to the Kettle Moraine State Forest in Washington, Waukesha, and Walworth Counties (Figure 1). The size and location of the IANST-KM segments included in this assessment are:

- **Clover Valley Segment** (293 acres) is located within Clover Valley State Wildlife Area in northwestern Walworth County on the border with Rock County, just south of the city of Whitewater.
- **Holy Hill Segment** (119 acres) is located in southwest Washington County adjacent to the Holy Hill National Shrine and approximately 1 mile northwest of the Loew Lake Unit of the Kettle Moraine State Forest.
- **Kettle Moraine Railroad Segment** (13 acres) is located along a former railroad line running between North Lake and the village of Merton in Waukesha County.
- **Lapham Peak Segment** (25 acres) is located just south of Lapham Peak State Park near the village of Wales in Waukesha County.
- **Polk Kames Segment** (305 acres) is located in Washington County approximately 1 mile northeast of the village of Slinger along US Highway 41 and County Trunk NN.
- **Waterville Segment** (80 acres) is located in the township of Ottawa within Waukesha County, just over a 1 mile south of the village of Dousman, near the South Unit of the Kettle Moraine State Forest.
- **West Bend Segment** (34 acres) is made up of 3 small parcels located in Washington County just west and northwest of the city of West Bend.

¹ Segment names are based off local property names, existing properties segments fall in, nearby cities / towns, or landscape features. The existing tract names were former landowner names and were deemed inappropriate for circulation.



Ecological Context

The IANST-KM properties are located entirely within the Southeast Glacial Plains Ecological Landscape (Figure 2), an area characterized by glacial till plains and outwash landforms, as well as rolling, ground, and interlobate moraines (WDNR in Prep.). The Kettle Moraine lies within the interlobate region of the Green Bay and Lake Michigan lobes of the Laurentide ice sheet of the Wisconsin glaciation. It is within this region where, around 15,000 years ago, the collision and subsequent melting of the lobes created many of the geologic features the area is known for today. Although they are all located within the same Ecological Landscape, the segments vary in terms of their ecology, original vegetation, resource use, and the management opportunities and challenges they present. Portions of the IANST-KM and adjacent KMSF North Unit lie in close proximity to a portion of the state known as the tension zone, a zone that separates two floristic provinces, the prairie-forest and the northern hardwoods (Curtis 1959).



Figure 2. Ecological Landscapes of Wisconsin and the study area

The characteristic landform patterns for the study area are hilly kame moraine, undulating outwash, and nearly level lake plain. The soils of the IANST-KM are predominately well-drained loam, silt, and sand over calcareous gravelly sandy outwash or sand loam till.

There are no named or unnamed lakes within the IANST-KM. Several intermittent, unnamed streams occur within the study area, along with other small headwater streams including Spring Brook flowing through the Clover Valley segment and Scuppernong Creek running through the Lapham Peak segment. The most significant aquatic components in the project area are ephemeral and permanent kettle ponds located at Polk Kames, Holy Hill, and West Bend segments in Washington County and numerous springs and spring runs adjacent to the Waterville segment in Waukesha County.

Historic vegetation (Finley 1976) for the **Northern Segments** (Holy Hill, Polk Kames, and West Bend) of the IANST-KM in Washington County was hardwood forest. The most common type consisted of sugar maple (*Acer saccharum*), basswood (*Tilia americana*), northern red oak (*Quercus rubra*), white oak (*Q. alba*), and black oak (*Q. velutina*). This type could possibly be classified as the NHI natural community type Southern Mesic or Southern Dry-mesic Forest. The second most common type was an oak-dominated forest with white, black, and bur oaks (*Q. macrocarpa*). This type could be classified as Oak Woodland or Southern Dry Forest. Historic vegetation (Finley 1976) for the **Southern Segments** (Clover Valley, Kettle Moraine Railroad, Lapham Peak, and Waterville) of the IANST-KM in Waukesha and Walworth Counties was mostly oak forest with white, black (this may have also included northern red oak), and bur oaks. The second most common type was dominated by bur, white, and black oaks and could possibly be classified as Oak Opening. Other types present include marsh and sedge meadow, wet prairie, lowland shrubs, and prairie.

Current vegetation on the IANST-KM is primarily forested and is dominated by southern forest types ranging from dry to mesic conditions. There are three examples on Washington County properties of small but moderate quality Southern Dry-mesic to Mesic Forests. These types appear to be intergrading

due to topographical relief, prior management, and the small size of the properties. The best examples are found at **Polk Kames Segment**, **West Bend Segment**, and the **Holy Hill Segment**. These older, closed canopy forests are dominated by larger diameter sugar maple, American beech (*Fagus grandifolia*), and basswood and in the drier areas with red and white oak, black cherry (*Prunus serotina*), ash (*Fraxinus spp.*), and areas of the invasive black locust (*Robinia pseudoacacia*). Shrub layers are somewhat sparse and include prickly ash (*Zanthoxylum americanum*), American hop-hornbeam (*Ostrya virginiana*), and the invasive non-natives common buckthorn (*Rhamnus cathartica*) and bush honeysuckle (*Lonicera x bella*). The groundlayer has some characteristic spring ephemerals and rich flora along with drier species representative of the dry-mesic and dry forest types.

Similar intergrading of forest types is occurring within the Southern Dry Forest / Oak Woodland / Oak Opening types found at the **Waterville Segment** in Waukesha County. Portions of the central and northern parts of the property have good restoration potential for this globally rare savanna type. Large diameter, open-grown bur oaks are present in the canopy along with white oak, shagbark hickory (*Carya ovata*), and black cherry. The shrub layer and groundlayer are in need of management to control the invasive non-natives common buckthorn and garlic mustard (*Alliaria petiolata*) to allow more sunlight to reach the depauperate groundlayer.

There are numerous examples of Ephemeral Ponds scattered throughout the forested areas of the IANST-KM adding greatly to the biological diversity of these areas. The best examples are found at the Washington County sites and in particular the **Polk Kames Segment**, but also at **Holy Hill Segment**. Little vegetation is found in the ponds with the exception of the invasive non-native reed canary grass (*Phalaris arundinacea*). The presence of downed woody debris was noted in and around the ponds and is an important structural component necessary for many amphibians. The Wisconsin Ephemeral Ponds Project (WEPP, Bernthal et al. 2009) developed methods to map Ephemeral Ponds in southeastern Wisconsin. This project completed mapping of all Ephemeral Ponds within the Milwaukee River basin, including sites (**Polk Kames Segment**) within the IANST-KM.

Management Considerations and Opportunities to Conserve Biodiversity

The KMSF Biotic Inventory Report highlighted the importance of this area for Oak Openings and Oak Woodlands, closed canopy southern forest types and forest interior birds, and Ephemeral Ponds. The properties making up the IANST-KM are generally small in acreage but provide an important ecological connection within the Kettle Moraine region by protecting additional lands in a natural state within a largely agricultural and developed region of the state. These segments help to connect the middle kettle moraine region to the larger, publicly-owned southern and northern units (see dnr.wi.gov/org/land/er/wwap/implementation/pdfs/Priority_rpt_EL_9.pdf for more information). All of the properties making up the IANST-KM, with the exception of the Clover Valley Segment, fall within two “Conservation Opportunity Areas” (COA) as designated during the implementation phase of the Wildlife Action Plan. The South Kettle Moraine COA is of global significance for protecting some of the best examples of Bur Oak Opening, Oak Woodland, and Southern Dry Forest in the state. The Middle to North Kettle Moraine COA is of continental significance for its large blocks of closed canopy forests and the species dependent upon them.

Oak Opening and Oak Woodland restoration and management is one of the most ecologically important opportunities for this area. Oak Openings and Oak Woodlands were historically common in Wisconsin but are now rare throughout the state. Restoration of these globally rare natural communities is critical to the survival of many rare plants and animals that depend on them. Opportunities exist for management of this rare natural community at the **Waterville Segment**. These are management dependent plant communities and would benefit from the use of prescribed fire, brush clearing (including common buckthorn and bush honeysuckle), and controlling non-native invasive herbaceous species like garlic mustard.

Much of the closed canopy forests of the IANST-KM are found in the Washington County segments (**Polk Kames, Holy Hill, and West Bend**) and are dominated by younger aged stands. There are some examples at each of these properties that support small but older stands with large diameter canopy trees, downed woody debris, and multi-layered, uneven-aged and -size class structure. These areas were found to support, in low numbers, conservative forest interior bird species and have the potential to develop older forest characteristics important to numerous rare species. Ephemeral Ponds are isolated wetlands that contain water for part of the growing season and, most importantly for amphibian and invertebrate populations, are fishless. These areas are critical breeding habitat for certain invertebrates including fairy shrimp, as well as for many amphibians such as wood frogs and salamanders. They also provide feeding, resting, and breeding habitat for birds and a source of food for many mammals. Threats to Ephemeral Ponds include reed canary grass infestations that may lower water levels leading to a premature drying of these wetlands and forest management practices in the ponds and surrounding uplands that result in soil compaction, erosion, and loss of forest canopy or coarse woody debris.

Several non-native invasive plants are well-established within the study area. Reed canary grass is the dominant species in some of the open wetlands at the **Waterville Segment** and **Clover Valley Segment**. These areas historically were likely to have been Southern Sedge Meadow and Wet Prairie plant communities as very small remnants of these ecologically diverse natural communities are still found at Clover Valley but are completely surrounded by reed canary grass. These types were once much more widespread in southeast Wisconsin but land conversion, including to reed canary meadows for pasture and hay, has destroyed much of these important wetland types and their associated plant and animal diversity. The non-native invasive watercress (*Nasturtium officinale*) is common in the springs and coolwater streams within the project area. Common buckthorn, bush honeysuckle, and garlic mustard are found in large portions of the forested areas at **Holy Hill Segment, Polk Kames Segment, and**

Waterville Segment and threaten the future viability of these sites. Black locust represents a major threat at **Polk Kames Segment** as a significant population of large diameter trees is well established here. Other non-native invasive plants are present but not dominant on the IANST-KM including Japanese barberry (*Berberis thunbergii*), multiflora rose (*Rosa multiflora*), and white sweet clover (*Melilotus albus*). Additional non-native invasive species are known from within the vicinity of the properties and represent possible future threats to biodiversity within the IANST-KM including Japanese hedge parsley (*Torilis japonica*) found in forested areas near the **Waterville Segment** and Japanese knotweed (*Polygonum cuspidatum*) known from near the **Clover Valley Segment** primarily in wetlands and near flowing water (WDNR 2010).



Ephemeral Pond at Polk Kames Segment of the Ice Age Trail. Photo by Rich Staffen

The Wisconsin Wildlife Action Plan highlights “Ecological Priorities” for each Ecological Landscape, including combinations of natural communities and their associated vertebrate animal Species of Greatest Conservation Need (WDNR 2006). Table 3 shows the major and important natural communities in the Southeast Glacial Plain Ecological Landscape with the associated degree to which each species is associated with a particular natural community. The following are Species of Greatest Conservation Need likely to occur in these habitats.

Table 1. Species of Greatest Conservation Need that are Significantly Associated with the Southeast Glacial Plains Landscape (S=significantly association, M=moderate association, and L=low association)						
	Major				Important	
	Oak Opening	Oak Woodland	Southern Dry Forest	Southern Dry-mesic Forest	Ephemeral Pond	Southern Mesic Forest
Species that are Significantly Associated with the Southeast Glacial Plains Landscape						
Acadian Flycatcher			S	L		L
American Woodcock	S		S		S	
Black-billed Cuckoo	S					
Blanding's Turtle	L	M		M	L	M
Blue-winged Teal					S	
Blue-winged Warbler	M	M	M	M		M
Bobolink	S					
Brown Thrasher	L					
Cerulean Warbler		M	S	L		M
Dickcissel	S					
Eastern Massasauga Rattlesnake					L	
Eastern Meadowlark	M					
Field Sparrow	L					
Four-toed Salamander					L	L
Franklin's Ground Squirrel	L	M				
Grasshopper Sparrow	S					
Henslow's Sparrow	M					
Hooded Warbler				L		L
Least Flycatcher		S	S	S		S
Louisiana Waterthrush				L		L
Ornate Box Turtle	L	L	L	L		M
Pickerel Frog					L	M
Red-headed Woodpecker	L	L	M	M		
Rusty Blackbird					M	
Vesper Sparrow	M					
Willow Flycatcher	S					
Wood Thrush		M	M	L		L
Yellow-billed Cuckoo		S	S	M		M

Future Needs

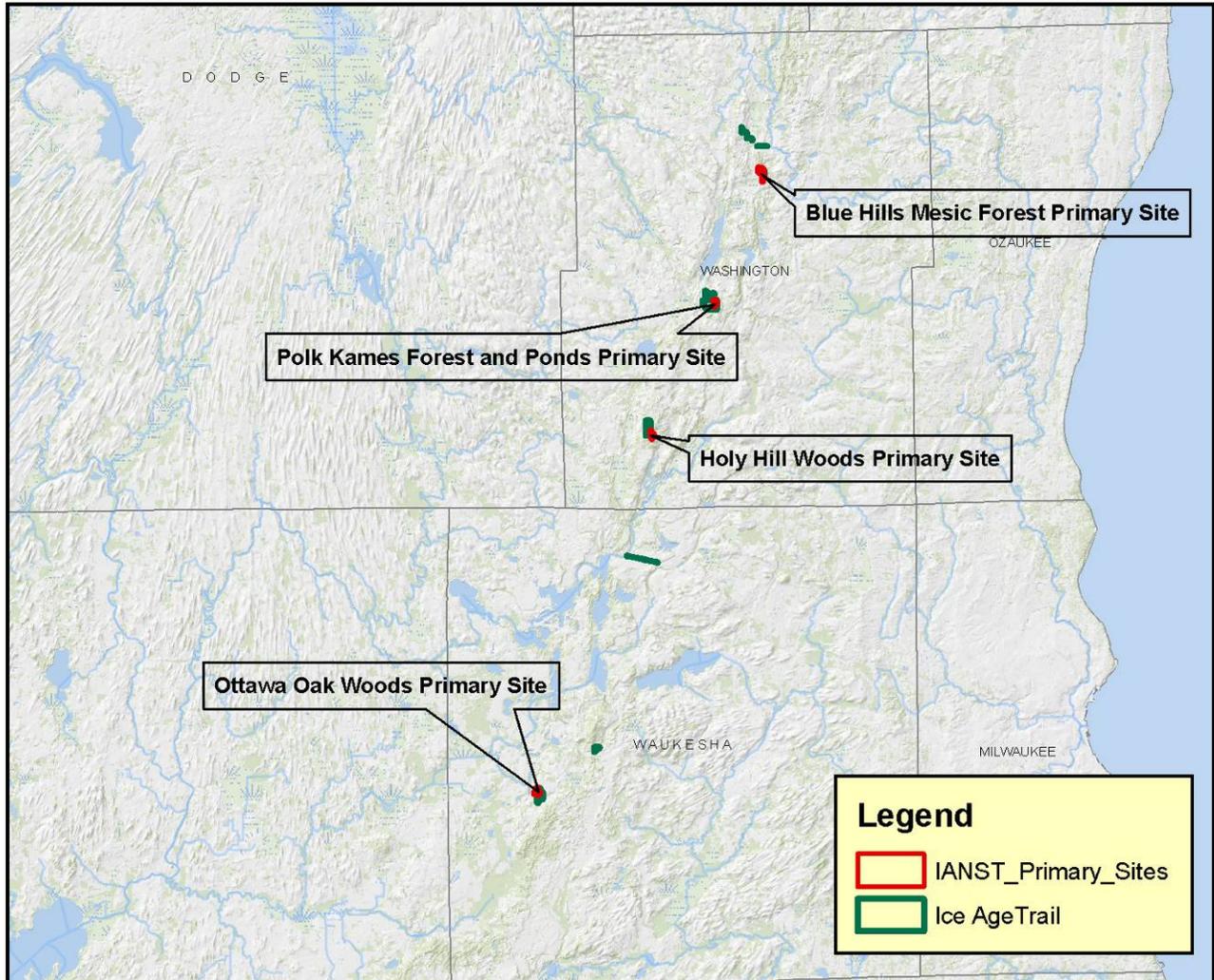
This project was designed to provide a rapid assessment of biodiversity values for the IANST-KM and is an addendum to the information in the Kettle Moraine State Forest biotic inventory report (Hyde et al. 2010). The project relied, in large part, on one field season of survey work. Although the report should be considered adequate for planning purposes, additional efforts could help to inform adaptive management. As with all of the state lands, monitoring and control of invasive species, wherever possible, is needed to prevent major infestations.

Primary Sites: Site Specific Opportunities for Biodiversity Conservation

Four ecologically important sites were identified on the IANST-KM (Figure 3). These “Primary Sites” were delineated because they generally encompass the best examples of 1) rare and representative natural communities, 2) documented occurrences of rare species populations, and/or 3) opportunities for ecological restoration or connections. These sites warrant high protection and/or restoration consideration during the development of the property master plan. This report is meant to be considered along with other information when identifying opportunities for various management designations during the master planning process.

IANST01	Blue Hills Mesic Forest
IANST02	Polk Kames Forest and Ponds
IANST03	Holy Hill Woods
IANST04	Ottawa Oak Woods

Figure 3. Location of IANST-KM Primary Sites



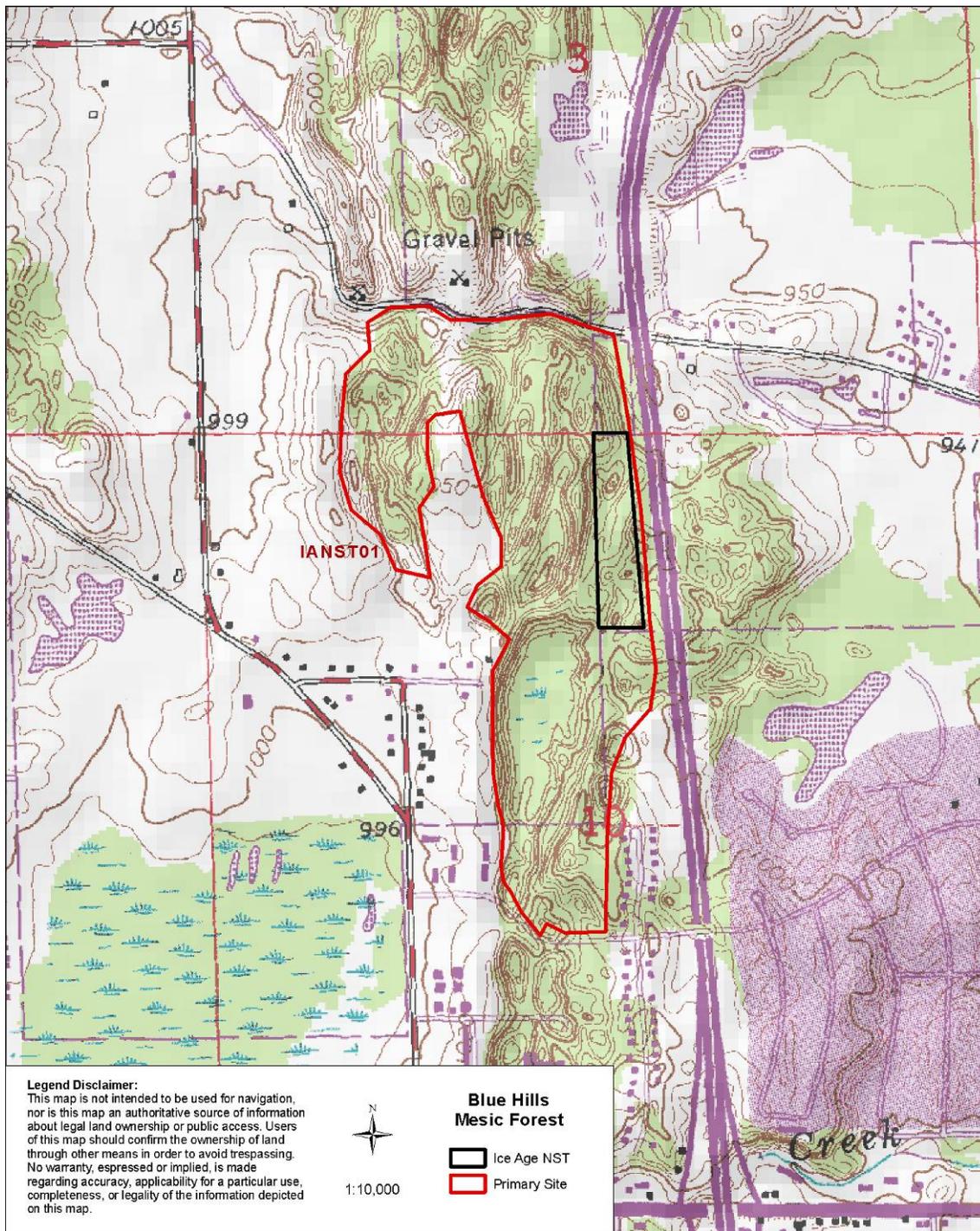
IANST01. Blue Hills Mesic Forest

County: Washington
Landtype Association: 222Ke04
Approximate Size: 114 acres

This site is located adjacent to United States Highway 45 and south of Beaver Dam Road and adjacent to the City of West Bend's Glacier Blue Hills Park. Blue Hills Mesic Forest is bisected by the Ice Age Trail and by a network of mountain bike trails. The site consists of rugged morainal topography with Southern Mesic and Dry-mesic Forest and a series of ephemeral and permanent kettle ponds. Forest canopy species are dominated by sugar maple, northern red oak, and basswood. Larger trees, especially red oak, are in the 15+ inch diameter breast height (dbh) range. Canopy closure is high, generally over 80%. Subcanopy closure varies from low to moderate in places and consists of sugar maple, shagbark hickory, and ash. Tall shrub and sapling layer coverage is low. Non-native invasive honeysuckles (*Lonicera* spp), common buckthorn, and Japanese barberry are present but still manageable. Other species include prickly ash and American elm. The ground flora is patchily distributed with large areas dominated by leaf litter. Much of the ground flora coverage is on the upper slopes and ridgetops. Species include bloodroot, blue cohosh, mayapple, large-flowered trillium, sharp-lobed hepatica (*Hepatica acutiloba*), Virginia waterleaf, violets, wild geranium (*Geranium maculatum*), false solomon's seal (*Smilacina racemosa*), hog-peanut, and jack-in-the-pulpit. Other spring ephemerals include wild leek (*Allium tricoccum*), bellwort (*Uvularia* spp), and wood anemone (*Anemone quinquefolia*). Garlic mustard is present, especially along the trails.

This site represents a fairly large block of moderate quality mesic and dry-mesic forest in a developed landscape. The forest provides important habitat for migrating and rare resident breeding birds. Ephemeral and kettle wetlands with minimally fragmented, closed canopy forest are important habitat components for pond-breeding amphibians that require adjacent, older, humid forests for carrying out their terrestrial life-cycle. While invasive plant species are present on the site, they are still at levels where they can be managed.

Figure 4: Blue Hills Mesic Forest Primary Site (IANST01)



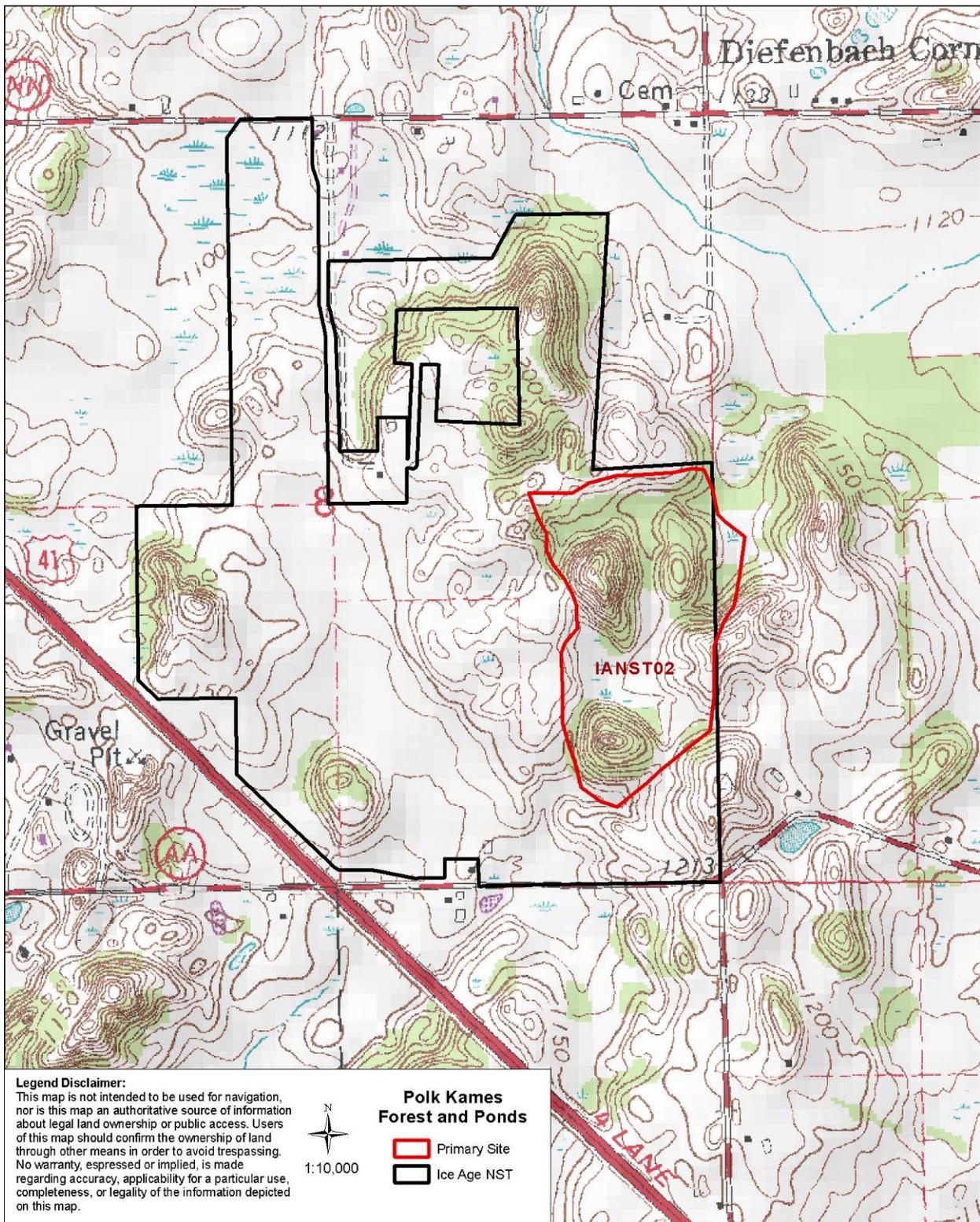
IANST02. Polk Kames Forest and Ponds

County: Washington
Landtype Association: 222Ke04
Approximate Size: 52 acres

Polk Kames Forest and Ponds primary site is located just to the northeast of the city of Slinger. The topography of the site is rugged and consists of several kames with Southern Dry-mesic and Mesic Forest on the uplands and Ephemeral Ponds and wetlands in the lowlands. Some of the slopes have rock outcrops and loose rock on the surface. The forests are of variable quality, ranging from low to moderate. The canopy is dominated by sugar maple with white oak and red oak, basswood, and some localized areas of American beech. Many of the larger (16+ inch dbh) canopy trees have a closed-canopy growth form, but there are scattered very large open-grown sugar maples. Canopy coverage is at least 80% in most places. There is good structural diversity in the canopy. The subcanopy and tall shrub layer coverage is variable, ranging from low to moderate. Many of the species in these layers are young canopy species. Coarse woody debris is scattered throughout. Younger patches of the forest have a large component of paper birch (*Betula papyrifera*) and aspen (*Populus* spp.). The ground flora is mostly patchily distributed and includes Pennsylvania sedge (*Carex pensylvanica*), mayapple, zigzag goldenrod (*Solidago flexicaulus*), round-lobed hepatica (*Anemone americana*), bellwort, and jack-in-the-pulpit. On some of the exposed slopes, especially near the trails, are some remnant savanna indicator species including shooting star (*Dodecatheon meadia*), wood-betony (*Pedicularis canadensis*), and violet wood-sorrel (*Oxalis violacea*). Ephemeral Ponds are scattered throughout the site. Also present is a shrub-swamp in a kettle pond in the west-central part of the site. Non-native invasive plants on the property include garlic mustard and black locust with smaller amounts of common buckthorn, bush honeysuckle, and reed canary grass, especially surrounding the pond. Within the site, garlic mustard, helleborine orchid (*Epipactis helleborine*) and the non-native invasive woody species are still at a controllable stage.

This site represents a fairly large block of moderate quality mesic and dry-mesic forest in a developed landscape. It can provide an important link between the Pike Lake Unit of the Kettle Moraine State Forest and Allenton Marsh Wildlife Area. The forest provides important habitat for migrating and rare breeding forest interior birds. Ephemeral and kettle wetlands are abundant and important at the site for several pond-breeding salamanders and frogs. The minimally fragmented, closed canopy forest surrounding these ponds are an important habitat component for the terrestrial phase of many amphibians including mole salamanders like the spotted salamander (*Ambystoma maculatum*) found at the site. Very few known sites exist for spotted salamanders in southeast Wisconsin and thus is important to consider this species when planning management activities. The spotted salamander requires intact hardwood forests with heavy ground-layer vegetation because of the cooler microclimate and higher humidities they present. Characteristic and uncommon aquatic invertebrates (fairly shrimp) were also found in these ponds.

Figure 5: Polk Kames Forest and Ponds Primary Site (IANST02)



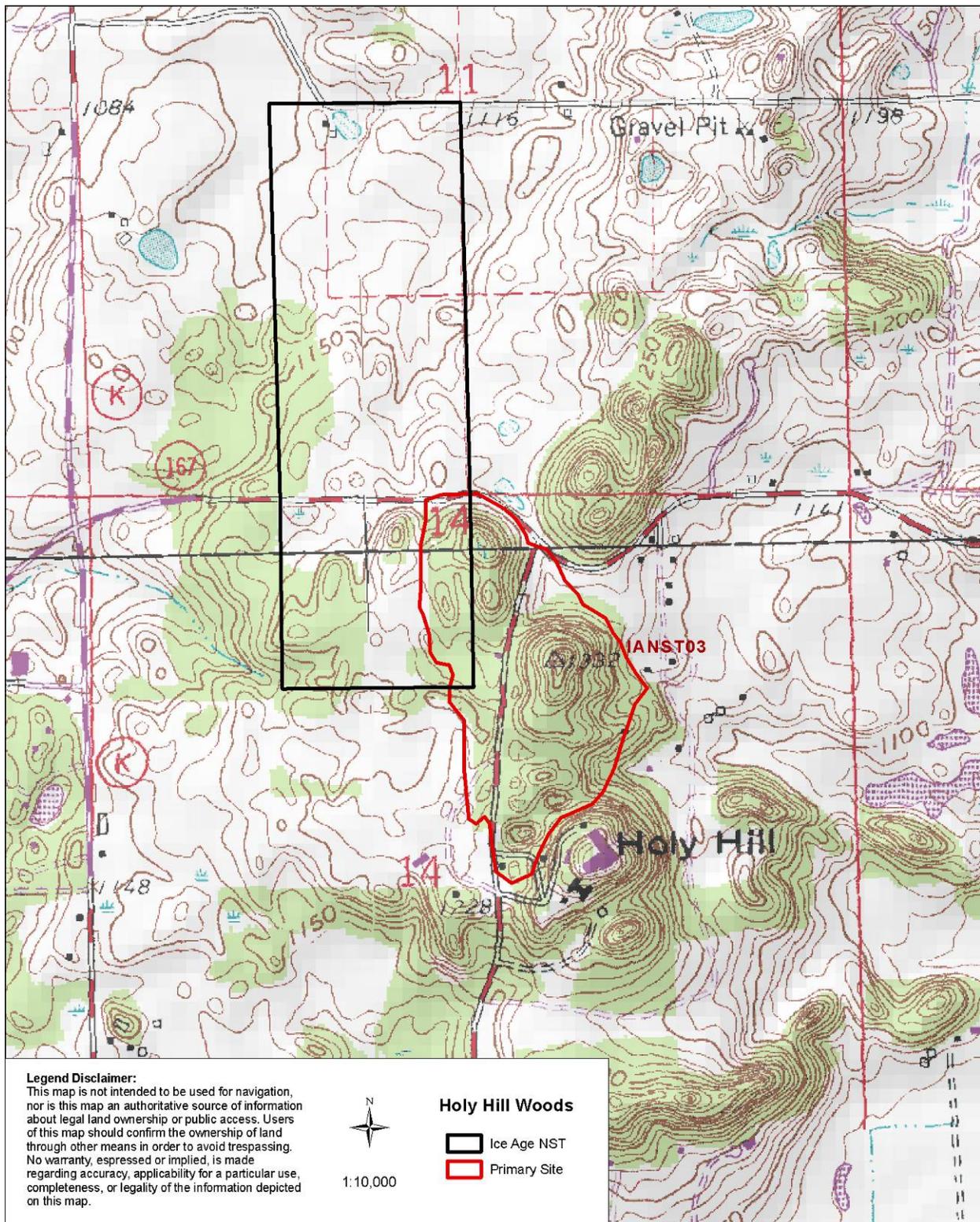
IANST03. Holy Hill Woods

County: Washington
Landtype Association: 222Ke04
Approximate Size: 55 acres

A small but moderate quality example of Southern Dry-mesic to Mesic Forest is found at the Holy Hill Woods primary site. The terrain of the site is rugged with steep slopes. The quality of this forest is diminished by the amount of garlic mustard found at the site and its small size. However, there are several small Ephemeral Ponds scattered throughout and the forest appears to extend onto the adjacent Holy Hill National Shrine property adding to the importance of the site for various plants and animals. The forest is dominated by sugar maple and basswood. Red and white oak, ash, and shagbark hickory are canopy components as well. Canopy closure is high, and structural diversity is good. Old cut stumps are present. The subcanopy and tall shrub coverage is low in most places and is mainly composed of canopy species. There are some clones of prickly ash present. The ground flora is scattered and limited in diversity. Garlic mustard is present and widespread.

The site, including the Holy Hill National Shrine property, represents a fairly large block of moderate quality mesic and dry-mesic forest in a developed landscape. The forest provides critical breeding habitat for rare and conservative forest interior birds protecting a forested connection between the northern and southern units of Kettle Moraine State Forest. Ephemeral Ponds present at the site increase the biological diversity and provide critical habitat to pond-breeding amphibians and invertebrates. There may be an opportunity to partner with Holy Hill National Shrine to manage the large block of forest.

Figure 6: Holy Hill Woods Primary Site (IANST03)



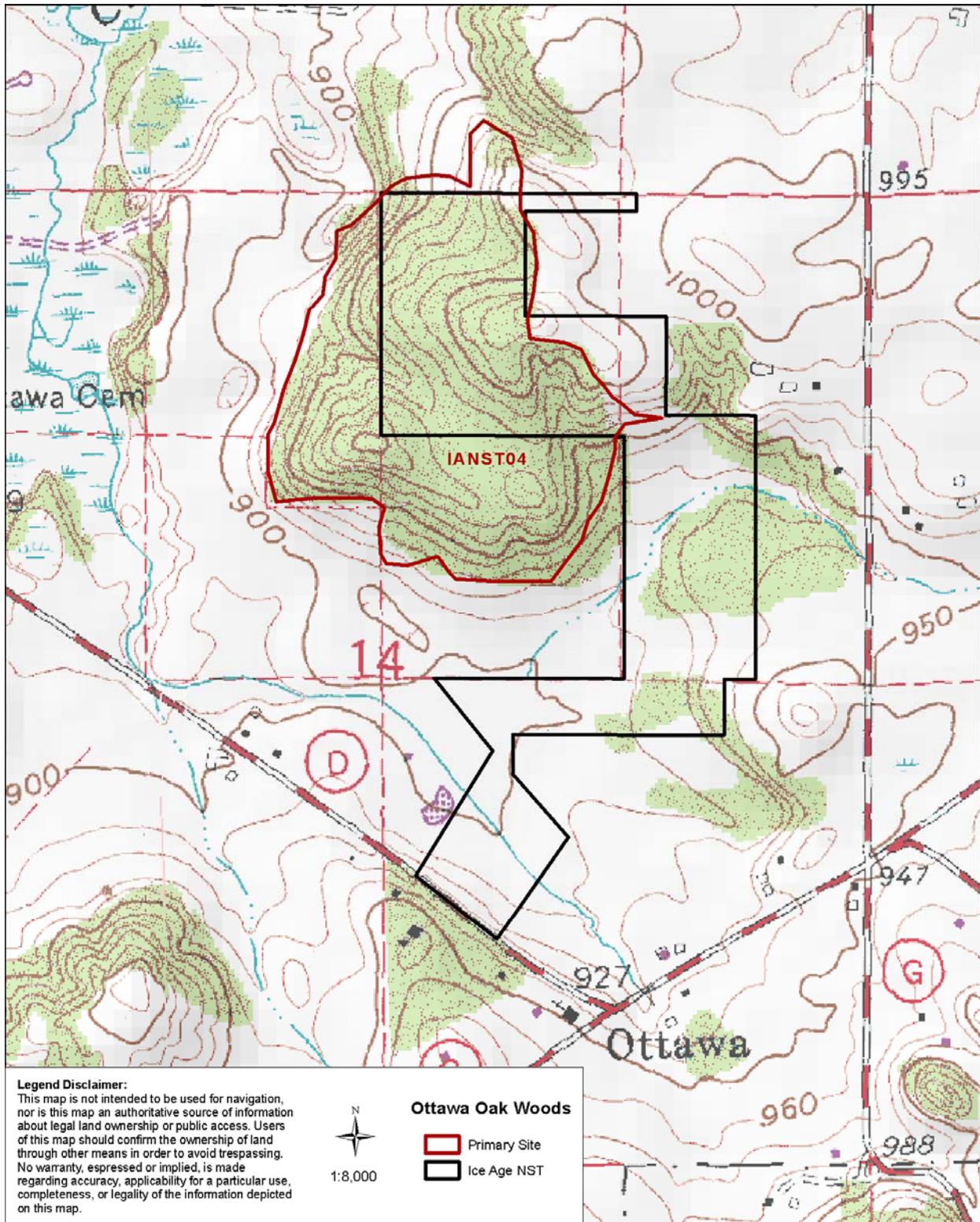
IANST04. Ottawa Oak Woods

County: Waukesha
Landtype Association: 222Ke03
Approximate Size (acres): 69 acres

The rugged morainal topography of Ottawa Oak Woods primary site has Southern Dry and Dry-mesic Forest, degraded Oak Woodlands, and small Ephemeral Ponds. There is also a small spring run near a limestone outcropping where a spring flows a short ways from its base before flowing back underground. Many of the Oak Woodlands are succeeding toward dry or dry-mesic forest. Canopy species include some large, open-grown white and bur oaks and closed-canopy grown shagbark hickory, white oak, and black cherry. In many places the understory / tall shrub layer has moderate to dense canopy closure of prickly ash, common buckthorn, and bush honeysuckle. The ground flora is patchy and includes Pennsylvania sedge, wild geranium, hepatica, and mayapple. Garlic mustard is also present in variably-sized patches. There are some older cut stumps and slash piles. There are some savanna indicator plants (shooting star) in canopy gaps and along deer trails.

This site represents a medium sized block of low to moderate quality dry and dry-mesic forest in a developed landscape. Numerous rare forest interior birds are known from nearby the site and potential habitat exists to enhance these populations. Several bird Species of Greatest Conservation Need, both forest interior and early successional species, were noted during breeding bird surveys in 2010 (see Table 1). Ottawa Oak Woods may serve as an important connection between the southern unit of Kettle Moraine State Forest with the Lapham Peak Unit. There is also an opportunity for restoring the Oak Woodlands to a more open condition. Oak savanna plant communities are a globally rare community and the Kettle Moraine region offers one of the best opportunities in the state to restore this type.

Figure 7: Ottawa Oak Woods Primary Site (IANST04)



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