

Appendix C - Research Natural Areas

Status of Designated Research Natural Areas

There are three designated Research Natural Areas on the Huron-Manistee National Forests. Nordhouse Dunes and Newaygo Prairies Research Natural Areas are located on the Manistee National Forest and Hayes Tower Research Natural Area is located on the Huron National Forest.

Status of Candidate and Potential Candidate Research Natural Areas or Unique Areas

The following tables display the status of candidate Research Natural Areas and potential candidate Research Natural Areas or Unique Areas on the Huron-Manistee National Forests prior to 2004:

Table C-1. Existing Candidate Research Natural Areas.

Candidate Research Natural Area	Status
Fry Lake	Establishment under evaluation
Pine Island Marsh	Establishment on hold pending land acquisition needed to protect unique features
Bear Swamp	Environmental Assessment and Establishment Report in Progress

Table C-2. Potential Candidate Research Natural Areas or Unique Areas.

Potential Candidate Research Natural Area or Unique Area	Status
Alley Lake	Under Study
Arquilla Creek	Under Study
Big South	Environmental Assessment and Establishment Report in Progress
Black River Complex	Under Study
Blockhouse Creek and Blockhouse Swamp	Under Study
Brandy Brook	Environmental Assessment and Establishment Report in Progress
Casin Lake	Under Study
Honawan Lake Forest	Under Study
Hopper's Swamp	Under Study
Hunter's Lake	Under Study

Table C-2. Potential Candidate Research Natural Areas or Unique Areas (Continued).

Potential Candidate Research Natural Area or Unique Area	Status
Indian Lake	Under Study
Knapp Prairie	Under Study
Little Robinson Lake	Under Study
Loon Lake	Under Study
Loud Creek	Under Study
McDonald Creek Forest	Under Study
McMaster's Bridge Bog	Under Study
North Branch White River	Under Study
O'Brien Lake Forest and O'Brien Lake Swamp	Under Study
Pearl Lake	Under Study
Perch Lake	Under Study
Sischo Prairie	Under Study
Skeel Creek Prairie	Under Study
South Branch Bog	Under Study
South Olga Bog	Under Study
Timmerman Lake	Under Study
Toft Lake	Under Study
Trout Lake Swamp	Under Study
Valley Road Prairie	Under Study
White River	Under Study
Vaughn Lake	Under Study
Yonker's Meadow	Included in Bear Swamp candidate Research Natural Area

Evaluation Process

In 2004 the following process was used to evaluate the areas listed in Tables C-1 and C-2 for their potential as Research Natural Areas:

The Forests' Leadership Team reviewed recommendations from the report entitled, *An Evaluation of Candidate and Potential Candidate Research Natural Areas on the Huron-Manistee National Forest with a focus on Ecosystem Representation* (Michigan Natural Features Inventory 2003).

Guidelines described in the April 10, 2000 Draft report entitled, *Establishing a Region-Wide Network of Representative Research Natural Areas (RNAs): An Assessment for the Eastern Region's RNA Framework* (USDA-Forest Service and The Nature Conservancy 2000) were used to assess recommendations for candidate Research Natural Areas. The most critical guideline used in the decision-making process was representation; "Specifically, the ecosystems to represent are each alliance in each subsection that occurs on national forest land," as stated on page 7 of the report.

Evaluation Results

Tables C-3 and C-4 identify the post-evaluation status for candidate Research Natural Areas and potential candidate Research Natural Areas or Unique Areas:

Table C-3. Candidate Research Natural Area Evaluation Results.

Candidate Research Natural Area	Post-evaluation Status
Fry Lake	Dropped from candidate Research Natural Area status due to duplicate representation
Pine Island Marsh	Retain as RNA-equivalent
Bear Swamp	Candidate Research Natural Area

Table C-4. Potential Candidate Research Natural Area or Unique Area Evaluation Results.

Potential Candidate Research Natural Area or Unique Area	Post-evaluation Status
Alley Lake	Dropped from candidate Research Natural Area status due to duplicate representation
Arquilla Creek	Retain as RNA-equivalent
Big South	Candidate Research Natural Area
Black River Complex	Candidate Research Natural Area
Blockhouse Creek and Blockhouse Swamp	Candidate Research Natural Area
Brandy Brook	Candidate Research Natural Area
Casin Lake	Dropped from candidate Research Natural Area status due to private ownership
Honawan Lake Forest	Dropped from candidate Research Natural Area status due to duplicate representation
Hopper's Swamp	Dropped from candidate Research Natural Area status due to duplicate representation

Table C-4. Potential Candidate Research Natural Area or Unique Area Evaluation Results (Continued).

Potential Candidate Research Natural Area or Unique Area	Post-evaluation Status
Hunter's Lake	Candidate Research Natural Area
Indian Lake	Dropped from candidate Research Natural Area status due to duplicate representation
Knapp Prairie	Retain as RNA-equivalent
Little Robinson Lake	Dropped from candidate Research Natural Area status due to duplicate representation
Loon Lake	Candidate Research Natural Area
Loud Creek	Candidate Research Natural Area
McDonald Creek Forest	Candidate Research Natural Area
McMaster's Bridge Bog	Candidate Research Natural Area
North Branch White River	Candidate Research Natural Area
O'Brien Lake Forest and O'Brien Lake Swamp	Candidate Research Natural Area
Pearl Lake	Candidate Research Natural Area
Perch Lake	Dropped from candidate Research Natural Area status due to degraded conditions
Sischo Prairie	Retain as RNA-equivalent
Skeel Creek Prairie	Dropped from candidate Research Natural Area status due to private ownership
South Branch Bog	Candidate Research Natural Area
South Olga Bog	Candidate Research Natural Area
Timmerman Lake	Dropped from candidate Research Natural Area status due to duplicate representation/private ownership
Toft Lake	Candidate Research Natural Area
Trout Lake Swamp	Candidate Research Natural Area
Valley Road Prairie	Retain as RNA-equivalent
White River (Sischo Prairie)	Retain as RNA-equivalent
Vaughn Lake	Candidate Research Natural Area
Yonker's Meadow	Included in Bear Swamp candidate Research Natural Area

Candidate Research Natural Area Descriptions

Table C-5 describes those areas identified as candidate Research Natural Areas.

Table C-5. Candidate Research Natural Area Descriptions.

Candidate Research Natural Area	Description
Bear Swamp (includes Yonker's Meadow) 2,139 acres	This area contains three high-quality natural communities: a rich conifer swamp, a southern swamp and intermittent wetlands. Five rare plant species and one rare animal species are known to inhabit these areas. Bear Swamp is large enough to study communities and species at a landscape scale.
Big South (includes Whelan Lake) 1,842 acres	The Big South area contains several vegetative communities including a bog, intermittent wetland, oak-pine barrens, southern floodplain forest and emergent marsh. This area represents a large, diverse, highly undisturbed floodplain with high floral and faunal diversity. Inclusion of portions of upland areas adjacent to the floodplain provide adequate landscape context for study of ecological processes.
Black River Complex 750 acres	This area along the Lake Huron shoreline contains a globally rare wooded dune and swale complex which consists of a series of low ridges, approximately three to six feet in height, that are separated by wet swales. Second growth upland forests of paper birch, red maple, red ash and aspen dominate the ridges; swales are dominated by a sparse canopy of alder, black ash and northern white cedar, and support a diverse ground layer. This area also contains approximately one half mile of Lake Huron shoreline, which may facilitate additional studies of shoreline processes.
Blockhouse Swamp/Creek 1,010 acres	Blockhouse Swamp contains a rich conifer swamp and a small mesic northern forest. The rich conifer swamp is dominated by second growth northern white cedar with occasional bigtooth aspen, paper birch, red maple and black ash also occurring within the canopy. Balsam fir is common in the understory, occasionally forming thickets and ground layer diversity is high. Although small, the mesic northern forest contains old-growth white pine and occasional red pine. The size of this area will allow communities and species to be studied at a landscape scale.

Table C-5. Candidate Research Natural Area Descriptions (Continued).

Candidate Research Natural Area	Description
Brandybrook 1,300 acres	The Brandybrook area is located on poorly drained glacial outwash sands and includes a complex of wetland communities, of which, five are considered high-quality natural communities. Represented wetlands include bog, muskeg, poor conifer swamp, rich conifer swamp and hardwood conifer swamp. Although hydrologic processes have been altered in the bog community, the majority of the area can be studied as representation of unaltered conditions.
Hunter's Lake 28 acres	This area contains a shallow lake basin that supports an intermittent wetland with fluctuating water levels. Jack pine dominates the sandy uplands surrounding the basin. This wetland is one of the larger unmanipulated wetlands of its type found on the Mio Ranger District and as such serves as a good representative area.
Loon Lake 439 acres	The Loon Lake area occurs on sandy outwash and contains numerous wet depressions, several of which support globally imperiled coastal plain marshes. Five rare plant species are documented within this area as well. Loon Lake will provide an opportunity to study these rare species and communities.
Loud Creek 175 acres	This area contains a rich conifer swamp dominated by northern white cedar. The rich conifer swamp occurs within a narrow outwash channel of Loud Creek, which runs through the center of the area. The area contains a moderate to high level of diversity and will offer the opportunity to study a wetland type that is suffering from poor regeneration state-wide.
McDonald Creek Forest 103 acres	The McDonald Creek area contains a dry-mesic northern forest with mature white pine, aspen and some red pine. It is surrounded by spruce and cedar swamps on all sides. It is currently the best identified representative of white pine-aspen forest located in the Harrisville Moraines Subsection.
McMaster's Bridge Bog 85 acres	This area contains a diverse, second growth, rich conifer swamp with good cedar regeneration. Northern white cedar, black spruce and tamarack are the primary canopy species. The rich conifer swamp is relatively intact and therefore a good example of this type within the Mio Outwash Plains Subsection.
North Branch White River 450 acres	A series of three northern wet meadows occur within this outwash channel of the North Branch of the White River. The meadows are dominated by <i>Carex lacustris</i> and speckled alder and appear to be undergoing succession to northern shrub thicket (alder thicket) as a result of fire suppression. This area will offer an excellent opportunity to study management of grass-dominated wetlands in a landscape context.

Table C-5. Candidate Research Natural Area Descriptions (Continued).

Candidate Research Natural Area	Description
O'Brien Lake Forest and Swamp 130 acres	This area contains a dry-mesic northern forest dominated by red pine, some of which are over 100 years old, and a poor conifer swamp dominated by black spruce. The poor conifer swamp occurs along the southern shore of O'Brien Lake and extends to the Au Sable River, where it turns into a river floodplain forest. This area contains the best known example of a poor conifer swamp in the Mio Outwash Plains Subsection.
Pearl Lake 49 acres	The Pearl Lake area contains a poor conifer swamp dominated by black spruce. At this time it is the best representation of this type of wetland forest not occurring on private land within the Newaygo Outwash and Ice Contact Subsection.
Toft Lake 168 acres	The Toft Lake area contains a small lake and a relict conifer swamp. This wetland is strongly influenced by calcareous groundwater and contains numerous seeps and a variety of vegetation zones. White pine, tamarack, and red maple dominate the eastern portion of the wetland while the western portion supports a wet savannah of black spruce and tamarack with a ground layer of northern fen vegetation.
South Branch (Foley) Bog 104 acres	This area contains a large, high quality bog displaying good, distinct, vegetative zones. Abundant species include <i>Carex oligosperma</i> , sphagnum mosses and leatherleaf; black spruce and tamarack dominate a small area of the bog. This area serves as an excellent example of this wetland type in the Mio Outwash Plains Subsection.
South Olga Bog 30 acres	South Olga Bog is located in the Big Rapids Loamy Moraine Subsection and, at this time, is the best representation of this type of wetland on federal land in that subsection. Although the size is small, this type of feature is often small and inclusion of adjacent features is not necessary to preserve the integrity of the area.
Trout Lake Swamp 185 acres	Trout Lake Swamp contains a second-growth hardwood-conifer swamp dominated by northern white cedar, black ash, balsam fir and black spruce; speckled alder is abundant in the understory. This area is primarily in an undegraded state and contains a high level of diversity. This size and character of this area afford an excellent opportunity for study.
Vaughn Lake 200 acres	This area contains a high quality, highly diverse bog surrounded by a forested zone of tamarack, black spruce, white pine and red maple. The sandy uplands around the forested wet zone support a dry-mesic forest. Vaughan Lake provides an excellent opportunity to study wetland features in a broader ecological context.