

Biodiversity Stewardship Areas
Complete Guide to Review of Proposed
Northern Lower Peninsula Biodiversity Stewardship Areas



Living Legacies: Managing Michigan's Diverse Natural Places

The purpose of this guide is to provide basic information necessary to review the proposed Northern Lower Peninsula Biodiversity Stewardship Areas, provide a list of additional and more detailed review resources that are also available and to provide instructions on how to share your comments about the proposed Biodiversity Stewardship Areas with the DNRE.

Components of the Guide:

- [Introduction and Overview](#)
- [Proposed Northern Lower Peninsula Biodiversity Stewardship Areas Summary Table](#)
- [Public Review Instructions](#)
- [Additional Review Resources Available](#)

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Living Legacies: Managing Michigan's Diverse Natural Places

What makes Michigan, Michigan?

Look around you ... a big part of what makes this state special is the incredible diversity of life here and the unique natural places they call home:

- a songbird that nests only in northern Michigan and nowhere else in the world
- a fungus that may be one of the world's largest living organisms
- a 'walking' fern
- the Great Lakes region's only poisonous snake
- mussels buried in river beds
- majestic white pines
- whitetailed deer that roam both peninsulas

These organisms and the natural places (or ecosystems) of which they're a part are all important pieces of our state's rich biological heritage – what scientists call Michigan's biodiversity. Every piece is connected and together they're a big part of what makes Michigan unique.

To conserve this part of Michigan's identity – our biological heritage – we must conserve Michigan's ecosystems: the very places that support the natural processes where living organisms interact with each other and with the water, soil, air and other non-living things around them.

People are part of these ecosystems. We interact with all of the other elements. We depend upon the 'services' they provide – clean water to drink, air to breathe, protection from flooding, and more. Our lives are enriched by the benefits of healthy ecosystems – medicines derived from native plants; timber that supports building and job creation; and extraordinary places to walk, fish, hunt, watch and think. We all play a role in ensuring that this natural legacy exists and thrives for future generations.

The Department of Natural Resources and Environment (DNRE) has a responsibility to conserve our state's biological heritage. One way we are doing this is through an initiative we call "Living Legacies" – an effort to identify, restore and manage those places in Michigan that, together, best represent the diversity of Michigan's biological heritage. It's about making sure these many different ecosystems and the life within them become a long-lasting legacy for Michigan.

The conservation of biodiversity is an important part of the DNRE's mission. Living Legacies will help the DNRE to address legislative requirements, inform department planning efforts, fulfill a long-standing commitment to stakeholders, and prioritize expenditure of limited resources.

Michigan is a national leader with this comprehensive strategy to conserve the legacy of our biological heritage. The initiative is built on sound scientific principles, while respecting the diverse ecological, social, and economic values and perspectives that are important to Michigan's citizens. Through Living Legacies, Michigan is writing another chapter in its long history of thoughtful, forward-thinking natural resources stewardship.

Biodiversity Stewardship Areas

The goal of the Living Legacies initiative is to establish a statewide network of places that together best represent the diverse nature of our state's biological heritage (biodiversity) and that represent strong opportunities for long-term conservation of the ecosystems that sustain Michigan's biological heritage.

Upon final DNRE approval, each place within this network will be given the DNRE's planning designation of Biodiversity Stewardship Area (BSA). Each BSA may include one or more ecosystems that likely spread across several ownerships (private and public), because nature doesn't typically recognize political boundaries. The BSA designation will inform landowners that have property within BSA boundaries of the importance of their land to conserving Michigan's biological heritage.

On the portions of BSAs for which the DNRE is responsible, we are committed to emphasizing conservation of Michigan's biological heritage through our management, with a focus on restoring and maintaining the ecosystems that exist or have the potential to be restored within the BSAs. Non-DNRE lands within BSAs are equally important to Michigan's biological heritage, but it is up to individual landowners to determine if and how they will use that information. The DNRE hopes that this designation will lead to partnerships that help to conserve Michigan's unique biological heritage.

History and Background

The State of Michigan has a long and accomplished history of both public and private natural resource conservation, beginning in the late 19th century. This legacy presently includes a system of State and National Forests, National Parks, State Game and National Wildlife Refuges, Commercial Forests, and conservancy-owned lands exceeding 10 million acres.

In order to help enable sustainable natural resource management and the conservation of the State's biological heritage for future generations, the Department of Natural Resource (now DNRE) adopted in 2005 a "Biodiversity Conservation Planning Process," with the stated goal of cooperating with other landowners, to conserve, restore and protect the biological diversity of Michigan. One of the means identified to accomplish this was the establishment of a network of representative natural communities (functioning ecosystems) on a portion of DNR administered lands across the state.

In 2006, the DNRE began to compile information about areas that appeared to have the potential to be BSAs. And in 2009, the DNRE initiated, in partnership with many other stakeholders, evaluation of potential areas in the Northern Lower Peninsula and Upper Peninsula. The evaluation process for the Southern Lower Peninsula began in late-2010.

The DNRE is now beginning a public review of a set of proposed BSAs for the northern Lower Peninsula. Public review of a set of proposed BSAs for the Upper Peninsula will occur in 2011, followed by public review of a set of proposed BSAs for the Southern Lower Peninsula.

Identification and Designation of Proposed Biodiversity Stewardship Areas

The first step for the DNRE was to gather as much information as we could about potential BSAs. The DNRE completed an analysis to identify potential areas using all the data we had available to us. We asked other organizations for similar analyses. We asked DNRE staff and the public for recommendations of potential areas through workshops and submission of recommendation forms.

The DNRE organized and then provided this gathered information to regional teams (Core Design Teams) of DNRE staff, representatives from Michigan tribes, and representatives of a diverse set of stakeholder organizations and interest groups. The DNRE asked the Core Design Teams to use the information we had gathered, along with their personal and organizational knowledge, to evaluate the potential areas and then recommend to the DNRE of a set of BSAs for their region that they felt best accomplished the goal of the initiative. The DNRE provided the Core Design Teams a set of criteria on which we asked them to base their evaluation of potential BSAs:

- Functionality – consideration of whether or not all of the pieces of represented ecosystems that are necessary for them to continue to exist and thrive are present, restorable or could be mimicked through management.
- Quality and Condition – consideration of the current characteristics of the place, and whether there are any indicators of high quality ecosystems present, such as rare species or vegetative conditions that require many years to develop.
- Social and Economic Values – consideration of the potential positive and negative effects on other values as a result of designation as a BSA and consideration of potential additional costs to manage an area following designation.
- Ecosystem Representation – consideration of how well a potential area would represent a particular type of ecosystem or represent variation that may occur within that ecosystem type. While two bog ecosystems that occur in different parts of the state will have much in common, they may vary significantly as a result of differences in soil, climate and other characteristics that change across the state. To conserve the full biological heritage of Michigan, we need to conserve examples of the significant variation that occurs within ecosystem types.

There were no priorities associated with these four criteria. Instead the Core Design Teams were asked to consider them all, weigh them against each other and try to find the best balance as they made decisions about which potential BSAs to recommend to the DNRE.

The Core Design Team recommendation to the DNRE passed through several levels of internal-DNRE review and revision with consideration of the same criteria described above. The Northern Lower Peninsula region is the first set of potential BSAs to make it through the internal-DNRE review process, and the DNRE has proposed a set of BSAs for the region that are based on the Core Design Team's recommendation. These proposed BSAs are being shared with the public with a request for review and feedback. After a final internal-DNRE review to consider the public feedback received, DNRE staff will recommend a set of BSAs for designation to upper management staff and the Director. The Director will make the final decision on which places receive the BSA designation.

Recommendations and decisions about the areas designated are made based on the best information that is available. However, this information is not complete. As we learn more about these places (and other potential places) through surveys, restoration and management efforts, and communication with partners, we may find that there is a need to add, remove, or modify the designations. The entire statewide network of BSAs will go through a formal review and revision process at least once every ten years.

Management and Use of Biodiversity Stewardship Areas

The BSA designation is a planning designation that informs landowners that have property within BSA boundaries of the importance of their land to conservation of Michigan's biological heritage. The DNRE has committed to emphasizing conservation of Michigan's biological heritage on the portions of BSAs that we manage and will seek opportunities to work in partnership with others who share a common interest.

The DNRE encourages other interested landowners within BSA boundaries to implement actions that may benefit conservation of biological heritage, and avoid actions that may cause it harm. In this way, the BSA designation can inform a landowner's decisions about use and management of their lands, but it does not require or restrict any specific actions by the landowner. The designation does not affect any previously existing legal or other formal commitments a landowner has made in regards to their lands and it does not change the ability of the public to access their lands. The DNRE will seek opportunities to partner with and assist other interested landowners, such as providing information about the kinds of actions that might benefit or harm conservation of

biological heritage. Some opportunities may be available through current DNRE private land and outreach programs.

Planning for and management of the portions of BSAs that occur on DNRE-managed lands will occur through our normal land management planning processes that include opportunities for public participation. For each BSA that includes DNRE-managed lands, we will describe in the associated planning document (e.g., Regional State Forest Management Plan, State Game Area Master Plan, State Park Management Plan) the conditions that we would like to achieve in the portions of the BSA that we manage, based on the ecosystems that occur there or have the potential for restoration. This description will include information about the kinds of plant and animal species we believe the ecosystems should support and the desired structure of vegetation within the ecosystem(s), as well as the natural processes (i.e., flooding, fire, wind) that must be in place or mimicked through management to achieve and maintain the desired species composition and vegetative structure. We will work to achieve the desired conditions through implementation of management activities followed by evaluation to ensure that the management activities are having the desired effect. Some BSAs may already have the desired conditions and may only require minimal management to maintain those conditions. Other BSAs may be very far from the desired conditions and may require extensive management over 100 years or more to achieve those conditions.

In general, land uses that promote or do not impact or detract from conservation of Michigan's biological heritage (biodiversity) are acceptable within DNRE-managed portions of BSAs. Most historical or existing land uses that are already in place will continue and new uses may be allowed if they will not detract from the ability to achieve the desired conditions of the BSA. These uses may include, but are not limited to, recreation, mineral extraction, and timber harvests. Uses will be assessed for their impacts and possible alternatives within DNRE planning processes. Legal or contractual obligations or other restrictions on use of DNRE-managed lands due to previous designations or due to the funds with which the land was purchased will continue to apply, regardless of the BSA designation.

Proposed Biodiversity Stewardship Areas in the Northern Lower Peninsula

The 151 proposed Biodiversity Stewardship Areas in the Northern Lower Peninsula encompass approximately 678,000 acres (6%) of just over 12 Million total acres in the region. The smallest proposed BSA is 26 acres and the largest is 36,847 acres. They include many different types of ecosystems, from sink holes to dunes to prairies to northern hardwood forests, and also represent some of the variation that occurs in the Northern Lower Peninsula within these ecosystem types.

The proposed BSAs include many different types of ownership, including:

- Approximately 254,000 acres (12%) of a little over 2 Million acres of DNRE-managed lands in this region
- Approximately 217,000 acres (19%) of a little over 1 Million acres of Federally-managed lands in this region
- Approximately 205,000 acres (2%) of a little under 9 Million acres of private lands in this region.
- Approximately 2,000 acres (22%) of around 10,000 acres of remaining ownership types in this region, composed entirely of lands managed by other units of state and local government.

Diverse ecological, social, and economic values and perspectives were considered during development of the network of BSAs. Given these considerations, we believe the proposed BSAs in the Northern Lower Peninsula represent the best opportunities for maximizing conservation of Michigan's biological heritage through conservation of ecosystems, while minimizing the potential for negative effects on other land uses and values.

Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
36th Street Barrens	366	Newaygo	National Forest	A forested area with a small documented example of Oak-Pine Barrens (fair to poor). This area supports several rare plant and animal populations.
5 Mile Creek Swamp	1,197	Newaygo	Private	A forested wetland complex with a large documented example of Hardwood-Conifer Swamp (good to fair). This area includes a portion of the Natural Rivers designation on 5 Mile Creek.
Alcona Dam Forest	22,256	Alcona	National Forest	A matrix of Dry-Mesic Northern Forest with many other embedded natural communities, including large documented examples of Dry Northern Forest (good to fair), Dry-Mesic Northern Forest (2-good to fair), and Rich Conifer Swamp (good to fair), and additionally a small documented example of Poor Fen (good to fair). This area represents a variation of Dry-Mesic Northern Forest that occurs within ice-contact topography (landforms that resulted from melt water deposits during the last period of glaciers in Michigan). This area includes older stands of white pine, red pine, and red oak (especially at the southern end). Most of the area was previously designated as Potential Old Growth. It also includes a small area previously designated as an Ecological Reference Area, and supports a Great Blue Heron rookery and a number of rare plant and animal populations.
Alcona Dam Pond Complex	3,744	Alcona/ Iosco	National Forest	A complex of forested wetland and forest communities, that include large documented examples of Dry Northern Forest (good to fair) and Floodplain Forest (good to fair), and a small documented example of Rich Conifer Swamp (excellent to good). Most of the area was previously designated as Potential Old Growth, and it also includes a portion of State Natural Rivers and Federal Wild and Scenic Rivers designations on the AuSable River. The area additionally supports several rare plant and animal populations.
Arcadia Dunes	410	Manistee	Private	A complex of dune communities along Lake Michigan that is backed by forest and includes a small documented example of Open Dunes (fair). This area supports several rare plant and animal populations.
Au Gres Dunes	2,071	Arenac	Private	A complex of dune communities along Lake Huron that includes a large documented example of Wooded Dune and Swale (fair). Almost the entirety of the area is within a previously designated Ecological Reference Area.
Au Sable Islands Forest	90	Oscoda	National Forest	A forested area within the AuSable River corridor that includes river islands and a small documented example of Floodplain Forest (fair). This area also includes a portion of a Natural Rivers designation on the AuSable River and supports a rare plant and a rare animal population.
Bear Lake Swamp	183	Manistee	Private	An area of forested and non-forested wetland communities, including a large documented example of Poor Conifer Swamp (excellent to good; highest ranked example in state) and a small documented example of Submergent Marsh (good).

There are differences between the above places proposed by the DNRE and those originally recommended by the Core Design Team. To learn more about these differences, view the [map showing both sets of places](#) and review the [DNRE's rationale for the differences](#).

* See end of table (p. 28) for descriptions of previous designations mentioned and for source of documented examples.

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Name	Acres	County(ies)	Primary Ownership	Summary Description *
Bear Swamp	5,213	Mason/ Lake	National Forest	A high-quality complex of forested and non-forested wetland communities, including large documented examples of Northern Hardwood Swamp (excellent to good) and Rich Conifer Swamp (good to fair), and small documented examples of Intermittent Wetland (good) and Bog (fair). This area has a high probability of representing a greater expanse of high-quality Intermittent Wetland and Bog, as well as many additional high-quality wetland communities, including Hardwood-Conifer Swamp, Northern Wet Meadow, Northern Shrub Thicket, and Poor Conifer Swamp. Most of the area was previously designated as Potential Old-Growth or as a Research Natural Area, and additionally includes two areas previously designated as Ecological Reference Areas. This area also supports a Great Blue Heron rookery and a number of rare plant and animal populations.
Beaver Creek Wetlands	3,727	Oceana	National Forest/ Private	A high-quality complex of forested and non-forested wetland communities, including small documented examples of Bog (2-good) and Poor Conifer Swamp (good). This area has a high probability of representing a greater expanse of high-quality Bog and Poor Conifer Swamp, as well as additional high-quality wetland communities, including Northern Hardwood Swamp, Hardwood-Conifer Swamp, Northern Shrub Thicket, and Northern Wet Meadow. A large portion of the area was previously designated as Potential Old Growth and it additionally includes two small areas previously designated as Ecological Reference Areas. It also supports a Great Blue Heron rookery.
Beaver Island Archipelago Complex	18,455	Charlevoix	State Wildlife Area	A very high-quality complex of many large and small patch natural communities (particularly Great Lakes shoreline communities) across several Lake Michigan islands. Large documented examples of natural communities include: Boreal Forest (excellent), Coastal Fen (excellent), and Open Dunes (1-good, 1-fair). Small documented examples of natural communities include: Boreal Forest (2-good to fair, 1-fair), Coastal Fen (1-excellent to good, 1-good, 1-good to fair), Dry-Mesic Northern Forest (good), Great Lakes Marsh (2-excellent to good), Hardwood-Conifer Swamp (excellent), Interdunal Wetland (1-good to fair, 1-fair), Limestone Cobble Shore (fair), Mesic Northern Forest (1-good, 1-fair), Northern Wet Meadow (excellent), Open Dunes (4-fair), Rich Conifer Swamp (good), Sand and Gravel Beach (2-excellent), and Wooded Dune and Swale (fair to poor). There is a high probability of the area representing a greater expanse of high-quality Boreal Forest and Mesic Northern Forest, as well as additionally representing high-quality Poor Fen. The natural communities have good natural function due to the remoteness of the islands. This area includes all or significant portions of a large number of previous designations, including two areas nominated for legal protection under the Wilderness and Natural Areas statute, two areas designated as natural areas through other means, four Critical Dunes areas, three areas designated as critical habitat for the endangered Piping Plover, seven Coastal Environmental Areas, thirteen Ecological Reference Areas, and three Potential Old Growth areas. It also supports a large number of rare plant and animal populations and a Great Blue Heron rookery.

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Name	Acres	County(ies)	Primary Ownership	Summary Description *
Bee Nimble and Pugsley Barrens	1,240	Wexford	State Forest	Primarily a barrens area, with two small documented examples of Pine Barrens (1-good to fair, 1-fair), The area has a high probability of also representing Dry Northern Forest. It includes an area that was previously designated as Potential Old-Growth and supports a rare plant population.
Benzie Moraines Forest	2,053	Benzie	State Forest	A forested area which may be the best or even only potential place to represent a large patch of Mesic Northern Forest near the northern Lake Michigan shore. The presence of white pine and eastern hemlock in this area indicates that it is a high-quality example of Mesic Northern Forest. Most of the area was previously designated as Potential Old Growth and it also supports a rare animal population.
Benzie Shoreline Complex	17,714	Benzie/ Leelanau	National Park/ Private	A high-quality Lake Michigan shoreline complex that includes dune, forest and wetland communities. The proposed Biodiversity Stewardship Area is composed of multiple non-adjacent areas within the same general vicinity. Large documented examples of natural communities include: Interdunal Wetlands (good to fair), Mesic Northern Forest (fair), Open Dunes (1-excellent to good, 1-good, 2-good to fair), and Wooded Dune and Swale (2-excellent). Small documented examples of natural communities include: Boreal Forest (fair), Great Lakes Barrens (good), Interdunal Wetlands (good to fair), and Open Dunes (2-fair). This area has a high probability of representing many additional high-quality forest, wetland, and other non-forest communities, including Floodplain Forest, Dry-Mesic Northern Forest, Dry Northern Forest, Northern Shrub thicket, Northern Wet Meadow, Northern Fen, Emergent Marsh, Submergent Marsh, Sand and Gravel Beach, Rich Conifer Swamp, Poor Conifer Swamp, and Great Lakes Marsh. This area includes all or significant portions of a large number of previous designations, including eight Critical Dunes areas, one area designated as critical habitat for the endangered Piping Plover, eight Ecological Reference Areas, and it includes a portion of a Natural Rivers designation on the Betsie River. Additionally, it includes a number of nature preserves owned by The Nature Conservancy and a number owned by the Grand Traverse Land Conservancy. It also supports a large number of rare plant and animal populations.
Big Rock Forest	1,585	Charlevoix	Private	A complex of forest, forested wetlands and non-forested wetlands, including a small documented example of Boreal Forest (poor), along the northern Lake Michigan shore. This area has a high probability of representing additional wetland and other non-forest communities, including Limestone Cobble Shore and Rich Conifer Swamp. It also supports several rare plant populations. A portion of the area is owned by Little Traverse Land Conservancy.
Black Forest Wetlands	3,287	Cheboygan	State Forest	A complex of non-forested wetland communities that includes a small documented example of Intermittent Wetland (excellent to good). The area also includes a previously designated Ecological Reference Area, and supports a rare plant population.

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Name	Acres	County(ies)	Primary Ownership	Summary Description *
Black River Ranch Barrens	2,344	Montmorency	Private	A matrix of Pine Barrens with other embedded natural communities. The area includes a large documented example of Pine Barrens (fair), which is the largest documented example in the northern Lower Peninsula and the second largest in the State. It also supports a rare animal population. The primary landowner is currently working with the DNRE on barrens restoration through the Landowner Incentive Program.
Black River Wetlands	2,223	Cheboygan	State Forest	A complex of forested and non-forested wetland communities. While it doesn't have any documented examples of particular natural communities, there is a high probability that this area represents several wetland communities which are not well represented in other areas, such as Floodplain Forest, Poor Conifer Swamp and a variation of Sand and Gravel Beach that occurs on inland lakes. The area includes two previously designated Potential Old Growth areas, and supports several rare plant and animal populations.
Blockhouse Creek Wetland Complex	1,498	Oscoda/ Alcona	National Forest	A complex of forested and non-forested wetland communities, including a large documented example of Rich Conifer Swamp (good to fair), and a small documented example of Dry-Mesic Northern Forest (fair). The area has a high probability of representing many additional wetland communities, including Emergent Marsh, Submergent Marsh, Northern Wet Meadow and Northern Shrub Thicket. Most of this area was previously designated as a Research Natural Area, or as Potential Old Growth. It also includes a portion of a Natural Rivers designation on the AuSable River.
Blue Lake Marshes	183	Mecosta	Private	A non-forested wetland area, including a small documented example of Emergent Marsh (fair). It also supports a rare animal population.
Boardman Sand Lakes Forest	3,935	Grand Traverse/ Kalkaska	State Forest	A high-quality matrix of Dry-Mesic Northern Forest with many other embedded natural communities. The area includes a large documented example of Dry-Mesic Northern Forest (good to fair), and two small documented examples of Northern Fen (1-excellent to good, 1-good to fair). Exceptional stand structure with the area and natural regeneration of White Pine and Red Pine are indicators of high quality. Most of the area was previously designated as the Sand Lakes Quiet Area and as Potential Old Growth. The area includes two previously designated Ecological Reference Areas and a portion of a Natural Rivers designation on the Boardman River. It also supports a rare plant population.
Bowman Hills Forest	1,527	Lake	National Forest	A complex of forested wetland and forest communities, including a large documented example of Floodplain Forest (good). Additionally, the area has the potential for large-scale restoration of Dry-Mesic Northern Forest and Mesic Northern forest. Most of the area was previously designated as Potential Old Growth. The area includes a previously designated Ecological Reference area and portions of State Natural River and Federal Wild and Scenic River designations on the Pere Marquette River. It also supports several rare animal populations and a rare plant population.

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Bridge Lake Wetlands	197	Grand Traverse	Private	A complex of forested and non-forested wetland communities, including a small documented example of Hardwood-Conifer Swamp (fair). The area has a high probability of representing a greater expanse of high-quality Hardwood-Conifer Swamp and additional high-quality wetland communities, including Rich Conifer Swamp, Poor Conifer Swamp, Northern Shrub Thicket, and Submergent Marsh. It also supports a rare animal population.
Burns Road Bog	323	Midland	State Forest	A probable good-quality Bog community, including a complex of ridges and depressions, with leatherleaf and stunted Red Pine, White Pine and Jack Pine in the depressions.
Buttles East Forest	380	Montmorency	State Forest	A probable Mesic Northern Forest area, with a reasonably flat topography, vernal ponds, Eastern Hemlock and Northern White Cedar.
Canfield Lake Barrens	265	Manistee	Private	A forested area with a small documented example of Oak-Pine Barrens (fair).
Casin Lake Barrens	1,837	Mason	National Forest	A barrens area with two documented examples of Oak-Pine Barrens (2-fair). The area also supports a rare plant and a rare animal population. A portion of the area was previously designated as Potential Old Growth, and as part of a Research Natural Area.
Casin Lake Wetlands	58	Mason	Private	A complex of non-forested wetland communities with small documented examples of Submergent Marsh (good) and Bog (fair).
Cathead Bay Dunes	5,063	Leelanau	State Park/ Private	A complex of dune communities along Lake Michigan that is backed by forest and includes a large documented example of Mesic Northern Forest (good to fair), and small documented examples of Open Dunes (good), Interdunal Wetlands (fair), and Great Lakes Barrens (good). This area has a high probability of representing national forest and wetland communities, including Dry-Mesic Northern Forest and Bog. The area includes all or significant portions of a number of previous designations, including two previously designated Ecological Reference Areas, an area designated as critical habitat for the endangered Piping Plover, two Critical Dunes areas, and an area designated as a natural area (but not protected under the Wilderness and Natural Areas statute). It also supports a number of rare plant and animal populations and includes several nature preserves owned by the Leelanau Land Conservancy. This area is an important landfall and jumping off point for migratory birds.
Cedar Wetlands	3,579	Leelanau	State Forest/ Private	A complex of forested and non-forested wetland communities that includes large documented examples of Rich Conifer Swamp (good) and Northern Fen (excellent to good, largest documented example in the state). This area has a high probability of representing many additional high-quality wetland communities, including Hardwood-Conifer Swamp, Northern Hardwood Swamp, Northern Wet Meadow, Northern Shrub Thicket, Poor Conifer Swamp, Emergent Marsh, and Submergent Marsh. A portion of the area was previously designated as Potential Old Growth. It also includes a couple of nature preserves owned by the Leelanau Land Conservancy, and supports a rare animal population.

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Charlevoix Dunes	139	Charlevoix	Private	A complex of dune communities along Lake Michigan that is backed by forest and includes a small documented example of Open Dunes (fair). This area has a high probability of representing additional shoreline communities, including Interdunal Wetland, Great Lakes Barrens, Sand and Gravel Beach, and Limestone Cobble Shore. The entirety of the area is within previously dedicated critical habitat for the endangered Piping Plover, and most of the area is also within a previously designated Critical Dunes area. Additionally, two portions of the area are within a City Park and a Township Nature Preserve. It also supports several rare plant populations.
Cheboygan Point Shoreline Complex	4,524	Cheboygan	State Park/ Private	A high-quality Lake Michigan shoreline complex that includes dune and wetland communities. Large documented examples of natural communities include Great Lakes Marsh (excellent to good), Rich Conifer Swamp (fair), and Wooded Dune and Swale (fair). Small documented examples of natural communities include Coastal Fen (good), two Interdunal Wetlands (1-good, 1-good to fair), and two Open Dunes (2-fair). This area includes a number of previous designations, including an area designated as critical habitat for the endangered Piping Plover, two Coastal Environmental Areas, and five Ecological Reference Areas. It includes a nature preserve owned by The Nature Conservancy and also supports many rare plant and animal populations.
Chippewa Salt Forest	449	Midland	State Forest	A probable Dry-Mesic Northern Forest area between the Chippewa and Little Salt Rivers, which is mainly upland with a mixture of Aspen, Oak, and Maple, with a small component of White Pine and Red Pine. Almost the entirety of the area is within a previously designated Potential Old-Growth area. It also supports a couple of rare plant populations.
Chub Lake Swamp Complex	3,061	Otsego	State Forest/ Private	A complex of forested and non-forested wetland communities with a high probability of representing many wetland communities, but currently including only one documented example - a small example of Northern Shrub Thicket (excellent). The area includes a couple of previously designated Potential Old Growth areas and a portion of a Natural Rivers designation on the AuSable River. It also supports several rare animal populations.
Compartment 50 Swamp Complex	304	Grand Traverse	State Forest	A probable forested and non-forested wetland complex, likely with Mesic Northern Forest on a bluff and mixed Northern Hardwood Swamp and Hardwood-Conifer swamp within a floodplain area. The area includes a number of springs and seeps that feed into the Boardman River. Much of the area was previously designated as a Potential Old Growth area, and it also includes a portion of a Natural Rivers designation on the Boardman River.
Compartment 66 Swamp	220	Iosco/ Alcona	State Forest	A probable high-quality Hardwood-Conifer Swamp area with large Northern White Cedar and Tamarack.
C-Shaped Depression Fen	78	Crawford	State Forest	A forest area dominated by Jack Pine that includes a small documented example of a Northern Fen (fair). The area supports a rare plant and a rare animal population.

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Damon Forest	26,366	Ogemaw/ Roscommon	State Forest	A complex that includes a matrix of Dry Northern Forest and a matrix of Pine Barrens with other embedded natural communities, as well as a small documented example of Dry Northern Forest (excellent to good). This area may represent the best opportunity for large-scale barrens restoration in the Northern Lower Peninsula, and perhaps even in the Upper Great Lakes Region. It also supports several rare plant and animal populations and most of it is within a designated management area for the federally endangered Kirtland's Warbler. A small portion of the area is within a legally dedicated Natural Area that additionally includes a previously designated Ecological Reference Area, and another portion was previously designated as Potential Old Growth.
Deadstream Swamp	17,707	Roscommon/ Missaukee	State Forest	A complex of forested and non-forested wetland communities, but without any documented examples of any particular natural community. This area has a high probability of representing several wetland communities, including Poor Conifer Swamp and Rich Conifer Swamp. The natural communities have good natural function due to the remoteness and roadless character of the area. It also supports a couple of rare animal populations. Most of the area was previously designated as a National Natural Landmark, and additionally, there are portions of four previously designated Proposed Old Growth areas.
Devil's Lake Shoreline Complex	2,774	Alpena	Private	A complex of shoreline communities along Lake Huron that includes large documented examples of Great Lakes Marsh (good) and Wooded Dune and Swale (good to fair), and a small documented example of Coastal Fen (good). This area includes several previous designations, including two Ecological Reference Areas, a Coastal Environmental Area, and an area of Proposed Old Growth. It also supports a rare animal population and includes a nature preserve owned by The Nature Conservancy.
Duck Lake Wetland Complex	910	Cheboygan	State Forest	A complex of non-forested wetland and forest communities that includes two small documented examples of Intermittent Wetland (1-excellent to good, 1-good). The area also likely represents Dry-Mesic Northern Forest (pine-dominated) and Bog (jack pine with leatherleaf). This area includes a natural area that was designated through a cooperative agreement with The Nature Conservancy and two previously designated Ecological Reference Areas. It also supports a rare plant population.
Duck Marsh Complex	1,107	Lake	National Forest	A complex of non-forested wetland and forest communities that includes two small documented examples of Intermittent Wetland (1-good, 1-good to fair). The area has a high potential for representing a greater expanse of high-quality Intermittent Wetland and also high-quality Bog. It also supports a couple of rare plant and animal populations and includes two previously designated Ecological Reference Areas and a small portion of a Wild and Scenic River designation.
Dudgeon Swamp	800	Newaygo	National Forest	A complex of forested wetland communities that includes a large documented example of a Hardwood-Conifer Swamp (good to fair).

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Featherbed Marsh Complex	1,070	Mecosta	State Wildlife Area	A complex of non-forested wetland communities that includes a large documented example of Bog (fair). It also supports a rare animal population.
Fife Lake Creek Wetlands	451	Wexford	State Forest/Private	A complex of forested and non-forested wetland communities that includes a small documented example of Northern Wet Meadow (good)
Fisherman's Island Complex	4,867	Charlevoix	State Park	A complex of shoreline and inland communities along Lake Michigan that includes small documented examples of Open Dunes (fair), and Interdunal Wetlands (fair). Limestone Bedrock Lakeshore has also been documented, but not yet rated. This area has really good potential for large-scale restoration of Dry-mesic Northern Forest and a variation of Mesic Northern Forest that occurs in lakeplain areas (flat landforms created as sediments settled out of the then much larger Great Lakes that formed after the last period of glaciers in Michigan). A portion of the area was previously designated as a Critical Dunes area and as critical habitat for the endangered Piping Plover. It also supports a number of rare plant and animal populations.
Fletcher Barrens	2,336	Kalkaska	State Forest	A barrens area that includes a small documented example of Oak-Pine Barrens (fair) and has the potential for restoration of a greater expanse of Oak-Pine Barrens. It also supports several rare plant and animal populations. A portion of the area is within a designated management area for the federally endangered Kirtland's Warbler.
Flower Creek Marsh	235	Oceana/Muskegon	Private	A forested and non-forested wetland complex along the Lake Michigan shore that includes a small documented example of Great Lakes Marsh (good to fair). This area includes a small portion of a previously designated Critical Dunes area and the entirety of an Ecological Reference Area.
Fox Islands Complex	4,262	Leelanau	State Wildlife Area	A high quality complex of many natural community types across two Lake Michigan islands. Large documented examples of natural communities include: Mesic Northern Forest (1-excellent, 1-good to fair), Boreal Forest (1-excellent to good, 1-good to fair), and Open Dunes (excellent). Small documented examples of natural communities include Northern Hardwood Swamp (excellent) and Sand and Gravel Beach (good). It has the potential for large-scale restoration of Mesic Northern Forest and also supports many rare plant and animal populations. This area has a number of previous designations, including two Critical Dunes areas, two areas of Critical Habitat for the endangered Piping Plover, and two Ecological Reference Areas.
Frost Pocket Barrens	1,357	Oscoda	State Forest	A Jack Pine barrens area that includes a small documented example of Pine Barrens (fair). Almost the entirety of this area was previously designated as Potential Old Growth. It also supports a number of rare plant and animal populations.
Fry Lake Marsh	89	Newaygo	National Forest	A non-forested wetland surrounded by forested lands that includes a small documented example of Coastal Plain Marsh (good to fair). It also supports a couple of rare plant populations.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Gladwin Pines Forest	108	Gladwin	State Forest	A probable Dry-Mesic Northern Forest area with upland ridges between inclusions of potentially high-quality wetlands that may include Intermittent Wetland, Bog and Northern Shrub Thicket. Much of this area was previously designated as Potential Old Growth.
Good Hart Forest	20,367	Emmet	State Forest/ Private	A matrix of Mesic Northern Forest along the northern Lake Michigan shore with many other embedded natural communities that includes three small documented examples of Mesic Northern Forest (2-fair to poor, 1-poor). The Mesic Northern Forest is dominated by sugar maple and is considered to be the highest quality in the Northern Lower Peninsula, even though the documented examples are not ranked particularly high. The area has great potential for large-scale restoration of Mesic Northern Forest and includes pockets of older trees, some of which are approximately 130 years old. This area includes several nature preserves owned by the Little Traverse Land Conservancy, and one township nature preserve. It also supports a number of rare plant and animal populations and includes a small portion of a designated Critical Habitat area for the endangered Piping Plover.
Grass Lake Wetlands	6,179	Benzie/ Grand Traverse	State Forest	A high quality complex of forested and non-forested wetland communities. While it doesn't have any documented examples of particular natural communities, there is a high probability that this area represents several high-quality wetland communities, including Poor Conifer Swamp, Rich Conifer Swamp, Northern Hardwood Swamp, Northern Wet Meadow, Northern Shrub Thicket, Emergent Marsh, and Submergent Marsh. Much of this area was previously designated as Potential Old Growth and it additionally includes a portion of a Natural Rivers designation on the Betsie River. It also supports a rare animal population and two Great Blue Heron rookeries.
Grass River Complex	1,338	Antrim	Local Government	A complex of natural communities within the Grass River corridor that includes high-quality and good-quality forested and non-forested wetland communities and restorable upland communities. While it doesn't have any documented examples of particular natural communities, there is a high-probability that this area represents a number of natural communities, including Rich Conifer Swamp, Mesic Northern Forest, Bog, Mesic Prairie, Submergent Marsh, and Northern Shrub Thicket. It also supports a couple of rare animal populations. Almost the entirety of the area is owned by the County and managed as a natural area.
Green Swamp	5,941	Montmorency /Otsego	State Forest	Primarily a forested wetland area that includes a large documented example of Rich Conifer Swamp (good, largest documented example in the Northern Lower Peninsula). It also supports a number of rare plant and animal populations. A large portion of the area was previously designated as Potential Old Growth.
Hammond Bay Dunes	3,732	Presque Isle	Private	A complex of dune communities that includes a large documented example of Wooded Dune and Swale (fair). It also supports a rare plant population.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Hartwick Pines Forest	6,787	Crawford	State Park	A complex of primarily forest communities that includes small documented examples of Dry Northern Forest (good to fair), Dry-Mesic Northern Forest (good to fair), and Northern Shrub Thicket (good). The area has the potential for large-scale representation of Mesic Northern Forest and Dry-Mesic Northern Forest. This area includes a portion of a Natural Rivers designation on the AuSable River and an Ecological Reference Area. A large portion of the area has been zoned as 'backcountry' through the State Park planning process. It also supports many rare plant and animal populations.
Heald Creek Wetlands	392	Newaygo	National Forest/ Private	A complex of forested and non-forested wetland communities that includes a small documented example of Rich Conifer Swamp (fair). It also supports a couple of rare plant and animal populations and includes a portion of a Natural Rivers designation on the White River, as well as several areas previously designated as Potential Old Growth.
Hobart Swamp	1,384	Wexford	Private	A complex of forested and non-forested wetland communities that includes a large documented example of Poor Conifer Swamp (good), and small documented examples of Bog (good to fair) and Rich Conifer Swamp (good to fair). It is also a deer wintering area and an important bear area, as well as including a portion of a Natural Rivers designation on the Pine River.
Hoop Lake Bog	26	Cheboygan	State Forest/ Private	A bog area that includes a small documented example of Bog (fair). Most of the area was previously designated as an Ecological Reference Area, and a portion of it as Potential Old Growth.
Hopper's Swamp	5,618	Manistee/ Mason/ Lake	National Forest	A complex of forested wetland and forest communities that includes a large documented example of Northern Hardwoods Swamp (good) and small documented examples of Intermittent Wetland (good to fair) and Bog (good to fair). The area has the potential for large-scale restoration of Dry-Mesic Northern Forest, and to represent additional high-quality wetland communities, including Hardwood-Conifer Swamp, Northern Shrub Thicket, Emergent Marsh and Submergent Marsh. Most of the area has been previously designated either as Potential Old Growth or as an Ecological Reference Area (three total). It also supports a number of rare animal populations.
Horton Bay Forest	2,388	Charlevoix	Private	A probable complex of forested wetland and forest communities within a drumlin field landscape (a landform that resulted from deposition of material by glaciers during the last period of glaciers in Michigan). This area has the potential for large-scale representation of Mesic Northern Forest. It also includes two nature preserves owned by the Little Traverse Land Conservancy.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Houdek Dunes	245	Leelanau	Private	A probable complex of dune communities on the western shore of the Leelanau Peninsula. While the area doesn't have any documented examples of particular natural communities, there is a high probability that the area represents several dune communities, including Open Dunes, Great Lakes Barrens, Mesic Northern Forest, and Dry-Mesic Northern Forest. The entirety of the area is within a previously designated critical dunes area and almost all of it is within the Houdek Dunes Natural Area owned by the Leelanau Land Conservancy.
Howes Lake Prairie Complex	620	Crawford/ Kalkaska	State Forest	A complex of forest and prairie that includes scattered small documented examples of Wet-Mesic Sand Prairie (good). There is a high probability that the area also represents Dry Northern Forest and possibly also Pine Barrens. It also supports many rare plant and animal populations and a large portion of the area was previously designated as Potential Old Growth.
Hudson Creek Wetland Complex	13,226	Roscommon	State Forest	A complex of forested and non-forested wetland communities, but without any documented examples of any particular natural community. This area has a high probability of representing several good-quality wetland communities, including Northern Wet Meadow, Northern Shrub Thicket, and Poor Conifer Swamp. The area includes unique characteristics not represented elsewhere, such as wet jack pine and pine islands within a bog (due to a high water-table). This area is also unique from a connectivity and functionality perspective due to its extensive size. The area includes a portion of a Natural Rivers designation on the AuSable River and includes several previously designated Potential Old Growth areas. It also supports a rare plant population and a Great Blue Heron rookery.
Hughes Swamp	3,908	Mecosta	State Wildlife Area	A complex of forested and non-forested wetland communities that includes a large documented example of Hardwood-Conifer Swamp (good, largest documented example in the state). The area has high probability of representing a greater expanse of high-quality Hardwood-Conifer Swamp and additional high-quality wetland communities, including Rich Conifer Swamp, Poor Conifer Swamp, Northern Hardwood Swamp, Northern Wet Meadow, Northern Shrub Thicket, and Bog. It also supports a rare animal population and includes an Ecological Reference Area.
Hunt Creek Swamp	286	Oscoda/ Montmorency	State Forest	Primarily a forested wetland area that includes a large documented example of Rich Conifer Swamp (good). This area includes a unique red pine stand and it also supports a rare plant population. Most of the area is within a Fisheries Research Station.
Huron National Forest Bog	358	Crawford	National Forest	A bog area that is surrounded by forest and non-forest natural communities and includes a small documented example of Bog (excellent). Most of the area has been previously designated as a Research Natural Area, Potential Old Growth or an Ecological Reference Area. It also supports a rare plant population.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Indian Lake Complex	2,390	Newaygo	National Forest	A primarily forest area with inclusions of many other upland and wetland natural communities that includes small documented examples of Dry Sand Prairie (good) and Intermittent Wetland (good to fair). There is a high probability of the area additionally representing high-quality Bog. This area includes an Ecological Reference Area and a small portion of a previously designated Potential Old Growth area. It also supports many rare plant and animal populations and includes an area of frost pockets.
Ingerman Bog Complex	61	Lake	Private	Primarily a forested wetland area with a small documented example of Poor Conifer Swamp (good to fair).
Jefferson Bogs	285	Oceana	Private	An area of numerous bogs embedded within a forest area that includes small documented examples of Bog (good to fair). A large portion of the area was previously designated as an Ecological Reference Area.
Jordan Valley Forest	18,941	Antrim	State Forest	A matrix of Mesic Northern Forest with many other embedded natural communities. While the area doesn't have any documented examples of particular natural communities, it is an area with potential for large-scale restoration of Mesic Northern Forest within a glacial moraine area (large landforms created by material that was first carried by and then deposited at the ends or sides of glaciers during the last period of glaciers in Michigan). There is a high probability of the area representing additional natural communities, including Dry-Mesic Northern Forest, Hardwood-Conifer Swamp, Northern Hardwood Swamp, and Rich Conifer Swamp. This area includes two large previously designated Potential Old Growth areas and an area designated as a natural area (but not protected under the Wilderness and Natural Areas statute), as well as a portion of a Natural Rivers designation on the Jordan River. It also supports a couple of rare animal populations and includes a portion of a nature preserve owned by Michigan Nature Association.
Kirchner Lake Wetlands	400	Newaygo/ Oceana	Private	A complex of forested and non-forested wetland communities that includes a small documented example of Rich Tamarack Swamp (good).
Kruzel's Bog Complex	46	Emmet	Private	An area of non-forested wetland that includes a small documented example of Northern Fen (good), likely surrounded by other forested and non-forested wetland communities. A large portion of the area is within a previously designated Ecological Reference Area and most of the area is within a nature preserve owned by Little Traverse Land Conservancy. It also supports a rare plant population.
Lake 16 Bog	226	Cheboygan	State Forest	A complex of forested and non-forested wetland communities that includes a small documented example of bog (good). This area includes a small portion of a Natural Rivers designation on the Pigeon River.

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Name	Acres	County(ies)	Primary Ownership	Summary Description *
Lake Augusta Thompsons Harbor Shoreline Complex	30,479	Presque Isle	Private	A high-quality complex of shoreline communities along Lake Huron, including some communities that are found only in the Great Lakes region, that is adjacent to a large complex of forested and non-forested wetland communities. The area includes a large documented example of Northern Shrub Thicket (excellent to good) and small documented examples of Coastal Fen (excellent), Emergent Marsh (excellent to good), Great Lakes Marsh (good), Limestone Bedrock Glade (1-good, 1-good to fair, 1-fair), Limestone Cobble Shore (excellent to good), Northern Fen (excellent to good), and Rich Conifer Swamp (good). There is a high probability of the area representing additional natural communities including a large area of Rich Conifer Swamp intermixed with Boreal Forest. This area also includes three previously designated Ecological Reference Areas, a legally dedicated natural area, an area of critical habitat for the federally endangered Piping Plover, and several area previously designated as Potential Old Growth. A portion of the area has been zoned as either 'backcountry' or 'primitive' through the State Park planning process. It also supports a large number of rare plant and animal populations.
Lake Margrethe Wetland Complex	572	Crawford	State Forest	A complex of non-forested wetland and forest communities that includes a large documented example of Intermittent Wetland (good, largest documented example in the state). Most of this area is either within a previously designated Potential Old Growth Area or an Ecological Reference Area, or both. It also supports several rare plant and animal populations.
Lake Sixteen Wetlands	643	Presque Isle	State Forest	Primarily a non-forested wetland area that includes a large documented example of Intermittent Wetland (good). This area includes a natural area that was designated through a cooperative agreement with The Nature Conservancy and coincides with an Ecological Reference Area. It also supports a rare plant population and includes a small area previously designated as Potential Old Growth.
Leverentz Lake Forest Complex	121	Lake	State Forest	A complex of forested wetland and forest communities along the Baldwin River corridor that includes very old White Pine and Eastern Hemlock. While it doesn't have any documented examples of particular natural communities, there is a high probability that the area represents Mesic Northern Forest. Most of this area was previously designated as Potential Old Growth and it also includes a portion of a Natural Rivers designation on the Pere Marquette River.
Little Cannon Wetlands	903	Kalkaska	State Forest	A complex of forested and non-forested wetland communities that includes a large representative example of Northern Wet Meadow (good). There is a high probability of the area representing a greater expanse of high-quality Northern Wet Meadow and additional high-quality wetland communities, including Northern Shrub Thicket, Rich Conifer Swamp, Poor Conifer Swamp, and Bog. A small portion of this area is within a previously designated management area for the federally endangered Kirtland's Warbler and it additionally includes a portion of a Natural Rivers designation on the Upper Manistee River. It also supports a couple of rare animal populations.

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Name	Acres	County(ies)	Primary Ownership	Summary Description *
Long Lake and North Lake Bogs	911	Grand Traverse/ Benzie	State Forest	A complex of non-forested wetland and forest communities that includes two small representative examples of Bog (1-excellent to good, 1-good). There is a high-probability of the area representing a greater expanse of high-quality Bog and it has potential for restoration of Dry-Mesic Northern Forest. It also supports a rare animal population and several plant populations that are indicative of high-quality Bog. The entirety of this area is within a previously designated Special Conservation Area (due to its uniqueness). Additionally, the area includes two previously designated Ecological Reference Areas and an area of Potential Old Growth.
Long Lake Islands Forest	51	Grand Traverse	Private	A set of three forested islands within Long Lake that include a small documented example of Mesic Northern Forest (good to fair). There is a high probability of the area representing a greater expanse of high-quality Mesic Northern Forest. Two of the islands are nature preserves owned by the Grand Traverse Land Conservancy.
Long Lake Marsh	76	Wexford	State Forest	Primarily a non-forested wetland area that includes small documented examples of Submergent Marsh (good) and Northern Wet Meadow (fair). It also supports a rare animal population.
Long Swamp Complex	3,316	Alpena	State Forest	A complex of forested and non-forested wetland communities. While it doesn't have any documented examples of particular natural communities, there is a high probability that the area represents several wetland communities, including Northern Hardwood Swamp and Northern Shrub Thicket. DNRE staff describe this area as a "unique hydrological complex." It also supports a couple of Great Blue Heron rookeries.
Loon Lake Complex	1,384	Newaygo	National Forest/ Private	A complex of forested and non-forested wetland communities with forest communities that includes a number of small documented examples of Coastal Plains Marsh (good). There is a high-probability of the area representing a greater expanse of high-quality Coastal Plains Marsh and additional high-quality wetland communities, including Bog and Poor Conifer Swamp. There is also the potential for Wet-Mesic Sand Prairie to occur in association with the Coastal Plains Marsh. This area has small ridges of naturally regenerated Red Pine within some of the wetlands. It also supports several rare plant populations and is largely within a previously designated Ecological Reference Area, as well as being partially with a Research Natural Area.
Loud Dam Complex	4,466	Iosco	National Forest	A complex of forested and non-forested wetland communities with forest communities that includes small documented examples of Northern Fen (good to fair) and Dry-Mesic Northern Forest (good to fair). There is a high probability of the area representing a greater expanse of high-quality Dry-Mesic Northern Forest and additional high-quality wetland communities, including Rich Conifer Swamp, Poor Conifer Swamp, Hardwood-Conifer Swamp, Northern Shrub Thicket, Northern Wet Meadow, Emergent Marsh, and Submergent Marsh. This area is almost entirely within a previously designated Potential Old Growth area and also includes a previously designated Ecological Reference Area, as well as a portion of a Natural River designation on the AuSable River. It also supports a couple of rare animal populations.

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Name	Acres	County(ies)	Primary Ownership	Summary Description *
Lovell's Bog	50	Crawford	State Forest	Primarily a Bog area that includes a small documented example of Bog (good). Almost the entirety of this area is within a previously designated Ecological Reference Area.
Lovell's Fen	41	Crawford	State Forest	A fen area surround by forest that includes a small documented example of Poor Fen (good). Almost the entirety of this area is within a previously designated Ecological Reference Area.
Lower Bear River Wetlands	6,638	Charlevoix/ Emmet	State Forest	A complex of forested and non-forested wetland communities that includes a large documented example of Rich Conifer Swamp (good). The area supports a couple of rare plant and animal populations and a nature preserve owned by the Little Traverse Land Conservancy.
Lower Manistee Wetland Complex	12,348	Manistee	National Forest	A high-quality complex of primarily forested and non-forested wetland communities within the Manistee River corridor. Large documented examples of natural communities include Emergent Marsh (good to fair), Floodplain Forest (good), Great Lakes Marsh (fair), Northern Shrub Thicket (fair), and Northern Wet Meadow (fair, largest documented example in the state). Small documented examples of natural communities include Dry-Mesic Northern Forest (fair), Emergent Marsh (good to fair), Floodplain Forest (fair), Mesic Northern Forest (fair), Northern Wet Meadow (good to fair), Rich Conifer Swamp (good to fair), and Submergent Marsh (fair). This area includes a previously designated Special Conservation Area and Ecological Reference Area, as well as a large portion of a Wild and Scenic Rivers designation on the Manistee River. A large portion of this area was previously designated as Potential Old Growth and a small portion of this area is within a previously designated Special Conservation Area (due to its uniqueness). It also supports a number of rare animal populations and two Great Blue Heron rookeries.
Mack Lake Forest	22,701	Oscoda	National Forest	A complex that includes a matrix of Dry Northern Forest and a matrix of Pine Barrens with other embedded natural communities. This area is dominated by Jack Pine and represents a variation of Dry Northern Forest that occurs in very dry situations. It also supports a number of rare plant and animal populations and includes an area of previously designated Potential Old Growth.
Maple River Complex	4,230	Emmet/ Cheboygan	Private	A complex of forested and non-forested wetland communities with an adjacent forest area along the shore of Burt Lake. The area includes a large documented example of Mesic Northern Forest (excellent to good), and small documented examples of Northern Shrub Thicket (good to fair) and Northern Wet Meadow (good to fair). This area includes a University of Michigan Biological Station and a portion of a nature preserve owned by the Little Traverse Land Conservancy. It also supports several rare animal populations.
McDonald Forest	205	Alcona	National Forest	Primarily a forest area with Red Pine and White Pine that begins to transition into swamp. A large portion of this area is within a Research Natural Area. It includes a small documented example of Dry-Mesic Northern Forest (good to fair).

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Name	Acres	County(ies)	Primary Ownership	Summary Description *
Minnehaha Wetlands	2,405	Emmet	State Forest/ Private	A complex of forested and non-forested wetland communities that includes a large documented example of Rich Conifer Swamp (good) and a small documented example of Emergent Marsh (good). This area includes four previously designated Ecological Reference Areas. It also supports a couple of rare animal populations.
Mitchell Swamp	6,173	Wexford	National Forest	A complex of forested and non-forested wetland communities that includes large documented examples of Bog (2-excellent to good), and Muskeg (excellent to good), and small documented examples of Bog (1-good to fair, 1-fair), Hardwood-Conifer Swamp (good to fair), Mesic Northern Forest (fair), Poor Conifer Swamp (fair), and Rich Conifer Swamp (good to fair). There is also a high probability of the area representing a greater expanse of high-quality Rich Conifer Swamp and Poor Conifer Swamp, as well as additional high-quality wetland communities, including Northern Wet Meadow and Northern Shrub Thicket. Most of this area has been previously designated as Potential Old Growth, or as a Research Natural Area, or as both. It also supports several rare animal populations and includes four previously designated Ecological Reference Areas.
Molasses River Complex	7,533	Gladwin/ Arenac	State Forest	A complex of forested and non-forested wetland communities with forest communities. While it doesn't have any documented examples of particular natural communities, there is a high probability of the area representing several high-quality wetland communities, including Emergent Marsh, Northern Hardwood Swamp, Northern Wet Meadow. There is likely also Dry-Mesic Northern Forest, which is composed of red maple mixed with red oak, black oak, white oak, and green ash. The area has a good potential for restoration of White Pine-Hemlock dominated Hardwood Conifer Swamp.
Mullen Creek Swamp	450	Newaygo	Private	Primarily a complex of forested wetland communities that includes a large documented example of Hardwood-Conifer Swamp (good to fair). There is also the potential for this area to represent additional high-quality wetland communities, including Northern Wet Meadow, Northern Shrub Thicket, Northern Fen and Northern Hardwood Swamp. This area includes a portion of a Natural Rivers designation on the White River. It also supports a rare plant population.
Muskegon Floodplain Complex	2,001	Clare	State Forest/ Private	A complex of forested and non-forested wetland communities within the Muskegon River corridor that includes two small documented examples of Floodplain Forest (1-good, 1-good to fair). This area includes two previously designated Ecological Reference Areas, and two previously designated Potential Old Growth areas. A portion of the area has been zoned as either 'backcountry' or 'primitive' through the State Park planning process.

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Name	Acres	County(ies)	Primary Ownership	Summary Description *
Neahatawanta Shoreline Complex	520	Grand Traverse	Private	A complex of shoreline communities that includes two non-adjacent, but near-by areas along the shore of Old Mission Point, as well as Marion Island (or Power Island). The area includes large documented examples of Mesic Northern Forest (good to fair) and Wooded Dune and Swale (fair). This is a high probability of addition high-quality natural communities, especially on Marion Island, including Boreal Forest, Dry-Mesic Northern Forest, Hardwood-Conifer Swamp, Sand and Gravel Beach, Northern Shrub Thicket, Emergent Marsh and Submergent Marsh. This area includes a previously designated Ecological Reference Area and a portion of the area is within a nature preserve owned by Grand Traverse Land Conservancy. Marion Island is owned by Grand Traverse County and is managed as a park.
Negwegon Shoreline Complex	21,708	Alcona/Alpena	Private	A complex of shoreline communities along Lake Huron that includes large documented examples of Great Lakes Marsh (good) and Wooded Dune and Swale (1-good to fair, 1-fair). The area has the potential to represent many additional wetland and forest communities. This area has a number of previous designations, including five Coastal Environmental Areas, two Ecological Reference Areas and two Potential Old Growth areas. It also supports a number of rare plant and animal populations.
Newaygo Barrens	2,485	Newaygo	National Forest	A high-quality complex of forest, barrens and prairie communities that includes small documented examples of Dry Sand Prairie (1-good to fair, 2-fair) and Coastal Plain Marsh (good). There is a high probability of the area representing a greater expanse of high-quality Coastal Plain Marsh, as well as Oak-Pine Barrens and high quality Dry-Mesic Northern Forest of the driest variety. The area has potential for restoration of additional Oak-Pine Barrens and Dry-Mesic Northern Forest. This area includes two previously designated Ecological Reference Areas and a Research Natural Area. It also supports many rare plant and animal populations.
Newaygo Complex	4,605	Newaygo	Private	Primarily a complex of forest and prairie communities, that's adjacent to a smaller complex of forested and non-forested wetland communities. The area includes small documented examples of Dry Sand Prairie (1good, 2-fair), Dry-Mesic Northern Forest (good to fair), Hardwood-Conifer Swamp (fair), and Northern Shrub Thicket (good). There is a high probability of the area representing a greater expanse of high-quality Hardwood-Conifer Swamp and Northern Shrub Thicket, as well as additional high-quality natural communities, including Coastal Plain Marsh, Northern Wet Meadow, Wet-Mesic Sand Prairie, and Bog. This area includes a previously designated Ecological Reference Area, an experimental forest area, and two nature preserves, one township owned and the other owned by Michigan Nature Association. It also supports very many rare plant and animal populations.

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* See end of table (p. 28) for descriptions of previous designations mentioned and for source of documented examples.

Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Nordhouse Complex	20,645	Mason	National Forest	A very high-quality complex of shoreline and inland communities that includes large documented examples of Great Lakes Barrens (excellent), Interdunal Wetlands (excellent) and Open Dunes (excellent), as well as three small documented examples of Bog (1-good, 2-fair). There is also a high probability of the area representing additional high-quality natural communities, including Floodplain Forest, Emergent Marsh, Submergent Marsh, Sand and Gravel Beach, Northern Wet Meadow, Northern Shrub Thicket, and Dry-Mesic Northern Forest. This area includes a number of previous designations, including a Congressionally Designated Wilderness area, four Ecological Reference Areas, an area of critical habitat for the federally endangered Piping Plover, two Critical Dunes areas, a Potential Old Growth area, an area designated as a natural area (but not protected under the Wilderness and Natural Areas statute), and an area proposed for legal protection under the Wilderness and Natural Areas statute. It also supports very many rare plant and animal populations.
North and South Manitou Islands Complex	19,707	Leelanau	National Park	A matrix of Mesic Northern Forest on a Lake Michigan island (North Manitou) with other embedded natural communities, as well as a complex of shoreline and forest communities on another near-by island (South Manitou) that also includes a large documented example of Open Dunes (excellent), and small documented examples of Mesic Northern Forest (1-good to fair, 1-fair) and Boreal Forest (fair). Additionally, there is a high probability of representing Dry-Mesic Northern Forest, Sand and Gravel Beach, and Sinkhole. This area has several previous designations, including an Ecological Reference Area, three Critical Dunes areas, and an area of critical habitat for the Federally endangered Piping Plover. It also supports a large number of rare plant and animal populations.
North Branch Wetlands	220	Oceana	National Forest	A complex of non-forested wetland communities that includes several small documented examples of Northern Wet Meadow (good to fair). There is also a high probability of the area representing additional wetland communities, including Northern Shrub Thicket, Emergent Marsh, and Submergent Marsh. This area includes portions of a State Natural Rivers designation and a Federal Wild and Scenic River designation on the White River.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
North Pointe Rockport Shoreline Complex	36,847	Alpena/ Presque Isle	Private	A high-quality complex of shoreline communities along Lake Huron, including some communities that are found only in the Great Lakes region. There are a number of Lake Huron small islands that are part of this area. The area includes large documented examples of Coastal Fen (excellent), Great Lakes Marsh (1-good, 1-good to fair), and Rich Conifer Swamp (good), as well as small documented examples of Boreal Forest (good), Coastal Fen (excellent), Limestone Bedrock Lakeshore (excellent), Limestone Cliff (good), Northern Fen (2-good), and Sinkhole (excellent to good). The Boreal Forest is believed to be the southern most example of this natural community in Michigan. There is a high probability of this area representing additional natural communities, including Mesic Northern Forest and Wooded Dune and Swale. This area has a large number of previous designations, including a legally dedicated natural area, six Ecological Reference Areas, four Potential Old Growth areas, and eight Coastal Environmental Areas. A portion of the area has been zoned as either 'natural resource recreation' or 'primitive' through the State Park planning process. It also supports a large number of rare plant and animal populations and includes nature preserves owned by Michigan Nature Association, a township, and The Nature Conservancy, as well as a local natural area.
Norway Ridge Forest Complex	1,281	Alpena	State Forest	A probable complex of forested wetlands and forest communities. While it doesn't have documented examples of any particular natural community, there is a high probability that the area represents Dry-Mesic Northern Forest. A large portion of the area is within previously designated Potential Old Growth areas.
O'Brien Lake Wetland Complex	143	Alcona/ Oscoda	National Forest	Primarily an area of forested wetland along the AuSable River that includes a small documented example of Poor Conifer Swamp (good) and a portion of a small documented example of Dry Northern Forest (good to fair). The entirety of the area is within a previously designated Research Natural Area, and much of it is within a Potential Old Growth area. It also supports a rare animal population and includes a portion of a Natural Rivers designation on the AuSable River.
Ogemaw Swamp	370	Ogemaw	State Forest	A probable complex of forested and non-forested wetland communities. While it doesn't have documented examples of any particular natural communities, the area has a high probability of representing high-quality wetland communities, including Rich Conifer Swamp, Hardwood-Conifer Swamp, Poor Conifer Swamp, Northern Shrub Thicket, and Northern Wet Meadow. This area includes a previously designated Potential Old Growth area and a portion of a Natural Rivers designation on the Rifle River.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Old Mission Forest	1,975	Grand Traverse	Private	Primarily a forest area that extends around the tip of Old Mission Peninsula and includes small documented examples of Mesic Northern Forest (1-good, 1-fair), Dry-Mesic Northern Forest (good), and Bog (fair). Canada Yew is present in the understory, which is indicative of high-quality Mesic Northern Forest. There is a high probability of the area representing additional high-quality shoreline communities, including Limestone Cobble Shore and Sand and Gravel Beach. It includes nature preserves owned by Grand Traverse Land Conservancy and a local government.
Pentwater Lake Marsh	326	Oceana	State Wildlife Area	Primarily a Great Lakes Marsh area at the mouth of the Pentwater River that includes a large documented example of Great Lakes Marsh (good to fair). Almost the entirety of the area is within an Ecological Reference Area. It also supports a rare animal population.
Pere Marquette Floodplain Complex	32,213	Mason	National Forest/ Private	Primarily a Floodplain Forest area within the Pere Marquette River corridor that includes two large documented examples of Floodplain Forest (excellent to good, good to fair), and small documented examples of Bog (good to fair), Emergent Wetland (fair), and Intermittent Wetland (good). Most of the area is within one of four previously designated Ecological Reference Areas and a large portion of the area is within both a Potential Old Growth and a Research Natural Area designation. It also supports a couple of rare animal populations and includes portions of a State Natural River and Federal Wild and Scenic River designations on the Pere Marquette River.
Pere Marquette Forest	3,044	Newaygo/ Oceana	National Forest	A matrix of Dry-Mesic Northern Forest with many other embedded natural communities that includes a large documented example of Floodplain Forest (excellent to good), and small documented examples of Bog (good to fair), Coastal Plain Marsh (good), Intermittent Wetland (good) and Rich Conifer Swamp (fair). There is a high probability of the area representing a greater expanse of high-quality Floodplain Forest and Rich Conifer Swamp, and additional high-quality wetland communities, including Hardwood-Conifer Swamp, Northern Shrub Thicket, Northern Wet Meadow, Submergent Marsh, and Emergent Marsh. This area includes a large previously designated Potential Old Growth area, and a portion of a Natural Rivers designation on the Pere Marquette River. It also supports very many rare plant and animal populations and a Great Blue Heron rookery.
Petobego Marsh	1,536	Grand Traverse/ Antrim	Private	A complex of forested and non-forested wetland communities along Grand Traverse Bay that includes large documented examples of Great Lakes Marsh (excellent to good) and Emergent Marsh (fair). This area includes a previously designated Ecological Reference Area and a portion of a nature preserve owned by Grand Traverse Land Conservancy. It also supports a couple of rare animal and plant populations and includes significant cultural resources.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Petoskey Dunes	209	Emmet	State Park	A probable complex of dune communities backed by forest along the Lake Michigan shore. While the area doesn't have any documented examples of particular natural communities, there is a high probability that the area represents several dune communities, including Open Dunes and Sand and Gravel Beach. The entirety of the area is within a previously designated Critical Dunes area and most of the area is also with designated critical habitat for the federally endangered Piping Plover.
Pierce Drive Bog	561	Newaygo	Private	A complex of non-forested wetland communities that includes a large and a small documented example of Bog (both good). There is a high probability of the area representing additional high-quality wetland communities, including Coastal Plain Marsh, Submergent Marsh, Emergent Marsh, Northern Wet Meadow, and Northern Shrub Thicket. This area includes a previously designated Ecological Reference Area.
Pierson Bog	138	Montcalm	Private	Primarily a Bog area that includes a small documented example of Bog (good to fair). Almost the entirety of the area is within a previously designated Ecological Reference Area and it includes a portion of a forest reserve managed by the Michigan Department of Transportation.
Pigeon River Forest	2,659	Cheboygan	State Forest	A Dry-Mesic Northern Forest area dominated by Red Pine that is adjacent to a primarily non-forested wetland area. The area includes the most contiguous, oldest forest in the northern Lower Peninsula. Additionally, it includes a couple of areas previously designated as Potential Old Growth, and an area designated as a natural area (but not protected under the Wilderness and Natural Areas statute). It also supports a couple of rare animal populations.
Railroad Lake Forest	1,794	Lake	Private	Primarily a forested area that includes a large documented example of Dry-Mesic Northern Forest (fair). There is a high-probability of the area also representing high-quality wetland communities, including Poor Fen, Northern Fen, Emergent Marsh, Submergent Marsh, Northern Wet Meadow, and Northern Shrub Thicket. The area additionally has the potential for restoration of a complex of Dry Northern Forest, Pine Barrens, and Pine-Oak Barrens. It also supports a couple of rare animal populations and includes a portion of a Natural Rivers designation on the Pere Marquette River.
Reese Swamp	552	Cheboygan	Private	Primarily a Rich Conifer Swamp area at the north end of Burt Lake that includes a large documented example of Rich Conifer Swamp (good). This area is almost entirely within a University of Michigan Biological Station. It also supports a couple of rare plant and animal populations.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Rifle River Complex	2,330	Ogemaw	State Park	Primarily a forest area with other embedded natural communities, particularly high-quality non-forested wetland communities, including a small documented example of Northern Fen (good). There is a high probability of the area additionally representing high-quality Dry-Mesic Northern Forest with White Pine, Red Pine, White Oak and Red Oak components. There is also the possibility of the area representing a variety of Mesic Northern Forest with Eastern Hemlock and White Pine. The area has a very low density of roads which improves functionality, and is notable for the low level of disturbance along the shores of the inland lakes. This area includes a small previously designated Ecological Reference Area and a large portion of a Natural Rivers designation on the Rifle River. Almost the entirety of the area has been zoned as 'primitive' or 'backcountry' through the State Park planning process. It also supports a couple of rare animal populations.
Rifle River Floodplain Complex	2,382	Arenac	Private	A broad, flat floodplain area within the Rifle River corridor. While it doesn't have any documented examples of any particular natural community, there is a high probability of the area representing high-quality Floodplain Forest and other forested and non-forest wetland communities, including Northern Hardwood Swamp, Rich Conifer Swamp, Poor Conifer Swamp, and Hardwood-Conifer Swamp. This area includes a portion of a Natural Rivers designation on the Rifle River.
Round Lake Marsh	829	Missaukee/ Wexford	Private	A non-forested wetland area that includes a small documented example of Emergent Marsh (good to fair). There is also a high probability of the area additionally representing high-quality Submergent Marsh. It also supports a rare animal population.
Saddler Creek Wetland Complex	3,613	Iosco	State Forest/ Private	Primarily a complex of forested wetland communities with non-forested wetland communities and small areas of forest embedded within it. While it doesn't have documented examples of any particular natural communities, there is a high probability of the area representing high-quality natural communities, including Rich Conifer Swamp, Hardwood-Conifer Swamp, Northern Shrub Thicket, Northern Wet Meadow, Intermittent Wetland, Bog, Emergent Marsh, Submergent Marsh, and Dry-Mesic Northern Forest. A large portion of this area is within a previously designated Potential Old Growth area.
Saganing Pine Delta Marshes	950	Arenac	State Wildlife Area/ Private	Two nearby areas composed primarily of Great Lakes Marsh at the mouths of the Pine and Saganing Rivers that include a large and a small documented example of Great Lakes Marsh (large-good, small-fair to poor). This area includes four previously designated Coastal Environmental Areas and an Ecological Reference Area. It also supports several rare animal populations.
Sage Lake Swamp	145	Montmorency	State Forest	Primarily a Rich Conifer Swamp area with a small documented example of Rich Conifer Swamp (good to fair). A very interesting area with large (20-40 inch diameter) overstory white pine and red pine growing on a grounded bog mat. Most of the area is within a previously designated Potential Old Growth area. It also supports a couple of rare animal populations.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Selma Swamp	934	Manistee	Private	A complex of forested and non-forested wetland communities that includes a small documented example of Northern Hardwoods Swamp (fair). There is also a high-probability of the area representing additional high-quality wetland communities, including Northern Wet Meadow and Northern Shrub Thicket. The area includes two previously designated Potential Old Growth Areas and an Ecological Reference Area.
Shupac Barrens	1,007	Crawford	State Forest	A complex of forest dominated by Jack Pine, barrens and prairie that includes small documented examples of Dry Sand Prairie (excellent to good) and Pine Barrens (good to fair). Almost the entirety of the area is within a previously designated Potential Old Growth area and a designated management area for the federally endangered Kirtland's Warbler. It also supports a number of rare plant and animal populations and includes a portion of a previously designated Ecological Reference Area.
Silver Lake Dunes	3,484	Oceana	State Park/ Private	A high-quality complex of dune communities along the shore of Lake Michigan that includes large documented examples of Open Dunes (good) and Interdunal Wetlands (excellent to good), and small documented example of Great Lakes Barrens (good). This area includes a previously designated Ecological Reference Area and a portion of a Critical Dunes area. A large part of the area has been zoned as 'primitive' or 'natural resource recreation' through the State Park planning process. It also supports a rare plant and a rare animal population and includes portions of two locally owned nature preserves.
Sinkholes Forest	5,971	Presque Isle/ Montmorency	State Forest	Primarily a complex of forest communities that includes a number of sinkholes. While it doesn't have documented examples of any other natural communities, there is a high probability of this site representing Dry Northern Forest, Dry-Mesic Northern Forest and Sinkholes. This area includes a large previously designated Potential Old Growth area and a portion of a designated management area for the federally endangered Kirtland's Warbler. It also supports several rare animal populations.
Skegemog Swamp	2,488	Kalkaska	State Forest	Primarily a Rich Conifer Swamp area that includes a large documented example of Rich Conifer Swamp (good to fair) and a small documented example of Northern Fen (good to fair). There is a high-probability of the area representing additional high-quality wetland communities, including Poor Conifer Swamp, Hardwood-Conifer Swamp, Northern Hardwood Swamp, Northern Shrub Thicket, Northern Wet Meadow, Emergent Marsh, and Submergent Marsh. It also supports a couple of rare animal populations.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Sleeping Bear Complex	17,523	Leelanau	National Park/ Private	A complex of shoreline and inland communities along the northern Lake Michigan shore that includes large documented examples of Mesic Northern Forest (good), Open Dunes (1-excellent to good, 1-good to fair), and Wooded Dune and Swale (1-good to fair, 1-fair), and small documented examples of Bog (good to fair), Great Lakes Barrens (good), Open Dunes (good to fair), and Sand and Gravel Beach (excellent to good). There is a high probability of the area representing a greater expanse of high-quality Great Lakes Barrens and Sand and Gravel Beach, and additional high-quality natural communities, including Hardwood-Conifer Swamp, Poor Conifer Swamp, Northern Shrub Thicket, Northern Wet Meadow, Boreal Forest, and Interdunal Wetland. The area has potential for large-scale restoration of Mesic Northern Forest. This area includes a number of previous designations, including seven Ecological Reference Areas, four Critical Dunes areas, and an area of critical habitat for the federally endangered Piping Plover. It also supports many rare plant and animal populations.
Smith's Fen Complex	95	Cheboygan	Private	A complex of forested and non-forested wetland communities that includes a small documented example of Intermittent Wetlands (fair). This area includes a small part of a University of Michigan Biological Station.
Spectacle Lakes Barrens	282	Otsego	State Forest	A complex of forest and barrens that that includes a small documented example of Pine Barrens (good to fair). It also supports a number of rare plant and animal populations and includes a previously designated Ecological Reference Area.
Stoney Lake Shoreline Complex	2,424	Oceana	Private	Several non-adjacent areas with a complex of shoreline communities within the same general vicinity along the Lake Michigan shore and that include a large documented example of Great Lakes Marsh (good to fair), and a small documented example of Open Dunes (good to fair). There is a high probability of the area representing additional high quality natural communities, including Sand and Gravel Beach, Northern Wet Meadow, and Northern Shrub Thicket. The proposed Biodiversity Stewardship Area is composed of multiple non-adjacent areas within the same general vicinity along the Lake Michigan shore. This area includes a previously designated Ecological Reference Area and a portion of a Critical Dunes area. It also supports several rare plant populations and a locally owned nature preserve.
Tawas Dunes	332	Iosco	Private	A complex of dune communities along the Lake Huron shore that includes a small documented example of Interdunal Wetlands (poor). There is also a high potential for the area representing high-quality Sand and Gravel Beach and there is also a potential for restoration of Wooded Dune and Swale. It also supports a rare plant and a rare animal population.
Thunder Bay River Floodplain Complex	345	Alpena	Private	A probable Floodplain forest area that likely also represents Northern Shrub Thicket; however the area doesn't have documented examples of any particular natural community. It also supports a rare animal population.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Tippy Complex	12,629	Manistee/ Wexford	National Forest	A complex of forested and non-forested wetland communities and forest communities within the Manistee River corridor that includes a small documented example of Rich Conifer Swamp (good to fair). There is a high probability of the area representing a greater expanse of high-quality Rich Conifer Swamp and additional high-quality wetland communities, including Northern Wet Meadow, Northern Shrub Thicket, Hardwood-Conifer Swamp, Floodplain Forest, Emergent Marsh and Submergent Marsh. The area has potential for large-scale restoration of Mesic Northern Forest and Dry-Mesic Northern Forest. It also supports a number of rare plant and animal populations and includes a large Potential Old Growth area.
Toft Lake Swamp	55	Newaygo	National Forest	Primarily a Rich Tamarack Swamp area that includes a small documented example of Rich Tamarack Swamp (fair to poor). Most of the area is within a previously designated Ecological Reference Area and also a Research Natural Area.
Tomahawk Lakes Complex	4,416	Presque Isle/ Montmorency	State Forest	A complex of forested and non-forested wetlands with forest on ridges within the complex. While it doesn't have documented examples of any particular natural community, there is a high-probability of the area representing Poor Conifer Swamp, Bog, Northern Shrub Thicket, Northern Wet Meadow and Dry-Mesic Northern Forest. Most of this area is within a previously designated Potential Old Growth area. It also supports a rare animal population.
Tussing Prairie Complex	195	Lake	Private	A complex of barrens and prairie that includes small documented examples of Wet-Mesic Sand Prairie (good), Dry Sand Prairie (good), and Pine Barrens (fair). There is potential for this area to represent a greater expanse of these natural communities in addition to Dry Northern Forest. This area includes a previously designated Ecological Reference Area.
VanEtten Floodplain Complex	570	Iosco	Private	Primarily a Floodplain Forest area within the Pine River corridor that includes a large documented example of Floodplain Forest (good to fair). There is a high probability of this area representing additional high-quality wetland communities, including Rich Conifer Swamp, Northern Wet Meadow, Submergent Marsh, and Emergent Marsh. This area includes a previously designated Ecological Reference Area and a Potential Old Growth area. It also supports a rare animal population.
Veteran's Forest	214	Midland	Private	A forest area that includes a small documented example of Dry-Mesic Northern Forest (fair). The area has a good conifer component that is predominantly white pine and has the potential for a greater expanse of higher-quality Dry-Mesic Northern Forest through restoration. Most of the area is within a County-owned park.
Walloon Lake Forest	1,652	Charlevoix	County	A forest area that includes a small documented example of Mesic Northern Forest (good). The documented example is an area of very old trees, which is surrounded by a somewhat younger, but still good-quality, mature forest area. The area has good potential for large-scale restoration of Mesic Northern Forest. This area has a previously designated Potential Old Growth area.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Watson Swamp	1,820	Kalkaska	State Forest	A complex of forested and non-forested wetland communities within the North Branch of the Manistee River corridor that includes a large documented example of Rich Conifer Swamp (excellent to good). It also supports a rare animal population and includes a portion of a Natural Rivers designation on the Upper Manistee River.
White Cloud Wetlands	6,524	Newaygo	National Forest	A complex of forested and non-forested wetland communities that includes large documented examples of Coastal Plain Marsh (good) and Hardwood-Conifer Swamp (fair), and small documented examples of Bog (good or fair), Coastal Plain Marsh (good), and Poor Conifer Swamp (good to fair). There is a high probability of the area representing a greater expanse of high-quality Coastal Plain Marsh and Bog, and additional high-quality wetland communities, including Submergent Marsh, Emergent Marsh, Northern Wet Meadow, Northern Shrub Thicket, Northern Hardwood Swamp, Rich Conifer Swamp, and Floodplain Forest. This area includes a number of previous designations, including three Ecological Reference Areas, several large Potential Old Growth areas, a research natural area, and portions of State Natural Rivers and Federal Wild and Scenic River designation on the White River. It also supports many rare animal and plant populations.
White River Forest	31,769	Oceana/ Muskegon	National Forest	A matrix of Dry-Mesic Northern Forest with many other embedded natural communities, particularly Oak-Pine Barrens, which also includes a portion of the White River corridor. The area includes large documented examples of Floodplain Forest (1-excellent to good, 1-good), Great Lakes Marsh (good to fair), and Oak-Pine Barrens (good), and small documented examples of Dry Sand Prairie (2-good, 1-fair), Oak-Pine Barrens (good to fair), and Wet-Mesic Sand Prairie (excellent to good). South of the river, the forest is of a variety that is mostly White Pine and White Oak, with Black Oak in the barrens. North of the river, the forest is more of a White Pine with mixed hardwoods variety. This area includes a number of previous designations, including seven Ecological Reference Areas, several Proposed Old Growth areas, and portions of State Natural River and Federal Wild and Scenic River designations on the White River. Additionally, this area includes restoration areas for the federally endangered Karner Blue Butterfly. It also includes a locally-owned nature preserve and supports very many other rare plant and animal populations and a Great Blue Heron rookery.

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Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Wilderness Wycamp Complex	24,601	Emmet	State Park	<p>The northern portion of the area is a matrix of Wooded-Dune and Swale that is adjacent to a matrix of conifer swamp, each with many other embedded natural communities, particularly very high-quality shoreline communities. The southern portion of the area is primarily a complex of forested wetland and forest communities dominated by White Pine and White Oak. Large documented examples of natural communities include: Coastal Fen (excellent to good), Dry-Mesic Northern Forest (good), Great Lakes Marsh (2-excellent to good), Hardwood-Conifer Swamp (fair), Limestone Cobble Shore (excellent to good), Open Dunes (poor), and Wooded Dune and Swale (1-excellent, 2-fair). Small documented examples of natural communities include: Boreal Forest (1-excellent, 1-good, 2-good to fair), Great Lakes Barrens (good), Great Lakes Marsh (good to fair), Interdunal Wetland (1-good, 1-fair), Northern Fen (good), Northern Shrub Thicket (good), and Open Dunes (2-good to fair). Additional examples of natural communities have been documented, but not yet rated, including Boreal Forest, Northern Fen, Poor Fen, Rich Conifer Swamp, Muskeg, Limestone Cobble Shore, Emergent Marsh, and Great Lakes Barrens. The area has a potential for large-scale restoration of Dry-Mesic Northern Forest in a mosaic with conifer swamp, Boreal Forest and Dry Northern Forest. The area has White Pine regeneration, which is an indicator of high-quality Dry-Mesic Northern Forest. Natural Processes are occurring on their own in large portions of this area (windthrow has developed an un-even aged forest which is a good indicator of quality). This area includes a number previous designations, including ten Ecological Reference Areas, a Coastal Environmental Area, a large area designated as critical habitat for the federally endangered piping plover, three Critical Dunes areas, three large Potential Old Growth areas, and a very large area proposed for legal protection under the Wilderness and Natural Areas statute. It also supports many rare plant and animal populations and a Great Blue Heron rookery and includes a nature preserve owned by the Little Traverse Land Conservancy.</p>
Williamsport and Bar Marsh Complex	2,400	Manistee	Private	<p>A complex of non-forested wetland, shoreline, and forest communities that includes large documented examples of Mesic Northern Forest (fair) and Great Lakes Marsh (good). This area includes a previously designated Ecological Reference Area and a portion of a Critical Dunes area.</p>

There are differences between the above places proposed by the DNRE and those originally recommended by the Core Design Team. To learn more about these differences, view the [map showing both sets of places](#) and review the [DNRE's rationale for the differences](#).

* See end of table (p. 28) for descriptions of previous designations mentioned and for source of documented examples.

Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table



Name	Acres	County(ies)	Primary Ownership	Summary Description *
Wolf Creek Grass Lake Forest	29,893	Roscommon/ Missaukee	State Forest	A matrix of Dry-Mesic Northern Forest with many different natural communities embedded within, including forested and non-forested wetland communities and potentially barrens. While it doesn't have documented examples of any particular natural community, there is an excellent potential for the area to represent Rich Conifer Swamp, Northern Wet Meadow, Northern Shrub Thicket, Poor Conifer Swamp, Emergent Marsh, Submergent Marsh, and Bog. The range of natural community types includes everything from very dry to very wet. It also includes a portion of the Muskegon River corridor. The Dry-Mesic Northern Forest is very different from other potential Biodiversity Stewardship Areas, because the natural community's presence is driven more by soil moisture than by soil nutrients. The area includes some naturally regenerated (not planted) pine and some very large White Pine trees. There is a large population of beaver in the area that help to maintain the natural processes and therefore the natural communities that depend on those processes (an indicator of high-quality natural communities). There are previously designated Potential Old Growth areas scattered throughout the area. It also supports a number of rare animal populations and a Great Blue Heron rookery.

Previous Designations Mentioned in Table

- **Potential Old Growth in State Forests:** These areas have been considered for old-growth management by the DNRE and have not had any recent timber harvests or related activities.
- **Potential Old Growth in National Forests:** These areas are recognized within the National Forest plans and are managed for old-growth forest characteristics by the U.S. Forest Service.
- **Natural Areas:** These areas are almost completely limited to state-owned lands. The DNRE manages a number of different types of designations as natural areas. Statewide, 22 of these areas have been legally protected under the state's "Wilderness and Natural Areas" legislation. Approximately 60 additional natural areas have other forms of recognition.
- **Ecological Reference Areas:** These areas are high-quality examples of particular ecosystem types. Management within Ecological Reference Areas that occur on lands managed by the DNRE is limited to activities that will maintain or improve the characteristics of the reference ecosystem.
- **Coastal Environmental Areas:** These are areas of Great Lakes marsh that are regulated by the State to protect habitat necessary for the preservation and maintenance of fish and wildlife. Affected property owners must make application to the DNRE for any dredging, filling, grading or other alteration of the soil, natural drainage or vegetation, or placement of permanent structures.
- **Critical Dunes:** These areas are protected by the State to minimizing the impacts of development within designated critical dune areas along the Great Lakes shoreline. Earthmoving, vegetation removal, and construction activities within a critical dune area are regulated through a permit program.

There are differences between the above places proposed by the DNRE and those originally recommended by the Core Design Team. To learn more about these differences, view the [map showing both sets of places](#) and review the [DNRE's rationale for the differences](#).

* See end of table (p. 28) for descriptions of previous designations mentioned and for source of documented examples.

Proposed Northern Lower Peninsula Biodiversity Stewardship Area Summary Table

- **Research Natural Areas:** These areas have been permanently protected by the federal government and are managed to maintain their natural condition.
- **Congressionally Designated Wilderness:** These areas have been protected through federal legislation which restricts some types of activities.
- **National Natural Landmarks:** This federal designation recognizes and encourages the conservation of outstanding examples of our country's natural history. It is the only natural areas program of national scope that identifies and recognizes the best examples of biological and geological features in both public and private ownership.
- **Natural Rivers:** These areas are designated under state legislation for the purpose of preserving and enhancing a river's values for a variety of reasons, including; aesthetics, free-flowing condition, recreation, boating, historic, water conservation, floodplain, and fisheries and wildlife habitat.
- **Wild and Scenic Rivers:** These areas are identified for their outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values and are protected by federal legislation which states they “shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected.”

Documented Examples

Occurrences of documented examples of particular ecosystem types that are mentioned in the table and the rankings of those examples (e.g., excellent, good, fair, poor) are based on surveys and assessments completed by Michigan Natural Features Inventory.

There are differences between the above places proposed by the DNRE and those originally recommended by the Core Design Team. To learn more about these differences, view the [map showing both sets of places](#) and review the [DNRE's rationale for the differences](#).

* See end of table (p. 28) for descriptions of previous designations mentioned and for source of documented examples.

Biodiversity Stewardship Areas
Instructions for Participating in the Public Review



Living Legacies: Managing Michigan's Diverse Natural Places

- 1) Review the information resources available on the DNRE website at www.michigan.gov/livinglegacies, particularly the '[Complete Guide to Review of Proposed Northern Lower Peninsula Biodiversity Stewardship Areas](#).' Resources are available in alternate formats upon request (see contact information below).
- 2) Consider the following questions:
 - **Do you think that this set of proposed Biodiversity Stewardship Areas (BSAs) represents the full spectrum of ecosystems that occur in the Northern Lower Peninsula?**
 - **Are there additional areas that you think the DNRE should consider for this designation?** Areas that represent a type of ecosystem that isn't represented in the proposed set of BSAs? Areas that represent a particular type of ecosystem better than the areas in the proposed set of BSAs? For other reasons?
 - **Are there areas in the proposed set of BSAs that you think should have their boundaries modified?** Modified to better represent the ecosystems within them? Modified to minimize potential negative affects on other values? For other reasons?
 - **Are there areas in the proposed set of BSAs that you think should be removed from consideration?** Areas where the ecosystems within them are better represented in other potential BSAs? Areas where there are other high value land uses that are not compatible with the BSA designation and you think that value out-weighs the biodiversity conservation benefits of including the area in the BSA network? For other reasons?
 - **Are there areas in the proposed set of BSAs that you particularly endorse for designation?** Areas that are particularly good examples of a certain kind of ecosystem? Areas where conservation of ecosystems can be easily achieved with minimal negative affects on other values? For other reasons?
- 3) Provide your comments to the DNRE:
 - Attend a public meeting to provide your comments (see the DNRE website for the [Schedule of Public Meetings](#))
 - Submit comments to the DNRE by U.S. mail or email:
 - Mailed comments should be addressed to: DNRE Living Legacies Comments, Forest Management Division, P.O. Box 30452, Lansing, MI 48909-7952
 - Email comments should be addressed to: DNRE-livinglegacies@michigan.gov
 - **The deadline for submission of comments is January 14, 2011**

If you have any questions, please contact the Biodiversity and Conservation Program Leader, DNRE Forest Management Division, (517) 373-1275 or DNRE-livinglegacies@michigan.gov.

www.michigan.gov/livinglegacies

Living Legacies: Managing Michigan's Diverse Natural Places

Please begin by reading the [“Complete Guide to Review of Proposed Northern Lower Peninsula Biodiversity Stewardship Areas”](#)

There are multiple paths for reaching most of the electronic materials associated with this public review. This may result in the appearance of repeated materials, but it was done to ensure that regardless of how the materials are accessed, they will be readily available to everyone.

Public Review Resources

- Introductory Information
 - [Living Legacies Introduction and Overview](#)
 - [Frequently Asked Questions](#)
 - [Terms & Concepts](#)
 - [History & Background](#)
 - [Process Summary for Identification, Review, Designation & Integration of BSAs](#)
 - [Management & Use of Biodiversity Stewardship Areas](#)
 - [Stakeholder Specific Information](#)
- Proposed Northern Lower Peninsula Biodiversity Stewardship Areas (BSAs)
 - [Proposed Northern Lower Peninsula BSA Summary Table](#)
 - [Ecosystems Represented in Proposed Northern Lower Peninsula BSAs](#)
 - Maps & Boundaries
 - [Regional map](#) (PDF with current DNRE proposed boundaries only)
 - [County maps](#) (PDFs with both original Core Design Team recommended boundaries and current DNRE proposed boundaries)
 - [Individual area maps](#) (PDFs with current DNRE proposed boundaries only)
 - [GIS Shapefile](#)
 - Analyses
 - [Distribution of Proposed BSAs Across Ownerships and Cover Types in the Northern Lower Peninsula](#)
 - [Potential Impacts on State Forest Timber Harvests in the Northern Lower Peninsula from BSA Designation](#)
- Core Design Team Resources
 - [Documentation of and Rationale for DNRE Changes from the Core Design Team Recommended BSAs](#)
 - Maps
 - [Regional map](#) (PDF with Core Design Team recommended boundaries only)
 - [Regional map](#) (PDF with both Core Design Team and DNRE boundaries)
 - [County maps](#) (PDFs with both Core Design Team and DNRE boundaries)
- Public Review
 - [Complete Guide to Review of Proposed Northern Lower Peninsula BSAs](#)
 - [Description of Northern Lower Peninsula Public Review](#)
 - [Instructions for Public Review](#)
 - [Schedule of Public Meetings](#)