JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES

LANSING

REBECCA A. HUMPHRIES
DIRECTOR

SUBMITTED: March 10, 2008
RESUBMITTED: April 14, 2008

TO: Rebecca A. Humphries, Director

INFORMATION: Natural Resources Commission

SUBJECT: Request for Director's Decision to Proceed with Legislative Dedication of Carney Fen Natural Area-FOR INFORMATION ONLY

Authority:

The Natural Resources and Environmental Protection Act, 1994 PA 451, Part 351 Wilderness and Natural Areas, as amended, authorize the Department to reject a natural area nomination or to proceed with dedication of a natural area by promulgating a rule.

Background and Discussion:

The Department administers Michigan's Natural Areas Program. Natural areas include wilderness, wild, or natural areas. These are high-quality areas that have maintained their natural character or have unique biotic, geologic, scenic, educational or scientific values. Together these areas represent a system of viable natural areas that reflect Michigan's rich and diverse native natural heritage. Ecological and legal requirements for dedicated natural areas are quite specific and dedication of a natural area is an important endeavor.

Wilderness, wild, or natural areas may be nominated by the Department or by citizens. As defined by the Department's Process for Nomination, Review and Dedication of Natural Areas, upon receipt of a natural area nomination, a series of Department review procedures commence, including an initial review by the Natural Areas Program, a comprehensive Department review, and a consensus process. Following the Department Review, a summary of the review and a recommended action is submitted to the Director for a final decision on whether the Department will continue with the dedication.

The Carney Fen Natural Area nomination was prepared and submitted by the Friends of Carney Fen. Input was obtained from the Wildlife, Forest, Mineral and Fire Management, Fisheries, Law, Parks and Recreation and Office of Land and Facilities Divisions and the West Upper Peninsula Ecoteam. Reviewers provided input regarding potential ecological, social, and legal issues related to dedication of the site. A public information meeting was held on January 17, 2007 in Stephenson, Michigan. The nomination and a summary of the Department review have now been provided to the Director for a final Department decision on the nomination.

NATURAL RESOURCES COMMISSION
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Recommendation:

We recommend that the attached nomination proceed with the promulgation of an administrative rule for dedication of the Carney Fen Natural Area.

Douglas A Reeves, Acting Chief
Wildlife Division

Lynne Boyd, Chief
Forest, Mineral and Fire Management

Ron Olson, Chief
Parks and Recreation Division

Rodney Stokes, Acting Chief
Law Enforcement Division

Kelley Smith, Chief
Fisheries Division

Patricia A. Spitzley, Chief
Office of Legal Services

Arminda S. Koch
Resource Management Deputy

Dennis Fedewa
Chief Deputy

Approved as to matters over which the Director has authority.

Rebecca A. Humphries
Director

_____
Date Approved

Carney Fen Natural Area

Proposed Natural Area Nomination shown over Standard MI Reference Linework

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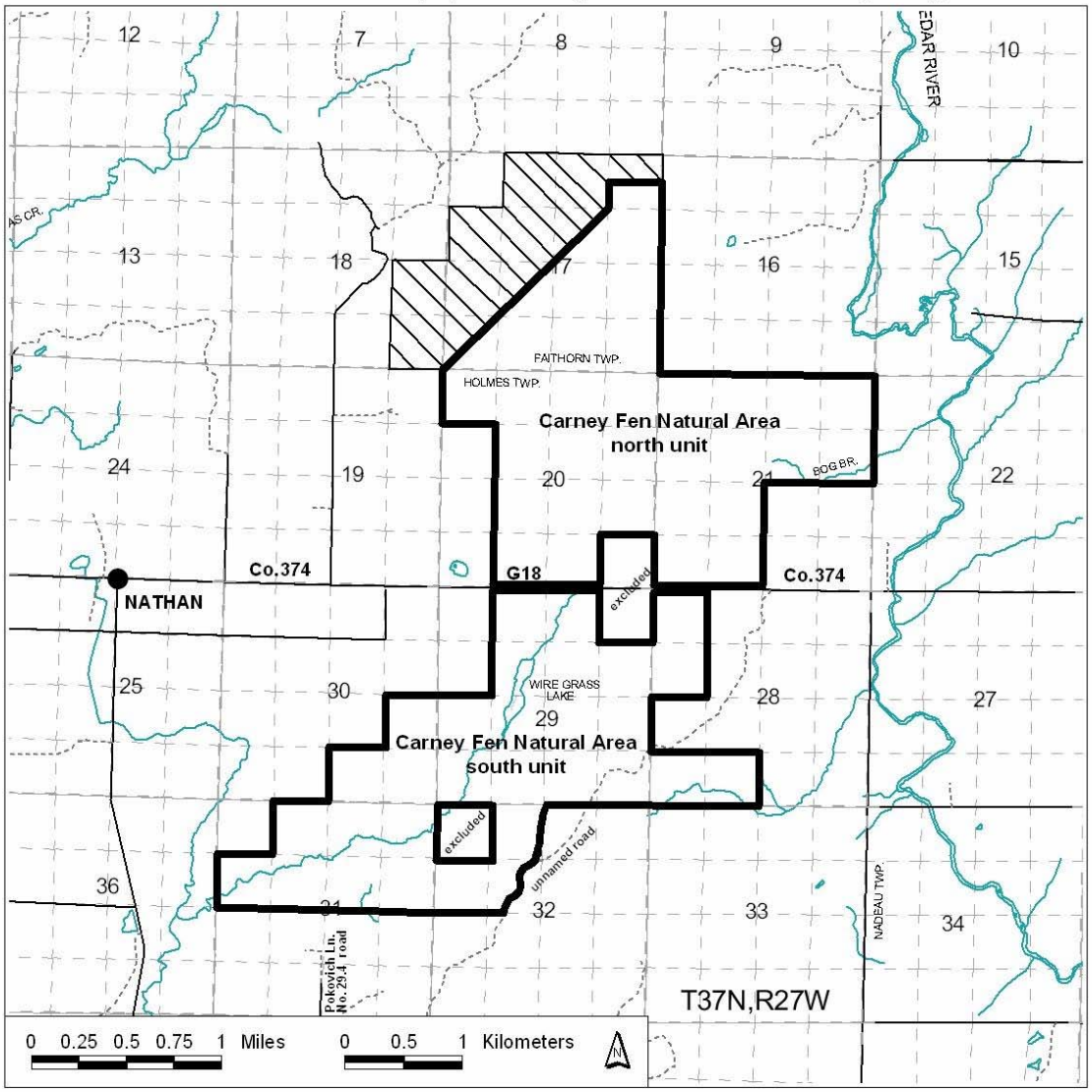
Holmes and Faithorn Townships (T37N R27W), western Menominee County, Michigan



LEGEND:

- Proposed Carney Fen Natural Area Boundary
- Omissions / Exclusions from Proposed Area
- Possible Carney Fen DNR Special Conservation Area (SCA) - being developed after accepted nomination of the proposed Carney Fen Natural Area.

Base Reference Data:

- Paved Road
- Gravel Road
- Trail / Two Track
- Lake/ Pond Shore
- Streams / Rivers
- Int.Streams
- Town/Range Section Lines

(03/07/2008 -map1 -WLD/MLS)

Carney Fen Natural Area

Proposed Natural Area Nomination shown over Standard USGS Toopographic Data

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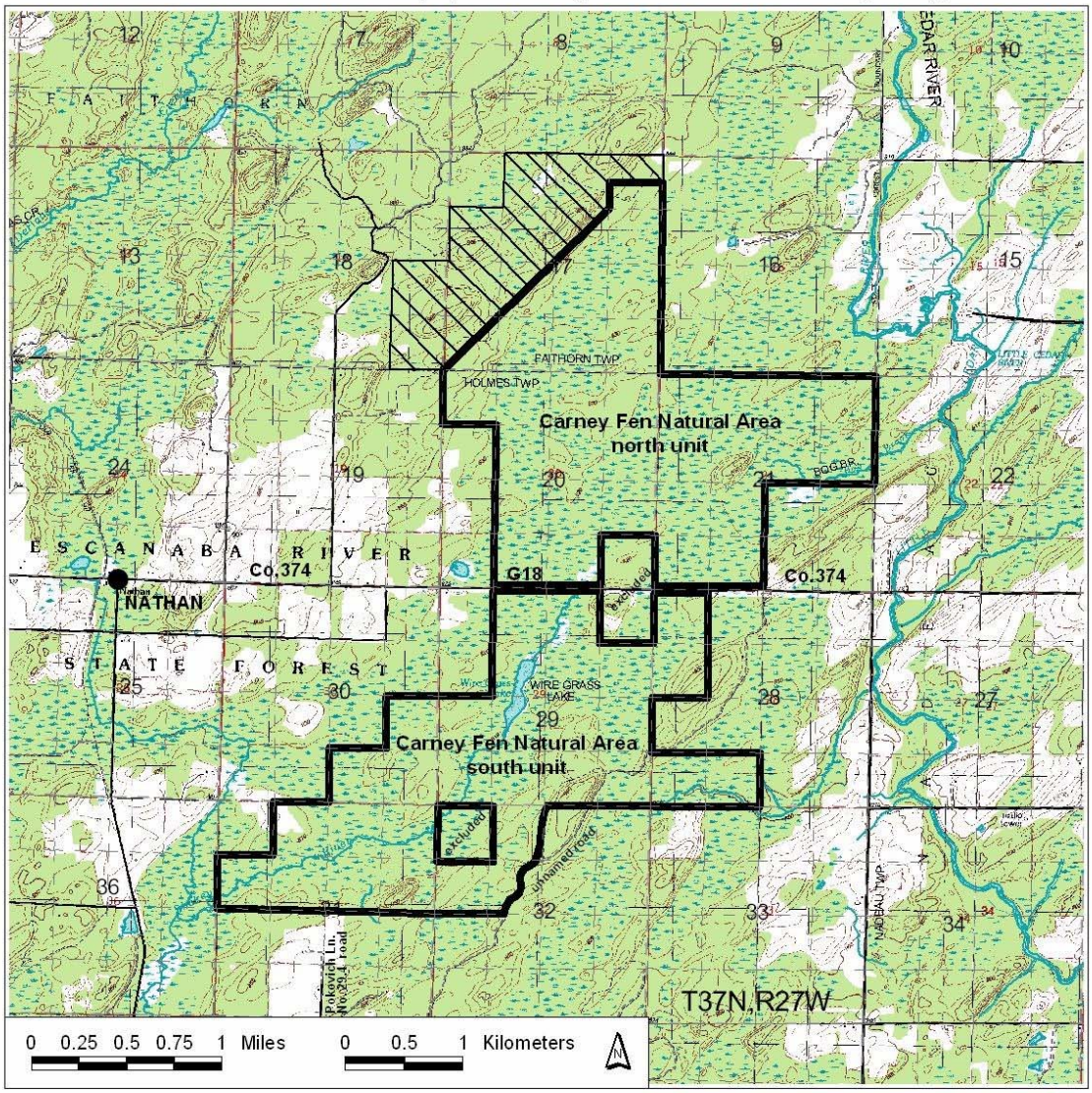
Holmes and Faithorn Townships (T37N R27W), western Menominee County, Michigan



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Backdrop uses the standard USGS 1:24,000 scale topographic quadrangle map (digital raster graphic) as base reference data, and therefore uses the standard topographic elements; these standard elements are not listed in the legend on this map figure (see www.usgs.gov).

(03/07/2008 -map2 -WLD/MLS)

Carney Fen Natural Area
<u>boundary legal definition</u>

R 322.XX.X Carney fen natural area.
Rule X. The following described area is dedicated as a natural area under the designation of the Carney fen natural area: the parcels of land are located in Section 17, T37N, R27W, Faithhorn township, Menominee county, and Sections 20-21 and 28-32, T37N, R27W, Holmes township, Menominee county, specifically the parcels of S 1/2 of NE 1/4 of NE 1/4, SE 1/4 of NE 1/4, SE 1/2 split along diagonal from NE-corner to SW-corner of SW 1/4 of NE 1/4, SE1/4, SE 1/2 split along diagonal from NE-corner to SW-corner of NE 1/4 of SW 1/4, SE 1/4 of SW 1/4, SE 1/2 split along diagonal from NE-corner to SW-corner of SW 1/4 of SW 1/4, Section 17, T37N, R27W, Faithhorn township, Menominee county; NE 1/4 of NE 1/4, W 1/2 of SE 1/4, NE 1/4 of SE 1/4, E 1/2 of SW 1/4, E 1/2 of NW 1/4, NW 1/4 of NW 1/4, Section 20, T37N, R27W, Holmes township, Menominee county; NE 1/4, W 1/2, Section 21, T37N, R27W, Holmes township, Menominee county; S 1/2 of SW 1/4, W 1/2 of NW 1/4, Section 28, T37N, R27W, Holmes township, Menominee county; W 1/2 of NE 1/4, SE 1/4 of NE 1/4, S 1/2, E 1/2 of NW 1/4, Section 29, T37N, R27W, Holmes township, Menominee county; W 1/2 of SE 1/4, SE 1/4 of SE 1/4, Section 30, T37N, R27W, Holmes township, Menominee county; N E1/4, S 1/2 of NW 1/4, NE 1/4 of NW 1/4, Section 31, T37N, R27W, Holmes township, Menominee county; SW 1/4 of the NW 1/4, majority of NE 1/4 of NW 1/4 except that portion located east of unnamed road extending easterly off Pokovich lane No. 29.4 road (which extends easterly off county road 577, at a point approximately 2 2/3 miles south of village of Nathan and 1/3 mile north of village of Gardner) then heads northeasterly to county road 374 or county road G18 (intersecting at a point on county road 374 or G18 located approximately 3 miles east of village of Nathan) with said unnamed road segment running nearly north-to-south on eastern side of quarter-quarter block, majority of SE 1/4 of NW 1/4 except that portion located east of unnamed road extending easterly off Pokovich lane No. 29.4 road (which extends easterly off county road 577, at a point approximately 2 2/3 miles south of village of Nathan and 1/3 mile north of village of Gardner) then heads northeasterly to county road 374 or county road G18 (intersecting at a point on county road 374 or G18 located approximately 3 miles east of village of Nathan) with said unnamed road segment running nearly diagonally northeast-to-southwest on eastern side of quarter-quarter block, Section 32, T37N, R27W, Holmes township, Menominee county; the Carney fen natural area exludes the right-of-way (“ROW”) of county road 374 or county road G18, which divides the area into north unit (north of road easement) and south unit (south of easement). Total of 2405.6 acres or 973.5 hectares, more or less (“m/l”).

SITE ANALYSIS

Location and Size

Located within the Escanaba River State Forest, the Carney Fen is 5 miles west of Carney, Michigan. Its USGS map location is in the Banat quadrant at roughly 45.57° north, 87.66° west. Its boundaries encompass approximately 3510 acres. This proposed natural area occurs in the western section of the Northern Lacustrine-Influenced Upper Michigan Ecoregion. (Albert, D. A. 1995)

Ecosystems/Watershed/Ecological Processes

County Road G-18 bisects the site. The acreage north of the road has the upper watershed of the Shakey River and an adjacent rich conifer swamp. The headwater area also has a northern mesic forest. The water drains under the road and then meanders through a conifer swamp on the edge of a bog, emptying into Wiregrass Lake. The outlet of the lake becomes the Shakey River and flows south through the Shakey Lakes(a nominated natural area) and into the Menominee River.

The soils in the Carney Fen area are part of a drumlinized ground moraine that covers a large part of Menominee County (Appendix B-1). This area consists of elongated oval hills of calcareous, compact, loamy glacial till which are surrounded by large areas of wet organic soils. Many of the upland soils in the northern and western part of the fen area have limestone bedrock within 40 inches of the soil surface. The organic soils consist of muck (sapric material) ranging from 15 to more than 50 inches in thickness and make up more than 70 percent of the fen wetland ecosystem. An analysis of the county soil survey indicates a very interesting soil/bedrock relationship that exists in the Carney Fen Wetland Ecosystem. The northern part of the ecosystem or headwaters of this area is dominated by soils that are shallow over limestone bedrock (Appendices B-3 and B-4). Precipitation that falls on the north and west margins of the watershed quickly percolate through the muck and relatively thin layer of calcareous glacial till deposits and flow in a southerly direction across the bedrock surface. Some of the carbonates are dissolved into the water as it passes through these highly calcareous glacial deposits. Because the bedrock is composed of calcium and magnesium carbonates, these carbonates may also be dissolved into solution and become part of the shallow ground water, which in turn supplies nutrients for the ecosystem and diverse plant community that has developed in this very unique area. The reaction at the soil surface is commonly acid in the thin sphagnum moss layer that occurs but the ground water is usually neutral or more alkaline because of the carbonates that are present**.**

The proposed acreage will encompass a sufficient area that will enable the necessary ecological processes to continue to occur. This will provide for the long-term survival of the interconnectedness of the communities found within the area.

Natural Communities/Habitat Features

The diversity of natural communities found in the complex includes a northern fen, a rich conifer swamp and a poor conifer swamp connected by groundwater flow that surface throughout the area. In addition, there occurs a cattail marsh, a sedge meadow, a shrub carr, an isolated bog and the entire area is spotted with mixed forested uplands, covered with both boreal forests and northern hardwoods. (Appendix B-4) State Natural Areas containing a northern fen have never

been legally dedicated in the Upper Peninsula of Michigan. (State Natural Areas in Michigan, 2000).

Animal and Plant Species/Assemblages

The Carney Fen Wetland Complex is home to many species of flora and fauna as a result of the diverse range of habitats found there(Appendices A-1 thru A-5). According to the results of a floristic quality analysis, this site has a high floristic quality with natural area potential (Appendix D and E) The proposed natural area harbors twenty-four orchid species(Appendix A-5). Recent discoveries were made at the site that include the state listed Calypso Orchid (Calypso bulbosa) and the federal and state listed Dwarf Lake Iris (Iris lacustris), endemic to the Great Lakes region. Inland stations are atypical and probable relicts of former post-glacial lake stages. The iris was located in disturbed gravelly areas growing on logging roads and on the edge of the road in full sun to partial shade. The Ram's-head Lady's-slipper (*Cypripedium arietinum*) has been located in a variety of habitat types within the wetland ecosystem and is of special concern in every state and Canadian province in which it occurs. Based on the field surveys of the site (Appendices C and D), this mosaic of plant communities may contain one of the largest element occurrences of Ram's-head Lady's-slipper in North America. During the winter of 2005 a pair of Gray Wolves (*Canis lupus*) was tracked at Wire Grass Lake. Coyotes *(Canis latrans)* and a bobcat (*Felix rufus*) were also found. A pair of Northern Goshawks (*Accipter genitilis),* listed as special concern in the state of Michigan, has been nesting for at least the past two years in the northern mesic forest near the eastern border of the proposed natural area. Special concern species such as the American Bittern *(Botaurus lentiginosus)* and the Ebony Bog Haunter (*Williamsonia fletcheri*) inhabit the area. Historical records show that Marsh Grass-of-parnassus (*Parnassia palustris*), Assiniboia Sedge (*Carex assiniboinensis)* and the state endangered Small Round-leaved Orchis (Amerorchis rotundifolia) have all been observed at the fen. This wetland complex contains an assemblage of rare plants, insects and animals that constitute a northern fen community, a rare and unique ecological resource in the state of Michigan.

Social/Human Experience

The Carney Fen Wetland Complex provides opportunities for solitude, hunting, hiking, backpacking, wildflower study, birding and nature photography. In addition to recreation, the site is invaluable for research and education.

Geologic Elements/ Landscape Context

Fen wetlands are typically found where calcareous bedrock underlies a thin mantle of glacial drift and the soils are neutral to alkaline (Michigan Natural Features Inventory, 2003). According to Bedford and Godwin (2003), fens are wetlands distinguished by their strong connection to ground water. Fens are rare in Michigan and are considered to be highly unusual and important places (Sargent and Carter 1999). The Carney Fen Wetland Complex must be protected in its entirety because of this ground water flow throughout the interconnected wetlands and wide range of community types. They provide an exceptional opportunity for conservation of native plants relative to their size and abundance (Godwin et al. 2002). The structure and species composition of a rich conifer swamp community is strongly influenced by the constant flow of mineral-rich cold groundwater through organic soils (Schwintzer 1981). These swamps are one of the most floristically diverse natural communities in the upper Midwest, providing habitat for

more than 25% of Michigan's wildlife species significantly contributing to the overall diversity of the northern Great Lakes region (Kost 2002).

Threats/Restorability/Damage

More than two decades ago a vehicle traversed north and south through the section that was commonly called the "Carney Bog". The impact of that activity on the soil is still there. Recent ATV activity has damaged the sedge meadow. Any logging activity would have detrimental effects on the native plant communities and the resident pair of Northern Goshawks. Logging or vehicular use of any kind provides transportation for seeds of invasive plant species. Highway G-18, crossing through the site, continues to be an example of this type of threat. Other threats include potential encroachment from development and over-browsing of native vegetation which poses a serious concern for cedar regeneration and other plant reproduction.

Michigan Natural Areas dedication will eliminate the threats associated with commercial or residential development, mineral mining, and use of motorized vehicles thus reducing the threat of invasive species seed dispersal. A volunteer stewardship program would protect the habitat from controllable occurrences of invasive species.

Conclusion

Both in the many years of personal involvement with the Carney Fen by the authors of this application and in the complex task of preparation on this document, it has become apparent to us that:

- the Carney site is ecologically significant.
- the presence of many species of orchids found there is very important.
- the area represents an interconnectedness of many relatively unaltered different communities
- the organisms found there are quite sensitive to potential activities of humans.
- the designation of the Carney Fen Wetland Complex as a state natural area would not only recognize the uniqueness of the area, but provide much needed protections as well.
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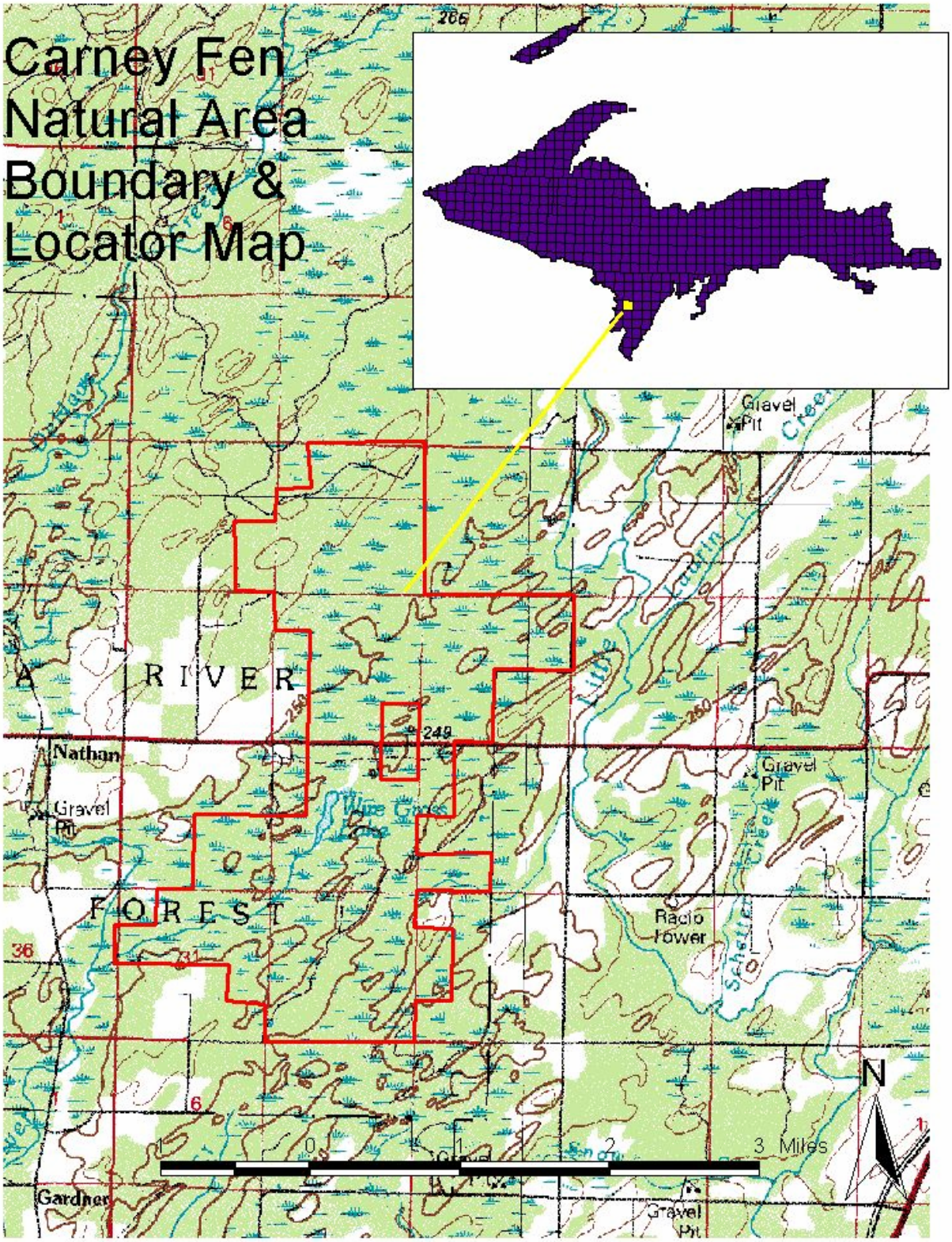
It is our hope that in this age of overall habitat loss and environmental degradation, this place remains intact for future generations to come. Establishing it as a natural area is in everyone's best interest.

Carney Fen Natural Area Boundary & Locator Map