



DESIGNATION ORDER

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

Bearsdale Creek and Hyatt Springs 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 Bearsdale Creek and Hyatt Springs Research Natural Area. It shall be comprised of 495 acres (200 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

Bearsdale Creek-Hyatt Spring 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:

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Marjory E. Brzeskiewicz, Botanist, Chequamegon-Nicolet National Forest

Draft by:

/s/ Dawn Hinebaugh Date: 2005
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Recommended by:

Paul I.V. Strong Date 2/18/15
Paul I.V. Strong, Forest Supervisor, Chequamegon-Nicolet National Forest

Concurrence of:

Michael T. Rains Date 3.23.2015
Michael T. Rains, Station Director, Northern Research Station



United States
Department of
Agriculture

Forest
Service

May 2014



TITLE PAGE

Establishment Record for Bearsdale Creek and Hyatt Spring Research Natural Area

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



Cover Photo: Bearsdale Creek is a spring-fed stream that flows through the Research Natural Area.
Photo by Steven Spickerman, 1996

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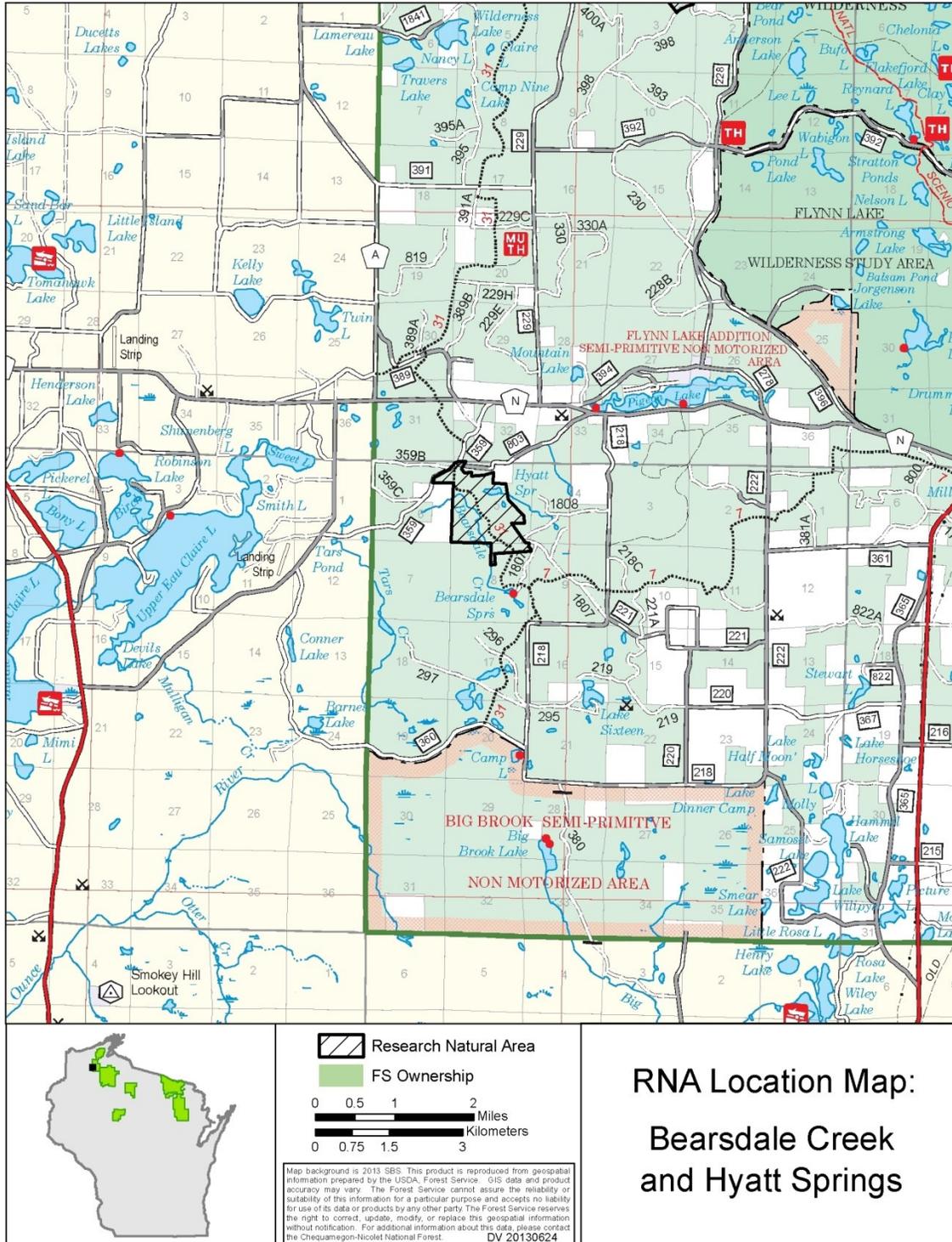
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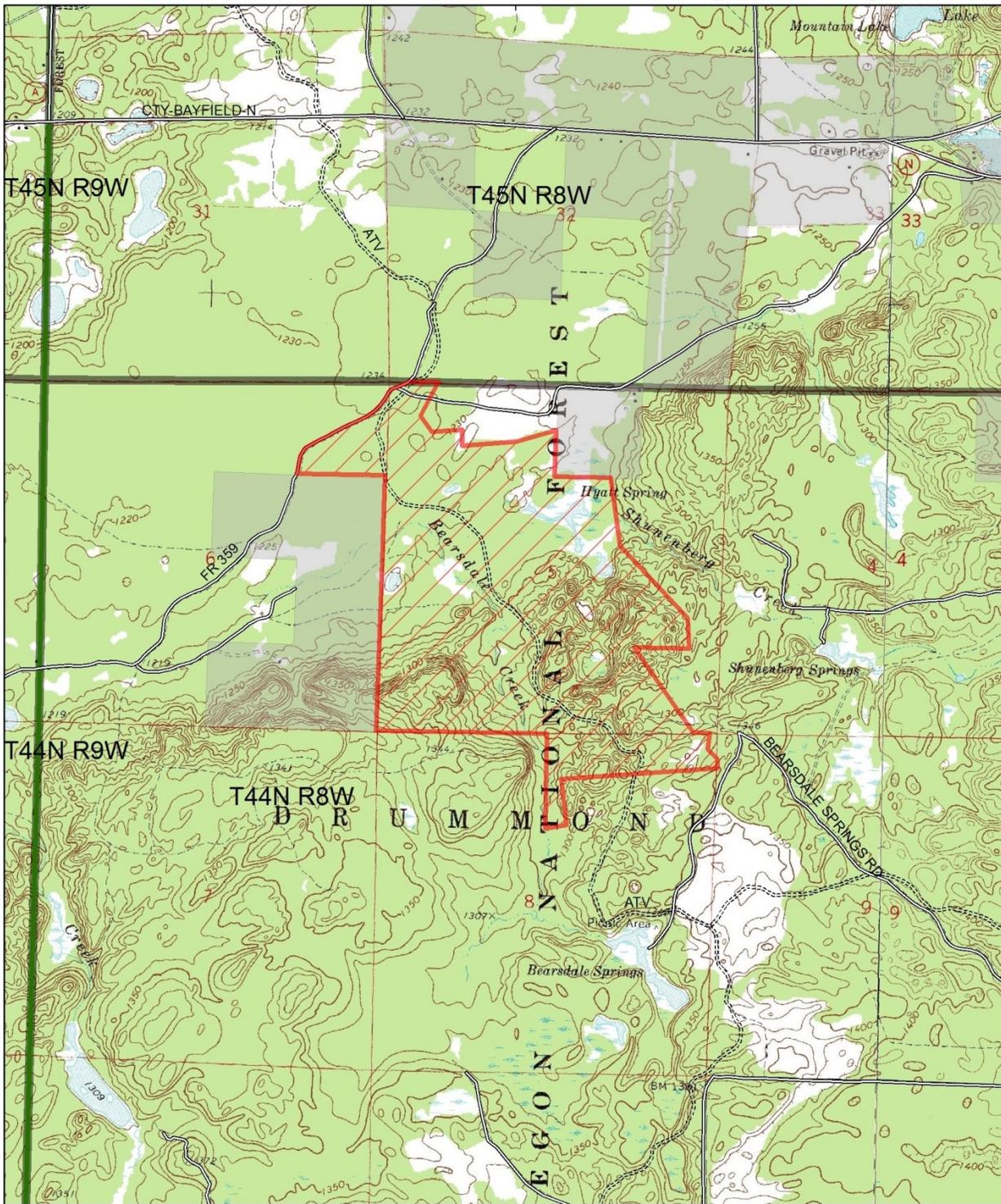
1. IDENTIFICATION SECTION

Location Map

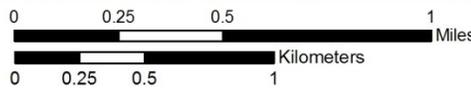


BOUNDARY MAP

RNA Boundary Map: Bearsdale Creek and Hyatt Spring

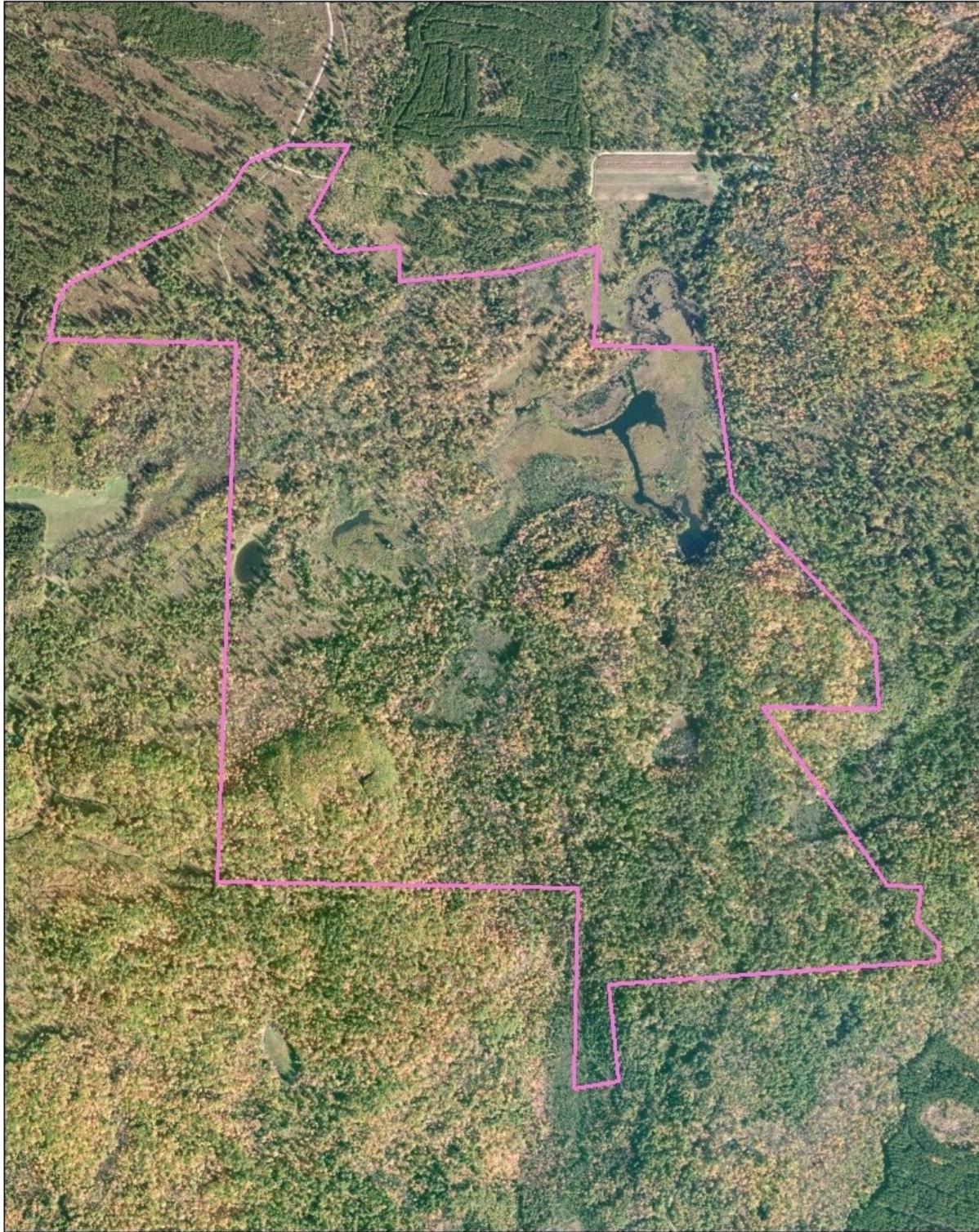


- Research Natural Area
- NonFS ownership
- Open Road
- Trail



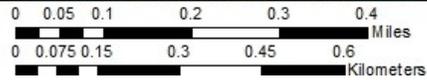
DV 20140417
Acres: 495

LANDSCAPE OVERVIEW BEARSDALE CREEK AND HYATT SPRING RNA



 RNA Boundary

ESRI Basemap World Imagery
MB 2013



LEGAL DESCRIPTION

The Bearsdale Creek and Hyatt Spring Research Natural Area is located in Bayfield county, Wisconsin Township 44 North, Range 08 West Sections 5, 6, and 8. The boundary is delineated as follows:

Beginning at the Southeast corner of Section 6,

Thence north along the East line of Section 6, approximately 2,640 feet to the East $\frac{1}{4}$ corner of Section 6,

Thence north along the East line of Section 6, approximately 1,320 feet to the North $\frac{1}{16}$ corner of Sections 5 and 6,

Thence West along the North $\frac{1}{16}$ line of Section 6, approximately 1,330 feet to the East ROW of Forest Road #359,

Thence Northeasterly along the East ROW of FR #359, approximately 2,370 feet to the North line of Section 5,

Thence East along North line of Section 5, 472 feet,

Thence Southwesterly, S 28° W, 601 feet,

Thence S 36° E, 307 feet,

Thence N 86° E, 472.5 feet,

Thence south, 251, feet,

Thence N 50° E, 493 feet,

Thence N 87° E, approximately 1,099 feet North -South $\frac{1}{4}$ line of Section 5,

Thence South along the $\frac{1}{4}$ line 756.00 feet to the Center North $\frac{1}{16}$ corner of Section 5,

Thence East along the North $\frac{1}{16}$ line of Section 5, 870.00 feet,

Thence S 08° E 1,070 feet,

Thence S 48° E, 1,534 feet,

Thence S 03° E, 472 feet,

Thence N 89° W, 856 feet,

Thence S 37° E, 1,605 feet, to the North line of Section 8, 360 feet West of the Northeast corner of Section 8,

Thence east along the north line of Section 8, 250.00 feet,

Thence S 06° W, 252.5 feet,

Thence S 43° E. 220 feet

Thence S 01° E, 133 feet,

Thence S 86° W, 2,422.5 feet,

Thence S 09° E, 715.5 feet,

Thence S 80° W, approximately 295 feet to the North –South ¼ line of Section 08,

Thence along the ¼ line of Section 8, 1,390.0 feet to the North ¼ corner of Section 8,

Thence west along the North line of Section 8, approximately 2,640 feet to the **Point of Beginning**.

RNA contains approximately 495 acres (200 ha). Geographic Information System (GIS) data of the perimeter boundary are on file at the Forest offices.

/s/ Randy Erickson March 18, 2013
Randy Erickson Date
Land Surveyor, Chequamegon-Nicolet National Forest

2. ADMINISTRATIVE SECTION

This Establishment Record has been prepared pursuant to Forest Service Manual direction (FSM 4063). Establishment of the Bearsdale Creek-Hyatt Spring RNA is documented with a signature page 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, Washburn District Ranger, and NRS RNA Coordinator(s) will approve and coordinate research conducted in the RNA.

Requests to conduct research are referred to the Station Director, Northern Research Station, 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 Forest 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

Bearsdale Creek and Hyatt Spring Research Natural Area (RNA) is located on the Chequamegon-Nicolet National Forest (CNNF), Washburn Ranger District in Bayfield County, Wisconsin. The 495-acre (200 hectares) RNA is located entirely on National Forest Service Land and is approximately 7 miles (11 km) west of Drummond, Wisconsin (Identification Section - *Location Map*).

Bearsdale Creek and Hyatt Spring RNA contains a diverse mix of representative communities including mature northern dry-mesic forest, exposed dry bedrock outcrops, and a rich bottomland-like hardwood forest. This forest is composed of medium to large black ash (*Fraxinus nigra*) and bur oak (*Quercus macrocarpon*) and borders Bearsdale Creek as it leaves the western remnants of the Penokee Range. Of interest are landlocked streams (Fig 5) that originate from springs and ponds, flow overland for a distance then disappear into the permeable soil. Two rare plant species, fragrant woodfern (*Dryopteris fragrans*) and dry-land bittercress (*Cardamine parviflora*) are found in this RNA [Section B(3)(G)].

American Indian 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. Many of these practices continue today under reserved treaty rights (treaties of 1837 & 1842) with eleven Ojibwe tribes. There are current reservation lands of several Ojibwe tribes within 20-50 miles (30-80 km) of the RNA. See Section 4 d.(2) Cultural/Heritage for further explanation of Native American history.

Perhaps the oldest written history of the site is within the General Land Survey Notes for T44N R8W as noted by H.C. Fellows in 1856: "*The surface is gently rolling excepting the north tier of sections which are hilly and in some places broken. The soil is good second rate, the whole township is very heavily timbered with sugar, pine, birch, and hemlock. The pine is of a very fine quality, thinly scattered among the hardwood. The township is one of the most valuable for timbering purposes that I have ever seen in this part of Wisconsin.*" Bearing Tree Maps from that time indicate sugar maple (*Acer Saccharum*), white pine (*Pinus strobus*), paper birch (*Betula papyrifera*), aspen (*Populus* spp), bur oak, and red oak (*Quercus rubra*) were used as survey witness trees.

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. A land cover map from 1928 indicates the area was white pine, aspen and paper birch with average diameters of 0-6 inches (0-15 cm) dbh (WPA 1928). This is evidence that the area of the RNA was clearcut in the 1800s. The area containing the RNA became National Forest in the early 1930s. The only timber harvests since then were a small salvage sale in 2001 in the northern portion and a small thinning in 1984 in the southern portion.

Current land use includes motorized recreation (one ATV and snowmobile trail), duck hunting, hiking, and trout fishing.

Bearsdale Creek and Hyatt Spring 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.

b. JUSTIFICATION SECTION

(1) JUSTIFICATION STATEMENT

Bearsdale Creek and Hyatt Spring RNA is one of the few protected sites on the forest representing the basaltic ridge land type and includes areas of exposed rock outcrop and cliff. The rare fragrant wood fern (*Dryopteris fragrans*) occurs on these rock faces. Other unique features include landlocked streams that disappear into the ground and bottomland forest more similar in composition to forests much farther south.

(2) PRINCIPAL DISTINGUISHING FEATURES

Bearsdale Creek and Hyatt Spring RNA is a diverse site with several excellent representative natural communities as well as numerous unique natural features (Krause and Spickerman 1996). Key aspects of this RNA are its spring-runs and ponds, rich bottomland hardwood forest, and bedrock outcrops (Fig. 1). The spring-runs and ponds (including Hyatt springs, Shunenber Creek, and Bearsdale Creek) are small, hard-water, and landlocked. All support small populations of minnows and brook trout.

A unique community this far north in the state is the wet-mesic forest grading into hardwood swamp; dominated by bur oak (*Quercus macrocarpon*), basswood (*Tilia americana*), and black ash with numerous plant species more common of rich bottomland forests to the south. This is the northern limit for common pricklyash (*Zanthoxylum americanum*). Bearsdale Creek passes through the stand and might act as a flood source for the stand, contributing rich alluvial soils. The stand has a very productive herbaceous layer.



Figure 1. Bearsdale Creek basalt cliff with rock polypody ferns (*Polypodium virginianum*). Photo by Spickerman 1996

Other significant ecological features include extensive second-growth mixed white pine (*Pinus strobus*) and red pine (*Pinus resinosa*) forest with good regeneration, exposed dry bedrock outcrops, a population of the state special concern fragrant wood fern, and a small stand of wet white cedar-hemlock (*Thuja occidentalis-Tsuga canadensis*) forest bordering Bearsdale Creek.

(3) OBJECTIVES

Bearsdale Creek and Hyatt Spring RNA will be managed to meet the objectives of the national RNA program for research, education and maintenance of biodiversity. Bearsdale Creek and Hyatt Spring RNA was recommended for RNA designation in the 2004 Chequamegon and Nicolet National Forest 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 pg 3-50). Objectives in the 2004 CNNF Forest Plan state that “RNAs and candidate RNAs (MA8E) and Special Management Areas (MA8F), as well as Old Growth and Natural Features Complexes (MA8G) serve in the role of 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 p. 10). These include plant communities that are part of a larger network of ecosystems represented across the region and nation.

The Bearsdale Creek and Hyatt Spring RNA is one of thirty areas on the CNNF that will be managed to meet the research and educational objectives of the national RNA program. The specific management objective of this RNA is to serve as a research and educational reference area, preserve and maintain the RNA’s plant and animal communities, and populations of uncommon and rare species. Areas, that contain old-growth forest components contribute to the diverse mosaic represented by this RNA and will provide a seed source for future generations. Here succession will occur naturally following community-changing events such as wind throw and flooding. Use of low-intensity prescribed fire may be needed to maintain the pine systems within the RNA (Section C(E)).

c. LAND MANAGEMENT PLANNING

The alternative effects on RNA establishment were analyzed and disclosed in the Final Environmental Impact Statement (USDA Forest Service 2004b pg 3-110) and Record of Decision (USDA Forest Service 2004c pg 9). Bearsdale Creek and Hyatt Spring 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 for the CNNF.

The RNAs and candidate RNAs on the Forest have been assigned to a management prescription (8E) that is consistent with RNA 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 CNNF. 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).

Bearsdale Creek and Hyatt Spring RNA is part of a larger CNNF ecological reference area of the same name (Figure 6). It includes a Forest Special Management Area (SMA) parcel adjacent to the south and another two parcels to the east that protect Shunenberg Springs and part of Shunenberg

creek. Together with the RNA, these areas form a matrix of plant communities that provide a larger area for ecological study of approximately 1000 acres (400 ha).

d. MANAGEMENT PRESCRIPTION

The management prescription for Bearsdale Creek and Hyatt Spring RNA is embodied in the management area direction and guidance presented in the 2004 CNNF Forest Plan under Management Area 8E - Existing and Candidate Research Natural Areas (Appendix 3 - *Forest Management Area Direction*).

The CNNF has not developed an individual site management plan for the 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. In general, the management objectives are to allow natural processes to drive the structure and function of the ecosystems. See Section e.- *Use or Control of Fire* for a discussion of using the natural process of fire within this ecosystem. An example of this may be to introduce fire to the understory of red oak, red and white pine stands in the RNA to reduce fuel loads, promote fire adapted species, and maintain the structural and ecological characteristics of RNA. 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 non-native invasive plant strategy (USDA Forest Service 2009) will detect, manage and prevent invasive plants. Research Natural Areas are high priority for monitoring and controlling invasives.

Refer to Appendix 1, section f.(1) *Potential or existing conflicts* to reference unique management issues that should be addressed for this RNA.

e. USE OR CONTROL OF FIRE AND GRAZING

Once established, CNNF resource managers will write a specific management plan for Bearsdale Creek and Hyatt Springs RNA that considers the role of 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 (Appendix 3: *Management Area Direction*). The pine/oak ecosystem (*Pinus resinosa/Quercus rubra*) is adapted to occasional fire and a low-intensity prescribed fire may be used to maintain ecological characteristics. Prescribed fire has already been applied to the northern portion of the RNA along FR 359. In 2004 following salvage timber operations, 43 acres of white pine underburning was conducted in two stands during the Rock Shu prescribed burn (Bushman 2013). Information and maps can be obtained from the CNNF RNA coordinator.

Occasional wildfires can occur in dry years, and those on the dryer soil types could become sizable for this part of the country; on the order of 20 to 100 acres (8 to 40 ha). Northwestern Wisconsin has experienced a number of wind events in 1994 that caused a significant amount of downed timber; some within the RNA, but most adjacent to it. Much of this potential fuel has been salvaged on both public and private lands. Wildfire suppression, if necessary within the RNA, would employ those methods that cause the least disturbance.

There is currently no grazing on the Chequamegon-Nicolet National Forest, nor is grazing allowed in RNAs per 2004 CNNF Forest Plan standards.

f. APPENDICES

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 Final 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 on research sites can be obtained from the Forest RNA Coordinator.

A. PHYSICAL SITE DESCRIPTION AND CLIMATIC CONDITIONS

(1) LOCATION

Bearsdale Creek and Hyatt Spring RNA is located on the Washburn Ranger District of the Chequamegon-Nicolet National Forest, Bayfield County, in the state of Wisconsin. The RNA's Mercator coordinates are 46° 19' N latitude and 91° 23' W longitude (map datum ex. WGS 84). See Establishment Record Identification Section for the *Boundary Certification, Location Map* and *Boundary Map*.

(2) SIZE IN ACRES/HECTARES

The RNA is comprised of 495 acres (200 hectares).

(3) ELEVATION RANGE

Elevations range from 1,220 feet (372 meters) to 1,390 feet (424 meters) above sea level.

(4) ACCESS TO THE SITE

From the intersection of State Highway 63 and County Highway N in Drummond, go west on County Highway N approximately 5.2 miles (8.4 km), then south on FR 803 approximately 2 miles (3.2 km) to the northwest corner of the site. The trail through the site provides easy access to the interior. See Establishment Record Identification Section - *Location Map* for other access points.

(5) CLIMATIC DATA

The weather station nearest to Bearsdale Creek and Hyatt Spring RNA is Drummond Ranger Station (station no. 472240, latitude 46° 19' N, longitude 91° 16' W). The station is about 6 mi (9.7 km) east of the RNA and experiences similar 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 below.

Table 1. Temperature and Precipitation Data for station no. 472240 from 1948 to 2000

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	-42.0
Precipitation	in	mm
Mean annual rainfall	34.3	870.0
Mean monthly - April through September	3.9	99.0
Mean monthly - 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).

Bearsdale Creek and Hyatt Spring RNA is located in the Laurentian Mixed Forest Province, 212 Northern Highland Section. The RNA lies within Subsection 212Xf Hayward Stagnation Moraines, of the Ecological Units of the Eastern United States (Cleland et al. 2007). It includes Land Type Association (LTA) Xf01 Cable Rolling Outwash. A small portion lies within the Smoky Hill Basalt Ridge LTA Xf06.

(2) PLANT COMMUNITY TYPES

Numerous plant communities are associated with this diverse site from northern dry-mesic forest to hardwood swamp and wiregrass (*Carex oligosperma*) meadow (Krause and Spickerman 1996). Three of the dominant communities are described below.

Northern Dry-mesic forest:

Situated on rough knobs and kettle topography is a mature, second-growth dry-mesic forest dominated by medium sized red pine (*Pinus resinosa*) and white pine (*P. strobus*) (Epstein and Krause 1993). Canopy associates include red maple (*Acer rubrum*), red oak (*Quercus rubra*), paper birch (*Betula papyrifera*), big-tooth aspen (*Populus grandidentata*), black cherry (*Prunus serotina*),

and balsam fir (*Abies balsamea*). Pine reproduction is generally sparse, though pockets of sapling white pine occur. Hardwood trees are reproducing well.

The shrub layer is moderate to dense with beaked hazelnut (*Corylus cornuta*), serviceberry (*Amelanchier* spp), early low blueberry (*Vaccinium angustifolium*), velvet-leaf blueberry (*V. myrtilloides*), and *Rubus* species. Characteristic herbs include bracken fern (*Pteridium aquilinum*), winterberry (*Gaultheria procumbens*), large-leaved aster (*Aster macrophyllus*), narrow-leaved cow-wheat (*Melampyrum lineare*), and club-mosses (*Lycopodium/Huperzia* spp.). There has been little to no disturbance in some areas since the cut-over logging era that extended into the early 1900s.

Table 2. Natural vegetation community types within Bearsdale Creek and Hyatt Springs RNA using common classification systems for Wisconsin (Curtis 1959 and Kotar et al. 2002) and NGDC (2013)

Community Type (Curtis 1959)	Forest Habitat types (Kotar et al. 2002)	Dominant species	NVCS Associations (NGDC 2012)*
Northern dry-mesic forest	AVVib	white pine, red pine, red oak	Pinus strobus - (Pinus resinosa) - Quercus rubra Forest CEGLO02480
Northern mesic forest	AViO	bur oak, basswood, sugar maple	Quercus ellipsoidalis - (Quercus macrocarpa) Forest CEGLO02077
Northern mesic forest	PMV	white pine, red maple	Pinus strobus - Populus tremuloides - (Acer rubrum) / Pteridium aquilinum Forest [Provisional] CEGLO05563
Northern wet-mesic forest	TMC	white cedar, hemlock, yellow birch	Thuja occidentalis - Betula alleghaniensis Forest CEGLO02450
Northern wet forest	N/A	black spruce and tamarack	Picea mariana - (Larix laricina) / Ledum groenlandicum / Sphagnum spp. Forest CEGLO05271
Northern hardwood swamp	N/A	black ash, bur oak, box elder	Fraxinus nigra - Mixed Hardwoods - Conifers / Cornus sericea / Carex spp. Forest CEGLO02105
Open cliff	N/A	rock polypody	Igneous - Metamorphic Northern Dry Cliff Sparse Vegetation CEGLO02300
Sedge meadow	N/A	sedges and wetland forbs	Carex oligosperma - Carex pauciflora- Eriophorum vaginatum /Sphagnum spp. Herbaceous Vegetation CEGLO05256
Shrub carr	N/A	speckled alder, willow	Alnus incana Swamp Shrubland CEGLO02381 or Salix sericea Shrubland CEGLO06305

* These National Vegetation Classification System associations are initial approximations - further review is needed.



Figure 2. Pricklyash seen at the base of these Bur oak trees reaches the northern edge of its range in the Bearsdale Creek-Hyatt Spring area. Photo by S. Spickerman

(*Crataegus* sp), and hops (*Humulus lupulus*). The site is seasonally flooded with a rich herbaceous layer and inclusions of sedge meadow (Krause and Spickerman 1996).

Northern mesic forest:

The upland northern mesic forest is dominated by bur oak (*Quercus macrocarpa*) and basswood (*Tilia americana*) with sugar maple (*Acer saccharum*), green ash (*Fraxinus Pennsylvania*), and black cherry (Krause and Spickerman 1996).

A rich, diverse understory includes wood nettle (*Laportea canadensis*), wild leek (*Allium tricoccum*), bloodroot (*Sanguinaria canadensis*), bottlebrush grass (*Elymus hystrix*), ostrich fern (*Matteuccia struthiopteris*), and American starflower (*Trientalis borealis*).

Northern hardwood swamp:

The hardwood swamp is a unique community because it supports plant species more commonly associated with swamps in southern Wisconsin (Figure 2). It is dominated by black ash (*Fraxinus nigra*), bur oak, and box elder (*Acer negundo*) with a thick understory of common pricklyash (*Zanthoxylum americanum*), hawthorn

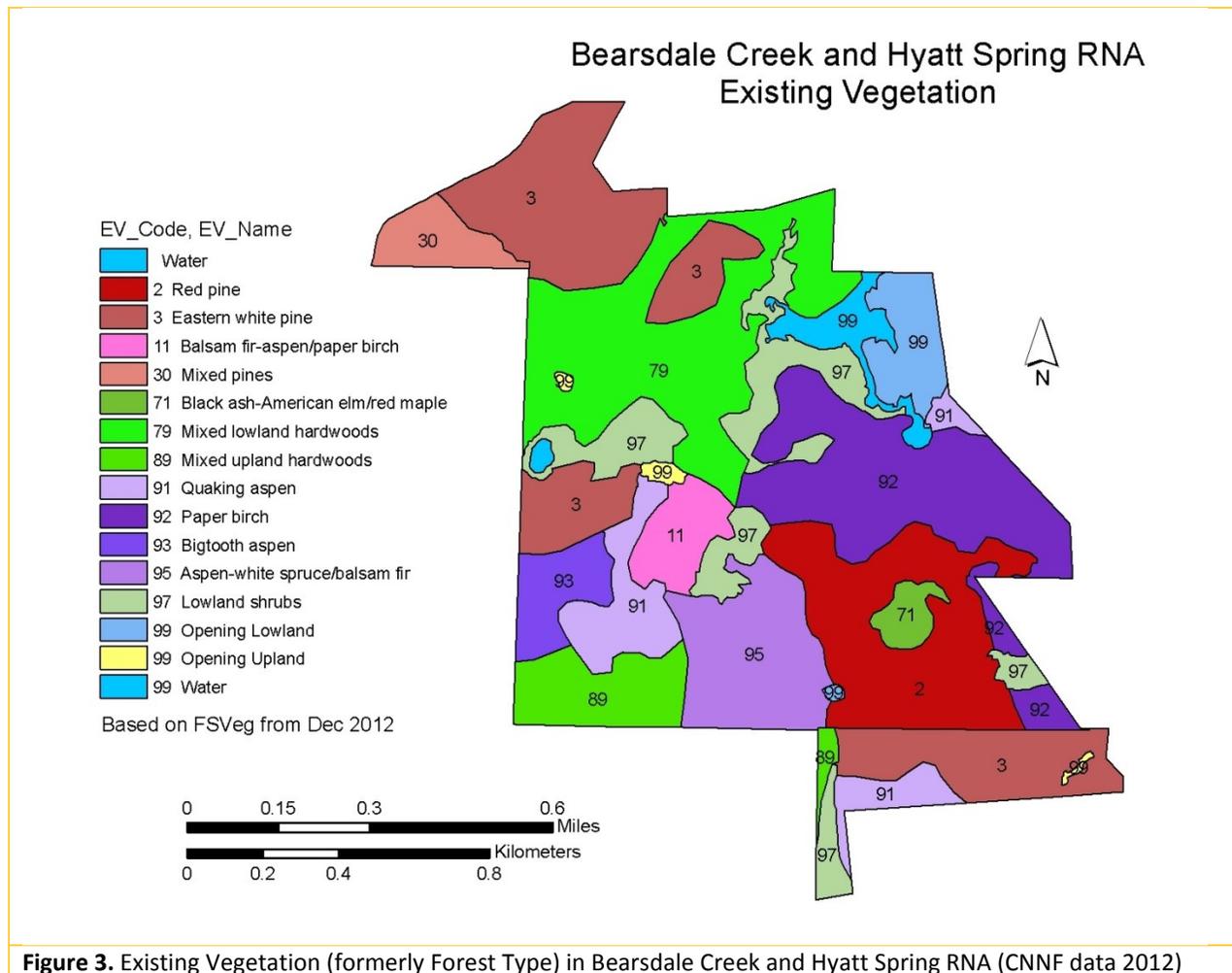


Figure 3. Existing Vegetation (formerly Forest Type) in Bearsdale Creek and Hyatt Spring RNA (CNNF data 2012)

Table 3. Existing Vegetation (as dominant tree cover) in Bearsdale Creek and Hyatt Spring RNA and key to Figure 3

EV Code	Existing Vegetation	Acres	Hectares
2	Red pine	57.0	23.1
3	Eastern white pine	93.2	37.7
11	Balsam fir-aspen/paper birch	13.1	5.3
30	Mixed pines	11.8	4.8
71	Black ash-American elm/red maple	5.6	2.3
79	Mixed lowland hardwoods	75.9	30.7
89	Mixed upland hardwoods	22.5	9.1
91	Quaking aspen	27.3	11.0
92	Paper birch	67.6	27.3
93	Bigtooth aspen	13.4	5.4
95	Aspen-white spruce/balsam fir	35.5	14.4
97	Lowland shrubs	42.9	17.3
99	Opening Lowland	15.3	6.2
none	Opening Upland	2.1	0.9
none	Water	11.0	4.8
Grand Total		494.2	200.3

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

(A) FLORA LIST

The list below is incomplete; the site needs more work on aquatic plants along Bearsdale Creek, the *Cyperaceae* family, and early spring ephemerals.

Table 4. Flora List of Bearsdale Creek and Hyatt Spring RNA (Spickerman 1996)

Scientific name	Common name	Scientific name	Common name
<i>Abies balsamea</i>	balsam fir	<i>Cryptotaenia canadensis</i>	Canadian honewort
<i>Acer negundo</i>	box elder	<i>Cystopteris fragilis</i>	brittle bladder fern
<i>Acer rubrum</i>	red maple	<i>Diervilla lonicera</i>	bush honeysuckle
<i>Acer saccharum</i>	sugar maple	<i>Diphasiastrum tristachyum</i>	ground-cedar
<i>Acer spicatum</i>	mountain maple	<i>Dryopteris carthusiana</i>	spinulose wood fern
<i>Adiantum pedatum</i>	maiden-hair fern	<i>Dryopteris cristata</i>	crested wood fern
<i>Allium tricoccum</i>	wild leek	<i>Dryopteris fragrans</i>	fragrant fern
<i>Alnus incana</i>	tag alder	<i>Dryopteris intermedia</i>	intermediate wood fern
<i>Amelanchier spp</i>	serviceberry	<i>Elymus hystrix</i>	bottlebrush grass
<i>Amphicarpaea bracteata</i>	hog peanut	<i>Elymus riparius</i>	riverbank wild rye
<i>Anemone americana</i>	round-lobed hepatica	<i>Epigaea repens</i>	trailing arbutus
<i>Anemone canadensis</i>	Canada anemone	<i>Epilobium coloratum</i>	eastern willow-herb
<i>Anemone quinquefolia</i>	wood anemone	<i>Erigeron strigosus</i>	daisy fleabane
<i>Antennaria neglecta</i>	pussy-toes	<i>Eupatorium maculatum</i>	spotted joe-pye-weed
<i>Aquilegia canadensis</i>	columbine	<i>Eupatorium perfoliatum</i>	common boneset
<i>Aralia nudicaulis</i>	wild sarsaparilla	<i>Fraxinus nigra</i>	black ash
<i>Arisaema triphyllum</i>	jack-in-the-pulpit	<i>Fraxinus pennsylvanica</i>	green ash
<i>Aster firmus</i>	shining aster	<i>Galium asprellum</i>	rough bedstraw
<i>Aster macrophyllus</i>	large-leaved aster	<i>Galium trifidum</i>	three-lobed bedstraw
<i>Aster sagittifolius</i>	arrow-leaved aster	<i>Gaultheria procumbens</i>	wintergreen
<i>Aster umbellatus</i>	flat-top white aster	<i>Glyceria striata</i>	fowl manna grass
<i>Athyrium filix-femina</i>	lady fern	<i>Gnaphalium obtusifolium</i>	fragrant cudweed
<i>Betula alleghaniensis</i>	yellow birch	<i>Gymnocarpium dryopteris</i>	common oak fern
<i>Betula papyrifera</i>	paper birch	<i>Helianthus giganteus</i>	giant sunflower
<i>Bidens cernuus</i>	nodding beggar-ticks	<i>Humulus lupulus</i>	common hop
<i>Botrychium matricariifolium</i>	daisy-leaf grape-fern	<i>Iris versicolor</i>	blue-flag iris
<i>Botrychium virginiana</i>	rattlesnake fern	<i>Juncus effusus</i>	soft rush
<i>Bromus ciliatus</i>	fringed brome	<i>Laportea canadensis</i>	woods nettle
<i>Bromus pubescens</i>	hairy woodland brome	<i>Larix laricina</i>	tamarack
<i>Calamagrostis canadensis</i>	blue-joint grass	<i>Lathyrus ochroleucus</i>	pale vetchling
<i>Caltha palustris</i>	marsh marigold	<i>Lycopodium annotinum</i>	bristly club-moss
<i>Cardamine parviflora</i>	dry-land bittercress	<i>Lycopodium clavatum</i>	wolf's-claw club-moss
<i>Carex arctata</i>	drooping woodland sedge	<i>Maianthemum racemosum</i>	false Solomon's-seal
<i>Carex crawfordii</i>	Crawford's sedge	<i>Matteuccia struthiopteris</i>	ostrich fern
<i>Carex pedunculata</i>	peduncled sedge	<i>Melampyrum lineare</i>	cow-wheat
<i>Carex pensylvanica</i>	Pennsylvania sedge	<i>Milium effusum</i>	millet grass
<i>Carex rostrata</i>	yellow lake sedge	<i>Mitchella repens</i>	partridge-berry
<i>Carex tenera</i>	quill sedge	<i>Onoclea sensibilis</i>	sensitive fern
<i>Caulophyllum thalictroides</i>	blue cohosh	<i>Oryzopsis asperifolia</i>	rice grass
<i>Chelone glabra</i>	turtle-head	<i>Osmorhiza claytonii</i>	sweet cicely
<i>Cinna latifolia</i>	drooping wood-reed	<i>Osmunda cinnamomea</i>	cinnamon fern
<i>Clematis virginiana</i>	virgin's bower	<i>Osmunda claytoniana</i>	interrupted fern
<i>Cornus canadensis</i>	bunchberry	<i>Parthenocissus vitacea</i>	grape woodbine
<i>Corydalis sempervirens</i>	pale corydalis	<i>Pedicularis canadensis</i>	wood betony
<i>Corylus cornuta</i>	beaked hazelnut	<i>Phryma leptostachya</i>	lop-seed
<i>Crataegus punctata</i>	dotted hawthorn	<i>Picea glauca</i>	white spruce

Scientific name	Common name
<i>Pinus resinosa</i>	red pine
<i>Pinus strobus</i>	white pine
<i>Polygonatum pubescens</i>	hairy Solomon's-seal
<i>Polygonum scandens</i>	climbing false buckwheat
<i>Polypodium virginianum</i>	rock polypody
<i>Populus grandidentata</i>	big-tooth aspen
<i>Populus tremuloides</i>	quaking aspen
<i>Prunus serotina</i>	black cherry
<i>Prunus virginiana</i>	chokecherry
<i>Pteridium aquilinum</i>	bracken fern
<i>Pyrola elliptica</i>	large-leaf shinleaf
<i>Quercus macrocarpa</i>	bur oak
<i>Ranunculus acris</i>	aborted buttercup
<i>Ribes glandulosum</i>	skunk current
<i>Rubus alleghaniensis</i>	blackberry
<i>Rubus idaeus</i>	red raspberry
<i>Rubus pubescens</i>	dwarf red raspberry
<i>Salix sp</i>	willow
<i>Sanguinaria canadensis</i>	blood-root
<i>Sanicula marilandica</i>	black snakeroot
<i>Scirpus cyperinus</i>	wool-grass
<i>Scutellaria galericulata</i>	marsh skullcap
<i>Sium suave</i>	water hemlock
<i>Smilacina racemosa</i>	Solomon's plume

Scientific name	Common name
<i>Smilax herbacea</i>	carrion-flower
<i>Solidago gigantea</i>	late goldenrod
<i>Streptopus lanceolatus v. longipes</i>	rosy twisted-stalk
<i>Taxus canadensis</i>	Canada yew
<i>Thalictrum dasycarpum</i>	tall meadow rue
<i>Thalictrum dioicum</i>	early meadow rue
<i>Tilia americana</i>	American basswood
<i>Trientalis borealis</i>	starflower
<i>Trillium grandiflorum</i>	large-flowered trillium
<i>Urtica dioica</i>	stinging nettle
<i>Uvularia grandiflora</i>	large-flowered bellwort
<i>Uvularia sessilifolia</i>	sessile bellwort
<i>Vaccinium angustifolium</i>	low sweet blueberry
<i>Vaccinium myrtilloides</i>	velvet-leaf blueberry
<i>Verbena hastata</i>	blue vervain
<i>Verbena urticifolia</i>	nettle-leaved vervain
<i>Viburnum lentago</i>	nanny-berry
<i>Viola pubescens</i>	downy yellow violet
<i>Viola spp.</i>	violet
<i>Waldsteinia fragarioides</i>	barren-ground strawberry
<i>Woodsia ilvensis</i>	rusty cliff fern
<i>Zanthoxylum americanum</i>	common prickly ash

(B) FAUNA LIST

No detailed faunal survey has been done for Bearsdale Creek and Hyatt Spring RNA. Species noted on community survey forms from 1996 include white-tailed deer (*Odocoileus virginianus*), red squirrel (*Tamiasciurus hudsonicus*), common raven (*Corvus corax*), and red-breasted nuthatch (*Sitta canadensis*). Muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*) wood ducks (*Aix sponsa*) and other and migratory waterfowl occupy the stream.

Bearsdale Creek is a Class III brook trout (*Salvelinus fontinalis*) stream, meaning no natural trout reproduction occurs. It requires annual stocking of trout to provide trout fishing. Generally, there is no carryover of trout from one year to the next. Other fish include longnose dace (*Rhinichthys cataractae*), blacknose dace (*R. atratulus*), common shiners (*Luxilus cornutus*), northern creek chubs (*Semotilus atromaculatus*), and sculpin (*Cottus spp*) (Johannes et al. 1970).

(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 that later became lakes and wetlands (WGNHS 2011).

In the Bearsdale Creek and Hyatt Spring RNA, the bedrock of LTA Xf01 consists of carbonates and bedrock is within 100 feet of the land surface and exposed in some places (Figure 3). Geomorphologic processes are dominated by glacial meltwater deposition (Cleland et al. 2007).

(D) SOILS

Soils generally fall into the Karlin-Padus and Sayner-Karlin soil series.

Karlin-Padus soils are nearly level to sloping soils that are predominantly well-drained sandy loam and loam over medium and coarse sandy outwash (USDA NRCS 2003). Excessively and moderately well-drained sites do occur on some uplands and lowlands, respectively. These soils occupy hilltops and bottoms of gently rolling outwash plains. The outwash nearly level landform occurs along the meltwaters of old glacial stream channels that were deposited underneath the ice.

Sayner-Karlin soils consist of strongly sloping soils and to a greater extent, rolling soils. These soils are well drained and have a loamy sand surface over medium and coarse sands. Soils with a sandy loam or fine sandy loam surface less than 15 inches thick over medium and coarse sands are also included. These soils occur mainly on outwash landforms.



Figure 4. Exposed bedrock of basaltic ridge supports Fragrant fern within Bearsdale Creek and Hyatt Spring RNA photo by S. Spickerman 1996

(E) TOPOGRAPHY

Topography ranges from nearly level to rolling with slopes from 0-15%. The characteristic landform pattern of LTA Xf01 is rolling collapsed and uncollapsed outwash plain (Cleland et al. 2007). There are several steep, exposed rock cliffs (Figure 4).

(F) AQUATIC/RIPARIAN

Bearsdale Creek (Figure 5) lies on level outwash plain and originates from Bearsdale Springs; a spring area made up of two impounded spring ponds (Johannes et al. 1970). This short stream is unique in that it is landlocked. After flowing for two miles (3.2 km), it disperses over a flat sandy area in section 6 and sinks into the ground.

Shunenber Creek originates from Shunenber Springs and flows in a northwesterly direction where it joins Hyatt Creek, a short, landlocked stream. Hyatt Creek eventually disappears into the ground in section 5.

The springs, ponds, and creeks within and adjacent to the RNA provide habitat for native fish and other plant and animal species. The wetland communities and seasonally flooded bottomland forest are adapted to and depend on the water resources within the site.

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

Table 6. Threatened, endangered, and unique species in RNA, State status and Natural heritage rank

Common Name	Scientific Name	State Status, Heritage Rank ¹
Fragrant fern	<i>Dryopteris fragrans var remotiuscula</i>	SC, G5, S3
Dry-land bittercress	<i>Cardamine parviflora</i>	None (but unique to area)

¹ see Appendix 4: *Wisconsin Natural Heritage Working List – Rank Definitions*

(H) LIST OF RARE ELEMENTS AND RARE PLANT COMMUNITIES

Table 5. Communities and unique features within RNA, global and state ranks

Element/Community Name	Global Rank	State Rank ¹
Northern dry-mesic forest	G4	S3
Northern mesic forest	G4	S4
Northern wet-mesic forest	G3?	S3S4
Northern wet forest	G4	S4
Northern Hardwood swamp	G4	S3
Open cliff	G4G5	S4
Northern sedge meadow	G4	S3
land-locked stream	none	none

¹ 2012 rankings, see Appendix 4: *Natural Heritage Working List-Rank Definitions*

C. RESOURCE INFORMATION

This section discusses resources that occur in the RNA framed within the context of *potentially conflicting uses*. Bearsdale Creek and Hyatt Spring RNA is owned outright by the United States government and is administered by the USDA Forest Service, Chequamegon-Nicolet National Forest.

(1) MINERALS

The mineral estate [495 acres (200 ha)] within the RNA contains federally owned, reserved, and outstanding mineral ownership (Table 7). Outstanding, Reserved, 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 lower 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. The state of the knowledge of the bedrock geology and where actual ore bodies may be found (if they exist and are commercial) is not precise to assign relative probability of prospecting activity within Bayfield County (Knight pers comm 2013). There are currently no active prospecting permits within the RNA.

Table 7. Mineral Resources within RNA, location, size, and ownership

T.R.	Section	Acres*	Mineral ownership	Comments
45N 8W	33	all	Federally owned	
44N 8W	5,6,7,8	all	Federally owned	
	4	all	Reserved	
	9	12	Outstanding	
	9	balance	Federally owned	Statement of Mineral Claim filed

Definitions for Table 7:

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.

Reserved: The surface land owner owned the mineral rights and retained those mineral rights when they sold the surface land to the National Forest. These mineral rights are subject to Secretary of Agriculture's Rules & Regulations and State laws based on date of land purchase. 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 no grazing on the Chequamegon-Nicolet National Forest. The 2004 CNNF Forest 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)

The total forested acreage in the RNA is 422 (170 hectares). Forested lands are 80 percent upland and 20 percent lowland. There are no outstanding timber rights on any of the tracts in the RNA.

The 2004 CNNF Forest Plan has 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 Forest issues a permit to gather products such as club moss or sheet moss, the permittee is provided with a map of areas including RNAs that are off-limits to harvesting.

At the time of establishment Bearsdale Creek and Hyatt Spring RNA is not designated as an Ojibwe 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.

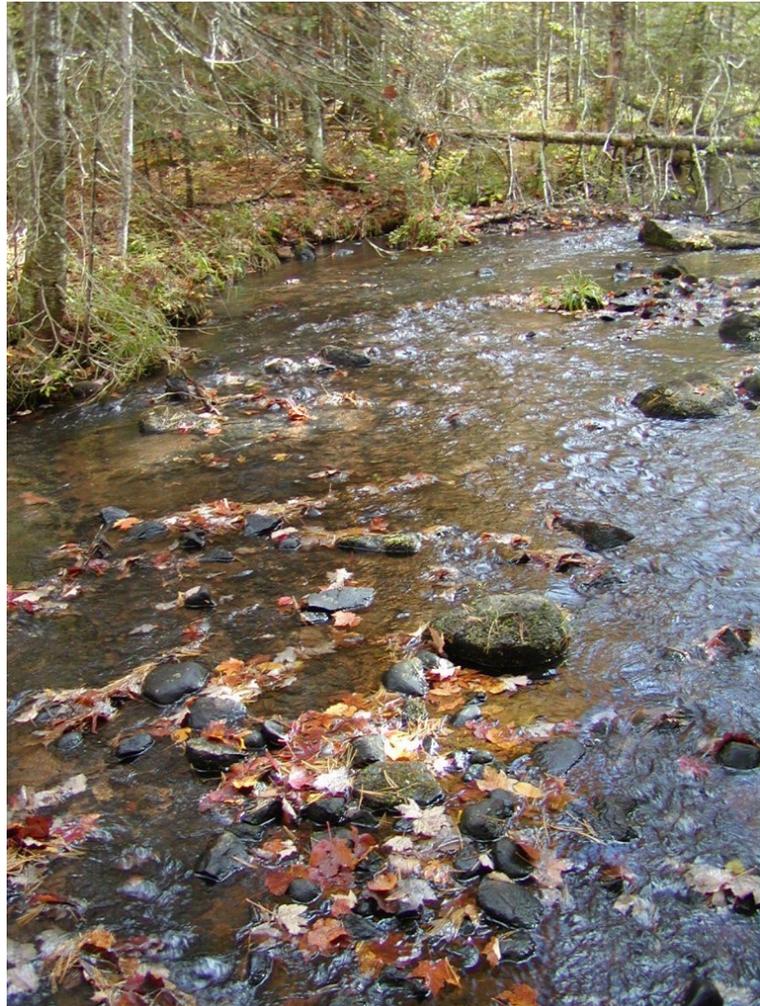


Figure 5. Bearsdale Creek will disappear into the ground a short distance from here [see text C(4)]. Photo by Steven Spickerman 1996

(4) WATERSHED VALUES

The RNA is within the Totagatic River Watershed and flows to the St. Croix River and Mississippi Basin (WI DNR 2013). The riparian features here are unique and deserve protection. The spring ponds of Hyatt Springs form the headwaters of Hyatt Creek. The ponds are impounded by a beaver dam at the outlet. Normal outlet flow is estimated at 1.5 cubic feet per second (42 liters). Bottom conditions are mostly muck with small scattered areas of sand. Hyatt Springs receives little fishing pressure or human visitors as there is no access road and it is surrounded by tamarack (*Larix laricina*) swamp and shrub carr.

The water from this spring (Hyatt Creek) flows northwest and is joined by Schunenberg Creek. It flows for about 0.2 miles (0.3 km) then disappears into the porous alluvial sands (Johannes et al. 1970).

Bearsdale Creek is likewise landlocked. It originates in two impounded spring ponds and flows for about two miles (3 km). It then disperses over a flat sandy area in section 6 where it sinks into the ground never to appear again. The stream bottom is almost entirely sand with scattered rock (Figure 5).

(5) RECREATION USE

A motorized trail currently open to all terrain vehicles crosses the site from northwest to southeast and gets fairly heavy use (see *Boundary Map* in Identification Section). Motorized trails are at risk for illegal off-trail use. This trail will be monitored closely and closed if erosion or other environmental damage occurs. The southeast portion of FR 1807A that leads into the RNA has an inadequate closure structure that is allowing for recreational vehicle access to the RNA. Replacing the closure barrier is necessary to deter further vehicle use in the RNA. See section F (1) for discussion of management issues.

Trout fishing is popular in Bearsdale spring pond outside the RNA, and Bearsdale Creek receives some fishing pressure. Hyatt Spring receives little fishing pressure due to inaccessibility. Hunters utilize the area for both large and small game as well as bird hunting.

(6) WILDLIFE

The bottomland forest that contains many species found further to the south is a unique and ecologically important feature of this RNA. Botanists and ecologists may be attracted to this area for education and research opportunities. The stream should be sampled for aquatic invertebrates (Epstein et al. 1996). The RNA supports all the commonly hunted wildlife species found on the Chequamegon-Nicolet National Forest. Hunting pressure here is likely similar to the rest of the CNNF.

(7) TRANSPORTATION/ROAD SYSTEM

Road access to the site is by Forest Road 359 and 803 that border the site on the north. Forest Road 1807 approaches the southeastern corner but does not enter the RNA. See Maps in the *Identification Section* of the Establishment Record. There are a number of old logging roads within the RNA but the only one open to motorized travel is the ATV trail number 31. 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. Forest Plan Guidelines for RNAs state: 1) do not construct new roads and 2) restore all decommissioned roads to some level of landscape restoration (USDA Forest Service 2004a pg 3-53). 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

History of establishment:

The CNNF began a forest-wide ecological inventory to identify high quality ecological features in the early 1990s (Parker 1999). Bearsdale Creek and Hyatt Spring was 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 Bearsdale Creek and Hyatt Spring for protection.

The Wisconsin Department of Natural Resources was 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 CNNF Special Management Areas (SMAs) as State Natural Areas.

The Bearsdale Creek and Hyatt Springs site 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 2008 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 Bearsdale Creek and Hyatt Spring for establishment.

Previous inventories include a Natural Heritage Evaluation of selected plant communities by Eric Epstein and John Krause in 1993; John Krause and Steven Spickerman in 1995; and Randy Hoffman in 1998. A rare plant inventory was done in 1995. University classes have visited this site owing to its proximity to the Pigeon Lake Field Station near Drummond (University of Wisconsin system) and Northland College in Ashland.

(2) CULTURAL/HERITAGE

Cultural sites within Bearsdale Creek and Hyatt Spring include Gormely's Logging Camp (1906-1907), a 1914 winter logging camp, and a mid-nineteenth century trapper's cabin/fur trading post recorded (USDA Forest Service 2003b).

While other Indian tribes currently live in Wisconsin, Ojibwe tribes specifically 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.

At the time of establishment Bearsdale Creek and Hyatt Springs RNA has not been adopted as an Ojibwe Tribal RNA; tribal members will follow the gathering regulation in the MOU here. The CNNF is continuing to work with the Ojibwe Tribes to protect these unique features and to provide for the exercise of treaty-reserved rights. Upon establishment, the Tribes will have an opportunity to also designate it as a Tribal RNA (Tribal-USDA MOU). 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

Most of the area was logged during the cut-over era of the late 1800’s and early 1900’s and the upland forest shows signs of fire, which probably gave rise to the pine still found on the site.

Timber harvest has been conducted on only 31 acres (12 ha) in the RNA since 1984; a 25-acre salvage cut and a 6-acre thinning. A 43 acre (17 ha) prescribed burn was conducted in the RNA in 2004 to underburn a white pine stand following salvage timber harvest.

(4) OCCURRENCE OF EXOTIC SPECIES

Potential is high for introduction of non-native invasive plants due to the motorized trail and the fact that illegal off-trail motorized use sometimes occurs. This activity erodes the sandy soil and vehicles can bring in weed seeds. Current (2012) CNNF invasive plant inventory shows no occurrences within the RNA and a few spotted knapweed (*Centaurea stoebe ssp. micranthos*) occurrences on roads nearby. 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. If invasive plants are discovered within the RNA they will be controlled with methods that avoid damage to native plants.

E. OTHER INFORMATION

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

There are no permanent research plots within the RNA although there has been monitoring of some features of these ecosystems (springs/stream flow, invasive plants etc.). Photo record is of a general nature and there are no photo points.

The Station Director shall establish and maintain a system for archiving data and reports from the RNA in a manner that will facilitate the exchange and transfer of information among Stations and scientists. Research data files are maintained by the following office: Chequamegon-Nicolet National Forest, 1170 Fourth Avenue South, Park Falls WI 54552.

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 the Chequamegon-Nicolet National Forest Supervisor's office or a designated university.

(2) BIBLIOGRAPHY

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

(3) POTENTIAL RESEARCH TOPICS

Landlocked streams occur only within this area of the state and offer a unique research opportunity. The bottomland forest has a composition reflective of forests much further south and also offers interesting research prospects. A faunal survey is indicated as well as for other taxa. Other topics include: fire-dependent ecosystems and prescribed fire methods to maintain them; and species on the northern edge of their range as it relates to climate change.

The Northern Research Station along with the Chequamegon-Nicolet National Forest shall encourage the use of this RNA by scientists and educators. This site has been co-designated by the State of Wisconsin as a State Natural Area and as such appears on their web site (WI DNR 2011).

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

(1) POTENTIAL OR EXISTING CONFLICTS; PRINCIPAL MANAGEMENT ISSUES

Principal management issues include introducing fire as a tool to re-establish this missing component, re-routing portions of the motorized trail, suppression of illegal use of ATVs, creating adequate barriers on forest roads leading into the RNA, and diligent monitoring for non-native invasive plants. A specific site plan will be written to address these needs.

This area has a history of illegal ATV use (Krause & Spickerman 1996). The plant communities need to be protected from illegal off-road vehicle use. Protection and maintenance of Bearsdale Creek and Hyatt Spring RNA is the responsibility of the Washburn Ranger District, CNNF. The southeast portion of FR 1807A that leads into the RNA has an inadequate closure structure that is allowing for vehicle access to the RNA. Replacing the closure barrier will deter further vehicle use in the RNA.

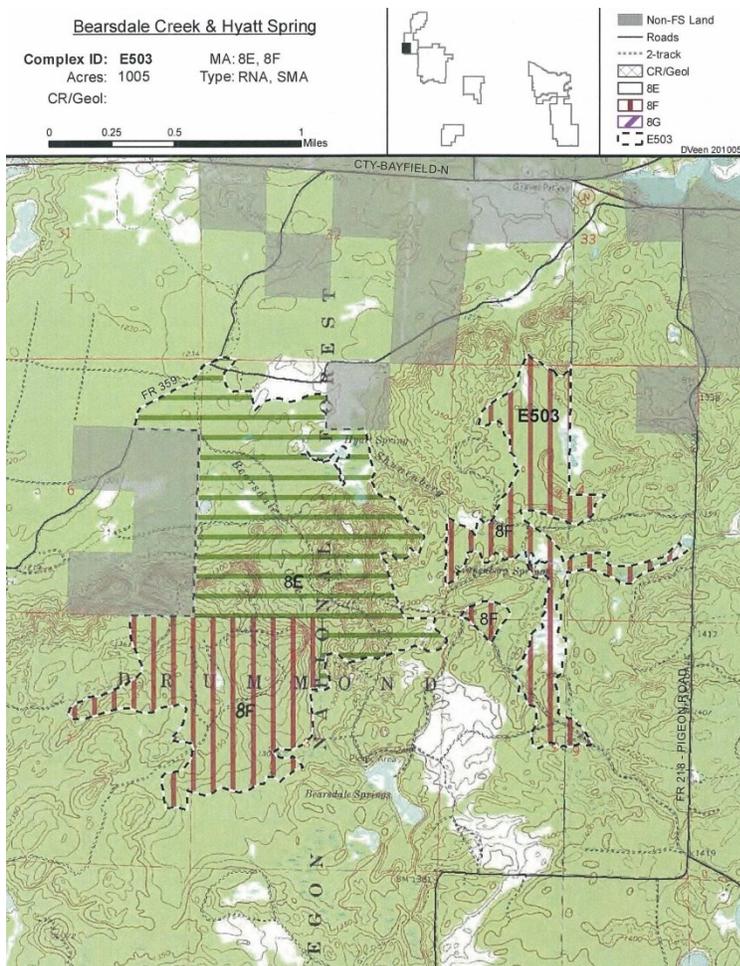


Figure 6. Map showing how Bearsdale Creek and Hyatt Springs RNA (green horizontal lines- 8E on map) and a Forest Special Management Area (brown vertical lines- 8F) are part of a larger ecological reference area of the same name with the identifier code E503. Map by D. Veen 2009

The southern boundary of Bearsdale Creek and Hyatt Spring RNA is a Special Management Area (MA 8F on Figure 6) where no timber harvest occurs and natural processes guide the composition (USDA Forest Service 2004c pg 3-54).

The balance of Forest Service lands adjacent to the RNA to the north and east are in Management Area 4A Conifer: Red, white, jack pine. Timber harvest does occur here where patch sizes are up to hundreds of acres (40+ ha) (USDA Forest Service 2004a pg 3-16). There is nothing in the 2004 CNNF Forest Plan however that says these areas will or are required to be managed with any particular techniques. Buffer zones could be created that employ long rotations and selective timber harvest. The district ranger in consultation with the Forest Supervisor and RNA coordinator will work out compatible management schemes.

The remainder of the boundary on the west side and a small corner on the northeast is private land (Grey shading in Figure 6) where potentially any type of management could occur.

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

The Bearsdale Creek-Hyatt Springs RNA is does not include any lands designated by congress in any special management category.

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 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.

APPENDIX 2 BIBLIOGRAPHY

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APPENDIX 3 FOREST MANAGEMENT AREA DIRECTION

The management prescription for the Atkins-Hiles Swamp RNA is embodied in the management area (MA) direction and guidance presented in the Chequamegon-Nicolet National Forests 2004 Land and Resource Management Plan under Management Area 8E - Existing and Candidate Research Natural Areas (USDA Forest Service 2004b pg 3-50). A copy of that management prescription follows:

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

MA 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.

Standards and Guidelines

Minerals

Standard:

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

Guidelines:

- Surface disturbing mineral activities 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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