



Canada geese congregating at Horicon Marsh

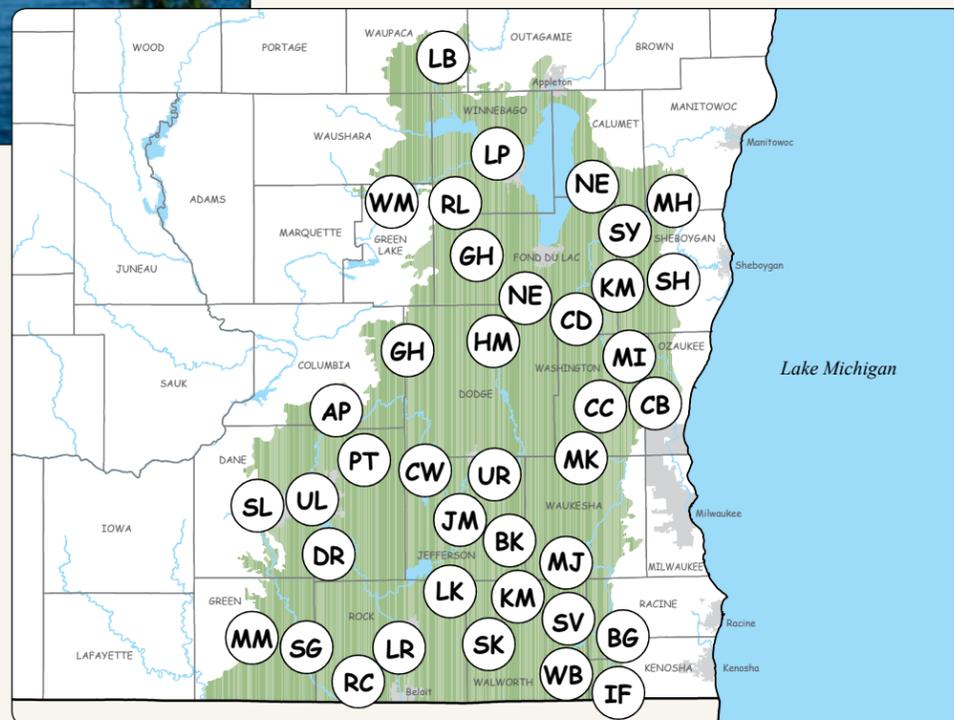
Southeast Glacial Plains

ecological landscape

Attributes and Characteristics

This ecological landscape is home to some of the world's best examples of continental glacial activity. Drumlins, eskers, kettle lakes, kames, ground and end moraines, and other glacial features are evident throughout the entire area. A particularly striking area is the long "ridge" (known as a kettle interlobate moraine) that formed between the Green Bay and Lake Michigan lobes during the Wisconsin Glaciation. The area is protected in part by the Kettle Moraine State Forest.

In addition to the many small kettle lakes in this landscape, there are also a number of much larger lakes, such as the Lake Winnebago Pool system, the Yahara Chain of Lakes, Lake Koshkonong, and Geneva Lake. Major rivers include the Rock, upper portion of the Milwaukee, middle portion of the Fox, and the Illinois Fox.



Legacy Places

- | | | | |
|----|--|----|-----------------------------------|
| AP | Arlington Prairie | PT | Patrick Marsh |
| BK | Bark and Scuppernong Rivers | RC | Raccoon Creek |
| BG | Bong Grassland | RL | Rush Lake |
| CD | Campbellsport Drumlins | SH | Sheboygan County Trout Streams |
| CC | Cedar Creek | SY | Sheboygan River Marshes |
| CB | Cedarburg Bog | SL | Shoveler Lakes-Black Earth Trench |
| CW | Crawfish River-Waterloo Drumlins | SV | Sugar Creek Valley |
| DR | Dunn-Rutland Savanna and Potholes | SG | Sugar River |
| GH | Glacial Habitat Restoration Area | UR | Upper Rock River |
| HM | Horicon Marsh | UL | Upper Yahara River and Lakes |
| IF | Illinois Fox River | WB | White River and Bloomfield Area |
| JM | Jefferson Marsh | WM | White River Marsh and Uplands |
| LK | Lake Koshkonong to Kettle Moraine Corridor | | |
| LP | Lakes of the Winnebago Pool | | |
| LR | Lower Rock River | | |
| LB | Lower Wolf River Bottomlands | | |
| MI | Milwaukee River | | |
| MM | Monroe-Muralt Prairie | | |
| MJ | Mukwonago River and Jericho Creek | | |
| NE | Niagara Escarpment | | |

Along the Kettle Moraine

- | | |
|----|--|
| KM | Kettle Moraine State Forest |
| MK | Middle Kettle Moraine |
| MH | Millhome Woods |
| SK | Southern Kettle Moraine: Whitewater Lake to Turtle Creek |

Although many of the landscape's natural wetlands have been drained, a large amount still remains. The largest single wetland in this landscape, Horicon Marsh, is a globally significant area.

Soils are mostly silt loams but there are also areas of clay soils and sandy soils. Most of the tillable land is intensively farmed, with dairying and cash-cropping of grains and vegetables being the predominant types of agriculture. The natural vegetation of this landscape was formerly a mix of hardwood forest, prairie, savanna and wetlands. Today, very little of the prairie and savanna habitat remains.

Conservation Needs and Opportunities

The Southeast Glacial Plains is a particularly important region of the state for nesting and migrating waterfowl. The large marshes and shallow lakes that occur throughout the area provide critical feeding, nesting, and resting habitat for ducks and geese and other marsh dwelling birds. Many opportunities exist to restore drained wetlands as these areas are retired from farming. Also occurring here are a number of less common wetland types such as bogs, fens, tamarack fens and wet prairies, many of which harbor rare species. Of particular note are the many, mostly small, calcareous fens that are scattered through this landscape. In fact, more fens occur here than in any other part of North America.

This landscape also offers excellent opportunities to expand and restore prairie and oak savanna. A recent Department study of management opportunities for grassland birds identified nearly forty areas in this landscape with good potential to establish functioning grassland systems.

Historically, many of the state's richest and most diverse streams and rivers were found in the southeastern part of Wisconsin. Although many have been degraded from a variety of non-point pollution sources, improving management practices and the removal of dams have greatly improved many of these waters. One river in particular that has maintained its quality, the Mukwonago, harbors one of the highest concentrations of fish, mussels, and other aquatic invertebrates in the Midwest. Many of the region's lakes have extremely productive fisheries that draw anglers from throughout the Midwest. The water quality in many of these lakes would benefit from additional watershed management practices.

Recreation Uses and Opportunities

Almost all types of outdoor recreation occur within the Southeast Glacial Plains. A variety of terrain and cover types and abundant lakes and streams accommodate a broad range of land and water based recreation activities. However, use of public lands and waters is very heavy and demand for recreation is rapidly exceeding the capacity



Kettle Moraine Low Prairie in Waukesha County

THOMAS MEYER

Figure 111: Land cover of the Southeast Glacial Plains

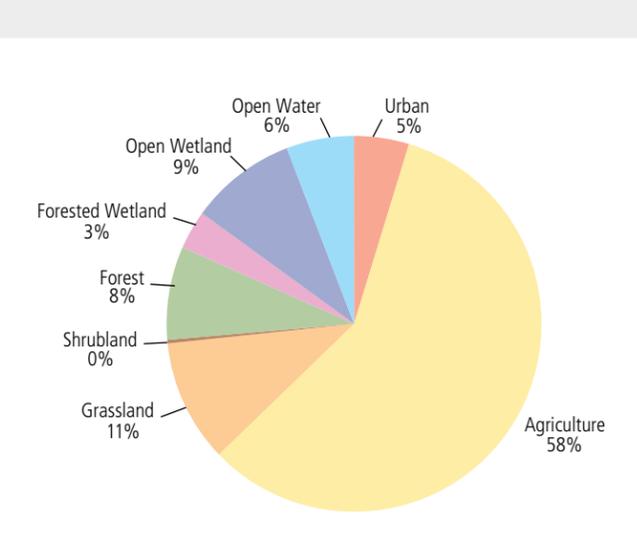


Figure 112: Public conservation and other land ownership in the Southeast Glacial Plains

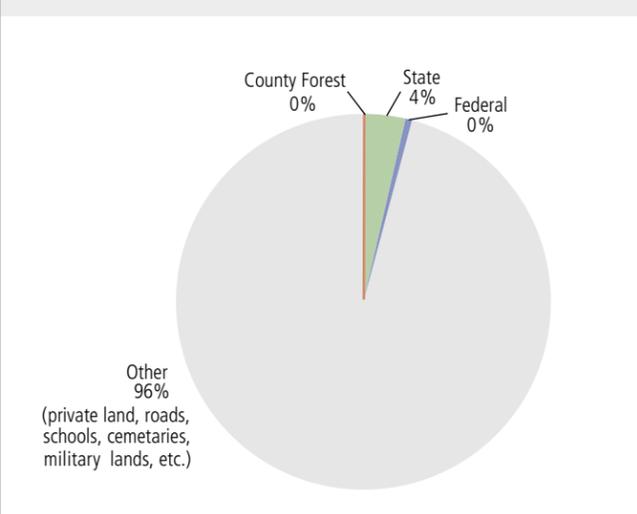


Figure 113: Land cover of public conservation lands in the Southeast Glacial Plains

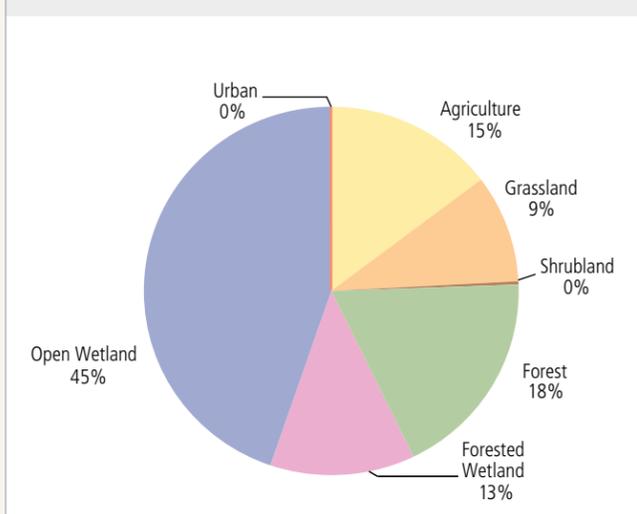
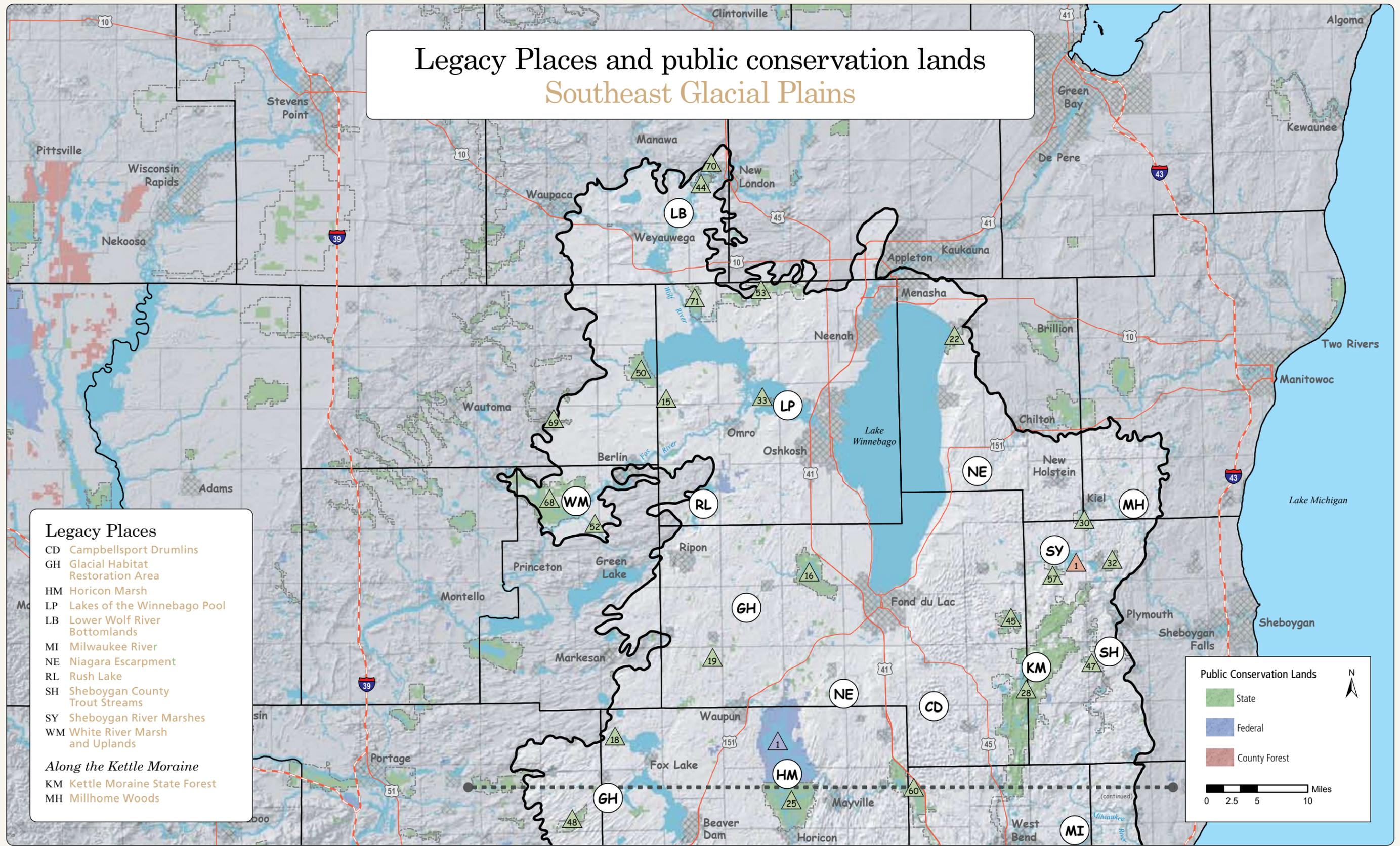


Figure 114a: Legacy Places and public conservation lands of the Southeast Glacial Plains

Southeast Glacial Plains



Legacy Places and public conservation lands
Southeast Glacial Plains

- Legacy Places**
- CD Campbellsport Drumlins
 - GH Glacial Habitat Restoration Area
 - HM Horicon Marsh
 - LP Lakes of the Winnebago Pool
 - LB Lower Wolf River Bottomlands
 - MI Milwaukee River
 - NE Niagara Escarpment
 - RL Rush Lake
 - SH Sheboygan County Trout Streams
 - SY Sheboygan River Marshes
 - WM White River Marsh and Uplands
- Along the Kettle Moraine*
- KM Kettle Moraine State Forest
 - MH Millhome Woods

Public Conservation Lands

- State
- Federal
- County Forest

0 2.5 5 10 Miles

N
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Figure 114b: Legacy Places and public conservation lands of the Southeast Glacial Plains

Southeast Glacial Plains

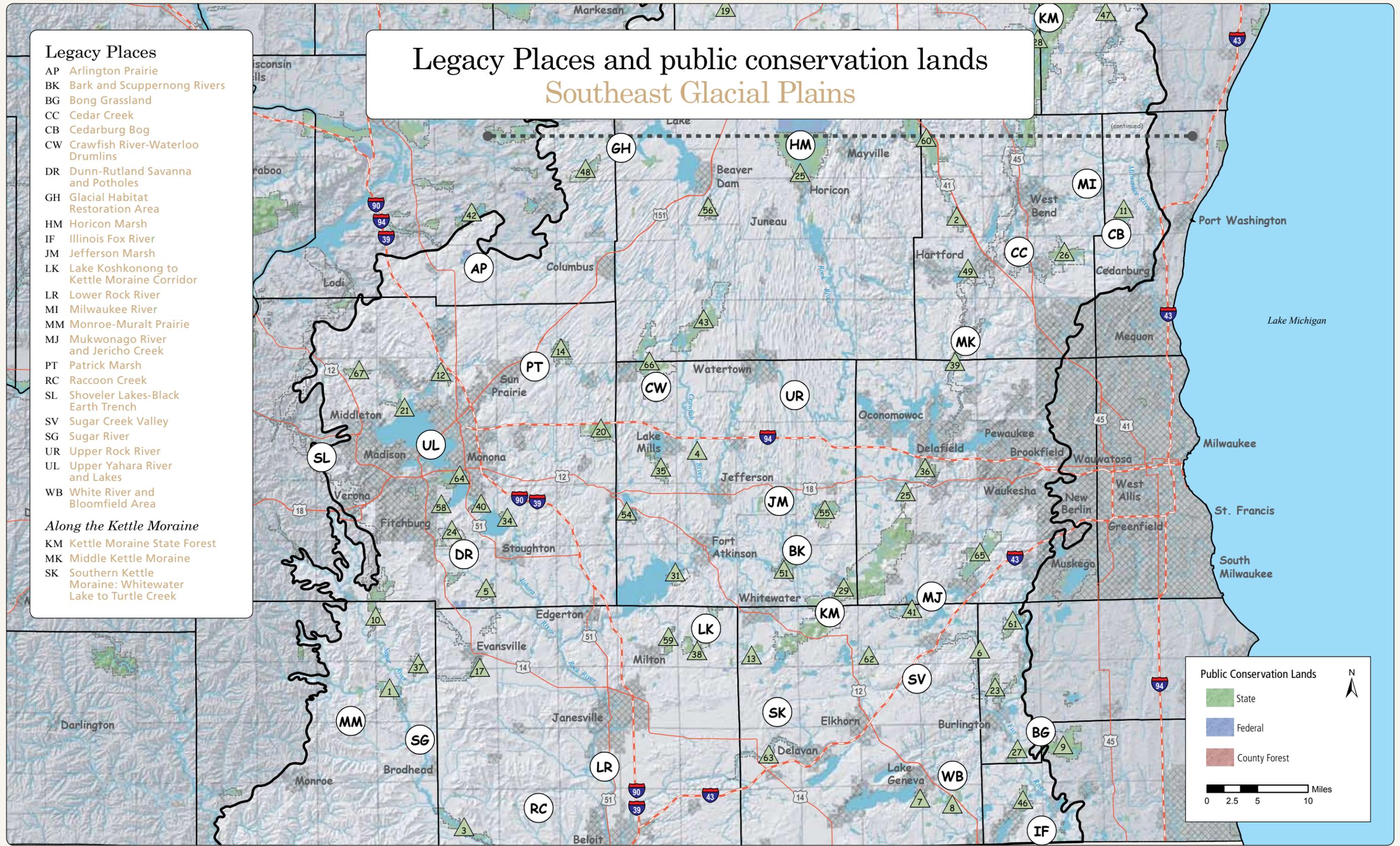
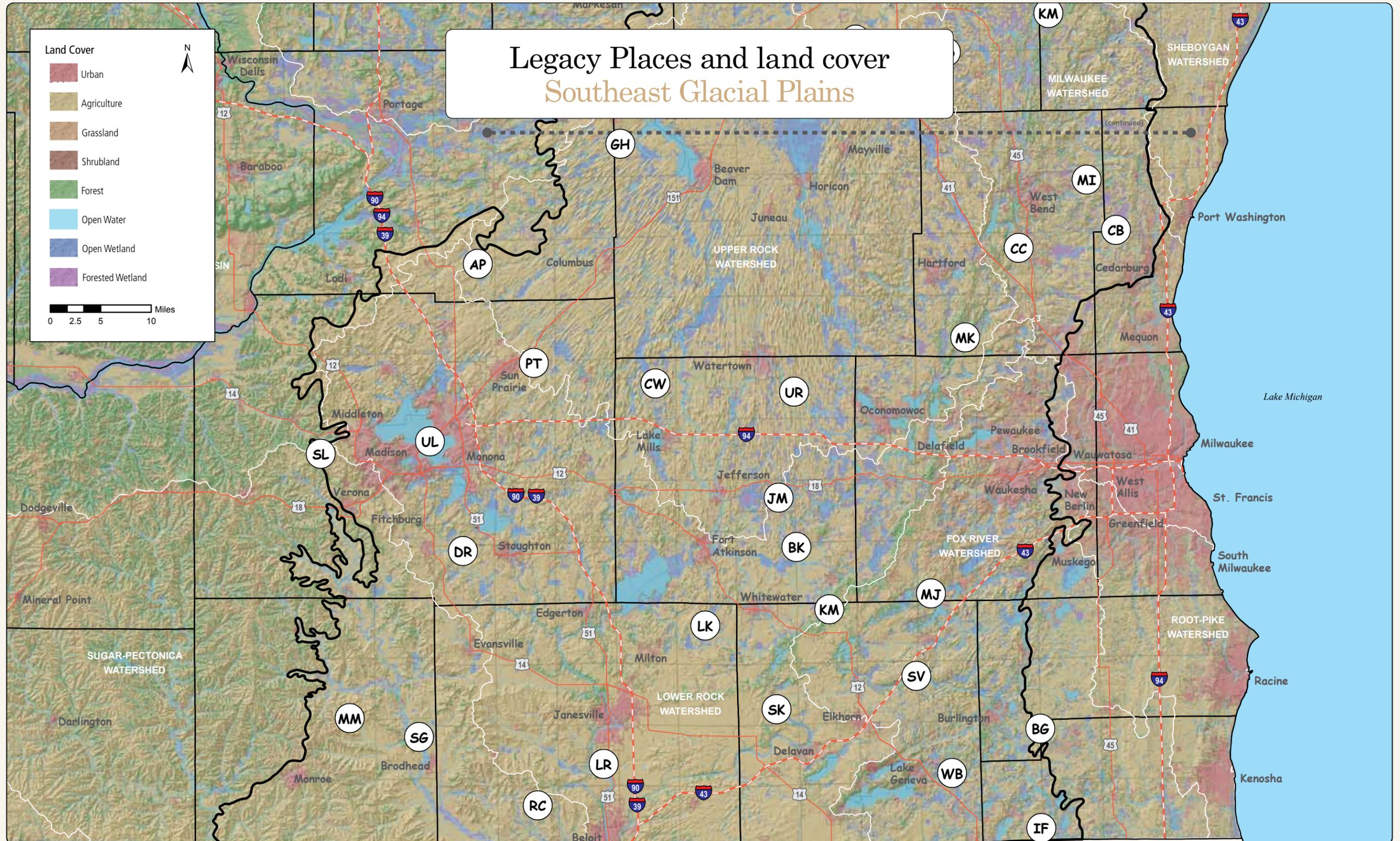


Figure 115b: Legacy Places and land cover of the Southeast Glacial Plains



Southeast Glacial Plains

Public Conservation Lands

Map#	Property Name	Size (acres) ¹	Map#	Property Name	Size (acres) ¹
State					
1	Albany State Wildlife Area	1,390	43	Mud Lake State Wildlife Area-Dodge County	4,800
2	Allenton State Wildlife Area	1,160	44	Mukwa State Wildlife Area	1,320
3	Avon Bottoms State Wildlife Area	2,140	45	Mullet Creek State Wildlife Area	2,210
4	Aztalan State Park	190	46	New Munster State Wildlife Area	1,060
5	Bad Fish Creek State Wildlife Area	1,150	47	Nichols Creek State Wildlife Area	660
6	Beulah Station State Wildlife Area	250	48	Paradise Marsh State Wildlife Area	1,570
7	Big Foot Beach State Park	260	49	Pike Lake Unit-Kettle Moraine State Forest	700
8	Bloomfield State Wildlife Area	1,100	50	Poygan Marsh State Wildlife Area	3,510
9	Bong (Richard) State Recreation Area ²	185	51	Princes Point State Wildlife Area	1,610
10	Brooklyn State Wildlife Area	2,490	52	Puchyan Prairie State Natural Area	260
11	Cedarburg Bog State Natural Area	1,680	53	Rat River State Wildlife Area ²	4,350
12	Cherokee Marsh State Fishery Area	910	54	Red Cedar Lake State Natural Area	500
13	Clover Valley State Wildlife Area	530	55	Rome Pond State Wildlife Area	2,280
14	Deansville State Wildlife Area	1,680	56	Shaw Marsh State Wildlife Area	940
15	Deppe State Wildlife Area	200	57	Sheboygan Marsh State Wildlife Area	660
16	Eldorado State Wildlife Area	6,420	58	South Waubesa Wetlands State Natural Area	530
17	Evansville State Wildlife Area	710	59	Storrs Lake State Wildlife Area	750
18	Fox Lake State Fishery Area	460	60	Theresa State Wildlife Area	5,820
19	Glacial Habitat Restoration Area ²	12,220	61	Tichigan State Wildlife Area	1,230
20	Goose Lake State Wildlife Area	2,280	62	Troy State Wildlife Area	760
21	Governor Nelson State Park	430	63	Turtle Creek State Wildlife Area	1,040
22	High Cliff State Park	1,130	64	Upper Waubesa State Fishery Area	260
23	Honey Creek State Wildlife Area	1,110	65	Vernon State Wildlife Area	4,170
24	Hook Lake/Grass Lake State Wildlife and Natural Area	940	66	Waterloo State Wildlife Area	4,090
25	Horicon State Wildlife Area	11,090	67	Waunakee State Wildlife Area	480
26	Jackson Marsh State Wildlife Area	2,280	68	White River Marsh State Wildlife Area ²	11,250
27	Karcher Marsh State Wildlife Area	290	69	Willow Creek State Fishery Area ²	395
28	Kettle Moraine State Forest-Northern Unit	29,550	70	Wolf River State Fishery Area	205
29	Kettle Moraine State Forest-Southern Unit	20,460	71	Wolf River State Wildlife Area	1,720
30	Kiel Marsh State Wildlife Area	810		Miscellaneous Lands ³	17,380
31	Koshkonong State Wildlife Area	840	Federal		
32	La Budde Creek State Fishery Area	390	1	Horicon Marsh National Wildlife Refuge	1,470
33	Lake Buttes Des Morts State Wildlife Area	275	2	Waterfowl Production Areas	6,165
34	Lake Kegonsa State Park	350	County⁴		
35	Lake Mills State Wildlife Area	1,230	1	Sheboygan Marsh County Park	7,330
36	Lapham Peak Unit-Kettle Moraine State Forest	1,020	TOTAL		
37	Liberty Creek State Wildlife Area	565	226,230¹		
38	Lima Marsh State Wildlife Area	2,030			
39	Loew Lake Unit-Kettle Moraine State Forest	1,090			
40	Lower Mud Lake State Fishery Area	300			
41	Lulu Lake State Natural Area	870			
42	Mud Lake State Wildlife Area-Columbia County	300			

¹ Actual acres owned in this Ecological Landscape.
² This property also falls within adjacent Ecological Landscape(s).
³ Includes public access sites, fish hatcheries, fire towers, streambank and non-point easements, lands acquired under statewide wildlife, fishery, forestry, and natural area programs, small properties under 100 acres, and properties with fewer than 100 acres within this Ecological Landscape.
⁴ Locations and sizes of county owned parcels enrolled in the Forest Crop Law are presented here. Information on locations and sizes of other county and local parks in this Ecological Landscape is not readily available and is not included here, except for some very large properties.

Key characteristics:

- » Excellent examples of a variety of glacial landforms, including drumlins and kettle interlobate moraine
- » Agricultural land use
- » Large lakes and abundant wetlands
- » Easily accessible by majority of state population
- » Calcareous fens

Size:

- » 7725 square miles
- » 4,943,200 acres (13.8% of Wisconsin)

Population:

- » 1,519,000 (28.5% of Wisconsin's population)

Notable species:

- » Canada goose
- » Pheasant
- » Hooded warbler
- » Lake sturgeon
- » Long-ear sunfish
- » Black, yellow, and brown bullheads
- » Bluegill
- » Walleye
- » Blanding's turtle
- » Poweshiek skipper
- » Bur oak
- » Cattail
- » Kittentail
- » White lady-slipper
- » Prairie white-fringed orchid
- » Prairie milkweed

Natural communities: (See Appendix B for descriptions)

- » Bog relict
- » Calcareous fen
- » Dry cliff
- » Dry-mesic prairie
- » Dry prairie
- » Emergent aquatic
- » Floodplain forest
- » Mesic prairie
- » Oak opening
- » Oak woodland
- » Shrub carr
- » Southern dry forest
- » Southern dry-mesic forest
- » Southern hardwood swamp
- » Southern sedge meadow
- » Southern tamarack swamp
- » Wet-mesic prairie

of existing facilities and resources. Half of Wisconsin residents live within 50 miles of much of this ecological landscape.

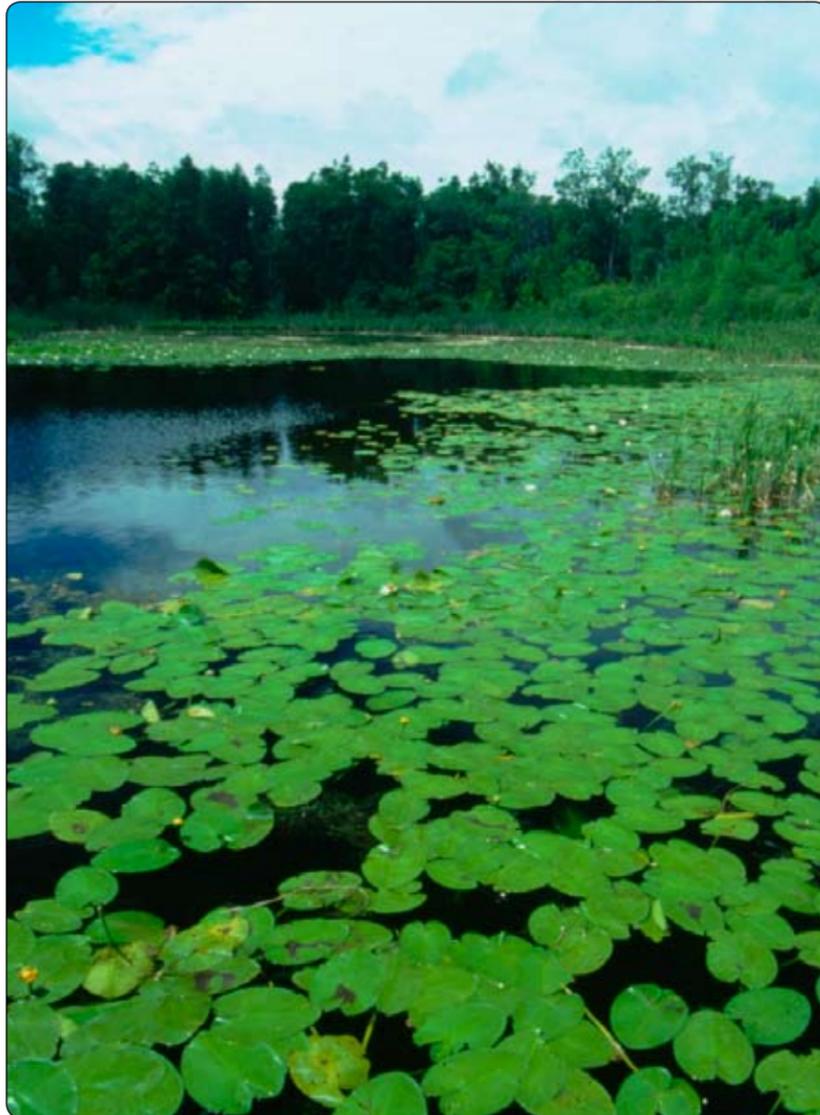
Opportunities for expanding recreational facilities in this area are diminishing as residential development expands into the countryside. Providing needed outdoor recreation opportunities may be best accomplished not by focusing on areas with high quality natural values, but rather on areas that are somewhat degraded, but can be restored to provide a wide range of hiking, biking, horseback riding and possibly motorized trails. To the degree practical, buffering, linking, and expanding existing public lands would enable considerably more recreation opportunities. The Ice Age Trail runs nearly the entire length of this ecological landscape, receives tremendous use, and remains a high priority for completion.



Halloween Pennant Dragonfly (*Celithemis eponina*)

JACK R. BARTHOLOMAI

Legacy Places



Cedarburg Bog

AP Arlington Prairie

Size Small
Protection Initiated Moderate
Protection Remaining Moderate
Conservation Significance ★★
Recreation Potential ★★

Once encompassing a wide swath of northern Dane County and southern Columbia County, this former deep soil prairie is now intensively farmed due to the highly productive soils in the area. Several scattered high quality prairie and prairie pothole remnants remain. Protected lands here include Grassy Lake, Mud Lake, Schoeneberg, and Otsego Waterfowl Production Areas and Audubon's Goose Pond Sanctuary, and could form the foundation of further restoration efforts. If additional grasslands are restored and linked to existing protected lands, the area could support significant populations of area-sensitive grassland birds.

BK Bark and Scuppernong Rivers

Size Large
Protection Initiated Limited
Protection Remaining Substantial
Conservation Significance ★★ ★
Recreation Potential ★★ ★ ★

The Bark River and one of its primary tributaries, the Scuppernong River, form a corridor that links the Southern Unit of the Kettle Moraine State Forest to the Lower Rock River Valley. Two state wildlife areas, Prince's Point and Rome Pond, lie along these waters and provide a foundation on which to establish a large open space corridor. These wildlife areas, composed primarily of lowland hardwoods and open wetlands with some adjoining uplands, are heavily used by the public, particularly for waterfowl hunting. The Cushman Pond area, along the Bark River, is a particularly scenic and diverse area, harboring a dramatic mix of steep wooded drumlins, wetlands, and river frontage.

The Bark and Scuppernong Rivers are high quality waters for southern Wisconsin and both support good warmwater fisheries. Among the species present are northern pike, walleye, sauger, largemouth bass, catfish and panfish. Both rivers are also suitable for canoeing along most of their length. The two river corridors

lie in close proximity to the large urban population of the Milwaukee area. The surrounding lands are primarily agricultural in nature and include some extensive muck farm operations.

Maintaining an open space corridor between the Southern Unit of the Kettle Moraine, Rome Pond, Prince's Point and downstream to Fort Atkinson would provide multiple conservation and recreation benefits. Protection of river frontage and in-stream habitat work would benefit a number of fish and wildlife species, including some dragonflies rarely seen in Wisconsin. Upland areas could provide a variety of recreation pursuits, although the abundant wetlands would limit some activities. Trails between the Rock River and the Kettle Moraine would likely be very popular.

BG Bong Grassland

See the Southern Lake Michigan Coastal ecological landscape.

CD Campbellsport Drumlins

Size Small
Protection Initiated Limited
Protection Remaining Substantial
Conservation Significance ★
Recreation Potential ★★ ★

Centered a few miles northwest of the village of Campbellsport, this is one of the best and most highly concentrated drumlin fields in the state. The Campbellsport Drumlins have been identified as a unit of the Ice Age National Scientific Reserve, but almost no formal protection has been accomplished to date. Maintaining the existing rural agricultural land use would likely afford adequate protection.

CC Cedar Creek

Size Small
Protection Initiated Limited
Protection Remaining Substantial
Conservation Significance ★★ ★
Recreation Potential ★★

A tributary of the Milwaukee River, Cedar Creek originates in the Cedar Lakes of Washington County. Water quality is fairly good and the creek contains several rare or state-Threatened species. At present, there is a recreational fishery primarily for rock bass and northern pike, and it is hoped that smallmouth bass can even-



Adult and juvenile Black-necked Stilt (*Himantopus mexicanus*)

ually be restored. The breaching of several dams in recent years and future plans for more dam removal should provide for continued improvements in water quality and temperature.

Cedar Creek has been designated as a Stream Bank Protection project and three private conservancy groups are also active in land protection in the area. About halfway along its length, the creek flows through the Jackson Marsh State Wildlife Area, which provides a few miles of publicly owned frontage. Protection of additional lands along the creek would help to maintain an environmental corridor connecting the Cedar Lakes with the Milwaukee River.

Cedar Creek flows into the Milwaukee River, which drains into Lake Michigan near the drinking water intakes for the Cudahy, Milwaukee and North Shore municipal water systems. Cedar Creek's impact on the Milwaukee River may affect the raw water quality in these systems, which supply drinking water to over 700,000 customers.

CB Cedarburg Bog

Size Small
Protection Initiated Substantial
Protection Remaining Moderate
Conservation Significance ★★ ★ ★
Recreation Potential ★★

Cedarburg Bog is the largest and least disturbed northern peatland in southeastern Wisconsin. It covers most of an old glacial lakebed and is roughly 2,000 acres in size. There are six lakes remaining within the wetland and all exhibit a very high degree of water clarity. The peatland

Southeast Glacial Plains
ecological landscape



Compass Plants (*Silphium laciniatum*) at Snapper Prairie along the Crawfish River

consists mainly of an extensive conifer forest with some areas of open bog, fen, shrub swamp and islands of mesic woods. Swamp hardwood forest is located adjacent to the conifer bog in many places. Surrounding the lakes are areas of emergent aquatic plants, and lying just outside this zone are successional areas of shrub-carr.

Most unusual is a portion of the area that consists of a string or “patterned” bog, unique here because it lies far south of its usual range in North America. The string bog is composed of open, flat sedge mat lying between ridges of stunted cedar and tamarack. The flora and fauna of Cedarburg Bog is very diverse and includes a large number of regionally rare species, several of which are at or near their southern range limit. Nearly 300 species of birds have been documented in the area. Cedarburg Bog is already mostly protected, with over 1,400 acres owned by the DNR and nearly 300 acres owned by the University of Wisconsin. The site is used extensively for research and educational purposes. Opportunities to buffer and expand protection efforts exist, particularly to the north and west.

CW Crawfish River-Waterloo Drumlins

Size Large
Protection Initiated Moderate
Protection Remaining Substantial
Conservation Significance ★★★★★
Recreation Potential ★★★★★

This area provides one of the best remaining chances in the southern part of the state to provide much needed recreation opportunities easily accessible to many people. Numerous drumlins and glacial hills with some fairly extensive areas of lowland characterize the topography of this area. Four existing State Wildlife Areas (Lake Mills, Goose Lake, Waterloo, and Mud Lake), the Glacial Drumlin State Trail, Bean Lake State Natural Area, and Korth and Rock Lake County Parks occur here and form the foundation of a potentially larger protected area. These existing public properties receive heavy use by a variety of recreationists, although much of the land within the wildlife areas is wetland and not compatible with many forms of recreation.

If additional lands were also protected and some corridors allowing public access were established, a remarkable array of conservation and recreation benefits would be possible. Camping as well as walking, biking, horseback riding, and cross-country skiing trails would likely be very popular, given the proximity to large urban centers. The Crawfish River drains much of the area and it, along with Rock Lake and several smaller lakes scattered through the area, provide excellent opportunities for water-based recreation.

Continuing the restoration of wetland and grassland habitats within a mosaic of farmland could establish this area as a regionally important landscape for a variety of game and non-game wildlife. Former muck farming operations that are no longer in operation can be restored through the Wetland Reserve Program. An area lying along the west bank of the Crawfish River, which includes the existing Faville Prairie and Snapper Prairie State Natural Areas, provides an excellent opportunity for restoration of a large expanse of native grassland through cooperation of several partners, both public and private. Aldo Leopold and his graduate students utilized the Faville Prairie for research projects aimed at sustaining wildlife and agriculture in harmony.

DR Dunn-Rutland Savanna and Potholes

Size Medium
Protection Initiated Moderate
Protection Remaining Moderate
Conservation Significance ★★★★★
Recreation Potential ★★★★★

Extending from the southern end of Lake Waubesa to about the Rock County line, this area of rolling topography contains scattered woodlots, wetlands, pothole lakes, small creeks, remnant grasslands, and oak savannas. Wildlife is abundant and includes deer, turkey, duck, goose, crane, pheasant, gray partridge, songbirds, and furbearers. A small amount of existing state and federal lands protect some of these features and provide a foundation for further protection and restoration activities. Existing state projects include a combination of wildlife areas, natural areas and a fishery area. A Stream Bank Protection project is underway on Anthony Branch, a Class II trout stream.

This area lies within a short drive of Madison and is relatively close to Janesville and represents a chance to protect and restore an attractive natural setting in close proximity to a densely populated and very rapidly growing part of the state. Besides the traditional recreational activities of hunting and fishing, this area could help meet the growing demand for nature walks, bird watching, horseback riding, cross-country skiing, dog-sledding, and off road biking.

GH Glacial Habitat Restoration Area

Size Large
Protection Initiated Substantial
Protection Remaining Moderate
Conservation Significance ★★★★★
Recreation Potential ★★

The Glacial Habitat Restoration Area is an existing DNR project that includes portions of Fond du Lac, Dodge, Winnebago and Columbia Counties. The project encompasses an area that originally consisted largely of prairie, oak savanna, wetlands, shallow ponds and lakes and has historically been a haven for grassland nesting birds. The original habitat was ideal for duck production. In the past, prairie chickens and sharp-tailed grouse were common; later they were supplanted by pheasants. Unfortunately, the area has lost most of its native grassland and over 50% of its wetlands, which has produced a corresponding decline in wildlife populations. The Glacial Habitat Restoration Area project is attempting to restore some of the natural cover and the wildlife that it supports by utilizing a landscape scale approach to habitat management throughout the 24 townships that are part of the project. The intent is to scatter suitable habitat throughout the project area to produce a mix of agricultural land, grasslands and wetlands that will be beneficial to wildlife. The objective of the project is to re-establish native grassland cover on ten percent of the available uplands in the area and to restore ten percent of the drained wetlands. The DNR and other partner agencies are using a combination of perpetual easements, fee title purchases, volunteer agreements and cost-share agreements to achieve this goal.

Southeast Glacial Plains *ecological landscape*

HM Horicon Marsh

Size Medium
 Protection Initiated Substantial
 Protection Remaining Limited
 Conservation Significance ★★★★★
 Recreation Potential ★★★

Horicon Marsh is the largest freshwater cattail marsh in the United States and is one of only 15 sites in the U.S. that has been recognized by the Ramsar Convention on Wetlands of International Importance. It provides a rest stop for legendary concentrations of migrating waterfowl and is also an important nesting area for many species of waterfowl and wading birds. The National Wildlife Refuge here was originally created as a nesting area for the redhead duck and today it is still among the largest nesting areas for this bird in the eastern United States.

Once drained and nearly destroyed in a failed attempt to convert the marsh to agricultural production, the restoration of Horicon Marsh is one of the great conservation success stories of the twentieth century. Being only 50 miles from both Milwaukee and Madison, the marsh attracts large numbers of people each year who come to hunt, walk the nature trails, canoe, and watch the enormous flocks of migrating geese.

Nearly all of the 32,000-acre marsh is in public ownership, with the northern two-thirds a national wildlife refuge, and the southern one-third a state wildlife area. However, additional protection is needed to improve and maintain the health of the ecosystem. Tributary streams deposit silt and nutrients in the marsh, causing poor water quality. Buffer strips along streams and improved farming practices on adjacent lands could help this situation. The agricultural lands around the marsh help to buffer the area and provide feeding opportunities, particularly for migrating birds. An increasing amount of farmland is being converted to housing development and maintaining large acreages of farmland would be an important component of an overall protection strategy for the marsh.

The Niagara Escarpment is located just a few miles to the east and connecting this important landform and the marsh with a protected corridor would have multiple recreation and conservation benefits. Conservation easements could also be used to maintain some of the scenic views of the marsh from the escarpment and other prominent uplands.

IF Illinois Fox River

Size Large
 Protection Initiated Limited
 Protection Remaining Substantial
 Conservation Significance ★★★★★
 Recreation Potential ★★★★★

This relatively undeveloped river corridor passes through several medium and small cities, but for the most part flows through farmlands and wetlands as it meanders south. The corridor encompasses a variety of natural communities, including some good quality lowland forests. The river, whose headwaters drain off the Southern Unit of the Kettle Moraine State Forest, supports a fairly good fishery consisting of channel catfish, yellow, white, and smallmouth bass, northern pike, walleye and panfish.

The Illinois Fox River is a very important environmental corridor not only in Wisconsin, but also in Illinois, where it flows southerly along the western edge of the Chicago metropolitan area, eventually emptying into the Illinois River. Its ecological significance is highlighted by the fact that it provides habitat for at least seven endangered or threatened species of birds, fish and mussels in Wisconsin. The river corridor's location close to Milwaukee and Chicago also makes it an important recreation resource.

There is significant opportunity for linking existing public lands and enhancing the environmental and recreational quality of the corridor. There are five state wildlife areas that lie on or very near the river in Wisconsin, as well as a major state park located on the river in Illinois just south of the state line. There is also an opportunity to connect the Fox River Corridor with the Richard Bong Recreation Area, which lies about 2 or 3 miles east of the river. In addition, there are several tributary trout streams that could be included in the protection efforts. The river



Acadian Hairstreak (*Satyrrium acadica*) on Swamp Milkweed (*Asclepias incarnata*)

has the capability to provide for a significant amount of fishing and also opportunities for canoeing, kayaking, boating and possibly trails. Dewey Effigy Mounds, a mostly intact effigy mound group with a dance circle, is located along the river in Waukesha County.

JM Jefferson Marsh

Size Medium
 Protection Initiated Moderate
 Protection Remaining Moderate
 Conservation Significance ★★★★★
 Recreation Potential ★

East of Jefferson lies a large mosaic of forested and open wetlands, part of which forms the largest tamarack swamp in southern Wisconsin. Although many parts of the area are farmed, more and more land is being removed from agriculture, as the muck soils become less productive. Some lands are being restored through the federal Wetland Reserve Program and the DNR owns and leases some land in the area. Although popular for hunting, the area could also help meet many other recreation demands if some uplands were available for public access. Jefferson Marsh is easily accessible to a large number of residents.

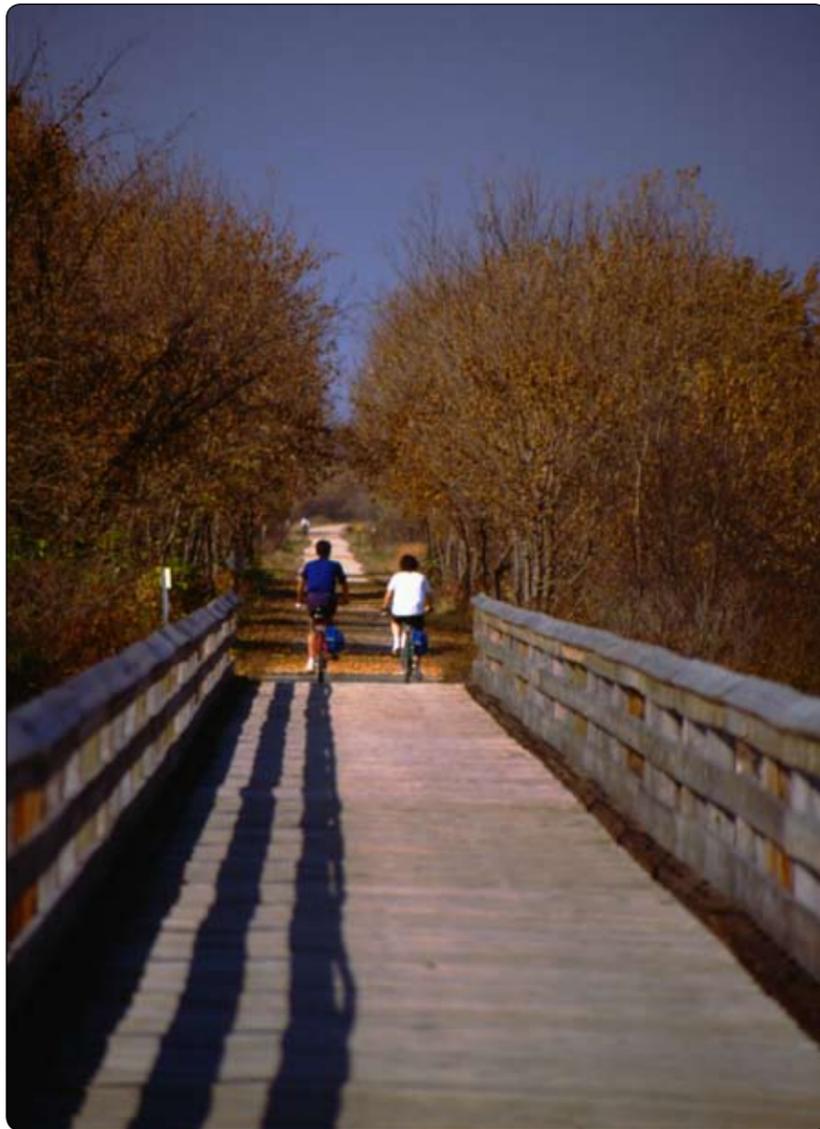
LK Lake Koshkonong to Kettle Moraine Corridor

Size Medium
 Protection Initiated Moderate
 Protection Remaining Substantial
 Conservation Significance ★★★★★
 Recreation Potential ★★★★★

Lake Koshkonong is one of Wisconsin's largest shallow lakes. Originally described by settlers as a "large meadow" because of its extensive wild rice beds, the lake is mostly open water today (in part due to the Indianford Dam), but is still surrounded by large backwater marshes containing wild rice, sedges and cattails. Koshkonong was once known throughout the nation for its large numbers of waterfowl, particularly canvasbacks. Although it no longer supports the huge populations of ducks of former days, the lake and its environs are still immensely important as waterfowl habitat.

Four state wildlife areas, Storrs Lake, Koshkonong, Lima Marsh, and Clover Valley, lie between Lake Koshkonong and the Southern Unit of the Kettle Moraine State Forest and could provide the foundation for a larger protected corridor. These properties provide a variety of habitats, including wetlands ranging from large,

Southeast Glacial Plains *ecological landscape*



Biking the Glacial Drumlin Trail

open water areas, to cattail marshes, to sedge meadows. The surrounding landscape is primarily farmland with scattered woodlots and grasslands.

Lying between Janesville, Fort Atkinson and Whitewater, the area is under increasing land use pressure from new home construction. The land is becoming more fragmented with a resulting loss of farmland and wildlife habitat. Protecting an open space corridor between Lake Koshkonong and the Kettle Moraine would provide multiple benefits. It would help reduce conflicts between new residential development and the traditional hunting uses of the state wildlife areas. It could also provide a wide variety of other recreation activities including a variety of trails. Maintaining farming as a viable enterprise in this area could be an integral part of the long-term protection of the corridor.

LP Lakes of the Winnebago Pool

Size	Large
Protection Initiated	Substantial
Protection Remaining	Moderate
Conservation Significance	★★★★
Recreation Potential	★★★★★

The Winnebago Pool is comprised of Lakes Winnebago, Butte des Morts, Winneconne and Poygan. The lakes are among Wisconsin's greatest water resources. They provide a highly productive fishery located within 75 miles of over 2 million people. The lakes and their associated wetlands, particularly the extensive wetlands that border the upper lakes, are very important to migrating and breeding waterfowl. The pool receives heavy recreational use by boaters, anglers, swimmers, hunters and trappers. Its waters are also used for industrial and domestic water supply and hydroelectric power. Lakefront property is in high demand and most of the buildable shoreline is heavily developed with homes and cottages.

The Winnebago Pool supports a diverse warm water fishery, with lake sturgeon, walleye, northern pike, perch, catfish, and white bass being among the most sought after species. The lake sturgeon population is the largest self-sustaining population of its kind in the world and provides a popular winter spear fishing season. The pool, especially Lake Winnebago, is also notable for its walleye fishery. The majority of walleye from these lakes have

the unique habit of traveling many miles up the upper Fox and Wolf Rivers to spawn every spring in flooded marshes along the rivers.

Management of the Winnebago Pool is complicated, given the sheer size and complexity of the lakes and their watershed, and the often competing and conflicting interests of various users. The pool and its watershed are managed on an ecosystem basis guided by the Winnebago Comprehensive Management Plan. The Plan was developed in the late 1980's with substantial public input and support. It identifies resource use and management needs for the lakes and watersheds, sets clear objectives to address those needs, and lists options for management activities. Projects are developed from management options, and implementation is carried out on a continuing basis. Protection and restoration of the extensive wetlands of the upper pool lakes are critical components of the management plan.

LR Lower Rock River

Size	Large
Protection Initiated	Limited
Protection Remaining	Substantial
Conservation Significance	★★
Recreation Potential	★★★★★

The Lower Rock (downstream of Lake Koshkonong) and its tributaries flow through some of the most productive farmland in Wisconsin. The river and its major tributaries slowly wind through relatively flat terrain with reasonably long stretches of undeveloped shoreline, much of which is forested or open wetland. The Yahara River and Turtle Creek, major tributaries to the Lower Rock, both support rich and diverse mussel and fish populations. Turtle Creek's cobble-lined bed harbors one of the best smallmouth bass populations in southern Wisconsin. The state has acquired some large holdings along the upper stretches of this creek that form an excellent foundation on which to expand protection efforts. Bass Creek and Marsh Creek were formerly part of a large wetland complex in Rock County that has good restoration potential.

A protected corridor along the Lower Rock and its major tributaries could provide water quality benefits that would enhance opportunities for fishing, boating and canoeing, and perhaps allow the creation of recreational trails along the river. A protected corridor would improve habitat for all types of aquatic life and terrestrial wildlife.

In addition, a project along the Lower Rock could integrate the urban river front projects in Beloit and Janesville, which would allow easy access by these population centers.

LB Lower Wolf River Bottomlands

See the Central Lake Michigan ecological landscape.

MI Milwaukee River

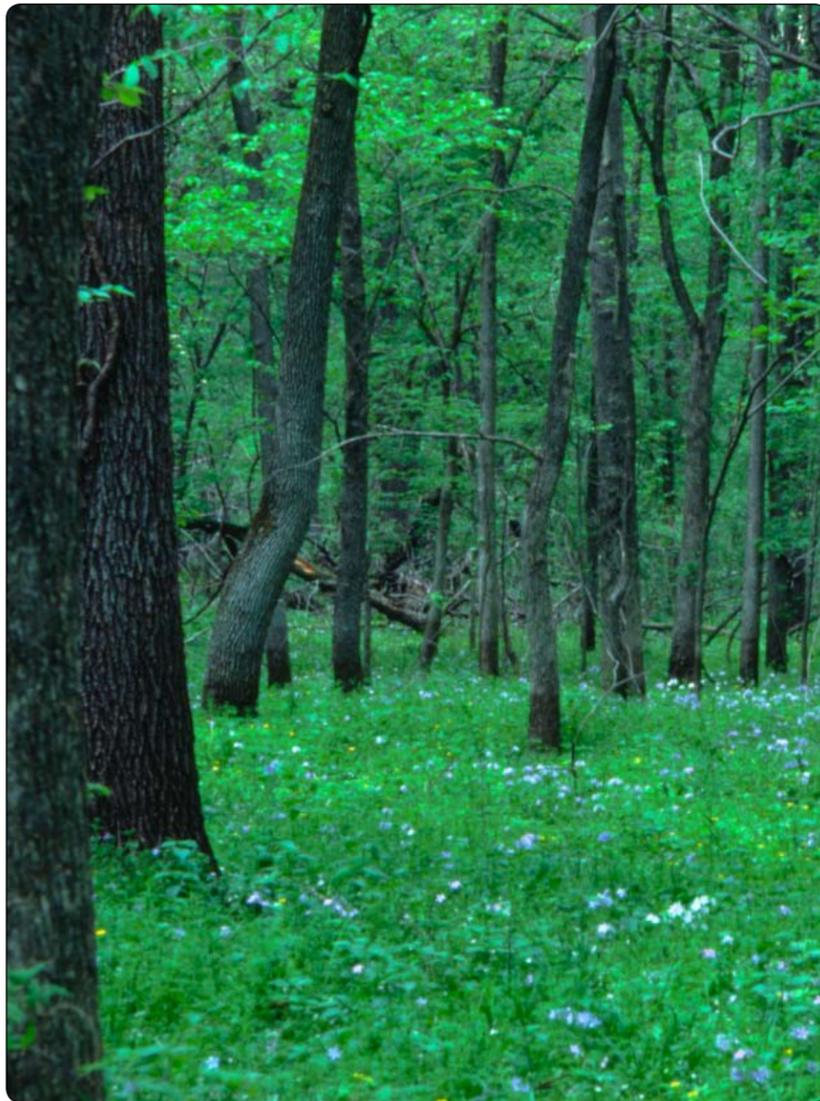
Size	Large
Protection Initiated	Moderate
Protection Remaining	Substantial
Conservation Significance	★★★★
Recreation Potential	★★★★★

The Milwaukee River originates with four main branches in Fond du Lac and Sheboygan Counties. The East Branch is almost totally encompassed by the Kettle Moraine State Forest and is already largely protected. The North Branch was just recently approved as a new DNR project and protection efforts are underway. The Main Branch and West Branch are both located in Fond du Lac County and are largely unprotected. Three of the branches come together near Kewaskum, and from there the river flows for another 65–70 miles to its mouth in downtown Milwaukee.

The river has a fair number of riffles, boulders and deep holes, and for most of its length, supports a fairly diverse warmwater fishery. The stretch of river from West Bend to its mouth hosts excellent smallmouth bass populations. There are also seasonal runs of salmon and steelhead from Lake Michigan upstream as far as Grafton. Most stretches of the river are suitable for canoeing, with wooded banks and scenic views in many places. Near the river's union with Cedar Creek, there is a dalles area where both streams cut through limestone and fall considerably. The river has surprisingly good water quality and offers good fishing opportunities, in addition to harboring three species of fish that are either rare or endangered.

The upper portion of this river lies in a rapidly developing area, while the lower portion lies within the Milwaukee urban area. Protection and enhancement of the

Southeast Glacial Plains *ecological landscape*



Abraham's Woods State Natural Area in Green County

natural qualities of this river corridor would provide both an ecological corridor of great value to aquatic and terrestrial species, as well as a recreational corridor that could serve large numbers of people. There already are a substantial number of open space ownerships along the river in the form of county and local parks, golf courses, an airport, a private nature preserve, and the City of Milwaukee's Riverwalk project in the downtown area. These types of facilities could be expanded and linked together to form a more continuous corridor.

The Milwaukee River drains into Lake Michigan near the drinking water intakes for the Cudahy, Milwaukee and North Shore municipal water systems and may affect the raw water quality of these systems. These systems supply drinking water to over 700,000 customers.

MM Monroe - Muralt Prairie

Size Medium
 Protection Initiated Limited
 Protection Remaining Substantial
 Conservation Significance ★★★★★
 Recreation Potential ★★★

Lying in central Green County, west of the Sugar River, this area lies among rolling hills created by an old glacial moraine. The area is primarily an open agricultural landscape with some pastures and fallow farm fields, but is experiencing rapid rural development. Some high quality prairie remnants occur on the rocky hilltops and slopes that are not tillable and a small number of prairie pastures and oak savannas still exist. Wet-mesic prairies exist along the valley floors. Many rare prairie plants and insects occur in pockets throughout the area.

This area presents a very good opportunity to combine the protection of significant amounts of farmland with large-scale prairie restoration. Connecting scattered prairie remnants with restored prairie, fields enrolled in the Conservation Reserve Program, or prairie pastures would provide substantial ecological benefits. Working with the farming community to find ways to keep an open, agricultural-based landscape would also be beneficial. Linking this area to the Albany Wildlife Area and the Sugar River Corridor would offer many recreational and educational opportunities within 40 miles of Madison.

MJ Mukwonago River and Jericho Creek

Size Medium
 Protection Initiated Substantial
 Protection Remaining Substantial
 Conservation Significance ★★★★★
 Recreation Potential ★★★

The Mukwonago River is a very high quality stream containing an enormous diversity of aquatic species. It is fed by a complex of lakes and springs, and flows through a scenic area of hilly, glacial moraine topography. The watershed is home to 40 species of fish and is believed to harbor the largest assemblage of native mollusk species in the state. Three of the fish species and three of the mussel species are either endangered or threatened. About eight miles of the Mukwonago River, upstream from Phantom Lake, are Class I or Class II trout stream. Jericho Creek, a good quality coldwater tributary, also harbors a diverse fishery. Sedge meadows and cattail marshes border the Mukwonago River in many places and are important in maintaining water quality and flow. Oak savanna, prairie, bog relicts and springs are also found in the corridor.

The watershed still contains some large tracts of undeveloped land. It not only presents a good opportunity for protection of natural communities and species, but also could help meet the significant demand for low impact outdoor recreational activities close to the Milwaukee urban area. Fishing and canoeing and various hiking trails could be accommodated. Protection of the Mukwonago River watershed would provide an excellent opportunity to link the Southern Unit of the Kettle Moraine State Forest, the Vernon Marsh Wildlife Area, the Lulu Lake State Natural Area, and the small existing state fishery area. Besides the Wisconsin DNR, Waukesha County and The Nature Conservancy also own park and conservation land in the area.



Monroe-Muralt Prairie in Green County

NE Niagara Escarpment

Size Large
 Protection Initiated Moderate
 Protection Remaining Substantial
 Conservation Significance ★★★★★
 Recreation Potential ★★★★★

This ecological landscape contains the portion of the Niagara Escarpment running from eastern Dodge County to High Cliff State Park in Calumet County. Some areas of particular interest on or near this segment of the escarpment include the Neda Mine, Horicon Ledge Park, Oakfield Ledge, Ledgeview Nature Center and High Cliff State Park.

The Neda Mine, an abandoned iron mine in Dodge County, is already protected as a state natural area, and is one of the largest bat hibernacula in Wisconsin. At least three species of bats are found here and it is estimated that over 50,000 bats hibernate in the maze of mine shafts and tunnels. Horicon Ledge Park is a popular county park that contains a campground and provides a panoramic view of Horicon Marsh from atop the ledge. Expansion of this park, both above and below the ledge, would increase recreation potential and would also provide more protection to natural features.

Oakfield Ledge, in Fond du Lac County, is a very prominent exposure of the escarpment with 40-foot sheer cliffs and numerous deep crevices. This section of the ledge is mostly wooded and contains a number of plant species that are

Southeast Glacial Plains
ecological landscape



Lulu Lake State Natural Area in Walworth County

THOMAS MEYER

unusual in southern Wisconsin, as well as petroglyphs and other cultural artifacts of ancient human inhabitants. Two portions of Oakfield Ledge are presently in state ownership, but quarrying is prevalent in this area and additional protection would be beneficial. Ledgeview Nature Center, near Chilton, is a Calumet County Park that contains a substantial cave. High Cliff State Park is located at the northeast corner of Lake Winnebago and includes both lake shore and a segment of the escarpment. The undisturbed forest on the slope beneath the ledge contains a very rich herbaceous layer, while outstanding examples of conical and effigy mounds are found in the woodlands above the ledge. The park offers a full range of recreational facilities including campgrounds, trails and a beach, and could be expanded to better serve the needs of the growing Fox River Valley.

PT Patrick Marsh

Size Small
Protection Initiated Substantial
Protection Remaining Limited
Conservation Significance ★
Recreation Potential ★★

Patrick Marsh is located in the rapidly urbanizing landscape surrounding Sun Prairie. It was the first wetland mitigation bank site in Wisconsin and has a half-century history of study and data collection. The area is utilized for fishing, birdwatching, walking and nature study and is used as an outdoor classroom for students at Patrick Marsh Middle School. The site would benefit from expanded protection, in particular the wetland complex to the southwest of the marsh, which could serve as an excellent complement to the deep-water nature of Patrick Marsh. Additional uplands could be restored to prairie to enhance the grassland nesting cover around the marsh. Nearby effigy mounds and other artifacts are worthy of protection as well.

RC Raccoon Creek

Size Small
Protection Initiated Limited
Protection Remaining Substantial
Conservation Significance ★★
Recreation Potential ★★

Raccoon Creek is comprised of two spring fed branches totaling about 15 miles long in Wisconsin. The two branches flow southerly from Rock County

into Illinois, where they join and then flow into the Pecatonica River. The watershed is largely agricultural and, despite some degradation of water quality, the creek still has many good natural qualities. Brook trout are being reintroduced into the East Branch of Raccoon Creek.

RL Rush Lake

Size Medium
Protection Initiated Substantial
Protection Remaining Limited
Conservation Significance ★★
Recreation Potential ★★

Located mostly in Winnebago County, Rush Lake is a 3,000-acre shallow, marshy lake that has a fairly undeveloped shoreline. It is the largest prairie pothole lake in the state and is significant for its large migratory and breeding populations of waterfowl and other birds. Forster's terns and red-necked grebes are two rare birds that nest here. Surrounding lands include marsh, sedge meadow, prairie and oak savanna. The lake is located within the DNR's Glacial Habitat Restoration Area, and both the DNR and The Nature Conservancy have protected some lands around the lake.

SH Sheboygan County Trout Streams

Size Medium
Protection Initiated Moderate
Protection Remaining Moderate
Conservation Significance ★
Recreation Potential ★★

This collection of good quality trout streams is located just east of the Kettle Moraine State Forest in Sheboygan County. The streams include the Upper Onion River, Ben Nutt Creek, Mill Creek, Nichols Creek, Chambers Creek and Melius Creek. Portions of some of these streams are already protected in existing DNR projects, but expansion of protection efforts to include all portions of these creeks that support trout would be beneficial. Linking parts of these stream corridors to the state forest could provide additional conservation benefits. Most of the streams would also benefit from improved control of erosion and run-off in their watersheds.

SY Sheboygan River Marshes

Size Medium
Protection Initiated Substantial
Protection Remaining Limited
Conservation Significance ★★ ★★
Recreation Potential ★★ ★

Above the city of Kiel, the Sheboygan River winds through some of the largest wetlands in east-central Wisconsin. The Sheboygan Marsh and its adjacent wetlands are diverse, containing a very large amount of tamarack and cedar swamp, lowland hardwood, open marsh, and open water. These wetlands provide habitat for waterfowl, cranes, herons, terns, furbearers, turtles and frogs. Northern pike and panfish are present in the waterways. The area provides significant outdoor recreation, particularly hunting and fishing, for a large number of people.

The Sheboygan River provides the common thread for linking three major wetland areas together. At the headwaters of the river is the St. Cloud Marsh, almost entirely in private ownership. A few miles downstream is the Sheboygan Marsh County Park and a small, adjacent state wildlife area, which together provide over 8,000 acres of publicly owned land. Further downstream is the Kiel Marsh State Wildlife Area, which is about 800 acres in size. The uplands bordering the wetlands are primarily devoted to agriculture. Protecting the open space around and between these three wetlands would buffer them from conflicting land uses and would link them together in an ecologically valuable corridor. An additional opportunity for linkage exists by protecting the open space that lies between the Sheboygan Marsh and the Northern Unit of the Kettle Moraine State Forest.

The Sheboygan River Marshes drain into the Sheboygan River, which discharges into Lake Michigan near the City of Sheboygan's municipal water system intakes and may affect the raw water quality of that system. The Sheboygan system provides drinking water to approximately 54,400 customers.

SL Shoveler Lakes - Black Earth Trench

Size Small
Protection Initiated Moderate
Protection Remaining Moderate
Conservation Significance ★★
Recreation Potential ★★ ★★ ★

Near the end of the Ice Age, rushing glacial meltwater cut several dramatic channels through a terminal moraine and into Cambrian bedrock southeast of where the village of Cross Plains now sits. An early stage of Glacial Lake Mendota provided much of this meltwater, which drained toward the lower Wisconsin River. STH 14 follows part of one of these channels, but a narrower, more-dramatic, parallel channel remains in a natural state. This channel, or trench, is a mile long, 150' deep and only about 300' wide at its narrowest point. The Shoveler Lakes, which were much larger "pro-glacial" lakes in front of the terminal moraine, once also drained to Black Earth Trench but today drain into sinkholes.

Almost 700 acres are currently in state and federal ownership in the area. Most of this Legacy Place is within the project boundaries of either the Ice Age Trail, Black Earth Creek Fishery Area, or the Cross Plains Reserve, but the most-dramatic part of the trench and a scenic man-made lake are not (although they are within a county resource protection area). Additional protected acreage is likely needed to handle heavy recreational use, particularly hiking, this place is expected to receive in the future. Residential developments and quarries threaten the integrity of the glacial features here.

SV Sugar Creek Valley

Size Small
Protection Initiated Moderate
Protection Remaining Moderate
Conservation Significance ★★ ★★
Recreation Potential ★★ ★

Sugar Creek is a fairly large stream, bordered by wooded slopes in many areas, flowing eastward across Walworth County. The creek is suitable for canoeing and contains northern pike, largemouth bass and panfish. The stream valley is extensively wooded and contains some high quality wetlands. There are areas of springs, fens and sedge



Prairie Blazing Star (*Liatris pycnostachya*) at Swenson Wet Prairie in Rock County



Fall colors in Waupaca County

THOMAS MEYER

meadows. A variety of low impact recreation activities, including hiking, canoeing, and wildlife watching, could be supported here. The DNR recently purchased about 1600 acres of restored wetland at the headwaters of the creek.

SG Sugar River

Size Large
 Protection Initiated Moderate
 Protection Remaining Substantial
 Conservation Significance ★★★★★
 Recreation Potential ★★★★★

Draining off the south side of the Military Ridge, the Sugar River links several large, heavily-used public properties before flowing into the Rock River just south of the Illinois state line. The high quality waters of the Sugar and its many tributaries support excellent warm and cool water fisheries. The river corridor mostly flows through highly productive agricultural land that is under pressure from increasing changes in land use.

Historically, this valley consisted of prairie and oak savanna with some wetlands and bottomland woods. A fair amount of floodplain forest still exists and there is significant potential to restore many of the other natural communities. The Sugar River valley supports many rare terrestrial and aquatic plants, insects, and grassland birds and there are a number of prairie remnants in public and private ownership scattered through the corridor. The Sugar River and several tributaries are classified as Exceptional Resource Waters.

A protected network of corridors in the valley could link Brooklyn, Evansville, Liberty Creek, and Avon Bottoms State Wildlife Areas with the Sugar River State Trail, New Glarus Woods State Park, the Ice Age Trail, the Monroe-Muralt Grasslands, Military Ridge Trail, and the Cheese Country Trail. Given its proximity to other trails, long distance trail recreation could be accommodated here. Recreation activities could also include hunting, fishing, trapping, canoeing, hiking, and camping. Some stream segments have already been protected by easements. The Sugar River has potential for meeting the recreational needs of many people, being within 2 hours drive of Milwaukee, Madison, Janesville, Beloit, Rockford, the Quad Cities, and Dubuque.

UR Upper Rock River

Size Large
 Protection Initiated Limited
 Protection Remaining Substantial
 Conservation Significance ★★
 Recreation Potential ★★★★★

The Upper Rock River, flowing from Horicon Marsh south through Watertown and Jefferson to Fort Atkinson, slowly winds through a mixture of farmland, woods, and marshes. Some large areas of floodplain as well as numerous glacial drumlins characterize the area's topography. The floodplains contain a combination of marsh, grassland, forest and cropland. Widespread flooding is a common occurrence in many areas since the floodplains are extensive and the river has a very slight gradient (the fall of the river from the upper Federal dam in the Horicon National Wildlife Refuge to the upper Watertown dam is just 34 feet over 58 miles). The uplands are mostly farmed and contain scattered woodlots.

The river has good scenic qualities along much of its length and provides opportunities for canoeing, boating and fishing. Wildlife are abundant and, although the Upper Rock does not have good water clarity and contains large numbers of carp, most of the river still supports a fair fishery for northern pike and walleye. Protection of adjacent uplands could possibly permit recreational trails to be developed in some areas. Lowland areas have value for waterfowl and these values could be enhanced through wetland restoration. The area provides hunting opportunities for common game species such as deer, turkey, rabbit, squirrel, pheasant, duck, goose, and woodcock.

In addition to the cities along its banks, the Upper Rock lies within 50 miles of the major population centers of Madison and Milwaukee and considerably closer to many other small and medium-sized communities. As a result, much of this river corridor is within an hour's drive of over half the state's population. Thus, the Upper Rock River offers a unique opportunity to combine natural resource protection, various outdoor recreation activities, and the protection of productive farmland.

Southeast Glacial Plains
ecological landscape



Smallmouth Bass (*Micropterus dolomieu*)

UL Upper Yahara River and Lakes

Size Medium
 Protection Initiated Substantial
 Protection Remaining Limited
 Conservation Significance ★★ ★★
 Recreation Potential ★★ ★★ ★★

This complex includes the Yahara River and numerous tributaries, from the Yahara's origins in southern Columbia County through Lakes Mendota, Monona, Waubesa, and Kegonsa. Portions of the Upper Yahara River support cool to cold water fisheries. Token Creek is currently a Class II brown trout fishery but ongoing restoration efforts are likely to establish this stream as a brook trout stream as well. The origin of trout waters on Token Creek are the Culver Springs, which supply 4,000 gallons per minute of cold spring water.

Fishing and boating on the Yahara Chain of Lakes draws recreationists from throughout Wisconsin, Illinois, and Iowa. The wetlands and other natural areas that exist within the stream corridors of this system provide wildlife habitat and recreational opportunities in this rapidly growing urban area. Critical ground water recharge areas have been identified which are important for both spring flow and protection of drinking water wells. There is currently a mix of local, county and state-owned lands along the Yahara River system that provide numerous outdoor recreation opportunities and conservation benefits. These include Cherokee Marsh (a combination of City, County and State lands), the Upper Waubesa, Lower Mud Lake, and Door Creek Fishery Areas, three state parks (Governor Nelson, Lake Kegonsa, and the newly-created Capital Springs), the Nine Springs E-Way, Lake Farm County Park, the old lagoon system of the Madison Metropolitan Sewerage District, and other local holdings. These existing efforts provide an excellent foundation for additional protection strategies.

WB White River and Bloomfield Area

Size Small
 Protection Initiated Limited
 Protection Remaining Moderate
 Conservation Significance ★★ ★★
 Recreation Potential ★★ ★★

Located in Walworth County, this area has diverse upland and wetland habitat and contains several lakes. There are fens, sedge meadows, tamarack relicts and bogs. Three existing state wildlife areas could be incorporated into protection efforts, which could extend from the White River southward to the Ivanhoe Marsh and the extensive wetland north of Pell Lake. The White River is scenic in spots and is suitable for canoeing. It contains largemouth and smallmouth bass, northern pike and panfish.

WM White River Marsh and Uplands

Size Medium
 Protection Initiated Substantial
 Protection Remaining Limited
 Conservation Significance ★★ ★★ ★★
 Recreation Potential ★★

Occupying much of northwestern Green Lake County, this vast wetland complex harbors a diversity of wetland types surrounded by uplands of forest and farmland. The White and Puchyan Rivers join the Fox River here and all three rivers slowly wind through mostly open wetlands. Of particular note are the many high quality sedge meadows, emergent marshes, and wet prairies that occur throughout this system. These wetlands, along with the nearby Germania and Grand River Marshes, provide important waterfowl nesting habitat and draw hundreds of thousands of migratory birds, especially sandhill cranes, during the spring and fall. The surrounding uplands are only slightly higher than the wetlands in this relatively flat landscape. Wet mesic prairie covers a significant portion of the transition zone between the sedge meadows and oak-dominated upland forest. A few very resistant bedrock outcrops are found near the marsh that harbor plants and animals specialized to live on bare rock.

The marsh is a favorite hunting location for residents in east central Wisconsin. Wildlife watching is growing in popularity here with the best opportunities during the fall concentration of waterfowl and sandhill cranes.

Although distant from this area, these waters eventually flow into Lake Winnebago, the source of water for the Oshkosh, Neenah, Menasha, and Appleton municipal water systems. As a result, water from this area may affect the raw water quality of those municipal systems, which provide drinking water for approximately 162,000 customers.



The Ring-necked Pheasant (*Phasianus colchicus*) is one of Wisconsin's most popular game birds.

Legacy Places *along the Kettle Moraine*



Jersey Kame in the Kettle Moraine State Forest

During the most recent period of glaciation, several lobes of the Laurentide Ice Sheet covered much of what is now Wisconsin (see Figure 10). As it moved south, the ice sheet plowed over much of the state with massive walls of ice hundreds to thousands of feet thick. Over time, as the earth began to warm again and the ice sheet began to melt, countless streams and rivers flowed off the glacier. Since the ice was thinnest between the lobes, these low areas became channels of flowing water in which rocks and dirt were deposited.

Billions of tons of rock, gravel and sand (which had been picked up earlier by the ice sheet) were deposited into the channel between the Lake Michigan and Green Bay lobes. When the lobes finally melted away, these former “channels” were exposed and formed a 120-mile long, 300-foot high series of ridges — what geologists refer to as an “inter-lobate moraine.” The steep-sided pits

found in the area were formed when huge chunks of ice in the moraine melted and the earth above caved in. These pits reminded early settlers of cooking pots and they named them “kettles.”

Extending from Manitowoc County southward to Walworth County, this area, now referred to as the “Kettle Moraine,” contains some of the country’s most impressive glacial features. A number of very distinct Ice Age landforms were created, including eskers, kettles, crevasse fills, kames, and glacial spillways. Some of the deeper kettle holes contain ponds and lakes. The unique topography and geology of the Kettle Moraine creates great variations in site characteristics such as soils, slope, sun exposure and drainage. This results in a very diverse collection of plant and animal communities, including numerous rare species.

Southeast Glacial Plains
ecological landscape



Smooth Green Snake (*Opheodrys vernalis*)

KM Kettle Moraine State Forest

Size Large
Protection Initiated Substantial
Protection Remaining Moderate
Conservation Significance ★★★★★
Recreation Potential ★★★★★

There are presently five separate units of the Kettle Moraine State Forest. The large Northern and Southern Units together total about 50,000 acres and comprise the majority of the State Forest. In between these large units are the much smaller Lapham Peak, Loew Lake, and Pike Lake Units, which total less than 3,000 acres. Maple, basswood, ash and hickory prevail in the Northern Unit with oak dominating in the Southern Unit. Oak savanna and prairie were once common in the southern part of the Kettles and efforts are being made to restore some of these communities. Several different types of wetlands are found in the Units of the Kettle Moraine State Forest, including hardwood swamp, tamarack swamp, bog, fen, and wet prairie.

Lying in close proximity to the Milwaukee metropolitan area, the State Forest is very heavily used for hunting, fishing, camping, swimming, hiking, cross-country skiing, horseback riding, snowmobiling, and off road biking. In some cases, recreation demand has exceeded the desired level of use and conflicts between users, as well as degradation of some natural communities, has occurred. The Ice Age Trail corridor runs the full length of the Kettle Moraine, although many segments are not completed. Completing the Trail and finding ways to disperse and alleviate the demand for recreation opportunities in the Kettle Moraine remains a priority.

The entire area is under some of the state's most intense development pressure. Expanding and buffering existing public properties is important in maintaining the ecological integrity of the Kettle Moraine State Forest and sustaining appropriate levels of recreational use.

MK Middle Kettle Moraine

Size Medium
Protection Initiated Substantial
Protection Remaining Substantial
Conservation Significance ★★★★★
Recreation Potential ★★★★★

The Middle Kettle Moraine is that portion of the Kettle Moraine landscape that lies between the existing Northern Unit and Southern Unit of the Kettle Moraine State Forest. It contains the same distinct glacial landforms as the rest of the Kettle Moraine as well as a dozen or so large lakes and numerous smaller lakes. Most of the lakes are very heavily developed and there is little opportunity remaining for protecting significant amounts of natural shoreline. Development is occurring at a rapid pace throughout the entire Middle Kettle Moraine, and it is doubtful that any large block of land can be protected that would extend from the Northern Unit to the Southern Unit of the state forest. The best strategy might be to expand the existing units of the state forest somewhat and to link existing units together with the Ice Age Trail corridor. The Trail corridor could be a quarter-mile or more wide in some sections, but would be much narrower in areas that already contain dense housing development.

One area within the Middle Kettle Moraine that might offer some possibility of protecting a larger block of land is the area centered around Holy Hill and extending from Lucas Lake, near West Bend, south to the vicinity of North Lake. This area contains interlobate moraine and a variety of upland and lowland communities including mesic forest, wet forest, marsh, tamarack swamp, sedge meadow, and bog. A few of the lakes here still retain stretches of undeveloped shoreline (often wetland) that harbor good quality natural communities. Cedar Creek, a Priority Watershed Area, and the Oconomowoc and Little Oconomowoc Rivers, both of which have good water quality, drain the area. Two small units of the Kettle Moraine State Forest, Loew Lake and Pike Lake, occur here and are described in the adjacent narrative. In addition, the recently acquired Polk Kames Ice Age Trail property, a 140-acre county park, and several scattered parcels protected by various private conservation organizations are located in this area. Together, these properties could form a nucleus for future protection efforts.

MH Millhome Woods

Size Small
Protection Initiated Limited
Protection Remaining Moderate
Conservation Significance ★★
Recreation Potential ★★★

Located east of Kiel in southern Manitowoc County, Millhome Woods consists of over 2,000 acres of high quality southern mesic forest. The area is a northern portion of the Kettle Moraine and is characterized by gravelly soils and hilly topography. This block of woods is important to forest-interior birds; cerulean warbler, hooded warbler, and acadian flycatcher have all been recorded here. Millhome Creek, which flows through the woods, hosts impressive trout populations.

SK Southern Kettle Moraine: Whitewater Lake to Turtle Creek

Size Medium
Protection Initiated Limited
Protection Remaining Substantial
Conservation Significance ★★
Recreation Potential ★★★★★

This area contains the southern-most extension and oldest part of the Kettle Moraine glacial deposits. The topography is hilly in the central area bounded by lower plains on the south and east sides. There is a substantial amount of forest on the uplands, with marshes and drained wetlands in the low areas. There are a few lakes in the area, including one small undeveloped lake, and a large amount of frontage on Turtle Creek. Several high quality sedge meadows and fens are found along Turtle Creek and Lake Comus.

Protection of this area would link the state forest to the north with a state wildlife area to the south. If public access were allowed, this area would be well suited for a number of recreation activities, including such things as hunting, wildlife watching, nature study, and various trail types. Turtle Creek is a high quality stream that is suitable for both canoeing and fishing. This wide corridor is within easy driving distance of the Milwaukee and Madison metropolitan areas as well as Janesville, Beloit, Racine and Kenosha.

Southeast Glacial Plains *ecological landscape*

Other Areas of Interest

Allenton-Theresa Marsh Connection (Washington County)

These two existing state wildlife areas lie along the East Branch of the Rock River. Establishing a connecting link would permit wildlife to move freely along a riverine and wetland corridor.

Burlington Hills Woods (Racine County)

A large area of glacial ridges forested with oak woods and patches of dry hill prairie, this is the largest remaining upland woods in Racine County. It is threatened by sand and gravel mining.

Caledonia Wetlands (Racine County)

This open wetland contains some seasonal ponds that attract a large number of migratory waterfowl and shorebirds. The area is partially owned by the Town of Caledonia.

CamRock Park Area (Dane County)

This area is located along Koshkonong Creek and includes the popular CamRock County Park. Breaching of a former dam in the park has improved water quality in the creek and makes expansion of a protection corridor along the creek desirable.

Central Waukesha County Drumlins and Creeks (Waukesha County)

Between Waukesha and Delafield lies a large drumlin field that is undergoing rapid land use change. Further south, Pebble Creek and Genesee Creek are two good quality stream corridors that support diverse habitats, as well as some trout, adjacent to large urban centers.

Dyer Lake Area (Kenosha County)

This 56-acre lake hosts a good fishery for northern pike, bass and panfish. Nearby wetlands and drained wetlands could be protected and restored to provide hunting, fishing and wildlife watching opportunities.

Elizabeth Lake Wetlands (Kenosha County)

This area contains a good quality wetland of sedge meadow, shallow marsh and shrub-carr at the southwest end of Elizabeth Lake.

Genesee Creek and Spring Brook (Waukesha County)

These coldwater streams harbor trout as well as several endangered and threatened species in a rapidly growing area of the state. Spring Brook flows through two relatively lightly-developed lakes that support good panfish and bass populations.

Honey Creek (Racine County)

Several floristically rich, high quality fens, sedge meadows, emergent marshes, and tamarack swamps occur along a string of small lakes. Adjacent wooded uplands provide important habitat and help buffer the wetlands. Some state owned land exists.

Hurias Lake Woods and Bog (Ozaukee County)

Hurias Lake is a shallow, hardwater seepage lake. The surrounding wetlands provide valuable waterfowl and wildlife habitat and support several species typically found much further north. Farm fields surround the wetlands. Land uses in the area are changing rapidly.

Lake Beulah Bog and Pickerel Lake Fen (Walworth County)

This high quality bog lies adjacent to Lake Beulah and hosts a wide diversity of plants. The nearby Pickerel Lake Fen harbors several rare plants, some in great abundance. One of the state's largest populations of beaked spike-rush occurs in the fen and on the adjacent uplands are large colonies of northern kittentails, a state-Threatened plant. Pickerel Lake, a 30-acre undeveloped spring lake surrounded by wetlands, receives heavy waterfowl use and also hosts a fishery of panfish, northern pike and bass.

Mill and Mud Creeks (Calumet County)

These steep-gradient streams rise from springs at the base of the Niagara Escarpment and flow into Lake Winnebago. Both contain good forage fish and macroinvertebrate communities. Mill Creek also contains brook trout.

Mitchell's Glen (Green Lake County)

This small, scenic glen harbors a unique flora and many interesting birds. This site also has archaeological significance.

Mole Creek and Swamp (Ozaukee County)

This small stream contains a good quality coldwater fishery. Green ash, alder and red-osier dogwood dominate the adjacent swamp.

Mullet Lake and Upper Mullet River (Fond du Lac and Sheboygan Counties)

This shallow, 200-acre lake is bordered by a large expanse of tamarack swamp and cattails. Considerable numbers of ducks use the lake and bordering wetlands throughout the year. The Mullet River flows from the lake, through Mullet Creek Wildlife Area and very close to the Kettle Moraine State Forest, providing a connecting corridor for these areas. A short segment of the Mullet River is a trout stream.

Paradise Lake Fen (Washington County)

Lying along Paradise Lake just outside of West Bend, this fen contains a good quality sedge mat and deep and shallow marsh.

Poplar Creek (Waukesha County)

Poplar Creek is a relatively natural stream corridor in an urbanized area and harbors a diversity of plant and animal species. This area is also an important ground water recharge area.

Southeast Prairie Pothole Area (Racine, Kenosha and Walworth Counties)

This is an area of former extensive wetlands, prairie and oak savanna. There are many good opportunities for restoration of wetlands and waterfowl habitat on selected parcels.

St. Peters and Westport Prairies (Dane County)

A series of dry to mesic prairies, that are an extension of the Arlington prairie lobe, located north and east of Middleton.

Stony Brook (Calumet County)

The County's only trout water, Stony Brook is fed by springs along its path to the South Branch of the Manitowoc River. Farming dominates the small watershed. Maintaining and restoring water quality and base flows and providing improved public access could enable many nearby residents to enjoy fishing in these waters.

Toland Swamp (Washington County)

This area contains about 200 acres of wetland in the Town of Erin. Good quality occurrences of swamp hardwood, tamarack, and shrub-carr are present.

Troy Wildlife Area (Walworth County)

This existing state wildlife area consists of four separate parcels containing grassland, marsh and farmland. These parcels provide valuable habitat for pheasants, ducks, woodcock and furbearers. The conservation and recreation values of these parcels would be enhanced if open space buffers were established between them.

Wacousta Tamaracks (Fond du Lac County)

This large, good quality tamarack swamp is located about one mile west of the Kettle Moraine State Forest boundary.

Wind Lake Swamp and Eagle Lake Wetlands (Racine County)

Wind Lake Swamp is a large block of tamarack that is converting to hardwoods due to agricultural drainage on adjacent lands. Eagle Lake wetlands consist of shallow marsh and shrub-carr.