

OGONTZ LAKE PLAIN  
CANDIDATE RESEARCH NATURAL AREA

HIAWATHA NATIONAL FOREST  
ESCANABA, MI 49829

SUBMITTED BY:  
MICHIGAN NATURAL FEATURES INVENTORY

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ECOLOGIST

PRELIMINARY REPORT: 31 MAY 1988

FINAL REPORT: 30 SEPT. 1988

A handwritten signature in cursive script, appearing to read "D A Albert", is written over a horizontal line.

Dennis A. Albert

30 SEPT. 1988

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## A. Background

### 1. Historic setting

General Land Office Surveyors under the direction of Henry Healey in 1847 described the vegetation of this and other nearby glacial lake basins. The surveyors descriptions agree with both the abiotic and biotic conditions observed during the field survey. The surveyors described the landscape as extensive marsh containing 20-80 ft high sand ridges; in geological terms this translates to a flat lake bed or embayment upon which numerous transverse dunes were formed. Forests of red pine, jack pine, and aspen dominated the dunes. The surveyors described the Muskeg (treed bog) on the level lake plain as marsh occupied by scattered jack pine and black spruce, and characterized by cranberries, wire grass, and marsh laurel. The term muskeg will be used rather than marsh throughtout the report when referring to an open bog mat with scattered jack pine, black spruce, and tamarack. The surveyors noted two common forms of disturbance-fire, which affected both the muskeg and pine forests, and flooding by beaver dams, which affected primarily the muskeg. Fire had swept through the township in 1846, burning the marsh, but not destroying the pines on the ridges. G.L.O. surveyors noted that about 2 ft beneath the marsh, the soil was wet sand.

Along the margins of the glacial lake basins, which are not included within this proposed RNA, but which are part of the ecosystem, drainage conditions gradually improve; upon rising onto the adjacent landform, whether an end-moraine ridge, ground-moraine ridge, or outwash plain, the soils become well drained or excessively well drained. On the edges of the lake basin, the gradual change in drainage conditions is reflected by a gradual change in plant communities, typically from muskeg to conifer swamp or hardwood-conifer swamp, and finally to northern hardwoods. The proposed RNA is near the center of a

glacial lake basin, and therefore only supports the muskeg and conifer swamps characteristic of very poorly drained conditions, and the pine forests characteristic of the excessively drained dunes. The northern hardwoods forest characteristic of the moderately well drained margins of the basin are absent.

The timber on the dune ridges was cut, probably between 1890-1910, based on cutting history in this part of Upper Michigan. Most of the ridges were burnt following cutting; the resulting forests on the ridges are now typically dominated by jack pine, bigtooth aspen, and paper birch, but occasional ridges have exhibited good red pine reproduction. The 1939 aerial photos verify that cutting was severe on the ridges. Cutting history within the open forests of jack pine and black spruce on the muskeg is not clear. The 1939 photos show timber stocking similar to that present now. Based on my sampling, none of the black spruce, tamarack, or jack pine on the muskeg were older than 75 years, while most were younger than 40 years in age. On similar State Forest properties, both the black spruce and jack pine have typically been harvested in the past, except in the least productive stands. Natural death of the timber may also account for its youth, as there are several insect pests which affect these species. Abundant dead jack pine was also observed, presumably due to high water levels within the muskeg.

## 2. Description of physical characteristics

The tract is located within the Luce District, Seney Subdistrict of the Eastern Upper Peninsula (Albert, Denton, and Barnes 1986), characterized as a subdistrict of poorly drained sand lake plain. The topography is generally flat, with poorly drained glacial embayments and deltaic deposits. The embayments were part of glacial Lake Algonquin, and date from approximately 8,000 years ago (Futyma 1981). Locally beach ridges, dunes, and sand spits rise above the level of the embayments; these typically exhibit excessively

drained conditions. The surface soils are generally sand, carried into the embayments by glacial meltwater streams, and then reworked by both wind and wave action. The steep transverse sand dunes can be seen upon even a rapid examination of aerial photos, but closer examination of the photos or of peat depths (determined with a soil probe), shows many more small sand bars and beach ridges.

Natural drainage conditions within the embayments have changed considerably in the last 3,000-4,000 years (Futyma 1982). Prior to that time, during the dry Hypsithermal Period, the embayments were droughty sand plains dominated by pines. Following the Hypsithermal, the climate became moister and cooler, causing dominance by wetland species and the gradual buildup of peat deposits. The relatively young (3,000-4,000 years old) peat deposits are 2-3 ft thick over the surface of most of the plain, based on 22 samples taken during the survey. The shallowness of these deposits is probably a product of both their young age and the recurring partial destruction of the peat by fire, a common form of disturbance within the wetlands, based both on my personal field observations and the published results of peat stratigraphic studies (Futyma 1982).

Limestone is exposed at the surface within a few miles to the west. It is assumed that limestone underlies this embayment, possibly within a few feet of the surface sand deposits, but there are no vegetative indicators, such as abundant northern white-cedar, to suggest a strong calcareous ground water influence.

## B. Justification and Features

### 1. Geographic significance

The proposed RNA is a typical example of a glacial embayment with

transverse dunes. These landscapes are relatively common within eastern Upper Michigan and occasional in Lower Michigan (Figure 1), although most have seen similar historic treatment, i.e., heavy logging on the dunes. This has altered the overstory component of most of the transverse dunes, resulting in the elimination of red pine from most ridges. However, the ridges within part of the proposed RNA still contain red pine, making that portion of this site more representative of the original vegetation of the dunes than many other similar sites. Based on my past observations, only a few of the transverse dunes within this area still support red pine, with jack pine and bigtooth aspen now dominant on the others. The wetland portions of the individual embayments within the larger bay do not appear to vary greatly from each other, nor do they appear to have been greatly altered by logging or other management history.

## 2. Importance to RNA program objectives

On federally protected natural areas in Michigan, the proposed RNA would be the only example of a glacial bay with steep transverse sand dunes, and typical supported vegetation. I recommend altering the candidate RNA boundaries from those originally proposed (Figure 2) to those shown in Figure 3, which include one of the high dunes in section 11. High dunes are characteristic of large portions of the embayment, even though the present vegetation on this particular dune is primarily aspen and jack pine.

Fire was important for the establishment of the pines in this ecosystem. This RNA provides the opportunity to study the effects of either fire exclusion and/or fire management upon the plant community.

I also consider the steep transverse dunes and the adjacent muskeg to be one of the more geologically interesting and aesthetically pleasing landscapes in the Upper Peninsula. Already existing logging roads offer easy

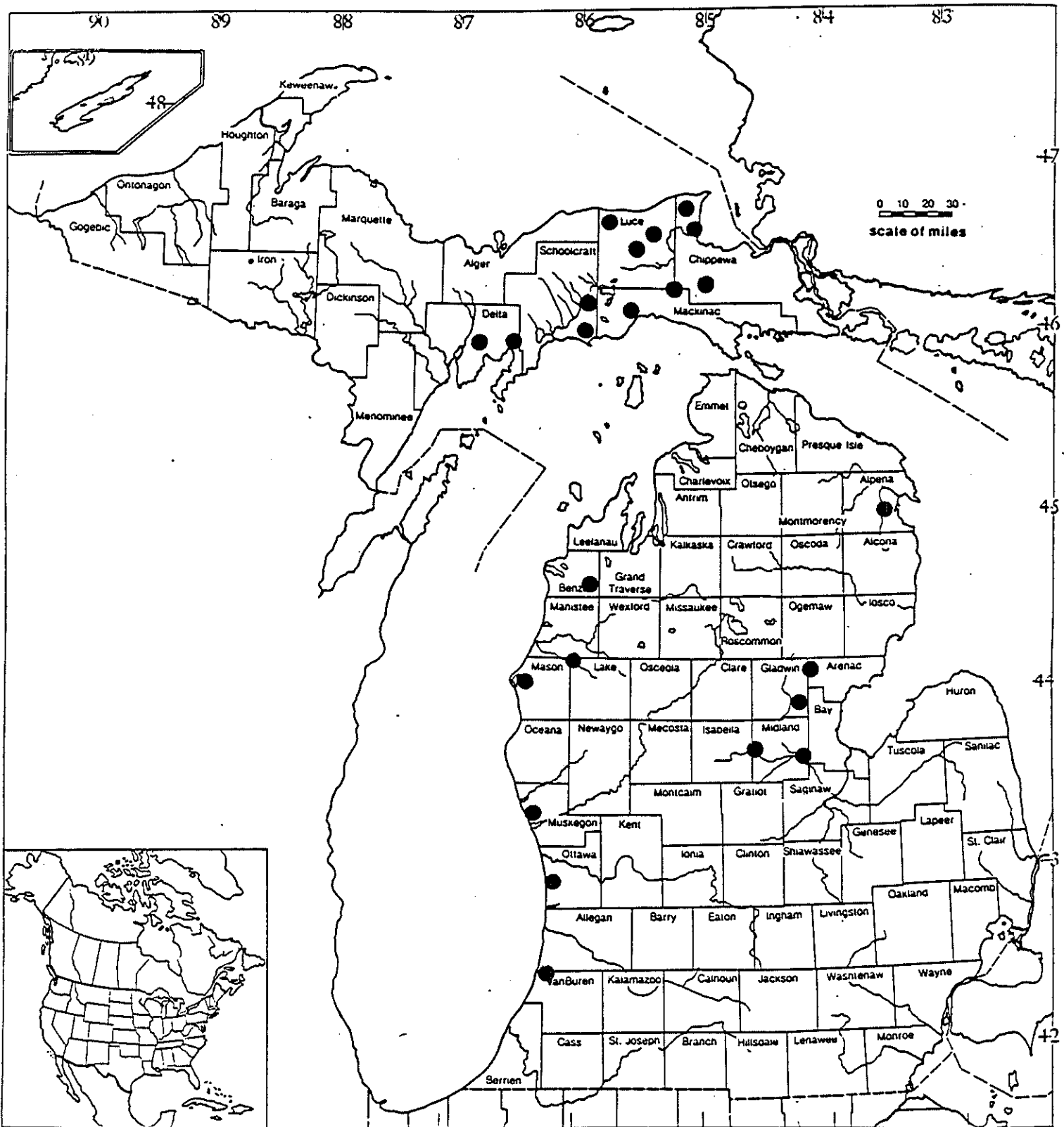
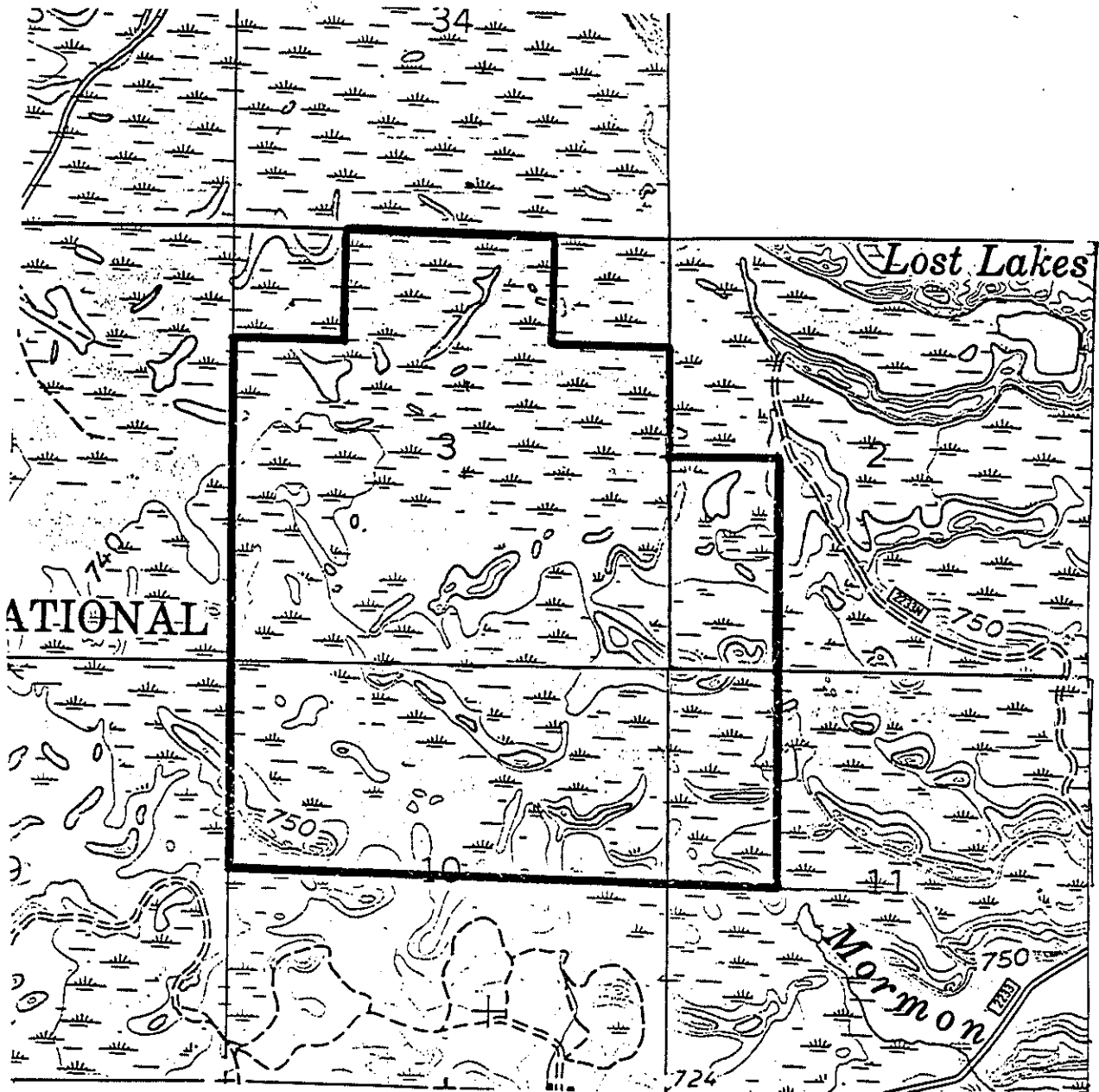


Figure 1. Location of glacial lake plains with transverse dunes in Michigan.



# Ogontz Lake Plain

Hiawatha National Forest

Candidate Research Natural Area

T41N, R20W

Figure 2. Originally proposed boundaries for Ogontz Lake Plain RNA.

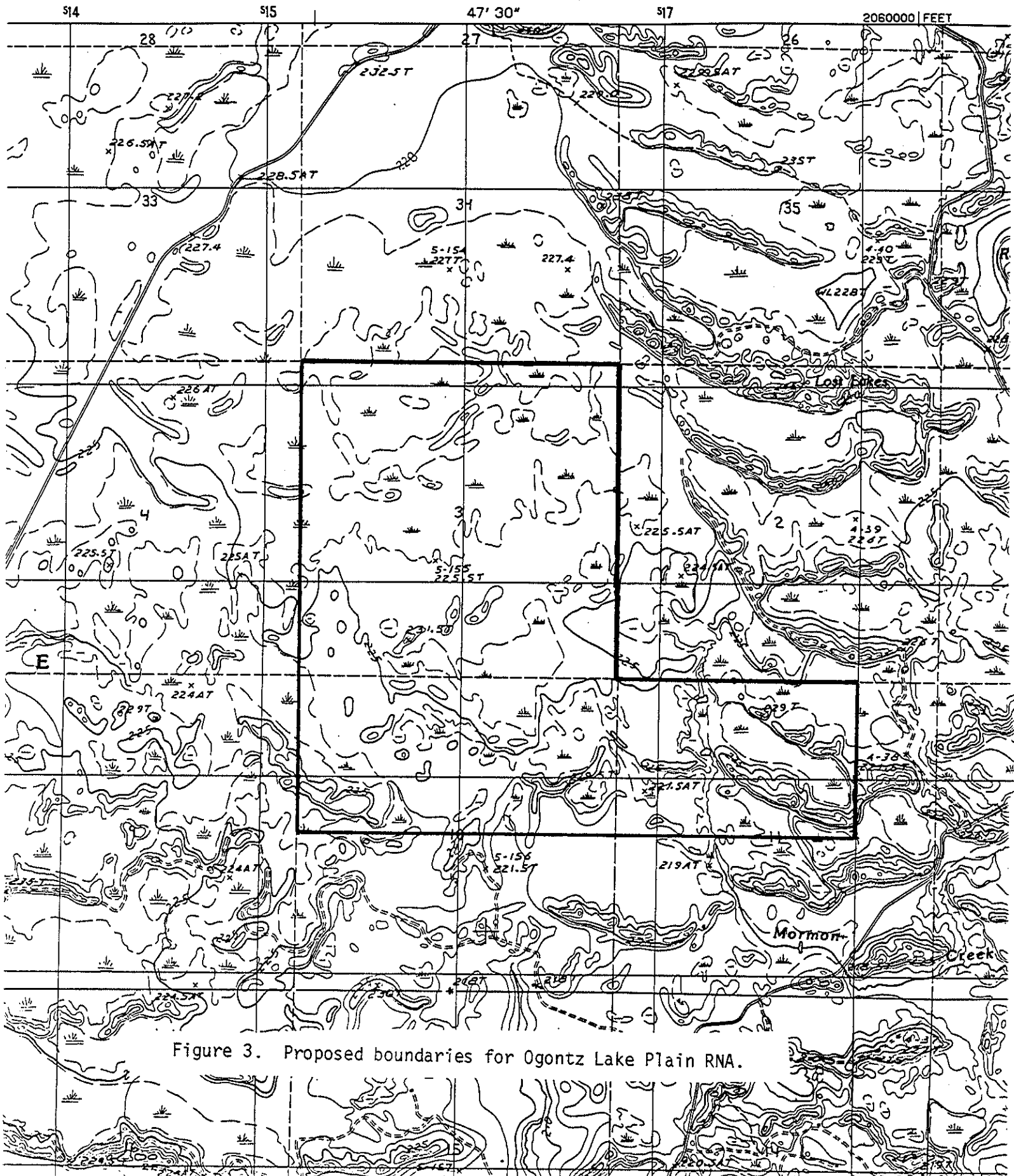


Figure 3. Proposed boundaries for Ogontz Lake Plain RNA.

access to most of the ridges, either for recreational or educational use.

The proposed Betchler Tamarack RNA is also part of a similar glacial embayment, but that site is located nearer to the margin of the embayment, thus showing a greater influence by ground water flow, and contains no well-developed transverse dunes. There are vegetation differences between the two sites, probably as a result of the size of the dune ridges and the difference in ground water conditions.

### 3. Impact of alternative designation

The present Management Area designation for the proposed RNA is primarily 8.1 (Hiawatha National Forest 1986), but MNFI's proposed addition is presently designated Management Area 1.2 (Figure 4). Management Area 1.2 emphasizes deer outputs, dispersed recreation, and aspen management for fiber production. We would recommend the addition of a portion of Section 11 to the proposed RNA (see Figure 3) to retain one of the higher dunes within the RNA, regardless of this dune's severe cutting history, which caused regeneration to aspen and paper birch. An alternative, less protective designation that could result in the eventual harvest of remaining red pine from the transverse dunes, will have unpredictable consequences on red pine regeneration. Such a designation would thus be unfavorable to maintenance of this exemplary ecosystem. An alternative designation which precluded cutting could suffice to protect the ecological values of this area, but would not provide the recognition and consequent enhanced protection generally afforded specially designated natural areas.

### 4. Historical activity/interest in area

No known previous interest in this area was encountered by the author. A similar site was recommended by the author for protection in 1984 (Michigan Natural Features Inventory 1985), but the stand had been cruised and a contract

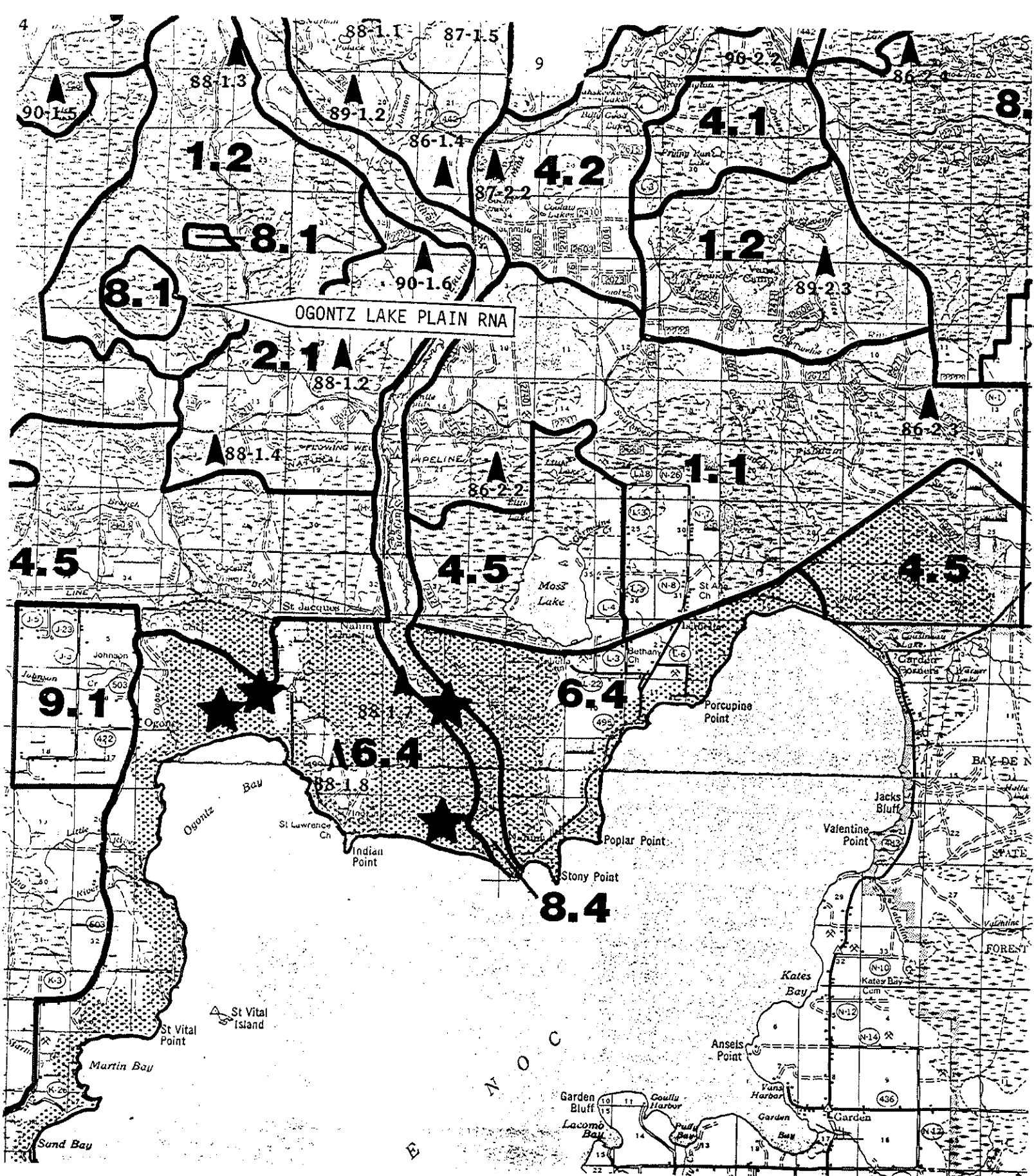


Figure 4. Management Area designations within and adjacent to the Ogontz Lake Plain RNA (Hiawatha National Forest 1986).

let before the National Forest was notified of its potential significance.

C. Significant elements (natural features)

1. Natural communities (See description under F. Flora, page 12)

- a. Dry Northern Forest. Federal: G4? State: S3? Grade: B

Forest Cover Type 1 (jack pine) and 15 (red pine)

- b. Muskeg. Federal: G4 State: S4? Grade: A

Forest Cover Type 12 (black spruce), 13 (black spruce-tamarack,  
and 38 (tamarack)

- c. Rich Conifer Swamp (and Hardwood-Conifer Swamp). Federal: G4

State: S4? Grade: B

Forest Cover Type 37 (northern white-cedar) and 11 (aspen-paper  
birch)

- d. Northern Wet Meadow

2. Special plants

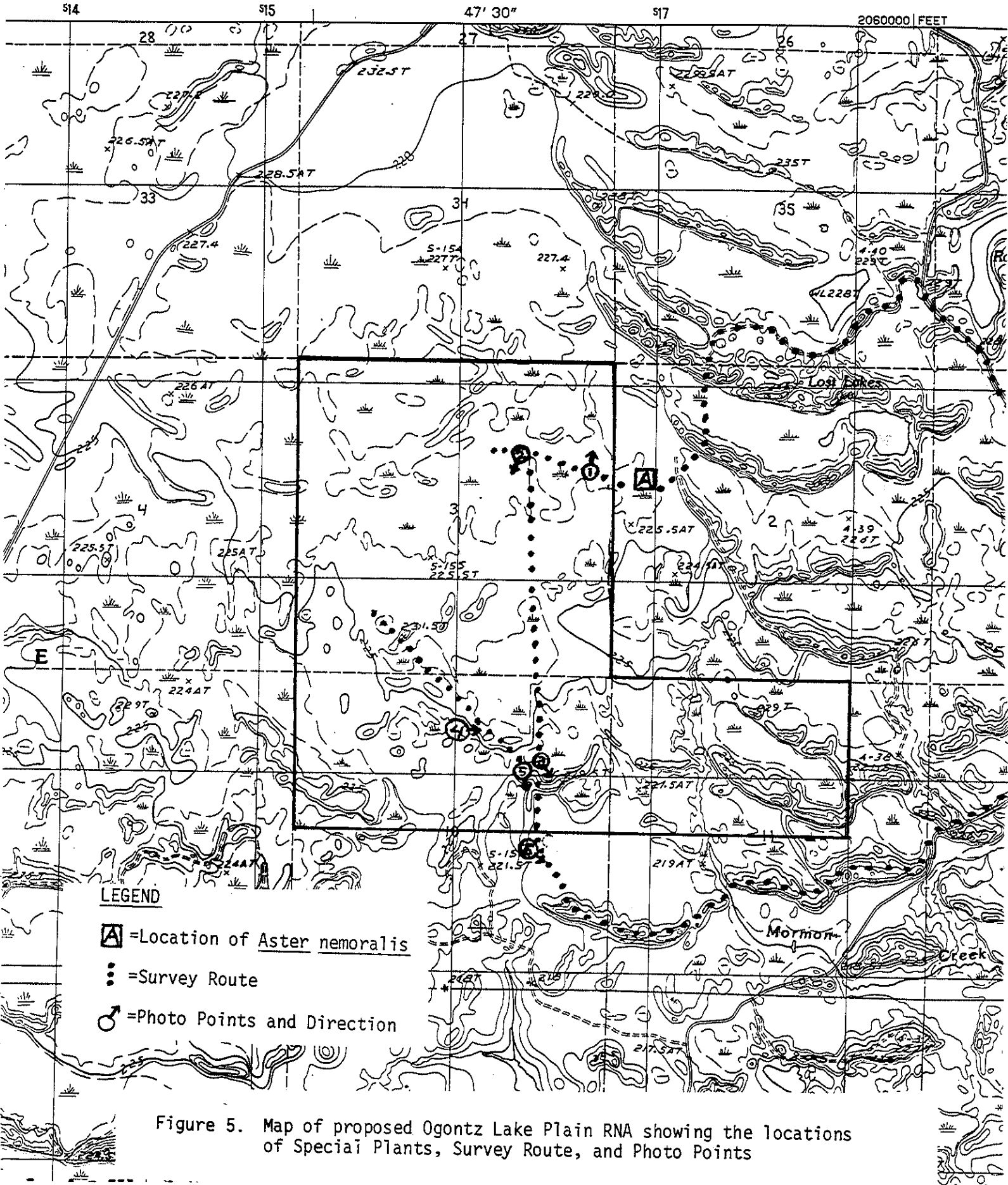
a. Aster nemoralis. Status: State Special Concern. This aster was only locally distributed in one area with a 200-300 foot radius, in the SW4 of the NW4 of Section 2, T41N, R20 W (Figure 5). This species is often much more common in similar wetlands, especially near the margins between upland and wetland, where there is some ground water flow. A detailed survey on the margins of this lake plain might uncover larger numbers of plants than were found.

3. Special animals

Not surveyed.

4. Geologic features

As previously mentioned, the potential RNA is located in a portion of an embayment of glacial Lake Algonquin. Within the embayment are several



**LEGEND**

**A** = Location of *Aster nemoralis*

• = Survey Route

♂ = Photo Points and Direction

Figure 5. Map of proposed Ogontz Lake Plain RNA showing the locations of Special Plants, Survey Route, and Photo Points

transverse dune ridges, probably formed as water levels dropped. There are several similar Lake Algonquin embayments in the eastern half of Upper Michigan.

5. Aquatic features

Not surveyed.

6. Other special features

None noted.

D. Area of natural communities

Figure 6 delineates the boundaries of plant communities and certain physical features, such as dunes, streams, and lakes.

E. Climatic conditions

The climate of the Mackinac District is milder than that of more upland districts of Upper Michigan due to the moderating effect of Lake Michigan (Albert, Denton, and Barnes 1986). The microclimate within this embayment may be quite harsh, with earlier and more severe frosts than the adjacent uplands or the more coastal portions of the climatic district. This is based on observations within the Betchler Tamarack proposed RNA, where sphagnum mosses in the basin were solidly frozen in early September (9-3-1987, 10 AM), when temperatures on the adjacent uplands were much warmer.

F. Flora

1. Plant communities

a. Dry Northern Forest

The transverse sand dunes, 10-50 ft high, support open forests of red pine, jack pine, and bigtooth aspen. Locally paper birch is also common,

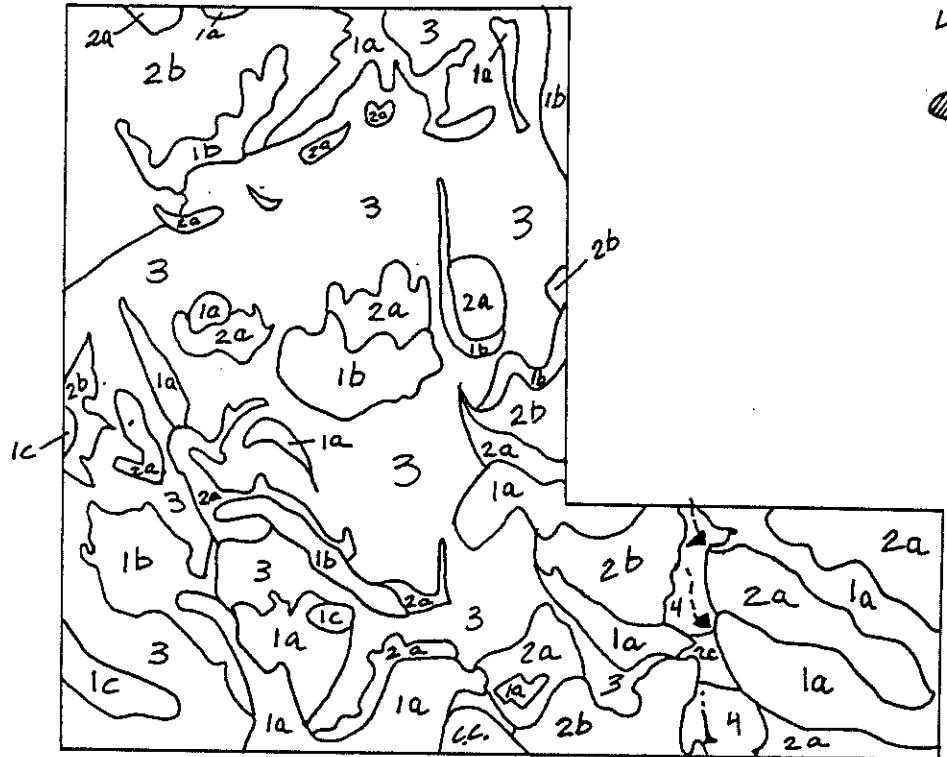
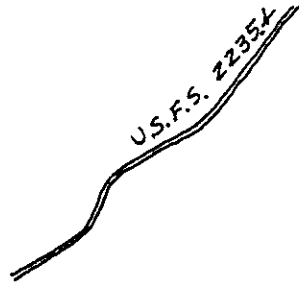


Figure 6. Plant communities of proposed Ogontz Lake Plain RNA.

LEGEND

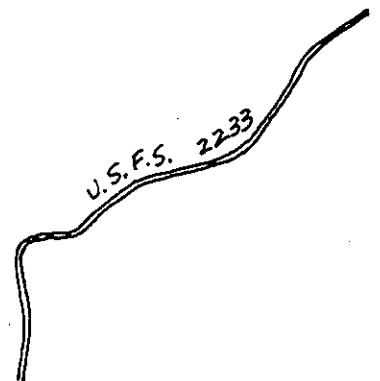
0 1.0 mile

- 1a=Upland Forest (Dry-Northern Forest) Primarily jack pine and bigtooth aspen
- 1b=Upland Forest (Dry-Northern Forest) Primarily mature red pine
- 1c=Upland Forest (Dry Northern Forest) Primarily bigtooth aspen
- 2a=Lowland Forest (Rich or Poor Conifer Swamp) cedar, larch, or black spruce
- 2b=Lowland Forest (Hardwood-Conifer Swamp)

3= Muskeg

4= Wet Meadow

⌋=Beaver Dam



and occasional balsam fir, white pine, red maple, and trembling aspen are present. The groundcover flora on the ridges is low in diversity, with the most common species including Pteridium aquilinum (bracken fern), Comptonia peregrina (sweet fern), Gaultheria procumbens (wintergreen), Vaccinium angustifolium (blueberry), Gaylussacia baccata (huckleberry), Arctostaphylos uva-ursi (bearberry), Carex pensylvanica (Pennsylvania sedge), and Danthonia spicatum (poverty grass). Fire was a common occurrence on the sandy ridges, as indicated in the GLO surveys. A species list is included in Appendix Ia.

b. Muskeg

The term muskeg is often used for broad expanses of wetland with stunted black spruce growing on Sphagnum hummocks. This typifies portions of the wetlands, where 75 year old black spruce are 12 feet tall and 2" dbh. Diversity is low, with hummocks of Sphagnum capillifolium and S. fuscum, abundant Carex oligosperma, Chamaedaphne calyculata, Ledum groenlandicum, Andromeda glaucophylla, and Scirpus cespitosus. A more complete species list is included in Appendix Ib. Other portions of the open, Sphagnum mat contain scattered jack pine and tamarack, with the former typically dominant. The jack pine are seldom taller than 18-20 ft, whereas the tamarack are seldom taller than 10-12 ft. Many of the jack pine were dead, apparently from high water levels. Charcoal is common at the bases of windthrown jack pine near the margins of the wetlands, indicating that fires may be involved in establishment of the jack pine. The peat of the mat averages 2-3 ft thick. Locally it is greater than 4 ft thick.

c. Rich Conifer Swamp

At the ecotone between the transverse dunes and the flat lake bed, ground water flow is adequate to allow a narrow zone of more diverse swamp dominated by northern white-cedar with a diverse herbaceous flora which

reflects the rapid changes in light, drainage, and pH conditions. Portions of the zone between the uplands and the very poorly drained Muskeg contain black ash, trembling aspen, tamarack, speckled alder, and shrub willows and could be classified as Hardwood-Conifer Swamp. This zone typically changes into low diversity Muskeg within one or two chains (60-120 ft) distance. Near the margins of the embayment (not well represented in the proposed RNA) Hardwood-Conifer Swamp covers broad areas. Appendix Ic is a Rich Conifer Swamp species list.

.....

This community, dominated by grasses and sedges, and containing scattered shrub willows and speckled alder, is scattered throughout the muskeg. It typically marks the headwaters of small streams. Among the dominants are Carex stricta, C. lacustris, C. aquatilis, and Calamagrostis canadensis. Appendix Id is a species list for the community. Three streams originate near the RNA, including Bills and Morman Creeks, and the North Branch of the Ogontz River.

## 2. Natural quality and conditions

Conditions of the wetlands have probably undergone no major alteration due to human management. The Dry Northern Forests on the dunes, in contrast, have been altered to a much greater extent. Within the proposed RNA, portions of the ridges remain representative of the original forest composition, while other portions have been altered by logging and post-logging fire. Parts of all dunes retain lichen-covered openings caused either by intensive slash fires or other logging practices. The remains of logging trails can usually be followed the entire length of a dune, however, despite these disturbances, the conditions on this site are better than those observed on any other areas of similar dunes known to the author or recorded in the MNFI database.

### 3. Methods

Aerial photos were consulted before doing field reconnaissance and were used to delineate boundaries of the plant communities. Aerial photos from 1939 and 1978 were compared to determine past disturbance history. Field survey was conducted during the summer of 1987 to determine both abiotic conditions, such as mineral soil and organic soil characteristics, and also to determine forest stand composition and structure and ground cover composition. Photographs of the site are attached at the end of the report and photo points are shown of Figure 4. A species list was produced for the plant communities (Appendix Ia-d).

#### G. Fauna

No survey of the fauna was conducted. However, during the field survey both black bear and white-tailed deer sign were noted. Ruffed grouse were locally numerous on the low dune ridges. Coyotes were heard calling at dusk, as were whip-poor-wills.

#### H. Wildlife and plant values

##### 1. Habitat/management requirements (special plants and animals)

The only special plant noted in this study, Aster nemoralis, grows well in the extensive bogs and muskegs of eastern Upper Michigan. No detailed management requirements have been developed for this species. Maintenance of present drainage conditions is probably adequate management for the species. It is possible that this species will be removed from the Special Concern list, as inventory of large remote wetlands has added several large populations of the species to the list of known occurrences.

2. Population trends

Not known.

I. Management needs

In general, present management is adequate for all of the plant communities within the proposed RNA. Natural disturbances, such as fire, flooding by beaver, and localized windthrow will probably increase local diversity of the plant communities. Fire management may be needed to maintain the existing plant community.

J. Administrative records

The Michigan Natural Features Inventory will maintain information on the Muskeg and Dry Northern Forest. The Northern Wet Meadows are being treated as inclusions within the Muskeg.

## K. References

### 1. Literature cited

Albert, D. A., S. R. Denton, and B. V. Barnes. 1986. Regional Landscape Ecosystems of Michigan. School of Natural Resources, University of Michigan.

Futyma, R. P. 1981. The northern limits of Glacial Lake Algonquin in Upper Michigan. Quaternary Research 15: 291-310.

Hiawatha National Forest. 1986. Land and Resource Management Plan. United States Department of Agriculture, Forest Service, Eastern Region.

Michigan Natural Features Inventory. 1985. An overview of endangered and threatened species in Hiawatha National Forest, Michigan.

Michigan Natural Features Inventory. 1986. Draft description of Michigan natural community types. (Unpublished manuscript, revised 6 March 1986).

Society of American Foresters. 1940. Forest Cover Types of the Eastern United States. Washington, D. C.

### 2. Additional references

Albert, D. A. 1987. Field Notes.

## L. Appendices





	<i>Q. palustris</i>		<i>S. eurycarpus</i>
	<i>Ranunculus abortivus</i>		<i>S. alni-ana</i>
	<i>R. pensilvanicus</i>	D	<i>Sphagnum capillifolium</i>
	<i>R. sceleratus</i>	C	<i>Sphagnum recurvum</i>
	<i>R. septentrionalis</i>	C	<i>Sphagnum papillosum</i>
	<i>Ranunculus</i>		<i>Spiraea alba</i>
	<i>Rhænus alnifolia</i>		<i>S. tomentosa</i>
	<i>Rhynchospora alba</i>		<i>Spiranthes romanoffiana</i>
	<i>R. capillacea</i>		<i>Streptopus asperifolius</i>
	<i>R. fusca</i>		<i>Taxus canadensis</i>
	<i>Ribes americanum</i>		<i>Thalictrum dasycarpum</i>
	<i>R. glandulosum</i>		<i>Thelypteris palustris</i>
	<i>R. hirtellum</i>		<i>Thuja occidentalis</i>
	<i>R. hudsonianum</i>		<i>Toxicodendron vernix</i>
	<i>R. triste</i>		<i>Triadenum virginicum</i>
	<i>Rosa palustris</i>		<i>Tritentalis borealis</i>
	<i>Rubus hispido</i>		<i>Triglochin maritima</i>
	<i>R. pubescens</i>		<i>Trollius cernuus</i>
	<i>R. strigosus</i>		<i>Typha latifolia</i>
	<i>Rumex orbiculatus</i>		<i>Ulmus americana</i>
	<i>Sagittaria latifolia</i>		<i>U. rubra</i>
	<i>Salix bebbiana</i>		<i>Urtica dioica</i>
	<i>S. candida</i>		<i>Urticularia glabra</i>
	<i>S. discolor</i>		<i>U. intermedia</i>
	<i>S. lucida</i>		<i>U. purpurea</i>
	<i>S. pedicellaris</i>		<i>U. vulgaris</i>
	<i>S. pellolaris</i>		<i>Urticularia</i>
	<i>S. serotina</i>	C	<i>Vaccinium angustifolium</i>
	<i>Sambucus canadensis</i>		<i>V. coryambosum</i>
	<i>Sanicula oregana</i>	C	<i>V. macrocarpon</i>
	<i>Sarracenia purpurea</i>		<i>V. myrtilloides</i>
	<i>Scheuchzeria palustris</i>	C	<i>V. oxycoccus</i>
	<i>Scirpus acutus</i>		<i>Viburnum cassinoides</i>
	<i>S. atrovirens</i>		<i>V. lentago</i>
	<i>S. cyperinus</i>		<i>V. trilobum</i>
LC	<i>S. hudsonianus</i>		<i>Viola affinis</i>
LC	<i>S. <del>subsp. cespitosus</del> cespitosus</i>		<i>V. canadensis</i>
	<i>S. validus</i>		<i>V. nephrophylla</i>
	<i>Scutellaria galericulata</i>		<i>V. pallens</i>
	<i>S. laterifolia</i>		<i>Viola</i>
	<i>Senecio pauperculus</i>		<i>Vitis riparia</i>
	<i>Sium suave</i>		<i>Woodwardia virginica</i>
	<i>Sollertia trifolia</i>	D	<i>Sphagnum fascium</i>
	<i>Solidago canadensis</i>		
	<i>S. gr. aemulifolia</i>		
	<i>S. rugosa</i>		
W	<i>S. uliginosa</i>		
	<i>Sorbus americana</i>		
	<i>Spirganthus chlorocarpus</i>		

BOG/MUSKEG PAGE 2  
OGONTZ LAKE PLAIN

DENNIS ALBERT  
10 AUGUST 1987



LC	Glyceria canadensis	L. trisetica	H. mexicana	F. obtusata	F. secunda
	G. striata	Lepidium densiflorum	H. richardsonii	F. psychodes	F. uniflora
	Gymnocarpium dryopteris	Liatris spicata	H. lundbergia	Foa alnoides	Quercus bicolor
	Helenium autumnale	Lilium philadelphicum	Hyrica gale	F. compressa	Q. macrocarpa
	Helianthus giganteus	Lindera benzoin	Hyriophyllum farwellii	F. paludigena	Q. palustris
	H. grosseserratus	Lindernia anagallifolia	H. heterophyllum	F. palustris	Quercus
	H. tuberosus	Linnæa borealis	H. spicatum	F. pratensis	Ranunculus abortivus
	Hieracium lanatum	Liparis loeselii	H. tenellum	Poa	R. acris
	Hieracium richardsonii	Liriodendron tulipifera	H. verticillatum	Pogonia ophitiglossoides	R. aculeatum
	Hieracium odorata	Listera cordata	Hyriophyllum	Polemonium reptans	R. aquatilis
	Hydrocotyle americana	Lobelia cardinalis	Hajas flexilis	Polygala cruciata	R. fibellaris
	Hypericum boreale	L. Dortmann	Hasturium officinale	F. sanguinea	R. hispidus
	H. canadense	L. kalmii	Helumbo lutea	Polygonum amphibium	R. pensylvanicus
	H. ellipticum	L. sphinctica	Neopogonius auronata	P. hydroperoides	R. sceleratus
	H. kalmiana	L. spicata	Hyphasa odorata	Polygonum	R. septentrionalis
	H. ovatum	L. lobelia	Hyssa sylvatica	Pondera cordata	Ranunculus
	H. punctatum	Lonicera canadensis	Denothera perennis	Populus balsamifera	Rhænus alnifolia
	Hypericum	L. oblongifolia	Denothera	F. deltoidea	R. frangula
	Hypoxis hirsuta	Ludwigia alternifolia	Onoclea sensibilis	F. heterophylla	Rhynchospora
	Ilex verticillata	L. palustris	Oxunda cinnamomea	Fortulaca oleracea	R. capitellata
	Iapatis crenensis	Luzula acuminata	O. claytoniana	P. lagopetolon angustifolius	R. fusca
	I. pallida	Lycopodium annotinum	O. regalis	F. epiphyrus	Rhynchospora
LC	Iris versicolor	L. clavatum	Oxyopsis rigidior	F. filiformis	Ribes
	I. virginica	L. inundatum	Panicum capillare	F. foliosus	Ribes americanum
	Isotria verticillata	L. lucidulum	F. clandestinum	F. frutescens	R. glandulosum
	Juncus alpinus	L. obscurum	F. virgatum	F. gracile	R. nitellum
	J. balticus	Lycopodium	Panicum	F. illinoensis	R. tuscum
	J. biflorus	Lycopus americanus	Farnassia glauca	P. natalis	Ribes
	J. brachycephalus	L. uniflorus	Pedicularis lanceolata	P. nodosus	R. palustre
	J. canadensis	Lysichia ciliata	Pellandra virginica	P. pectinatus	Rorippa islandica
	J. effusus	L. nummularia	Penstemon digitalis	P. praelongus	Rosa acicularis
	J. greenel	L. quadriflora	Penthorum sedoides	P. richardsonii	R. palustris
	J. glaberrimus	L. terrestris	Petalites frigidus	P. robinsonii	R. setigera
	J. nodosus	Lysichia	Phalaris arundinacea	P. strictifolius	Rosa
	J. pelocarpus	Lytine alatum	Phragmites australis	Physocarpus opulifolius	Rubus acutus
	J. tenuis	Halentheum canadense	Physocarpus opulifolius	Physostegia virginiana	R. alleghaniensis
	J. torreyi	Katlenecia struthiopteris	Picea glauca	P. mariana	R. macrocarpa
	Juncus	Hentha arvensis	Pilea pumila	P. norvegica	R. pensylvanicus
	Justicia americana	Hemianthus trifoliolatus	Pinguicula vulgaris	P. palustris	R. rubricosa
	Kalmia angustifolia	Hepatica virginica	Plantanthera blephariglossis	P. palustris	R. norvegica
	K. polifolia	Hibiscus alatus	P. ciliaris	P. x clavellata	P. palustris
	Laportea canadensis	H. ringens	P. dilatata	P. flava	P. hyperborea
LD	Larix laricina	H. repens	P. laticarpa	P. minor	P. rotundifolia
	Lathyrus palustris	H. nuda	P. laticarpa	P. minor	P. rotundifolia
LC	Ledum greenlandicum	H. fistulosa	P. laticarpa	P. minor	P. rotundifolia
	Leersia oryzoides	H. rubra	P. laticarpa	P. minor	P. rotundifolia
	L. virginica	H. lundbergia frondosa	P. laticarpa	P. minor	P. rotundifolia
	Lernæ minor	H. obovata	P. laticarpa	P. minor	P. rotundifolia





USDA-FOREST SERVICE

## PHOTOGRAPHIC RECORD

PHOTOGRAPHER

Dennis A. Albert

HEADQUARTERS UNIT

MNFI

LOCATION

Lansing, MI

DATE SUBMITTED

August 10, 1987

INSTRUCTIONS: Submit to Washington Office in quadruplicate. Permanent numbers will be assigned and the forms will be distributed as follows: (1) Washington Office, (2) RO or Station, (3) Forest or Center and (4) Photographer.

TEMP. NO. (1)	PERMANENT NO. (To be filled in by the WO) (2)	SELECTED FOR W.O. PHOTO LIBRARY (3)	DATE OF EXPOSURE (4)	LOCATION (State and National Forest or County) (5)	DESCRIPTION OF VIEW (6)
1			8-10-1987	Ogontz Lake Plain, Delta Co. T41N R2W SE4 of NE4 of Sec. 3	Sedge and sphagnum moss dominated Muskeg with 1-3 inch diameter black spruce, tamarack, and jack pine in the background. Soil is 2-3 ft of organic material over saturated sand.
2			8-10-1987	T41N R2W SW4 of NE4 of Sec. 3	Muskeg with 3-6 inch diameter jack pine growing on 2-3 ft of organic soil over sand. Many of the jack pine are dead, possibly due to high water levels.
3			8-10-1987	T41N R2W SW4 of NE4 of Sec. 10	Edge of low dune ridge with mature red pine. Dune less than 20 ft high. Windthrow common along the edges of the wetland. Charcoal common in the roots of the windthrows.
4			8-10-1987	T41N R2W NW4 of NE4 of Sec. 10	Bracken fern dominated opening on a low dune ridge, less than 20 ft high. This ridge was cut more severely than that in photo 3. Regeneration to jack pine, big-tooth aspen, and paper birch.
5			8-10-1987	T41N R2W SW4 of NE4 of Sec. 10	Mature jack pine on open dune ridge, just south of photo 3.
6			8-10-1987	T41N R2W NE4 of SE4 of Sec. 10	View across open Muskeg to jack pine dominated ridge in SE4 of Sec. 10 and SW4 of Sec. 11. Some red pine at the edge of the ridge. Most of the ridge is heavily disturbed