



DESIGNATION ORDER

USDA Forest Service, Eastern Region
Chequamegon-Nicolet National Forest
Washburn Ranger District
Bayfield County, Wisconsin

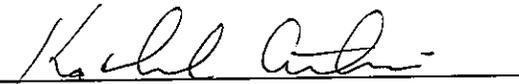
CAMP NINE PINES

RESEARCH NATURAL AREA

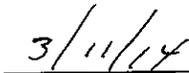
Designation Order

By virtue of the authority vested in me by the Secretary of Agriculture in accordance with 7 CFR 2.42, 36 CFR 251.23, and 36 CFR Part 219, I hereby establish the Camp Nine Pines Research Natural Area. It shall be comprised of 872 acres (353 hectares) of land in Bayfield County, in the state of Wisconsin, on the Washburn District of the Chequamegon-Nicolet National Forest, as described in the section of the Establishment Record entitled "Location" [and in the Land and Resource Management Plan for the Chequamegon-Nicolet National Forest map]

Approved by:



Kathleen Atkinson
Regional Forester



Date

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Camp Nine Pines

Research Natural Area

Chequamegon-Nicolet National Forest

Bayfield 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, Establishment Record Content, in arriving at this recommendation.

Prepared by: Marjory E. Brzeskiewicz Date 11/26/2013
Marjory E. Brzeskiewicz, Botanist, Chequamegon-Nicolet National Forest

Draft by: /s/ Dawn Heinbaugh Date: 2005
Dawn Heinbaugh, WI DNR

Recommended by: Constance Cummins Date 1/16/14
Constance Cummins, District Ranger, Washburn Ranger District

Recommended by: Paul I.V. Strong Date 1/23/14
Paul I.V. Strong, Forest Supervisor, Chequamegon-Nicolet National Forest

Concurrence of: Michael T. Rains Date 3.6.2014
Michael T. Rains, Station Director, Northern Research Station



TITLE PAGE

Establishment Record for Camp Nine Pines Research Natural Area

United States
Department of
Agriculture

Forest
Service

July 2013

**Chequamegon-Nicolet National Forest,
Washburn District,
Bayfield County, Wisconsin**



Cover photo: Looking up into the canopy of pine in Camp Nine Pines Research Natural Area. Photo by Steven Spickerman, 1992

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CONTENTS

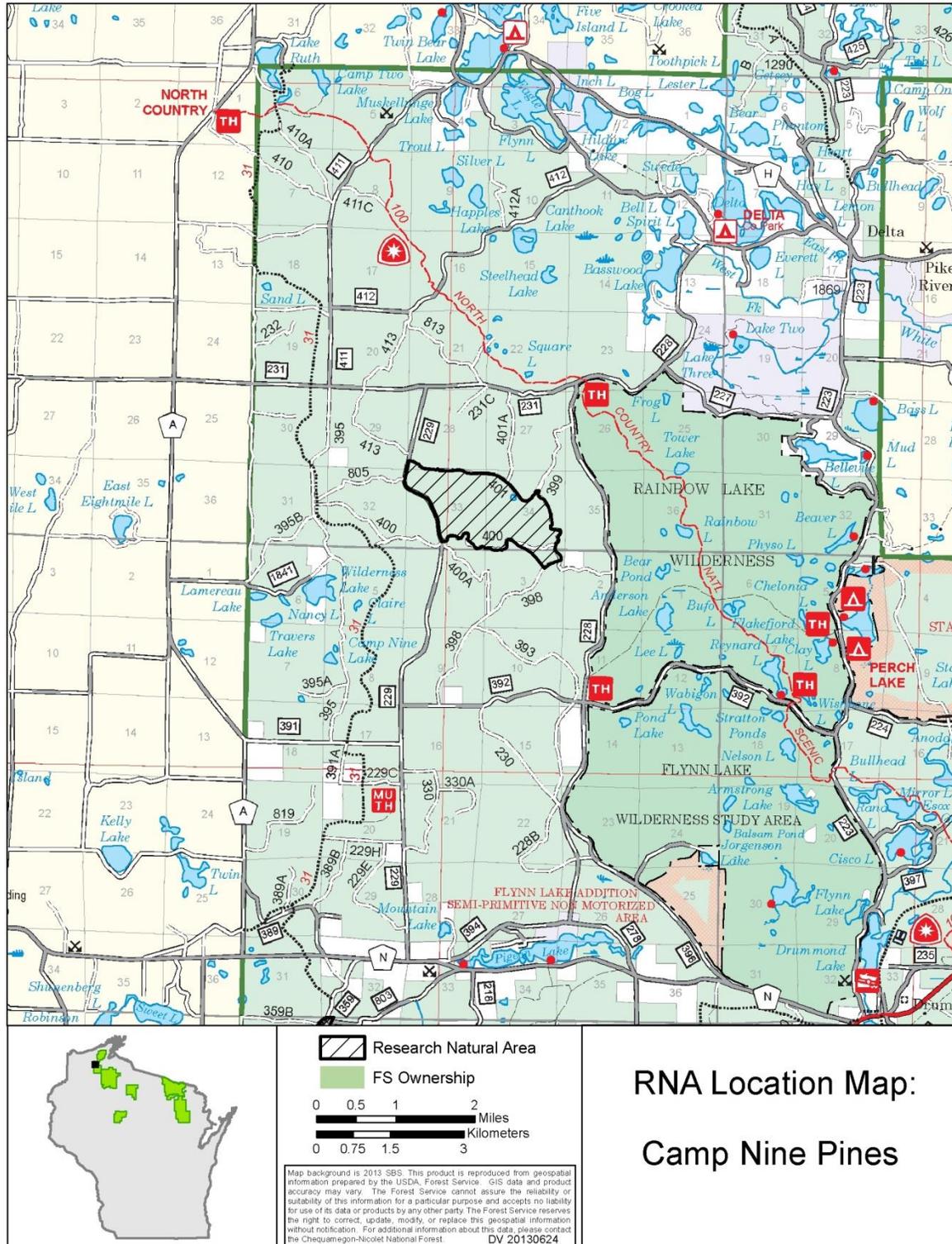
1. IDENTIFICATION SECTION	5
Location Map	5
Boundary Map.....	6
Landscape Overview Camp Nine Pines RNA	7
Legal Description.....	8
2. ADMINISTRATIVE SECTION.....	9
3. BODY OF ESTABLISHMENT RECORD.....	10
a. INTRODUCTION	10
b. JUSTIFICATION SECTION	11
(1) Justification Statement.....	11
(2) Principal Distinguishing Features	11
(3) Objectives.....	12
c. LAND MANAGEMENT PLANNING	12
d. MANAGEMENT PRESCRIPTION.....	13
e. USE OR CONTROL OF FIRE AND GRAZING.....	13
f. APPENDICES	14
4. Appendix 1 Ecological Evaluation.....	14
a. PHYSICAL SITE DESCRIPTION AND CLIMATIC CONDITIONS.....	14
(1) Location	14
(2) Size in acres/hectares.....	14
(3) Elevation range.....	14
(4) Access to the site.....	14
(5) Climatic data.....	14
b. ECOLOGICAL DESCRIPTION	15
(1) Eco-region (to the lowest level of detail currently available).....	15
(2) Plant Community Types.....	15
(3) Description of the values of the Research Natural Area.....	18
c. RESOURCE INFORMATION.....	23
(1) Minerals.....	23
(2) Grazing.....	24
(3) Plants (including timber and special forest products)	24
(4) Watershed values	24
(5) Recreation use	25

(6) Wildlife.....	25
(7) Transportation/road system.....	25
d. HISTORICAL INFORMATION.....	26
(1) Research/education use and interest: history of establishment.....	26
(2) Cultural/heritage.....	26
(3) Disturbance history	27
(4) Occurrence of exotic species.....	27
e. OTHER INFORMATION	27
(1) Any permanent research plots and/or photo points.....	28
(2) Bibliography	28
(3) Potential research topics.....	28
f. EVALUATION OF SPECIFIC MANAGEMENT RECOMMENDATIONS ON THE RESEARCH NATURAL AREA	28
(1) Potential or existing conflicts; principal management issues.....	28
(2) Special management area if the Research Natural Area is within one.....	30
g. PHOTOGRAPHS	30
Appendix 2 Bibliography.....	31
Appendix 3 Forest Management Area Direction	34
Appendix 4 Wisconsin Natural Heritage Working List – Rank Definitions.....	37
Appendix 5 Contributors.....	39

Note: The Alpha/Numeric ordering in this document follows that within Forest Service Manual direction (FSM 4063) for RNA Establishment Records.

1. IDENTIFICATION SECTION

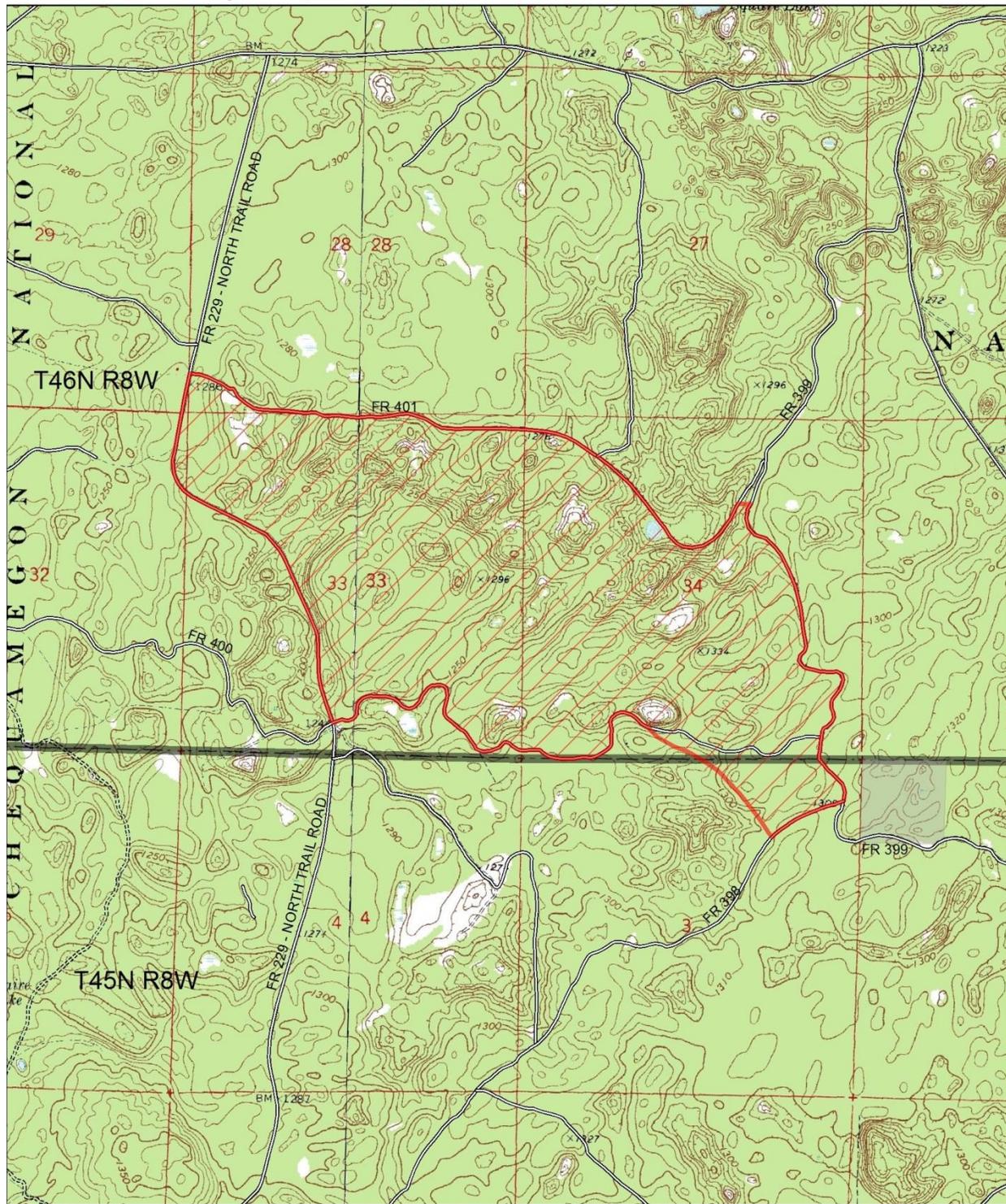
Location Map



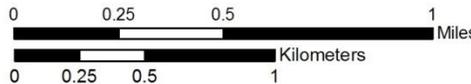
**RNA Location Map:
Camp Nine Pines**

BOUNDARY MAP

RNA Boundary Map: Camp Nine Pines

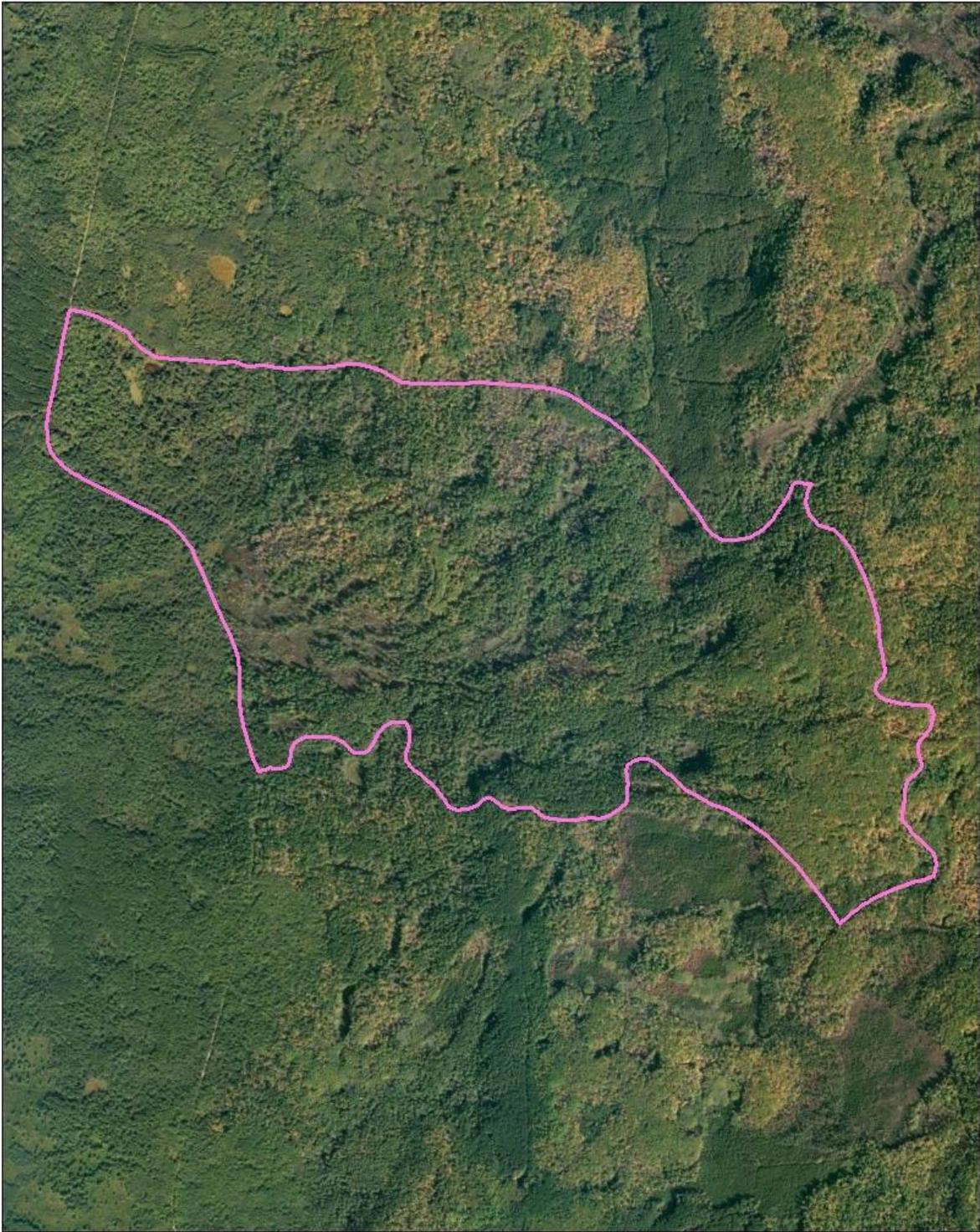


- Research Natural Area
- Open Road
- Trail
- NonFS ownership



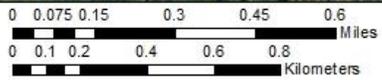
DV 20140417
Acres: 872

LANDSCAPE OVERVIEW CAMP NINE PINES RNA



 RNA Boundary

ESRI Basemap World Imagery
MB 2013



2. ADMINISTRATIVE SECTION

This Establishment Record has been prepared pursuant to Forest Service Manual direction (FSM 4063). Establishment of the Camp Nine Pines RNA is documented with a signature page to follow and a Designation Order which is a separate document accompanying this document (FSM 4063.41.2) (USDA Forest Service 2004c).

The Station Director of the Northern Research Station (NRS), in consultation with the Chequamegon-Nicolet Forest (CNNF) Supervisor, Great Divide District Ranger, and NRS RNA Coordinator(s) will approve and coordinate research conducted in the RNA.

Requests to conduct research are referred to the NRS Director or designee, who will coordinate a review of the application. The Director or NRS RNA Designate will approve research proposals, and prior to the initiation of any projects, will coordinate the project or activity with the District Ranger. Any plant, animal, vegetation, or soil specimen(s) collected in the course of research conducted in the RNA are to be housed at a location designated by the CNNF or approved by the Station Director.

Hard copies of research data files will be maintained in the following offices:

Chequamegon-Nicolet National Forest
1170 4th St. South
Park Falls, WI 54552

Station Director
c/o Station RNA Field Representative
Northern Research Station
5985 Highway K
Rhineland, WI 54501

3. BODY OF ESTABLISHMENT RECORD

a. INTRODUCTION

Camp Nine Pines Research Natural Area (RNA) contains one of the largest blocks of natural red pine (*Pinus resinosa*) and white pine (*Pinus strobus*) on the Chequamegon-Nicolet National Forest (CNNF). The RNA features a large area of continuous canopy pine and pine-oak forest, frost pocket barrens, a wide moisture gradient from west to east, and home range of the Rainbow Lake wolf pack (Spickerman and Brzeskiewicz 1996). The site is also noted for its diversity of nesting interior forest wood warblers (Epstein 1992; Hoffman 1992).

The 872-acre (353 hectare) RNA is located on the Washburn Ranger District of the CNNF in Bayfield County approximately 11 miles (18 km) northwest of Drummond, Wisconsin. The RNA is located entirely on National Forest Land (see Establishment Record Identification Section for *Location Map* and *Boundary Map*).

Native American tribes have lived on the lands that make up the CNNF for thousands of years with a long and complex history. They hunted, fished, gathered food, and obtained forest products for shelter, moved plants from other areas, and sometimes used fire to manipulate the land. The Reservations of the several bands of Ojibwe are within 50 miles (80 km) of the boundary of the RNA. Ojibwe tribes entered into session treaties with the United States in which rights to hunt, fish and gather were reserved by these tribes. See Section 4 d.(2) Cultural/Heritage for further explanation of Native American history..

Of interest are the General Land Survey Notes from 1865: "*T.45 & 46N R.8W. The whole township is heavily timbered with white pine, of a good quality, sugar, oak, birch, with a dense undergrowth of hazel.*" The *Bearing Tree Map* from the 1856 land survey shows that most of the bearing trees include "*pine, maple, and birch*" (BCPL 1865). The map shows open "barrens" across the north edge of the site, an area today dominated by "pocket barrens" or bracken-grassland.

Northern Wisconsin was extensively logged in the late 1800s, virtually clear cutting much of the area. Catastrophic wildfires burned the logging slash across the region. The land containing the RNA became National Forest in the 1930s. Some areas within Camp Nine Pines were planted with pine at this time while other areas grew back naturally to conifer or hardwood forest. Timber harvest of some areas of regrowth occurred in the 1970s and early 1980s.

Current land use includes hunting, hiking and nature-watching. Outside of the RNA, nearby roads are designed for mountain biking and all-terrain vehicles.

Camp Nine Pines RNA is owned outright by the USDA Forest Service and is administered by Chequamegon-Nicolet National Forest, Washburn Ranger District. Camp Nine Pines RNA does not occur within any other administratively or congressionally designated areas. Refer to Appendix 1: *Ecological Evaluation* d. (1) *Research/education use* for an explanation of co-designation as a Wisconsin State Natural Area. The RNA lies less than one mile (1.6 km) west of the Rainbow Lake Wilderness Area.

b. JUSTIFICATION SECTION

(1) JUSTIFICATION STATEMENT

The Camp Nine Pines RNA contains one of the largest blocks of northern dry forest with natural red pine and white pine on the Chequamegon-Nicolet National Forest. It is part of a continuous canopy of 75 to 100-year-old pine and oak stretching over nearly 1,000 acres (405 ha) (Spickerman and Brzeskiewicz 1996). The adjacent Forest Special Management Area portion of this site to the south brings the continuous canopy total to nearly 3,000 acres (1,214 ha) broken only by natural open frost pockets and a few recent clear-cuts. This area represents one of the best opportunities on the forest and perhaps in Wisconsin to protect and restore a large block of developing old-growth pine and associated communities (Spickerman and Brzeskiewicz 1993). Five rare species are found within this site and the area is noted for its diverse avifauna (Table 5; Hoffman 1992).

(2) PRINCIPAL DISTINGUISHING FEATURES

Camp Nine Pines RNA is an excellent representative of the conifer forests common in northern Wisconsin prior to widespread logging in the late 1800s. After the initial harvest followed by intense fires on the cutover land, this extensive forest of red, white, and jack pine (*Pinus resinosa*, *P. strobus*, *P. banksiana* respectively) was allowed to re-develop until harvest was again initiated on some portions of the site in the 1970s. The trees now are of an older age class [12-20 inch (30-50 cm) DBH] and the community is beginning to develop old-growth characteristics.

The gently rolling hills contain numerous sunny and open depressions where cool air drainage prevents tree establishment. These *pocket barrens* are a unique feature on this landform [see Figure 4 in Topography Section 4b(3)]. Herbaceous vegetation such as bracken fern (*Pteridium aquilinum*) and blueberries (*Vaccinium spp*) dominate.

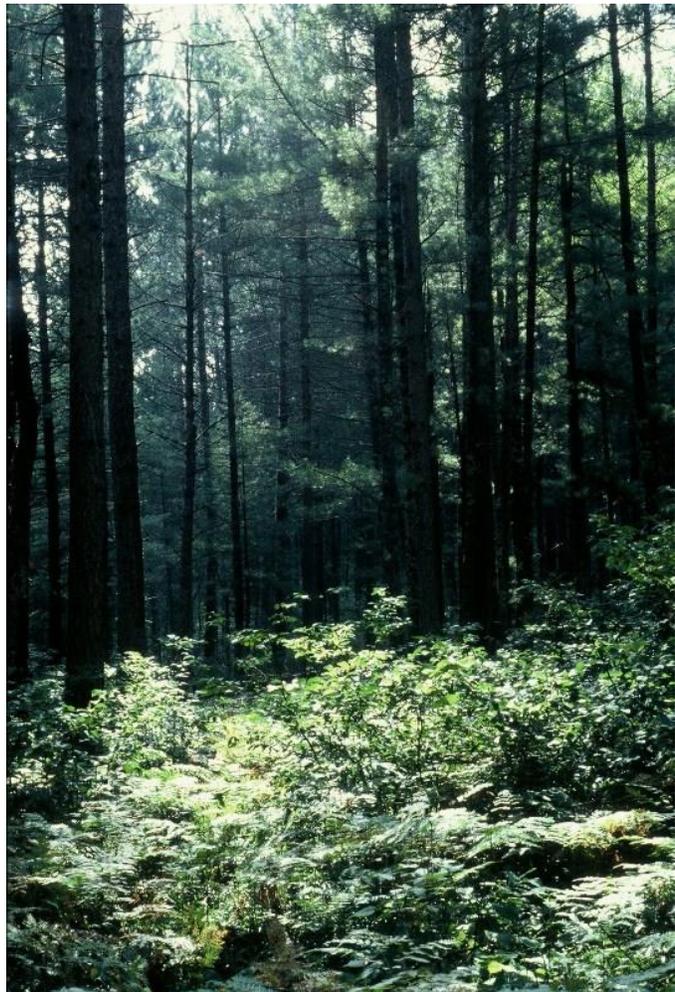


Figure 1. Maturing pine forest in Camp Nine Pines RNA. Photo by Steven Spickerman 1993

Another outstanding attribute is the diversity of forest interior woodland warblers. Of note, are three rare animals and two uncommon plants [see Section 4b(3)(G)]. Although harvest activity has modified the forest age class in portions of the site, it still exhibits the full range of local soil, topographic, and aspect variability (Hoffman 1998). The plant communities supported by the physical environment represent all vegetation states, species composition and ecological dynamics expected on this land type.

(3) OBJECTIVES

Camp Nine Pines RNA is one of thirty areas on the CNNF that will be managed to meet the research and education objectives of the national RNA program (FSM 4063.02). It will maintain genetic diversity and serve as a control for measuring ecological changes and to compare with areas impacted by human activities. Objectives in the 2004 CNNF Land and Resource Management Plan state that “RNAs and candidate RNAs (MA 8E) and Special Management Areas (MA 8F) as well as Old Growth and Natural Features Complexes (MA 8G) serve in the role as minimum management requirements, because they cumulatively function as important contributors for sustainable ecosystem management including the provision of a long-term increase in security of species viability and diversity” (USDA Forest Service 2004c p10). Camp Nine Pines RNA fits into a larger network of RNAs across the region and nation.

The specific objectives of Camp Nine Pines RNA include: allowing existing clearcuts to mature naturally; restoring plantations to reflect the surrounding natural community; and using low-intensity prescribed fire to maintain the pine systems.

c. LAND MANAGEMENT PLANNING

Camp Nine Pines RNA was recommended for RNA designation in the 2004 Chequamegon and Nicolet National Forest’s Land and Resource Management Plan (hereinafter referred to as “2004 CNNF Forest Plan”) and is incorporated by reference per the page citations that occur in this Establishment Record (USDA Forest Service 2004a). The alternative effects of RNA establishment were analyzed and disclosed in the Final Environmental Impact Statement (USDA Forest Service 2004b p 3-110) and Record of Decision (USDA Forest Service 2004c pg 9). Camp Nine Pines RNA is part of a national network of ecological areas designated in perpetuity for research and education, and to provide important components of biological diversity. The RNAs and candidate RNAs on the CNNF have been assigned to a management prescription (8E) that is consistent with Plan Management Area objectives (USDA Forest Service 2004c pg 9). Management Area 8E is characterized by ecologically significant natural features and representative ecosystems. It includes a broad array of community types occurring on the range of landforms and soil types that occur on the Chequamegon-Nicolet National Forest. Plant communities are generally of an older age class and contain all or most species characteristic of that community in the region (Appendix 3 - *Forest Management Area Direction* and USDA Forest Service 2004a pg 3-50).

Camp Nine Pines RNA is embedded within Forest Plan Management Area 4: Upland Conifer forests mixed with other forest communities (alternative management area characterized by larger diameter trees, extended rotations, and use of fire for restoration). For specific information on management of RNAs on the Chequamegon-Nicolet National Forest, please refer to the CNNF Land and Resource Management Plan (Appendix 3).

d. MANAGEMENT PRESCRIPTION

The management prescription for the Camp Nine Pines RNA is embodied in the management area direction and guidance presented in the 2004 CNNF Forest.

The management objective of the RNA is to maintain and protect the ecologically significant community types and the site's special plant and animal species. RNA establishment will allow natural vegetation succession to occur unmodified by human activities.

Because of the unique nature of the Camp Nine Pines natural communities, additional management prescriptions are required to encourage and maintain its natural state. Specifically this includes fire as a tool to maintain pine barrens and treating prior plantations to encourage a more natural composition. Refer to Appendix 1, section f.(1) *Potential or Existing Conflicts* to reference unique management issues that should be addressed for this RNA.

The CNNF has not developed an individual site management plan for Camp Nine Pines RNA. When developed, such a plan will provide more specific detail of management needs and ensure that the objectives for which the RNA was created are met. Any site plans will be coordinated with the state as this is also a State Natural Area and as such has compatible management goals. The CNNF developed a non-native invasive plant strategy (USDA Forest Service 2009) to detect, manage and prevent invasive plants. Research Natural Areas are high priority for monitoring and controlling invasives.

e. USE OR CONTROL OF FIRE AND GRAZING

Once established, CNNF resource managers will write a specific site management plan for Camp Nine Pines that considers the role of natural fire in sustaining the plant communities in this ecosystem. This management prescription will blend areas managed with prescribed fire and other areas protected from fire. The intention for a prescribed fire will be to mimic natural conditions and re-establish a natural fire regime which is consistent with Forest Plan guidelines and objectives.

Wildfire suppression within the RNA, if needed, would employ those methods that cause the least disturbance. Fire Management Guidelines in 2004 Chequamegon-Nicolet National Forests Land and Resource Management Plan are listed in Appendix 3- *Forest Management Area Direction*.

There is currently no grazing on the Chequamegon-Nicolet National Forest, nor would grazing be considered a management tool. Grazing is not allowed in RNAs per management plan direction.

4. APPENDIX 1 ECOLOGICAL EVALUATION

The following ecological evaluation is included as an appendix to the establishment record and tiers to the 2004 CNNF Forest Plan (USDA Forest Service 2004a) and to the Environmental Impact Statement (USDA Forest Service 2004b). This evaluation provides the initial baseline information for the Research Natural Area, serves as a source of data for reports on the Research Natural Area program, and provides information to researchers seeking research sites or projects. More specific information can be obtained from the Forest RNA Coordinator.

a. PHYSICAL SITE DESCRIPTION AND CLIMATIC CONDITIONS

(1) LOCATION

Camp Nine Pines RNA is located on the Washburn Ranger District of the Chequamegon-Nicolet National Forest, Bayfield County, in the state of Wisconsin. See Establishment Record Identification Section for *Boundary Certification*, *Location Map* and *Boundary Map*.

The RNA's Mercator coordinates are 46° 25' N latitude and 91° 21' W longitude (map datum NAD 83)

(2) SIZE IN ACRES/HECTARES

The RNA is comprised of 872 acres (353 hectares).

(3) ELEVATION RANGE

Elevations range from 1,150 feet (351 meters) to 1,340 feet (408 meters) above sea level.

(4) ACCESS TO THE SITE

From Drummond, WI travel west on County Highway N for 6 miles (9.7 km), then north on Forest Road 229 (Beck Road) about 6.5 miles (10.4 km) to the western edge of the site. Other areas are accessible from Forest system roads that surround the RNA (Identification Section: *Location Map* and *Boundary Map*).

(5) CLIMATIC DATA

The weather station nearest to the Camp Nine Pines RNA is Drummond Ranger Station (Station no. 472240, latitude 46° 19' N, longitude 91° 16' W). The station is about 11 mi (17.7 km) east of the RNA and experiences the same weather conditions. This station recorded temperature and

precipitation data since 1948 (Midwestern Regional Climate Center 2003). Climatic Records for Drummond Ranger Station from the years 1948-2000 are given in Table 1.

Table 1. Temperature and Precipitation Records for Drummond, Ranger Station from 1948 to 2000 (Midwestern Regional Climate Center 2003)

Temperature	°F	°C
Mean annual	41.6	5.3
Mean April through September	58.6	14.8
Mean October through March	24.6	-4.1
Average daily maximum	52.6	11.4
Average daily minimum	30.6	-0.8
Record high	100.0	37.8
Record low	-44.0	-42.2
Precipitation	in	mm
Mean annual rainfall	34.3	870.0
Mean April through September	3.9	99.0
Mean October through March	1.8	46.0
Mean annual snowfall	68.1	1,730.0

b. ECOLOGICAL DESCRIPTION

Nomenclature for flora follows the USDA PLANTS database (USDA, NRCS. 2012); nomenclature for birds follows AOU Checklist (1983); nomenclature for vertebrates follows Watermolen & Murrell (2001). In Wisconsin, commonly used references for describing ecosystems include Forest Habitat Types (Kotar 2002) and Natural Communities (Curtis 1959).

(1) ECO-REGION (TO THE LOWEST LEVEL OF DETAIL CURRENTLY AVAILABLE).

Camp Nine Pines RNA is located in the Laurentian Mixed Forest Province, 212X Northern Highland and 212K Western Superior Uplands Sections. Subsections included are Hayward Stagnation Moraines (212Xf) and Bayfield Sand Plains (212Ka) of the Ecological Units of the Eastern United States (Cleland et al. 2007). It includes Land Type Associations (LTAs) Xf01 Cable Rolling Outwash and Ka04 Bayfield Rolling Outwash Barrens.

The majority of the RNA is situated in the Cable Rolling Outwash LTA. A small section of the northernmost portion of the RNA is located in the Bayfield Rolling Outwash Barrens LTA.

(2) PLANT COMMUNITY TYPES

The forest canopy is dominated by 75-100 year old red pine (*see Table 4 for scientific names*) and white pine with significant stands of red oak and jack pine. Associated species are paper birch, quaking aspen, and sugar maple. Red maple is ubiquitous in small patches throughout the area. The RNA, in combination with the adjacent Camp Nine Pines Special Management Area, represents a moisture and nutrient gradient becoming dryer east to west (Spickerman and Brzeskiewicz 1993).

The site's northern dry forest community is dominated by nearly pure pine, open pine savanna, and pine barrens on the west side. Typical tree diameter ranges from 12-20 in. (30-50 cm) although pockets of larger trees exist, some exceeding 28 inches (71 cm). Red and white pine appear to be reproducing well. Significant open or partially forested areas are dominated by widely spaced jack pine, bracken fern, and early low blueberry. Typically these openings are located in depressions and maintained by frost.

The shrub layer ranges from sparse to dense depending on the overstory and past management. In open bracken-grasslands, low blueberry and sweet fern dominate with nearly complete coverage. Relatively undisturbed forested areas have sparse shrub components characterized by beaked hazelnut, American hazelnut, and American fly-honeysuckle. Forested areas with a thinner canopy contain thickets of hazelnut (Spickerman and Brzeskiewicz 1993).

Within forested areas, the herbaceous layer includes wood anemone, red baneberry, cinnamon fern, rough-leaved ricegrass, round-lobed hepatica, and blunt-leaf orchid. Open areas include harebell, smooth aster, big bluestem, and poverty oats. Of note are two uncommon plants, large round-leaved orchid (*Platanthera orbiculata*) and what has been initially identified as rugulose grape-fern (*Botrychium rugulosum*).

Table 2. Plant community types in Camp Nine Pines RNA using regionally common classification methods as listed

Community Type (Curtis 1959)	Habitat types (Kotar et al. 2002)	Dominant Species	NVCS Associations (NGDC 2012)*
Northern dry-mesic forest	AVVib	red oak, white pine, red maple	Pinus strobus - Populus tremuloides - (Acer rubrum) / Pteridium aquilinum Forest C EGL005563
Northern dry mesic forest	PMV	white pine, red pine	Pinus strobus - (Pinus resinosa) - Quercus rubra Forest C EGL002480
Northern dry forest	AQV	jack pine, red pine, oak	Pinus banksiana - (Pinus resinosa) - Quercus ellipsoidalis / Carex pensylvanica Forest C EGL002478
Northern sedge meadow small areas	N/A	Carex stricta, Carex oligosperma, forbs	Carex stricta - Carex spp. Herbaceous Vegetation C EGL002258 or Calamagrostis canadensis - Eupatorium maculatum Herbaceous Vegetation C EGL005174
Bracken grassland	N/A	bracken fern, grasses, forbs	Pinus strobus - Populus tremuloides - (Acer rubrum) / Pteridium aquilinum Forest C EGL005563 these are small frost pockets within this association

* These National Vegetation Classification System associations are preliminary.

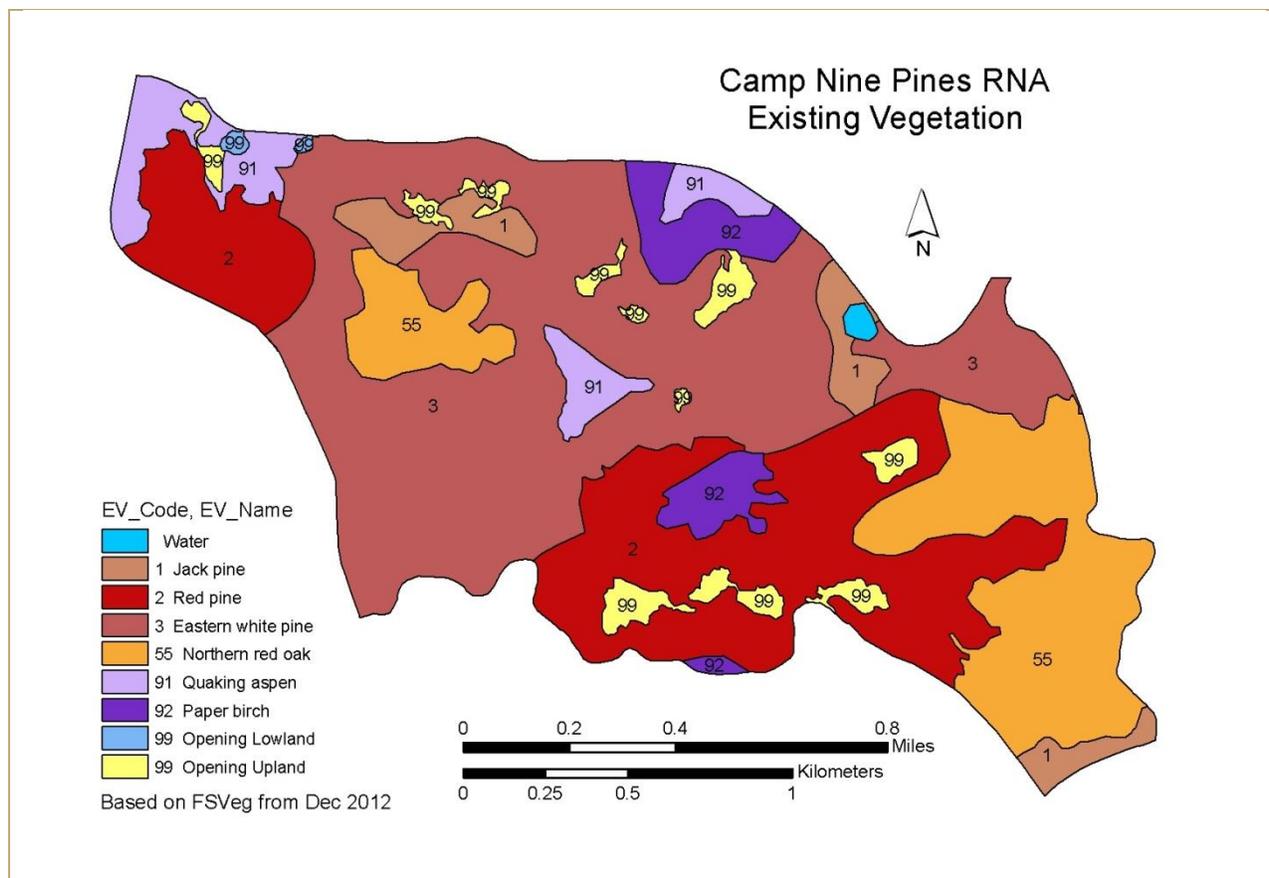


Figure 2. Existing Vegetation within Camp Nine Pines RNA, acreages in Table 3 (US Forest Service , CNNF database)

Table 3. Existing Vegetation (EV) types in Camp Nine Pines RNA and key to Figure 2

EV_CODE	Existing Vegetation Type (based on tree cover)	Acres	Hectares
1	Jack pine	37.1	15
2	Red pine	211.4	85.6
3	Eastern white pine	353.8	143.1
55	Northern red oak	149.2	60.4
91	Quaking aspen	45.6	18.5
92	Paper birch	39.2	15.8
99	Opening Upland	16.6	12.9
99	Opening Lowland	1.6	0.7
(blank)	Water	2.1	0.9
Grand Total		871.9	352.9

(3) DESCRIPTION OF THE VALUES OF THE RESEARCH NATURAL AREA.

(A) FLORA LIST

Initial plant surveys were conducted in the 1990s by Wisconsin Department of Natural Resources biologist Eric Epstein and Forest Service ecologists Steven Spickerman, Linda Parker, and Marjory Brzeskiewicz.

Table 4. Flora list for Camp Nine Pines RNA

Camp Nine Pines RNA Vascular Plant List	
Scientific Name	Common Name
<i>Abies balsamea</i>	balsam fir
<i>Acer rubrum</i>	red maple
<i>Acer saccharum</i>	sugar maple
<i>Achillea millefolium</i>	yarrow
<i>Actaea rubra</i>	red baneberry
<i>Agrostis hyemalis v. scabra</i>	tickle grass
<i>Alnus viridis</i>	green alder
<i>Amelanchier sp.</i>	service berry
<i>Anaphalis margaritacea</i>	pearly everlasting
<i>Andropogon gerardii</i>	big blue-stem
<i>Anemone americana</i>	round-lobed hepatica
<i>Anemone canadensis</i>	Canada anemone
<i>Anemone quinquefolia</i>	woods anemone
<i>Antennaria neglecta</i>	pussy-toes
<i>Apocynum androsaemifolium</i>	spreading dogbane
<i>Aquilegia canadensis</i>	columbine
<i>Arabis glabra</i>	tower mustard
<i>Aralia nudicaulis</i>	wild sarsaparilla
<i>Aster laevis</i>	smooth aster
<i>Aster macrophyllus</i>	big-leaf aster
<i>Aster sagittifolius</i>	arrow-leaved aster
<i>Athyrium filix-femina</i>	lady fern
<i>Betula papyrifera</i>	paper birch
<i>Botrychium rugulosum</i>	ternate grape-fern
<i>Calamagrostis canadensis</i>	blue-joint grass
<i>Calystegia spithamea</i>	low bindweed
<i>Campanula rotundifolia</i>	harebell
<i>Carex arctata</i>	sedge
<i>Carex crawfordii</i>	sedge
<i>Carex hystericina</i>	porcupine sedge
<i>Carex intumescens</i>	inflated sedge
<i>Carex pensylvanica</i>	Pennsylvania sedge
<i>Carex projecta</i>	necklace sedge
<i>Carex rosea</i>	sedge
<i>Carex stricta</i>	tussock sedge
<i>Carex tenera</i>	sedge
<i>Cerastium fontanum</i>	mouse-ear chickweed
<i>Chamaedaphne calyculata</i>	leatherleaf
<i>Chimaphila umbellata</i>	Pipsissewa
<i>Cicuta bulbifera</i>	bulbiferous water-hemlock

Camp Nine Pines RNA Vascular Plant List	
Scientific Name	Common Name
<i>Clintonia borealis</i>	blue bead lily
<i>Comptonia peregrina</i>	sweet-fern
<i>Coptis trifolia</i>	goldthread
<i>Cornus alternifolia</i>	alternate-leaved dogwood
<i>Cornus canadensis</i>	bunchberry
<i>Corylus americana</i>	American hazelnut
<i>Corylus cornuta</i>	beaked hazelnut
<i>Crataegus sp.</i>	hawthorn
<i>Danthonia spicata</i>	poverty oats
<i>Dichanthelium linearifolium</i>	linear-leaved panic grass
<i>Diphasiastrum complanatum</i>	trailing ground-cedar
<i>Dirca palustris</i>	leatherwood
<i>Dryopteris carthusiana</i>	woodfern
<i>Dryopteris cristata</i>	crested wood-fern
<i>Elytrigia repens</i>	quack grass
<i>Epigaea repens</i>	trailing arbutus
<i>Epilobium angustifolium</i>	fireweed
<i>Epilobium palustre</i>	marsh willow-herb
<i>Fragaria virginianum</i>	strawberry
<i>Gallium sp.</i>	bedstraw
<i>Gaultheria hispidula</i>	creeping snowberry
<i>Gaultheria procumbens</i>	wintergreen
<i>Geranium bicknellii</i>	Bicknell's geranium
<i>Glyceria canadensis</i>	rattlesnake manna grass
<i>Goodyera tessellata</i>	checkered rattlesnake plantain
<i>Habenaria obtusata</i>	blunt-leaf orchid
<i>Halenia deflexa ssp deflexa</i>	spurred gentian
<i>Helianthus hirsutus</i>	hairy sunflower
<i>Hieracium aurantiacum</i>	orange hawkweed
<i>Hieracium kalmii</i>	yellow hawkweed
<i>Huperzia lucidula</i>	shining club-moss
<i>Iris versicolor</i>	northern blue-flag iris
<i>Juncus tenuis</i>	path-rush
<i>Lactuca sp.</i>	wild lettuce
<i>Larix laricina</i>	tamarack
<i>Leucanthemum vulgare</i>	ox-eye daisy
<i>Linna borealis ssp americana</i>	twin-flower
<i>Lonicera canadensis</i>	fly honeysuckle
<i>Luzula acuminata</i>	evergreen wood-rush

Camp Nine Pines RNA Vascular Plant List	
Scientific Name	Common Name
<i>Lycopodium clavatum</i>	wolf's-claw club-moss
<i>Lycopodium dendroideum</i>	princess pine
<i>Lycopus sp.</i>	horehound
<i>Lysimachia ciliata</i>	fringed loosestrife
<i>Maianthemum canadense</i>	Canada mayflower
<i>Matricaria discoidea</i>	pineapple weed
<i>Melampyrum lineare</i>	cow-wheat
<i>Mitchella repens</i>	partridgeberry
<i>Monarda fistulosa</i>	wild bergamot
<i>Monotropa hypopithys</i>	pinenap
<i>Monotropa uniflora</i>	indian-pipe
<i>Onoclea sensibilis</i>	sensitive fern
<i>Oryzopsis asperifolia</i>	rice-grass
<i>Osmorhiza claytonii</i>	sweet cicely
<i>Osmunda cinnamomea</i>	cinnamon fern
<i>Osmunda claytoniana</i>	interrupted fern
<i>Oxalis stricta</i>	yellow wood-sorrel
<i>Panicum xanthophyllum</i>	slender panic grass
<i>Pedicularis canadensis</i>	wood betony
<i>Phleum pretense</i>	timothy
<i>Picea glauca</i>	white spruce
<i>Picea mariana</i>	black spruce
<i>Pinus banksiana</i>	jack pine
<i>Pinus resinosa</i>	red pine
<i>Pinus strobus</i>	white pine
<i>Plantago major</i>	plantain
<i>Platanthera orbiculata</i>	large round-leaved orchid
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Polygala paucifolia</i>	fringed polygala
<i>Populus grandidentata</i>	big-tooth aspen
<i>Populus tremuloides</i>	trembling aspen
<i>Potentilla palustris</i>	marsh cinquefoil
<i>Prenanthes alba</i>	rattlesnake root
<i>Prunus pumila</i>	sand cherry
<i>Prunus serotina</i>	black cherry
<i>Prunus spp</i>	cherry species
<i>Pteridium aquilinum</i>	bracken fern
<i>Quercus rubra</i>	northern red oak

Camp Nine Pines RNA Vascular Plant List	
Scientific Name	Common Name
<i>Ribes glandulosum</i>	skunk current
<i>Rosa spp</i>	rose
<i>Rubus alleghaniensis</i>	blackberry
<i>Rubus hispida</i>	dewberry
<i>Rubus idaeus</i>	red raspberry
<i>Rumex acetocella</i>	sheep sorrel
<i>Salix spp</i>	willow
<i>Sanicula marilandica</i>	black snakeroot
<i>Scirpus atrovirens</i>	black bulrush
<i>Scirpus cyperinus</i>	wool-grass
<i>Scirpus pendulus</i>	rufous bulrush
<i>Senecio pauperula</i>	northern meadow ragwort
<i>Smilacina stellata</i>	starry false solomon's-seal
<i>Solidago juncea</i>	early goldenrod
<i>Solidago rugosa</i>	wrinkle-leaved goldenrod
<i>Solidago speciosa</i>	showy goldenrod
<i>Solidago uliginosa</i>	northern bog goldenrod
<i>Stachys hispida</i>	hedge-nettle
<i>Stellaria media</i>	chickweed
<i>Streptopus lanceolatus</i>	rosy twisted-stalk
<i>Tanacetum vulgare</i>	common tansy
<i>Taraxacum officinale</i>	dandelion
<i>Thalictrum dioicum</i>	early meadow rue
<i>Thelypteris palustris</i>	marsh fern
<i>Trientalis borealis</i>	star flower
<i>Trifolium repens</i>	white clover
<i>Uvularia sessilifolia</i>	sessile bellwort
<i>Vaccinium angustifolium</i>	low blueberry
<i>Vaccinium myrtilloides</i>	Canada blueberry
<i>Verbascum Thapsus</i>	common mullein
<i>Viburnum rafinesquianum</i>	downy arrow-wood
<i>Vicia americana</i>	American vetch
<i>Viola blanda</i>	sweet white violet
<i>Viola spp</i>	Blue violet
<i>Waldsteinia fragarioides</i>	barren ground strawberry



Figure 3. Wintergreen berries in late winter are a common sight in dry-mesic forest. Photo by M. Brzeskiewicz, 2012

(B) FAUNA LIST

Animals noted during the 1993 field surveys are listed in Table 5. A comprehensive inventory of the site's fauna is needed.

Table 5. Camp Nine Pines Fauna List

Camp Nine Pines Fauna (Spickerman & Brzeskiewicz 1993)	
Common Name	Scientific Name
Red squirrel	<i>Tamiasciurus hudsonicus</i>
white-tailed deer	<i>Odocoileus virginiana</i>
black bear	<i>Ursus americanus</i>
beaver	<i>Castor canadensis</i>
badger	<i>Taxidea taxus</i>
coyote	<i>Canis latrans</i>
eastern timber wolf	<i>C. lupus</i>
American toad	<i>Bufo americanus</i>
chorus frog	<i>Pseudacris triseriata</i>
wood frog	<i>Rana sylvatica</i>
four-toed salamander	<i>Hemidactylium scutatum</i>
painted turtle	<i>Chrysemys picta</i>
eastern garter snake	<i>Thamnophis sirtalis</i>

Table 6. Birds of Camp Nine Pines RNA (names: AOU Checklist 1983)

Camp Nine Pines Bird List (from Hoffman 1992)	
Common Name	Scientific Name
Turkey vulture	<i>Cathartes aura</i>
Ruffed grouse	<i>Bonasa umbellus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Broad-winged hawk	<i>Buteo platypterus</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Northern harrier	<i>Circus cyaneus</i>
Barred owl	<i>Strix varia</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>
Northern flicker	<i>Coaptes auratus</i>
Downy woodpecker	<i>Picoides pubescens</i>
Hairy woodpecker	<i>P. villosus</i>
Great crested flycatcher	<i>Myiarchus crinitus</i>
Least flycatcher	<i>Empidonax minimus</i>
Eastern wood pewee	<i>Contopus virens</i>
Blue-headed vireo	<i>Vireo solitarius</i>
Red-eyed vireo	<i>V. olivaceus</i>
Yellow-throated vireo	<i>V. flavifrons</i>
Common raven	<i>Corvus corax</i>
Blue jay	<i>Cyanocitta cristata</i>
Brown creeper	<i>Certhia americana</i>
Black-capped chickadee	<i>Parus atricapillus</i>

Camp Nine Pines Bird List (from Hoffman 1992)	
Common Name	Scientific Name
White-breasted nuthatch	<i>Sitta carolinensis</i>
Red-breasted nuthatch	<i>S. canadensis</i>
Winter wren	<i>Troglodytes troglodytes</i>
Golden-crowned kinglet	<i>Regulus satrapa</i>
Veery	<i>Catharus fuscescens</i>
Hermit thrush	<i>Catharus guttatus</i>
American robin	<i>Turdus migratorius</i>
Blackburnian warbler	<i>Dendroica fusca</i>
Chestnut-sided warbler	<i>D. pensylvanica</i>
Black-throated green warbler	<i>D. virens</i>
Pine warbler	<i>D. pinus</i>
Magnolia warbler	<i>D. magnolia</i>
Black and white warbler	<i>Mniotilta varia</i>
Nashville warbler	<i>Vermivora ruficapilla</i>
Golden-winged warbler	<i>V. chrysoptera</i>
Mourning warbler	<i>Oporornis philadelphia</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Ovenbird	<i>Seiurus aurocapillus</i>
American redstart	<i>Setophaga ruticilla</i>
Canada warbler	<i>Wilsonia canadensis</i>
Scarlet tanager	<i>Piranga olivacea</i>
Indigo bunting	<i>Passerina cyanea</i>

Camp Nine Pines Bird List (from Hoffman 1992)	
Common Name	Scientific Name
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Field sparrow	<i>Spizella pusilla</i>
Chipping sparrow	<i>Spizella passerina</i>
Song sparrow	<i>Melospiza melodia</i>

Camp Nine Pines Bird List (from Hoffman 1992)	
Common Name	Scientific Name
White-throated sparrow	<i>Zonotrichia albicollis</i>
Purple finch	<i>Carpodacus purpureus</i>
Rufous-sided towhee	<i>Pipilo erythrophthalmus</i>
Dark-eyed junco	<i>Junco hyemalis</i>

(C) GEOLOGY

The geology of northern Wisconsin was shaped by long periods of cooling climate and expansion of glaciers; the last expansion is known as the Wisconsin Glaciation. This glacial advance began about 26,000 years ago when the Laurentide Ice Sheet spread across the continent. As this glacier retreated, till deposition and glacial melt-water formed an irregular landscape of hills pocked with depressions (WGNHS 2011).

The eastern section of the RNA is situated on glacial end moraine grading into glacial pitted outwash as you travel west (Spickerman and Brzeskiewicz 1993). Bedrock of the Cable Rolling Outwash LTA is carbonates (the majority of the RNA) and the bedrock is greater than 100 feet from the land surface (Wisconsin Department of Natural Resources 2003). A smaller portion of the RNA consists of sandstone (LTA Ka04), which is between 100 and 50 feet of the land surface. Geomorphologic processes include glacial meltwater deposition.

(D) SOILS

Soils are well-drained sandy loam over medium-coarse sand with end moraine on the east, grading into glacial pitted outwash as you move west. Most of the soils generally fall into the Vilas-Omega association. There is a small area that is of the Cloquet-Hiawatha association.

Vilas-Omega soils are very deep, excessively well-drained loamy sands formed in sandy deposits on outwash plains, outwash terraces, and outwash areas on moraines (USDA NRCS 2003). Slopes range from 0 to 45 percent. Native vegetation is mixed coniferous and deciduous forest. Red pine, jack pine, eastern white pine, aspen, and northern red oak are the dominant species.

Cloquet soils are also loamy sands, somewhat excessively drained formed in sandy or gravelly glacial outwash on outwash plains, valley trains, and glacial moraines. Native vegetation was mixed deciduous coniferous forest. The main kinds of trees are quaking aspen, paper birch, oaks, and red and white pines.



Figure 4. Example of the rolling topography and open pine savannah community of Camp Nine Pines RNA. Photo by Steven Spickerman 1993

(E) TOPOGRAPHY

The area is gently rolling with small steep-sided open frost pocket depressions with scattered trees (Figure 4). Characteristic landform patterns of LTA Xf01 and Ka04 that are represented in Camp Nine Pines include rolling collapsed and uncollapsed outwash plains.

(F) AQUATIC/RIPARIAN

Several small perennial ponds and ephemeral woodland pools occur in the depressions throughout this site. This is valuable habitat for various invertebrates and amphibians including the rare four-toed salamander (*Hemidactylium scutatum*) which has been found in the surrounding area. The ponds are the sole water source in this dry community type and are fed by ground water and precipitation. There are no streams or rivers within three miles (5 kilometers) of this site.

(G) RARE, THREATENED, ENDANGERED, OR SENSITIVE SPECIES

Table 7. Threatened, Endangered, Sensitive, and Unique species in Camp Nine Pines RNA

Common Name	Scientific name	State Status, Heritage Rank* 2012
PLANTS		
Large round-leaved orchid	<i>Platanthera orbiculata</i>	formerly listed; locally common
Ternate grape-fern	<i>Botrychium rugulosum</i>	SC, S2 (needs verification)
ANIMALS		
Black-throated blue warbler	<i>Dendroica caerulescens</i>	SC/M S3B
Connecticut warbler	<i>Oporornis agilis</i>	SC/M S2S3B
Evening grosbeak	<i>Coccothraustes vespertinus</i>	SC/M, S2S3B
Four-toed salamander	<i>Hemidactylium scutatum</i>	SC/H, S3?

* see Appendix 4: *Wisconsin Natural Heritage Working List – Rank Definitions*

(H) LIST OF RARE ELEMENTS AND RARE PLANT COMMUNITIES

Camp Nine Pines RNA contains small acreages of Pine Barrens, a globally rare ecosystem.

Table 8. Rare Elements of Camp Nine Pines (WI DNR 2012)

Element Name	Heritage Rank*	State Status*
Pine Barrens	G2 S2	N/A
Bracken Grassland	G3 S2	N/A
Northern Dry Forest	G3?S3	N/A

* see Appendix 4: *Wisconsin Natural Heritage Working List – Rank Definitions*

This site is embedded within an area recognized by the Wisconsin Bird Conservation Initiative as an *Important Bird Area* which by definition provides essential habitat to one or more species of breeding or non-breeding birds (Steele 2007). The identification of a site as an important bird area carries no legal status or regulatory requirements.

c. RESOURCE INFORMATION

This section discusses resources that occur in the RNA framed within the *context of potentially conflicting uses*. Camp Nine Pines RNA is owned outright by the United States government and is administered by the USDA Forest Service, Chequamegon-Nicolet National Forest. It is bordered entirely by Forest Service land.

(1) MINERALS

The mineral estate [860 acres (348 ha)] within the RNA is both federally owned and outstanding (Table 9). Outstanding and Federal-owned minerals are open to hardrock prospecting within the Research Natural Area and the Forest Service must allow access to the surface to the mineral owner. There is low potential for hardrock prospecting activity within RNA based on geology and recent hardrock prospecting permit activity in the County compared to other parts of the CNNF (Knight pers comm 2013). There has been no hardrock prospecting permit activity in the RNA area.

Table 9. Mineral resource ownership in Camp Nine Pines RNA (CNNF Data)

T. R.	Section	Acres*	Hectares	Mineral Ownership	Comments
46N 8W	33,28	all	all	Federally owned	
	32	5	2	Outstanding	Statement of Mineral Claim filed
	34	25 balance	10 balance	Outstanding Federally owned	Statement of Mineral Claim filed
45N 8W	3	all	all	Federally owned	

Mineral Rights Definitions:

Outstanding: Third party (mineral rights were not owned by the surface land owner when the land was sold to the National Forest) mineral ownership rights are described in deed and State Law. Forest Service must allow access to the surface to the mineral owner.

Federally owned: Mineral estate is administered by Bureau of Land Management and are open for prospecting.

Statement of Mineral Claim was filed by the Forest Service: State of Wisconsin Law provides a way for a surface owner to file for and acquire the “outstanding” mineral rights when those rights have become “dormant”. Dormant mineral rights are acquired by filing a Statement of Mineral Claim.

All: Means the total acreage within the RNA boundary in that section.

Balance: Means the remaining acreage minus the listed acres within the RNA boundary in that section.

***Acres:** This represents only a rough estimate of the number of acres within the proposed RNA boundary. Mineral ownership acreage is estimated because RNA boundaries are meander lines and mineral ownership is a legal description.

(2) GRAZING

There is currently no grazing on the Chequamegon-Nicolet National Forest, nor are there any outstanding grazing permits. The Forest land and Resource Management Plan has a standard that prohibits grazing in Research Natural Areas (*Appendix 3 -Forest Management Area Direction*).

(3) PLANTS (INCLUDING TIMBER AND SPECIAL FOREST PRODUCTS)

There are no outstanding timber rights on any of the tracts in the RNA, nor are there any special use permits outstanding. Ninety three percent of the RNA is forested [814 acres (330 hectares)] and are timber types commonly harvested elsewhere on the CNNF (Figure 2 & Table 3). The balance [55 ac (22ha)] is open upland or wetland.

Lands surrounding Camp Nine Pines RNA are assigned several Management Area designations: 4A Conifer, Red-White-Jack pine; 4B Conifer, Natural Pine-Oak (USDA Forest Service 2004a pg 3-17); and 8F Special Management Area (USDA Forest Service 2004a pg 3-53). See Section f (1) “*Management Issues*” for further discussion on management areas.

The 2004 CNNF Forest Plan includes a guideline that prohibits gathering Special Forest Products for personal use or commercial sale within RNAs (USDA Forest Service 2004a pg 3-50). When the CNNF issues a permit to gather products such as club moss or firewood, the permittee is provided with a map of areas, including RNAs, which are off-limits to harvesting. The CNNF supplement to the Forest Handbook (FSH2409.18) states that “gathering small amounts of fruit, nuts, berries, and fungi (mushrooms) for personal use is allowed” in RNAs.

This new RNA has not as yet been designated as a Tribal RNA (Tribal-USDA MOU) which would limit tribal gathering. The CNNF is continuing to work with the Tribes to protect these unique features and to provide for the exercise of treaty-reserved hunting and gathering rights. See Section d.(2) -*Cultural/Heritage* for further discussion.

(4) WATERSHED VALUES

Water resources within Camp Nine Pines RNA are limited to small perennial and ephemeral ponds. There are also several sedge wetland communities in low-lying pockets. These water sources are highly valuable for animals and the RNA protects these fragile communities.

(5) RECREATION USE

Potential conflicts exist with the snowmobile/all-terrain vehicle (ATV) trail that runs adjacent to the site and with the mountain bike trail system that uses surrounding forest system roads. The mountain bike trail follows Forest Service roads that define the southern and eastern boundaries of the RNA and do not intersect the site. The roads that define the boundaries are all open to highway legal vehicle use but get only infrequent traffic, mainly during hunting seasons.

The north and east boundary roads (FR 401 and 399 respectively) are open to ATVs. With this activity there is potential for conflict due to illegal off-trail use. Monitoring will be important as well as strict enforcement of motorized vehicle rules per the CNNF 2012 Travel Management Project Decision (USDA Forest Service 2012).

Use of the nearby Rainbow Lake Wilderness Area to the east, and most dispersed recreational activities, are fully compatible with RNA status. Both gun and bow hunting is popular for white-tailed deer (*Odocoileus virginianus*) and black bear (*Ursus americana*). Hunters often set up temporary camps and this activity will be restricted within the RNA if it causes resource damage.

(6) WILDLIFE

High values are associated with RNA designation in part due to the rare plants and animals found within this site. The RNA provides a large tract of land for wildlife populations to thrive and disperse. The Pine Barrens community type that supports unique wildlife is rare worldwide and declining in the state.

(7) TRANSPORTATION/ROAD SYSTEM

The current rule guiding motorized access is contained in the Travel Management Project Decision Notice via a Motorized Vehicle Use Map for 2012 (USDA Forest Service 2012). This map shows roads available for motorized use. No new roads or trails are planned. Camp Nine Pines is surrounded by roads that are all open to highway legal vehicles year round. In addition, all-terrain vehicles may ride the forest roads along the northern and eastern boundaries (FR 401 and 399 respectively). The west boundary road FR 229 is a gravel-surface narrow road maintained by the local Town. Conflict may arise from illegal off-road use off any of these roads.

Some old roads and railroad corridors exist within the RNA. CNNF Forest Plan guidelines for RNAs specify the restoration of decommissioned roads to some level of natural landscape characteristics (Appendix 3 - *Forest Management Area Direction*). The Plan also has road decommissioning standards and guidelines that place RNAs as a priority (USDA Forest Service 2004 p 2-37). Gravel roads and native-surface collector roads left over from past management needs will be treated if necessary to restore hydrologic, geomorphic, and ecological processes and properties.

d. HISTORICAL INFORMATION

(1) RESEARCH/EDUCATION USE AND INTEREST: HISTORY OF ESTABLISHMENT

Research/Education Use:

Numerous university ecology and forestry classes have visited this unique area and research interest here is high. A group of foresters from Canada made a casual site visit in about 1995 with national forest staff to this and other nearby sites to discuss methods of using fire as a tool in managing pine forest understory. Data from the RNA contributed to several papers on the effects of timber harvesting on coarse woody debris in red pine forests in the Great Lakes region (Duval 1997; Duval & Grigal 1999).

A Chequamegon Breeding Bird Survey site is located within Camp Nine Pines RNA. This monitoring program was designed to provide an accurate estimate of population change for forest bird species on the Forest. A list of over twenty research papers and masters theses using this data is available from the Forest RNA coordinator.

History of establishment:

The Chequamegon-Nicolet began a forest-wide ecological inventory to identify high quality ecological features in the early 1990s (Parker 1999). Camp Nine Pines RNA was the first site inventoried and one of the highest ranking sites based on its ecological values. It was assigned a high conservation priority and deferred from management activity. About the same time, the Eastern Region and Northern Research Station undertook a gap analysis of high-quality examples of alliances (ecological communities) within each subsection (Tyrrell et al 2000). This site filled a cell in that gap analysis.

The Natural Heritage Inventory Section of the Bureau of Endangered Resources (Wisconsin DNR) worked closely with Forest ecologists in evaluating this site, making numerous field visits and assisting with ecological inventory and evaluation. They completed a *Site Evaluation* and recommended Camp Nine Pines for protection (Hoffman 1998).

The Wisconsin Department of Natural Resources is also interested in achieving ecosystem representation within the State Natural Area Network. They signed a Memorandum of Understanding (MOU) in 2008 with the CNNF to co-designate all current and future RNAs and Forest Special Management Areas (SMAs) as State Natural Areas.

Camp Nine Pines was identified as a Candidate RNA in the Draft Forest Plan and analyzed in the Environmental Impact Statement. It was recommended for designation as a Research Natural Area in the Land and Resource Management Plan Record of Decision (USDA Forest Service 2004c).

A region-wide analysis was conducted in conjunction with the Northern Research Station to evaluate all candidate RNAs in the Eastern Region. Based on this analysis, the Eastern Regional Office recommended Camp Nine Pines for establishment.

(2) CULTURAL/HERITAGE

Cultural heritage resources of Camp Nine Pines RNA include the early 1900's Hine's logging camp (USDA Forest Service 2003). There are no longer any structures here.

Ojibwe tribes retained the right to hunt, fish, and gather on lands that make up the CNNF through a series of session treaties. The Forest Service (and Eastern Region, Northern Research Station and USFS Law Enforcement) recognizes treaty rights through a “Memorandum of Understanding” with eleven sovereign and federally recognized tribes of Ojibwe Indians (Tribal-USDA MOU). Today, these treaty rights are being exercised by Ojibwe Indian tribes under rules promulgated and enforced by the tribes. One of these rules recognizes twelve existing RNAs on the CNNF as “Tribal Research Natural Areas” because it is important to protect the unique features that these areas provide. The rule prohibits gathering in Tribal RNAs except for tribally-permitted ceremonial use.

Since Camp Nine Pines RNA has not been adopted as an Ojibwe Tribal RNA as of 2013; tribal members may exercise these rights here. The CNNF is continuing to work with the Tribes to protect these unique features and to provide for the exercise of treaty-reserved rights. The 2004 CNNF Forest Plan includes an objective (USDA Forest Service 2004c p. 1-7) that “nothing in this Forest Plan or its implementation (i.e. establishing the RNA) is intended to modify, abrogate, or otherwise adversely affect tribal reserved or treaty guaranteed rights applicable within the CNNF”.

(3) DISTURBANCE HISTORY

Timber harvest and the subsequent wildfires during the late 19th and early 20th century removed most of the original pine forest in northern Wisconsin. Intense fires burned over much of this area prior to it becoming National Forest in the 1930s. As the forest grew back, some areas were again harvested in the early and mid-twentieth century. The oldest standing trees now are 75-100 years old. A large wind event in 1999 (prior to RNA selection) blew down 30 acres (12 ha) of pine in the center of the site and downed timber was removed. A prescribed burn of less than 100 acres (40 ha) within the site (conducted prior to RNA selection) showed a natural pine regeneration survival rate of 45% (Bushman 2013).

Multiple forest roads and old railroad grades remain and despite lack of use they have been slow to naturally revegetate. These open roads can be problematic as they are tempting to some ATV users.

(4) OCCURRENCE OF EXOTIC SPECIES

Patches of the non-native invasive plant spotted knapweed (*Centaurea biebersteinii*) occur along some of the roads and trails surrounding Camp Nine Pines. The CNNF has developed an invasive plant strategy (USDA Forest Service 2009) that utilizes adaptive pest management to discover, prioritize, and control non-native invasive plants wherever they occur. Control measures were initiated in 1996 using hand-pulling and in 2005 with targeted spraying of herbicide on these roads.

e. OTHER INFORMATION

This site was co-designated by the State of Wisconsin as a State Natural Area in 2004 (per Memorandum of Understanding with the State of Wisconsin Department of Natural Resources). It contributes towards the State Natural Area Network Representation goals of 3300 acres of Northern Dry Forest and Northern Dry Mesic Forest in the state.

(1) ANY PERMANENT RESEARCH PLOTS AND/OR PHOTO POINTS

A Chequamegon Breeding Bird Survey site established here has been monitored annually since 1992. This monitoring program was designed to provide an accurate estimate of population change for forest bird species on the Chequamegon National Forest.

Plant collections will be housed at a herbarium located at the University of Wisconsin-Madison Herbarium or a place approved by the Station Director. All animal specimens collected in the course of research will be properly preserved and maintained within Chequamegon-Nicolet National Forest Supervisor's office or designated university.

(2) BIBLIOGRAPHY

A listing of citations used in this document, useful references, and reports and journal articles that resulted from study within this RNA are listed in Appendix 2 – *Bibliography*.

(3) POTENTIAL RESEARCH TOPICS

Camp Nine Pines RNA contains an ecosystem that was historically maintained by fire. Research on fire history and effects of fire is desirable. Researchers may want to study this site where the globally rare barrens ecosystem meets dry-mesic forest. Other topics for potential research include: birds, frost pockets (pocket barrens), importance of small pot-hole ponds, and investigation of the fauna of the area.

f. EVALUATION OF SPECIFIC MANAGEMENT RECOMMENDATIONS ON THE RESEARCH NATURAL AREA

(1) POTENTIAL OR EXISTING CONFLICTS; PRINCIPAL MANAGEMENT ISSUES

Sensitive plants and animals need to be protected from illegal off-road vehicle use and surrounding trails will need to be monitored. Control of non-native invasive plants within and on the roads surrounding the RNA is a priority management need. Prescribed low-intensity ground fire will probably be necessary to maintain and protect this system. Camp Nine Pines RNA needs a site management plan that includes a burn plan for use of prescribed fire as well as how to control or use wildfire.

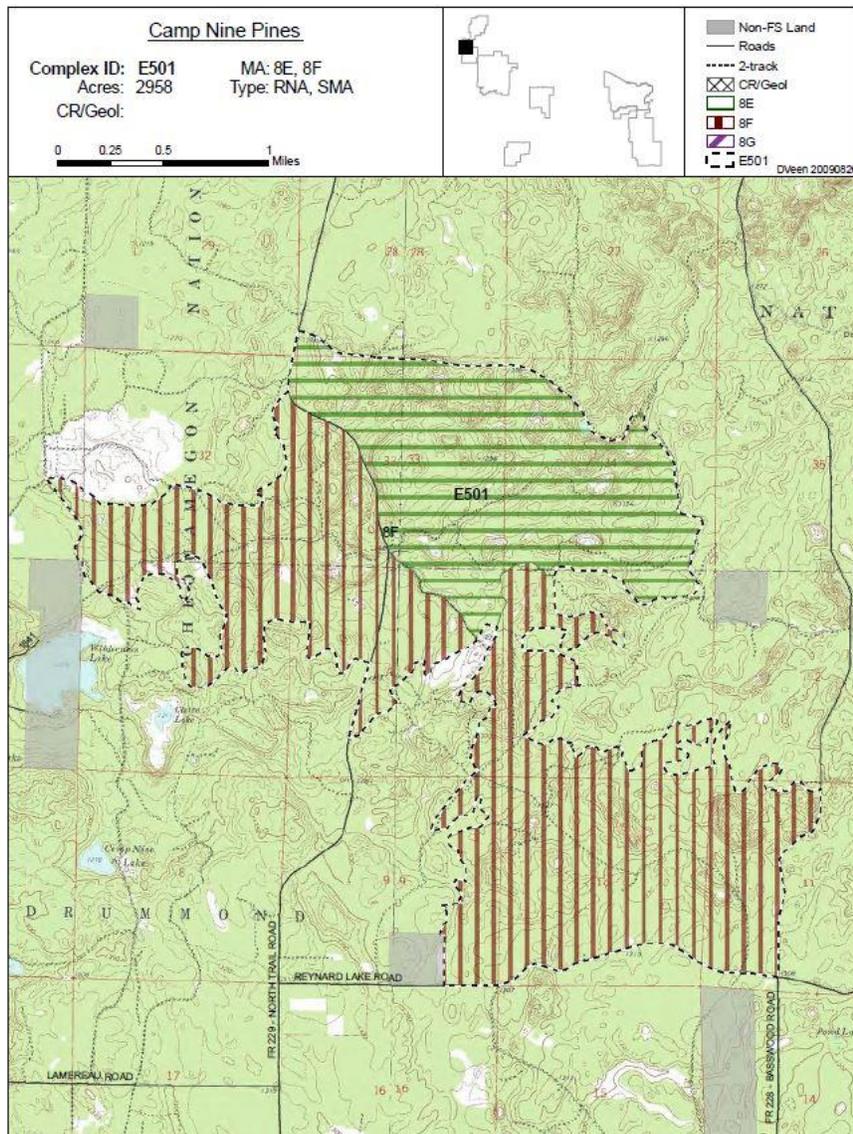


Figure 5. Map showing how Camp Nine Pines RNA (green horizontal lines on map) is connected to a Special Management Area (brown vertical line) to form a larger ecological reserve area of the same name in the 2004 CNNF Forest Plan. (Map by D. Veen 2009)

The site is bounded (Figure 5) on most of the western perimeter and a portion of the south by Forest Plan Management Area 8F -*Special Management Area* (USDA Forest Service 2004a pg 3-55). This designation is compatible with RNA status and will provide protection to the RNA since no timber harvest occurs and natural processes guide the composition and structure. To the north of the RNA is Management Area 4A - *Conifer: Red-White-Jack Pine*. Here management prescriptions maintain shade intolerant tree species through even-aged harvest practices. The strip of land between the eastern boundary of the RNA and the Rainbow Lake Wilderness (about $\frac{3}{4}$ mi or 1.2 km wide) is Management Area 4B - *Conifer: Natural Pine-Oak*. Management Area 4B maintains large patch size of natural origin pine and oak with extended harvest rotation (USDA Forest Service 2004a pg 3-17).

(2) SPECIAL MANAGEMENT AREA IF THE RESEARCH NATURAL AREA IS WITHIN ONE

Camp Nine Pines RNA is not located within or adjacent to any congressionally designated area.

g. PHOTOGRAPHS

All photographs used in this Establishment Record are the property of the Chequamegon-Nicolet National Forest but not copyrighted. Older slide photos were scanned in some cases and are with the site file housed in the Park Falls office of the Chequamegon-Nicolet National Forest. An electronic file is part of this establishment record.

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APPENDIX 3 FOREST MANAGEMENT AREA DIRECTION

RNA MANAGEMENT AREA DIRECTION from the 2004 Chequamegon-Nicolet National Forests Land and Resource Management Plan:

MA 8E - Existing and Candidate Research Natural Areas (RNA)

Theme

In this document, the term RNA will refer to both Existing and Candidate Research Natural Areas. MA 8E is characterized by ecologically significant natural features, representative ecosystems, and/or unique areas managed as Candidate or Existing Research Natural Areas. A broad representation of Forest community types is included in this MA. In combination with other RNAs in the nation, they form a national network of ecological areas for research, monitoring, education, and maintenance of biological diversity.

Landscape Description

MAs 8E is characterized by nearly level to steep topography with slope gradients ranging from 0 to 30%. Glacial landforms include drumlin ground moraine, collapsed and uncollapsed outwash plains, washed moraines and eskers. The soils range from sandy to silty in the surface over loamy to sandy sediments. Soil moisture regimes range from dry to mesic and nutrient status ranges from poor to rich. A broad array of Forest Habitat Types and LTAs are represented in this MA.

Desired Future Condition

Landscape Composition and Structure

RNAs are chosen as high quality representatives of ecological communities found on the Forest. In general, they exhibit minimal evidence of past human disturbance, and contain all or most species characteristic of that community in the region. They may range in size from less than 100 acres to thousands of acres. They are generally well buffered from incompatible activities on nearby lands. RNAs are meant to include a representation of ecological types and vegetative cover across the Forest. However, composition results primarily from natural ecological processes rather than human-caused activities. As a result, late-successional upland types such as northern hardwoods, northern hardwood/hemlock, and mixed-conifers dominate the MA. A variety of wetland types may be present, from small isolated ponds and bogs to large (over 1000 acre) wetland complexes.

Site-Level Composition and Structure

Compositional diversity typically reflects late successional mature conditions. Dominant upland tree species are sugar maple, hemlock, yellow birch, basswood, and American beech. Lowland areas support tree species such as black spruce, northern-white cedar, and tamarack. Shade-intolerant species such as aspen, white birch, and jack pine are uncommon, limited to areas affected by natural disturbance such as windfall. Ground flora reflects the full diversity of native upland and lowland communities, and is generally unaffected by invading exotics. Structural diversity is complex, with features such as super-canopy trees, snags, den trees, downed woody debris, and canopy gaps commonly found.

Disturbance Regime

Natural ecological processes and natural disturbances shape the landscape-level and site-level vegetation composition. Components of the natural disturbance regime include individual tree throw and infrequent larger scale blowdown, infrequent low-intensity fire, insect damage, and beaver flooding. Timber harvesting does not occur.

The following section is copied from the CNNF 2004 Land and Resource Management Plan section on Management Area Standards and Guidelines (Pages 3-51 to 3-53).

Standards and Guidelines

Minerals

Standard:

- Prohibit the development of new sources of common variety minerals.

Guidelines:

- Surface disturbing mineral activities and will be approved or disapproved on a case-by- case basis where minerals are federally owned. Whenever possible surface disturbance will be limited.
- When surface disturbing mineral exploration and development of reserved and outstanding mineral rights is proposed, consider reasonable alternatives that minimize impacts to RNA values.
- Acquisition of reserved and outstanding mineral rights will be considered on a willing seller/willing buyer basis.
- Existing common variety minerals developments may be utilized. Consider RNA values if full utilization requires vegetation disturbance.

Biological Diversity

Guideline:

- Use native plant species for restoration activities. Use non-native plant species only if they are needed to prevent irreversible resource damage.

Vegetation

Standard:

- Prohibit domestic livestock grazing.

Guidelines:

- Vegetation management is not permitted unless the desired vegetation type would be lost or degraded without treatment. Management practices will approximate the vegetation and processes that govern natural succession.
- Hazard trees may be cut but not removed.

Special Forest Products

Guideline:

- Prohibit the gathering of special forest products for personal use or commercial sale.

Wildlife and Fish

Guideline:

- Wildlife and fish habitat manipulation will not be permitted unless it's consistent with RNA objectives and is needed to maintain the character or purpose of the area.

Fire Management

Guidelines:

- Allow prescribed fire within a prescription designed to accomplish specific RNA objectives where it is part of the natural disturbance regime, where it is needed to maintain or restore ecosystems, and where it is called for in the establishment record.
- Minimize the disturbance of soil and water resources by designing fire suppression activities to fit each individual situation.

Insects and Disease

Guideline:

- Minimize the disturbance of soil and water resources. Minimize control actions against native insects and diseases, and native plant and animal pests. Allow limited control actions to protect adjacent resources or the features for which the research natural area was established.

Recreation

Standard:

- Prohibit recreational use that threatens or interferes with the objectives or purposes for which the RNA was established.

Guidelines:

- Do not install signs or construct trails or other improvements unless they contribute to RNA objectives or area protection.
- Prohibit the use of horses, bicycles, and motorized vehicles on RNA trails.

Heritage Resources

Guideline:

- Protect significant heritage resources by dispersing or limiting public use of RNAs.

Lands

Guideline:

- Clearly identify RNA boundaries, monument corners, and turning points.

Special Uses

Standard:

- Prohibit the establishment of new facilities and corridors for utility rights-of-way.

Guideline:

- Do not issue special use permits except as mandated by law or agreement. Exceptions may be made for research or educational activities. Phase out existing special use permits when feasible.

Facilities

Guideline:

- Do not construct buildings unless they are needed to meet RNA objectives. Existing structures may be maintained.

Transportation Systems

Guidelines:

- Do not construct new roads.
- Restore all decommissioned roads to some level of landscape restoration.

Research

Standard:

- Permit educational and research use as long as it will not result in unacceptable impacts to RNA values.

APPENDIX 4 WISCONSIN NATURAL HERITAGE WORKING LIST – RANK DEFINITIONS

The Wisconsin NHI Working List records which elements are tracked in the state. The working list is revised as species' populations change (increase or decrease) and as knowledge about their status and distribution in Wisconsin increase. The Working List was revised in 2012. Definitions of ranks are provided below, along with definitions for other abbreviations used in the Working List.

US Status: Current federal protection status designated by the Office of Endangered Species, U.S. Fish and Wildlife Service indicating the biological status of a species in Wisconsin. LE = listed endangered; LT = listed threatened; PE = proposed as endangered; NEP = nonessential experimental population; C = candidate for future listing; CH = critical habitat

State Status: Protection category designated by the Wisconsin DNR. END = Endangered; THR = Threatened; SC = Special Concern.

WDNR and federal regulations regarding Special Concern species range from full protection to no protection. The current categories and their respective level of protection are as follows: SC/P = fully protected; SC/N = no laws regulating use, possession, or harvesting; SC/H = take regulated by establishment of open closed seasons; SC/FL = federally protected as endangered or threatened, but not so designated by WDNR; SC/M = fully protected by federal and state laws under the Migratory Bird Act.

Special Concern species are those species about which some problem of abundance or distribution is suspected but not yet proved. The main purpose of this category is to focus attention on certain species before they become threatened or endangered.

Global Element Ranks

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single state or physiographic region), or because of other factor(s) making it vulnerable to extinction throughout its range; typically 21-100 occurrences.

G4 = Uncommon but not rare, (although it may be quite rare in parts of its range, especially at the periphery) and usually widespread. Typically >100 occurrences.

G5 = Common, widespread, and abundant (although it may be quite rare in parts of its range, especially at the periphery). Not vulnerable in most of its range.

GH = Known only from historical occurrence throughout its range, with the expectation that it may be rediscovered.

GNR = Not ranked. Replaced G? rank and some GU ranks

GU = Currently unrankable due to lack of data or substantially conflicting data on status or trends. Possibly in peril range-wide, but status is uncertain.

GX = Presumed to be extinct throughout its range (e.g. Passenger pigeon) with virtually no likelihood that it will be rediscovered.

Species with a questionable taxonomic assignment are given a "Q" after the global rank.

Subspecies and varieties are given subranks composed of the letter "T" plus a number or letter. The definition of the second character of the subrank parallels that of the full global rank. (Examples: a rare subspecies of a rare species is ranked G1T1; a rare subspecies of a common species is ranked G5T1.)

State Element Ranks

S1 = Critically imperiled in Wisconsin because of extreme rarity, typically 5 or fewer occurrences and/or very few (<1000) remaining individuals or acres, or due to some factor(s) making it especially vulnerable to extirpation from the state.

S2 = Imperiled in Wisconsin because of rarity, typically 6 to 20 occurrences and/or few (1000-3000) remaining individuals or acres, or due to some factor(s) making it very vulnerable to extirpation from the state.

S3 = Rare or uncommon in Wisconsin, typically 21-100 occurrences and/or 3000-10,000 individuals.

S4 = Apparently secure in Wisconsin, usually with >100 occurrences and >10,000 individuals.

S5 = Demonstrably secure in Wisconsin and essentially ineradicable under present conditions.

SNA = Accidental, non-native, reported, but unconfirmed, or falsely reported.

SH = Of historical occurrence in Wisconsin, perhaps having not been verified in the past 20 years, and suspected to be still extant. Naturally, an element would become SH without such a 20-year delay if the only known occurrence were destroyed or if it had been extensively and unsuccessfully looked for.

SNR = Not Ranked, a state rank has not yet been assessed.

SU = Currently unrankable. Possibly in peril in the state, but status is uncertain due to lack of information or substantially conflicting data on status or trends.

SX = Apparently extirpated from the state.

State Ranking of Long-Distance Migrant Animals

Ranking long distance aerial migrant animals presents special problems relating to the fact that their non-breeding status (rank) may be quite different from their breeding status, if any, in Wisconsin. In other words, the conservation needs of these taxa may vary between seasons. In order to present a less ambiguous picture of a migrant's status, it is necessary to specify whether the rank refers to the breeding (B) or non-breeding (N) status of the taxon in question. (e.g. S2B,S5N).

(http://dnr.wi.gov/org/land/er/wlist/06_2011_Working_List.pdf Last Revised: May 31, 2012)

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