

NE
R-9

New Hampshire
21 Feb '89

TM15 00131

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Paul Burns



1980			
SAF	acres	hm	1966
No SAF equiv	100	40.5	No K equiv.

Commercial
Forest Land
0 acres
P. 3

ESTABLISHMENT RECORD FOR ALPINE GARDENS
RESEARCH NATURAL AREA WITHIN THE
WHITE MOUNTAIN NATIONAL FOREST
COOS COUNTY, NEW HAMPSHIRE

**United States
Department of
Agriculture**

**Forest
Service**

WO

Reply to: 4060-3
(TMR)

Date: February 28, 1989

Subject: Spider Lake and the Alpine Gardens RNA's

To: Regional Forester, R-9

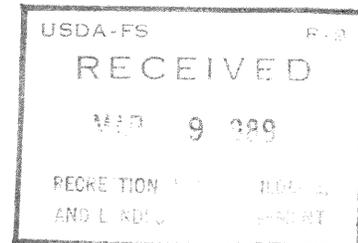
Congratulations. On February 21, the Chief approved the Spider Lake and the Alpine Gardens proposals as Research Natural Areas. These are the second and third proposals approved in 1989. Keep up the good work.

Herewith returned are copies of the two establishment records each containing a copy of the approved designation order.



STANLEY L. KRUGMAN, Director
Timber Management Research

Enclosures



Alpine Gardens

DESIGNATION ORDER

By virtue of the authority vested in me by the Secretary of Agriculture under regulations 7 CFR 2.42 and 36 CFR 251.23, I hereby establish the Alpine Garden Research Natural Area. The Alpine Garden Research Natural Area shall be comprised of the following lands: Partially in United States Tract Number 14, Town of Sargents Purchase, Coos County, New Hampshire.

Regional Forester Larry Henson recommended the establishment of the Alpine Garden Research Natural Area in the White Mountain National Forest Land and Resource Management Plan. That recommendation was the result of an analysis of the factors listed in 36 CFR 219.25 and Forest Service Manual 4063.41. The results of the Regional Forester's analysis are documented in the Final Environmental Impact Statement for the National Forest Land and Resource Management Plan and the Establishment Record which are available to the public.

The Alpine Garden Research Natural Area will be managed in compliance with all relevant laws, regulations, and manual direction regarding Research Natural Areas. The Alpine Garden Research Natural Area will be administered in accordance with the management direction identified in the Establishment Record. The White Mountain National Forest Land and Resource Management Plan is hereby amended to be consistent with the management direction identified in the Establishment Record and this designation order. Directions on pages III 96, III 97, and III 98 of the White Mountain National Forest Land and Resource Management Plan are replaced by the direction on Pages 12 and 13 of the Establishment Record. This direction will remain in effect unless amended pursuant to 36 CFR 219.10. This is a non-significant amendment of the White Mountain National Forest Land and Resource Management Plan.

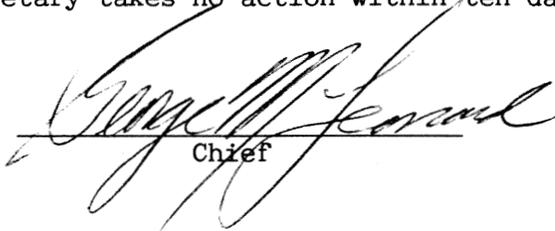
The Forest Supervisor of the White Mountain National Forest shall notify the public of this amendment and will mail a copy of the Designation Order and amended direction to all persons on the White Mountain National Forest Land and Resource Management Plan mailing list.

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

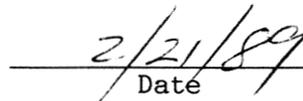
This decision is subject to appeal pursuant to 36 CFR 211.18. A Notice of Appeal must be in writing and submitted to:

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

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



Chief



Date

ALPINE GARDEN
PHOTOGRAPHS

ALL PHOTOS BY
FRANKIE BRACKLEY

USDA-FOREST SERVICE

PHOTOGRAPHIC RECORD
(See FSM 1643.52)

PHOTOGRAPHER

Frankie Brackley

DATE SUBMITTED

3 April 1987

HEADQUARTERS UNIT

LOCATION

Alpine Garden

INITIAL DISTRIBUTION OF PRINTS AND FORM 1600-1:

WO RO DIV. FOREST DISTRICT PHOTOGRAPHER Date _____

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

PHOTOGRAPH NUMBER		SELECTED FOR W.O. PHOTO LIBRARY	DATE OF EXPOSURE	LOCATION (State, Forest, District and County)	CONCISE DESCRIPTION OF VIEW	NEGATIVE (Show size and BW for black and white or C for color)
TEMP.	PERMANENT (To be filled in by the WO)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1			Summer 1980	NH, WMNF Andro, Coos	Looking towards Ball Crag from the Alpine Garden	
2			Same	Same	Looking towards Tuckerman's Ravine from the Alpine Garden	
3			Same	Same	Vegetation within the Alpine Garden	
4			Same	Same	<u>Prenanthes Boottii</u>	
5			Same	Same	<u>Geum peckii</u>	
6			Same	Same	Diapensia and Lapland Rosebay	



PHOTO #1 - LOOKING WESTERLY ACROSS THE ALPINE GARDEN TOWARDS BALL CRAG



PHOTO #2 - LOOKING SOUTHERLY ACROSS THE ALPINE GARDEN TOWARDS TUCKERMAN RAVINE



PHOTO #3 - GENERAL VIEW OF VEGETATION WITHIN THE ALPINE GARDEN, EARLY
SUMMER



PHOTO #4 - PRENANTHES BOOTII, A CANDIDATE FOR LISTING UNDER THE FEDERAL
ENDANGERED SPECIES ACT



PHOTO #5 - GEUM PECKII, A STATE ENDANGERED SPECIES



PHOTO #6 - DIAPENSIA AND LAPLAND ROSEBAY, BOTH STATE RARE SPECIES

SIGNATURE PAGE
for
RESEARCH NATURAL AREA ESTABLISHMENT RECORD
Alpine Garden Research Natural Area
White Mountain National Forest
Coos County, New Hampshire

Prepared by F. E. Brackley Date 20 October 1988
F. E. Brackley, Coordinator/Botanist
New Hampshire Natural Heritage Inventory

Prepared by Frederick T. Kacprzyński Date 10/20/88
Frederick T. Kacprzyński, Research Natural Area Coordinator
White Mountain National Forest

Recommended by Gary Carr Date 10/25/88
Gary Carr, District Ranger
Androscoggin Ranger District

Recommended by Michael B. Hathaway Date 11/14/88
Michael B. Hathaway, Forest Supervisor
White Mountain National Forest

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

Recommended by Denver P. Burns Date 1-4-89
Denver P. Burns, Station Director
Northeastern Station

ESTABLISHMENT RECORD FOR ALPINE GARDEN
RESEARCH NATURAL AREA WITHIN THE WHITE MOUNTAIN
NATIONAL FOREST, COOS COUNTY, NEW HAMPSHIRE

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Chief

Date

ESTABLISHMENT RECORD FOR
ALPINE GARDEN RESEARCH NATURAL AREA WITHIN
THE WHITE MOUNTAIN NATIONAL FOREST, NH
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ESTABLISHMENT RECORD FOR
ALPINE GARDEN RESEARCH NATURAL AREA
WITHIN THE WHITE MOUNTAIN NATIONAL FOREST
NEW HAMPSHIRE

INTRODUCTION

The Alpine Garden Research Natural Area (RNA) is located within the WMNF in Coos County, NH, and is entirely on National Forest land. Long recognized as an outstanding example of an arctic-alpine tundra community (Bigelow, 1824; Antivs, 1932; Lyon and Bormann, 1962). The Alpine Garden was suggested for RNA consideration in 1985 by F.E. Brackley, Coordinator/Botanist of the NH Natural Heritage Inventory.

The primary uses of this area include research, education, and recreation in the form of spring skiing. Hiking occurs near the area on an established trail. This trail, the Alpine Garden Trail, and a bordering buffer area will be excluded from the RNA.

The Alpine Garden is within the Pinkham Notch Scenic Area. The Alpine Garden RNA is not in any designated Wilderness, designated Wild and Scenic River corridor, recognized potential Wilderness, or Wild and Scenic Inventory River corridor.

Land Management Planning

The Alpine Garden is recognized in the White Mountain National Forest Land and Resource Management Plan and Final Environmental Impact Statement (FEIS) as approved by Regional Forester Larry Henson on April 30, 1986. The Alpine Garden is within Management Area 9.3, Candidate Research Natural Area's. The plan calls for study of the Alpine Garden area and for implementation as a Research Natural Area if the study supports it. Once designated, the Research Natural Area plan will be amended to put Management Area 8.1, Special Areas, with its own specific management prescription. The primary management objective is preservation of a community representative of eastern alpine landscapes.

JUSTIFICATION

The Presidential Range of the White Mountains in New Hampshire has the largest total area of alpine tundra environment (7.5 square miles [10.5 km.]) in the eastern United States. Within this area, the site known as the Alpine Garden, supports the richest assemblage of arctic-alpine plants, most of which are rare in the coterminous United States. The Alpine Garden RNA is located in a relatively level area between Huntington and Tuckerman Ravines on the eastern shoulder of Mt. Washington, and the slope above the area.

Mt. Washington is the highest peak in the northeastern United States (6,288 feet [1916 m.]). This alpine tundra community is characterized by sedges, grasses, lichens, mosses, and rare arctic-alpine species. There are also scattered pockets of krummholz composed of dwarfed and matted black spruce (Picea mariana [Mill] B.S.P.) and balsam fir (Abies balsamea [L.] Mill.). ^{1/}

PRINCIPAL DISTINGUISHING FEATURES

The Alpine Garden is a unique assemblage of rare species within an exemplary natural community. It contains one candidate for listing under the Federal Endangered Species Act, Prenanthes boottii (DC) Gray, (boott's rattlesnake root), as published in the Federal Register 45(242):82480-82569. In addition, the New Hampshire Natural Heritage Inventory has determined that the site also supports the following elements of natural diversity:

- * nine state endangered plants
- * eight state threatened plants
- * sixteen state rare plants
- * four state rare animals

LOCATION

Maps A and B show the location of the Alpine Garden RNA, each in greater detail.

The RNA is in the Town of Sargent's Purchase, Coos County, located within the Androscoggin Ranger District of the White Mountain National Forest, New Hampshire (see Map A). All of the RNA is on National Forest administered land and is completely surrounded by National Forest administered land.

The center of the area is at latitude 44° 16' 31" north, and longitude 71° 17' 55" west.

Area

The total acreage is 100 acres (40 ha.).

Elevations

Elevations vary from 4,760 feet (1,450 m.) on the east side to 5,500 feet (1,676 m.) at the high point just below the top of Mt. Washington.

^{1/} Source used for scientific and common names of trees: Little, E.L., Jr., 1979. Checklist of United States Trees (Native and Naturalized), Agriculture Handbook No. 541, Washington, DC; U.S. Department of Agriculture, 375 p. Names of non-tree plant species come from Fernald, M.L., 1970, Gray's Manual of Botany, Eighth Edition, D. VanNostrand Company, New York, 1,632 p.

Access

Access to the RNA is by highway, New Hampshire Route 16, south from Gorham, Coos County, NH to the Mt. Washington Auto Road (a private toll road open only during the summer months). At the seven mile post the Huntington Ravine Trail (Forest Trail No. 62) leaves the Auto Road and drops over the ridge into the Alpine Garden.

Air distance - The Alpine Garden is 9 1/2 miles (15.3 km.) from Gorham, NH

Road distance - It is about 14 1/2 miles (23.4 km.) from Gorham.

Boundaries

The boundary of the Alpine Garden Research Natural Area is shown on Map B. It consists of two tracts on either side of, and 50 feet (15 m.) from, the Alpine Garden Trail (Forest Trail No. 61). It is bounded on the north parallel to, and 50 feet (15 m.) from, the Huntington Ravine Trail (Forest Trail No. 62), and on the south parallel to, and 50 feet (15 m.) from, the Lions Head Trail (Forest Trail No. 60).

A brief description of the eastern half follows: Starting 50 feet (15 m.) south and 50 feet (15 m.) east of the junction of Forest Trail No. 61 and Forest Trail No. 62 the boundary parallels Forest Trail No. 61 (50 feet [15 m.] east of the trail) for approximately 2,200 feet (671 m.) to a point 50 feet (15 m.) north and 50 feet (15 m.) east of the junction of Forest Trail No. 61 and Forest Trail No. 60. From here it parallels Forest Trail No. 60 to the top of the Lions Head outcropping and then goes northerly connecting the easternmost points on the lip of Huntington Ravine between Forest Trail No. 62 and Forest Trail No. 60.

A brief description of the western half follows: Starting 50 feet (15 m.) west and 50 feet (15 m.) south of the junction of Forest Trail No. 61 and Forest Trail No. 62 the boundary parallels Forest Trail No. 61 (50 feet [15 m.] west of the trail) for approximately 2,200 feet (671 m.) to a point 50 feet (15 m.) north and 50 feet (15 m.) west of the junction of Forest Trail No. 61 and Forest Trail No. 60. From here it goes west northwest for approximately 600 feet (183 m.) where the boundary turns in a north northeast direction generally along the 5,500 feet (1,680 m.) contour interval back to Forest Trail No. 62.

Maps

Various USDA, Forest Service maps for the WMNF show the area in detail.

The four maps included in this Establishment Record indicate the general location and Ranger Districts (Map A), the boundaries and contour lines on a topographic map (Map B), the Ecologic Land Types (ELT's) (Map C), and the vegetation types (Map D).

The Alpine Garden is covered by the USGS 7.5 minute quadrangle Mt. Washington, southeast, NH, 1983.

Aerial Photos

Aerial photos on file at the White Mountain National Forest Supervisor's Office and the Androscoggin Ranger District's Office which show the RNA are numbered:

1978 photos, Flight No. 578, Photo No's: 55, 56, and 57

AREA BY COVER TYPES

SAF Types

The Alpine Garden is above timberline. In protected places there may be small areas of krummholz composed of dwarf black spruce and balsam fir. There are no suitable SAF or Kuchler types for this area.

Kuchler Types

Kuchler does not have a classification for eastern alpine areas.

New Hampshire Natural Heritage Community Classification

Under this classification system, the natural community at Alpine Garden RNA is: "New England Alpine Community" - This community occurs above timberline where extreme physical conditions of low temperature, a brief growing season, high winds, and frequent fog, ice and precipitation predominate. The only trees are in the form of krummholz which is limited to protected areas. The vegetation is characterized by low mat-forming shrubs, cespitose cushion plants, lichens, mosses, low sedges, and grasses. This classification includes several distinct vegetation subtypes within microenvironments caused by differences in altitude, exposure, snow accumulation, soil moisture, and substrate.

PHYSICAL AND CLIMATIC CONDITIONS

Physical Conditions

The RNA is a relatively level area identified by Bliss (1963) as an old erosion surface. On the slope above this plane is an area consisting of large angular boulders up to three feet (.9 m.) in diameter. Vegetation is located in the protected interstices of these rocks.

Photographs provided with this Establishment Record illustrate the physical features of this site.

Climate

The weather observatory on the summit of Mt. Washington is 1/4 mile (0.4 km.) west of the Alpine Garden. The elevation of the observatory is 6,262 feet (1,908.6 m.) above sea level. The weather here is very severe most of the year

and conditions approximate those found at Labrador and western Greenland (Alexander, 1940). Prevailing winds are from the west and west northwest, although the most severe storms are usually from the southeast.

Wind-speeds of 100 miles per hour (160 km./hr.) are not uncommon, and the highest normal wind velocity ever recorded (231 MPH [372 km./h.]) occurred at the summit of Mt. Washington.

Alpine Garden RNA lies east of and around 1,000 feet (305 m.) lower than the Mt. Washington weather station. Although not identical, the conditions between these two sites are similar.

The area is in the clouds approximately 55 percent of the time from sunrise to sunset. During the cloudy periods, diurnal and annual temperature variations are not as great as they are in the surrounding low-lands. Often a temperature inversion exists. The area is subject to very rapid weather changes. Below freezing temperatures have been recorded during every month of the year. Icing is common due to the presence of super-cooled cloud droplets in the air.

Climatic Records for Mt. Washington Observatory
1944-1983

Mean Temperatures:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
4.9	5.3	12.1	22.3	34.8	44.5	48.2	47.2	40.8	31.0	20.4	9.2	26.7 F
-15	-14.8	-11	-5.4	1.6	6.9	9	8.4	4.9	-6	-6.4	-12.7	-2.9 C

Precipitation:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
6.46	6.95	7.22	6.79	6.29	6.89	6.60	7.24	7.03	6.45	8.26	8.11	84.29 In
162	174	181	170	157	172	165	181	176	161	207	203	2107.2 Mm

*From: National Oceanic and Atmospheric Administration. 1983. Local Climatological Data-Annual Summary with Comparative Data for Mt. Washington Observatory, Gorham, NH.

DESCRIPTIONS OF VALUES

The flora and fauna of the alpine zone of the Presidential Range of New Hampshire are representative of species found in arctic North America where environmental conditions are similar. Such an assemblage of arctic species is extremely rare in the coterminous United States and offers a unique living laboratory of these biotic relicts of glacial times.

Flora

Plants in the Alpine Garden RNA:

- a) Candidate species - Federal Endangered Species Act
Prenanthes boottii (DC) Gray boott's rattlesnake-root
- b) State Endangered Species
Euphrasia oakesii Wettst. oakes' eyebright
Geum peckii Pursh mountain avens
Salix argyrocarpa Anderss. silver willow
Festuca prolifera (Piper) Fern proliferous fescue
(or F.rubra var prolifera)
Cardamine bellidifolia L. alpine cress
Carex capillaris L. hair-like sedge
Carex capitata var arctogena capitata sedge
Silene acaulis var exscapa (All) DC moss campion
Arctostaphylos alpina L.Spreng alpine bearberry
- c) State Threatened Species
Cassiope hypnoides (L.)D.Don moss plant
Castelleja septentrionalis Lindl. pale painted cup
Poa alpigena (fries) Lindm.f. alpine bluegrass
Polygonum viviparum L. alpine bistort
Salix herbacea L. dwarf willow
Salix planifolia Pursh tea-leaved willow
Phleum alpinum L. mountain timothy
Phyllodoce caerulea (L.)Bab mountain heath
- d) State Rare Species
Vaccinium boreale Hall & Aalders alpine blueberry
Betula glandulosa Michx dwarf birch
Betula minor (Tuckerman) Fern small white birch
Carex bigelowii Torr. bigelow's sedge
Diapensia lapponica diapensia
Empetrum nigrum L. black crowberry
Loiseleuria procumbens (L.)Desv. alpine azalea
Rhododendron lapponicum (L.)Wahlenb. lapland rosebay
Vaccinium uliginosum L. bilberry
Agrostis borealis Hartm. boreal bentgrass
Deschampsia atropurpurea (Wahlenb.) Scheele. hairgrass
Hierochloe alpina (SW.) R and S. alpine sweetgrass
Luzula spicata (L)DC spiked woodrush
Epilobium hornemani Relchenb. hornemann's willow-herb
Salix uva-ursi Pursh bearberry willow
Viola palustris L. alpine marsh violet

Fauna

Animals known from the Alpine Garden RNA:

a) State Rare Species:

<u>Microtus chrotorrhinus</u> (Miller) ^{2/}	yellow-nosed vole
<u>Sores dispar</u> (Batchelder)	rock shrew
<u>Oeneis melissa semidea</u> (Say) ^{3/}	white mt. arctic
<u>Boloria titania moutinus</u> (Esper)	white mt. fritillary

The New Hampshire Breeding Bird Atlas, a cooperative project of the University of New Hampshire Department of Forest Resources, and the Audubon Society of NH, produced a list of species occurring to the north of the Alpine Garden area in Block #5,645, which can be found in Appendix B.

Geology and Soils

The White Mountains of the Presidential Range are composed of lower Devonian mica schists and gneisses of the Littleton Formation (Bliss, 1963). References on the geology of the area are found in Billings, et al., (1946), and Goldthwait (1939-1940).

According to a soil survey of Coos County by Williams, Coates, and Scripture (1943), Soil Conservation Service, USDA, the soils are deep, well drained, bouldery, sandy loams.

^{2/} Source for common and scientific names of mammals:

Godin, Alfred J., 1977, Wild Mammals of New England, The John Hopkins University Press, Baltimore, MD, 304 p.

Source for common and scientific names of vertebrates:

Banks, R.C., R.W. McDiarmid, and A.L. Gardner, 1987, Checklist of Vertebrates of the United States, the U.S. Territories, and Canada, U.S. Fish & Wildlife Service; Resource Publication #166, 79 p.

^{3/} Source for scientific and common names of butterflies:

Opler, Paul A. & George O. Krizek, 1984, Butterflies East of the Great Plains. The John Hopkins University Press, Baltimore, MD, 294 p.

ELT's

This area was mapped into Ecological Land Types (ELT's) during the Presidential Unit Plan process. The Research Natural Area consists of Ecological Land Types 13B and 13C, as illustrated on Map C. A description of those ELT's follows:

Ecological Land Type 13B (2%)

Geomorphic History and Typical Landforms - Continental glacial scouring and subsequent intense subsurface frost churning resulting in very smooth, long, uniform to slightly convex slopes and moderate local type is confined to the alpine and subsurface frost churning is considered a current process though at a greatly reduced rate than formerly.

Soil Substrata - Extremely bouldery, very deep, (i.e., more than eight feet [2 m.] hard fresh bedrock), very rapidly permeable, non-plastic, loose, single grain sandy loam to loamy sand angular drift of extremely low bulk density. Boulders are angular, up to four feet (1.4 m.) in diameter, are entirely locally derived, and account for 60% to 80% of the mantle by volume.

Forest Associations - Trees are virtually absent and vegetative cover is confined to tundra. Tundra consists of very low ground hugging plants, including various sedges and shrubs such as willows, heaths, rhododendrons, laurels, vacciniums, Labrador Tea, and potentillas, together with some forbs. Plant densities are very high in undisturbed tundra and successional stages are considered lacking.

Inclusions - Up to 40% of the total area of this map unit contains small scattered areas of land type 13C, and locally, an additional 10% of the map unit is composed of land type 13A.

Ecologic Land Unit 13C (98%)

Softwood Krummholz on broad ridgetops and upper slopes with very bouldery angular drift

Geomorphic History and Typical Landforms - Intense subsurface frost churning resulting in very smooth, long, uniform, steep slopes with moderately high local relief. Surface drainage features are lacking, and the lands occur immediately below the alpine.

Soil Substrata - Very bouldery, very rapidly permeable, non-plastic, loose, single grain sandy loam to loamy sand angular drift more than eight (2 m.) deep to hard fresh, gneissic or schisty bedrock. Boulders are angular, most commonly are up to three feet (0.9 m.) in diameter, are entirely locally derived and account to 50% to 75% of the mantel, and the soil materials have very low bulk densities.

Forest Associations - The "trees" of this land type are less than 10 feet (3 m.) tall, and most commonly are three to six feet (.9 to 1.8 m.) tall occurring as very closely stocked communities with even, very dense canopies. These communities are referred to as krummholz and although the component species reach true tree forms elsewhere, their ultimate forms on this land type are as dwarfs.

Krummholz climax types tend to be composed almost entirely of a single species of either balsam fir, black spruce, or a variety of white birch, in order of decreasing occurrence. Although paper birch krummholz are considered climax, their role might be considered as subclimax in any future studies.

Lands

Land was acquired from Conway Lumber Company on 03/06/16. There are no outstanding rights.

Cultural

There are no known historic or prehistoric sites in the RNA. There is little potential for any historic residential site because of topography and elevation.

IMPACTS AND POSSIBLE CONFLICTS

Mineral Resources

This candidate RNA is included in a general survey of mineral potential in Wilderness and Roadless areas in the White Mountain National Forest. That study by Robert H. Moench of the U.S. Geological Survey, and Gertrude C. Gladzik of the U.S. Bureau of Mines, is included in the publication, Wilderness Mineral Potential: Assessment of Mineral Resource Potential in U.S. Forest Service Lands Studied 1964-1984, edited by Marsh et. al. The Alpine Garden RNA is not included in the area identified as having probable mineral resource potential.

Grazing

This RNA is above timberline and has no impact on the limited grazing resource of the Forest as a whole.

Timber

There is no timber growth on the RNA, therefore, no impact on the Forest timber resource. The RNA contains no commercial forest land.

Watershed Values

A number of small streams originate within this RNA. All are tributaries to the Cutler River, which flows into the Ellis River and eventually the Saco River. Establishment of the area as an RNA does not conflict with watershed values.

Recreation Values

This RNA adjoins Tuckerman Ravine, a regionally important primitive spring skiing area. There are no developed ski areas or lifts on Mt. Washington and spring skiers must hike 3.6 miles (5.8 km.) to the top of the ravine. The

southern portion of the RNA is lightly skied during good snow years. Spring skiing does not affect the RNA since the area is under snow cover during this use and the season is very short.

The Alpine Garden Trail (Forest Trail No. 61) separates the two segments of the Alpine Garden. The Alpine Garden Trail is an old trail dating back to the 1870's with a history of use primarily for viewing the flowering of the alpine plants. This trail had a reported use of 1,300 Recreation Visitor Days (RVD's) in 1985.

The boundaries of the Research Natural Area will exclude the Alpine Garden Trail, and an additional 50 feet (15.24 m.) buffer on either side of the trail. This will allow the long-standing history of use for viewing the flowering of the alpine plants while protecting the majority of the community from the negative effect of trampling.

Wildlife and Plant Values

Designation of this area as an RNA enhances wildlife and plant values.

No activity management is needed to sustain suitable habitat for the rare, threatened, and endangered species of the Alpine Garden. Natural processes of weather, intense freezing, and thawing of the ground maintain conditions suitable for this arctic-alpine tundra.

Wilderness, Wild and Scenic River, or National Recreation Area Values

This RNA has no impacts on Wilderness as it is not within any Wilderness. It is not part of any Wild and Scenic River nor any National Recreation Area.

Transportation Plans

The upper elevation of the Alpine Garden RNA is located approximately 0.1 to 0.5 miles (0.16 to 0.8 km.) below the Mt. Washington Auto Road. No roads are planned in the RNA. No effects on transportation plans are anticipated with designation of this area as an RNA.

MANAGEMENT PLAN

The management objective of the Alpine Garden RNA is to maintain the unique assemblage of species within this exemplary natural community. No management activities will disturb the vegetation in this area.

The Alpine Garden RNA will not be managed for recreation use. On the adjacent Alpine Garden Trail, and other nearby areas as deemed necessary, a sign will be posted informing hikers of the fragile nature of the alpine tundra and admonishing them to stay on the trail. The sign(s) will be put in place within one year of RNA designation.

Occasional spring skiing that occurs in the southern part of the Alpine Garden RNA will continue to be allowed as long as the integrity of the area is not impacted. The area will be monitored every three years, and the situation reassessed at that time. Nonmanipulative research activities are allowed within the RNA. The authority to allow research in the Alpine Garden RNA rests with the Northeastern Research Station Director. When occupancy and/or use of the

RNA for research is desired, a proponent must contact the District Ranger, Androscoggin Ranger District, or the Forest Supervisor, White Mountain National Forest with an outline of the planned research activity. The proponent will be given guidance and information about application procedures. When approved, the Station Director shall execute a cooperative agreement or special use permit to cover the planned research activity. Scientists must file copies of all research data, reports, and other pertinent documents with the Station, Region, and Forest.

The Forest Service will not consent to any mineral activity within the area.

No fences exist nor are planned in or adjacent to the area.

ADMINISTRATIVE RECORDS AND PROTECTION

Administration and protection of the proposed Alpine Garden RNA is the responsibility of the White Mountain National Forest. The District Ranger, Androscoggin Ranger District, has direct responsibility. The Director of the Northeastern Forest Experiment Station (NEFES) will be responsible for any studies or research conducted in the area. All plant and animal specimens collected in the course of research conducted on the area will be properly preserved and maintained within university or federal agency herbaria and museums, approved by the NEFES Director. Records for the Alpine Garden RNA will be maintained in the following U.S.D.A., Forest Service, offices:

Regional Forester, Milwaukee, Wisconsin
NEFES, Durham, NH
White Mountain National Forest Supervisor, Laconia, NH
District Ranger, Androscoggin Ranger District, Gorham, NH

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APPENDIX A

Contributors to this Establishment Record:

NH Breeding Bird Atlas, a cooperative project of the University of NH Department of Forest Resources and the Audubon Society of NH.

U.S. Forest Service, WMNF:

Fred Kacprzyński - Research Natural Area Coordinator

Steve Fay - Soil Scientist

Randy Ferrin - Hydrologist

Sylvia Simms - Hydrologist Aide

Sara Buckmaster - Transportation Planner

Billee Hoornbeck - Archaeologist

NH Natural Heritage Inventory:

Frankie Brackley, Coordinator/Botanist

Edie E. Hentcy, Data Manager/Biologist

John Korpi, Community Ecologist

APPENDIX B

<u>Name</u>	<u>Breeding Code</u>	<u>Name</u>	<u>Breeding Code</u>
Black-backed 3-toed Woodpecker (<u>Picoides arcticus</u>)	CO	Black-throated Blue Warbler (<u>Dendroica caerulescens</u>)	PO
Magnolia Warbler (<u>Dendroica magnolia</u>)	CO	Red-breasted Nuthatch (<u>Sitta canadensis</u>)	PO
Northern Raven (<u>Corvus corax</u>)	PO	Eastern Pewee (<u>Contopus virens</u>)	PO
Yellow-bellied Flycatcher (<u>Empidonax flaviventris</u>)	PR	Black-capped Chickadee (<u>Parus atricapillus</u>)	PR
Nashville Warbler (<u>Vermivora ruficapilla</u>)	PO	Yellow-rumped Warbler (<u>Dendroica coronata</u>)	CO
Black & White Warbler (<u>Mniotilta varia</u>)	PO	Blackburnian Warbler (<u>Dendroica fusca</u>)	PO
Pileated Woodpecker (<u>Dryocopus pileatus</u>)	PO	Ruby-throated Hummingbird (<u>Archilochus colubris</u>)	PR
Yellow-bellied Sapsucker (<u>Sphyrapicus varius</u>)	CO	Ovenbird (<u>Seiurus aurocapillus</u>)	PO
Hairy Woodpecker (<u>Picoides villosus</u>)	PO	Canada Warbler (<u>Wilsonia canadensis</u>)	PO
Downy Woodpecker (<u>Picoides pubescens</u>)	PR	Blackpoll Warbler (<u>Dendroica striata</u>)	PR
Broad-winged Hawk (<u>Buteo platypterus</u>)	PO	Pine Siskin (<u>Carduelis pinus</u>)	PR
Purple Finch (<u>Carpodacus purpureus</u>)	PO	Slate-colored Junco (<u>Junco hyemalis</u>)	CO
Chimney Swift (<u>Chaetura pelagica</u>)	PO	American Redstart (<u>Setophaga ruticilla</u>)	PO
Black-throated Green Warbler (<u>Dendroica virens</u>)	PO	Blue Jay (<u>Cyanocitta cristata</u>)	PO
Brown Creeper (<u>Certhia familiaris</u>)	CO	Boreal Chickadee (<u>Parus hudsonicus</u>)	PR
Hermit Thrush (<u>Catharus guttatus</u>)	PO	Red-eyed Vireo (<u>Vireo olivaceus</u>)	CO
Swainson's Thrush (<u>Catharus ustulatus</u>)	PR	Solitary Vireo (<u>Vireo solitarius</u>)	PO
Golden-crowned Kinglet (<u>Regulus satrapa</u>)	CO	Cedar Waxwing (<u>Bombycilla cedrorum</u>)	PO
Ruby-crowned Kinglet (<u>Regulus calendula</u>)	PO	Winter Wren (<u>Troglodytes troglodytes</u>)	PO
		White-throated Sparrow (<u>Zonotrichia albicollis</u>)	CO

Source - Breeding Bird Atlas of NH. A cooperative project of the University of NH, Department of Forest Resources, and the Audubon Society of NH.

Breeding Codes - SI = Sighted, species observed during its breeding season; PO = Possible Breeder, individual observed during its breeding season in possible nesting habitat; PR = Probable Breeder, a pair observed during their breeding season in possible nesting habitat, territorial behavior, courtship, etc; CO = Confirmed Breeder, nest building, distraction-display, occupied or nest, young, fledglings.