United States Department of Agriculture

Forest Service

WO

Reply to: 4060-3 (TMR)

Date: May 30, 1989

Subject: Chief Approves Twin Lakes Bog RNA

To: Regional Forester, R-9, and Station Director, NC

Associate Chief Leonard signed the Designation Order (DO) for the Establishment Record (ER) of the Twin Lakes Bog Research Natural Area (RNA), Medford Ranger District, Chequamegon National Forest, Eastern Region (R-9), National Forest System (NFS), on May 19. The Twin Lakes Bog RNA's establishment is the 22nd for R-9 and the 18th for North Central (NC) Station. According to RNA database runstreams, the total area for RNAs in R-9 is 12,677 acres, about 5,130.2 hectares, while NC's is 9,877 acres, roughly 3,997.1 hectares. The total area for RNAs on NFS lands now stands at 214,157 acres, or 86,666.7 hectares.

Enclosed is a copy of the ER for the Twin Lakes Bog RNA with the signed DO for your records. Congratulations to all troops and let it roll!

STANLEY L. KRUGMAN, Director
Timber Management Research

Enclosure

cc:
Deputy Chief, NFS (w/o enc.)
Deputy Chief, R (w/o enc.)

Twin Lakes Bog

DESIGNATION ORDER

By virtue of the authority vested in me by the Secretary of Agriculture under regulations 7 CFR 2.42 and 36 CFR 251.23, I hereby establish the Twin Lakes Bog Research Natural Area. The Twin Lakes Bog Research Natural Area shall be comprised of the following lands: parts of the SESE, SWSE, Sec. 1, T.32N, R.1W

Regional Forester Floyd J. Marita recommended the establishment of the Twin Lakes Bog Research Natural Area in the Chequamegon National Forest Land and Resource Management Plan. That recommendation was the result of an analysis of the factors listed in 36 CFR 219.25 and Forest Service Manual 4063.41. The results of the Regional Forester's analysis are documented in the Final Environmental Impact Statement for the National Forest Land and Resource Management Plan and the Establishment Record which are available to the public.

The Twin Lakes Bog Research Natural Area will be managed in compliance with all relevant laws, regulations, and manual direction regarding Research Natural Areas. The Twin Lakes Bog Research Natural Area will be administered in accordance with the management direction identified in the Establishment Record. The Chequamegon National Forest Land and Resource Management Plan is hereby amended to be consistent with the management direction identified in the Establishment Record and this designation order. Directions on pages IV-2, IV-92 of the Chequamegon National Forest Land and Resource Management Plan are replaced by the direction on pages 1,3,8 of the Establishment Record. This direction will remain in effect unless amended pursuant to 36 CFR 219.10. This is a non-significant amendment of the Chequamegon National Forest Land and Resource Management Plan.

The Forest Supervisor of the Chequamegon National Forest shall notify the public of this amendment and will mail a copy of the Designation Order and amended direction to all persons on the Chequamegon Land and Resource Management Plan mailing list.

Based on the environmental analysis documented in the National Forest Land and Resource Management Plan and the Establishment Record, I find that the designation of the Twin Lakes Bog Research Natural Area is not a major federal action significantly affecting the quality of the human environment.

This decision is subject to appeal pursuant to 36 CFR 211.18. A Notice of Appeal must be in writing and submitted to:

Chief
USDA, Forest Service
P.O. Box 96090
Washington, D.C. 20013-6090

RECEIVED IN WO-TMR

MAY 22 1989

The Notice of Appeal must be submitted within 45 days from the date of this decision. Within five days of receipt, the Chief will transmit the Notice of Appeal and a copy of the Designation Order to the Secretary of Agriculture for review at the Secretary's discretion. The appeal will be deemed denied if the Secretary takes no action within ten days of receiving the appeal.

for Chief

5/19/89
Date

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

TMIS
00204

ESTABLISHMENT RECORD FOR TWIN LAKES BOG

RESEARCH NATURAL AREA WITHIN THE CHEQUAMEGON

NATIONAL FOREST, MEDFORD COUNTY, WISCONSIN

U. S. GOVERNMENT PRINTING OFFICE : 1980 O - 309-842

FS-6200-7 (10/73)

EXHIBIT 2

USDA - FOREST SERVICE

PHOTOGRAPHIC RECORD

PHOTOGRAPHER: Robbin Moran

HEADQUARTERS UNIT: Chequamegon NF

LOCATION: Price County

DATE SUBMITTED: September 20, 1988

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)	NEGATIVE SIZE (7)
1.			Oct 1980	Taylor County T32N,R1W Sec 1 SESE SWSE	Twin Lakes Bog Research Natural Area with leatherleaf, Sphagum moss and Carex. Note bladderwort submerged in the water.	
2.			Oct 1980	Taylor County T32N,R1W Sec 1 SESE SWSE	Twin Lakes Bog Research Natural Area Interior of conifer swamp with even-aged tamarack stand and understory of Labrador tea and Sphagnum moss.	
3.			Oct 1980	Taylor County	Twin Lakes Bog Rearch Natural Area Interior of conifer swamp showing even aged tamarack stand with understory of Labrador tea and Sphagnum moss.	

1 Twin Lakes Bog Research Natural Area with leatherleaf, Sphagnum moss and Carex. Note bladderwort submerged in the water.

2 Twin Lakes Bog Research Natural Area-Interior of conifer swamp with even aged tamarack stand and understory of Labrador tea and Sphagnum moss.

3 Twin Lakes Bog Research Natural Area- Interior of conifer swamp showing even aged tamarack stand with understory of Labrador tea and Sphagnum moss.

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Twin Lakes Bog Research Natural Area

Chequamegon National Forest

Taylor County, Wisconsin

The undersigned certify that all applicable land management planning and environmental analysis requirements have been met and that boundaries are clearly identified in accordance with FSM 4063.21, Mapping and Recordation and FSM 4063.41 5.3(3) in arriving at this recommendation.

Prepared by: Ron Herman Date 10-31-88
Ron Herman, Forester

Recommended by: John C. Bisbee Date 10-31-88
John Bisbee, District Ranger, Medford District

Recommended by: W. M. Byers Date 11/14/88
William M. Byers Jr., Acting Forest Supervisor,
Chequamegon National Forest

Recommended by: D. L. Meyer Date 12/29/88
for Floyd J. Marita, Regional Forester, Eastern Region

Recommended by: R. D. Lindmark Date ~~2/23/89~~ 3/20/89
Ronald D. Lindmark, Station Director,
North Central Forest Experiment Station

TITLE PAGE

ESTABLISHMENT RECORD FOR THE TWIN LAKES BOG RESEARCH NATURAL AREA WITHIN THE CHEQUAMEGON NATIONAL FOREST, TAYLOR COUNTY, WISCONSIN

ESTABLISHMENT RECORD FOR TWIN LAKES BOG
RESEARCH NATURAL AREA
WITHIN THE
CHEQUAMEGON NATIONAL FOREST
TAYLOR COUNTY, WISCONSIN

INTRODUCTION

The 38 acre (15.2 ha) RNA is located entirely on National Forest lands within the Chequamegon National Forest. A topographic map, vegetative map, location map, and color photographs (Exhibit 2) are attached to this report. (Maps 1-3)

The significant natural qualities of this 38 acre (15.2 ha) RNA were first documented in 1980 by Wisconsin Department of Natural Resources (WDNR) biologists conducting an inventory of natural areas in Taylor County Wisconsin. The area was called to the attention of WDNR by Forest Service personnel. A further survey confirmed that the area did indeed possess natural features of high quality and would merit RNA status. A more detailed examination was conducted during the summer of 1986 by biologists of WDNR's Natural Heritage Program to update and expand existing information on the area's biota, assess the overall condition and quality of the area's major natural features, and make recommendations for appropriate protective status and/or management actions.

The WDNR has given this biotic natural area a state-wide significance classification which is their highest classification level. This site was recommended for protection by the Wisconsin DNR's Natural Areas Program because it is an example of the few remaining intact conifer swamps of its type. The forest type tamarack (Larix laricina) fits into the Society of American Foresters (SAF) cover type no. 38, Tamarack and Kuchler cover type no. 85, Conifer Bog. The upland 7.7 acre timber type fits the Society of American Foresters (SAF) cover type no. 25, Sugar Maple-Beech-Yellow Birch and Kuchler cover type no. 99, Northern Hardwoods-Spruce Forest. The most unique feature however is the three small, deep, softwater seepage lakes and their associated ericad bog.

Twin Lakes Bog RNA was included in the Chequamegon National Forest Plan on a list of RNA's to be further evaluated. A field survey of the site conducted in 1986 confirmed that the RNA site exhibited few signs of past disturbance.

LAND AND RESOURCE MANAGEMENT PLANNING

The Twin Lakes Bog RNA is in Management Goal 8. This goal in the Regional Guide for the Eastern Region emphasizes the protection of unique ecosystems for scientific purposes.

The Twin Lakes Bog RNA is included in Management Goal 8.4 (Exhibit 3) of the Chequamegon National Forest Forest Plan. The Forest-wide standards and

Goal 8.4 Management and Prescriptions, are designed to protect the character of the RNA and provide opportunities for scientific research and education. (Exhibit 3)

OBJECTIVES

The objectives of establishing the Twin Lakes Bog RNA are to:

1. Protect and monitor the unique habitat and three small, deep, softwater, seepage lakes and associated ericad bog.
2. Serve as reference areas for the study of succession.
3. Serve as baseline areas for measuring long-term ecological changes.
4. Protect from serious environmental disruptions.

JUSTIFICATION

The establishment of the Twin Lakes bog Research Natural Area would preserve three small, deep, softwater seepage lakes, an undisturbed conifer swamp, and its associated ericad bog. The site would serve as a reference area for the study of succession and as a baseline area for measuring long-term ecological changes. This site was recommended for protection by the Wisconsin DNR's Natural Areas Program because it is the largest example of the few remaining intact conifer swamps of its type in this unit of the Chequamegon National Forest. The RNA will serve as a reference area for the study of succession to eventually a mature conifer swamp. It will also serve as a baseline area for measuring long-term ecological changes with the SAF cover type no. 38. (Photo 2) The bog will be protected from serious environmental disruptions.

PRINCIPAL DISTINGUISHING FEATURES

The Twin Lakes Bog RNA consists primarily of an even-aged stand of tamarack (*Larix laricina*) occupying a depression between two kettle lakes in an area of morainal topography. (Photo 3) The tamarack understory has an open aspect, with ericaceous shrubs and herbs characteristic of bogs scattered on a mat of *Sphagnum* moss. The understory flora is notable for the large number of moccasin flower orchids (*Cypripedium acaule*) present. Three small bog lakes, surrounded by quaking mats of bog vegetation and containing water stained a deep brown, compliment the site. (Photo 1) Also present is a small stand of second-growth northern hardwoods, dominated by sugar maple (*Acer saccharum*) and red oak (*Quercus rubra*), which occupies the surrounding uplands to the west of the conifer bog. See the section on flora for more detailed plant species information. (Exhibit 1) No threatened or endangered species are presently known to inhabit the RNA.

LOCATION

Twin Lakes Bog RNA is located on the Medford District of the Chequamegon National Forest in Taylor County Wisconsin. The location starts at Section corners 6, 7, T32N, R1E, and Section corners 1, 12, T32N, R1W, thence S90°W, 1221' to point of beginning, thence N19°E, 260'; thence N45°E, 553', thence N5°E, 457', thence N50°W, 860', thence S0°W 333', thence

S89°W, 1134', thence S16°E, 663', thence S53°E, 460', thence S66°E, 361', thence S57°E, 164', thence S40°E, 165', thence S50°W, 134', thence S56°E, 99', thence S89°E, 65', thence N40° 38' 39"E, 167.64', to point of beginning. Latitude of the RNA is 45°16'45" north. Longitude is 90°26'30" west. Elevation ranges from 1450 ft. (435 m) to 1470 ft. (441 m). Additional details of location may be found on the 7.5' USGS topographic quadrangle (Mondeaux Dam Wisconsin), Taylor County Plat Book, and a vegetative map. (Maps 2-4)

To access the RNA, travel north from Medford on Highway 13, 10 mi.(16 km) to Chelsea, then west on FR 102, 7 mi. (11.2 km), then 3/4 mi. (1.2 km), south on FR 566, then 1/4 mi. (.4 km) southeast on FR 1504 which is along the west edge of the RNA. (Map 1)

AREA BY COVER TYPES (Map 2)

1. Society of American Foresters Cover Types

The conifer swamp is composed primarily of tamarack, with lesser amounts of black spruce, red maple, and yellow birch.

SAF no. 38, Tamarack	25 acres	10 ha

The uplands are forested with northern hardwoods dominated by sugar maple and red oak.

SAF no. 25, Sugar Maple- Beech- Yellow Birch	7.7 acres	3.1 ha
Open Water	2.3 acres	.9 ha
Open Bog	3 acres	1.2 ha

2. Kuchler Cover Types

The conifer swamp is composed primarily of tamarack, with lesser amounts of black spruce, red maple, and yellow birch.

Kuchler no. 85, Conifer Bog	25 acres	10 ha

The upland hardwood forests falls loosely into the maple-basswood forest type.

Kuchler no. 99, Northern Hardwoods-Spruce Forest	7.7 acres	3.1 ha

The open mats of vegetation surrounding the lakes are classified as open bog.

Open Bog	3 acres	1.2 ha
Open Water	2.3 acres	.9 ha

4. Aquatic Features

WDNR's Natural Heritage Inventory classifies lakes according to water source, depth, and alkalinity.

Deep, Softwater, Seepage Lakes	2.3 acre	.9 ha

PHYSICAL AND CLIMATIC CONDITIONS

1. Physical

The RNA lies between North Twin Lake and South Twin Lake. The three small bog lakes are surrounded by quaking mats of bog vegetation. They contain water stained a deep brown. The RNA drains into South Twin Lake. The highland portion of the RNA is glacial till rolling landform.

2. Climate

The climate is continental, characterized by long, snowy, often severely cold winters and relatively short summers with warm days and cool nights. Springs and falls are often short with the transition from winter to summer and summer to winter quite rapid. Changes in weather from late fall to early spring can be expected every few days as frequent storms pass through the area along the Colorado and Alberta weather tracts. Prevailing winds are northwest to westerly late fall to early spring and from the south the rest of the year. Snowfall of over one inch (2.5 cm) can be expected, on the average, by the second week of November and there is a 90 percent probability of snow on the ground during the winter months. Although occasional deep snow years occur, the major snow belt lies to the north along the Penokee Range and Lake Superior.

Frost can be expected occasionally during any of the summer months, especially in low-lying areas. The average date of the last freeze is the last week in May to the first week in June, and the first freeze of the fall occurs in the last week in August to the first week in September.

The mean annual precipitation is 33 inches (82.5 cm) of which 60 inches (150 cm) is snowfall.

The nearest weather station is in Medford, Wisconsin, approximately 11 miles (17.6 km) to the southeast. Their weather data is based on the previous 20 years of actual measurements.

DESCRIPTION OF VALUES

1. FLORA

Twin Lakes Bog is dominated by an even-aged stand of tamarack in the 3"-6" (7.5-15 cm) d.b.h. size range. Canopy associates include red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*) and black spruce (*Picea mariana*). The midstory is dominated by ericaceous shrubs, including Labrador tea (*Ledum groenlandicum*), bog laurel

(Kalmia polifolia), and leatherleaf (Chamaedaphne calyculata), in association with mountain holly (Nimopanthus mucronata), and winterberry (Ilex verticillata). The Sphagnum based ground layer includes several sedge species (including Carex disperma, Carex lasiocarpa and Carex limosa) and taxa typical of conifer swamps and bogs such as twinflower (Linnaea borealis), cinnamon fern (Osmunda cinnamonea), bunchberry (Cornus canadensis), and buckbean (Menyanthes trifoliata). Insectivorous species are well represented here with two species of bladderwort (Utricularia spp.), two species of sundews (Drosera intermedia and Drosera rotundifolia), and pitcher plant (Sarracenia purpurea). Orchids present include tall northern bog orchid (Habernaria hyperborea) and moccasin flower (Cypripedium acaula), the latter of which is quite abundant in open areas under the swamp conifers. The bog lakes support a good population of bull-head pond lily (Nuphar variegatum) and bladderwort.

The uplands bordering the bog on the west are forested with second-growth northern hardwoods of 3"-15" d.b.h. (7.5-37.5 cm). The dominant canopy trees are sugar maple (Acer saccharum) and red oak Quercus rubra). The understory is composed of species typical of mesic forests in this region.

A list of the vascular plants observed within the RNA boundary is in Exhibit 1. Nomenclature follows Gleason and Cronquist (1963), Fernald (1950), or Little (1979). No endangered or threatened species are presently known to inhabit the RNA.

2. FAUNA

No systematic inventory of the fauna of Twin Lakes Bog has been made. Leopard frogs (Rana pipiens) and wood frogs (Rana sylvatica) are common on the tract (Behler 1979). Birds observed include solitary vireo (Vireo solitarius), hermit thrush (Catharus guttatus), black-and-white warbler (Mniotilta varia), and white-throated sparrow (Zonothrichia albicollis) (Robbins, Bruun, Zim, 1966).

No endangered or threatened species are presently known to inhabit the RNA.

3. GEOLOGY

The area is located within the southern Superior Upland Physiographic Province. Precambian granite bedrock, a part of the Canadian shield, underlies this area. Landforms are the result of continental glaciation of the late Wisconsinan ice age. The landscape is young in geologic age and characterized by a deranged type of drainage pattern.

4. SOIL

Sarona Series - Well-drained soil formed in loamy sand and sandy loam glacial till on moraines. Slopes range from 2-35 percent. The soil is the end moraine series with a cobblie till. The 0-4 in. (0-10 cm) depth is very dark brown and strongly acid. As the soil depth increases, the color varies from a pinkish-gray to browns. Greenwood

mucky peat in the ericad bog is a member of the dysic family of Typic Borohemists. The soil formed in herbaceous organic deposits are more than 51 inches (127.5 cm) thick and are typically very strongly acid or more acid throughout. The surface tier is commonly fibric materials derived from sphagnum moss. The layers in the subsurface and bottom tiers are dominently hemic material. The hemic material has a hue of 10 years, 7.5 years, or 5 years, value of 2 through 5, and chroma of 2 through 4. The layers in the subsurface and bottom tiers commonly range from pH 3.5 to 4.5.

5. LANDS

The lands were acquired in 1934 under the Weeks Act and in 1978 under the Weeks Act and Land and Water Conservation Fund. No known mineral leases have been signed in the vicinity of the RNA. It is unknown if there are any mineral deposits on the RNA. The mineral rights have been retained by the previous property owners.

6. CULTURAL RESOURCE

A cultural resource inventory has not been completed for the area and no cultural resource sites have been identified in the RNA. Completing an inventory of this area is a low priority as there will be no ground disturbing activities occurring in the area. Eventually, all areas of the Forest will be inventoried.

7. WATER

The three small bog lakes have the following physical and chemical properties:

Unnamed Lake 1-15b (western bog lake) - surface area = 0.4 acres (.2 ha), maximum depth = 27' (8.2 m), pH = 4.6, methyl purple alkalinity (MPA) = 5 ppm, light brown water color.

Unnamed Lake 1-15a (center bog lake) - surface area = 1.0 acre (.4 ha), maximum depth = 26' (7.9 m), pH = 4.6, MPA = 8 ppm, dark brown water color.

Unnamed Lake 1-16 (eastern bog lake) - surface area = 0.9 acre (.4 ha), maximum depth = 23' (7.0 m), pH = 4.8, MPA = 2, dark brown water color (Haanpaa et. al. 1970).

IMPACTS AND POSSIBLE CONFLICTS

1. Mineral Resources

There are no mining or exploration activities in the area. The Forest Service does not own the mineral rights. No known mineral resources are present on the RNA.

We would not attempt to obtain the mineral rights unless there is a compelling reason.

2. Grazing

There is no grazing resource located within or close to the RNA. No conflicts would result from the RNA being withdrawn from grazing use. No fencing is necessary for the protection of the RNA.

3. Timber

Thirty two and eight tenths acres (13.1 ha) of commerical forestland would be withdrawn from timber production, thereby reducing the harvestable timber on the Medford Ranger District now and in the future. The management prescription for the quaking aspen type lying east of the RNA will be adjusted to reduce any adverse impact on the Twin Lakes Bog. The Forest management practices in the adjacent timber types will be modified so they do not have a negative impact on the conifer swamp and bog lakes.

The privately owned tamarack and black spruce have been selectively marked for cutting in the conifer bog lying between the RNA and North Twin Lake. It appears the landowner will be utilizing the marked timber for his own usage. The owner has constructed a logging trail on his land lying north of the RNA.

4. Watershed Values

The RNA and adjacent timber stands do have unique watershed values. They protect the water quality of the Twin Lakes Bog.

5. Recreation

Despite easy access and an adjacent National Forest campground, Twin Lakes Bog probably receives little recreational use. Hunters and hikers may occasionally use the area. These activities do not conflict with RNA values and the elements for which it is established

6. Wildlife and Plant Values

Twin Lakes Bog supports a diverse native flora representative of undisturbed conifer swamp and bog communities. Leopard frogs and wood frogs are common on the RNA. No systemic inventory of the fauna has been made.

No endangered or threatened flora or fauna are known to inhabit the RNA.

7. Special Management Area Values

The RNA is not in any congressionally designated wilderness area. Wilderness legislation was passed for Wisconsin in 1984. The Forest Plan has not identified any potential wildernesses.

The Forest Plan has identified three study rivers, none of which are located in or near the RNA.

The Forest Plan has not identified any potential National Recreation Areas in the Chequamegon National Forest.

8. Transportation Plans

A graveled road, FR 1504, is located on the west and south edge of the RNA. There are no plans for addition road construction.

9. Lands

Privately owned 10 acre (4 ha) parcel the northern boundary to the RNA and North Twin Lake should be acquired by the U.S. Forest Service. Recent activities in the area, deleterious to the integrity of Twin Lakes Bog, include road building for a mobile home and logging trail into the conifer bog. It is recommended that the entire conifer swamp/bog complex be brought under USFS control.

The timber cutting or development practices on the private ownership could adversely affect the ecological values of the RNA.

MANAGEMENT PLAN

The Chequamegon National Forest Plan has the following Forest-wide standards for existing and RNA's:

1. Prohibit all management activities except fire suppression and protection from insect and disease epidemics.
2. Allow natural processes of ecological change to continue.
3. Prohibit public use that threatens to modify area natural processes.
4. Encourage no-impact types of research studies through cooperative agreements with educational institutions.

The Management Prescription 8.4 (Exhibit 3) will be used as a guideline. Specific standards and guidelines will have to be developed.

Fire suppression and insect and disease control using the least destructive means will occur if needed to achieve the management objectives for the area.

The forest outside the RNA will be managed to have no adverse impact on the area.

Protection of the RNA requires no manipulation of the vegetation.

The limited recreation use that has occurred in the RNA will be discouraged in the future.

Continuing efforts will be made to acquire the privately owned parcel.

The Chequamegon National Forest Land and Resource Management Plan was issued in 1986 under Record of Decision dated August 11, 1986. Management prescription 8.4, Special Areas, provides for designation of unique areas for their scientific and biological significance. This is one of the RNA's ten areas identified in the Forest plan. The ten areas are also State of Wisconsin research natural areas.

ADMINISTRATIVE RECORDS AND PROTECTION

The administrator and protector of this area is:

District Ranger
USDA-Forest Service
Chequamegon National Forest
P.O. Box 150
850 North 8th, Highway 13
Medford, Wisconsin 54451

The research coordinator of this area is:

Director
USDA-Forest Service
North Central Forest Experiment Station
1992 Folwell Avenue
St. Paul, Minnesota 55108

The research data file is maintained by:

Wisconsin Department of Natural Resources
Bureau of Endangered Resources
Natural Heritage Section
Box 7921
Madison, Wisconsin 53707

Director
USDA-Forest Service
North Central Forest Experiment Station
1992 Folwell Avenue
St. Paul, Minnesota 55108

Forest Supervisor
USDA-Forest Service
Chequamegon National Forest
1170 4th Avenue South
Park Falls, Wisconsin 54552

REFERENCES

Behler, J.L., 1979. Audubon Society Field Guide to North American Reptiles and Amphibians, Published by Alfred A. Knoff, N.Y. 719 pp.

Eyre, F. H. (ed.), 1980. Forest Cover Types of the United States and Canada; Society of American Foresters, Washington, DC.

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Gleason, H. A. and A. Cronquist, 1963. Manual of Vascular Plants of Northeastern United States and Adjacent Canada; Van Nostrand Co., New York, NY.

Haanpaa, D. G., L. M. Sather and C. W. Threinen, 1970. Surface Water Resources of Taylor County; Wisconsin Department of Natural Resources, Madison, WI.

Kuchler, A. W., 1964. Potential Natural Vegetation of the Conterminous United States; American Geographical Society, New York, NY.

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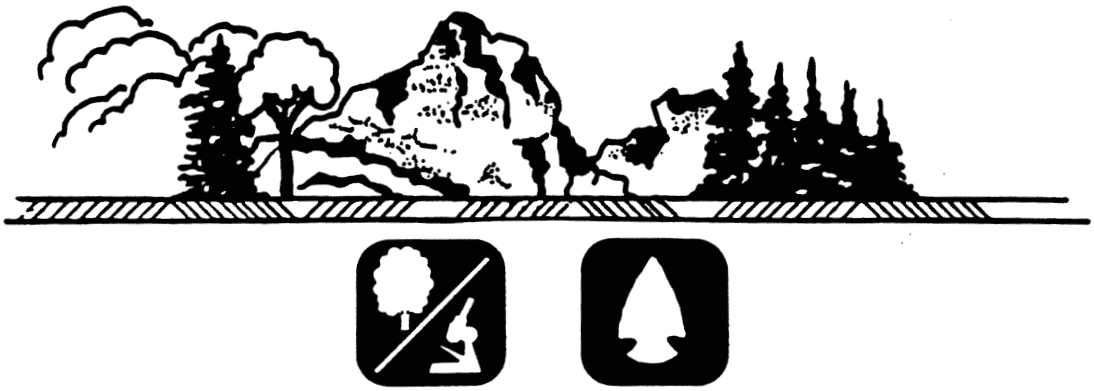
1986 Land and Management Plan, Chequamegon National Forest, Park Falls, WI.

EXHIBIT 1

SCIENTIFIC NAME	COMMON NAME
Abies balsamea	Balsam Fir
Alnus rugosa	Speckled Alder
Andromeda glaucophylla	Bog Rosemary
Arceuthobium pusillum	Dwarf Mistletoe
Aronia melanocarpa	Black Chokeberry
Betula alleghaniensis	Yellow Birch
Calla palustris	Water Arum
Caltha palustris	Marsh Marigold
Carex chordorrhiza	
Carex disperma	
Carex lasiocarpa	
Carex leptalea	
Carex limosa	
Carex pauciflora	
Carex trisperma	
Chamaedaphne calyculata	Leatherleaf
Clintonia borealis	Bluebead
Coptis trifolia groenlandica	Goldthread
Cornus canadensis	Bunchberry
Cornus stolonifera	Red Osier Dogwood
Cypripedium acaule	Moccasin Flower
Drosera intermedia	Narrow Leaved Sundew
Drosera rotundifolia	Round Leaved Sundew
Dryopteris cristata	Crested Wood Fern
Dryopteris intermedia	Intermediate Wood Fern
Dryopteris spinulosa	Spinulose Wood Fern
Eriophorum gracile	Slender Cotton Grass
Eriophorum spissum	Dense Cotton Grass
Gaultheria hispidula	Creeping Snowberry
Habenaria hyperborea huronensis	Tall Northern Bog Orchid
Ilex verticillata	Winterberry
Iris versicolor	Blue Flag
Kalmia polifolia	Pale Laurel
Larix laricina	Tamarack
Ledum groenlandicum	Labrador Tea
Linnaea borealis	Twinflower
Maianthemum canadense	Canada Mayflower
Menyanthes trifoliata	Buckbean
Mitchella repens	Partridge Berry
Monotropa uniflora	Indian Pipe
Nemopanthus mucronata	Mountain Holly
Nuphar variegatum	Bull-head Pond Lily
Onoclea sensibilis	Sensitive Fern
Osmunda cinnamomea	Cinnamon Fern
Picea mariana	Black Spruce
Pinus strobus	White Pine
Potentilla palustris	Marsh Cinquefoil
Pteridium aquilinum latuisculum	Bracken Fern
Rosa palustris	Swamp Rose
Sarracenia purpurea	Pitcher Plant
Smilacina trifolia	Swamp False Solomon's Seal
Spiraea tomentosa rosea	Hardhack
Trillium cernuum	Nodding Trillium
Utricularia intermedia	Flat-leaved Bladderwort
Utricularia sp	Bladderwort

Vaccinium angustifolium	Early Low Blueberry
Viola macloskeyi pallens	Smooth White Violet



MANAGEMENT PRESCRIPTION 8.4

The purposes of Management Prescription 8.4 are to:

- Preserve the natural character of the Moquah Research Natural Area
- Provide opportunities for education and scientific research. (Ref. Forest Service Manual 4063)
- Provide management opportunities for all 10 candidate Research Natural Areas and for all future Research Natural Areas designated by the Chief of the Forest Service.

AREA LANDFORM DESCRIPTION

The Moquah Research Natural Area (T48N, R7W, S.23 is primarily pitted outwash. The topography is rolling to hilly. Slope gradients are 5-20% but can range up to 35%. Topographic relief is due to depression "pits" in the plain. The soils are very sandy.

8.4

DESIRED CONDITION OF THE LAND

The Moquah Research Natural Area is characterized by undulating topography and droughty soils. The prescription for this area will result in the dominant tree species of aspen, jack pine, and northern red oak. Tree sizes range from seedlings to mature trees. A few small, natural openings are present.

Forest visitor density in this area is low. Forest management activities are not permitted except for fire protection activities. Facilities, structures, and utility corridors are not present.

The Moquah Research Natural Area is bisected by Forest Road 236. Forest Road 407 cuts the southwest corner of the area, and is open to vehicular travel. The area is in a roaded natural setting.

STANDARDS AND GUIDELINES FOR PRESCRIPTION 8.4

1900 Land and Resource Management Planning	
Vegetative Management	Vegetative composition will evolve through natural succession.
2200 Range Management	Grazing is not permitted.
2300 Recreation Management	
Recreation Use Administration	Feature semi-primitive, nonmotorized recreation opportunities.
Visual Resources	Meet the visual quality objective of preservation.
7700 Transportation Systems	Develop no additional roads. Maintain or upgrade existing local roads as needed to comply with special area management objectives.

8.4