



NEW YORK STATE

**Department of Environmental Conservation**

DIVISION OF LANDS & FORESTS

# **Hurricane Mountain Primitive Area**

## **Unit Management Plan**

### **Final Environmental Impact Statement**

Towns of Elizabethtown, Jay, Keene and Lewis  
Essex County

DAVID A. PATERSON  
*Governor*

ALEXANDER B. GRANNIS  
*Commissioner*

**Lead Agency:**

New York State Department of Environmental Conservation  
625 Broadway  
Albany, NY 12233

**For Further Information Contact:**

Robert Daley  
New York State Department of Environmental Conservation  
P.O. Box 296  
Ray Brook, NY 12977-0296  
Phone: (518) 897-1369  
r5ump@gw.dec.state.ny.us

**August 2010**

This page intentionally left blank



DAVID A. PATERSON  
GOVERNOR

ALEXANDER B. GRANNIS  
COMMISSIONER

STATE OF NEW YORK  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
ALBANY, NEW YORK 12233-1010

**MEMORANDUM**

AUG 02 2010

**TO:** The Record  
**FROM:** Alexander B. Grannis *ABG*  
**SUBJECT:** Hurricane Mountain Primitive Area

The Final Unit Management Plan (UMP) for the Hurricane Mountain Primitive Area has been completed. The UMP is consistent with guidelines and criteria for the Adirondack Park State Land Master Plan, the State Constitution, Environmental Conservation Law, and Department Rules, Regulations and Policies. The UMP includes management objectives and a five year budget and is hereby approved.

This page intentionally left blank



**RESOLUTION ADOPTED BY  
THE ADIRONDACK PARK AGENCY  
WITH RESPECT TO HURRICANE MOUNTAIN PRIMITIVE AREA  
UNIT MANAGEMENT PLAN**

**JUNE 10, 2010**

**WHEREAS**, Section 816 of the Adirondack Park Agency Act directs the Department of Environmental Conservation to develop, in consultation with the Adirondack Park Agency, individual management plans for units of land classified in the Master Plan for Management of State Lands and requires such management plans to conform to the general guidelines and criteria of the Master Plan; and

**WHEREAS**, in addition to such guidelines and criteria, the Adirondack Park State Land Master Plan (Master Plan) prescribes the contents of unit management plans and provides that the Adirondack Park Agency will determine whether a proposed individual unit management plan complies with such general guidelines and criteria; and

**WHEREAS**, the Department of Environmental Conservation has prepared a unit management plan for the Hurricane Mountain Primitive Area in the Towns of Keene, Elizabethtown, Jay and Lewis, Essex County, and includes proposed management actions for the Hurricane Mountain Primitive Area dated May, 2010; and

**WHEREAS**, the Department has filed a SEQR Negative Declaration and published a notice in the Environmental Notice Bulletin on May 20, 2010; and

**WHEREAS**, the Department of Environmental Conservation is the lead agency, and the Adirondack Park Agency is an involved agency whose staff have been consulted in the preparation of the proposed plan; and

**WHEREAS**, the Agency is requested to determine whether the final Hurricane Mountain Primitive Area Unit Management Plan, dated May, 2010, is consistent with the standards and guidelines of the Master Plan; and

**WHEREAS**, the Adirondack Park Agency has reviewed the proposed Hurricane Mountain Primitive Area Unit Management Plan; and

**WHEREAS**, the Plan recognizes the need to improve public use and enjoyment of the area, avoid user conflicts and prevent overuse of the area according to the guidelines and criteria of the Master Plan; and

**WHEREAS**, the Plan's objectives include providing reasonable public access where appropriate in order to provide visitors with recreational opportunities while minimizing resource impacts; and

**WHEREAS**, the Plan proposes the formal adoption and rerouting of the Hurricane Crag Trail and to reroute degraded portions of other trails to minimize resource impacts; and

**WHEREAS**, the Plan proposes the development of adequate year round parking; and

**WHEREAS**, the Plan proposes the promulgation of a new regulation to limit the maximum group size to 15 for day users and 8 for overnight users as has been adopted in other neighboring Wilderness and Primitive units; and

**WHEREAS**, the Plan identifies the need to restrict trail construction and maintenance within the Subalpine Forest Bird Conservation Area (lands greater than 2,800 feet in elevation) by not scheduling trail construction between May 15 and August 1 of each year and by prohibiting work with the use of motorized equipment and aircraft during that same time period; and

**WHEREAS**, the Plan proposes to relocate primitive tent sites that are not in compliance with the Adirondack Park State Land Master Plan; and

**WHEREAS**, the Plan has as objectives to inventory, map and monitor soil erosion problems caused by recreational use; and

**WHEREAS**, the Plan proposes DEC will develop Limits of Acceptable Change indicators for riparian areas, monitor the location and extent of key invasive plant species, train Department staff to identify and document the extent of invasive plants, and work with the Adirondack Park Invasive Plant Program to effectively manage and eradicate invasive plants; and

**WHEREAS**, the Plan identifies a management priority of increasing the understanding of the occurrence and distribution of wildlife species and their habitat as well as to monitor and inventory wildlife populations and their habitat; and

**WHEREAS**, the Master Plan and unit management plan identify the fire tower on the summit of Hurricane Mountain as a non-conforming structure and direct it be removed at such time as it no longer serves an essential communication or fire surveillance purpose in order to enable the Hurricane Mountain Primitive Area to be reclassified as Wilderness; and

**WHEREAS**, Article 9-0109(4)(a) of the Environmental Conservation Law allows for the maintenance of structures listed on the state register of historic places by OPRHP and in such cases where the Commissioner of the Department of Environmental Conservation finds that such structures can be maintained for the public enjoyment and understanding of the Forest Preserve in a way which will not disturb the wild forest character of either the adjacent land or the land on which the structure is located; and

**WHEREAS**, the Hurricane Mountain fire tower is listed on the State and National Register of Historic Places; and

**WHEREAS**, on May 14, 2010, the Adirondack Park Agency approved the release of a Draft Environmental Impact Statement and the initiation of consultation with OPRHP for alternative classification proposals under the Master Plan involving the Hurricane Mountain fire tower; and

**WHEREAS**, in formulating the alternatives, the Agency in consultation with DEC and OPRHP shall evaluate cost considerations, programmatic need, public safety and other factors including whether the structure could or should be relocated to an area where wilderness guidelines under the Master Plan do not apply.

**NOW, THEREFORE, BE IT RESOLVED**, that the Hurricane Mountain fire tower does not currently meet the criteria of an essential use for the Department of Environmental Conservation and the unit plan recommends its removal consistent with the Master Plan guidelines and criteria; and

**BE IT FURTHER RESOLVED**, that pursuant to Section 816 of the Adirondack Park Agency Act, the Adirondack Park Agency finds the Hurricane Mountain Primitive Area Unit Management Plan, dated May, 2010, conforms with the general guidelines and criteria of the Master Plan; and

**BE IT FURTHER RESOLVED** the Agency recommends the Department of Environmental Conservation not remove the Hurricane Mountain fire tower until the Agency has completed its review and action regarding the status of the fire tower and the possibility of any related changes to State land classification; and

Hurricane Mountain Unit Management Plan Resolution

June 2010

Page 4

**BE IT FINALLY RESOLVED**, that the Adirondack Park Agency authorizes its Executive Director to advise the Commissioner of Environmental Conservation of the Agency's determination in this matter.

AYES: R. Booth, A. Lussi, F. Mezzano, C. Stiles,  
L. Ulrich, F. W. Valentino, C. Wray, J. Fayle (DED),  
E. Lowe (DEC), R. Morgiewicz (DOS)

NAYS: None

ABSTENTIONS: None

ABSENT: W. Thomas



## PREFACE

The Hurricane Mountain Primitive Area Unit Management Plan has been developed pursuant to, and is consistent with, relevant provisions of the New York State Constitution, the Environmental Conservation Law (ECL), the Executive Law, the Adirondack Park State Land Master Plan, Department of Environmental Conservation (Department) rules and regulations, Department policies and procedures and the State Environmental Quality and Review Act.

Most of the State land which is the subject of this Unit Management Plan (UMP) is Forest Preserve lands protected by Article XIV, Section 1 of the New York State Constitution. This Constitutional provision, which became effective on January 1, 1895 provides in relevant part:

*“The lands of the state, now owned or hereafter acquired, constituting the Forest Preserve as now fixed by law, shall be forever kept as wild forest lands. They shall not be leased, sold or exchanged, or be taken by any corporation, public or private, or shall the timber thereon be sold, removed or destroyed.”*

ECL §§3-0301(1)(d) and 9-0105(1) provide the Department with jurisdiction to manage Forest Preserve lands, including the Hurricane Mountain Primitive Area.

The Adirondack Park State Land Master Plan (APSLMP) was initially adopted in 1972 by the Adirondack Park Agency (APA), with advice from and in consultation with the Department, pursuant to Executive Law §807, now re-codified as Executive Law §816. The Master Plan provides the overall general framework for the development and management of State lands in the Adirondack Park, including those State lands which are the subject of this UMP.

The Master Plan places State land within the Adirondack Park into the following classifications: Wilderness, Primitive, Canoe, Wild Forest, Intensive Use, Historic, State Administrative, Wild, Scenic and Recreational Rivers, and Travel Corridors, and sets forth management guidelines for the lands falling within each major classification. The Master Plan classifies the lands which are the subject of this UMP as part of the Hurricane Mountain Primitive Area.

The Master Plan sets forth Guidelines for such matters as: structures and improvements; ranger stations; the use of motor vehicles, motorized equipment and aircraft; roads, jeep trails and state truck trails; flora and fauna; recreation use and overuse; boundary structures and improvements and boundary markings.

Executive Law §816 requires the Department to develop, in consultation with the APA, individual UMPs for each unit of land under the Department’s jurisdiction which is classified in one of the nine classifications set forth in the Master Plan. The UMPs must conform to the guidelines and criteria set

forth in the Master Plan. Thus, UMPs implement and apply the Master Plan's general guidelines for particular areas of land within the Adirondack Park.

Executive Law §816(1) provides in part that "(u)ntil amended, the master plan for management of state lands and the individual management plans shall guide the development and management of state lands in the Adirondack Park."

## *Need for a Plan*

Without a UMP, the management of the public lands that comprise the Hurricane Mountain Primitive Area can easily become a series of uncoordinated reactions to immediate problems. The UMP provides a proactive and unified strategy for protecting the natural resources of the unit while allowing for public recreation. Since no facility construction, designation or major rehabilitation can be undertaken until a UMP is completed and approved, management is limited to routine maintenance and emergency actions. A written plan stabilizes management during changes in personnel and integrates applicable statutes, rules and regulations, policies, and area specific information into a single reference document. Other benefits of the planning process that are valuable to the public include the development of area maps, and a greater awareness of recreational opportunities and needs within specific areas of the Adirondack Park. In view of tight budgets and competition for monetary resources, plans that clearly identify area needs have greater potential for securing funding, legislative support, and public acceptance.

This document provides a comprehensive inventory of natural resources, and existing facilities and uses, while identifying the special values which justify the protection of this area in perpetuity for future generations. The planning process involved the gathering and analysis of existing uses and conditions, the identification of important issues, and the projection of future trends. All management considerations were developed within a regional context, including lands adjacent to the unit. Ordinarily, the plan will be revised on a five-year cycle, but may be amended when necessary in response to changing resource conditions or administrative needs. Completion of the various management actions within this UMP will be dependent upon adequate manpower and funding. Where possible, DEC will work with volunteer groups, local communities, and town and county governments, to accomplish some of the proposed projects or maintenance. Likewise, alternative funding sources may be sought to cover the expenses of proposed projects.

# CONTENTS

SECTION I: INTRODUCTION .....	1
A. Planning Area Overview.....	1
B. Unit Geographic Information.....	1
C. General Access .....	2
D. General History.....	3
SECTION II: INVENTORY, USE AND CAPACITY TO WITHSTAND USE.....	7
A. Natural Resources.....	7
1. Physical .....	7
2. Biological.....	14
3. Visual/Scenic Resources/Land Protection.....	46
4. Critical Habitat .....	46
B. Man-Made Facilities.....	49
C. Past Influences .....	50
1. Cultural.....	50
2. Archeological and Historic Resources .....	50
D. Public Use .....	54
1. Land Resources .....	54
2. Wildlife .....	59
3. Fisheries .....	61
4. Water Resources.....	62
E. Recreational Opportunities for Persons with Disabilities .....	62
F. Education, Interpretation and Research .....	63

G. Relationship between Public and Private Land .....	64
H. Capacity to Withstand Use .....	65
1. Land Resources .....	69
2. Wildlife Resources.....	70
SECTION III:    MANAGEMENT AND POLICY .....	71
A. Past Management.....	71
1. Land Management .....	71
2. Wildlife Management .....	71
3. Fisheries Management.....	72
B. Management Guidelines.....	74
1. Guiding Documents.....	74
2. Application of Guidelines and Standards .....	76
3. Deed Restrictions .....	80
C. Administration and Management Principles .....	80
1. Administration .....	80
2. Management Principles .....	81
D. Management Issues, Needs and Desires.....	85
SECTION IV: PROPOSED MANAGEMENT ACTIONS.....	89
A. Bio-Physical Resources .....	89
1. Soils .....	89
2. Water .....	90
3. Wetlands .....	92
4. Air quality .....	92
5. Vegetation.....	93
6. Wildlife .....	95
7. Fisheries .....	98

B. Land Protection.....	99
1. Open Space/Land Acquisition .....	99
C. Man-made Facilities.....	100
1. Boundary Line Management.....	100
2. Trails.....	101
3. Trailheads.....	104
4. Campsites.....	106
5. Lean-tos.....	108
6. Bridges .....	110
7. Signs .....	113
D. Public Use and Access.....	114
1. Public Use.....	114
2. Rock Climbing.....	118
3. Access for Persons with Disabilities .....	119
E. Non-conforming Uses .....	121
1. Fire Tower .....	121
2. Power Line .....	126
3. Roads.....	127
F. Proposed Regulations .....	127
SECTION V: SCHEDULE FOR IMPLEMENTATION AND ESTIMATED BUDGET .....	129
BIBLIOGRAPHY AND REFERENCES.....	133
APPENDIX A: FACILITIES .....	143
APPENDIX B: ACRONYMS .....	149
APPENDIX C: RARE COMMUNITIES AND SPECIES .....	151
APPENDIX D: BIRDS .....	153

APPENDIX E: ADIRONDACK SUB-ALPINE FOREST BIRD CONSERVATION AREA MANAGEMENT GUIDANCE SUMMARY .....	159
APPENDIX F: INDIVIDUAL POND DESCRIPTIONS .....	163
APPENDIX G: PONDED WATER SURVEY DATA .....	164
APPENDIX G: PONDED WATER SURVEY DATA .....	165
APPENDIX H: CLASSIFICATION OF COMMON ADIRONDACK UPLAND FISH FAUNA.....	167
APPENDIX I: INVASIVE SPECIES INVENTORY .....	169
APPENDIX J: WILDERNESS AREAS: GUIDELINES FOR MANAGEMEMENT AND USE (APSLMP).....	173
APPENDIX K: PRIMITIVE AREAS: GUIDELINES FOR MANAGEMENT AND USE (APSLMP) .....	181
APPENDIX L: PUBLIC COMMENT .....	185
APPENDIX M: FIRE TOWER LETTER OF RESOLUTION .....	195
APPENDIX N: UNIT MAPS .....	197

# ACKNOWLEDGMENTS

The development of this plan is part of an ongoing initiative to complete all remaining Unit Management Plans (UMPs) for forest preserve lands in the Adirondack and Catskill Parks. Opportunities for public involvement were provided through a mailing—requesting written comments on planning issues—followed by an information meeting and finally the review of a draft unit management plan. Some of the individuals and organizations that actively participated in the planning process are listed below:

SUNY ESF - Steve Signell  
 Adirondack Nature Conservancy - Steven Flint  
 David Gillespie  
 James Bailey

## Planning Team:

---

Robert Daley	Forester 1	Division of Lands & Forests
Joshua Clague	Natural Resources Planner	Division of Lands & Forests
Charles Platt	Forest Ranger 1	Forest Protection and Fire Mgt.
Wil Giraud	Forest Ranger 1	Forest Protection and Fire Mgt.
Robert Praczkajlo	Forest Ranger 1	Forest Protection and Fire Mgt.
Kevin Burns	Forest Ranger 1	Forest Protection and Fire Mgt.
Robert Chatt	Env. Cons. Officer 1	Division of Law Enforcement
Lance Durfey	Biologist 2 (Fisheries)	Bureau of Fisheries
Paul Jensen	Biologist 1 (Wildlife)	Bureau of Wildlife
Phil Johnstone	Conservation Operations Supv. 2	Division of Operations
Kathy Regan	Associate Natural Resource Planner	Adirondack Park Agency
Walter Linck	State Land Program Assistant	Adirondack Park Agency

## Staff Contributors:

---

Brian Finlayson	Cartographic Tech. 3	Division of Lands and Forests
Thomas Martin	Forester 3	Division of Lands and Forests
Kristofer Alberga	Forester 2	Division of Lands and Forests
Mike Grove	Real Property Spec. 1	Bureau of Real Property

This page intentionally left blank



## SECTION I: INTRODUCTION

### *A. Planning Area Overview*

The Hurricane Mountain Primitive Area (HMPA) is located in the northeast portion of the Adirondack Park in the towns of Elizabethtown, Jay, Keene and Lewis in Essex County. The unit is comprised of one Forest Preserve parcel covering approximately 13,784 acres in area and has approximately 34.3 miles of boundary line. The unit is located within the Lake Champlain watershed and the lesser watersheds of the Ausable and Boquet Rivers.

The Planning area is bounded on the North by the Jay Mountain Wilderness Area, on the south by the Giant Mountain Wilderness Area, and on the east and west by private lands. Other nearby Forest Preserve units include the Sentinel Range Wilderness Area, The High Peaks Wilderness Area, the Taylor Pond Wild Forest and the Wilmington Wild Forest.

The namesake of the unit, Hurricane Mountain, is the highest and most conspicuous peak in the unit. The summit of Hurricane Mountain offers stunning 360 degree views, and is the most popular destination for hikers in the unit. Many hikers are also attracted to the summit by the presence of the Hurricane Mountain Fire Tower.

Recreational use of the unit is low to moderate compared to wilderness areas in the region. The majority of users are day users but camping is popular at the lean-tos and designated campsites in the unit.

The HMPA is of sufficient size and character to warrant wilderness classification, but it is currently classified as primitive because of a structure (fire tower), and several uses (power line, and roads to in-holdings) that do not conform to current Wilderness standards in the Adirondack Park State Land Master Plan (APSLMP). The unit is essentially being managed as a wilderness area by DEC, and all existing facilities and improvements, with the exception of those mentioned above, meet wilderness guidelines. If the issues surrounding the non-conforming uses can be resolved (See Section IV for a discussion of these topics), the unit will likely be reclassified as wilderness (APSLMP, 2001). Therefore, all management considerations and actions proposed in this plan are based on current wilderness standards.

### *B. Unit Geographic Information*

The unit boundary follows public roads and individual property lines. Property lines, where surveyed, are blazed, painted yellow, and marked with Forest Preserve signs. There are two private parcel inholdings in the HMPA. Both are located in the southeastern portion of the unit near the end of Hurricane Road in Elizabethtown.

## ***Section I: Introduction***

---

The HMPA comprises a contiguous 13,784 acre block of Forest Preserve, made up of the following parcels:

### Essex Tract, Henry's Survey

Lots 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 194, 195, 198, 199, 200, 201, 214, 215, 222, 223, and 231

Portions of Lots 133, 147, 148, 197, 216, 217, and 242

### Old Military Tract, Township One, Thorn's Survey

Lots 38, 41, 42, 44, 45, 46, 47, 48, 49, 50, 52, 55, 57, 59, 61, 79, 80, 81, 82, 86, 87, and 88

Portions of Lots 37, 43, 58, 83, 84, 85, 89, 90, 119, and 120

### Mallory Grant

A Portion of Lot 17

The unit is covered by the Elizabethtown and Lewis 7½ x 15 minute USGS quadrangle maps.

## ***C. General Access***

Access to the HMPA is gained mainly through the following areas:

1. Crow Clearing Trailhead located off of O'Toole road in Keene
2. Hurricane Mountain Trailhead on Route 9N approximately 6.5 miles west of Elizabethtown.
3. Elizabethtown Trailhead located off of Hurricane Road in Elizabethtown.
4. Access can also be gained along route 9N where it forms the southern boundary of the unit and along the Wells Hill road where it forms the northern boundary of the unit.

Hamlets nearby the HMPA include Elizabethtown, Keene and Lewis. The entire unit lies within one day's drive of over 70 million people in the northeast states and Canada. Nearby population centers include Albany, New York (130 miles), New York City (280 miles), and Montreal, Quebec (100 miles).

## *D. General History*

The lands now comprising the HMPA were originally part of the “Old Military Tract” (Township One). The Old Military Tract was land that was set aside by the State in 1786 as a “memorial of public gratitude” to compensate Revolutionary War veterans for their service. Unfortunately, this land was too remote to be of immediate value to the veterans, and none are known to have settled there (Plunz, 1999). Not long after this, however, settlement began to occur in the Hurricane Mountain area, and by the turn of the 19<sup>th</sup> century, villages had been established at Elizabethtown (originally known as Pleasant Valley), Keene, and Lewis.

Native American use of the area is known from historical records and archeological evidence, but no permanent settlements have been documented. The name, Hurricane Mountain, is reportedly derived from a Native American name for the mountain, No-do-ne-yo, which means hill of the wind (Smith, 1885).

The roads that form the northern and southern boundaries of the unit are two of the earliest roads into the northern Adirondack region. The current Jay Mountain Road (also called the Well’s Hill Road in the town of Lewis) was in use as early as 1790 and was part of a route which lead from Essex, on Lake Champlain, through Lewis and Jay, and on to points westward. The Old Military Road, which followed the approximate path of current Route 9N between Elizabethtown and Keene, was started at the turn of the 19<sup>th</sup> Century, and lead from Westport, on Lake Champlain, to Hopkinton in Saint Lawrence County. These roads were vital links to the newly forming communities in the area. They provided a means for new settlers to enter the area, and for local products to be transported to markets on Lake Champlain and beyond.

The earliest industries in the area included lumber and iron. Timber was cut for local sawmills and for charcoal and potash production. According to the Sargent Commission map of 1884, most of what is now the HMPA was logged for softwoods by this time. Likewise, much of the hardwood timber was removed from the area to make charcoal and potash. Place names within the unit such as Limekiln Mountain, Coal Dirt Hill, Potash Mountain, and Kiln Brook attest to these practices. Charcoal was used at the numerous iron forges in the region and many charcoal kilns were located in the area.

Much of the logging and charcoal production that took place in the HMPA was done by the J. and J. Rogers Company of Ausable Forks. Started in the 1830s, the Rogers Company quickly grew to be the one of the largest producers of iron in the country. By the 1860s, they were producing over 6000 tons of iron and iron products a year (Unidentified Newspaper Article [from Adirondack History Center archives]). In order to sustain this level of output, the company had to consume large amounts of local resources. They had vast land holdings throughout the Ausable Valley Region, including much of the land now contained in the HMPA, and timber was cut from 1000 acres of this land per year to supply the 1,600,000 bushels of charcoal needed to fire their forges (McMartin, 1994). There was a large charcoal operation in the upper Glen (town of Jay) which utilized hardwoods from the HMPA and the nearby Jay Mountain Wilderness Area (Plunz, 1999).

## ***Section I: Introduction***

---

In the 1890s the J. and J. Rogers Company reorganized its industry from iron to wood pulp products, and began cutting softwoods in the Ausable Valley and High Peaks Region. At this time a large softwood lumbering operation was started in the upper reaches of the Glen, including portions of the HMPA and the nearby Jay Mountain Wilderness Area. A flume was constructed to transport pulp logs from the upper Glen to the East Branch of the Ausable River where they could be floated to the Company mill in Ausable Forks. The flume was approximately eight miles long (Reveille, 1957), and may be one of the longest ever constructed in the Adirondack Region.

Numerous log jobs were also conducted on the eastern flanks of Hurricane, and Limekiln Mountains by local contractors around the turn of the 20<sup>th</sup> Century. Logs from these operations were transported to the Boquet River where they were driven to Lake Champlain, and rafted to the International Paper Mill at Ticonderoga (Elizabethtown Post, 1901)

Verplanck Colvin, superintendent of the Adirondack Survey, initiated the first topographical survey of the Adirondack region from 1872 - 1900. Colvin's survey was based on triangulation, and in order to tie his survey in with known points, he planned on establishing two great primary triangles using lighthouses on Lake Champlain whose exact coordinates and distances from each other had been determined by the United States Coast Survey. Split Rock and Juniper Island lighthouses were determined favorable for the baseline of the northern Triangle, but it was difficult to find a location in the Adirondacks that offered a clear view of both of these points. After climbing several mountains in the Elizabethtown area, Colvin climbed Hurricane Mountain and found the station he had been looking for. Through triangulation from the two lighthouses, the exact position of Hurricane Mountain was determined, and used to extend the survey inland to the high peaks region of the Adirondacks.

The notes, maps, and annual reports from Colvin's survey inspired a new public awareness of the Adirondack Region that was partly responsible for the creation of the Forest Preserve in 1885. The following excerpts from Colvin's 1873 Report on the Topographical Survey of the Adirondack Wilderness of New York highlight the importance of Hurricane Mountain to this work.

"July 21<sup>st</sup> was beautifully bright, and will remain a memorable day in the in the annals of this survey. In doubt and gloom at the failure of two attempts to find for the vertex of this triangle a suitable mountain, which would command a view of the extremities of the lake Champlain base, I determined to separate the party... I took with me three men, with barometers, transit, etc., and drove to the foot of Mount Hurricane, a prominent peak, about six miles west of Elizabethtown".

"After a lunch in the woods at the foot of the mountain, the men shouldered the heavy knapsacks containing the transit instrument in its box, etc., and we made a rapid ascent. The prospect from the summit was enchanting. In the east , midway between us and the billows of the Vermont Mountains, lay Lake Champlain.... while in the south-west the haughty, high peaks of the Adirondacks were clustered in dark magnificence"....

“The theodolite being set up, a careful search was begun with the telescope for our lake stations. It was soon found that Juniper Island was visible, and a careful focusing at length made clear and distinct the tower of the light-house. Still the mountains southward seemed to hide the Split Rock station, and with little hope the instrument was brought to bear upon that portion of the lake, when to our delight, as the telescope slowly traversed southward, the Split Rock light-house came into view, just at the edge of the hills which we feared were hiding it. *We had found the station!* No better or more appropriate one, than this mountain top, could have been selected”.

“We had secured a complete circuit of the horizon with the theodolite, besides repeating the angles; and had sunk a copper bolt (No. 8) at the theodolite station”.

“Now the sharp peaks of mountains were measured upon, and now the angular distance of the dark defiles and passes found - all from this new and advantageous station whose absolute position on the world’s surface we would soon be able to determine”.

During the late 1800s the town of Keene became a popular tourist destination (due in part to early writers and painters who recorded and extolled the natural beauty of the area) and many hotels and guest houses were built in the area at this time. The Wiley House, Later known as the Hurricane lodge, was located on East Hill In the vicinity of the current Crow Clearing Trailhead. Started as a 9 room guest house by Harvey Wiley, the Wiley House was expanded into a 30 room hotel in 1891. In 1904, the Hurricane Hotel Company acquired the property and expanded the operation to include cottages, a golf course and tennis court. The entire complex was known as Hurricane Lodge and it had its own post office. With the advent of the automobile in the beginning of the 20<sup>th</sup> Century, tourism patterns changed. Thanks to the mobility offered by the automobile, vacationers were less inclined to spend their entire summer at one location. This led to the demise of Hurricane Lodge and many other hotels in the area. (Bailey, 1980).

During the early part of the 20<sup>th</sup> century, devastating fires swept through much of the Adirondacks. Roughly 15 % of the lands now in the Adirondack Park were burned during this period (Smith, 1990). Severe forest fires swept through the lands belonging to the HMPA in 1908. The fire started on East Hill in Keene and spread north and east consuming much of the forest in the HMPA and the nearby Jay Mountain Wilderness Area (Reveille, 1957). A 1916 Conservation Department map of the Adirondacks shows that most of the lands now contained in the HMPA burned in these fires (Schmitt, 1916). The numerous rock outcrops and stands of white birch that are common in the unit are a result of these fires.

In response to the many fires in the Adirondacks, fire observers were stationed atop mountains throughout the region by the Forest Fish and Game Commission (forerunner of the Department of Environmental Conservation), and in 1910 an observer was assigned to Hurricane Mountain. In 1919 the state erected a steel Aeromotor LS-40 fire tower to protect fire observers from the elements and afford them a better view. In the 1930s, the state began to use aerial surveillance to augment its fire detection efforts, and over time, they began to rely on this method more and more. By the 1970s, aerial

## ***Section I: Introduction***

---

surveillance was the preferred method of fire detection and the DEC began decommissioning many of its fire towers. The observer station on Hurricane Mountain was closed in 1979, although the tower was used for several more years as a communications station.

In 1998, a massive ice storm struck northern New York and adjacent provinces in Canada. The storm deposited from two to four inches of ice in the Northern Adirondacks and left a lasting impact on the forests in the region. Many areas of the HMPA were affected by the storm with large limbs and entire tops being broken out of trees. The forest component that shows the greatest damage from the storm are the paper birch stands that are common throughout the unit.

## SECTION II: INVENTORY, USE AND CAPACITY TO WITHSTAND USE

### *A. Natural Resources*

#### 1. Physical

##### a. Geology

Although the HMPA does not contain any of the so called “High Peaks” of the Adirondacks, it is part of the High Peaks region by virtue of its bedrock geology and topography, which are similar. The High Peaks region appears as part of a mountainous dome covering an area approximately 60 miles in diameter. The region, referred to as the “Central Highlands”, is part of the Grenville Province, a large area of bedrock extending into Canada. The high peaks are a remnant of a mountain region existing 1 – 1.3 billion years ago. Once flat, the Adirondacks were covered by sedimentary rock, the same sedimentary rock that surrounds the region today. During more recent geologic time, the region was uplifted, creating a central dome with its sedimentary covering removed by erosion. The dome is characterized by three prominent geologic features: (1) long straight valleys running north-northeast, (2) gently curved ridges and valleys, and (3) radial drainage patterns flowing outward from the dome. Elevations rapidly fall off to the north and east in the central highlands, and decline more gradually south and west.

Much of the bedrock is metanorthosite, a metamorphic rock that has been subject to extremely high temperatures and pressures. Metanorthosite is very hard, extremely dense, and resists weathering and erosion. It was left towering over the countryside as sedimentary rock wore away. Rock color ranges from white to bluish gray. Plagioclase feldspar is its major component. The largest area of such rock is the Marcy massif which underlies most of the high peaks. The massif contains numerous “dikes” or intrusions of igneous rock that penetrate the anorthosite. Chemically less stable and less resistant to erosion than the base rock, many of these dikes eroded to form stream channels. Where the dike rock in stream beds is fractured and broken, waterfalls and stream rapids occur.

The HMPA is underlain by a large distinct dome of metanorthosite known as the Hurricane Dome. Representative exposures of this rock can be seen on Hurricane, and Big Crow Mountains. In the northeastern section of the unit, the Metanorthosite of the Hurricane Dome is overlain by Gneissic rocks from the “Rocky Branch Complex” (a complex of metasedimentary and metaigneous rocks so named due to their exposures along the Rocky Branch north of Jay Mountain). Representative exposures of these rocks can be seen on Limekiln, Ausable No. 4, and Peaked Mountain (Whitney and Olmsted, 1993).

Rocks in the High Peaks Region have also been altered by folding and faulting of the crust, which serves to relieve internal pressures. Valleys form along and within the fault zones. These valleys tend to be long

and straight and generally follow a north-northeast direction; they divide the High Peaks into its characteristic mountain ranges. Conners Notch, and the valley forming the headwaters of Gulf and Spruce Mill Brooks are examples of such fault zones.

Even resistant rocks eventually succumb to the pull of gravity and slabs are torn from craggy peaks, leaving cliffs with piles of broken rock at their bases (Kendall, 1987). Referred to as “mass wasting,” this down slope movement of weathered, disintegrated rock is evident along all cliffs and steep slopes. Rock falls and slides are encountered near the Hurricane Crag on Pitchoff Mountain.

Despite the cumulative effects of running water, weathering, mass wasting, and other agents of change, glacial erosion and deposition have had dramatic effects on high peaks landscapes. During the Pleistocene Epoch, 1.6 million years ago, huge ice sheets advanced and retreated several times across the Adirondacks. The last major ice sheet, the Wisconsin, reached its maximum advance across the area over 21,000 years ago. The ice was thick enough to cover the summit of Hurricane Mountain, and the surrounding high peaks of the Adirondacks. Ten thousand years later in retreat, this glacier accomplished spectacular erosion; plucked rock fragments in its path, scoured mountaintops, scraped away soil and loose sediments, wore away bedrock, and gouged river valleys into deep troughs. Melting ice sheets released huge volumes of melt water.

Evidence of the retreating glaciers can be seen in the meltwater channels found to the east of Little Slash and Limekiln Mountains (Lewis 7.5 minute Topographic Quadrangle). These channels run nearly parallel to the local contour and were formed when glacial meltwater, and runoff flowing down slope from the surrounding mountains encountered the edge of the glacier. The glacier blocked the runoff from flowing directly down-slope, and the water flowed along the edge of the glacier carving the channels. As the glacier retreated, new meltwater channels were formed lower down the slope (Franzi).

#### **b. Soils**

All soils are formed by the chemical and physical breakdown of parent material. The soils in the HMPA are mostly derived from glacial deposits called till. Glacial tills are a mixture of clay, silt, sand, and stone and are deposited in several different ways. Basal till is deposited beneath an active glacier as the ice melts from contact with the earth, or as material in the ice gets lodged on the underlying rock. Ablation till is the material deposited (left behind) as retreating glaciers melt away.

Although soil characteristics are quite variable and fluctuate widely from location to location, the soil characteristics found in the HMPA can be described as follows: Soil depth and richness (productivity) is generally greater at the base of the mountains and on terraces, and decreases with elevation. Mid-slope soils are still somewhat deep and rich, and are generally well drained. The upper slopes and mountain tops of the unit are characterized by thin soils with many rock outcrops. These thin soils and rock outcrops are due in part to severe wildfires that swept through the unit in the beginning of the 20<sup>th</sup> century. These fires were so hot in places that they burned the organic soil layer along with the



vegetation (and its associated root mat). With the loss of the organic layer and vegetation, there was nothing to protect the mineral soils from the erosive power of the wind and rain.

Detailed soil survey maps for the HMPA are not available. Broad soil types, accurate to an area about 40 acres in size, were delineated using aerial photographs. Soil type interpretations are general and have not been completed.

The following soil series, and associations of series, are located in the HMPA as per APA GIS information. Soil series descriptions are taken from: National Resources Conservation Service (NRCS) official Soil Series Descriptions. Found at: <http://soils.usda.gov/technical/classification/osd/index.html>

- Becket  
The Becket series consists of very deep, well drained soils that formed in a loamy mantle overlying dense, sandy till on drumlins and glaciated uplands. They are moderately deep to a densic contact.
- Colton  
The Colton series consists of very deep, excessively drained soils formed in glacio-fluvial deposits. They are on terraces, kames, eskers, and outwash plains.
- Hermon  
The Hermon series consists of very deep, somewhat excessively drained soils on upland till plains, hills and ridges. These soils formed in glacial till.
- Lyman  
The Lyman series consists of shallow, somewhat excessively drained soils formed in glacial till. They are found on rocky hills, mountains and high plateaus.
- Pittsfield:  
The Pittsfield series consists of very deep well drained soils formed in calcareous till. They are nearly level to very steep soils on uplands.

*Soil associations found within the unit:*

- Becket-Lyman:  
The Becket series consists of very deep, well drained soils that formed in a loamy mantle overlying dense, sandy till on drumlins and glaciated uplands. They are moderately deep to a densic contact.

The Lyman series consists of shallow, somewhat excessively drained soils formed in glacial till. They are found on rocky hills, mountains and high plateaus.

## ***Section II: Inventory, Use and Capacity to Withstand Use***

---

- Becket-skerry:

The Becket series consists of very deep, well drained soils that formed in a loamy mantle overlying dense, sandy till on drumlins and glaciated uplands. They are moderately deep to a densic contact.

The Skerry series consists of very deep, moderately well drained soils that formed in a loamy mantle overlying dense, sandy glacial till on drumlins and glaciated uplands. They are shallow or moderately deep to a densic contact.

- Pillsbury-Tug hill:

The Pillsbury series consists of very deep, poorly and somewhat poorly drained soils that formed in compact, loamy glacial till on glaciated uplands. They are shallow or moderately deep to a densic contact and very deep to bedrock.

### **c. Terrain/Topography**

The topography of the HMPA ranges from the relatively low-lying areas along the Jay Mountain Road and Route 9N to the top of Hurricane Mountain. Although there is variation in the terrain, the unit is predominately mountainous upland.

Maximum relief (change in elevation) across the unit is 2,907 feet from the top of Hurricane Mountain (3,694 ft.) down to the area along Route 9N north of the village of Keene (800 ft. elev).

Hurricane Mountain (3,694 ft) dominates the southern portion of the unit, while Ausable No. 4 (3,353 ft), Peaked Mountain (3,225 ft) and the Soda Range are prominent in the northern portion of the unit. From these mountains the elevation gradually slopes down to between 800 and 1500 feet at the unit boundaries. Lesser peaks within the unit include Oak ridge, Big and little Crow Mountain, Weston Mountain, Limekiln Mountain, Potash Mountain, Yard Hill, Chase Mountain and Pitchoff Mountain.

The unit is covered by the Elizabethtown and Lewis 7½ x 15 minute USGS quadrangle maps.

### **d. Water**

The HMPA lies within the Lake Champlain watershed. The unit is drained by small, high gradient, headwater streams. Those streams flow south and east to the Boquet River, or west to the East Branch Ausable River.

Ponded waters in the HMPA are limited. The NYS Biological Survey lists only one pond within the unit, with an estimated surface area of 3 acres; however, several small beaver flows exist. These beaver ponds are most likely fishless.

Appendix H lists the ponded water in the unit with a brief narrative pertaining to its important features, including past and current management, size, water chemistry, and fish species composition. Appendix G gives additional information about the ponded water including physical, chemical and biological data.

#### **e. Wetlands**

Wetlands possess great ecological, aesthetic, recreational, and educational value. In their capacity to receive, store, and slowly release rainwater and meltwater, wetlands protect water resources by stabilizing water flow and minimizing erosion and sedimentation. Many natural and man-made pollutants are removed from water entering wetland areas. Also, because they constitute one of the most productive habitats for fish and wildlife, wetlands afford abundant opportunities for fishing, hunting, trapping, and wildlife observation. The wetlands of the unit serve as important habitats for a number of wildlife species listed as threatened or species of special concern which may be present in the unit. For visitors, the expanses of open space that wetlands provide offer a visual contrast to the heavily forested character prevalent in most of the HMPA.

APA GIS data identifies 72 wetlands in the HMPA with a total area of 275 acres (approximately 2% of the unit). Larger wetland complexes are located in the upper reaches of Spruce Mill Brook, Spruce Hill Brook, Jackson Brook, and Gulf Brook. Many of these wetlands are associated with beaver activity.

#### **f. Air Resources and Atmospheric Deposition**

The effects of various activities on HMPA air quality have not been sufficiently measured nor determined. Air quality and visibility in the unit appears to be good to excellent, rated Class II (moderately well controlled) by federal and state standards. However, the summits are often obscured by haze caused by air pollutants when a large number of small diameter particles exist in the air. Mountain visibility is reduced considerably on high sulphate days (O'Neil, 1990). Air quality may be more affected by particulate matter blown in from outside sources rather than from activities within the unit.

The adverse effects of atmospheric deposition on the Adirondack environment have been documented by many researchers over the last two decades. While permanent monitoring sites have not been established in the HMPA general observations of the effects of acidic deposition on the regional ecosystem are numerous and well documented.

#### *Effects of Acidic Deposition on Forest Systems*

At present, the mortality and decline of red spruce at high elevations in the Northeast and observed reductions in red spruce growth rates in the southern Appalachians are the only cases of significant forest damage in the United States for which there is strong scientific evidence that acid deposition is a

## ***Section II: Inventory, Use and Capacity to Withstand Use***

---

primary cause (National Science and Technology Council Committee on Environment and Natural Resources, 1998). The following findings of the National Acid Precipitation Assessment Program (1998) provide a broad overview of the effects of acidic deposition on the forests of the Adirondacks. The interaction of acid deposition with natural stress factors has adverse effects on certain forest ecosystems. These effects include:

- Increased mortality of red spruce in the mountains of the Northeast. This mortality is due in part to exposure to acid cloud water, which has reduced the cold tolerance of these trees, resulting in frequent winter injury and loss of foliage.
- Reduced growth and/or vitality of red spruce across the high-elevation portion of its range.
- Decrease supplies of certain nutrients in soils to levels at or below those required for healthy growth.

Nitrogen deposition is now recognized with sulfur as an important contributor to effects on forests in some ecosystems, which occurs through direct impacts via increased foliar susceptibility to winter damage, foliar leaching, leaching of soil nutrients, elevation of soil aluminum levels, and/or creation of nutrient imbalances. Excessive amounts of nitrogen cause negative impacts on soil chemistry similar to those caused by sulfur deposition in certain sensitive high-elevation ecosystems. It is also a potential contributor to adverse impacts in some low-elevation forests.

### ***Sensitive receptors***

High-elevation spruce-fir ecosystems in the eastern United States epitomize sensitive soil systems. Base cation stores are generally very low, and soils are near or past their capacity to retain more sulfur or nitrogen. Deposited sulfur and nitrogen, therefore, pass directly into soil water, which leaches soil aluminum and minimal amounts of calcium, magnesium, and other base cations out of the root zone. The low availability of these base cation nutrients, coupled with the high levels of aluminum that interfere with roots taking up these nutrients can result in plants not having sufficient nutrients to maintain good growth and health.

Sugar maple decline has been studied in the eastern United States since the 1950s. Recently, studies suggest that the loss of crown vigor and incidence of tree death is related to the low supply of calcium and magnesium to soil and foliage (Driscoll, 2002).

Exposure to acidic clouds and acid deposition has reduced the cold tolerance of red spruce in the Northeast, resulting in frequent winter injury of current-year foliage during the period 1960-1985. Repeated loss of foliage due to winter injury has caused crown deterioration and contributed to high levels of red spruce mortality in the Adirondack Mountains of New York, the Green Mountains of Vermont, and the White Mountains of New Hampshire.

Acid deposition has contributed to a regional decline in the availability of soil calcium and other base cations in high-elevation and mid-elevation spruce-fir forests of New York and New England and the southern Appalachians. The high-elevation spruce-fir forest of the Adirondacks and Northern New England are identified as one of four areas nationwide with a sensitive ecosystem and subject to high deposition rates.

*Effects of Acidic Deposition on Hydrologic Systems*

New York's Adirondack Park is one of the most sensitive areas in the United States affected by acidic deposition. The Park consists of over 6 million acres of forest, lakes, streams and mountains interspersed with dozens of small communities, and a large seasonal population fluctuation. However, due to its geography and geology, it is one of the most sensitive regions in the United States to acidic deposition and has been impacted to such an extent that significant native fish populations have been lost and signature high elevation forests have been damaged.

There are two types of acidification which affect lakes and streams. One is a year-round condition when a lake is acidic all year long, referred to as chronically or critically acidic. The other is seasonal or episodic acidification associated with spring melt and/or rain storm events. A lake is considered insensitive when it is not acidified during any time of the year. Lakes with acid-neutralizing capability (ANC) values below 0  $\mu\text{eq/L}$  are considered to be chronically acidic. Lakes with ANC values between 0 and 50  $\mu\text{eq/L}$  are considered susceptible to episodic acidification; ANC may decrease below 0  $\mu\text{eq/L}$  during high-flow conditions in these lakes. Lakes with ANC values greater than 50  $\mu\text{eq/L}$  are considered relatively insensitive to inputs of acidic deposition (Driscoll, 2002). Watersheds which experience episodic acidification are very common in the Adirondack region. A 1995 EPA Report to Congress estimated that 70% of the target population lakes are at risk of episodic acidification at least once during the year. Additionally, EPA reported that 19% of these lakes were acidic in 1984, based on their surveys of waters larger than 10 acres. A 1990 report by the ALSC (which included lakes of less than 10 acres) in an extensive survey of 1,469 lakes in the Adirondacks, found that 24% of Adirondack lakes had summer pH values below 5.0 a level of critical concern to biota. Moreover, approximately half of the waters in the Adirondacks surveyed had ANC values below 50 making them susceptible to episodes of acidification. Confirming that, EPA's Environmental Monitoring and Assessment Program (EMAP) sampling in 1991-1994 revealed that 41% of the Adirondack lakes were chronically acidic or susceptible to episodic acidification, demonstrating that a high percentage of watersheds in the Adirondacks are unable to neutralize current levels of acid rain.

In addition to sensitive lakes, the Adirondack region includes thousands of miles of streams and rivers which are also sensitive to acidic deposition. While it is difficult to quantify the impact, it is certain that there are large numbers of Adirondack brooks that will not support native Adirondack brook trout. Over half of these Adirondack streams and rivers may be acidic during spring snowmelt, when high aluminum concentrations and toxic water conditions adversely impact aquatic life. This adverse effect will continue unless further limits are placed on emissions of acid rain precursors.

Monitoring

In the 1980s, the ALSC surveyed waters in, and near the HMPA. Summaries of those data can be found at <http://www.adirondacklakessurvey.org> see: ALS Pond Data. Since that time the Adirondack Long-Term Monitoring (LTM) program managed by the ALSC has been sampling chemistry in 52 lakes across the Park on a monthly basis. While none of these waters are located directly within the boundaries of the unit, one LTM water (Owen Pond) is located in relatively close (within 10 miles) proximity to the northwest of the HMPA. Annual summaries of 22 chemical parameters are downloadable from the ALSC website.

**g. Climate**

The region's climate, in general terms, is best described as cool and moist. Climatic conditions can vary considerably throughout the unit and are influenced by such factors as slope aspect, elevation, seasonal temperatures, precipitation, prevailing winds, and the location of natural barriers.

Summers tend to be warm with cool nights. Maximum day-time temperatures seldom exceed 90 degrees F. Frost can occur any month of the year and occasional freezing temperatures are recorded in July and August. Winters are long and extremely cold. Temperatures of -40 degrees F are common, often accompanied by high winds. Arctic-like conditions may be encountered at high elevations. Daily temperature variations of 20-30 degrees F are common between peripheral entry points and interior locations. Annual precipitation, in rainfall, is between 35 and 45 inches per year; snowfall ranges from 100 to 150 inches per year.

Due to the availability of direct sunlight, southern slopes are drier than northern slopes. The latter tend to retain more moisture. Prevailing winds are generally westerly, but may be modified by topography. Eastern slopes, leeward of prevailing winds, tend to be drier than western slopes. Extensive damaging winds (hurricane force) are rare, but do occur when coastal storms move inland. The resulting influence of climate on local flora and fauna, in particular, is profound.

## **2. Biological**

**a. Vegetation**

The HMPA occupies a transition zone between the boreal forests to the north and the mixed forests of the south. Its forests represent a mosaic of plant communities that correspond to local variations in soil, temperature, moisture and elevation. Past events such as fire, wind, land clearing, and logging have exerted a strong influence on present day conditions. These disturbances have contributed to a great diversity of forest cover types which support a vast variety of animal and plant species.

Severe wildfires in the early 20<sup>th</sup> century have altered the composition of HMPA forests dramatically. Much of the forest in the unit burned at this time, and charred wood in the organic soil horizon and fire scarred stumps can still be found at various locations in the unit. Sun-bleached stumps from fairly large trees are found sitting on areas of bare rock on some of the mountain tops, indicating that these rocks were once covered with soil and other vegetation. These soils were washed away after the vegetation and organic matter that held them in place were burned in the fires. The aftermath of these fires can also be seen in the stands of white birch (a pioneer species that seeds in after fire) that blanket much of the unit.

The Ice Storm of 1998 also had an effect on plant communities in the unit. Damage from the storm ranged from mild to heavy, and most stands in the unit were affected. Examples of this damage can be seen throughout the affected areas, where many of the trees have numerous broken branches, missing tops, or are permanently bent over as is the case with many paper birches.

All plants on state land are protected by General State Land Use Regulations (6 NYCRR §190.8) which state that:

*“No person shall deface, remove, destroy or otherwise injure in any manner whatsoever any tree, flower, shrub, fern, moss, or other plant, rock, fossil or mineral or object of archaeological or paleontological interest found or growing on State land, except for personal consumption or under permit from the Commissioner of Environmental Conservation and the Commissioner of Education, pursuant to section 233 of the Education Law”*

Forest communities of the HMPA can be categorized using *Ecological Communities of New York State* (Edinger *et al.*, 2002). Although numerous ecological communities are present at varying scales and degrees within the unit, the most prominent are:

- Successional northern hardwoods

A hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed. In the HMPA, the dominant trees are usually white birch (*Betula papyrifera*), often in pure stands, with scattered quaking aspen (*Populus tremuloides*) and red maple (*Acer rubrum*). A characteristic of successional forests is the lack of reproduction of the canopy species. Most of the tree seedlings and saplings in these forests are species such as balsam fir (*Abies balsamea*) and red spruce (*Picea rubens*) that are more shade-tolerant than the canopy species. This is a common forest type in the HMPA, largely the result of wildfires in the early twentieth century. Examples of this forest type can be found on the Soda Range, Big and Little Crow Mountains, the northern slopes of Hurricane Mountain, and around Lost Pond.

- Beech-maple mesic forest

A hardwood forest with sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*) codominant. These forests occur on moist, well-drained, usually acid soils. Common associates are basswood (*Tilia americana*), American elm (*Ulmus americana*), white ash (*Fraxinus americana*), yellow birch (*Betula alleghaniensis*), Eastern hop hornbeam (*Ostrya virginiana*), and red maple (*Acer rubrum*). There are relatively few shrubs and herbs. Eastern hemlock (*Tsuga canadensis*) and red spruce (*Picea rubens*) may also be present at low densities. Examples of this forest type can be found in areas that were not greatly affected by the fires in the early 20<sup>th</sup> century such as the eastern slopes of Limekiln Mountain and Big and Little Slash Mountains.

- Pine-northern hardwood forest

A mixed forest that usually occurs on gravelly outwash plains, delta sands, eskers, and dry lake sands in the Adirondacks. In the HMPA, pine-northern hardwood forests occur on excessively drained soils and are composed of red pine (*Pinus resinosa*) with white pine (*Pinus strobus*), red oak (*Quercus rubra*), and northern hardwoods codominant. Examples of this forest type can be found on Big Crow Mountain, Pitchoff Mountain, and the lower, south facing slopes of Hurricane Mountain.

- Spruce-northern hardwood forest

A mixed forest that occurs on lower mountain slopes and upper margins of flats on glacial tills. Codominant trees are red spruce (*Picea rubens*), sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), yellow birch (*Betula alleghaniensis*), and red maple (*Acer rubrum*), with scattered balsam fir (*Abies balsamea*). Striped maple (*Acer pensylvanicum*) and mountain maple (*Acer spicatum*) are common subcanopy trees. Characteristic shrubs include hobblebush (*Viburnum lantanoides*). Examples of this forest type can be found on the lower and mid-slopes of Hurricane Mountain.

- Mountain spruce-fir forest

A conifer forest that usually occurs at elevations ranging from 3,000 to 4,000 ft. It occurs on upper slopes that are somewhat protected from the prevailing westerly winds, usually at elevations above spruce-northern hardwood forests, and below mountain fir forests. The dominant trees are red spruce (*Picea rubens*), and balsam fir (*Abies balsamea*). Common associates are mountain paper birch (*Betula cordifolia*) and yellow birch (*Betula alleghaniensis*). Subcanopy trees often present at a low density include mountain ash (*Sorbus americana*), mountain maple (*Acer spicatum*), pin cherry (*Prunus pennsylvanica*), and striped maple (*Acer pensylvanicum*). Examples of this forest type can be found on Hurricane and Weston Mountains.



### **Unique Plant communities**

- Spruce-fir rocky summit

A community that occurs on cool, dry, rocky ridgetops and summits where the bedrock is non-calcareous (such as anorthosite, quartzite, or sandstone), and the soils are more or less acidic. The vegetation may be sparse or patchy, with numerous rock outcrops. The species have predominantly boreal distributions. Characteristic species include red spruce (*Picea rubens*), balsam fir (*Abies balsamea*), mountain ash (*Sorbus americana*), harebell (*Campanula rotundifolia*), and three-toothed cinquefoil (*Potentilla tridentata*). There are usually many mosses and lichens growing on rock outcrops. Examples of this forest type can be found on the summit of Hurricane Mountain.

### **Rare and Endangered Plants**

A review of the Natural Heritage Program database for threatened and endangered plant species indicates that northern wild comfrey *Cynoglossum virginianum* var. boreale, Rocky Mountain sedge (also called Back's sedge) (*Carex backii*), and Appalachian firmoss, (*Huperzia appalachiana*) may occur within the unit or adjacent areas in the appropriate habitat.

- Northern wild comfrey - Northern wild comfrey (*Cynoglossum virginianum* var. boreale) is classified as endangered in New York State. It is a native herb.
- Rocky Mountain sedge - Rocky mountain sedge (*Carex backii*) is classified as threatened in New York State. It is a native perennial herb.
- Appalachian firmoss - Appalachian firmoss, (*Huperzia appalachiana*) is classified as threatened in New York State. It is a native clubmoss.

Rare communities and species that have been identified by the Natural Heritage Program are listed in Appendix C.

All plant species that are classified as endangered, threatened, or exploitable are protected by the New York Protected Native Plants Regulations (6 NYCRR §193.3) and the Environmental Conservation Law (Section 9-1503). The sites of any proposed facilities or improvements will be surveyed for the presence of protected plant species prior to construction. Likewise, any existing facilities or improvements that have the potential to directly impact a protected plant species will be closed or relocated.

## ***Invasive Plants***

### General Overview

Nonnative, invasive species directly threaten biological diversity and the high quality natural areas in the Adirondack Park. Invasive plant species can alter native plant assemblages, often forming monospecific stands of very low quality forage for native wildlife, and drastically impacting the ecological functions and services of natural systems. Not yet predominant across the Park, invasive plants have the potential to spread - undermining the ecological, recreational, and economic value of the Park's natural resources.

Because of the Adirondack Park's continuous forested nature and isolation from the normal "commerce" found in other parts of the State, its systems are largely functionally intact. In fact, there is no better opportunity in the global temperate forested ecosystem to forestall and possibly prevent the alteration of natural habitats by invasive plant species.

Prevention of nonnative plant invasions, Early Detection/Rapid Response (ED/RR) of existing infestations, and monitoring are primary objectives in a national strategy for invasive plant management and necessitates a well-coordinated, area-wide approach. A unique opportunity exists in the Adirondacks to work proactively and collaboratively to detect, contain, or eradicate infestations of invasive plants before they become well established, and to prevent further importation and distribution of invasive species, thus maintaining a high quality natural landscape. The Department shares an inherent obligation to minimize or abate existing threats in order to prevent widespread and costly infestations.

The Department has entered into a partnership agreement with the Adirondack Park Invasive Plant Program (APIPP). The mission of APIPP is to document invasive plant distributions and to advance measures to protect and restore native ecosystems in the Park through partnerships with Adirondack residents and institutions. Partner organizations operating under a Memorandum of Understanding are the Adirondack Nature Conservancy, the Department, APA, Department of Transportation, and the Invasive Plant Council of NYS. The APIPP summarizes known distributions of invasive plants in the Adirondack Park and provides this information to residents and professionals alike. Specific products include a geographic database for invasive plant species distribution; a central internet website for invasive plant species information and distribution maps; a list-serve discussion group to promote community organization and communication regarding invasive species issues; and a compendium of educational materials and best management practices for management.

### Terrestrial Invasive Plant Inventory

In 1998 the Adirondack Nature Conservancy's Invasive Plant Project initiated ED/RR surveys along Adirondack Park roadsides. Expert and trained volunteers reported 412 observations of 10 plant species throughout the area surveyed, namely NYS DOT Right-of-Ways (ROW). In 1999 the Invasive Plant Project was expanded to include surveying back roads and the "backcountry" (undeveloped areas away

from roads) to identify the presence or absence of 15 invasive plant species. Both surveys were conducted under the auspices of the Invasive Plant Council of New York “Top Twenty List” of non-native plants likely to become invasive within New York State. A continuum of ED/RR surveys now exists under the guidance of APIPP.

Assessments from these initial ED/RR surveys determined that four terrestrial plant species would be targeted for control and management based upon specific criteria such as geophysical setting, abundance and distribution, multiple transport vectors and the likelihood of human-influenced disturbance. The four priority terrestrial invasive plants species are Purple loosestrife (*Lythrum salicaria*), Common reed (*Phragmites australis*), Japanese knotweed (*Polygonum cuspidatum*) and Garlic mustard (*Alliaria petiolata*).

The Adirondack Park is susceptible to further infestation by invasive plant species intentionally or accidentally introduced to this ecoregion. While many of these species are not currently designated a priority species by APIPP, they may become established within or in proximity to a unit and require resources to manage, monitor, and restore the site.

Infestations located within and in proximity to a unit may expand and spread to uninfected areas and threaten natural resources within a unit; therefore it is critical to identify infestations located both within and in proximity to a unit and then assess high risk areas and prioritize Early ED/RR and management efforts.

Terrestrial Invasive Plant Locations are listed in Appendix I.

### Aquatic Invasive Plant Inventory

A variety of monitoring programs collect information directly or indirectly about the distribution of aquatic invasive plants in the Adirondack Park including the Department, Darrin Fresh Water Institute, Paul Smiths College Watershed Institute, lake associations, and lake managers. In 2001, APIPP compiled existing information about the distribution of aquatic invasive plant species in the Adirondack Park and instituted a regional long-term volunteer monitoring program. APIPP trained volunteers in plant identification and reporting techniques to monitor Adirondack waters for the presence of aquatic invasive plant species. APIPP coordinates information exchange among all of the monitoring programs and maintains a database on the current documented distribution of aquatic invasive plants in the Adirondack Park.

Aquatic invasive plant species documented in the Adirondack Park are Eurasian watermilfoil (*Myriophyllum spicatum*), Water chestnut (*Trapa natans*), Curlyleaf pondweed (*Potamogeton crispus*), Fanwort (*Cabomba caroliniana*), European frog-bit (*Hydrocharus morsus-ranae*), and Yellow floating-heart (*Nymphoides peltata*). Species located in the Park that are monitored for potential invasibility include Variable-leaf milfoil (*Myriophyllum heterophyllum*), Southern Naiad (*Najas*

## ***Section II: Inventory, Use and Capacity to Withstand Use***

---

*guadalupensis*), and Brittle Naiad (*Najas minor*). Additional species of concern in New York State but not yet detected in the Park are Starry Stonewort (*Nitellopsis obtusa*), Hydrilla (*Hydrilla verticillata*), Water hyacinth (*Eichhornia crassipes*), and Brazilian elodea (*Egeria densa*).

Infestations located within and in proximity to a unit may expand and spread to uninfected areas and threaten natural resources within a unit; therefore it is critical to identify infestations located both within and in proximity to a unit to identify high risk areas and prioritize Early Detection Rapid Response (ED/RR) and management efforts.

Aquatic invasive plants are primarily spread via human activities; therefore, lakes with public access, and those connected to lakes with public access, are at higher risk of invasion. Documentation of aquatic invasive plant distributions in the Park is limited by the number of lakes and ponds that have been surveyed and the frequency of monitoring. In some cases, only a portion of the water's shoreline has been surveyed. In other cases, a single specimen may have been identified without documentation as to its location within the waterbody. It follows that a negative survey result indicates only that an invasive plant has not been detected and does not preclude the possibility of its existence.

Aquatic Invasive Plant Locations are listed in Appendix I.

### Management Recommendations

The Department will enter into cooperative partnerships through Adopt-A-Natural-Resource Stewardship Agreements (AANR) and Temporary Revocable Permits (TRP) to facilitate containment and eradication of the invasive plant occurrences within the unit. Any eradication work involving the use of herbicides will be carried out under an Inter-Agency Work Plan for Management of Terrestrial Invasive Plant Species on State Land in the Adirondack Park (Invasive Plant Work Plan), developed by the Department and APA. This Invasive Plant Work Plan will provide a template for the process through which comprehensive active terrestrial invasive plant management will take place on state lands in the Adirondack Park. The Work Plan will provide protocols for implementing Best Management Practices (BMPs) on state land. The protocols will describe what management practices are acceptable and when they can be implemented, who can be authorized to implement the management practices, and which terrestrial invasive plant species are targeted. The Work Plan will also describe a process by which the Department may enter into AANRs to facilitate individuals or groups seeking to manage terrestrial invasive plant species on state lands using the listed BMPs, including herbicide use, in the appropriate circumstances. The Invasive Plant Work Plan will be subject to SEQRA and serve as the mechanism for assessing the impacts and suitability of eradication BMPs and actions.

Prior to implementing containment and/or eradication controls, terrestrial invasive plant infestations occurring within the unit need to be assessed on a site-by-site basis. The geophysical setting and the presence, or absence, of sensitive native flora within or adjacent to the targeted infestation often predicts the BMPs and limitations of the control methodology. Infestations occurring within specific

jurisdictional settings may trigger a permitting process, as do most terrestrial infestations occurring within an aquatic setting. The species itself often dictates whether manual management controls, e.g. hand-pulling or cutting, or the judicious, surgical application of herbicides is warranted in order to best control that specific species in that specific setting. No single BMP guarantees invasive plant containment or eradication. Many infestations require multiple, seasonal control efforts to reduce the density and biomass at that setting. Adaptive management protocols suggest that implementation of integrated control methodologies may provide the best over-all efficacy at specific infestations.

All management recommendations are based on knowledge of non-native invasive species present within the unit and their location, species, abundance and density. A complete inventory of the unit is necessary to identify aquatic and terrestrial invasive plant threats facing the unit. Inventory should be based on existing inventories, formal or informal inventories during routine operations, and by soliciting help from volunteers to actively study the unit and report on invasive species presence, location, and condition.

### Management Actions

Facilities and activities within the unit may influence invasive plant species introduction, establishment, and distribution throughout and beyond the unit boundaries. These facilities and activities are likely to serve as “hosts” for invasive plant establishment. Perpetual ED/RR protocols should be implemented in probable locations of invasive plant introductions:

- Public Day Use Areas
- Parking Areas
- Campgrounds
- Boat Launches
- Dedicated Snowmobile Trails
- Horse Trails

Protocols to minimize the introduction and transfer of invasive plant species will be incorporated during routine operations and historic and emergency maintenance activities, which may include the following:

### Construction Projects

Supplemental to the principals of the Minimum Tools Approach, all soils/straw/seed or sources of materials to be used as stabilization/cover for construction projects within the unit will be certified as weed-free.

Campground Maintenance

Forest Preserve Campgrounds will be inventoried for invasive plant establishment on a yearly basis. Staging areas of spring clean-up debris and soils within the campground will be closely monitored for invasive plant establishment. Campgrounds already infested with priority invasive plant species will incorporate ED/RR protocols into that respective Campground's yearly plan of work and Unit Management Plan. (Example: DEC's Lake Eaton, Eighth Lake, Golden Beach and Limekiln Lake Public Campgrounds are all documented having multiple Garlic mustard infestations at each facility.) Sanitization protocols for clothing, boots, tools and motorized equipment utilized at Campgrounds will be established.

Trail Maintenance

Supplemental to the principals of the Minimum Tools Approach, all soils/straw/seed or sources of materials to be used as stabilization/cover for construction projects within the unit will be certified as weed-free.

Field Sampling

Personnel performing field sampling should avoid transferring aquatic invasive species between waters by thoroughly inspecting and cleaning equipment between routine operations. Potential pathways include: vehicles, boats, motors, and trailers; sampling equipment; measuring and weighting devices; monitoring equipment; and miscellaneous accessories.

Angling Tournaments / Derbies

Licensing, registration, and/or permitting information distributed by the Department to Tournament or Derby applicants should include guidelines to prevent the introduction and transport of invasive species.

Restoration of sites where invasive plant management occurs is critical to maintain or enhance historical ecological function and structure. Restoration should incorporate best available science to determine effective techniques and the use of appropriate native or non-invasive plant species for site restoration.

Educating natural resource managers, elected officials, and the public is essential to increase awareness about the threat of invasive species and ways to prevent their introduction and transport into or out of the unit. Invasive species education should be incorporated in staff training and citizen licensing programs for hunting, fishing, and boating; through signage, brochures, and identification materials; and included in information centers, campgrounds, community workshops, and press releases.

### Forest Health

A combination of many factors can influence the health of a plant community. Physical factors tend to be weather related with notable examples being lightning, fires, ice damage, severe winds, flooding and drought.

Biological factors are variable and include the effects of disease, insects, and wildlife on the forest environment. Three major forest insects and one major disease described below have had an effect on this area (DEC-Forest Health Reports, NYS Forest Health: Summary Report of Conditions for 2003). The effects of acidic deposition have been discussed previously in the Air Resources section of this plan.

- Beech Bark Disease - Beech bark disease is an important insect-fungus complex that has caused extensive mortality of American beech throughout portions of the Adirondacks, including the HMPA. The primary vector, a scale insect, *Cryptococcus fagi*, attacks the tree creating entry sites for the fungus, *Nectria coccinea* var. *faginata*. Changes in the percent of beech in the cover type can stimulate shifts in animal populations that utilize beech mast extensively as a food source. On the other hand, dead and/or dying beech trees may benefit other wildlife species by providing abundant nesting, feeding, and potential den locations.
- Eastern Spruce Budworm - The Eastern spruce budworm (*Choristoneura fumiferana*) is considered to be one of the most destructive conifer defoliators in North America. Host species include balsam fir in addition to red, white, and black spruce. The last significant incidence of this pest within the Adirondack Park occurred in the mid 1970s. Populations of this insect, while currently not a problem, are being monitored throughout the northeast.
- Forest Tent Caterpillar - The forest tent caterpillar (*Malacosoma disstria*) a native insect, may be found wherever hardwoods grow. Outbreaks have occurred at 10 to 15 year intervals with the last widespread outbreak in the late 1970s. While portions of St. Lawrence County were moderately to severely defoliated in 2002, 2003, 2004, 2005 and 2006, no widespread outbreaks were reported for Essex County. Given the proximity of Essex County to St. Lawrence County, An outbreak of forest tent caterpillars is possible in the Hurricane Mountain region within the next five years. Favored hosts of forest tent caterpillars are sugar maple and aspen with birch, cherry, and ash also being utilized.
- Balsam Woolly Adelgid - The balsam woolly adelgid (*Adelges piceae*), a pest of true firs, was introduced into the United States from Europe or Asia around the turn of the 20<sup>th</sup> century. Since that time it has spread throughout the United States and Canada.

In addition, several insect pests have been recently introduced to this country and have the potential to negatively impact the forests in the Adirondack Park, including the HMPA. These include the emerald ash borer (*Agrilus planipennis*), siren wood wasp (*Sirex noctilio*), and Asian longhorned beetle. As a result of

these recent infestations, state and federal agencies have enacted quarantines, and taken other measures to limit the spread of these damaging insect species. New York has adopted a regulation that prohibits the import of firewood into the state unless it has been heat treated to kill pests. The regulation also limits the transportation of untreated firewood to less than 50 miles from its source. To learn more about this new regulation, or the threat from invasive insects, please visit the following DEC web page:

<http://www.dec.ny.gov/animals/28722.html>

- *Emerald Ash Borer (*Agilus planipennis*)* This Asian beetle, discovered in 2002 in southeastern Michigan and nearby Windsor, Ontario, infests and kills North American ash species (*Fraxinus* sp.) including green, white, black and blue ash. Thus, all native ash trees are susceptible. Damage is caused by the larvae, which feed in tunnels (called galleries) in the phloem just below the bark. The serpentine galleries disrupt water and nutrient transport, causing branches, and eventually the entire tree, to die. Adult beetles leave distinctive D-shaped exit holes in the outer bark of the branches and the trunk. Adults are roughly 3/8 to 5/8 inch long with metallic green wing covers and a coppery red or purple abdomen. They may be present from late May through early September but are most common in June and July. Signs of infection include tree canopy dieback, yellowing, and browning of leaves. Most trees die within 1 to 4 years of becoming infested, unless treated.

The infestation of emerald ash borer has spread from Michigan into nearby portions of Ohio and Indiana, and from Windsor, Ontario eastward towards New York killing millions of ash trees. An emerald ash borer infestation was discovered within New York state in Cattaraugus County in June of 2009. In response to this discovery DEC and DAM have enacted a quarantine encompassing Cattaraugus and Chautauqua counties that will restrict the movement of ash trees, ash products, and firewood from all wood species to limit the potential spread of emerald ash borer to other parts of the state. For more information on this invasive species, or the quarantine, visit the following DEC web page: <http://www.dec.ny.gov/animals/6986.html>

Ash trees represent a fairly small component of the forests of the HMPA, however, loss of these trees could limit the diversity of plant life and wildlife in the unit.

- *Sirex Wood Wasp (*Sirex noctilio*)* Sirex wood wasps are a member of the horntail wasp family, Siricidae. The native range of Sirex includes Europe, Asia, and north Africa, where it is a minor pest. But it is a serious pest of pine plantations in Brazil, New Zealand, Australia, South Africa, Argentina, Uruguay, and Chile. Sirex is considered one of the top 10 most serious forest insect pest invaders, worldwide. In New York, red pine, Scots pine, Eastern white pine, Austrian pine, jack pine and pitch pine are all confirmed or very likely susceptible hosts, with a much larger likely host range among North American pines.

Sirex causes damage and tree mortality in three ways: tunneling during larval development and emergence, and introduction of a toxic mucus and a symbiotic decay fungus, *Amylostereum areolatum*, during oviposition. The fungus and toxins working together can kill trees in a short



period of time, creating a suitable environment for larval development. Sirex is capable of attacking and killing stressed or healthy host trees, though stressed trees seem to be initially preferred. This has been the case in infested stands observed in New York as well as in the global literature.

In September 2004, an adult Sirex was trapped unintentionally in a trap set for exotic wood boring insects in Fulton, New York. This was the first North American discovery of the Sirex. Additional delimiting trapping surveys and aerial and ground surveys for potentially infested trees were conducted around Fulton and Oswego NY; as a result, there were additional finds of Sirex. Because positive trap detections continued to increase in the survey areas, the survey radius expanded 30 to 70 miles from Oswego during the summer and early fall of 2005. The most distant positive find occurred approximately 50 miles southwest of Oswego. In 2006, an expanded trapping program combining the efforts of multiple agencies (USDA Forest Service, USDA Animal and Plant Health Inspection Service, NYS Department of Agriculture and Markets, and the Department) has resulted in even further expansion of the known infested area. As of August 21, 2006, 20 New York Counties (mostly in the western part of the state) and one Pennsylvania County have had at least one positive Sirex trap catch. Sirex has also been found in several locations in southern Ontario, Canada. State and Federal Regulations on the transportation of pine wood products from areas of known or potential infestation are being proposed to help limit the spread of Sirex.

White pine trees represent a significant component of Adirondack forests, making Sirex wood wasps a serious threat in the area. The natural red pine stands that are considered a unique plant community in the HMPA are likewise at risk.

In addition to the major insect and disease problems listed above, various forest declines, have impacted the vegetation within the unit and the surrounding areas.

To provide a factual basis for public policy and private ownership decisions, permanent forest inventory and analysis plots have been established by the United States Forest Service (USFS) statewide, including forest preserve and private lands within the Adirondacks. These plots and the evaluation of the data collected at them, document and provide information on forest changes that might be caused by atmospheric deposition, soil nutrient loss, global warming, and/or various insect and disease factors. From 1985 to the present, significant research efforts have been underway to study the effects of atmospheric deposition on forest species, with support from federal and state agencies, forest industry, and other institutions. Data are still being evaluated to determine the link between air pollution and forest health.

**b. Wildlife**

Wildlife communities in the unit reflect those species commonly associated with northern hardwood and mixed hardwood/softwood forests that are transitional to the boreal forests of higher latitudes. Significant boreal forest within the unit includes high elevation spruce-fir habitats that are important for a number of wildlife species with statewide distributions mostly or entirely within the Adirondacks (e.g., Bicknell's Thrush, Swainson's Thrush, Blackpoll Warbler, Winter Wren, and American marten). Terrestrial fauna are represented by a variety of bird, mammal, and invertebrate species. Amphibians and reptiles also occur on the unit, although species diversity is relatively low as compared with other vertebrates. The distribution and abundance of wildlife species on the unit is determined by physical (e.g., elevation, topography, climate), biological (e.g., forest composition, structure, and disturbance regimes, available habitat, population dynamics, species' habitat requirements), and social factors (e.g., land use on and adjacent to, the unit). It is important to note that wildlife populations occurring on the unit do not exist in isolation from other forest preserve units or private lands. The physical, biological, and social factors that exist on these other lands can and do influence the abundance and distribution of wildlife species on HMPA.

With the exception of NYNHP surveys, comprehensive field inventories of wildlife species have not focused specifically on HMPA, or Forest Preserve units in general. Statewide wildlife survey efforts conducted by the Department have included two Breeding Bird Atlas projects (1980-1985 and 2000-2005) and the New York State Amphibian and Reptile Atlas Project (1990-1999). Additionally, the Bureau of Wildlife collects harvest data on a number of game species (i.e., those that are hunted or trapped). Harvest data is not collected specific to Forest Preserve units, but rather on a town, county, and wildlife management unit (WMU) basis. Harvest data can provide some indication of wildlife distribution and abundance and is sometimes the only source of data on mammals.

The unit is largely covered by mature forests with limited areas of early successional habitat. The character of the unit's vegetation has a significant effect in determining the occurrence and abundance of wildlife species. While some species prefer mature forests, many others occur in lower densities on Forest Preserve lands than they do on private lands characterized by a greater variety of habitat types. Natural forest disturbances including wind storms, ice storms, tree disease and insect outbreaks, fire, and beaver activity influence forest structure and wildlife habitats by creating patches of earlier successional stages within a larger matrix of mature forest. These natural disturbances create important habitat for a variety of species that depend on early succession vegetation communities and the edges created between these communities and the surrounding forest. However, these areas are usually limited in size. Private lands adjacent to public lands may provide some habitat for species that prefer early successional habitats, depending on land use and the silvicultural practices conducted.

**Amphibians and Reptiles**

The New York State Amphibian and Reptile Atlas Project (1990-1999) confirmed the presence of 21 species of reptiles and amphibians in USGS Quadrangles within, or partially within HMPA, (Table 1). It is important to note that quadrangles (the survey sample unit) overlap and extend beyond the boundaries of these units. Therefore, recorded species do not necessarily reflect what was found on the units, but on the quadrangles. Some species may have been found on private lands adjacent to HMPA. However, these data should provide a good indication of the species found throughout this unit. Documented amphibians and reptiles included 3 species of turtles, 3 species of snakes, 9 species of frogs and toads, and 6 species of salamanders (Table 1). These species are classified as protected wildlife and some may be harvested during open hunting seasons. Of these species, 1 was classified as special concern (wood turtle) and none were classified as endangered or threatened.

**Table 1. Amphibian and reptile species recorded in USGS Quadrangles within, or partially within, the Hurricane Mountain Primitive Area (HMPA) during the New York State Amphibian and Reptile Atlas Project, 1990-1999.**

Common Name	Scientific Name
Spotted Salamander	<i>Ambystoma maculatum</i>
Red-spotted Newt	<i>Notophthalmus v. viridescens</i>
Northern Dusky Salamander	<i>Desmognathus fuscus</i>
Allegheny Dusky Salamander	<i>Desmognathus ochrophaeus</i>
Northern Redback Salamander	<i>Plethodon cinereus</i>
Northern Two-lined Salamander	<i>Eurycea bislineata</i>
Eastern American Toad	<i>Bufo a. americanus</i>
Northern Spring Peeper	<i>Pseudacris c. crucifer</i>
Gray Treefrog	<i>Hyla versicolor</i>
Bullfrog	<i>Rana catesbeiana</i>
Green Frog	<i>Rana clamitans melanota</i>
Mink Frog	<i>Rana septentrionalis</i>
Wood Frog	<i>Rana sylvatica</i>
Northern Leopard Frog	<i>Rana pipiens</i>
Pickerel Frog	<i>Rana palustris</i>
Common Snapping Turtle	<i>Chelydra s. serpentina</i>
Wood Turtle <sup>1</sup>	<i>Clemmys insculpta</i>
Painted Turtle	<i>Chrysemys picta</i>
Northern Redbelly Snake	<i>Storeria o. occipitamaculata</i>
Common Garter Snake	<i>Thamnophis sirtalis</i>
Eastern Milk Snake	<i>Lampropeltis t. triangulum</i>

<sup>1</sup>Special Concern species.

**Habitat Associations**

- Spotted Salamander (*Ambystoma maculatum*) – The spotted salamander prefers vernal pools for breeding, but its jelly-like globular egg masses are found in a variety of wetland habitats. Because of its fossorial habits, the spotted salamander is rarely encountered except during the breeding season. At that time they can be found under rocks, logs, and debris near the edges of the breeding pools.
- Red-spotted Newt (*Notophthalmus viridescens*) – One of the most fascinating life histories of any salamander is that of the Red-spotted Newt, with four stages in its life cycle (egg, aquatic larva, terrestrial immature red eft, and aquatic adult). Interestingly, the red eft remains on land from two (Bishop, 1941) to seven years (Healy, 1974) before they transform into their final life stage, the aquatic adult.
- Northern Dusky Salamander (*Desmognathus fuscus*) – The Northern Dusky Salamander inhabits rocky stream ecotones, hillside seeps and springs, and other seepage areas in forested or partially forested habitat. They are typically found under rocks and other cover objects such as logs adjacent to, or in the water (Harding, 1997).
- Allegheny Dusky Salamander (*Desmognathus ochrophaeus*) – The Allegheny Dusky Salamander is more terrestrial than its congener, the Northern Dusky Salamander, being found under rocks and woodland debris in moist forests usually near a seep or stream.
- Northern Redback Salamander (*Plethodon cinereus*) – The Northern Redback Salamander is found in deciduous, coniferous or mixed forest where it nests in moist, rotten logs. It favors pine logs in advanced stages of decay rather than deciduous tree logs that appear to be more susceptible to molds, thus attributing to possible fungal infections in the eggs (Pfingsten and Downs, 1989).
- Northern Two-lined Salamander (*Eurycea bislineata*) – Northern Two-lined Salamanders inhabit springs and seeps in forested wetlands, edges of brooks and streams, and terrestrial areas many meters from water. They are usually found under rocks, logs, and debris (Pfingsten and Downs, 1989).
- Eastern American Toad (*Bufo americanus*) – Although Eastern American Toads can be found in almost every habitat from cultivated gardens to woodlands, they are typically found in moist upland forest. Special habitat requirements include shallow water for breeding (DeGraaf and Rudis, 1983).
- Northern Spring Peeper (*Pseudacris crucifer*) – Northern Spring Peepers inhabit coniferous, deciduous and mixed forested habitat where they typically breed in ponds, emergent marshes or shrub swamps. However, their spring chorus is commonly heard from just about any body of water, especially in areas where trees or shrubs stand in and near water (Hunter, et al., 1999).

- Gray Treefrog (*Hyla versicolor*) – Gray Treefrogs are found in forested areas where they hibernate near the soil surface, tolerating temperatures as cold as -6 degrees C for as long as five consecutive days. Due to the production of glycerol which serves as an antifreeze, gray treefrogs can freeze up to 41.5% of their total body fluids. The frogs breed in both permanent or temporary ponds or wetlands (Hunter, et al., 1999).
- Bullfrog (*Rana catesbeiana*) – Bullfrogs require permanent bodies of water with adequate emergent and edge cover. Their aquatic habitats include shallow lake coves, slow-moving rivers and streams, and ponds (Hunter, et al., 1999).
- Green Frog (*Rana clamitans*) – Green frogs are rarely found more than several meters from some form of water, including lakes and ponds, streams, quarry pools, springs, and vernal pools (DeGraaf and Rudis, 1983).
- Mink Frog (*Rana septentrionalis*) – Mink frogs prefer cool, permanent water with adequate emergent and floating-leaved vegetation where they feed on aquatic insects and other invertebrates. Here they also hibernate on the bottom in the mud (Harding, 1997).
- Wood Frog (*Rana sylvatica*) – Wood frogs prefer cool, moist, woodlands where they select temporary pools for breeding. However, where vernal pools are absent, wood frogs will breed in a variety of habitats including everything from cattail swamps to roadside ditches (Hunter, et al., 1999).
- Northern Leopard Frog (*Rana pipiens*) – Although sometimes found in wet woodlands, Northern Leopard Frogs are the frog of wet meadows and open fields, breeding in ponds, marshes, and slow, shallow, vegetated streams (DeGraaf and Rudis, 1983).
- Pickerel Frog (*Rana palustris*) – Whether the habitat selected is a bog, fen, pond, stream, spring, slough, or cove, Pickerel Frogs prefer cool, clear waters, avoiding polluted or stagnant habitats. Grassy streambanks and inlets to springs, bogs, marshes, or weedy ponds are preferred habitats (Harding, 1997).
- Common Snapping Turtle (*Chelydra serpentina*) – Snapping Turtles are found in most permanent and semipermanent bodies of fresh and brackish water. Areas that have dense aquatic vegetation with deep, soft, organic substrates and plenty of cover are favored (Mitchell, 1994).
- Wood Turtle (*Clemmys insculpta*) – The Wood Turtle is a semiaquatic turtle that inhabits both the terrestrial and aquatic environment. It favors streams with sandy-pebbly substrates that are deep enough so that they do not freeze during hibernation, are well-oxygenated, and have good water quality. Terrestrial habitat includes a variety of wetlands, upland successional fields, and deciduous woodlands with open areas for basking (Tuttle and Carroll, 1997).

## **Section II: Inventory, Use and Capacity to Withstand Use**

---

- Painted Turtle (*Chrysemys picta*) – Painted Turtles most often inhabit ponds, lakes, and other slow-moving bodies of water with soft substrates and abundant aquatic vegetation. A critical habitat parameter is adequate basking sites such as logs, rocks, and mats of aquatic vegetation.
- Northern Redbelly Snake (*Storeria occipitomaculata*) – Although the Northern Redbelly Snake prefers wetland-upland ecotones, it is found in a variety of terrestrial habitats. This extremely secretive nocturnal species may be found under rocks, logs, bark, and leaves; but if conditions are dry, they are apt to go underground in unused rodent borrows (Mitchell, 1994).
- Common Garter Snake (*Thamnophis sirtalis*) – Garter Snakes are found in a wide variety of habitats including, but not limited to, woodlands, meadows, wetlands, streams, drainage ditches, and even city parks and cemeteries (Conant and Collins, 1998). But large populations of Common Garter Snakes are usually found in moist, grassy areas near the edges of water (Harding, 1997).
- Eastern Milk Snake (*Lampropeltis triangulum*) – The Milk Snake is the snake of farm outbuildings and barns, taking cover under rocks, logs, firewood, or building materials. Natural habitat includes open woodlands, wetlands, old fields and pastures (Harding, 1997).

### **Birds**

The avian community varies seasonally. Some species remain within the area year round, but the majority of species utilize the area during the breeding season and for migration. The first Breeding Bird Atlas Project (BBA) conducted during 1980-1985 (Andrle and Carroll, 1988) and the Breeding Bird Atlas 2000 Project (2000-2005) documented 110 and 86 species, respectively, in atlas blocks within, or partially within HMPA (Appendix D). It is important to note that atlas blocks overlap and extend beyond the boundaries of these units. Therefore, these data do not necessarily reflect what is found on the unit, but on the atlas blocks. It is probable that some species determined to be present by BBA surveys were found only on private lands adjacent to the state lands. Breeding Bird Atlas data should provide a good indication of the species found throughout the unit and adjacent region, however, many factors can influence survey results (e.g., weather, survey effort). Therefore, these data should be used as a tool for further study and monitoring of bird populations and not as a definitive statement on bird population changes between the two atlas periods.

### **Birds Associated with Boreal Forest**

The HMPA contains high elevation boreal forest that is significant for a variety of birds. In total, these habitats comprise approximately 2,884 acres within HMPA.

High elevation spruce-fir forest is especially important as breeding habitat for Bicknell's Thrush, a special concern species in New York. Throughout the range of this species, montane forest between 2,900 ft. and 4,700 ft. and dominated by stunted balsam fir and red spruce is the primary breeding habitat (Atwood et al., 1996). This species utilizes fir waves and natural disturbances as well as the dense regenerated ecotones along the edges of ski slopes. The species is most common on the highest ridges of the Adirondacks, preferring young or stunted dense stands of balsam fir up to 9 ft. in height. Here they lay their eggs above the ground in the dense conifer thickets. Bicknell's Thrush were documented on the unit during the 1980-1985 BBA, but not during the 2000-2005 BBA (See Tables 2., and 4. Below).

In an effort designed to protect birds associated with high elevation boreal forest and their habitats, New York State designated the Adirondack mountain summits above 2,800 feet in Essex, Franklin, and Hamilton counties as the Adirondack Subalpine Forest Bird Conservation Area (BCA) in November 2001 (See Appendix E for a complete description of this particular conservation area) 2001. The New York State Bird Conservation Area Program was established in September 1997, under section §§11-2001 of the Environmental Conservation Law. The program is designed to safeguard and enhance bird populations and their habitats on selected state lands and waters.

Of 27 bird species associated with boreal forest that occur in New York (Tim Post, NYSDEC, personal communication), 18 (67%) have been documented in BBA survey blocks within, or partially within, HMPA.

During the two BBA projects, 9 species of lowland boreal forest birds, 4 species of high elevation boreal forest birds, and 5 species commonly associated with boreal forest, have been documented on the unit (Table 2). Some notable differences in boreal bird species composition were recorded between the two atlas periods; Bicknell's Thrush, Blackpoll Warbler, Blackburnian Warbler, and Tennessee warbler were documented in the first atlas project but not the second, and Olive-sided Flycatcher, Cape May Warbler, Red Crossbill, and Northern Parula were documented in the second atlas project but not the first.

**Section II: Inventory, Use and Capacity to Withstand Use**

**Table 2. Bird species associated with boreal forest as recorded by the New York State Breeding Bird Atlas projects (1980-1985 and 2000-2005) occurring in atlas blocks within, or partially within the Hurricane Mountain Primitive Area (HMWA).**

Common Name	Scientific Name	Breeding Bird Atlas Project	
		1980-1985	2000-2005
<b>Lowland Boreal Forest Species</b>			
Olive-sided Flycatcher	<i>Contopus cooperi</i>		X
Boreal Chickadee	<i>Poecile hudsonicus</i>	X	X
Ruby-crowned Kinglet	<i>Regulus calendula</i>	X	X
Cape May Warbler	<i>Dendroica tigrina</i>		X
White-throated Sparrow	<i>Zonotrichia albicollis</i>	X	X
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	X	X
Pine Siskin	<i>Carduelis pinus</i>	X	X
White-winged Crossbill	<i>Loxia leucoptera</i>	X	X
Red Crossbill	<i>Loxia curvirostra</i>		X
<b>High Elevation Boreal Forest Species</b>			
Bicknell's Thrush	<i>Catharus bicknelli</i>	X	
Blackpoll Warbler	<i>Dendroica striata</i>	X	
Winter Wren	<i>Troglodytes troglodytes</i>	X	X
Swainson's Thrush	<i>Catharus ustulatus</i>	X	X
<b>Species Commonly Associated with Boreal Forest</b>			
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	X	X
Blackburnian Warbler	<i>Dendroica fusca</i>	X	
Magnolia Warbler	<i>Dendroica magnolia</i>	X	X
Northern Parula	<i>Parula americana</i>		X
Tennessee Warbler	<i>Vermivora peregrina</i>	X	



### ***Habitat Associations***

In addition to boreal and mixed-boreal forests, other habitats types of importance include deciduous forests, lakes, ponds, streams, bogs, beaver meadows, and shrub swamps.

Birds associated with marshes, ponds, lakes, and streams include: common loon, pied-billed grebe, great blue heron, green-backed heron, American bittern, and a variety of waterfowl. The most common ducks include the mallard, American black duck, wood duck, hooded merganser, and common merganser. Other species of waterfowl migrate through the region following the Atlantic Flyway.

Bogs, beaver meadows, shrub swamps, and any areas of natural disturbance provide important habitat for species that require or prefer openings and early successional habitats. Species such as Alder and Olive-sided Flycatchers, American Woodcock, Lincoln Sparrow, Nashville Warbler, Chestnut-sided Warbler, Brown Thrasher, Blue-winged Warbler, Yellow Warbler, Common Yellowthroat, Indigo Bunting, Eastern Towhee, and Field Sparrow rely on these habitats and are rarely found in mature forests. These species, as a suite, are declining more rapidly throughout the Northeast than species that utilize more mature forest habitat. Habitat for these species is, and will be, very limited within HMPA.

Birds that prefer forest habitat are numerous, including many neotropical migrants. Some species prefer large blocks of contiguous forest (e.g., Northern Goshawk), others prefer blocks of forest with adjacent openings, and many prefer forest with a relatively thick shrub layer. The forest currently is maturing, and will eventually become old growth forest dominated by large trees.

Songbirds are a diverse group filling different niches in the Adirondacks. The most common species found throughout the deciduous or mixed forest include the Ovenbird, Red-eyed Vireo, Yellow-bellied Sapsucker, Black-capped Chickadee, Blue Jay, Downy Woodpecker, Brown Creeper, Wood Thrush, Black-throated Blue Warbler, Pileated Woodpecker, and Black and White Warbler. The Golden-crowned Kinglet, Purple Finch, Pine Siskin, Red and White-winged Crossbill and Black-throated Green Warbler are additional species found in the coniferous forest and exhibit preference for this habitat. Birds of prey common to the area include the Barred Owl, Great Horned Owl, Eastern Screech-owl, Northern Goshawk, Red-tailed Hawk, Sharp-shinned Hawk, and Broad-winged Hawk.

Game birds include upland species such as turkey, ruffed grouse and woodcock, as well as a variety of waterfowl. Ruffed grouse and woodcock prefer early successional habitats and their habitat within the area is limited due to the lack of timber harvesting. Turkey are present in low numbers and provide some hunting opportunities. Waterfowl are fairly common along the waterways and marshes and provide hunting opportunities.

## **Mammals**

### Large and Medium-sized Mammals

Large and medium-sized mammals known to occur in the central and southern Adirondacks are also believed to be common inhabitants of HMPA and include the white-tailed deer, moose, black bear, coyote, raccoon, red fox, gray fox, bobcat, fisher, American marten, river otter, mink, striped skunk, long-tailed weasel, short-tailed weasel, beaver, muskrat, porcupine, and snowshoe hare (Saunders, 1988). Of these species, white-tailed deer, black bear, coyote, raccoon, red fox, gray fox, long-tailed weasel, short-tailed weasel, bobcat, and snowshoe hare can be hunted. Additionally, these species (with the exception of white-tailed deer, black bear, and snowshoe hare) along with fisher, American marten, mink, muskrat, beaver, and river otter can be trapped. Hunting and trapping activities are highly regulated by the Department, and the Department's Bureau of Wildlife collects annual harvest data on many of these species.

Important big game species within the area include the white-tailed deer and black bear. Generally, white-tailed deer can be found throughout HMPA. From early spring (April) to late fall (November), deer are distributed generally on their "summer range". When snow accumulates to depths of 20 inches or more, deer travel to their traditional wintering areas. This winter range is characteristically composed of lowland spruce-fir, cedar or hemlock forests, and to a lesser degree, a combination of mixed deciduous and coniferous cover types. Often found at lower elevations along water courses, this habitat provides deer with protective cover from adverse weather and easier mobility in deep snows (see Critical Habitat section).

### ***Chronic Wasting Disease (CWD) in White-tailed Deer***

Chronic Wasting Disease (CWD) is a rare, fatal, neurological disease found in members of the deer family (cervids). It is a transmissible disease that slowly attacks the brain of infected deer and elk, causing the animals to progressively become emaciated, display abnormal behavior, and invariably results in the death of the infected animal. Chronic Wasting Disease has been known to occur in wild deer and elk in the western U.S. for decades and its discovery in wild deer in Wisconsin in 2002 generated unprecedented attention from wildlife managers, hunters, and others interested in deer. Chronic Wasting Disease poses a significant threat to the deer and elk of North America and, if unchecked, could dramatically alter the future management of wild deer and elk. However, there is no evidence that CWD is linked to disease in humans or domestic livestock other than deer and elk.

In 2005, the Department received confirmation of CWD from two captive white-tailed deer herds in Oneida County and subsequently detected the disease in 2 wild deer from this area. Until recently, New York was the only state in the northeast with a confirmed CWD case in wild deer. However, CWD was recently detected in wild deer in West Virginia.

The Department has established a containment area around the CWD-positive samples and will continue to monitor the wild deer herd in New York State. More information on CWD, New York's response to this disease, the latest results [cwmadponei.html](http://www.dec.ny.gov/animals/33220.html) from ongoing sampling efforts, and current CWD regulations are available on the Department's website: <http://www.dec.ny.gov/animals/33220.html>

Black bears are essentially solitary animals and tend to be dispersed throughout the unit. The Adirondack region supports the largest black bear population in New York State (4,000 to 5,000 bears). Hikers and campers in this region are likely to encounter a bear, and negative interactions between black bears and humans, mainly related to bears stealing food from humans, have been a fairly common occurrence in the Adirondack High Peaks for at least twenty years. In 2005 a new regulation was enacted, requiring all overnight campers in the Eastern High Peaks Wilderness Area to use bear-resistant canisters for food, toiletries, and garbage. In other areas of the Adirondacks, the Department recommends the use of bear resistant canisters as well.

Moose entered the state on a continuous basis in 1980, after having been absent since the 1860's. There is once again a breeding moose population in New York State that is estimated to be approximately 400-600 animals (Ed Reed, NYSDEC, personal communication). In the northeastern United States, moose use seasonal habitats within boreal and mixed coniferous/deciduous forests. The southern distribution of moose is limited by summer temperatures that make the regulation of body temperature difficult. Moose select habitat primarily for the most abundant and highest quality forage (Peek 1997). Disturbances such as wind, fire, logging, tree diseases, and insects create openings in the forest that result in regeneration of important hardwood browse species such as white birch, aspen, red maple, and red oak. Typical patterns in moose habitat selection during the summer include the use of open upland and aquatic areas in early summer followed by the use of more closed canopy areas (such as upland stands of mature aspen and white birch) that provide higher quality forage in late summer and early autumn. After the fall rut and into winter, moose intensively use open areas again where the highest biomass of woody browse exists (i.e., dormant shrubs). In late winter when browse quantity and quality are lowest, moose will use closed canopy areas that represent the best cover available within the range (e.g., closed canopy conifers in boreal forest). From late spring through fall, moose commonly are associated with aquatic habitats such as lakes, ponds, and streams. However, use of aquatic habitats can vary geographically over their range. It is believed that moose use aquatic habitats primarily to forage on highly palatable plants, however, moose may also use these areas for relief from insects and high temperatures.

### Small Mammals

The variety of habitats that occur within the Adirondack region are home to an impressive diversity of small mammals. These mammals inhabit the lowest elevations to those as high as 4,400 feet (Southern bog lemming). Most species are found in forested habitat (coniferous, deciduous, mixed forest) with damp soils, organic muck, or soils with damp leaf mold. However, some species (e.g., hairy-tailed mole) like dry to moist sandy loam soils and others (e.g., white-footed mouse) prefer the drier soils of oak-hickory, coniferous, or mixed forests. Small mammals of the Adirondack region are found in alpine

## Section II: Inventory, Use and Capacity to Withstand Use

---

meadows (e.g., long-tailed shrew), talus slides and rocky outcrops (e.g., rock vole), grassy meadows (e.g., meadow vole, meadow jumping mouse), and riparian habitats (e.g., water shrew). It is likely that many, if not most, of the small mammal species listed below inhabit HMPA (Table 3). An exception may be the Northern bog lemming, a species whose southernmost range extends just into the northern portion of Adirondack Park; only one recently-verified specimen exists (Saunders, 1988). All listed species are known to occur within Adirondack Park.

**Table 3. Small mammal species recorded within Adirondack Park (data based on museum specimens; Saunders, 1988). Number of towns represents the number of towns in which each species was recorded.**

---

Common Name	Scientific Name	Number of
Star-nosed mole	<i>Condylura crestata</i>	6
Hairy-tailed mole	<i>Parascalops breweri</i>	11
Short-tailed shrew	<i>Blarina brevicauda</i>	31
Pygmy shrew	<i>Sorex hoyi</i>	1
Long-tailed shrew	<i>Sorex dispar</i>	7
Smoky shrew	<i>Sorex fumeus</i>	18
Water shrew	<i>Sorex palustris</i>	10
Masked shrew	<i>Sorex cinereus</i>	25
Deer mouse	<i>Peromyscus maniculatus</i>	26
White-footed mouse	<i>Peromyscus leucopus</i>	14
Southern red-backed vole	<i>Clethrionomys gapperi</i>	32
Meadow vole	<i>Microtus pennsylvanicus</i>	31
Yellownose vole	<i>Microtus chrotorrhinus</i>	6
Woodland vole	<i>Microtus pinetorum</i>	1
Southern bog lemming	<i>Synaptomys cooperi</i>	12
Northern bog lemming	<i>Synaptomys borealis</i>	1
Meadow jumping mouse	<i>Zapus hudsonicus</i>	22
Woodland jumping mouse	<i>Napaeozapus insignis</i>	25

---

***Endangered, Threatened, and Special Concern Species***

New York has classified species at risk into three categories, endangered, threatened, and species of special concern (6 NYCRR §182). The following section indicates the protective status of some vertebrates that may be in the unit:

- Endangered: Any species that is either native and in imminent danger of extirpation or extinction in New York; or is listed as endangered by the US Department of Interior.
- Threatened: Any species that is either native and likely to become endangered within the foreseeable future in New York; or is listed as threatened by the US Department of the Interior.
- Special Concern: Native species not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York. Unlike the first two categories, they receive no additional legal protection under the Environmental Conservation Law; but, they could become endangered or threatened in the future and should be closely monitored.

The following section describes those species that are classified as endangered, threatened, or special concern within HMPA (Table 4) and briefly summarizes the habitat requirements of these species.

**Section II: Inventory, Use and Capacity to Withstand Use**

---

**Table 4. Endangered, threatened, and special concern species documented in survey blocks within, or partially within, Hurricane Mountain Primitive Area (HMPA). Bird data were collected during the 1980-1985 and 2000-2005 Breeding Bird Atlas projects. Amphibian and reptile data were collected during the 1990-1999 Amphibian and Reptile Atlas Project<sup>1</sup>.**

Common Name	Scientific Name	Breeding Bird Atlas Project	
		1980-1985	2000-2005
<b>Birds</b>			
<b><i>Endangered</i></b>			
Peregrine Falcon	<i>Falco peregrinus</i>	X	
<b><i>Special Concern</i></b>			
Bicknell's Thrush	<i>Catharus bicknell</i>	X	
Northern Goshawk	<i>Accipiter gentilis</i>	X	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	X	
Red-shouldered Hawk	<i>Buteo lineatus</i>		X
Whip-poor-will	<i>Caprimulgus vociferus</i>	X	X
Vesper sparrow	<i>Pooecetes gramineus</i>	X	X
Osprey	<i>Pandion haliaetus</i>	X	X
<b>Amphibians and Reptiles<sup>1</sup></b>			
<b><i>Special Concern</i></b>			
Wood Turtle	<i>Clemmys insculpta</i>		

## **Habitat Associations**

### Endangered Species

#### *Birds*

Peregrine Falcon (*Falco peregrinus*) – Three basic habitat requirements are necessary for nesting Peregrine Falcons, including open country in which to hunt, sufficient food resources (i.e., other avian species), and steep, rocky cliff faces for nesting (Ratcliffe, 1993). The falcons typically nest 50 to 200 feet off the ground and often near a river, stream, or other water body. Nesting sites for Peregrines usually include a partially-vegetated ledge (with both herbaceous and woody species) that is large enough for at least several young to move about during the pre-fledging period. The nest is a well-rounded scrape that is sometimes lined with grass. Ideally, the eyrie ledge also is sheltered by an overhang that protects the chicks from inclement weather. Occasionally, Peregrines may nest in old Common Raven nests. Suitable nest sites (e.g., snags, live trees, ledges) are located on the cliff face near the eyrie, on more distant sections of the cliff, and on the cliff rim.

### Special Concern Species

#### *Birds*

- Bicknell's Thrush (*Catharus bicknelli*) – Throughout the range of Bicknell's Thrush, montane forest dominated by stunted balsam fir and red spruce is the primary habitat. Bicknell's Thrush utilizes fir waves and natural disturbances as well as the dense regenerated ecotones along the edges of ski slopes. The breeding habitat of Bicknell's Thrush is located in the Adirondacks at elevations > 2800 ft. The species is most common on the highest ridges of the Adirondacks, preferring young or stunted dense stands of balsam fir up to 9 ft. in height. Here they lay their eggs above the ground in the dense conifer thickets.
- Northern Goshawk (*Accipiter gentilis*) – Important habitat characteristics for Northern Goshawk include a combination of tall trees with a partial canopy closure for nesting and woodlands with small, open areas for foraging (Johnsgard, 1990). In New York State, goshawks prefer dense, mature, continuous coniferous or mixed woods where they typically place their nest 30-40 ft. off the ground in the crotch of a tree (Andrle and Carroll, 1988).
- Sharp-shinned Hawk (*Accipiter striatus*) – Sharp-shinned Hawks prefer breeding habitats that consist of open or young woodlands that support a large diversity of avian species, the hawk's primary prey (Johnsgard, 1990). Although Sharp-shinned Hawks use mixed conifer-deciduous forest for nesting, most nests recorded in New York State have been located in conifers, with 80% of the nests found in hemlocks (Bull, 1974).

## ***Section II: Inventory, Use and Capacity to Withstand Use***

---

- Red-shouldered Hawk (*Buteo lineatus*) – Red -shouldered Hawks breed in moist hardwood, forested wetlands, bottomlands and the wooded margins of wetlands, often close to cultivated fields, Red-shouldered hawks are reported as rare in mountainous areas. Special habitat requirements include cool, moist, lowland forests with tall trees for nesting. Red-shouldered hawks forage in areas used as nesting habitat as well as drier woodland clearings and fields.
- Whip-poor-will (*Caprimulgus vociferus*) – Whip-poor-will select open woodlands in lowland deciduous forest, montane forest, or pine-oak woods (Erlich et. al., 1988) that is interspersed with open fields, with a preference for dry oak-hickory woods in some areas of upstate New York (Bull, 1974). Whip-poor-will nest on the ground in dry, sparse areas. Eggs are typically laid in the open or under a small shrub on the leaf litter where they are well concealed (Bent, 1940).
- Vesper Sparrow (*Pooecetes gramineus*) – The Vesper Sparrow is a grassland bird that breeds in short-grass meadows, pastures, hayfields, dry open uplands, and burned and cut-over forests. Special habitat requirements include open areas with short herbaceous vegetation and conspicuous singing perches (DeGraaf and Rudis, 1986).
- Osprey (*Pandion haliaetes*) – Osprey breed near large bodies of water, including rivers and lakes, that support abundant fish populations. Osprey typically construct their nest in tall dead trees, but also use rocky ledges, sand dunes, artificial platforms, and utility pole crossarms. Nests are placed in locations that are taller than adjacent areas, which provide vantage points.

### *Amphibians and Reptiles*

(See Habitat Associations of Amphibians and Reptiles listed above).

### Extirpated and Formerly Extirpated Species

The moose, elk, wolf, eastern cougar, Canada lynx, bald eagle, golden eagle, and peregrine falcon all inhabited the Adirondacks prior to European settlement. All of these species were extirpated from the Adirondacks, mostly as a result of habitat destruction during the nineteenth century. Unregulated harvest also leads to the decline of some species, such as moose, wolf, elk, beaver, American marten, and fisher. More recently, some birds fell victim to the widespread use of DDT.

Projects to re-establish the peregrine falcon, bald eagle, and Canada lynx have been implemented. A total of 83 Canada lynx were released into the Adirondack Park from 1989 to 1991 by the SUNY College of Environmental Science and Forestry as part of their Adirondack Wildlife Program. Lynx dispersed widely from the release area and mortality was high, especially mortality caused by vehicle-animal collisions. It is generally accepted that the lynx restoration effort was not successful and that there are no lynx from the initial releases or through natural reproduction of released animals remaining in the Adirondacks.



Lynx are legally protected as a game species with no open season as well as being listed as threatened on both the Federal and State level.

Efforts to reintroduce the peregrine falcon and the bald eagle through "hacking" programs began in 1981 and 1983, respectively. These projects have been remarkably successful within New York. Bald Eagles are becoming much more common, and Peregrines are recovering. Both species are now found in portions of the Adirondacks and are believed to be common residents within HMPA. Golden Eagles are generally considered to have always been rare breeders within the state.

The wolf and eastern cougar are still generally considered to be extirpated from NYS. Periodic sightings of cougars are reported from the Adirondacks, but the source of these individuals is believed to be from released captive individuals. Reports of timber wolves are generally considered to be misidentified coyotes, although there is some evidence to suggest that the Eastern coyote found in the Adirondacks may be a hybrid between the red wolf and coyote.

#### Invasive/Exotic Wildlife

As with plant species, these organisms do not occur naturally in New York State. While some species go relatively unnoticed (e.g., spiny water flea), other introductions such as the zebra mussel have caused great concern. There are no confirmed reports of zebra mussels in unit waters. Domestic canines and felines can also have an impact on native deer, rodents, and birds.

#### Other Fauna

Other, less known, members of the animal kingdom occur within the unit. Insects are the most notable and abundant form of animal life. Some species can cause human health concerns (e.g., Giardia, swimmer's itch) or are generally considered a nuisance (e.g., black flies, mosquitoes) to individuals that recreate in the area.

#### **c. Fisheries**

Fish communities in the Adirondacks are a result of geological and human influences. Prior to human influences relatively simple fish communities were common. Human-caused changes in habitat and introduction of fishes have altered those natural communities.

***Geological History***

The Fishes of the Adirondack Park, a DEC publication (August 1980) by Dr. Carl George of Union College, provides a summary of geological events which influenced the colonization of the Adirondack ecological zone by fishes. A limited number of cold tolerant, vagile, lacustrine species closely followed the retreat of the glaciers. Such species presumably had access to most Adirondack waters. Additional species gained access about 13,000 years BP (before present) when glacial Lake Albany, with a surface elevation of 350' above sea level, provided a colonizing route for Atlantean and eastern boreal species to southern and eastern portions of the Adirondacks. Barriers above that elevation would have excluded those species from interior portions of the Adirondacks.

By about 12,300 years BP, the Ontario lobe of the glacier had retreated sufficiently to allow species associated with the Mississippi drainage access to fringes of the Adirondacks via the Mohawk Valley and the St. Lawrence drainage including Lake Champlain. Lake Albany had apparently drained prior to that, as barriers had formed on the Lake George outlet.

The sequence of colonization routes to surrounding areas, combined with Adirondack topography, resulted in highly variable fish communities within the Adirondacks. In general, waters low in the watersheds would have the most diverse communities. The number of species present would have decreased progressing towards headwater, higher elevation sections. Chance and variability in habitat would have complicated the trends. Consequently, a diversity of fish communities, from no fish to monocultures to numerous species, occurred in various Adirondack waters.

Brook trout were particularly successful at colonizing the Adirondack region and thrived in the relative absence of competing and predacious fishes. George (1980) states: "Under primeval conditions, the brook trout was nearly ubiquitous in the Adirondacks. Its agility, great range in size and facility in rapidly flowing water allowed it to spread widely, perhaps even concurrently with the demise of the glaciers, thus explaining its presence in unstocked waters above currently impassable waterfalls." Brook trout were reported to be native to nearly all Adirondack waters according to Calvin's Report to the Commissioners of Fisheries, Game and Forests, 1902-1903. The 1932 Biological Survey of the Upper Hudson Watershed Report reiterated that "Above the 1000 foot contour line most Adirondack waters are naturally suited and were originally inhabited by brook trout."

Many Adirondack waters were originally inhabited by brook trout or brook trout in combination with only one or two other species as indicated by the following passage, also from the 1932 Biological Survey: "In the survey of the Upper Hudson drainage, 51 trout ponds were studied where the trout is found in company with only a few other species" (page 36). Ponds located upstream of natural fish barriers are likely to have historically contained very simple fish communities. In these circumstances brook trout would have been capable of maintaining themselves by natural spawning. Waters located downstream of natural barriers are likely to have had additional species of fish present. Many fishes that are "native" to the Adirondacks historically had relatively restricted ranges, limited to lower elevations below natural fish

barriers. Those fishes have been widely introduced to portions of the Adirondacks where they were not native. Such species are referred to as native but widely introduced (NBWI) fishes.

Watershed morphometry probably severely limited the diversity of fishes in the HMPA. The unit includes extreme headwater portions of the Lake Champlain Watershed and fish diversity is normally low in such headwater portions of watersheds (Hynes 1972). Topography would have made that lack of diversity particularly prominent. The single pond in the unit is at an elevation of about 860 m, and natural barriers to upstream fish migration (e.g. waterfalls) exist between the unit's waters and waters peripheral to the park. Barriers to upstream fish movement include Rainbow and Alice Falls on the Ausable River, and Wadhams Falls on the Boquet River. Other falls and extremely high gradient stream sections restrict fish movement up to the unit from both rivers.

Its headwater nature and the extreme gradients of streams draining the area would have caused low fish diversities in the HMPA relative to much of the Adirondacks. Furthermore, the Adirondacks in general had low fish diversities relative to surrounding lowland regions. Consequently, the unit historically supported particularly low diversities on a region-wide basis. Brook trout are very adept at colonizing such headwater areas and would probably have been in the unit historically. Also historic brook trout monocultures were most likely to have occurred in such headwater areas.

Approximately 300 years ago the influence of human cultures from the Old World initiated a period of rapid manipulation of the natural environment. Slightly more than 150 years ago, canal construction opened new migration routes for fishes into peripheral Adirondack areas. Commercial lumbering precipitated substantial impacts to natural ecosystems. Railroads and eventually roads were developed to support the tanning, lumbering and mining industries (George 1980). By the late 1880's exploitation of pristine fisheries combined with environmental degradation resulted in the decline of fish populations and stimulated early management efforts consisting primarily of stocking.

### ***Fish Community Changes***

A variety of nonnative species were distributed into the Adirondack uplands via stocking efforts described by George (1980) as "nearly maniacal". He notes that many species were " ... almost endlessly dumped upon the Adirondack upland." Nonnative species were introduced and the ranges of native species, which previously had limited distributions, were extended. The result has been a homogenization of fish communities. Certain native species, notably brook trout and round whitefish, have declined due to the introduction of other fishes. Other natives, brown bullhead and creek chubs, for example, are presently much more abundant than historically, having been spread to many waters where previously absent. Native species often were introduced concurrently with the nonnatives. NBWI fishes were stocked right along with the native fishes. NBWI introductions are just as unnatural as nonnative introductions, and due to the lack of early surveys, it is often unknown which NBWI fishes were actually native to a pond or stream section or if they have been introduced.

## ***Section II: Inventory, Use and Capacity to Withstand Use***

---

Consequently, fish populations in the majority of waters in today's Adirondack wilderness areas have been substantially altered by the activities of mankind. Indeed, of the 1,123 Adirondack ecological zone waters surveyed by the ALSC, 65% contained known nonnative species.

Detailed documentation of the historic fish communities is not available. Extensive fishery survey data was first collected in the 1930's, decades after the massive stockings and introductions of the late 1800's.

Reviewing work by Mathers from the 1880's and others, George (1980) has summarized what is known.

Appendix H presents information on species known to be native, NBWI, and nonnative. It should be noted that the native classification does not mean those species were found in every water or even in a majority of waters. For example, of 1,123 waters surveyed by the Adirondack Lakes Survey Corporation in the 1980's which contained fish, white suckers and northern redbelly dace were found respectively in 51 and 19 percent of the lakes. Such distributions, after a century of introductions, demonstrate that "native" does not necessarily imply a historically ubiquitous distribution. Barriers, high stream gradients, low stream fertilities, and rigorous climatic conditions following retreat of glaciers resulted in low species diversity for fishes in most Adirondack waters. Low diversity allowed the brook trout to occur in large areas of the Adirondack upland.

### ***Habitat Changes***

Natural reproduction by brook trout is also very sensitive to impacts from sedimentation caused, for example, by extensive logging, fires and other human activities. Due to their reproductive behavior, brook trout are among the most susceptible of all Adirondack fish fauna to the impacts of sedimentation. Brook trout spawn in the fall, burying their eggs in gravel. Flow must be maintained through the gravel, around the eggs, until hatching the following spring. Sand or fine sediments restrict flow around the eggs resulting in an inadequate supply of oxygen.

The long incubation period, the lack of care subsequent to egg deposition and burying of the eggs contribute to the brook trout's susceptibility to sedimentation. Most other Adirondack fishes are spring spawners, yielding short incubation periods, and do not bury their eggs. Various strategies further minimize vulnerability to sediments, such as eggs suspended from vegetation (e.g.. yellow perch, northern pike, and certain minnow species) and fanning the nest during incubation (e.g.. bullhead, pumpkinseed, smallmouth bass and largemouth bass). In general, the species less susceptible to sedimentation have thrived during the recent history of the Adirondacks.

### ***Acid Precipitation***

Recently acidic deposition has impacted the aquatic resources of the Adirondacks. The ALSC surveyed 1,469 Adirondack waters, 24 percent of which had pH levels less than 5.0 (Kretser et al. 1989). Historic data and water chemistry analysis demonstrates that many of those waters were historically

circumneutral and able to support fishes. Although less well studied, streams have also been impacted by acidification (Colquhoun 1984).

While acid deposition has affected all areas of the Adirondack Park, the available data indicates that it has had a minimal impact on the fisheries resources in the HMPA. The pH ranged from 6.93 to 7.06 on the single pond in the unit, well within the range considered desirable for most native aquatic species.

### ***Present status of fish communities in the HMPA***

#### Streams

Small, high gradient, headwater streams dominate the flowing waters of the HMPA. Those streams generally flow south and east to the Boquet River, or west to the East Branch Ausable River. Both rivers are tributary to Lake Champlain. Based on stream sampling conducted on some of the unit's tributaries (though not necessarily within unit itself), these streams support coldwater communities of fishes including: brown trout, brook trout, rainbow trout, landlocked Atlantic salmon, cutlips minnows, common shiners, blacknose dace, longnose dace, northern redbelly dace, creek chub, white sucker, slimy sculpin, pumpkinseed, fantail darter, tessellated darter, pearl dace, brown bullhead and brook stickleback. One of the unit's streams (Spruce Mill brook) is stocked, but only in stream sections well outside the unit's boundaries. An exception is that landlocked Atlantic salmon fry are stocked in some of the unit's Boquet River and East Branch Ausable tributaries such as Spruce Hill Brook, Jackson Brook, Falls Brook, Gulf Brook, and Spruce Mill Brook. Most of these stockings occur in stream sections located outside the unit, although some certainly occurs within the periphery of the unit's boundaries. After about two years in the streams, the salmon emigrate to Lake Champlain where they spend their adult lives. Waterfalls prevent salmon from returning from Lake Champlain to the streams in the unit.

#### Ponds

Survey data is available for the one pond in the HMPA, Lost Pond. Lost Pond currently appears to be fishless. Early fisheries management of Lost Pond consisted of seven individual stockings from 1898 to 1957 with species including rainbow trout, brook trout, and smallmouth bass. When the pond was first surveyed in 1975, only brown bullhead were captured. When the pond was next surveyed in 1984, no fish at all were collected. Because of its shallow maximum depth (3.0'), the pond may experience limiting high summertime water temperatures and/or low dissolved oxygen levels. It is also possible the pond freezes completely during severe winters.

**Conclusion**

Habitat changes, widespread introductions of nonnative fishes and broad dispersal of native fishes which historically had limited distributions have drastically altered the fish fauna of Adirondack waters.

Throughout the Adirondack Park, native species sensitive to competition and habitat changes have declined. Distribution of other natives and nonnatives has increased due to stocking. Within the HMPA, brook trout and other native species are maintained by natural reproduction that occurs in the unit's streams.

**3. Visual/Scenic Resources/Land Protection**

The HMPA is comprised primarily of mountainous uplands that are visible from the nearby hamlets of Keene, Lewis, and Elizabethtown; along with many other communities within the northern Champlain valley. The most prominent feature in the unit is the rocky summit of Hurricane Mountain. The fire tower on Hurricane Mountain, although only 35 feet tall, clearly stands out on this summit making Hurricane Mountain easy to distinguish from many mountaintops in the region. Hurricane Crag, a large cliff on the southern shoulder of Pitchoff Mountain, provides a dramatic view for those traveling on Route 9N between Elizabethtown and Keene.

Most of the summits in the HMPA provide vantage points ranging from small openings and rock outcrops (Limekiln Mtn.) to 360 degree panoramas (Hurricane Mtn). The viewshed from the HMPA includes the Giant, Dix, and High Peaks Wilderness Areas to the south; the Sentinel Range Wilderness Area and Whiteface Mountain to the west; The Jay Mountain Wilderness Area and the Chazy Highlands to the north; and the Champlain valley and Green Mountains of Vermont to the east.

The summit of Hurricane Mountain has been designated as a Special Management Area by the Adirondack Park Agency in recognition of its outstanding scenic qualities.

**4. Critical Habitat**

Deer Wintering Areas

The maintenance and protection of deer wintering areas (or deer yards) are important in maintaining northern deer populations. These areas provide deer with relief from the energetic demands of deep snow and cold temperatures at a time when limited fat reserves are being used to offset reduced energy intake (i.e., nutritionally, winter browse is poor). Previous researchers have demonstrated that deer consistently choose wintering areas which provide relief from environmental extremes over areas that may provide more abundant forage (Severinghaus, 1953; Verme, 1965). These observations are consistent with the fact that the nutritional value of winter browse is poor due to low digestibility and

that deer can expend more energy obtaining browse than the energy gained by its consumption (Mautz, 1978).

Severinghaus (1953) outlined several habitat components of deer yards, including topography and forest cover type (i.e., presence of conifers). The most important characteristic of an Adirondack deer yard is the habitat configuration making up a “core” and travel corridors to and from the core. The core is typically an area, or areas, of dense conifer cover used by deer during severe winter weather conditions. Travel corridors are dense but narrow components which allow access to food resources (hardwood browse) in milder conditions. Use of wintering areas by deer can vary over time depending on winter severity and deer population density. Although Severinghaus (1953) reported that some Adirondack deer yards have been used since the early 1800's, recent research suggests that the location of some current deer yards may overlap very little (or not at all) with their historical counterparts mapped in the late 1960's and early 1970's by the Department (Hurst, 2004). Therefore, planning for the protection of deer wintering areas relative to recreational activities in the unit should consider the dynamic nature of these areas (not the static representation of historical boundaries) and seek to update our understanding of wintering areas currently used by deer.

#### Historical and Potential Deer Wintering Habitat

A small historical deer yard exists at the end of Hurricane Road; however, most of this deer yard may occur on private land (E. Reed, NYSDEC, unpublished data). A GIS model of potential deer wintering habitat was recently developed for the Adirondacks (S. McNulty, Adirondack Ecological Center, unpublished data). While this model is a working draft, initial results suggest very limited areas of potential deer wintering habitat within the unit. Areas identified as suitable habitat include small sections of the southern portion of HMPA.

#### Guidelines for Protection of Deer Wintering Areas

Research on wildlife responses to winter recreation (e.g., cross-country skiing, foot travel, and snowmobiling) is limited. Studies conducted on mule deer (Freddy et al., 1986) and elk (Cassirer et al., 1992) suggest that these species can be disturbed by these activities. However, when planning the location of recreational trails, general guidelines for protecting deer wintering areas can be followed which should reduce the potential for disturbance.

Activities which substantially diminish the quality or characteristics of the site should be avoided, but this does not mean human use is always detrimental. Pass through trails, and other recreational uses can be compatible with deer wintering areas if they are carefully considered. Recreational planning which affords protection of core sections and avoids fragmenting travel corridors are acceptable in many situations. Certain types of recreation such as cross-country skiing are not presently considered to significantly impact deer yards in an overall negative way, particularly if the traffic along trails is not prone to stopping or off-trail excursions. These types of trails in or adjacent to deer wintering areas can provide a firm, packed surface readily used by deer for travel during periods of deep snow. They can also

## ***Section II: Inventory, Use and Capacity to Withstand Use***

---

create access for free-roaming dogs if the location is close to human habitation; thus, trails should avoid deer yards in these situations. High levels of cross-country ski use can increase the energy demands of deer within the yard due to increased movement.

In summary, general guidelines for protecting deer wintering areas include:

- Within travel corridors between core wintering areas, avoid placement of trails within a 100 foot buffer on either side of streams,
- Avoid placement of trails through core segments of deer yards to reduce disturbance associated with users stopping to observe deer,
- Trails should not traverse core segments of deer yards in areas adjacent to densely populated areas such as hamlets, villages, or along roadsides developed with human habitation because they provide access to free roaming dogs,
- In areas with nearby human habitation, avoid land uses which result in remnant trails, roadways or other access lanes which facilitate accessibility to free-roaming dogs.

### Peregrine Falcon Nesting Areas

Peregrine Falcons, an endangered species in New York State, nest on cliffs in the Adirondack region. Peregrine Falcons were documented in HMPA during both Breeding Bird Atlas projects and Hurricane Crag was one of the hack locations when Peregrine Falcons were reintroduced to the Adirondacks. An active nest was located in this area from 1988-1994, but has been inactive since 1995 (J. Racette, NYSDEC, personal communication).

The population of Peregrine Falcons has steadily grown in the state due to a successful hacking program initiated by the Department in this region in the late 1970s. Peregrines first mate when they are 1 to 3 years old, building nests on high cliff ledges 20 to 200 feet off the ground. The same nesting ledge, called an eyrie, may be used year after year. The female lays 3 to 5 eggs in a nest, called a scrape, which consists of a shallow depression in the gravel found on the ledge. These eyries are aggressively protected against predators, and humans, by both the male and female peregrine. The young hatch after a 28 to 33 day incubation period. Each chick will stay in and about the nest until it fledges at 35 to 45 days of age. Young will stay with the parents for a few more weeks to perfect their flying and hunting skills. As cooler weather approaches, peregrines begin to migrate south. In the spring, peregrines have a tendency to return to the same region from which they fledged.

### Peregrine Falcons and Rock Climbers

Human disturbances, such as rock climbing on cliffs containing eyries, can be a potential problem to nesting Peregrines. Human disturbance within the territory of a breeding pair may result in nest



abandonment and/or death of any young. Rock climbing routes with known peregrine falcon nesting sites are monitored by the Department annually throughout the Adirondacks. Rock climbing routes with active nest sites are temporarily closed to prevent any disturbances that might interfere with the successful raising of the young peregrine falcons. The closure of climbing routes is based on a number of factors, including the route's proximity to a nesting site, observations of alarm behavior by the nesting falcons, and professional judgement by Department staff. The specific areas of the cliff that are closed to rock climbing represent a balance between the recreational interests of climbers and the need to protect the breeding and nesting activities of this endangered species. The department's priority is protecting an endangered species; however, attempts are made to maximize the opportunities for climbing at the same time. This is the reason why individual rock climbing routes are closed rather than entire cliffs. While there are currently no conflicts with rock climbers and Peregrine Falcons in HMPA, the Department can implement appropriate management actions in the future if necessary.

In summary, the Department stresses the following points to Adirondack rock climbers:

- Peregrine Falcons are an endangered species and are protected under state and federal law,
- Human disturbance within the territory of a breeding pair may result in nest abandonment and/or death of any young,
- Certain rock climbing routes are closed and illegal to climb during the breeding season, and
- Falcons are very territorial and will utilize their razor sharp talons in defense of their domain, including attacks on humans.

Rare communities and plant species that have been identified by the Natural Heritage Program are identified in Appendix C.

## ***B. Man-Made Facilities***

The HMPA has relatively few developed facilities compared with nearby wilderness areas such as the High Peaks Wilderness Area. The unit is served by approximately 13.7 miles of trails and has 2 lean-tos and 4 designated campsites.

A complete inventory of trails, campsites and other maintained facilities within the HMPA is provided in Appendix A.

## **C. Past Influences**

### **1. Cultural**

The Adirondack region has been an important part of the cultural heritage of New York State. The area has a pristine beauty due to its deep forests, abundant lakes, streams and waterfalls, majestic mountains and the assortment of fish, wildlife and plant communities that abound within its borders. Although use in some portions of the Adirondacks has been a problem, the area in general continues to reflect a wilderness quality. This quality provides the unique opportunity for visitors to better appreciate the delicate ecological balance of life. Preservation of this wilderness was a major contribution to the conservation movement of our country. The Adirondacks have also provided a spiritual uplift for many generations of New Yorkers and countless others by allowing its visitors to experience tranquility and solitude in such a magnificent natural setting.

Many writers, painters, and philosophers have also been inspired by the Adirondack region. Early writers such as The Reverend H. H. Murray wrote of their travels through the Adirondacks and the unspoiled nature, and recreational opportunities that abounded in this area. Early Adirondack painters also focused on the wild and awesome scenery of the region. Famous members of the Hudson River School of painting such as Thomas Cole and Asher B. Durand painted in the area in the mid to late 1800s.

Asher B. Durand came to the Adirondacks in 1848 to paint the local landscape. While in Elizabethtown he described the mountain scenery as: “superior to any I have met with in this country” (Asher Durand to his son John, 27 June 1848. From Plunz, 1999). Amongst this mountain scenery described by Durand was a magnificent view of Hurricane Mountain which he featured in a landscape painting appropriately titled “Hurricane Mountain.”

By the late 1800s, the town of Keene had become popular with many prominent philosophers and intellectuals. Noted summer residents and guests included William James, John Dewey, Felix Adler, Sigmund Freud and Carl Jung. In 1890, Thomas Davidson, considered to be one of the most learned men of his generation (Plunz, 1999; Bailey, 1980), founded the Glenmore School of Cultural Sciences on East Hill. The school was an alternative learning institution that focused on improving society through intellectual evolution. Lectures were given by noted thinkers of the time including James, Dewey and Adler, (mentioned above). Davidson was known to take long walks in the woods and mountains around Glenmore (areas that are now part of the HMPA). One of the earlier trails to Hurricane Mountain originated at the Glenmore School.

### **2. Archeological and Historic Resources**

The term ‘cultural resources’ encompasses a number of categories of human created resources including structures, archaeological sites and related artifacts. The Department is required by the New York State Historic Preservation Act (SHPA) (Parks, Recreation and Historic Preservation Law [PRHPL], Article 14) and

the State Environmental Quality Review Act (SEQRA) (ECL Article 8) to include such resources in the range of environmental values that are managed on public lands. The Adirondack Forest Preserve was listed as a National Historic Landmark by the National Park Service in 1963. This designation also results in automatic listing in the State and National Registers of Historic Places.

Within the Forest Preserve, the number of standing structures in general, is limited due to the requirements of the APSLMP. Often those that remain are structures that relate to the Department's land management activities such as fire towers, "ranger" cabins and related resources. Fire towers as a class of resources have been the subject of considerable public interest over the last decade. The majority of surviving fire towers have been found eligible for inclusion in the State and National Registers of Historic Places and a number of towers were formally listed in the Registers in recent years. For state agencies, Register listing or eligibility are effectively the same; obligating the Department to treat these resources appropriately and requiring that special procedures be followed should it be necessary to remove or otherwise affect these resources. This formal listing is in addition to the SHPA Memorandum of Agreement relating to fire towers that the Department signed with OPRHP in 1994 (see Appendix N). This agreement commits the Department to taking affirmative steps to facilitate the preservation of historic fire towers in those Forest Preserve Land Classifications where the Master Plan permits them, and allows for the removal of fire towers from Forest Preserve land classifications where they are considered non-conforming structures.

The Hurricane Mountain Fire Tower has been listed on the National Register of Historic Places and the National Historic Lookout Register. Under the aforementioned memorandum of agreement, the Hurricane Fire Tower was identified for removal. See the Non-conforming Uses/Fire Tower discussion in Section IV of this plan for more on this topic.

Archaeological sites are, simply put, any location where materials (artifacts, ecofacts) or modifications to the landscape reveal evidence of past human activity. This includes a wide range of resources ranging from pre-contact Native American camps and villages to Euro-American homesteads and industrial sites. Such sites can be entirely subsurface or can contain above ground remains such as foundation walls or earthwork features.

As a part of the inventory effort associated with the development of this plan the Department arranged for the archaeological site inventories maintained by the New York State Museum and the Office of Parks, Recreation and Historic Preservation to be searched in order to identify known archaeological resources that might be located within or near the unit. The two inventories overlap to an extent but do not entirely duplicate one another. The purpose of this effort was to identify any known sites that might be affected by actions proposed within the unit and to assist in understanding and characterizing past human use and occupation of the unit.

The quality of the site inventory information varies a great deal in all respects. Very little systematic archaeological survey has been undertaken in New York State and especially in the Adirondack region. Therefore all current inventories must be considered incomplete. Even fewer sites have been investigated

***Section II: Inventory, Use and Capacity to Withstand Use***

---

to any degree that would permit their significance to be evaluated. Many reported site locations result from 19th century antiquarian information, artifact collector reports that have not been field verified. Often very little is known about the age, function or size of these sites. This means that reported site locations can be unreliable or be polygons that encompass a large area. Should systematic archaeological inventory be undertaken at some point in the future it is very likely that additional resources will be identified. The results of these site file checks are presented in Table 1.

**Table 1: Known Archaeological Sites in the Vicinity of the Hurricane Mountain Primitive Area**

<b>Quad</b>	<b>Site Type</b>	<b>Description</b>
Lake Placid	Mine	Iron Mine and Separator Pits.  In use ca.1897.
Au Sable Forks	Dwelling	Site of John Dewey's summer cottage, built c. 1890 adjacent to the Glenmore School of Cultural Sciences on East Hill.
Lake Placid	School	Site of Alstead Hill School House. Built Pre 1858.
Lake Placid	Industrial: Forge	Hull's Falls Forge  No further information.
Lake Placid	Industrial: Forge	Keene Forge  No further information.
Lake Placid	Transportation:	Horse scale  Concrete foundation.
Lake Placid	No Information	Concrete Foundation
Lake Placid	Prehistoric/Transitional	Rock shelter
Lake Placid	Prehistoric/Early Archaic - Early Woodland(?)	No further information.
Lake Placid	Prehistoric/Late Archaic	No further information.
Lake Placid	Prehistoric/(?)	No further information.
Lake Placid	Prehistoric/Middle Archaic	No further information.
Elizabethtown	Prehistoric/Late Archaic - Early Woodland(?)	No further information.
Elizabethtown	Prehistoric/Middle and Late Woodland(?)	No further information.

## ***D. Public Use***

### **1. Land Resources**

Public access to the HMPA is free and relatively unregulated. Public use is permitted to the extent that it does not degrade the physical, biological, and social characteristics of the area. The “minimum tool” concept is used to manage public use and achieve management objectives, using indirect methods when possible (i.e., limiting parking), and direct methods when necessary (e.g., promulgating regulations).

Known uses of the unit include hiking, hunting, trapping, rock climbing, and cross country skiing. Camping also occurs in the unit, and the lean-tos and designated tent sites are popular with families, summer camps, and other groups.

Recreational use is difficult to measure. There are only three developed trail heads in the HMPA, however the general public can enter the unit at various other locations. Hikers and hunters are known to enter the unit from Route 9N at the southern boundary of the unit, and along the Jay Mountain Road at the northern boundary of the unit. In addition, Rock climbers access the Hurricane Crag from Route 9N, and people hiking to Little Crow Mountain can access the unit from a trail that originates on private property off of Hurricane Road in Keene.

User data has been collected from trail registers at all three trailheads in the unit. At the Crow Clearing and Route 9N trailheads, register data is complete back to the year 2000, while at the Elizabethtown trailhead, register data has only been collected since December, 2004. It is recognized that this data is not a complete record of recreational use in the unit, but it is still believed to be indicative of overall user numbers and trends for the period that it was collected. Analysis of user data has lead to the following conclusions:

Use of the HMPA is primarily day use. Less than ten percent of all users (7% actual) in the unit are overnight users.

- Hurricane 9N trailhead – 2% of all users are overnight users. (Based on 2000-2005, 2007 and 2008 average)
- Crow Clearing trailhead – 13% of all users are overnight users. (Based on 2000-2008 average)
- Elizabethtown Trailhead – 3% of all users are overnight users. (Based on 2005, 2007 and 2008 average)

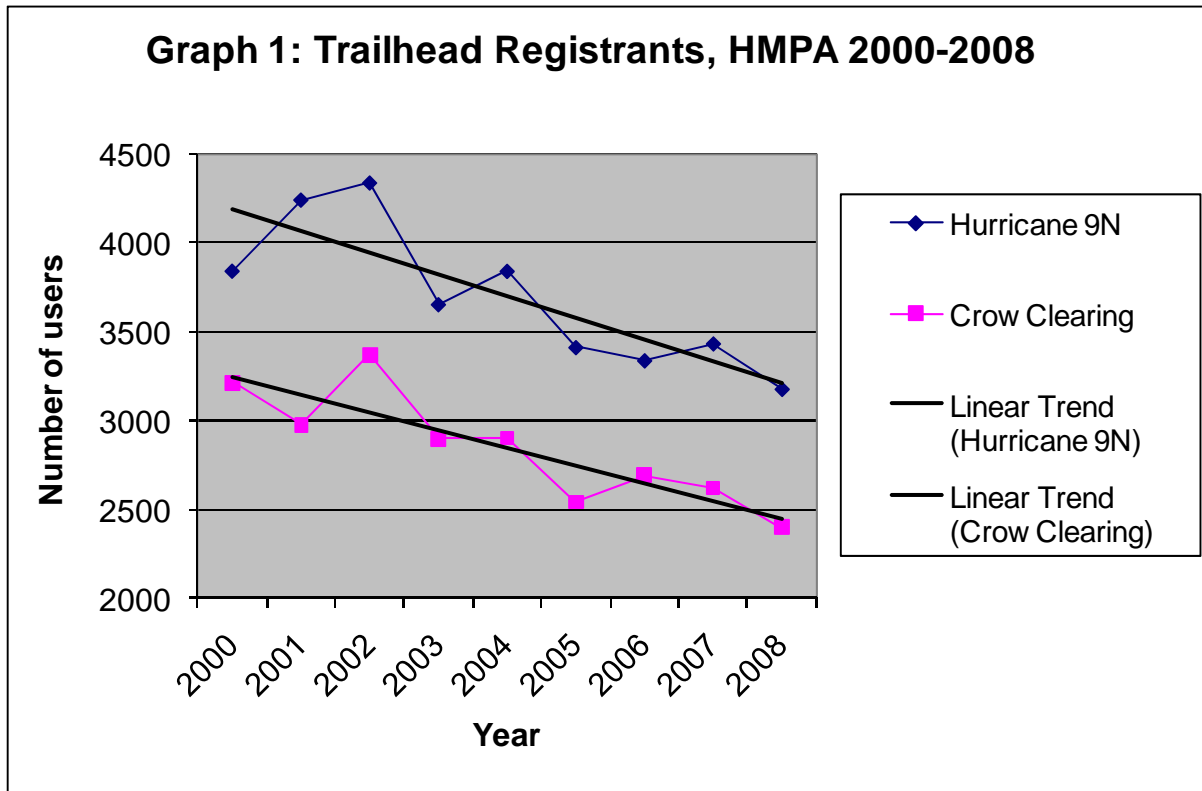
Use of the HMPA is greatest in summer and fall, coinciding with school vacations, and popular holidays. The months of July, August, September, and October see the highest use levels.

Although there has been fluctuation in the number of users in the HMPA from year to year, the total number of users has been trending downwards for the period of 2000-2008 (see Table1, and Graph 1). User trends have been based on linear regression, and are represented as the “Linear Trend” lines in Graph 1.

- User numbers at the Hurricane 9N trailhead were 17% lower in 2008 than they were in 2000.
- User numbers at the Crow Clearing trailhead were 25% lower in 2008 than they were in 2000.
- The greatest number of users at both the Crow Clearing, and Hurricane 9N Trailheads occurred in 2002. Subsequently, 2002 was the year with the greatest number of users unit-wide.
- The Lowest number of users at both the Crow Clearing, and Hurricane 9N Trailheads occurred in 2008. Subsequently, 2008 was the year with the lowest number of users unit-wide.

**Table 2: Trailhead Registrations, HMPA**

Trailhead	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Hurricane 9N</b>	3,843	4,242	4,338	3,655	3,842	3,414	3,340	3,435	3,180
<b>Crow Clearing</b>	3,214	2,977	3,368	2,897	2,899	2,542	2,691	2,620	2,400
<b>Crows Trail</b>	NA	NA	NA	NA	NA	NA	NA	1,565	1,574
<b>Hurricane Road, Elizabethtown</b>	NA	NA	NA	NA	NA	334	366	416	406
<b>Total Registrants</b>	<b>7,057</b>	<b>7,605</b>	<b>7,706</b>	<b>6,552</b>	<b>6,741</b>	<b>5,847</b>	<b>6,031</b>	<b>6,055</b>	<b>5,580</b>
<b>(Hurricane 9N and Crow Clearing trailheads only)</b>									
<b>Total Registrants</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>6,181</b>	<b>6,397</b>	<b>8,036</b>	<b>7,560</b>
<b>(All Trailheads)</b>									



Group size data has been measured by breaking user groups into four size classes: 1-5, 6-10, 11-15, and 16 or more individuals. The following group size trends have been noted:

- Small groups (1-5 individuals) are by far the most common group size in the unit, representing approximately ninety percent of all groups for each year from 2000 - 2005 (See Table 3).
- Use by large groups (16 or more individuals) represents less than one percent of all groups for each year from 2000 - 2005 (See Table 3).
- The total number of large groups that use the unit averages 10 per year (based on 2000 - 2005 average)(See Table 4).
- The highest number of large groups (14) was seen in 2004 (See Table 4).
- The lowest number of large groups (4) was seen in 2005 (See Table 4).



Table 3: Percentage\* of Parties Based on Group Size, HMPA

Trailhead	Group size	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 2000 - 2005
<b>Hurricane 9N</b>	1 - 5	92	92	92	91	91	92	NA	93	93	92
	6 - 10	6	6	6	6	6	6	NA	5	5	6
	11 - 15	1	2	2	2	1	2	NA	2	2	2
	16 +	1	0	0	1	1	0	NA	0	0	0
<b>Crow Clearing</b>	1 - 5	89	91	90	90	90	91	90	91	92	90
	6 - 10	8	7	9	8	8	8	8	6	7	8
	11 - 15	3	2	1	2	2	1	2	2	1	2
	16+	0	0	0	0	0	0	0	1	0	0
<b>Hurricane Road, Elizabethtown</b>	1 - 5	NA	NA	NA	NA	NA	96	NA	94	96	95
	6 - 10	NA	NA	NA	NA	NA	4	NA	4	3	4
	11 - 15	NA	NA	NA	NA	NA	0	NA	1	1	1
	16+	NA	NA	NA	NA	NA	0	NA	1	0	0

\*Percentages rounded to the nearest whole number.

**Section II: Inventory, Use and Capacity to Withstand Use**

**Table 4: Number of Parties Based on Group Size, HMPA**

Trailhead	Group size	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 2000 - 2005
<b>Hurricane 9N</b>	1 - 5	1,289	1,442	1,457	1,264	1,209	1,179	NA	1,213	1,182	1,279
	6 - 10	84	92	93	82	81	72	NA	60	70	79
	11 - 15	20	26	23	25	22	25	NA	25	27	24
	16+	7	8	7	9	8	4	NA	2	1	6
<b>Crow Clearing</b>	1 - 5	993	996	1,056	991	986	873	903	1,002	829	959
	6 - 10	91	79	106	83	89	74	78	55	61	80
	11 - 15	31	23	15	25	18	13	18	17	10	19
	16+	5	2	3	1	6	0	1	6	0	3
<b>Hurricane Road, Elizabethtown</b>	1 - 5	NA	NA	NA	NA	NA	143	NA	160	173	157
	6 - 10	NA	NA	NA	NA	NA	5	NA	7	5	6
	11 - 15	NA	NA	NA	NA	NA	0	NA	2	2	1
	16+	NA	NA	NA	NA	NA	0	NA	1	0	0

Projecting future use of the HMPA is difficult. Economic, social and political changes can all affect use patterns in the Adirondacks. Economic changes have the potential to affect annual use of the area as much as weather patterns. When the national or regional economy takes a down turn people tend to take less expensive vacations closer to home. The proximity of the Adirondack region to major eastern metropolitan centers makes primitive camping an attractive alternative. However, if the price of gasoline continues to increase, people may be less likely to drive to the Adirondacks from areas such as New York City. Tougher border crossing restrictions could also decrease the number of Canadian visitors to the region. Other factors, such as the aging of the baby-boomer generation may reduce the overall population interested in primitive backcountry recreation activities as well.

Other trends such as a shift in user activities may change use patterns independently from user numbers. Uncertainty in the future underscores the importance of monitoring the use and health of the Forest Preserve so that adverse impacts can be identified and addressed early.

## **2. Wildlife**

Data regarding the amount of public use of the wildlife resource within HMPA are not available. A variety of wildlife recreation uses occur on the unit, including: hunting, trapping, hiking, bird watching, and wildlife photography. Past studies by the Department indicate that few sportsmen sign-in at trailhead registers. This, combined with the fact that many hunters and trappers traditionally bush whack, and use unmarked trails and watercourses to enter State lands, prevents an accurate estimate of total visitor use. Information regarding non-consumptive use of wildlife is also lacking. For the most part, observations of wildlife enhance the recreational experience of the general public. Recreational use tends to be heaviest near towns, roads, and access points. With the exception of the more readily accessible areas (e.g., Route 9N, Glen Road), the majority of the unit probably is not heavily used by sportsmen during the hunting and trapping seasons.

A number of mammals and birds may be hunted or trapped during seasons set annually by the Department. These species are identified in the ECL, Section 11-0903 and 11-0908. The Department has the authority to set hunting and trapping season dates and bag limits by regulation for all game species. White-tailed deer and bear may be taken during archery, muzzleloading, and regular seasons. Antlerless deer harvest is prohibited during the regular firearm season but may be permitted during the archery and muzzleloading seasons. In addition, there is an early season for black bear.

Small game hunters may take certain waterfowl, woodcock, snipe, rail, crow, ruffed grouse, wild turkey, coyote, bobcat, raccoon, red fox, gray fox, weasel, skunk, varying hare, cottontail rabbit and gray squirrel. Muskrat, beaver, weasel, river otter, mink, fisher, American marten, skunk, raccoon, coyote, red fox, gray fox, and bobcat may also be trapped.

Harvest statistics are generated and compiled by the Department using an automated licensing and reporting system (DECALS) for deer, bear, coyote, and turkey and a pelt sealing system for beaver, river

## ***Section II: Inventory, Use and Capacity to Withstand Use***

---

otter, fisher, American marten, and bobcat. Harvest information is reported by township, county, and Wildlife Management Unit (WMU). Since harvest information is not collected on a Forest Preserve unit basis and harvest distribution is not evenly distributed across the landscape, harvest data by town are generally not representative of the actual harvest within units. Types and levels of non-consumptive uses of wildlife within HMPA have not been determined.

### ***Potential Impacts***

The impact of public use on most wildlife species within the unit is unknown. Wildlife species that can be vulnerable to disturbance associated with public recreational activity include:

#### Non-game Species:

Peregrine Falcon: See Critical Habitat section.

#### Game Species:

Impacts appear to be minimal for those game species that are monitored. The Department's Bureau of Wildlife monitors the populations of game species partly by compiling and analyzing harvest statistics, thereby determining levels of consumptive wildlife use. Several recent legislative changes have occurred that likely have had impacts on use of the area by hunters. Both hunting of bears by using bait and by using dogs have been prohibited, probably lowering use by bear hunters. Use by deer hunters probably has increased because of two legislative changes, one allowing successful archers to purchase a second tag for use during the regular firearms season and similar legislation allowing successful muzzleloader hunters the same privilege. Harvest statistics are compiled by town, county and wildlife management unit. Regular season deer regulations (bucks only) for this area result in limited impacts to the reproductive capacity of the deer population. Overall, deer populations within the unit are capable of withstanding current and anticipated levels of consumptive use.

An analysis of black bear harvest figures, along with a study of the age composition of harvested bears, indicates that hunting has little impact on the reproductive capacity of the bear population. Under existing regulations, the unit's bear population is capable of withstanding current and anticipated levels of consumptive use.

The coyote, varying hare, and ruffed grouse are widely distributed and fairly abundant throughout the Adirondack environment. Hunting and/or trapping pressure on these species is relatively light. Under current regulations, these species undoubtedly are capable of withstanding current and anticipated levels of consumptive use.

While detrimental impacts to game populations over a large area are unlikely, wildlife biologists continually monitor furbearer harvests, with special attention to beaver, river otter, bobcat, fisher, and

American marten. These species can be susceptible to overharvest to a degree directly related to market demand for their pelts as well as a variety of other economic and environmental factors. The Department's Bureau of Wildlife closely monitors furbearer harvest by requiring trappers to have the pelts of beaver, bobcat, fisher, American marten, and river otter sealed by Department staff. Additionally, biological samples are required for all trapped martens, which biologists use to closely monitor the harvest. Specific regulations are changed when necessary to protect furbearer populations.

### ***Other Impacts***

Water fluctuations can have a significant impact on nesting activity of loons, marsh birds, and waterfowl and can also have a negative impact on furbearers such as muskrats and beaver. The maintenance and protection of winter deer yards remains a concern of wildlife managers, particularly in the Adirondacks, as they fulfill a critical component of the seasonal habitat requirements of white-tailed deer. Few data are available on the impacts of cross-country ski trails and foot travel during winter on deer use of wintering areas.

## **3. Fisheries**

Quantitative angler use estimates and their economic impact for the HMPA are not available. Fishing pressure on the unit's streams is probably very light. Lost Pond is the unit's only ponded water and it is fishless.

DEC angling regulations are designed to conserve fish populations in individual waters by preventing over-exploitation. When necessary, populations of coldwater gamefishes are maintained or augmented by DEC's annual stocking program. Most warmwater species (smallmouth bass, largemouth bass, northern pike and panfishes) are maintained by natural reproduction; however, stocking is sometimes used to introduce those fishes to waters where they do not exist.

Under existing angling regulations, the fish populations are capable of withstanding current and anticipated levels of angler use.

DEC monitors the effectiveness of angling regulations, stocking policies, and other management activities by conducting periodic biological and chemical surveys. Based on analysis of biological survey results, angling regulations may be changed as necessary to protect the fish populations. Statewide angling and special angling regulations provide the protection necessary to sustain or enhance natural reproduction where it occurs.

## **4. Water Resources**

The predominant recreational use of the water resources in the HMPA is for aesthetic purposes and a source of water for camping. There is a lack of large ponds, lakes and navigable waterways in the unit. All camping sites and lean-tos in the unit are found adjacent to streams or other water sources.

## ***E. Recreational Opportunities for Persons with Disabilities***

The Federal Americans with Disabilities Act of 1990 (ADA) along with the Architectural Barriers Act of 1968 (ABA) and the Rehabilitation Act of 1973, have important implications for the management of all public lands, including the HMPA. An explanation of the ADA and its influence on management actions is provided under Section III, B; Management Guidelines.

Past management of the HMPA has not focused on provision of access for people with disabilities. Slopes and other terrain constraints make most of the unit difficult to access. Exposed roots, rocks and other natural barriers also limit access. The primitive nature of Wilderness coupled with APSLMP guidelines that Wilderness be “without significant improvement,” and “generally appears to be affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable” severely limits what forms of interior modification can be undertaken. The APSLMP provides for limited development along the periphery of the unit. These areas remain the most likely candidates for development of accessible facilities.

Two trails within the unit are currently on old roads and may be passable by persons with mobility impairments. Also, there is a seasonally maintained town road on the northern boundary of the unit that offers opportunities for wildlife and nature viewing from a vehicle.

- **Gulf Brook Trail:** The trail to the Gulf Brook Lean-to has not been evaluated for its accessibility, but it is an old forest road whose surface is firm and fairly level. Obstacles along the trail include a wooden plank bridge (without a railing), approximately two feet wide, at the beginning of the trail; water diversions, short sections with moderately steep grades, rocks, and several small stream gullies that cross the trail.
- **Elizabethtown Trail to Hurricane Mountain:** The first 1.2 miles of this trail follow the old road to the fire observer’s cabin (the cabin has been removed). The trail is fairly level and the grade is moderate for the first half a mile, and increasingly steeper after that. Obstacles along the trail include water diversions, short sections with moderately steep grades, rocks, loose surfaces, and shallow erosion channels.
- **Jay Mountain/Wells Hill Road:** The road that forms the common boundary between the HMPA and the Jay Mountain Wilderness Area provides an opportunity for individuals to observe nature

from their vehicle. This little used forest road allows individuals to be very close to nature while still in their vehicles. Views from the road include heavily forested areas, beaver meadows and some mountains. High clearance, 4-wheel drive vehicles are recommended for travel on this road. This road is not maintained in winter but is open to snowmobiling.

## *F. Education, Interpretation and Research*

Education, interpretation or research projects on state owned lands require a temporary revocable permit (TRP) pursuant to ECL §9-0105(15), unless the project is carried out by the DEC. Each request or application for such a permit is considered separately giving consideration to the limitations of the area and consistency with the management goals and objectives for the lands involved. Permits will not be issued for any project or purpose that is inconsistent with Article XIV, Section 1 of the New York State Constitution; any statute, rules or regulation, or the APSLMP guidelines which are applicable for wilderness or primitive areas. Such permits may be denied, revoked, or suspended by the Department at any time.

Research activities that are occurring in or adjacent to the HMPA include:

- Adirondack Park Invasive Plant Program (APIPP) - The mission of this program is to document invasive plant distributions and to advance measures to protect and restore native ecosystems in the Park through partnerships with Adirondack residents and institutions. Partner organizations operating under a Memorandum of Understanding (MOU) are the Adirondack Nature Conservancy, Department of Environmental Conservation, Adirondack Park Agency, Department of Transportation, and Invasive Plant Council of NYS. The APIPP summarizes known distributions of invasive plants in the Adirondack Park and provides this information to residents and professionals alike.
- USDA Forest Service, Forest Inventory and Analysis Program - This program is the nation's forest census. It reports on status and trends in forest area and location; in the species, size, and health of trees; in total tree growth, mortality, and removals by harvest (on private land); in wood production and utilization rates by various products; and in forest land ownership. The program includes information relating to tree crown condition, lichen community composition, soils, ozone indicator plants, complete vegetative diversity, and coarse woody debris. Additional information on the program can be found at <http://www.fia.fs.fed.us>.
- Adirondack Lakes Survey Corporation (ALSC) - The ALSC is a not-for-profit corporation established through a cooperative agreement between the Empire State Electric Energy Research Corporation and the NYS DEC. The ALSCs mission is to determine the extent and magnitude of acidification of lakes and ponds in the Adirondack region. <http://www.adirondacklakessurvey.org/index.html>

## ***G. Relationship between Public and Private Land***

The HMPA is surrounded primarily by forested private lands and by other Forest Preserve units. The lack of development on most of the adjoining lands helps to maintain the wilderness character of the unit. The Jay Mountain/Well’s Hill Road forms the common boundary between the HMPA and the Jay Mountain Wilderness Area for approximately two and a half miles in the northeastern portion of the unit, while in the south, Route 9N forms the common boundary between the HMPA and the Giant Mountain Wilderness Area for approximately two miles. The HMPA, along with the Dix Mountain, Giant Mountain, and Jay Mountain Wilderness areas; forms a 27 mile long corridor of wilderness that is crossed by only three roads. This north south corridor runs along the eastern edge of the high peaks region, and covers approximately 90,000 acres.

The constitutionally protected wildlands of the HMPA preserve the wild character of the area which is the viewshed for many surrounding towns, especially the towns of Keene and Elizabethtown. Having views of the mountains and forests of the HMPA can increase property values, as can having property adjacent to State land, or near trailheads.

Table 1 provides an estimate of the real property taxes that were paid by New York State based on the 2007 Assessment Roll for the towns of Elizabethtown, Jay, Keene, and Lewis. These values were calculated by the Office of Real Property Services using the 2007 approved assessments, and that year’s tax rates. Note that these values are for all Forest Preserve lands in the towns listed; this includes Forest Preserve units other than the HMPA

**Table 1: Tax Payments for all Forest Preserve Lands in the Towns of Elizabethtown, Jay, Keene, and Lewis, in Essex County, 2007.**

<b>Town</b>	<b>Forest Preserve Acreage</b>	<b>County Taxes Paid</b>	<b>Town/Village Taxes Paid</b>	<b>School Taxes Paid</b>	<b>Special District Taxes</b>	<b>Total Taxes Paid</b>
<b>Elizabethtown</b>	27,895	\$34,817	\$70,469	\$208,224	\$11,451	\$324,961
<b>Jay</b>	7,658	\$8,867	\$26,217	\$63,648	\$7,863	\$106,595
<b>Keene</b>	75,637	\$248,133	\$346,305	\$1,016,409	\$74,454	\$1,685,301
<b>Lewis</b>	10,937	\$10,878	\$23,381	\$65,060	\$3,571	\$102,890
<b>Totals</b>	122,127	\$302,695	\$466,372	\$1,353,341	\$97,339	\$2,219,747



## ***H. Capacity to Withstand Use***

In general, the level of human use of the HMPA does not appear to significantly impact the natural resources of the unit beyond its capacity to withstand recreational use. The unit exhibits few of the overuse problems experienced in the nearby Eastern Management Zone of the High Peaks Wilderness Area. This is likely due, in large part, to the smaller geographic area of the unit and the lesser number of primary attraction points (summits, lakes ponds, interior structures). Much of the visitor use appears to be either day trips or short-term overnights. High levels of soil erosion and compaction are evident mainly on the most popular trails, those approaching Hurricane Mountain from the Route 9N and Crow Clearing trailheads. Soil erosion and compaction are also evident at the rock climbing sites at the Hurricane Crag (see Section V for a further discussion of this issue). Use levels are generally low enough throughout the year to provide solitude for individual users with the exception of summer weekends and holidays. Hunting pressure in the unit appears stable. Hunting is not expected to impact overall numbers of any species population.

### ***Carrying Capacity***

The term “carrying capacity” has its roots in range and wildlife sciences. As defined in the range sciences, carrying capacity means “the maximum number of animals that can be grazed on a land unit for a specific period of time without inducing damage to vegetation or related resources (Arthur Carhart National Wilderness Training Center, 1994). The concept has been modified to address recreational uses as well; however, its basic assumptions proved to be false.

After many years of study, basic research showed that there was no linear relationship between the amount of use and the resultant amount of impact (Krumpe and Stokes, 1993). For many types of impacts, most of the impact occurs with only low levels of use. In some cases, such as trail erosion, once the soil starts to wash away, additional foot travel on the trail does not cause the amount of impact to increase proportionately. This research revealed that visitor behavior, site resistance/resiliency, and type of use may be more important in determining the amount of impact than the amount of use, although the total amount of use is still a factor (Hammit and Cole, 1987).

The shortcomings of the carrying capacity approach, as applied to wilderness management, soon became apparent. It became clear that searching for one single carrying capacity was probably next to impossible, since it is dependent on many variables as noted above. By focusing on determining how many visitors an area could accommodate, it was found that managers often lost sight of basic wilderness goals and objectives – the very things they were trying to achieve. This changed the question from “How many is too many?” to “How much change is acceptable?”

Viewed in this context, carrying capacity can be used to prescribe what kind of resource and social conditions are acceptable, compare them to on-the-ground conditions, and identify the management policies and actions needed to maintain or restore the desired wilderness condition.

## ***Section II: Inventory, Use and Capacity to Withstand Use***

---

Establishing appropriate conditions is dependent on clearly stated management objectives. They are based on value judgments derived from experience, research, inventory data, public input (dialogue with users), careful analysis, and common sense. The objectives dictate how much change will be allowed to occur, where it occurs, and what management actions are needed to control it. Once in place and functioning, limits of acceptable change (LAC) are used as measuring tools to alert the Department to unacceptable changes before it is too late to react.

Carrying capacity does not always require use limitations; rather use limitations are viewed as one of many management actions that can be taken in response to a specific problem. When past efforts have proved ineffective, a use limit may be the only option available when standards are exceeded. Monitoring provides the feedback necessary to periodically modify management actions, standards or objectives.

Defining carrying capacity, in terms of limits of acceptable change, requires a decision on what kinds of wilderness conditions are acceptable, then prescribing actions to protect or achieve those desired conditions. They are applied through a planning framework that expresses management objectives based on careful considerations of resource conditions, inherent constraints, and the needs and wants of its users. An important objective of this management plan is to carefully document the limits of acceptable change and improve our current inventory of existing resource and social conditions. This is a critical step to knowing where and what future management actions will be needed beyond the five year life of this plan.

### ***Strategy***

The long-term strategy for managing the HMPA uses a combination of three generally accepted planning methods: (1) the goal-achievement process; (2) the Limits of Acceptable Change (LAC) model employed by the U.S. Forest Service; and (3) the Visitor Experience and Resource Protection (VERP) model employed by the National Park Service. Given the distinctly different, yet important purposes of these methods (particularly between the first method and the second two), there are clear benefits offered by employing a blend of these approaches here.

### ***Goal-achievement Process***

The goal-achievement process provides a framework for proposed management by means of the careful, stepwise development of key objectives and actions that serve to prescribe the Wilderness conditions (goals) outlined by APSLMP guidelines. The Department is mandated by law to devise and employ practices that will attain these goals. For each management activity category included in Section IV of this plan, a written assessment of the current management situation and a set of assumptions about future trends has been described. All management proposals listed in Section IV have been determined using this information.

***Limits of Acceptable Change (LAC) and Visitor Experience and Resource Protection (VERP) Models***

These methods both employ carrying capacity concepts, not as prescriptions of the total number of people who can visit an area, but as prescriptions of the desired resource and social conditions that should be maintained to minimum standards regardless of use.

Establishing and maintaining acceptable conditions depends on well-crafted management objectives which are explicit and which draw on managerial experience, research, inventory data, assessments and projections, public input, and common sense. When devised in this manner, objectives founded in the LAC and VERP models essentially dictate how much change will be allowed (or encouraged) to occur and where, as well as how management will respond to changes. Indicators (measurable variables that reflect conditions) are chosen, and standards (representing the bounds of acceptable conditions) are set, all so that management efforts can be effective in addressing unacceptable changes. A particular standard may be chosen so as to act as a simple trigger for management action (as in VERP), or it may be chosen to act as a kind of boundary which - given certain assessments - allows for management action before conditions deteriorate to the point of no longer meeting the standard (as in LAC).

Even well-conceived and executed efforts can prove ineffective, but when this is the case, management responses must be adjusted. Monitoring of resource and social conditions is absolutely critical. Both the LAC and VERP models rely on monitoring to provide systematic and periodic feedback to managers concerning specific conditions. However, since the VERP model was developed to apply only to impacts from visitor use, some management issues in the HMPA (for instance, the impacts of acid deposition) call for an approach that is properly in the LAC vein.

Since differences between LAC and VERP are not significant, choices are left up to managers. These choices are as evident as they need to be wherever this plan, in Section IV, calls for sets of management actions which incorporate them.

In outline, the Department's approach applies four factors in identifying potential management actions for an area:

- The identification of acceptable resource and social conditions as defined by measurable indicators;
- An analysis of the relationship between existing conditions and those desired;
- Determinations of the necessary management actions needed to achieve desired conditions; and,
- A monitoring program to see if objectives are being met.

## ***Section II: Inventory, Use and Capacity to Withstand Use***

---

These four factors can be achieved by using the following 10 steps created for the LAC process:

- Step 1: Define Goals and Desired Conditions
- Step 2: Identify Issues, Concerns and Threats
- Step 3: Define and Describe Acceptable Conditions
- Step 4: Select Indicators for Resource and Social Conditions
- Step 5: Inventory Existing Resource and Social Conditions
- Step 6: Specify Standards for Resource and Social Indicators for Each Opportunity Class
- Step 7: Identify Alternative Opportunity Class Allocations
- Step 8: Identify Management Actions for Each Alternative
- Step 9: Evaluate and Select a Preferred Alternative
- Step 10: Implement Actions and Monitor Conditions

Though the levels of human impact within the HMPA are relatively low, a number of management issues might develop within the unit that could be addressed by the LAC process. Such issues may be categorized as conflicts between public use and resource protection, conflicts between users, and conflicts between outside influences and the objectives for natural resource or social conditions within the unit. The capacity of the area to withstand use can be divided into three categories for which impact indicators can be chosen:

- Physical capacity - May include indicators that measure visitor impacts to physical resources (e.g., soil erosion on trails, campsites and access sites) and changes to environmental conditions (e.g., air and water quality).
- Biological capacity - May include indicators that measure visitor impacts to biological resources (e.g., vegetation loss at campsites) and changes in the ecosystem (e.g., diversity and distribution of plant and animal species).
- Social capacity - May include indicators that measure visitor impacts on other visitors (e.g., conflicts between user groups), the effectiveness of managerial conditions (e.g., noncompliant visitor behavior), and interactions with the area's physical or biological capacity (e.g., the impacts of the sight of significant erosion on trails on the recreational experience of visitors).

The following list gives examples of indicators that could be used in assessing and monitoring conditions in the HMPA:

Physical capacity

- Extent of soil erosion on trails and at campsites
- Extent of air and water quality degradation caused by fossil fuel combustion

Biological capacity

- Extent of bare soil in camping areas and riparian areas near lakes and streams
- Diversity and distribution of plant and animal species

Social capacity

- Incidence and volume of late night noise at campsites
- Extent of illegal tree cutting for firewood near campsites
- Number of encounters with large groups on trails

These indicators form the basis for the proposed management actions presented in Section IV. This approach will require flexibility, determination and patience. It may not be possible to complete all inventories and assessments called for by this strategy - and by the APSLMP - in this plan's five-year time frame. It will be important to show progress in achieving APSLMP goals and in gaining initial managerial experience and knowledge in applying this strategy to some carrying capacity questions and issues. Knowledge gained as a result of the implementation of this first HMPA unit management plan will be useful to: 1) revising and refining management actions if evaluation shows that desired conditions are not being attained or sustained; and 2) creating a foundation upon which this strategy can eventually be built into a fully-developed, science-based approach to protecting and managing the unique resources of the unit.

## **1. Land Resources**

Overall use levels in the unit are low to moderate compared to other popular Wilderness areas in the region. Negative resource impacts appear to be due more to improper facilities layout than actual use levels. Based on trail register data for the years 2000 - 2008, use of the unit has been decreasing, but it is

hard to make long term predictions based on only nine years of data. It would be inappropriate to conclude that user numbers will continue to trend downwards based on such a short period of data. However, the data give no indication that user numbers will increase either. Therefore, use will be assumed to remain close to current levels for the five year period of this plan.

Recreational use in the unit tends to be concentrated on trails, and at designated tent sites and lean-tos. With proper layout, drainage structures, and maintenance, these facilities should be able to sustain current use levels. The summit of Hurricane Mountain is the single most popular destination in the unit, and therefore, sees the greatest concentration of use. Most of the summit area is bare rock, and is able to sustain the higher use levels. However, signage should be placed at trailheads to inform hikers of the fragile nature of the soils, and plant communities on the summit of Hurricane Mountain, and encourage them to stay on the trail or on bare rock surfaces.

The rock climbing areas at the Hurricane Crag have the potential to be overused, especially the smaller Typhoon Wall which is used primarily as a top-roped climbing route. There is no vegetation or duff layer at the base of this wall and the soils have been compacted. It is believed that the area will be able to sustain current use levels if proper remediation efforts are taken to stabilize the soils at the base of the wall. See Section IV for further discussion of this issue.

## **2. Wildlife Resources**

Current levels of consumptive (i.e., hunting and trapping) and non-consumptive wildlife uses are not expected to significantly impact wildlife populations in HMPA. The inaccessibility of much of the unit substantially reduces the potential for over-harvest of game species, including many furbearer species (e.g., river otter, fisher, and American marten) and provides a “reservoir” that ensures that harvests are sustainable over time.

Defining the amount and type of use that the area could withstand before negative impacts to the wildlife resource occurred would be a significant challenge. However, consideration of relative differences in wildlife or community sensitivities to disturbances could be useful for recreational planning. Endangered, threatened, and special concern wildlife species, critical habitats, and significant ecological communities should receive primary attention during planning efforts, because their capacity to withstand use is likely less than that for more abundant wildlife species and common habitats and communities. Furthermore, impacts to these resources due to our limited understanding of their capacity to withstand use could be much more serious than for other more common resources.

Areas within HMPA that should receive careful consideration during planning efforts include high-elevation boreal forests that are important to a number of wildlife species, potential Peregrine Falcon nesting sites, and core deer wintering areas (although deer wintering area habitat within the unit is limited; see Critical Habitat section).

## SECTION III: MANAGEMENT AND POLICY

### *A. Past Management*

The administration of Forest Preserve land is the responsibility of the Division of Lands and Forests. The responsibility for the enforcement of DEC rules and regulations lies with the Office of Public Protection. The Division of Operations conducts interior construction, maintenance and rehabilitation projects. The Bureau of Recreation within the Division of Operations operates and manages the public campgrounds adjacent to the unit. The Division of Fish, Wildlife and Marine Resources manages the state's fish and wildlife resources.

#### **1. Land Management**

Land management in the HMPA has consisted mainly of fire detection and suppression, law enforcement, boundary maintenance, and the establishment and maintenance of recreational facilities. In response to numerous fires in the region, fire observers were stationed on Hurricane mountain beginning in 1910. In 1919, the fire tower was constructed and manned by observers until 1973. Fire observers were housed in a cabin located at the base of Hurricane Mountain in Elizabethtown. The cabin has since been removed. Trail maintenance has been carried out by DEC and various volunteers. Volunteer organizations that have contributed to the HMPA include the Hurricane and Genesee chapters of the Adirondack Mountain Club, and the Alpine Club of Canada. Other organizations and individuals have undoubtedly contributed to trail work within the unit and a note of apology is extended to any that are not specifically mentioned here. Streams in the unit have been treated with *Bacillus thuringiensis* (Bti) by local towns in an effort to limit the population of Black Flies in the area. These treatments are authorized under a permit from DEC. Such permits require that treatments with Bti be conducted by licensed applicators, and limited to specified times, areas, and pesticide levels.

#### **2. Wildlife Management**

Past and present wildlife management activities on HMPA have been shaped largely by Article XIV of the New York State Constitution that provides that the lands of the Forest Preserve "shall be forever kept as wild forest lands" and that the timber thereon shall not be "sold, removed, or destroyed." Therefore, habitat management through the use of timber harvesting, prescribed burning, or other means of modifying the vegetation to alter wildlife habitat is not permissible in the unit. Additionally, NYCRR §194.2 (b) prohibits prescribed fires to be set on Forest Preserve lands for any purpose other than fire suppression. Options for wildlife management in the Forest Preserve include the setting of hunting and trapping seasons, setting harvest limits, defining manner of taking, restoring or augmenting populations of native species, preventing the introduction of non-native species, and removing non-native species.

### **3. Fisheries Management**

#### ***Early Stocking***

During the mid- to late 1800's, exploitation of pristine fisheries combined with environmental degradation resulted in the decline of fish populations and stimulated early management efforts consisting primarily of stocking. In the early years of fishery management in the Adirondacks, volunteers who applied for fish from the state and federal hatcheries would drive to the hatchery or to train depots with horse and buggy to pick up their allocated cans of fish for stocking. Later on, hatchery employees would employ wagons and teams to haul fish to individual waters or to train depots for more distant delivery (Pieffer 1979). In the year 1891, the state purchased its own wooden railroad car specially designed for transporting fish, and appropriately named "The Adirondack". Initially, the railroad companies furnished free transportation as a public service (Lindsey 1958).

Despite the difficulty of moving live fish, "enthusiastic citizens secured and distributed all sorts of fish for New York's inland waters" (NYS Forest, Fish and Game Commission, 1909). Brook trout, brown trout, landlocked salmon, rainbow trout, lake trout, lake whitefish, round whitefish, cisco, smelt, walleye, yellow perch, crappie, largemouth bass, smallmouth bass and rock bass were among the species distributed by the state hatcheries (NYS Forest, Fish and Game Commission, 1909).

Although millions of fish were stocked in waters selected by volunteers, stocking was not done scientifically prior to the 1930's when the first biological surveys established stocking policies (planned annual stocking). Few waters were stocked every year and many waters were stocked only occasionally, because volunteers were not available in all areas of the Adirondacks.

Stocking of fish from the New York Fish and Game Commission was frequently not carried out as planned. The Fifteenth Annual Report of the Forest, Fish and Game Commission, in the year 1909 cited that, "The messenger (railroad) is obliged to take the fish to the next applicant on his route if applicants for fish failed to meet messengers. Often the applicants were not on hand to meet the messenger because certain persons who occupy summer homes in the Adirondacks or some other resorts apply for fish which have to be sent after those persons have returned to their winter homes." Consequently, fish were sent to the next applicant on the route, who stocked the fish in nearby waters. Fishes may have become established in waters where stocking was not intended by the Forest, Fish and Game Commission because of difficulties in distribution and because unclaimed fish were disposed of along the route.

The New York Forest, Fish and Game Commission feared that many of our Adirondack lakes had received bass and other fish from the United States Commission of Fisheries (obtained by volunteers via application) "which never should have been placed in trout waters." In its report to the legislature in the year 1909, the Forest, Fish and Game Commission expressed concern about stocking nonnative fishes via the federal stocking program and cited New York law "prohibiting the placing of anything but trout in Adirondack waters. We most certainly desire to continue to produce from the Federal hatcheries every year such allotments as are necessary to keep up the stock in our inland waters, but we respectfully



submit that this allotment should only be made with the advice of this Commission based on the scientific knowledge of the State Fish Culturist.” (NYS Forest, Fish and Game Commission, 1909). Similarly, “... the one outstanding reason why so many of the lakes, ponds and streams of this and other Adirondack areas are now unfit for the native species is that smallmouthed bass, perch, northern pike and other species of non-native warmwater fishes have been introduced” (1932 Biological Survey of the Upper Hudson Watershed).

The decline in brook trout associated with the introduction of other fishes is a result of both predation and competition for food. Brook trout feed primarily on invertebrates. Many other fishes, including white sucker, longnose sucker, redbreast sunfish, pumpkinseed, brown bullhead, yellow perch, and the cyprinids (shiners, dace, etc.) also feed primarily on invertebrates (Scott and Crossman 1973). In low fertility waters such as Adirondack ponds, competition for such forage can be intense.

In addition to competing with brook trout for food, many fishes prey directly on brook trout. Northern pike, largemouth bass, smallmouth bass, and rock bass are highly piscivorous. Species which may feed on eggs and/or fry include yellow perch, brown bullhead, pumpkinseed, creek chub, common shiner, white sucker and longnose sucker (Scott and Crossman 1973). The relative importance of competition versus predation in the decline of brook trout is not known for individual waters, but the result is the same regardless of the mechanism.

Competition and predation by introduced species has greatly reduced the abundance of brook trout sustained by natural reproduction. Only about 40 (10%) of the traditional brook trout ponds in public ownership in the Adirondack Park now support viable, self-sustaining brook trout populations, and they are subject to reproductive failure as other fishes become established.

Human introductions of nonnative and native-but-widely-introduced (NBWI) fishes have nearly eliminated natural brook trout monocultures in the Adirondacks. The presence of brook trout monocultures is well known, and the survival of even a few such unique communities through the massive environmental disturbances and species introductions of the 19<sup>th</sup> and 20<sup>th</sup> centuries is quite remarkable.

### ***Recent Management Activities***

Fish management in the HMPA has been limited because of the lack of ponded water. Little active fishery management has been conducted on streams within the unit because of their remoteness and small size.

However, portions of several tributaries of the Ausable and Boquet river systems have been stocked with landlocked Atlantic salmon fry. Most of these stockings occur in stream sections located outside the unit, although some certainly occurs within the periphery of the unit’s boundaries. After about two years in the streams, the salmon emigrate to Lake Champlain where they spend their adult lives. Waterfalls prevent salmon from returning from Lake Champlain to the streams in the unit. The objective of the stocking is to restore native landlocked Atlantic salmon populations in the Lake Champlain basin.

All unit waters are subject to statewide angling regulations.

## ***B. Management Guidelines***

### **1. Guiding Documents**

This unit management plan has been developed within the guidelines set forth by Article XIV of the State Constitution, Article 9 of the Environmental Conservation Law, Parts 190-199 of Title 6 NYCRR, the APSLMP, and established Department policy.

Article XIV of the State Constitution provides in part that, "The lands of the State, now owned or hereafter acquired, constituting the Forest Preserve as now fixed by law, shall be forever kept as wild forest lands. They shall not be leased, sold or exchanged, or be taken by any corporation, public or private, nor shall the timber thereon be sold, removed or destroyed."

The APSLMP provides guidance for the use and management of lands which it classifies as "Wilderness" and "Primitive" by establishing basic guidelines. APSLMP management guidelines for Wilderness and Primitive Areas are outlined in Appendices L and M respectively.

It is important to understand that the State Land Master Plan has structured the responsibilities of the Department and the Agency in the management of State lands within the Adirondack Park. Specifically, the APSLMP states that:

"..... the legislature has established a two-tiered structure regarding state lands in the Adirondack Park. The Agency is responsible for long range planning and the establishment of basic policy for state lands in the Park, in consultation with the Department of Environmental Conservation. Via the master plan, the Agency has the authority to establish general guidelines and criteria for the management of state lands, subject, of course, to the approval of the Governor. On the other hand, the Department of Environmental Conservation and other state agencies with respect to the more modest acreage of land under their jurisdictions, have responsibility for the administration and management of these lands in compliance with the guidelines and criteria laid down by the master plan."

In order to put the implementation of the guidelines and criteria set forth in the APSLMP into actual practice, the DEC and APA have jointly signed a Memorandum of Understanding (MOU) concerning the implementation of the APSLMP. The document defines the roles and responsibilities of the two agencies, outlines procedures for coordination and communication, defines a process for the revision of the APSLMP, as well as outlines procedures for State land classification, the review of UMPs, state land project management, and state land activity compliance. The MOU also outlines a process for the interpretation of the APSLMP.

DEC policy has been developed for the public use and administration of Forest Preserve lands. Select policies relevant to the management of this unit include;

- Administrative Use of Motor Vehicles and Aircraft in the Forest Preserve (CP-17).
- Motor Vehicle Access to State Lands Under the Jurisdiction of DEC for People with Disabilities (CP-3).
- Standards and Procedures for Boundary Line Maintenance (NR-91-2; NR-95-1).
- Tree Cutting on Forest Preserve Land (O&D #84-06).
- Cutting and Removal of Trees in the Forest Preserve (LF-91-2).
- Snowmobile Trails - Forest Preserve (ONR-2).
- The Administration of Conservation Easements (NR-90-1).
- Acquisition of Conservation Easements (NR-86-3).
- Division Regulatory Policy (LF-90-2).
- Adopt-A-Natural Resource (ONR-1).
- Policies and Procedures Manual Title 8400 - Public Land Management.

The Department also maintains policy to provide guidelines for the design, location, siting, size, classification, construction, maintenance, reconstruction and/or rehabilitation of dams, fireplaces, fire rings, foot bridges, foot trails, primitive camping sites, road barriers, sanitary facilities and trailheads. Other guidelines used in the administration of Forest Preserve lands are provided through Attorney General Opinions, Department policy memos, and Regional operating procedures.

The recommendations presented in this unit management plan are subject to the requirements of the State Environmental Quality and Review Act of 1975. All proposed management activities have been reviewed and significant environmental impacts were identified. Based on this review, the management activities were found to have a significant impact on the natural resources of the unit and a positive Declaration was issued (see Appendix J).

## **2. Application of Guidelines and Standards**

All trail construction and relocation projects will be developed in accordance with the APSLMP, and will incorporate the use of Best Management Practices, including but not limited to such considerations as:

- Locating trails to minimize necessary cut and fill;
- Wherever possible, lay out trails on existing old roads or clear or partially cleared areas;
- Locating trails away from streams, wetlands, and unstable slopes wherever possible;
- Use of proper drainage devices such as water bars and broad-based dips;
- Locating trails to minimize grade;
- Using stream crossings with low, stable banks, firm stream bottom and gentle approach slopes;
- Constructing stream crossings at right angles to the stream;
- Limiting stream crossing construction to periods of low or normal flow;
- Using stream bank stabilizing structures made of natural materials such as rock (riprap) or wooden timbers;
- Avoiding areas where habitats of threatened and endangered species are known to exist;
- Using natural materials to blend the structure into the natural surroundings.

All lean-to and campsite construction and relocation projects will incorporate the use of Best Management Practices, including but not limited to such considerations as:

- Locating lean-tos to minimize necessary cut and fill;
- Locating lean-tos to minimize tree cutting;
- Locating lean-tos away from streams, wetlands, and unstable slopes;
- Use of drainage structures on trails leading to lean-to sites, to prevent water flowing into site;
- Locating lean-tos on flat, stable, well-drained sites;

- Limiting construction to periods of low or normal rainfall.
- Locating campsites so that they are properly separated from one another
- Use of drainage structures on access trails to prevent water flowing into the site

All parking lot construction and relocation projects will incorporate the use of Best Management Practices, including but not limited to such considerations as:

- Locating parking lots to minimize necessary cut and fill;
- Locating parking lots away from streams, wetlands, and unstable slopes wherever possible;
- Locating parking lots on flat, stable, well-drained sites using gravel for surfacing or other appropriate material to avoid stormwater runoff and erosion;
- Locating parking lots in areas that require a minimum amount of tree cutting;
- Limiting construction to periods of low or normal rainfall;
- Wherever possible, using wooded buffers to screen parking lots from roads;
- Limiting the size of the parking lot to the minimum necessary to address the intended use.

All fish stocking projects will be in compliance with the *Programmatic Environmental Impact Statement on Fish Species Management Activities of the Department of Environmental Conservation*, dated December 1979.

All pond reclamation projects will be undertaken in compliance with the *Programmatic Environmental Impact Statement on Fish Species Management Activities of the Department of Environmental Conservation, Division of Fish and Wildlife*, dated June 1980 and the *Programmatic Environmental Impact Statement on Undesirable Fish Removal by the Use of Pesticides Under Permit Issued by the Department of Environmental Conservation, Division of Lands and Forests, Bureau of Pesticides Management*, dated March 1981.

All liming projects will be in compliance with the *Final Generic Environmental Impact Statement on the New York State Department of Environmental Conservation Program of Liming Selected Acidified Waters*, dated October 1990, as well as the Division of Fish, Wildlife and Marine Resources liming policy.

**Americans with Disabilities Act and Its Influence on Management Actions for Recreation and Related Facilities in the Forest Preserve**

The Americans with Disabilities Act (ADA), along with the Architectural Barriers Act of 1968 (ABA) and the Rehabilitation Act of 1973; Title V, Section 504, have had a profound effect on the manner by which people with disabilities are afforded equality in their recreational pursuits. The ADA is a comprehensive law prohibiting discrimination against people with disabilities in employment practices, use of public transportation, use of telecommunication facilities and use of public accommodations. Title II of the ADA applies to the Department and requires, in part, that reasonable modifications must be made to its services and programs, so that when those services and programs are viewed in their entirety, they are readily accessible to and usable by people with disabilities. This must be done unless such modification would result in a fundamental alteration in the nature of the service, program or activity or an undue financial or administrative burden to the Department. Since recreation is an acknowledged public accommodation program of the Department, and there are services and activities associated with that program, the Department has the mandated obligation to comply with the ADA, Title II and ADA Accessibility Guidelines, as well as Section 504 of the Rehabilitation Act.

The ADA requires a public entity to thoroughly examine each of its programs and services to determine the level of accessibility provided. The examination involves the identification of all existing programs and services and an assessment to determine the degree of accessibility provided to each. The assessment includes the use of the standards established by Federal Department of Justice Rule as delineated by the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and/or the New York State Uniform Fire Prevention and Building Codes, as appropriate. The development of an inventory of all the recreational facilities or assets supporting the programs and services available on the unit was conducted during the UMP planning process. The assessment established the need for new or upgraded facilities or assets necessary to meet ADA mandates, in compliance with the guidelines and criteria set forth in the Master Plans of the Adirondack and Catskill Forest Preserves. The Department is not required to make each of its existing facilities and assets accessible. New facilities, assets and accessibility improvements to existing facilities or assets proposed in this UMP are identified in the “Proposed Management Recommendations” section.

**The Americans with Disabilities Act Accessibility Guidelines**

The Americans with Disabilities Act (ADA) requires public agencies to employ specific guidelines which ensure that buildings, facilities, programs and vehicles as addressed by the ADA are accessible in terms of architecture and design, transportation and communication to individuals with disabilities. A federal agency known as the Access Board has issued the ADAAG for this purpose. The Department of Justice Rule provides authority to these guidelines.

Currently adopted ADAAG address the built environment: buildings, ramps, sidewalks, rooms within buildings, etc. Boating and fishing facilities are addressed under ADA/ABA amendments of 2004. The Access Board has proposed guidelines to expand ADAAG to cover outdoor developed facilities: trails,

campgrounds, picnic areas and beaches on Federal lands. The proposed guidelines are contained in the October 19, 2009 Draft Final Accessibility Guidelines for Outdoor Developed Areas.

ADAAG apply to *newly constructed* structures and facilities and *alterations* to existing structures and facilities. Further, it applies to *fixed* structures or facilities, i.e., those that are attached to the earth or another structure that is attached to the earth. Therefore, when the Department is planning the construction of new recreational facilities, assets that support recreational facilities, or is considering an alteration of existing recreational facilities or the assets supporting them, it must also consider providing access to the facilities or elements for people with disabilities. The standards which exist in ADAAG and the ADA/ABA or are contained in the proposed federal guidelines also provide guidance to achieve modifications to trails, picnic areas, campgrounds, campsites and beaches in order to obtain programmatic compliance with the ADA.

#### **ADAAG Application**

Current ADAAG and ADA/ABA for the built environment and proposed federal guidelines for outdoor developed areas will be used in assessing existing facilities to determine accessibility compliance. Management recommendations in each UMP will be proposed in accordance with the ADAAG and ADA/ABA for the built environment, the draft guidelines for outdoor developed areas, the New York State Uniform Fire Prevention and Building Codes, and other appropriate guiding documents. Until such time as the proposed guidelines for federal lands apply to state governments, the Department is required to use the best information available to comply with the ADA; this information includes, among other things, the proposed guidelines.

#### **Historic and Archeological Site Protection**

Historic and archaeological sites that may exist within the HMPA are protected by the provisions of the New York State Historic Preservation Act (SHPA - Article 14 PRHPL), 6 NYCRR § 190.8 (g) and Section 233 of the Education Law. Actions that would impact an historic site are proposed in this Unit Management Plan (see section V). Implementation of any such action will be undertaken in accordance with the requirements of SHPA. Unauthorized excavation and removal of materials from any of these sites is prohibited by Article 9 of the ECL and Section 233 of the Education Law. In some cases additional protection may be afforded these resources by the federal Archaeological Resources Protection Act (ARPA).

Archaeological sites may be made available for appropriate research. Any future archaeological research to be conducted on the property will be accomplished under the auspices of all appropriate permits. Research permits will be issued only after approval by the New York State Museum and consultation with OPRHP and APA. Extensive excavations are not contemplated as part of any research program in order to assure that the sites are available to future researchers who are likely to have more advanced tools and techniques as well as more fully developed research questions.

### **3. Deed Restrictions**

Mineral rights are held by private parties in the following parcels of land now belonging to the HMPA:

Essex Tract, Henry's Survey

Lot 147

Old Military Tract, Township One, Thorn's Survey

Lots 37, 41, 42, and 43.

Power line right-of-ways are held by private parties in the following parcels of land now belonging to the HMPA:

Essex Tract, Henry's Survey

Lots 147 and 242

Old Military Tract, Township One, Thorn's Survey

Lots 37, 43, 119 and 120.

## ***C. Administration and Management Principles***

### **1. Administration**

The administration of the HMPA is shared by several programs in DEC. The following DEC programs perform the indicated functions:

- The Division of Lands and Forests acquires and maintains land for public use, manages the Forest Preserve lands, promotes responsible use of public lands and provides educational information regarding the use of the Forest Preserve.
- The Division of Fish, Wildlife and Marine Resources protects and manages fish and wildlife species, provides for public use and enjoyment of natural resources, stocks freshwater fish, licenses fishing, hunting and trapping, protects and restores habitat, and provides public fishing, hunting and trapping access.



- The Natural Heritage Program enables and enhances conservation of New York's rare animals, rare plants, and significant ecosystems. Field inventories, scientific analyses, expert interpretation, result in the most comprehensive database on New York's distinctive biodiversity which provides quality information for natural resources planning, protection, and management.
- The Division of Water protects water quality in lakes and rivers by monitoring water bodies and controlling surface runoff.
- The Division of Air Resources regulates, permits and monitors sources of air pollution, forecasts ozone and stagnation events, educates the public about reducing air pollution and researches atmospheric dynamics, pollution and emission sources.
- The Division of Operations designs, builds and maintains Department facilities and infrastructure, operates Department Campgrounds and day-use facilities and maintains trails and lean-tos.
- The Division of Public Affairs and Education is the public communication wing of the Department. The Division communicates with the public, promotes citizen participation in the UMP process, produces, edits and designs Department publications.
- The Division of Law Enforcement is responsible for enforcing all of New York's Environmental Conservation Laws relating to hunting, fishing, trapping, license requirements, endangered species, possession, transportation and sale of fish and wildlife, trespass, and damage to property by hunters and fishermen.
- The Division of Forest Protection and Fire Management is responsible for the preservation, protection, and enhancement of the State's forest resources, and the safety and well-being of the public using those resources. Forest Rangers are the stewards of the Forest Preserve and are the primary public contact for the HMPA and responsible for fire control and search and rescue functions. In 1980, state law designated Forest Rangers as Peace Officers with all powers to enforce all state laws and regulations with emphasis on the Article 9 of the Environmental Conservation Law and Part 190 of the Department's Regulations.

## **2. Management Principles**

### ***General Forest Preserve Principles***

The primary goal of Forest Preserve management is the perpetuation of Forest Preserve lands as "forever wild forest lands" consistent with New York State Constitution, Article XIV, Section 1. In conformance with the constitutional and legal constraints that embody this goal, DEC manages the Forest Preserve to protect and preserve the natural resources of the unit and to provide opportunities for a variety of recreational activities for people of all abilities where those activities are permissible under the APSLMP,

### ***Section III: Management and Policy***

---

Department regulations and policies, and will not compromise the natural resource. Through partnerships with local governments, organizations, and individuals, DEC provides for the use and enjoyment of the Forest Preserve in a manner that is supportive of the economy of the region while protecting the wild forest character of the area.

The Department allows and promotes recreational use of the Forest Preserve to the extent that it does not degrade the character of the area. To achieve this, the DEC uses the “minimum tool” necessary to obtain specific objectives, employing indirect methods (limiting parking, etc.) whenever possible, and developing regulations only where necessary and as a final resort. Existing programs that promote backcountry use and etiquette will be utilized where appropriate and feasible. Examples of successful programs and messages used in other management units include, Leave No Trace™ and the International Mountain Biking Association’s “Rules of the Trail™.”

Public use controls are not limited to assessing and matching types and levels of use to physical and biological resource impacts. Social issues, such as user preferences, are also considered. This presents a unique challenge in managing the Forest Preserve, as access is free and use is relatively unregulated.

#### ***Management Principles specific to Wilderness Areas***

The following principles, first adopted in the High Peaks Wilderness Area (HPWA) UMP, attempt to introduce professional wilderness management guidelines in writing long-term policy and day-to-day problem solving for wilderness managers. As with the HPWA UMP, these principles will also guide managers in addressing management problems of the HMPA.

- Manage Wilderness as a Composite Resource, Not as Separate Parts  
Wilderness is a distinct resource producing many societal values and benefits. One of wilderness's distinctive features is the natural relationship between all its component parts: geology, soil, vegetation, air, water, fish and wildlife – everything that makes up a wilderness. In most cases, separate management plans will not be developed for vegetation, fish, wildlife, recreation, etc. Rather, one plan must deal simultaneously with the interrelationships between these and all other components.
- Manage the Use of Other Resources and Activities within Wilderness in a Manner Compatible with the Wilderness Resource Itself  
All proposed management actions must consider their effect on the wilderness resource so no harm comes to it. For example, recreation should be managed and kept within acceptable levels that maintain the unit's wilderness character, including opportunities for solitude or a primitive and unconfined type of recreation emphasizing a quality visitor experience (APSLMP, 2001; Hendee et.al, 1990).

- Allow Natural Processes to Operate Freely in Wilderness  
This principle is derived in part from the APSLMP definition of wilderness in dealing with the term “natural conditions.” According to the APSLMP, the primary wilderness management guideline will be to achieve and perpetuate a natural plant and animal community where man's influence is not apparent (APSLMP, 2001, Page 20). It means not introducing exotic plants and animals not historically associated with the Adirondacks nor manipulating vegetation to enhance one resource over another.
- Attain a High Level of Wilderness Character Within Legal Constraints  
An important APSLMP wilderness goal is to retain and make where necessary, Adirondack wilderness areas as wild and natural as possible. Examples of this principle include efforts to rehabilitate alpine summits and restoring severely eroded trails.
- Preserve and Enhance Wilderness Air and Water Quality  
Wilderness air and water quality bear testimony to the general health of our environment. Federal and state laws are designed specifically to protect air and water quality. In wilderness, internal pollution sources such as human and domestic animal wastes must be controlled.
- Safeguard Human Values and Benefits While Preserving Wilderness Character  
Wilderness areas are not just designated to protect natural communities and ecosystems; they are also for people. The APSLMP directs that “human use and enjoyment of those lands (meaning state lands within the Adirondack Park) should be permitted and encouraged, so long as the resources in their physical and biological context and their social and psychological aspects are not degraded” (APSLMP, 2001, Page 1). This is especially true for wilderness.
- Preserve Opportunities for Solitude or Primitive and Unconfined Types of Recreation  
This principle comes directly from the APSLMP definition of wilderness (APSLMP, 2001, Page 21). Levels of solitude within any given wilderness will vary; sometimes substantially. Management strategies to protect the wilderness resource should strive to minimize the amount of contact or control over visitors once they are in the unit (Hendee et.al, 1990).
- Control and Reduce the Adverse Physical and Social Impacts of Human Use in Wilderness Through Education and Minimum Regulation  
When human use must be controlled to prevent misuse and overuse, it is best to do so by education followed by the minimum degree of regulation necessary to meet management objectives. The latter option is sometimes called the minimum tool rule – application of the minimum tools, equipment, regulations, or practices that will bring the desired result (Hendee et.al, 1990).
- Favor Wilderness Dependent Activities When Managing Wilderness Use  
Wilderness is a distinct resource, and many recreational or other activities taking place there can be enjoyed elsewhere. Not all outdoor activities require a wilderness setting. Examples are large

group use, orienteering schools, competitive events, and other organized events. A Department management goal is to refer these activities to Wild Forest Areas.

- Remove Existing Structures and Terminate Uses and Activities Not Essential to Wilderness Management Except for Those Provided by the APSLMP  
“A wilderness area is further defined to mean an area of state land or water having a primeval character without significant improvements or permanent human habitation....” (APSLMP, 2001, page 20). Except for those conforming structures, uses, and administrative actions specifically identified by the APSLMP, the Department is mandated to remove all non-conforming structures and uses not compatible with a wilderness environment as soon as possible (APSLMP 2001, page 20).
- Accomplish Necessary Wilderness Management Work with the “Minimum Tool”  
This principle requires every management action to be scrutinized to see first if it is necessary, then plan to do it with the “minimum tool” to accomplish the task. The Department has established guidelines and policies for many administrative activities in classified Wilderness Areas, including, but not limited to, trail construction, boundary line marking, use of motorized equipment and vehicles, cutting and removal of trees, and fisheries management in Wilderness Areas. Its goal is to have the least possible impact on the environment and the visitor experience (Hendee and others, 1990).
- Establish Specific Management Objectives, with Public Involvement, in a Management Plan for Each Wilderness  
Working together within the constraints of the APSLMP, managers and the public need to define acceptable levels of use and specific management practices for each Adirondack wilderness. These need to be clearly stated in management plans available for public review and comment. It is essential visitors and other users understand wilderness values, and managers clearly know their management responsibilities (APSLMP, 2001; DEC policy 1972-present; Hendee et.al, 1990).
- Harmonize Wilderness With Adjacent Land Uses  
Wilderness management should be coordinated with the management of adjacent state and private lands in a manner that recognizes differing land management goals.
- Manage Wilderness With Interdisciplinary Scientific Skills  
Because wilderness consists of complex relationships, it needs the skills of natural resource professionals and social scientists that work as an interdisciplinary team focusing on preserving wilderness as a distinct resource. Environmental and social sciences are used in decision-making.
- Manage Special Exceptions Provided by The APSLMP With The Minimum Impact on The Wilderness Resource  
The APSLMP (2001) authorizes certain uses and structures in wilderness areas. These exceptions include such structures as interior outposts, existing dams on established impoundments, existing

or new fish barrier dams, trails, bridges, signs, trail shelters (lean-tos), etc. (See generally APSLMP 2001, Pages 21-26). Construction of additional conforming structures and improvements will be restrained to comply with wilderness standards, and all management and administrative actions will be designed to emphasize the self-sufficiency of users in an environmentally sound and safe way.

### ***D. Management Issues, Needs and Desires***

Public comment has been obtained by way of an Open House, held on November 22, 2002 at The Keene Central School, Keene Valley; and by mail and email. Several issues have received multiple comments and are of concern to DEC and the public in the development of this plan.

A complete list of public comment received to date can be found in Appendix M.

#### ***Hurricane Mountain fire tower***

There is currently a fire tower in the unit on the summit of Hurricane Mountain. This tower was erected in 1919 and was in use until 1973. As per the APSLMP, fire towers are considered a non-conforming structure in Wilderness Areas. The tower on Hurricane Mountain is specifically referenced in the APSLMP as follows: "The fire tower on Hurricane Mountain is currently an essential communication link to the Department of Environmental Conservation at present. Should it be replaced by other means of fire patrol and communications, the entire area should be reclassified as wilderness".

The status of the fire tower on Hurricane Mountain has generated the greatest amount of public comment, including a petition with over 5,000 signatures, local government resolutions, letters from members of the state senate and assembly, local environmental organizations, and individuals.

Most of the public comment received is in favor of retaining the tower on the summit of Hurricane Mountain, but comment calling for the tower's removal has also been received. A greater discussion of this topic, including DEC proposals for the tower can be found in Section V.

#### ***Old Military Road***

The Old Military Road in the town of Lewis is a very old road that formerly connected the Roscoe Road and the Wells Hill Road. The northern portion of the road runs through the HMPA in Lots 37, 38, 41, and 43 of Township One (Old Military Tract). This portion of the road, along with portions on adjacent private land, has been abandoned by the Town of Lewis. There is currently a private gate blocking public access at the end of the town maintained portion of the road.

### **Section III: Management and Policy**

---

Public comment has been received regarding the legal status of the gate across the Old Military Road. Individuals have argued that the gate is illegal with reference to Section 205-b of the State Highway Law. The law states that abandoned town highways that provide access to state forest lands shall remain public right of ways indefinitely. The law also states that no one may block any section of such a road with gates or fences. However, for the provisions of the law to apply to a road, that road must provide the only practical means of access to the state land in question.

DEC has determined that access to the eastern portion of the HMPA can reasonably be gained from the Wells Hill Road in Lewis, or the Hurricane Road in Elizabethtown, therefore, the Old Military Road is not the only practical means of access to this section of the unit, and Highway Law 205-b does not apply.

Relevant portions of Section 205-b are listed below:

*“1. Abandonment of town highways which are access roads to state forest preserve lands or lands now owned or hereafter acquired by the state and held under the jurisdiction of the department of environmental conservation... shall be qualifiedly abandoned in the following manner and shall have the following effect:*

*b. The resolution of abandonment shall provide that even though the responsibility of maintenance of the road by the town shall cease, there shall remain a public easement over such road in perpetuity.*

*d. No one, including the owner of adjoining land may fence any portion of such road, with or without gates.*

*2. For the purposes of this section, access roads to state forest preserve lands or lands under the jurisdiction of the environmental conservation department shall mean roads which are the only practical means of ingress or egress to such state lands.”*

#### **Use levels increasing in Unit**

Public comment has been received regarding increasing levels of recreational use, including tour busses dropping large groups off at the Route 9N Trailhead. While use numbers in the last couple of decades are probably much higher than they have been previously, current use levels do not appear to be increasing. Trail register data for the HMPA is available for the years 2000 through 2008. This data shows the number of recreational users actually decreasing from 2002 to 2008. The number of large groups using the unit does not appear to be increasing either. User data shows the numbers of groups of 11 or more people actually decreasing from 2000 to 2008.

It is recognized that the user data collected may not be a complete record of use, and some users or parties of users may not register. However, it is believed that these numbers provide a fairly accurate

estimate of total user numbers and trends. It is also recognized that the nine year period that data is available for (2000-2008) is too short a time period to determine long term trends. Therefore, it is necessary to continue measuring recreational use, and to improve data collection methods in order to make better management decisions. Please see Section II for complete analysis of user numbers, and Section V for management proposals regarding group use in the HMPA.

This page intentionally left blank



## SECTION IV: PROPOSED MANAGEMENT ACTIONS

This section of the plan breaks down the various resources of the unit into the following categories; bio-physical resources, land protection, man-made facilities and public use and access. Each category is further broken down into component units where the present conditions are assessed, management objectives developed and management actions proposed. All recommended actions are consistent with the management guidelines and principles outlined above, and are based on information gathered during the inventory process, through public input and in consultation with the Planning Team.

### *A. Bio-Physical Resources*

#### **1. Soils**

##### ***Present Conditions***

Detailed soil survey maps for the HMPA are not available. Broad soil types, accurate to an area about 40 acres in size, are delineated on aerial photographs. Soil type interpretations are general and have not been completed. Little information has been documented within the unit on widespread soil loss and degradation, except that there are several sites where soil disturbances on trails and campsites require rehabilitative actions. Trail widening, trail use during wet weather, camping too close to riparian areas, and poor trail design are all contributing factors. Resources for trail rehabilitation, relocation, and erosion control are needed.

##### ***Objectives***

- Gather baseline soils data from areas where new campsites and trails are installed.
- Keep soil erosion caused by recreational use within acceptable limits that closely resemble the natural erosion process.
- Minimize the amount of soil compaction from human activity on undeveloped areas where the natural plant community exists.

##### ***Management Actions***

- Monitor soil conditions affected by recreation use.
- Gather baseline soils data from areas where new campsites and trails are installed.

## **Section IV: Proposed Management Actions**

---

- Target trail maintenance to heavily eroded areas and develop a priority list based on resource need rather than user convenience.
- Design, locate, and construct all new structures and improvements in ways that will minimize the potential for soil erosion. All new construction projects will be developed in accordance with the APSLMP, and will incorporate the use of Best Management Practices (BMPs) identified in the Management Guidelines section of this plan.

## **2. Water**

### ***Present Conditions***

The only pond in the unit, Lost Pond (3.0 ac.) has received survey work. Water quality studies have been conducted by the ALSC, researching the effects of acidic deposition. Additionally, the Bureau of Fisheries routinely conducts biological surveys. No studies have been conducted to determine the effects of recreation use on water quality. As focal points for visitation, streams, springs, lakes, ponds, and wetlands are often on the receiving end of more human disturbance than upland forest areas. With increasing levels of use, the potential for deterioration of water quality is anticipated. Visitors must be advised that water should not be considered potable and must be properly treated before consumption.

No instances of aquatic invasive plant species have been identified within the unit. However, there is little existing inventory work available with respect to the presence of invasive plant species in the unit. The importance of this issue to Adirondack ecosystems has been underscored by the establishment of the Adirondack Park Invasive Plant Program, a project jointly undertaken by the APA, NYS-DOT, Nature Conservancy and NYS-DEC.

An area within 1/4 mile of either bank of the East Branch of the Ausable River, from Saint Hubert's downstream to its confluence with the West Branch at Ausable Forks, is designated as a "Recreational River" corridor under the New York State Wild, Scenic and Recreational Rivers Act (WSRRA). ECL §15-2713 (2)(d), 6 NYCRR 666 (Department regulations) and 9 NYCRR 577 (APA Regulations) provide for the management of Wild, Scenic, and Recreational Rivers. Approximately 25 acres of the HMPA falls within this corridor. There are presently no structures, facilities or uses that are non-conforming, with respect to WSRRA or its implementing regulations, within the river management corridor. No management activity proposed in the river management corridor by this UMP will result in any structure, facility or use that would be in violation of the WSRRA or its implementing regulations.

### ***Objectives***

- Stabilize and improve water quality.

- Monitor all riparian areas within the unit, including “recreational” river corridors, to identify potential impacts on water resources.
- Reduce the potential for pathogenic contamination (especially giardiasis) from all water sources.
- Monitor for the location and extent of aquatic invasive plant species found within the unit.
- Reduce or eliminate aquatic invasive plant species found within the unit.

***Management Actions***

- Monitor vegetation in riparian areas near ponds and streams. Correct undesirable conditions by rehabilitating the area or relocating use to more durable sites.
- Primitive campsites that do not comply with water and trail setback requirements will be relocated to compliant sites. Lean-tos will be relocated when major repair or replacement becomes necessary. Minimum setbacks for pit privies and non-designated campsites are 150 feet.
- Close or rehabilitate pond banks and streamside areas should they become severely impacted by bank erosion from recreation use.
- Incorporate all biological survey work done by DEC, ALSC or other institutions into any future water-related planning activities.
- Advise the public through DEC information and education programs about the effects and impacts of recreation use on water quality and their role in preserving water quality. Encourage the public to treat all water prior to consumption.
- Train DEC staff working within the unit to identify and document the location of key invasive plant species.
- A comprehensive inventory of the presence and extent of invasive plants in the unit should be undertaken. Such an inventory should be updated periodically.
- Management of identified populations of invasive plant species should be undertaken by either the DEC, APIPP or by volunteers under DEC supervision through an Adopt a Natural Resource Agreement.
- Periodic monitoring and further management of identified invasive plant populations will be undertaken.

### **3. Wetlands**

#### ***Present Conditions***

The APA regulates all wetlands within the Park under the NYS Freshwater Wetlands Act (1975) and the Adirondack Park Agency Act (1971). All wetlands that are one acre in size and larger, or any size wetlands adjacent to open water are regulated, and an APA permit is required for any material alteration. Wetland inventories and maps for the entire Park are incomplete, but official maps are available for the HMPA.

#### ***Objectives***

- To minimize the amount of wetland disturbances and impacts caused by the construction and maintenance of structures and improvements and human recreation use.
- To preserve and protect wetland community vegetation and associated plant species.

#### ***Management Actions***

- Assist in developing a system that makes wetland information more readily available to resource managers and the general public.
- Relocate any trails or facilities when necessary to reduce the impacts on wetlands or associated vegetation.
- Minimize the impacts of construction and maintenance activities on wetlands. Coordinate all future construction and maintenance activities that may affect wetlands with the APA to determine wetland boundaries and the need for wetlands permits. DEC will acquire APA wetlands permits as necessary for all proposed management activities and such permits will condition proposed actions to avoid or mitigate any potential impacts to wetlands.

### **4. Air quality**

#### ***Present Conditions***

One of the most important features of the Adirondacks is clean air. Federal Clean Air Act Standards rate Adirondack air as Class II (ratings are from Class I to IV, with I being the cleanest). Research indicates that air quality problems tend to originate outside the Park boundaries and are transported long distances. There are no known air polluting activities within the Adirondacks that have negatively affected sight

visibility, water quality, or open space in general. More research needs to be conducted to determine whether the air quality of the area is static, improving, or deteriorating.

***Objective***

- To achieve Federal Class I air standards.

***Management Actions***

- Cooperate with other agencies and scientific researchers in developing baseline data to identify the effects of potential air pollutants on natural resources within the unit.
- Support and encourage research to determine the effects and impacts of recreational use on air quality.
- Monitor air quality at various locations within the Adirondack Park.

## **5. Vegetation**

***Present Conditions***

Much of the HMPA's vegetated landscape has been altered by wind, fire, insects and disease, pre-Forest Preserve logging, and recreational use. Despite these influences, the unit has several unique ecosystems requiring special attention. These areas include the spruce-fir rocky summit of Hurricane Mountain, wetland communities, and potential areas not yet identified through the unit management planning process.

In the summer of 2005, Terrestrial invasive plant species were identified within the unit (common buckthorn, Japanese barberry). Eradication and monitoring efforts are being formulated at this time. Additional invasive plant species populations are known to exist on the periphery of the unit and in nearby communities. There has been no official inventory of invasive plant species in the unit to date. However, most interior portions of the unit are believed to be free from infestation.

***Objectives***

- Allow natural processes to continue their role in the succession of plant communities.
- Preserve and protect any threatened and endangered plant species or communities.

#### ***Section IV: Proposed Management Actions***

---

- Comply with the constitutional directive of forever keeping the lands as “wild forest lands.”
- Monitor for the location and extent of terrestrial invasive plant species found within the unit.
- Reduce or eliminate terrestrial invasive plant species found within the unit and protect the area from the introduction, establishment and spread of invasive species.
- Continue and expand programs that identify and map ecological communities and sensitive, rare, threatened, and endangered plant species or communities.

#### ***Management Actions***

- Maintain existing plant databases and support efforts to inventory plant communities, with an emphasis on sensitive, rare, threatened, or endangered plant species or communities.
- Use native trees, shrubs, and grasses to restore areas to natural conditions. Non-native species may be used if necessary to provide temporary cover until native species can become established.
- Develop LAC indicators and standards for vegetation in campsites, and lean-to locations.
- Gather baseline vegetation data from areas where new campsites are installed. Use to develop LAC indicators.
- Monitor vegetation in high-use areas, such as campsites and lean-tos, on a continual basis to detect any changes before unacceptable conditions arise. Take action when LAC standards are exceeded, correct undesirable conditions by rehabilitating the area or relocating use to more durable sites.
- Enforce the Lands and Forests general rules and regulations regarding tree cutting on State land per 6 NYCRR §190.8(g). 6 NYCRR §190.1(c) further provides that “No wood, except from dead and down trees or from supplies furnished by the department, shall be used for fuel.”
- Educate the public on their role in protecting and sustaining natural plant communities and the vegetative impacts associated with various recreational activities.
- Encourage and support any research to determine the long-term effects of acid deposition on native plant species and communities.
- Train DEC staff working within the unit to identify and document the location of key invasive plant species.

- Work towards a complete comprehensive inventory of the presence and extent of invasive plants in the unit.
- Eliminate any identified populations of invasive plant species that are discovered in the unit using best management practices outlined in the Interagency Guidelines for the control of Terrestrial Invasive Plant Species on Forest Preserve Lands in the Adirondack Park (APA, DEC, 2007). These actions may be carried out by DEC personnel or by members of APIPP or other volunteers under supervision of DEC through an Adopt-a-Natural Resource Agreement.
- Continue periodic monitoring and further management of identified invasive plant populations.

## **6. Wildlife**

### ***Present Conditions***

While all of the objectives and management actions outlined below are important, a management priority should be placed on increasing our understanding of the occurrence and distribution of many wildlife species and their habitats within HMPA. This priority is reflected under the list of potential management action projects (denoted by letters) outlined below.

### **Guidelines for Protection of the Adirondack Subalpine Forest Bird Conservation Area**

Adirondack mountain summits above 2800' are part of the Adirondack Subalpine Forest Bird Conservation Area (ASFBCA). This BCA was established to provide protection for a distinctive bird community, which includes Bicknell's Thrush (species of special concern), Blackpoll Warbler, and Swainson's Thrush. According to the DEC report *Adirondack Subalpine Forest Bird Conservation Area: Management Guidance Summary* (see Appendix E for full report) trail construction and maintenance activities, especially those involving motorized equipment, have the potential to disturb the nesting activities of upper-elevation birds such as Bicknell's thrush. Whenever possible, routine maintenance should be planned so that it can be completed outside of the normal nesting season for Bicknell's thrush. Should maintenance be needed during this period, the use of non-motorized equipment would help to minimize impacts.

The use of motorized equipment, in accordance with Department policy, is allowed from April 1, through May 24 in wilderness areas. However, pertinent studies by the Vermont Institute of Natural Science (Rimmer et. al. 2004, 2005) recommend that construction activities within Bicknell's Thrush breeding habitat (e.g. ASFBC) occur before May 15 or after August 1. Authors of the reports confirmed that the timing of breeding behavior in the Adirondacks is almost identical to that observed in Vermont (Rimmer, McFarland, personal communication.). Therefore, blowdown removal using chainsaws will be prohibited from May 15 through August 1 within the ASFBCA; construction activities will occur during off-peak seasons and outside the breeding season for Bicknell's thrush, with the written approval of the

#### ***Section IV: Proposed Management Actions***

---

Commissioner, as required by the APSLMP; and the use of helicopters will occur after September 15 and before May 15, except in emergencies, in keeping with current Department policy.

#### ***Objectives***

- To perpetuate, support, and expand a variety of wildlife recreational opportunities, including sustainable hunting and trapping and wildlife observation and photography as desirable uses of wildlife resources.
- To assure that wildlife populations are of appropriate size to meet the demands placed on them, including consumptive and non-consumptive uses.
- To increase our understanding of the occurrence, distribution, and ecology of game and non-game wildlife species and their habitats
- To minimize wildlife damage and nuisance problems
- To meet the public's desire for information about wildlife and its conservation, use, and enjoyment.

#### ***Management Actions***

- Manage and protect wildlife through enforcement of the Environmental Conservation Law and applicable Rules and Regulations.
- Support traditional use of the unit's wildlife resources, particularly activities designed to perpetuate hunting and trapping programs and education efforts.
- Continue to monitor and inventory wildlife populations and their habitats, particularly game species, species classified as rare, threatened, endangered or special concern, and those species associated with boreal habitats.
  - a. Conduct targeted surveys for endangered and special concern bird species that were documented in the first Breeding Bird Atlas Project, but not the second. These species include Bicknell's Thrush, Northern Goshawk, Whip-poor-will, and Vesper Sparrow.
  - b. Where harvest information is lacking, conduct surveys for American marten to better understand distribution and habitat use.



- c. Conduct surveys for bird species associated with boreal forest. Priority should be placed on those species that were detected during the first Breeding Bird Atlas Project, but not the second and on those species that were not detected during either survey project.
  - d. Monitor existing radio-collared moose and continue to collar new individuals on an opportunistic basis.
  - e. Monitor use of deer wintering areas in the unit.
  - f. Continue to support statewide survey efforts that increase our understanding of the occurrence and distribution of flora, fauna, and significant ecological communities (e.g., Breeding Bird Atlas, New York Natural Heritage Program surveys).
  - g. Continue to support ongoing wildlife research and survey projects in the Adirondacks. Examples include research on American marten and black bear ecology and surveys for moose, Peregrine Falcon, Bald Eagle, and Osprey.
- Blowdown removal using chainsaws, or construction activities within the Subalpine Forest Bird Conservation Area, will occur after August 1 and before May 15.
  - Active management of wildlife populations will be accomplished primarily through hunting and trapping regulations developed by the Department's Bureau of Wildlife for individual or aggregate Wildlife Management Units. Continued input from Citizen Advisory Committees will be considered in determining desirable levels of wildlife.
  - Re-establish, to the extent possible, self-sustaining wildlife populations of species that are extirpated, endangered, threatened or of special concern in habitats where their existence will be compatible with other elements of the ecosystem and human use of the area.
  - Provide information, advice and assistance to individuals, groups, organizations and agencies interested in wildlife whose activities and actions may affect, or are affected by, the wildlife resources or the users of wildlife.
  - Provide information, advice and/or direct assistance to requests for relief from, or solutions to reduce or alleviate, problems with nuisance wildlife.
    - a. Provide information to user groups on avoiding problems associated with black bears. Encourage the use of bear-resistant food canisters.

- b. Work cooperatively with the Division of Lands and Forests to assess problems associated with beaver-flooded trails. Work with area trappers and encourage trapping at nuisance sites during the open beaver trapping season.

## **7. Fisheries**

### ***Present Conditions***

Fish management in the HMPA has been limited because of the lack of ponded water. Little active fishery management has been conducted on streams within the unit because of their remoteness and small size. However, portions of several tributaries of the Ausable and Boquet Rivers have been stocked with landlocked Atlantic salmon fry. Most of these stockings occur in stream sections located outside the unit, although some certainly occurs within the periphery of the unit's boundaries. After about two years in the streams, the salmon emigrate to Lake Champlain where they spend their adult lives. Waterfalls prevent salmon from returning from Lake Champlain to the streams in the unit. The objective of the stocking is to restore native landlocked Atlantic salmon populations in the Lake Champlain basin.

All area waters are subject to statewide angling regulations.

The 1993 Organizational and Delegation Memorandum regarding "Fishery Management Policy in Wilderness, Primitive, and Canoe Areas" forms the basis for fishery management goals in the unit. That memorandum includes policy guidelines that resulted from negotiations between the DEC, APA and several citizen organizations.

### ***Objectives***

- Restore native fish communities with emphasis on native species that have declined due to man's influences. This goal is consistent with the primary wilderness management guideline in the APSLMP. Implementation may include reclamations, liming, stocking and other activities as per the "Fishery Management Policy in Wilderness, Primitive, and Canoe Areas."
- Protect native fish communities from the addition of undesirable non-native fishes. This goal is also consistent with the primary wilderness management guideline in the APSLMP.
- Provide recreational angling as part of a larger wilderness experience emphasizing quality over quantity.
- Protect the fishless state of naturally barren waters that have not been stocked.

***Management Actions***

- Maintain and enforce general angling regulations in the unit.
- Promote angler use of the waters in the unit, but generally only in the context of numerous additional waters throughout the Adirondacks. For example, leaflets distributed to anglers will list waters in the HMPA along with other waters that provide similar fish resources; they will not highlight the HMPA waters over other waters.
- Enhance partially effective natural fish barriers, and construct fish barrier dams as needed to prevent the spread of non-natives and NBWI fishes. The APSLMP specifies that fish barrier dams are conforming structures in wilderness areas. When non-natives have been established upstream of an existing barrier, enhanced/constructed fish barriers may be the only option to prevent the spread of fishes further upstream in that portion of the watershed. Specific sites for newly enhanced or constructed barriers are not proposed in this plan. If or when the need for a new barrier site is identified, the UMP will be amended to include the proposed work.
- Fish stocking will emphasize native species, although historically associated fishes may be stocked as per the "Fishery Management Policy in Wilderness, Primitive, and Canoe Areas."
- Conduct biological surveys of waters within the unit as required.

## ***B. Land Protection***

### ***1. Open Space/Land Acquisition***

***Present Conditions***

The overall framework for land protection in New York State is identified in the State Open Space Conservation Plan. The plan is built from the bottom up from the work of nine regional committees, representing the spectrum of open space advocates, natural resource and recreation professionals, local government, and concerned citizens. This plan ensures that the State of New York conserves its cherished open space resources as a critical part of efforts to improve the economy, and the quality of life in New York communities.

There is currently no winter access to the Crow Clearing parking area at the end of O'Toole Road in the Town of Keene. This has led users to park in the snowplow turn-around at the end of the town maintained section of O'Toole road. Plowing the un-maintained section of road is not feasible at this time. A winter parking area along the maintained portion of O'Toole road (preferably in the vicinity of the snowplow turnaround) would provide users with a legal parking area from which to access the Crow Clearing trailhead.

**Objective**

- Acquire suitable private lands, by fee title and/or conservation easement that adjoin the HMPA through negotiated sale with willing sellers.

**Management Actions**

- Acquire private inholdings if they become available for sale.
- Acquire privately held rights on lands within the unit if they become available for sale.
- Acquire land for winter parking area in the vicinity of Crow Clearing, through fee title or easement, if suitable lands become available.

## ***C. Man-made Facilities***

### **1. Boundary Line Management**

**Present Conditions**

Aside from public roads, the HMPA has approximately 34.3 miles of boundary lines that must be maintained on a regular basis. The proper maintenance of these lines is important to help reduce trespass, eliminate the need for resurvey work, familiarize field staff with an area, reduce the cost of regular inspections, and facilitate public use of the area. Boundary line maintenance needs to be given a high priority when annual work plans are developed and funding requests are made.

Boundary line maintenance should be prioritized; with areas most susceptible to incursion maintained first.

**Objectives**

- Locate, post, and maintain all unit boundary lines.
- Identify and address all access, land title, and trespass issues.
- Identify APSLMP unit designations on the ground for administrative and public use.

### ***Management Actions***

- Physically inspect all boundary lines to determine maintenance needs and assign a priority to each identified need. Undertake maintenance activity to ensure all boundaries are identified and marked within the five-year implementation of this plan. Brush, paint, and sign all boundary lines at least once every seven years as per DEC Boundary Line Maintenance Policy NR-95-1. Mark boundaries where they cross any trail, road, or stream.
- Monitor boundaries and pursue strict enforcement for unauthorized activities, such as illegal motor vehicle and mountain bike entry and timber trespass.
- Sign unit boundaries with boundary signs identifying the land classification of the unit.
- Sign trailheads, trails and other entrances to the HMPA with specific signage identifying the unit's designation, so that both DEC personnel and the public know individual unit designations.
- Boundary line maintenance should be prioritized; with areas most susceptible to incursion maintained first.

## **2. Trails**

### ***Present Conditions***

An inventory of HMPA trails was completed in 2005 and has been incorporated into a trails classification system, patterned after the U.S. Forest Service's Nationwide Trails Program as endorsed by the U.S. General Accounting Offices, 1989 (Appendix A). DEC has incorporated this system into its HMPA trails program and each trail has been assigned a classification based on its present condition and level of use. Five trail classifications are used ranging from unmarked footpaths (Class I) on through to intensively maintained trunk trails (Class V). Trail standards and maintenance prescriptions, reflecting different types and levels of use, are defined for each class in Appendix A. The classification system acknowledges the fact that all trails do not require the same degree or frequency of maintenance.

Trail management involves not just the trail itself, but also the corridor it occupies. Trails are not self-sustaining. Once developed, all trails must receive a degree of maintenance; otherwise non-maintained trails will deteriorate and cause resource problems. DEC faces a backlog of trail maintenance and reconstruction projects on most of the units trails. Much of the maintenance that takes place within the unit is carried out on a voluntary basis by individuals and organizations that have Adopt-a-Natural-Resource agreements with DEC.

Several sections of the HMPA trail network are poorly located, with long stretches of grade three to four times steeper than present acceptable design standards. As grades approach 50 percent, it becomes

#### ***Section IV: Proposed Management Actions***

---

nearly impossible to control erosion. Summit trails, with these long steep grades, tend to channel water and create gullies accelerating erosion (Trapp et al., 1994). The upper portion of the Hurricane Trail from Route 9N in Keene provides an example of such a trail. Several sections of this trail have grades in excess of 45 percent. Gullies have formed in these sections of the trail creating drainage channels. Due to the steep grades and gullying, constructing and maintaining drainage structures would be cost prohibitive, and of questionable success. Another problem associated with this section of trail is the formation of ice in the winter. Water running down the trail/gulley freezes into ice flows that are difficult to negotiate. In such areas, hikers tend to walk around the icy section which has led to substantial trail widening.

Several other sections of the HMPA trail network will need to be rerouted to avoid areas that are not suitable. Areas identified for relocation and other trail improvements beyond routine maintenance are listed below.

- Soda Range Trail (from Biesemeyer Lean-to) – Needs to be rerouted around steep section just below the summit of Weston Mountain. A preliminary search has been conducted, but no suitable reroute has been located at this time.
- North Trail to Hurricane Mountain – Trail needs to be rerouted away from tributary of Gulf Brook to avoid several unnecessary stream crossings and low, wet areas (approximately 0.5 miles).
- Hurricane Trail from Route 9N – Several sections in the lower third of this trail need to be rerouted to avoid steep, eroded areas; poorly drained areas, and a streambed. Suitable reroutes have been identified for each of these locations, including an approximately 0.3 mile section near the beginning of the trail. The upper section of this trail needs to be rerouted to avoid several steep eroded sections. A suitable reroute has been identified to the west of the existing trail and has been included in this plan for formal adoption (see map, Appendix O).
- Trail to Hurricane Crag – The rock climbing area at Hurricane Crag is accessed via a herdpath. The trail does not conform to accepted trail layout standards and is starting to show signs of erosion which will only get worse with time. This trail will be rerouted to a more sustainable location and maintained to Class III standards to preserve its primitive character while allowing for necessary drainage structures.

Although there are a number of trails in the HMPA (see Appendix A. For a complete list of trails in the unit), most of the unit is free from marked trails or other facilities. These undeveloped areas provide truly outstanding opportunities for both solitude, and primitive and unconfined recreation as called for in wilderness Areas by the APSLMP. To preserve these opportunities, no new trails are being proposed for the unit at this time. New trails should only be proposed in future revisions of this plan if necessary for resource protection.

**Objectives**

- Provide visitors with a trail system that offers a range of wilderness recreational opportunities in a manner that keeps physical, biological and social impacts to a minimum.
- Maintain and reconstruct trails to appropriate wilderness standards.
- Identify need for trail relocations and/or need for new trails based on resource protection.

**Management Actions**

- Formally adopt, as a matter of Department policy, the trail classification and standards system contained in Appendix A. for all trail management activities in the HMPA. Under this system, all developed trails will be maintained, relocated, or reconstructed to specific standards. Wilderness trail maintenance will emphasize resource protection and visitor safety rather than user comfort or convenience.
- Reroute upper section of Hurricane trail (from Route 9N) along proposed route (see map).
- Reroute all sections of trail, identified above.
- Trail construction, relocation, or reconstruction activities shall require an approved project work plan.
- Close existing sections of trail that have been bypassed by reroutes once these reroutes have been established. Monitor trail closures for effectiveness.
- Contractual and volunteer trail maintenance agreements, approved by DEC, will be reviewed annually and additional volunteer agreements will be sought.
- Trail maintenance will include removal of downed trees, ditching, clearing of brush, water bar construction and cleaning, bridge repairs and reconstruction in accordance with annual work plans and availability of funds.
- Consider new trail construction only when necessary for resource protection or user safety.
- Attempts will be made to formalize public recreation easements on trails that currently lack deeded public access rights. Deeded easements shall be the preferred mechanism; however revocable easements should be pursued where land owners prefer not to grant permanent public

access. In cases where public access has been denied, connecting trails on Forest Preserve will be brushed in and closed, with no additional maintenance permitted.

### **3. Trailheads**

#### ***Present Conditions***

A trailhead is defined as the starting or termination point of one or more designated trails at a point of entrance to state land which may contain some or all of the following: vehicle parking, trail signs, and peripheral registration structures (Van Valkenburg, 1986). A trailhead classification system was adopted in 1986 to provide for consistency in their location and development. Class I trailheads are the most developed and are found at the major entrances to backcountry. Class II and Class III are encountered at lesser used trails with correspondingly less development.

There are three developed trailheads in the HMPA:

1. Crow Clearing – Maintain to Class I Trailhead standards

Trailhead for several popular hikes and overnight destinations. The parking area capacity meets Class I guidelines, but the surface does not. A trail register and some appropriate signage are already in place.

There is currently no winter access to the Crow Clearing parking area. This has led users to park in the snowplow turn-around at the end of O'Toole road. Alternative winter parking scenarios are being explored at this time, to ensure winter parking/access to the Crow Clearing area.

2. Hurricane Mountain – Maintain to Class I Trailhead standards

Trailhead for the Hurricane Trail, which is the most popular route to the summit of Hurricane Mountain. The parking area currently does not meet Class I size or surface requirements. A trail register and some appropriate signage are already in place.

The current parking area for this trailhead is located directly across Route 9N on lands within the NYS DOT right-of-way, and the Giant Mountain Wilderness Area. The design of this parking area limits parking to approximately five cars. Current use on busy days (e.g. summer weekends), greatly exceeds this capacity, causing many users to park along the shoulder of the road near the trailhead. The current design of the parking area also makes it difficult to plow in the winter which leads to users parking on the side of the road. This creates a hazardous situation for recreational users, and those driving by.

Options to redesign and expand the parking area have been explored and a preferred alternative has been developed by DEC and NYS DOT. The Parking area should be expanded to accommodate an additional six cars. This number is recommended to allow reasonable access to the unit while



limiting the number of users that can be on the summit of Hurricane Mountain at any given time (see the Public Use section below for further discussion of this issue). Such an expansion will be accomplished by adding a six car pull-off parking area on the north side of Route 9N, directly across from the existing parking area. This parking area will be approximately 120 feet long and will allow six cars to park parallel to the road. This design will provide parking adjacent to the trail and can be easily plowed in the winter. Furthermore, it will eliminate the need for users to cross route 9N during the winter when such a crossing is most dangerous for recreational users, and those driving by. The current parking area on the south side of Route 9N will be retained at its current size (5 cars) to allow a total of 11 cars to park at this trailhead.

3. Elizabethtown (Hurricane Road) – Maintain to Class III Trailhead standards

Trailhead for the Elizabethtown Trail to Hurricane Mountain. The parking area currently meets size and surface requirements. A trail register and some appropriate signage are already in place.

This trailhead and the Elizabethtown Trail receive little use. The parking area is located on private property at the end of the town maintained portion of Hurricane Road, but the trail register is located roughly half a mile beyond this point along the old road to the fire observer's cabin. There is an informal agreement with the landowner to allow the public use of the parking area.

**Objectives**

- Provide and manage adequate trailhead facilities to protect resource values and to accommodate visitor needs.
- Provide adequate parking and mitigate any parking related problems.
- Indirectly manage interior use by balancing parking lot capacities to interior visitor capacities.
- Mitigate parking problems in cooperation with affected parties.
- Place all appropriate signage at trailheads to inform users of DEC rules and regulations, the location of facilities, proper safety and sanitary measures, and recommended backcountry etiquette.

**Management Actions**

- Place appropriate signage at the Elizabethtown Trailhead.

## **Section IV: Proposed Management Actions**

---

- Redesign parking area at Hurricane Mountain trailhead to accommodate 11 cars (see details above).
- Establish suitable winter parking area for the Crow Clearing Trailhead.
- Seek either revocable or deeded easements to ensure continued public access to the Elizabethtown trailhead parking area consistent with the landowner's wishes.
- Schedule routine maintenance of trailheads and litter removal.
- Develop partnerships with local governments and outside volunteers to maintain and snowplow roadside trailhead parking facilities.
- Parking levels at all trailheads will be monitored. If significant overflow parking (beyond proposed capacities) occurs, DEC will work with affected parties, and appropriate authorities/agencies to limit parking to proposed levels.

## **4. Campsites**

### ***Present Conditions***

A primitive tent site, commonly referred to as a designated campsite, is one identified by a DEC permissive sign or disk, providing space for not more than three tents, and designed to accommodate a maximum of eight people on a temporary or transient basis. These sites are designed to accommodate the need for shelter while having the least possible impact on the environment (APSLMP, 2001).

There are currently four designated campsites in the HMPA. Three of these sites are located in the vicinity of the Gulf Brook Lean-to and one is located near the Biesemeyer Lean-to. The campsites in the vicinity of Gulf Brook are too close to each other, and the Lean-to, to conform with the APSLMP guideline stating that, in Primitive and Wilderness Areas, primitive tent sites must be "out of sight and sound and generally one quarter mile from any other primitive tent site or lean-to." Likewise, the campsite near the Biesemeyer Lean-to is located too close to that lean-to. All of these campsites will be relocated to suitable/compliant areas. Three campsites will be retained in the general area of the Gulf Brook lean-to and one campsite will be relocated in the vicinity of the Biesemeyer lean-to. This will provide sites where camping has traditionally occurred in the unit.

When choosing locations for new campsites it is important to consider the appropriateness of the site based on natural resource concerns as well as social concerns. How convenient and/or attractive a site will be for users determines how likely they are to use it. If campsites are located in areas that are too hard to get to, or are unappealing, users may forsake these areas and camp in locations less able to

sustain the use. When selecting areas for relocating the campsites in the HMPA, efforts have been made to find locations that meet all current BMPs and will be convenient for users as well.

Proposed management actions for the Gulf Brook Lean-to (see Lean-to section below) will allow one campsite to be retained adjacent to its current location. Suitable locations have been found for another campsite in the vicinity of the Gulf Brook Lean-to, and one campsite in the vicinity of the Biesemeyer Lean-to. These locations have been included in this plan for formal adoption (see map, Appendix O). The fourth site should ideally be relocated along the North Trail to Hurricane Mountain; however, sections of this trail are proposed to be rerouted, so relocation of this campsite will be postponed until a suitable trail reroute has been established.

Baseline vegetation data should be collected at all new campsite locations for use in the LAC process.

### ***Objectives***

- Assure that campsite and privy locations comply with APSLMP guidelines.
- Attempt to locate campsites in areas that are attractive or convenient for users while adhering to APSLMP guidelines and best management practices. Resource protection will be the first priority.
- Monitor camping in the unit to determine if existing (proposed) facilities are adequate for current use levels.
- Prohibit camping in fragile environments to limit adverse impacts on the resource.

### ***Management Actions***

- Campsites will be designated to define proper camping locations, disperse use, and limit adverse impacts to resources and other campers.
- Relocate designated campsites to proposed locations (see map, Appendix O.) To comply with APSLMP guidelines.
- Existing campsites that do not comply with APSLMP guidelines will be closed and restored to a natural condition when proposed replacement sites have been established (See map, Appendix O. for proposed locations).
- Establish new campsites if necessary for resource protection.

#### **Section IV: Proposed Management Actions**

---

- Develop LAC indicators for levels of vegetation trampling/damage at campsites.
- Collect baseline vegetation data at location of new campsites for use in LAC process.
- So-called “at-large” camping will be permitted in accordance with 6 NYCRR §190.3(b). This regulation prohibits camping within 150 feet of any road, trail, spring, stream, pond, or other body of water except at camping areas designated by the department.
- “At-large” camping will be prohibited above 3,000 feet in elevation.
- Annual work plans shall incorporate campsite maintenance and rehabilitation.
- All designated campsites will be re-inventoried every 5 years. Primitive tent sites will be closed, re-vegetated and/or relocated if LAC standards are exceeded.

## **5. Lean-tos**

### ***Present Conditions***

There are currently 2 lean-tos in the HMPA, the Biesemeyer, and the Gulf Brook. Both of these are frequently used and popular with families and camp groups.

The Biesemeyer Lean-to is currently in good condition and no major maintenance is anticipated over the five year period of this UMP. The area around the lean-to is also in good shape with relatively few natural resource impacts associated with camping use.

The Gulf Brook lean-to is located adjacent to Gulf Brook at the junction of the North Trail to Hurricane Mountain and the Lost Pond Trail. The lean-to’s location on Gulf Brook and its short distance from the Crow Clearing Trailhead (1.0 miles away) make it a popular destination for camping, or short day trips.

The lean-to’s close proximity to the North, and Lost Pond Trails has lead to the establishment of multiple social paths that people have used to access the lean-to from either of these trails. The extent of negative resource impacts at the site is much greater than that normally associated with camping use and is considered unacceptable.

The Gulf Brook Lean-to is in generally good condition with the exception of its roof which will need to be replaced in the near future. Because the lean-to is less than 100 feet from Gulf Brook, replacing the roof (considered reconstructing the lean-to) is not an option at its current location, as per the following APSLMP guideline:

Any new, reconstructed or relocated lean-tos or primitive tent sites....will be set back a minimum of 100 feet from the mean high water mark of lakes, ponds, rivers or major streams.

This means the lean-to will need to be relocated or removed when minor repairs are no longer sufficient to maintain it to a useable condition. Since this may occur during the five year time frame of this UMP, several management alternatives are considered below:

Gulf Brook Lean-to Management Alternatives:

1. No action

The no action alternative calls for leaving the lean-to in place but discontinuing maintenance. If the roof on the lean-to is not fixed in the near future, rain and snowmelt will begin to leak into the interior of the lean-to. This will greatly diminish the usefulness of the lean-to, and lead to its rapid deterioration. Also, this will not address the negative resource impacts associated with current use patterns in the area.

2. Relocate to new site

This alternative calls for moving the lean-to to a nearby site that is compliant with the APSLMP. Ideally, the lean-to would be located a short distance away from the hiking trail(s), close to a reliable water source (while adhering to APSLMP guidelines), and in a location that serves both the North Trail to Hurricane Mountain as well as the Lost Pond/Soda Range Loop. Other site considerations include durable soil types with adequate drainage, and moderate slopes (including access paths to the lean-to, privy, and water sources).

Reconnaissance of the surrounding area has been conducted, but a suitable location to relocate the lean-to has yet to be found.

3. Remove from unit

This alternative calls for the complete removal of the lean-to from the HMPA and reclamation of the lean-to site. This would limit the number of lean-tos within the unit to one, and significantly alter current camping opportunities. While this will lead to fewer established camping facilities, it will help to change use patterns in the vicinity and alleviate current negative resource impacts. It will also preserve the wild character of the unit within the Gulf Brook Valley.

Of the alternatives listed above, the preferred alternative is number 3, removal. This alternative has been chosen because it adheres to the master plan provision for lean-tos within 100 feet of lakes, ponds, rivers, or major streams; while also restoring, and enhancing the natural conditions of the area and encouraging user self sufficiency, as called for in the APSLMP.

## ***Section IV: Proposed Management Actions***

---

It is recognized that this lean-to has become a landmark for many repeat visitors, and has provided an enjoyable camping experience for many users over its (approximately) 50 year lifespan. It is also recognized that the removal of this lean-to may lead to a reduction of recreational users whose main destination has been this facility. This is not an intended consequence, as current use levels are not considered a problem within the unit. It should also be emphasized that lean-tos are considered conforming structures in primitive and wilderness areas. However, as mentioned above, removal of the Gulf Brook lean-to is considered the best option for addressing this particular situation.

### ***Objective***

- Assure that lean-to and privy locations comply with APSLMP guidelines

### ***Management Actions***

- Develop LAC indicators for levels of vegetation trampling/damage at lean-to sites.
- The maximum capacity of a lean-to site shall not exceed 8 persons.
- Remove the Gulf Brook Lean-to and reclaim its former site.
- Discourage the establishment and use of unnecessary paths adjacent to the lean-tos, and reclaim these disturbed areas where they exist.

## **6. Bridges**

### ***Present Conditions***

The Department's Forest Preserve Policy Manual addresses foot bridges in wilderness areas with the following language:

The objective of management in Wilderness, Primitive, and Canoe Areas is to preserve remoteness and offer opportunities for solitude. The level of physical challenge in these areas should be kept high by providing few or no facilities. Wet feet and inconvenience are not unreasonable expectations for users of such areas. Therefore, new foot bridges should not be provided in these areas. Unless removal creates a hazardous or environmentally unsound condition, those bridges that are in place should be removed as they deteriorate or become unsafe and those still remaining should be scheduled for removal in the unit management plan for the area involved. In such instances, the foot bridge may be replaced unless the location of the trail can be changed to a site where the

stream crossing does not create such problems or the routing of the trail can be changed so that it does not cross the stream.

APSLMP guidelines list foot bridges as conforming structures in wilderness areas. However, these guidelines also call for management of interior facilities to:

Be designed to emphasize the self-sufficiency of the user to assume a high degree of responsibility for environmentally-sound use of such areas and for his or her own health, safety and welfare.

There are currently 3 foot bridges that cross streams in the HMPA. Additionally, there are several sections of bog bridge/boardwalk that traverse wet areas along the Hurricane trail from Route 9N.

1. Bridge at Crow Clearing – This bridge crosses a tributary of Gulf Brook and provides access to the Gulf Brook Trail. The bridge is currently in good shape and will not require any maintenance within the five year time frame of this plan. Since this bridge is located at the trailhead and not in the backcountry, it is not significantly infringing on the wild character of the unit. Furthermore, removal of this bridge could create a hazardous condition and lead to streambank erosion. For these reasons, this bridge will be retained, and rebuilt when necessary.
2. Foot bridge over Spruce Hill Brook on Hurricane Trail from Route 9N – This bridge crossing will be bypassed by a proposed reroute of the trail and will be replaced by stepping stones (rock-hop) further upstream.
3. Footbridge over Falls Brook on Elizabethtown Trail to Hurricane – This bridge is currently in good shape, and will not require any maintenance within the five year time frame of this plan.

After examining the current bridge location it has been determined that the stream is narrow and shallow enough at this location to be reasonably crossed on stepping stones or safely forded during most of the year. Therefore, this bridge is not necessary for user safety. Extreme high water events and certain winter conditions may make a safe crossing difficult or impossible at this site but these situations should be infrequent and will impact few users. In keeping with the Department and APSLMP guidelines stated above, it will be up to users to plan ahead and be prepared for such conditions.

The current bridge is preventing stream-bank erosion by keeping users off of the stream banks. It has been determined that minor stabilization with rock or log cribbing would be nearly as effective. Therefore, this bridge is not necessary for resource protection either.

#### **Section IV: Proposed Management Actions**

---

Since this bridge is not necessary for user safety it will be removed when it becomes unsafe. At this time, any necessary stream bank stabilization work will be done to protect the natural resource.

4. Bog Bridge on Hurricane trail from Route 9N – There are several sections (some quite long) of bog bridge on the Hurricane Trail. Much of the original bridging system has become deteriorated and is in the process of being replaced. This section of the trail traverses poorly drained areas which make the bridging necessary to protect the natural resource. The potential may exist to reroute the trail to higher ground where bridging would not be necessary. The possibility of such a reroute should be explored in future revisions of this plan when the bridging that is currently being installed needs to be replaced.

Historically there has been a foot bridge over Gulf Brook (near the site of the Gulf Brook Lean-to) that provided access to the northern trail to Hurricane Mountain. There is currently no bridge at this site and hikers are required to ford the stream or cross on rocks. This is not a problem much of the year. However, high water events and certain winter conditions may make a safe crossing difficult or impossible. It has been over nine years since a bridge was in place at this site, and in that time there have been no known accidents or injuries related to crossing Gulf Brook. Therefore it is determined that a bridge is not necessary for user safety.

There has been moderate stream bank erosion at the site of this crossing as a result of recreational use. This could be mitigated by replacing the bridge or stabilizing the banks with rock or log cribbing.

Since a bridge at this site is not necessary for user safety or resource protection, the original bridge will not be replaced. The stream banks at this crossing will be stabilized with rock or log cribbing to protect the natural resource.

As outlined in the Trails section above, the lower section of the North Trail to Hurricane Mountain will be rerouted. This may change the location of the crossing of Gulf Brook. If this occurs, a crossing will be selected where a bridge will not be necessary for user safety or resource protection.

#### **Objectives**

- Retain existing bridges, or construct new bridges only where necessary for user safety or resource protection; not user convenience.
- Adopt a bridge design system that meets the user's needs, provides resource protection and requires minimal future maintenance.
- Ensure all bridges are properly maintained and safe for travel.



### ***Management Actions***

- Retain or remove bridges as outlined above.
- Stabilize stream banks with rock or log cribbing where necessary at stream crossings.
- Conduct regular inspections of all bridges to identify maintenance needs and develop a priority list.
- Assess replacement needs in coordination with all DEC program units and volunteer organizations.
- Incorporate the use of Best Management Practices (BMPs) identified in the Management Guidelines section of this plan in all new bridge construction and relocation projects .
- Incorporate the principles of universal design where required into all new bridge construction projects and maintenance work.

## **7. Signs**

### ***Present Conditions***

Signs are used to welcome users, mark trails, and provide regulatory, interpretive, and safety information. Proper signing can educate users and help minimize user impacts on the resource. In wilderness areas, signs may be erected at trail junctures that show directions with arrows and use the minimal necessary wording. The Division of Lands and Forests, and Operations use signs within the unit; however, signage is kept to a minimum within the unit to avoid interfering with wilderness values and guidelines.

Trailheads and much of the wilderness boundary are not well identified. Trailhead signing is limited to small signs on standards. Several entrances have register boxes which provide minimal information. Interior signing is limited to trail junctions, special information and regulatory signs.

### ***Objectives***

- Provide for the minimal use of signs necessary to manage and protect the Wilderness resource and user safety.
- Adequately identify the unit, major access points, and resources.

## ***Section IV: Proposed Management Actions***

---

- Place appropriate signage at trailheads to inform users of DEC rules and regulations, the location of facilities, proper safety and sanitary measures, and recommended backcountry etiquette.

### ***Management Actions***

- Develop a comprehensive sign inventory that is maintained and updated annually.
- Coordinate and review all signs through a single area manager, and post signage that is consistent, and relevant to resource and user needs.
- Place appropriate signage at trailheads to inform users of DEC rules and regulations, the location of facilities, proper safety and sanitary measures, and recommended backcountry etiquette.
- Place all pertinent signage at Elizabethtown trailhead
- Place signage at all trailheads alerting hikers to the fragile nature of the soils and plant communities on Hurricane Mountain, and encouraging them to stay on the trail or bare rock.

## ***D. Public Use and Access***

### ***1. Public Use***

#### ***Present Conditions***

Public access to the HMPA is free and relatively unregulated. Public use is permitted to the extent that it does not degrade the physical, biological, and social characteristics of the area. The “minimum tool” concept is used to manage public use and achieve management objectives, using indirect methods when possible (i.e. limiting parking), and direct methods when necessary (promulgating regulations). Examples of where both methods are considered necessary are listed below.

Many visitors consider large groups inappropriate and undesirable in wilderness. Most wilderness users prefer not to feel crowded, and highly value privacy, solitude, and peace and quiet (Dawson, et al, 2005). Aside from behavioral factors, the potential to cause impact varies with party size and the type of user. Parties larger than 8 persons in a group have been documented to cause greater impacts to certain environmental and sociological resources than smaller groups (Cole, 1987, 1989, Hendee, 1990, and USDA Forest Service, 1994). Although large party use in the unit represents a small proportion of total users, they contribute a disproportionate amount of impact when compared to smaller parties.

Large groups commonly create congestion problems at trailhead facilities, on trails, rock climbing sites, and mountain summits. It is very difficult to control and confine large groups in vulnerable locations, such

as mountain summits or riparian areas. The rate of unacceptable change on a particular resource can be accelerated by large group occupancy of a site over a short period of time. Higher noise levels and sound issues are associated with large groups.

Large camping groups require greater campsite space and often clear areas to accommodate additional tents, store equipment, or make room to eat and congregate. Large groups cooking with wood fires generally consume greater amounts of fuel wood and extend firewood gathering areas. Impacts tend to be more spread out and extend well beyond campsite boundaries. DEC regional practice limits overnight groups in Wilderness Areas to a maximum of 12 individuals. Forest rangers issue the permits and are given the authority to lower this ceiling depending on campsite suitability, time of desired use, and location.

There are currently no restrictions limiting day use in the HMPA. Groups of any size may enter the unit. It is a major source of visitor dissatisfaction when large groups, just by their sheer size, displace other users. There is also a problem when groups from one organization split into several smaller groups and then rejoin at interior locations, often fragile summit areas. Large group use is inconsistent with the concept of solitude, which is called for in Wilderness Areas as per the APSLMP.

Selecting a specific group size requires judgment; no magic formula exists to calculate an ideal number. The situation is parallel to setting speed limits to control use on highways. Research indicates that the size of a group should be low, ideally 4-6 people per group, but generally less than 10 persons per party to be effective in reducing environmental and sociological impacts (Cole, and others, 1987).

Day use group size restrictions of a maximum of 15 people are recommended in order to protect the natural resources and the “wilderness character” of the unit as called for in the Management Principles of this plan. This number is consistent with group size limitations recently established in nearby Wilderness Areas, and will help to set a standard for recreational use of Wilderness within the Adirondack Park.

The most popular destination in the unit is the summit of Hurricane Mountain. The summit offers outstanding views of the surrounding High Peaks of the Adirondacks, as well as Lake Champlain and Vermont. To avoid crowding on the summit, the proposed parking capacity for the unit is aimed at limiting the number of users on the summit to no more than 30 people at any given time<sup>1</sup>. Trail register

---

<sup>1</sup>Total of 30 people is based on an average of 2.5 people per car and the following parking capacities:

*Hurricane 9N Trailhead: 11 cars (proposed total)*

*Elizabethtown Trailhead: 3 cars*

*Crow Clearing Trailhead: 11 cars (with average of 33% of users climbing Hurricane Mountain)*

## **Section IV: Proposed Management Actions**

---

data suggest that this number may be exceeded on the busiest summer and holiday weekends, but use during all other times is much lower. It has been determined that the summit of Hurricane Mountain is large enough to accommodate up to 30 individuals while still allowing for an acceptable degree of solitude for most users. For those users wishing a higher degree of solitude, most of the unit is undeveloped and sees little if any use in a typical year. These undeveloped areas contain a number of different ecological communities and landscape features, including mountain summits with exceptional views, and offer truly outstanding opportunities for solitude.

Many of the resource impacts that result from recreational use can be mitigated through an active visitor education and information program. Most visitors lack a basic understanding of DEC rules and regulations and are unaware of the effects their activities have on the resource. Visitors need to be informed of the proper use of state land and all special rules and regulations that apply before they enter the unit. A well developed education and information program can help reduce any user related impacts while improving the visitor experience. DEC will Develop a brochure and map of the HMPA in conjunction with other nearby Forest Preserve units that focuses on the area's history, natural resource values, recreational opportunities, use guidelines, and linkages with local communities. The development of a comprehensive user education strategy outside the UMP initiative is also being undertaken by the DEC.

### **Objectives**

- Manage visitor use to keep impacts on the resource and experiences of all visitors at an acceptable level consistent with the concept of wilderness as described by the APSLMP.
- Monitor changes in use and level of use over time.
- Encourage both overnight and day users to keep parties small and establish desirable maximum party sizes.
- Increase visitor self-sufficiency and knowledge of personal protection through educational efforts.

### **Management Actions**

- Adopt regulations to limit the maximum number of persons per campsite, or lean-to, to eight. This will be implemented over a two-year period.

---

*This allows for 45 people to be climbing Hurricane Mountain, but it is assumed that no more than two thirds of those people (30 people) would be on the summit at any given time due to different start times, hiking abilities, etc.*

YEAR ONE – Inform the public of the impending change through an information and education effort.

YEAR TWO –Adopt a specific regulation to conform with the APSLMP to reduce the maximum number of persons per campsite to eight.

- Adopt regulations to limit the size of day use groups to a maximum of 15 persons per party. This will be implemented over a two-year period.

YEAR ONE – Inform the public of the impending change through an information and education effort.

YEAR TWO –Adopt a specific regulation to conform with the APSLMP to reduce the size of day use groups to a maximum of 15 persons per party.

- When larger groups split up to meet size limits, each subgroup must be equipped as a self-sustaining group. Each division of a larger group must camp and travel at least one mile apart from other divisions of the group so as not to violate group size limits. Day use groups must adhere to this same requirement and not congregate into larger groups on trails or at destination points.
- Those groups desiring a larger group size for day and overnight activities will be referred to appropriate Wild Forest areas where a higher degree of recreational use can be sustained and is permitted by the APSLMP.
- Information about group size limits will be disseminated through an information and education program, to Inform visitors of limits during trip planning and/or prior to arrival.
- Continue to collect public use data from trail registers to determine average number of yearly users and groups sizes.
- Develop uniform method of collecting use data across the unit.
- Develop a brochure and map of the HMPA in conjunction with other nearby Forest Preserve units that focuses on the area’s history, natural resource values, recreational opportunities, use guidelines, and linkages with local communities.
- Promote “Leave-No-Trace” ethics and techniques with all users, particularly with hikers.
- Adopt regulations to:
  - Prohibit the possession of glass containers, other than those necessary for medication.

## **Section IV: Proposed Management Actions**

---

- Prohibit the use of any audio device which is audible outside the immediate area of a primitive tent site.
- Prohibit the use of any motorized equipment by the public, as required in the APSLMP.

## **2. Rock Climbing**

### **Present Conditions**

Rock climbing in the unit is known to occur in the vicinity of the so called “Hurricane Crag” (also known as Pitchoff 9N). The crag is a large cliff on the southern shoulder of Pitchoff Mountain and is visible from Route 9N. Several climbing routes have been described on the main wall of the crag and on a smaller practice wall (Spruce Hill Crag) in the woods below the main cliff (Lawyer, Haas, 2008). The area (especially at the base of the upper/main wall) is prone to erosion due to the steep topography and thin soils found there. Erosion is occurring at the base of both climbing areas, but it is most apparent at the Spruce Hill Crag. To avoid further negative resource impacts, drainage and soil stabilization structures will be installed, and Leave-No-Trace™ principles will be promoted on site, and through the unit’s information and education programs.

Although use levels have never been measured in this area, they are believed to be low compared to other rock climbing areas. Use levels should be monitored to determine current levels and trends.

There is no official parking area in the vicinity of the Hurricane Crag. Users of the area currently park on the shoulder of Route 9N near the crag. Observations by DEC staff indicate that one to two cars are typically parked at the area on a good climbing day with higher numbers seen infrequently. A pull-off parking area large enough for three cars should be constructed near where users are now parking. Any parking lot proposal will need to be developed in conjunction with the NYS DOT, and is subject to their approval.

The use of fixed anchors as a method of protection for rock climbers has become an issue in neighboring forest preserve units, but they are not known to be used in the HMPA. This plan will support the recommendations from the Dix Mountain and Giant Mountain Wilderness Area UMPs to establish a temporary moratorium on the placement of new, or replacement of existing, bolts or fixed pitons; inventory all known climbing walls in the unit for existence of fixed anchors; and convene a focus group (including Department and Agency staff, members of the climbing community, environmental organizations and other interested parties) to develop a park-wide policy on the management of fixed anchors on Forest Preserve lands.

### **Objectives**

- Manage visitor use to keep impacts on the resource, and experiences of all visitors at an acceptable level consistent with the concept of Wilderness as described by the APSLMP.

- Monitor changes in use and levels of use over time.
- Manage rock climbing sites to minimize environmental impacts.
- Provide adequate parking for desired number of users.

### ***Management Actions***

- Stabilize soil at the top and base of climbing routes (using native materials) where erosion is identified as a problem.
- Install Class II register/kiosk at beginning of the trail to the climbing wall (just inside of woods/out of sight from road). Include climbing specific Leave-No-Trace™ principles, rules and regulations, and any other pertinent information.
- Leave-No-Trace™ principles and all other pertinent information will also be disseminated through the unit's information and education programs. Informing visitors during trip planning and/or prior to arrival is essential.
- Establish a temporary moratorium on the placement of new, or replacement of existing, bolts or fixed pitons.
- Inventory all known climbing walls in the unit for existence of fixed anchors.
- Develop pull off-parking area large enough for three cars to park parallel to the highway.

## **3. Access for Persons with Disabilities**

### ***Present Conditions***

Past management of the HMPA has not focused on provision of access for people with disabilities. Slopes and other terrain constraints make most of the unit difficult to access. Exposed roots, rocks and other natural barriers also limit access. The primitive nature of Wilderness coupled with APSLMP guidelines that Wilderness be "without significant improvement," and "generally appears to be affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable" severely limits what forms of interior modification can be undertaken. The APSLMP provides for limited development along the periphery of the unit. These areas remain the most likely candidates for development of accessible facilities.

#### ***Section IV: Proposed Management Actions***

---

The road that forms the common boundary between the HMPA and the Jay Mountain Wilderness Area, known as Well's Hill Road in the town of Lewis, and the Jay Mountain Road in the town of Jay, provides an opportunity for individuals to observe nature from their vehicle. High clearance, 4-wheel drive vehicles are recommended for travel on this road. Also, the road is not maintained in winter.

A possible location within the unit that may be suitable for the development of accessible facilities is the area in the vicinity of the Crow clearing Trailhead. The potential for accessible facilities at this location will be studied as part of this plan.

The Universal Trail Assessment Process (UTAP) is an objective method of measuring such site conditions as average and maximum grade, minimum trail width, cross slope, trail length, and surface type. These variables can then be presented to the user at the trailhead to allow them to make an informed decision on whether they would like to use the facility or not.

#### ***Objectives***

- Increase access opportunities for people with disabilities where such development does not alter the fundamental nature of existing programs, is compliant with Department regulation and policy, and conforming under the guidelines of the APSLMP.
- Comply with the Americans with Disabilities Act (ADA) of 1990 by improving access and creating recreational opportunities for people with disabilities.
- Inform users of the location and condition of facilities in the unit, focusing on such variables as length of trails, average grade, steepest grade, minimum width, etc., to allow them to make informed decisions regarding whether they choose to use a facility or not.

#### ***Management Actions***

- Incorporate accessible signage at trailhead access points.
- Identify potential opportunities for accessible facilities in the unit.
- Conduct assessment of selected facilities using the Universal Trail Assessment Process (UTAP).
- Provide trail access information, gathered from Universal Trail Assessment Process, at trailheads.



## *E. Non-conforming Uses*

As per the APSLMP, Primitive Areas fall into two different categories: (1) those areas that are essentially wilderness in character, and are destined to be reclassified as Wilderness Areas when certain non-conforming uses or structures can be removed (or the issues surrounding them can be resolved); and (2) those areas that are essentially not wilderness in character and are unlikely to become wilderness, but require a level of protection equal to that of Wilderness due to the high quality or fragility of their associated resources. The HMPA represents the first type of Primitive Area, and reclassification to wilderness is pending the resolution of the following three issues regarding non-conforming uses/structures:

### **1. Fire Tower**

#### ***Present Conditions***

There is currently a fire tower in the unit on the summit of Hurricane Mountain. This tower was erected in 1919 and was in use until the early 1980s. As per the APSLMP, fire towers are considered a non-conforming structure in Wilderness Areas. The tower on Hurricane Mountain is specifically referenced in the APSLMP as follows:

“The fire tower on Hurricane Mountain is currently an essential communication link to the Department of Environmental Conservation at present. Should it be replaced by other means of fire patrol and communications, the entire area should be reclassified as wilderness”.

The restrictions on fire towers, and most other man made facilities in wilderness areas, are in place to help preserve the wild character of these land units. Wilderness areas are recognized as unique, and increasingly rare, natural resources that warrant a high degree of protection to ensure their welfare. In recent years, however, there has been a growing interest in fire towers, and they are seen by many as unique—and increasingly rare—historical resources that also warrant a high degree of protection. Fire towers have come to be valued as a part of the heritage of the Adirondacks.

The Hurricane Mountain Fire Tower is listed on the National Register of Historic Places, and the National Historic Lookout Register. The New York State Historic Preservation Act of 1980 (SHPA) requires DEC to consult with OPRHP regarding any facilities which are listed on the National Historic Register, or are eligible for listing. With respect to fire towers in the Adirondacks this consultation took the form of a SHPA Letter of Resolution in 1994 (see Appendix N). This agreement commits the Department to taking affirmative steps to facilitate the preservation of some historic fire towers, but allows for the removal of towers from land units in which they are considered non-conforming by the APSLMP. The Hurricane Mountain Fire Tower was recommended for removal in this letter.

#### **Section IV: Proposed Management Actions**

---

Fire towers, by their very nature, are conspicuous structures. They were built to be taller than any surrounding vegetation, and located on sites, usually mountain tops, that provided unobstructed views of the surrounding countryside. For this reason, fire towers are generally visible from great distances, and many have become local landmarks. The Hurricane Tower, although it is only 35 feet tall, stands out prominently on the bald summit of Hurricane Mountain. It is visible from the nearby hamlets of Elizabethtown and Keene, and from neighboring mountains. For many in the area, the tower has become a welcome part of the natural landscape. One local resident who remembers the tower being built summed up his feelings for it as follows: “It just wouldn’t be Hurricane Mountain without the tower” (Goodwin, 2006). The Hurricane Mountain Chapter of the Adirondack Mountain Club has also adopted the tower as a symbol of their group. As with many other fire towers in the state, a “friends group” has formed for the Hurricane Tower, advocating for its retention and restoration through a petition and letter writing campaign. In addition, support for retention of the tower has been expressed by members of the state senate and assembly, and by local government resolutions.

Opposition to the tower has also been expressed. Local environmental organizations and some individuals have argued that the fate of the tower has already been determined in the APSLMP. They believe that the tower infringes on the wilderness character of the HMPA and stands in the way of the unit being reclassified to wilderness.

The Hurricane Mountain Fire Tower is clearly the highest profile issue in this UMP, and most of the public comment regarding the tower has come as a result of the UMP process. In determining the appropriate action to take regarding the tower several alternatives were considered (See below). Each of these alternatives was evaluated based on its practicality from a management standpoint, and its conformance to the APSLMP. As stated in the preface to this UMP:

Executive Law §816 requires the Department to develop, in consultation with the APA, individual UMPs for each unit of land under the Department’s jurisdiction which is classified in one of the nine classifications set forth in the Master Plan. The UMPs must conform to the guidelines and criteria set forth in the Master Plan. Thus, UMPs implement and apply the Master Plan’s general guidelines for particular areas of land within the Adirondack Park.

Executive Law §816(1) provides in part that “(u)ntil amended, the master plan for management of state lands and the individual management plans shall guide the development and management of state lands in the Adirondack Park.”

Management alternatives considered during the UMP process:

- ALTERNATIVE 1

This alternative proposes no action. This “no action” alternative would avoid decision making and leave the future of the fire tower in doubt. The tower would no longer be in use as a fire observation platform, would have no proposed utility for Forest Preserve management since the wood steps have been removed, and would become increasingly unsafe for public use over time. The un-maintained structure would fall into disrepair and pose a public safety hazard. This alternative does not comply with the APSLMP which calls for the tower’s removal when it is replaced by other means of fire patrol and communications. Therefore, this alternative will not be supported by this plan.

- ALTERNATIVE 2

This alternative would retain the tower at its current location to preserve its value as a historic structure, but discontinue any maintenance that would make it suitable for public recreational use or interpretation. Similar to alternative 1, this alternative fails to comply with the requirements of the ASLMP, and the letter of resolution between DEC and OPRHP which recommended that the tower be removed. Therefore, this alternative will not be supported by this plan.

- ALTERNATIVE 3

This alternative would retain the fire tower and operate a station for wildfire observation or emergency communications purposes. The tower would be restored as needed to allow use of a permanent radio repeater or occasional use as a temporary radio repeater platform when needed by the Department for fire suppression, law enforcement and search and rescue purposes. The added benefit is that a historic structure would be maintained intact. Once fire towers are removed, it is unlikely they will be replaced.

The Department’s wildfire detection system has generally progressed beyond the need for fire towers, so the Hurricane tower is no longer needed as a wildfire observation station. Emergency use of the tower as a temporary repeater station by a person with a portable radio would likely be infrequent. It would be hard to justify the retention and maintenance of the tower just for infrequent emergency use. This alternative, while a viable option, will not be supported by this plan.

- ALTERNATIVE 4

This alternative would reclassify the land around the tower as wild forest or historic, so that the tower would conform with APSLMP guidelines. This alternative attempts to reconcile the existence of the tower with the requirements of the APSLMP.

#### **Section IV: Proposed Management Actions**

---

While a UMP can recommend that lands be reclassified, in this case the reclassifications called for would contradict the current language in the APSLMP regarding the HMPA and the Hurricane Mountain Fire Tower which states:

*The fire tower on Hurricane Mountain is currently an essential communication link to the Department of Environmental Conservation at present. Should it be replaced by other means of fire patrol and communications, the entire area should be reclassified as wilderness.*

The intent is obviously to reclassify the area to a more restrictive classification (wilderness), not a less restrictive one (wild forest). Likewise, reclassifying the land as Historic was clearly not the intent of the letter of resolution between DEC and OPRHP which allowed for the removal of the tower.

Furthermore, even if the Master Plan was amended to allow for the retention of the fire tower, ECL § 9-0109(4)(b) states that historic structures can only remain in the forest preserve if:

*“...the commissioner finds that such structures and improvements can be maintained for public enjoyment and understanding of the forest preserve or for departmental activities necessary in protecting forest preserve lands in the parks in a manner that will not disturb the existing degree of wild forest character of land on which the pre-existing structures or improvements are located or the wild forest character of land adjacent thereto...”*

For the reasons listed above, this alternative will not be supported by this UMP.

- ALTERNATIVE 5

This alternative would request a revision to the language in the Master Plan to add existing fire towers to the list of structures that are considered as conforming to wilderness standards. The revision would also state that no new fire towers would be constructed in wilderness, primitive, or canoe areas.

The APSLMP could potentially be revised to allow for fire towers in wilderness areas, and the Department (along with any other state agency, local government, private organization, or citizen) could request such a revision. The outcome of such a request would necessarily be determined by the APA.

While this is a viable alternative, the Department has decided not to pursue this option because the Department has been mandated, through the APSLMP, to manage Forest Preserve lands within the Adirondack Park under the various land classifications outlined in the plan. As stated

above, the HMPA was originally destined to be a wilderness area (pending removal of non-conforming structures) and the Department has strived to manage the area as such. Retaining the tower on Hurricane Mountain would be in direct opposition to maintaining or enhancing the wild character of the HMPA.

- **ALTERNATIVE 6 (preferred alternative)**

This alternative would remove the fire tower as a non-conforming structure as per APSLMP guidelines. Public comments have been largely in support of retaining the fire tower for its recreational and historic preservation values, but to do so would be in violation of the requirements of the ASLMP and the Department's previous agreement with OPRHP relating to fire towers.

The Department has taken into consideration the public's comments, both for and against retention of the tower, and weighed these comments with other considerations such as conformance with guiding documents, and projected management needs and abilities.

Along with its position within the HMPA, the tower was also considered in the larger context of Adirondack Park. A study of all state owned fire towers in the Adirondack Park was proposed in the final drafts of the Saint Regis Canoe Area and Blue Ridge Wilderness/Wakely Mountain Primitive Area UMPs (2006). This study was proposed as a result of the large amount of public comment regarding fire towers received during the Saint Regis Canoe Area, Blue Ridge Wilderness and Wakely Mountain Primitive Area, and HMPA Unit Management Planning processes. The Department completed the Fire Tower Study for The Adirondack Park in February 2010, and the decision to remove the fire tower on Hurricane Mountain has been informed by specific recommendations in the study.

While the department is proposing to remove the Hurricane Mountain Fire Tower, it has made a commitment to restore a number of fire towers in the Adirondack Park to preserve their historic and recreational value to the public. Current restoration efforts include 13 Adirondack fire towers, and three additional towers have been identified for future restoration.

Since this alternative complies with the Department's guiding documents, and projected management needs, it is the preferred alternative and will be supported by this plan.

Removing the Hurricane Mountain Fire Tower will affect an historic structure, an aesthetic resource, and the character of the existing community. The action will remove an important area landmark that has value from historic and cultural perspectives. The impact of the tower's removal will be noticeable over an area much larger than the Hurricane Mountain Primitive Area, and will affect other state lands as well as private lands.

## **Section IV: Proposed Management Actions**

---

Removal of the tower, however, will also allow for the reclassification of the Hurricane Mountain Primitive Area to wilderness as called for in the APSLMP.

From an historical perspective, the impact of the tower's removal can be mitigated by restoring and erecting the tower at an alternate site where it can serve as an educational and recreational tool. Several New York fire towers have been similarly relocated in the past. These include the fire tower at the New York State Fairgrounds (originally located on Padlock Hill), the fire tower at the Adirondack Museum (originally located on Whiteface Mountain), and the fire tower at the Adirondack History Center (constructed from parts of two separate towers originally located on Kempshall and West Mountains).

Plans for the future of the Hurricane Mountain Fire Tower have not been formalized, but efforts will be made to relocate the tower to a site where the public can benefit from its unique historical value. If possible, the tower will be transferred with a protective covenant to preserve the architectural and historical integrity of the structure.

Removal of the tower will likely require the use of a helicopter, as well as several workers on the ground. This may have negative impacts on 2 endangered species, 1 threatened species, and one species of special concern. Peregrine falcons (endangered) and Bicknell's thrush (special concern) are known breeders in the vicinity of the tower. The breeding season for peregrine falcons is April 1, through August 1. The breeding season for Bicknell's thrush is May 15, through August 1. To ensure that removal efforts do not negatively affect either of these bird species, no work associated with removal of the tower will be performed during their known breeding seasons (April 1, through August 1).

Appalachian firmoss (threatened) and northern wild comfrey (endangered) are also known to grow in the vicinity of the tower. Prior to any work associated with removal of the tower, the worksite will be inventoried for occurrences of these plant species. Areas where either of these species is found will be avoided or otherwise protected so that construction activities will not have a negative impact on them.

Because removal efforts will negatively affect the wilderness setting and sense of solitude on Hurricane Mountain, work associated with removal of the tower should ideally be scheduled outside of peak visitor use periods to minimize the number of people affected by this activity.

## **2. Power Line**

### ***Present Conditions***

There is a power line operated by the New York State Electric and Gas Corporation (NYSEG) that runs through the western portion of the unit in lots 119 and 120 of Township One, Thorn's Survey (Old Military Tract); and Lot 242 of the Essex Tract, Henry's Survey (see map, Appendix O). The power line is located on a deeded right of way that is 100 feet wide. The deed guarantees the right to access the right of way for the purpose of maintaining the power line as well as the right to trim, cut and remove trees. Trees and other interfering vegetation are currently removed every six years (or as needed).

The cleared power line with its poles, wires and access road is inconsistent with the idea and definition of wilderness as described in the APSLMP. According to this document, a wilderness area is an area “where the earth and its community of life are untrammelled by man”. A wilderness Area is further defined as “an area of state land or water having a primeval character, without significant improvement”.

The power line effectively cuts the western portions of lots 119, 120, and 242 (approximately 141 acres) off from the rest of the unit. Since the power line is essentially permanent, it is recommended that the portions of the unit that include the power line, and lands to the west of the power line be retained in primitive classification if the HMPA is reclassified as Wilderness.

### **3. Roads**

#### ***Present Conditions***

There are two roads leading to two private inholdings in the vicinity of the Elizabethtown Trailhead in lots 56, 57, and 58 of Township One, Thorn’s Survey (Old Military Tract). If the HMPA is reclassified as Wilderness, it is recommended that a Primitive Corridor be established for these roads to act as a buffer zone between the roads and the Wilderness Area. If these parcels ever become available for sale, they should be purchased to consolidate State ownership within the HMPA management area.

## ***F. Proposed Regulations***

#### ***Present Conditions***

Several of the management proposals outlined in this section require the promulgation of new rules and regulations in accordance with the State Administrative Procedure Act, Department policies and procedures, and the APSLMP. Statutory authority for regulations is found in the ECL §9-0105(3) and in of the Adirondack Park Agency Act (Executive Law §§816.1 – 816.3). Executive Law §816.3 directs the Department to develop rules and regulations necessary to implement the APSLMP. Existing regulations relating to public use of State lands under the jurisdiction of the Department are found in 6 NYCRR, Part 190. These proposed regulations constitute the minimum level of direct regulation necessary to assure APSLMP compliance and directly influence visitor behavior to protect resources and the experiences of visitors.

Amend 6 NYCRR §190.13 (Wilderness Areas in the Adirondack Park) to apply the following regulations to the HMPA:

- 190.13(c) Group size restrictions: which prohibit day use groups of fifteen or more people, prohibit camping groups of eight or more people on or after July 1, 2011, and prohibit larger

#### ***Section IV: Proposed Management Actions***

---

groups unless separated into smaller groups which do not exceed such limitations and such smaller groups maintain a separation distance from each other of at least one mile at all times

- 190.13(d) Camping restrictions which prohibit tent platforms or camp structures other than tents, tarps, lean-tos, or those composed of snow; prohibit camping above 3,000 feet in elevation.
  
- 190.13(f) Miscellaneous Restrictions
  - Requiring registration at trail registers.
  
  - Prohibiting the use of any audio device which is audible outside the immediate area of a campsite.
  
  - Prohibiting the use of soap or detergent in any pond, stream or other water body.
  
  - Prohibiting the disposal of any food scrap, food matter or food container in any pond, stream or other water body.
  
  - Prohibiting the use any motorized equipment.
  
  - Prohibiting the marking of trails with plastic ribbons, paint, blazes or other devices.
  
  - Prohibiting cutting or clearing trails, or the marking of summits with canisters except by written permission of the department.
  
  - Prohibiting unattended pets or pets not under the complete control of their owners.
  
  - Requiring users to have proof of a valid and current rabies inoculation for any dog which is accompanying them.
  
  - Prohibiting the building or maintaining of any commemorative features, such as signs, plaques or markers depicting cultural sites.
  
  - Prohibiting the undertaking of any research project except under permit.
  
  - Prohibiting the possession of any glass container, except those glass containers which are necessary for the storage of prescribed medicines, which shall be exempt from this prohibition.



## SECTION V: SCHEDULE FOR IMPLEMENTATION AND ESTIMATED BUDGET

The following tables outline a schedule for implementation of the proposed management actions and their estimated costs. Accomplishments are contingent upon sufficient staffing levels and available funding. The estimated costs of implementing these projects are based on historical costs incurred by the Department for similar projects. Values for some projects are based on projected costs for service contracting. These cost estimates do not include capital expenditures for items such as equipment, nor do they include the value of program staff salaries.

Annual Maintenance and other Activities	Estimated Cost
Boundary line maintenance (approximately 7 miles/year @ \$500/mile).	\$3,500
Routine maintenance of trails and associated facilities.	\$5,000 15 person-days
Maintenance and cleanup of campsites, Lean-tos, and associated facilities.	\$1,000 4 person-days
Monitor public use and visitor impacts on natural resources and related facilities.	12 person-days
Monitor unit for invasive plant infestations.	12 person-days
Eliminate identified populations of invasive plants.	As needed
Conduct biological and chemical surveys of selected waters to assess fisheries management needs, and to determine progress towards management objectives.	As needed
<b>Total Cost - Annual Maintenance and other Activities</b>	<b>\$9,500</b> <b>43 person-days</b>

**Section V: Schedule for Implementation and Estimated Budget**

<b>Year 1</b>	<b>Estimated Cost</b>
Begin reroute of upper section of Hurricane Trail from Route 9N.	\$12,500 6 person-days
Reroute lower sections of Hurricane Trail from Route 9N.	\$6,250 3 person-days
Install Class II Register/Kiosks at Crow Clearing and Route 9N Trailheads, and at Hurricane Crag Climbing area.	\$12,000
Redesign parking area at Route 9N Trailhead.	5 person-days
Develop parking area along Route 9N in vicinity of Hurricane Crag.	\$10,000 5 person-days
Upgrade Elizabethtown Trailhead to Class III standards.	\$5,000 1 person-day
Develop LAC indicators and standards for the condition of vegetation in campsites and lean-to locations.	12 person-days
Inventory all known climbing walls in the unit for existence of fixed anchors.	3 person-days
Promote an active educational program stressing the proper use of public lands, including the development of a unit brochure and map.	\$7,000 10-person-days
Promulgate regulations, as identified.	20 person-days
Identify potential access opportunities in the unit for persons with disabilities.	10 person-days
Conduct assessment of selected facilities using the Universal Trail Assessment Process (UTAP).	15 person-days
<b>Total Cost - Year 1</b>	<b>\$52,750</b> <b>90 person-days</b>

**Section V: Schedule for Implementation and Estimated Budget**

<b>Years 2</b>	<b>Estimated Cost</b>
Continue reroute of upper section of Hurricane Trail from Route 9N.	\$7,500 6 person-days
Determine suitable locations for reroute of segments of North Trail to Hurricane Mountain, Lost Pond Trail and Weston Mountain Trail.	12 person-days
Relocate designated campsites to proposed locations.	\$6,250 5 person-days
restore existing campsites to a natural condition when relocations have been established.	\$5,000 4 person-days
Collect baseline soil and vegetation data at site of new campsites for use in LAC process.	4 person-days
Stabilize soils at rock climbing areas.	\$1,000 5 person-days
Conduct assessment of selected facilities using the Universal Trail Assessment Process (UTAP).	15 person-days
<b>Total Cost - Year 2</b>	<b>\$19,750</b> <b>51 person-days</b>

<b>Year 3</b>	<b>Estimated Cost</b>
Reroute sections of North trail to Hurricane Mountain.	\$6,250 6 person-days
Reroute Sections of Lost Pond, and Weston Mountain Trails.	\$5,000 4 person-days
Collect baseline soil and vegetation data at site of trail relocations for use in LAC process.	5 person-days
<b>Total Cost - Year 3</b>	<b>\$11,250</b> <b>15 person-days</b>
<b>Year 4</b>	<b>Estimated Cost</b>
Conduct assessment of selected facilities using the Universal Trail Assessment Process (UTAP).	15 person-days

**Section V: Schedule for Implementation and Estimated Budget**

---

<b>Year 3</b>	<b>Estimated Cost</b>
<b>Total Cost - Year 4</b>	<b>15 person-days</b>
<b>Year 5</b>	<b>Estimated Cost</b>
Initiate UMP review, and 5-year update.	160 person-days
<b>Total Cost - Year 5</b>	<b>160 person-days</b>

**Cost Summary**

Total Annual Maintenance Costs:       \$47,500  
  215 person-days

Total Yearly Project Costs:               \$83,750  
  331 person-days

**Total Cost of Implementation:        \$188,750**  
  **549 person-days**

## BIBLIOGRAPHY AND REFERENCES

- ADIRONDACK PARK AGENCY AND DEPARTMENT OF ENVIRONMENTAL CONSERVATION 1998. *MEMORANDUM OF UNDERSTANDING*. 1985 AND SUBSEQUENT 1995 AND 1998 AMENDMENTS, RAY BROOK, NY.
- ADIRONDACK PARK AGENCY. 2001. *ADIRONDACK PARK STATE LAND MASTER PLAN*. ADIRONDACK PARK AGENCY: RAY BROOK, NY.  
([HTTP://WWW.NORTHNET.ORG/ADIRONDACKPARKAGENCY/APA\\_PDF/SLMP/SLMPPDF2001.PDF](http://www.northnet.org/adirondackparkagency/apa_pdf/slmp/slmppdf2001.pdf))
- ANDRLE, R.F., AND J.R. CARROLL. 1988. *THE ATLAS OF BREEDING BIRDS IN NEW YORK STATE*. CORNELL UNIVERSITY PRESS, ITHACA.
- ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD. 1999. *REGULATORY NEGOTIATION COMMITTEE ON ACCESSIBILITY GUIDELINES FOR OUTDOOR DEVELOPED AREAS – FINAL REPORT*. THE ACCESS BOARD : WASHINGTON, DC. ([HTTP://WWW.ACCESS-BOARD.GOV/OUTDOOR/OUTDOOR-REC-RPT.HTM](http://www.access-board.gov/outdoor/outdoor-rec-rpt.htm))
- ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER. 1999. *WILDERNESS PLANNING TRAINING MODULE*, MISSOULA, MT. ([HTTP://CARHART.WILDERNESS.NET/MANUAL/AWARE/AWARE.PDF](http://carhart.wilderness.net/manual/aware/aware.pdf))
- ATWOOD, J.L., C.C. RIMMER, K.P. MCFARLAND, S.H. TSAI, AND L.R. NAGY. 1996. *DISTRIBUTION OF BICKNELL'S THRUSH IN NEW ENGLAND AND NEW YORK*. WILSON BULLETIN 108:650-662.
- BAILEY, J. 1980. *HISTORY OF THE TOWN OF KEENE, NEW YORK*. KEENE VALLEY LIBRARY ARCHIVES.
- BALL, J. 1974. *BIRDS OF NEW YORK STATE*. DOUBLEDAY/NATURAL HISTORY PRESS: GARDEN CITY, NY.
- BEEHLER, B. 1978. *BIRD LIFE OF THE ADIRONDACK PARK*. ADIRONDACK MOUNTAIN CLUB: GLENS FALLS, NY.
- BENT, A.C. 1940. *LIFE HISTORIES OF NORTH AMERICAN CUCKOOS, GOATSUCKERS, HUMMINGBIRDS, AND THEIR ALLIES*. DOVER PUBLICATIONS, INC. NEW YORK.
- BISHOP, SHERMAN C. 1941. *THE SALAMANDERS OF NEW YORK*. NEW YORK STATE MUSEUM BULLETIN 324:1-365.
- BROWN, E. 1985. *THE FOREST PRESERVE OF NEW YORK STATE*. ADIRONDACK MOUNTAIN CLUB: GLENS FALLS, NY.
- BULL, J. 1974. *BIRDS OF NEW YORK STATE*. COMSTOCK PUBLISHING ASSOCIATES, ITHACA.
- BURNS, K. 2005. NYS-DEC FOREST RANGER. PERSONAL INTERVIEW. JAY, NY
- BURT, W. AND GROSSENBEIDER R. *A FIELD GUIDE TO THE MAMMALS*. HOUGHTON MIFFLIN Co.: BOSTON, MA. 1964.

## ***Bibliography and References***

---

- CALVIN. 1903. REPORT TO THE COMMISSIONERS OF FISHERIES, GAME AND FORESTS, 1902-1903 IN: *ANNUAL REPORT OF THE FOREST, FISH AND GAME COMMISSIONERS FOR 1902-1903*. J.B. LYON COMPANY: ALBANY NY. PP 292
- CARLETON, G. 1980. *BIRDS OF ESSEX COUNTY, NEW YORK*. HIGH PEAKS AUDUBON SOCIETY: ELIZABETHTOWN, NY.
- CASSIRER, E.F. , D.J. FREEDY, AND E.D. ABLES. 1992. *ELK RESPONSES TO DISTURBANCE BY CROSS-COUNTRY SKIERS IN YELLOWSTONE NATIONAL PARK*. WILDLIFE SOCIETY BULLETIN 20:375-381.
- COLE, D.N. 1989. *WILDERNESS CAMPSITE MONITORING METHODS: A SOURCE BOOK*. GEN. TECH. REPORT INT-259, USDA FOREST SERVICE, INTERMOUNTAIN RESEARCH STATION: OGDEN, UT.  
([HTTP://WWW.WILDERNESS.NET/PUBS/179.PDF](http://www.wilderness.net/pubs/179.pdf))
- COLE, D.N. 1989. *LOW-IMPACT RECREATIONAL PRACTICES FOR WILDERNESS AND BACKCOUNTRY*. GEN. TECH. REPORT INT-265, USDA FOREST SERVICE, INTERMOUNTAIN RESEARCH STATION: OGDEN, UT.  
([HTTP://WWW.WILDERNESS.NET/PUBS/183.PDF](http://www.wilderness.net/pubs/183.pdf))
- COLE, D.N., PETERSEN, M. AND LUCAS, R. 1987 *MANAGING WILDERNESS RECREATION USE: COMMON PROBLEMS AND POTENTIAL SOLUTIONS*. GEN. TECH. REPORT INT-230, USDA FOREST SERVICE, INTERMOUNTAIN RESEARCH STATION: OGDEN, UT. ([HTTP://WWW.WILDERNESS.NET/PUBS/169.PDF](http://www.wilderness.net/pubs/169.pdf))
- COLE, D.N. 1994. *THE WILDERNESS THREATS MATRIX, A FRAMEWORK FOR ASSESSING IMPACTS*. RESEARCH PAPER INT-475, USDA FOREST SERVICE, INTERMOUNTAIN RESEARCH STATION: OGDEN, UT.  
([HTTP://WWW.WILDERNESS.NET/PUBS/247.PDF](http://www.wilderness.net/pubs/247.pdf))
- COLVIN, V. 1874. *REPORT ON THE TOPOGRAPHICAL SURVEY OF THE ADIRONDACK WILDERNESS OF NEW YORK FOR THE YEAR 1873*. WEED, PARSONS AND COMPANY: ALBANY, NY.
- COLVIN, V. 1880. *SEVENTH ANNUAL REPORT ON THE PROGRESS OF THE TOPOGRAPHICAL SURVEY OF THE ADIRONDACK REGION OF NEW YORK FOR THE YEAR 1873*. WEED, PARSONS AND COMPANY: ALBANY, NY.
- CONANT, R. AND J.T. COLLINS. 1998. *A FIELD GUIDE TO REPTILES AND AMPHIBIANS, EASTERN AND CENTRAL NORTH AMERICA*. HOUGHTON MIFFLIN COMPANY, BOSTON.
- DAWSON, C.P., PETERS, N., CONNELLY, N.A. AND BROWN, T.L. 2005. *ADIRONDACK VISITOR STUDIES CONDUCTED IN SUPPORT OF NYSDEC UNIT MANAGEMENT PLANNING: BOG RIVER UNIT, MCKENZIE MOUNTAIN WILDERNESS, WEST CANADA LAKE*. HUMAN DIMENSIONS RESEARCH UNIT REPORT HDRU SERIES NO. 05-6, CORNELL UNIVERSITY. ITHACA, NY.
- DAWSON, C.P., CONNELLY, N.A. AND BROWN, T.L. 2005. *ADIRONDACK VISITOR STUDIES CONDUCTED IN SUPPORT OF NYSDEC UNIT MANAGEMENT PLANNING: LAKE GEORGE WILD FOREST (NORTH) AND WILLIAM C. WHITNEY WILDERNESS*. HUMAN DIMENSIONS RESEARCH UNIT REPORT HDRU SERIES NO. 05-7, CORNELL UNIVERSITY. ITHACA, NY.

- DEGRAAF, R.M. AND D.D. RUDIS. 1983. *AMPHIBIANS AND REPTILES OF NEW ENGLAND*. THE UNIVERSITY OF MASSACHUSETTS PRESS, AMHERST.
- DEGRAAF, R.M. AND D.D. RUDIS. 1986. *NEW ENGLAND WILDLIFE: HABITAT, NATURAL HISTORY, AND DISTRIBUTION*. U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE. GENERAL TECHNICAL REPORT NE-108.
- DOIG, H.E. 1976. *WILDERNESS AREA MANAGEMENT*. NYS-DEC, DIVISION OF FISH AND WILDLIFE GENERAL POLICY DOCUMENT. ALBANY, NY.
- DRISCOLL, C.T. ET.AL. 2001. *ACIDIC DEPOSITION IN THE NORTHEASTERN UNITED STATES: SOURCES AND INPUTS, ECOSYSTEM EFFECTS, AND MANAGEMENT STRATEGIES*. *BIOSCIENCE* 51:3, p. 180-198.
- DRISCOLL, C.T., K.M. DRISCOLL, MJ MITCHELL AND DJ RAYNAL. 2002. *EFFECTS OF ACIDIC DEPOSITION ON FOREST AND AQUATIC ECOSYSTEMS IN NEW YORK STATE*. *ENVIRONMENTAL POLLUTION*. (IN PRESS).
- EDINGER, G.J., D.J. EVANS, S. GEBAUER, T.G. HOWARD, D.M. HUNT, AND A.M. OLIVERO (EDITORS). 2002. *ECOLOGICAL COMMUNITIES OF NEW YORK STATE*. SECOND EDITION. A REVISED AND EXPANDED EDITION OF CAROL RESCHKE'S *ECOLOGICAL COMMUNITIES OF NEW YORK STATE*. (DRAFT FOR REVIEW). NEW YORK NATURAL HERITAGE PROGRAM, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, ALBANY, NY.
- FREDDY, D.J., W.M. BRONAUGH, AND M.C. FOWLER. 1986. *RESPONSES OF MULE DEER TO DISTURBANCE BY PERSONS AFOOT AND SNOWMOBILES*. *WILDLIFE SOCIETY BULLETIN* 14:63-68.
- GEORGE, C.J. 1980. *THE FISHES OF THE ADIRONDACK PARK*. PUBLICATIONS BULLETIN FW-P171. NYS-DEC: ALBANY, NY.
- GIRAUD, W. 2005. NYS-DEC FOREST RANGER. PERSONAL INTERVIEW. ELIZABETHTOWN, NY
- GOODWIN, J. 2006. PERSONAL INTERVIEW. KEENE VALLEY, NY.
- GOODWIN, T. 1992. *GUIDE TO ADIRONDACK TRAILS: HIGH PEAKS REGION, 12<sup>TH</sup> EDITION*. ADIRONDACK MOUNTAIN CLUB: LAKE GEORGE, NY.
- GREELEY, J.R. AND BISHOP, S.C. 1932 *FISHES OF THE UPPER HUDSON WATERSHED*. IN: *A BIOLOGICAL SURVEY OF THE UPPER HUDSON WATERSHED*. STATE OF NEW YORK, CONSERVATION DEPARTMENT. J. B. LYON COMPANY: ALBANY, NY.
- HAMMITT, W.E. AND COLE, D.N. 1987. *WILDLAND RECREATION: ECOLOGY AND MANAGEMENT*. JOHN WILEY AND SONS: NY, NY.
- HARDIN, G. 1968. THE TRAGEDY OF THE COMMONS. *SCIENCE* 162:3859 PP. 1243-1248.
- HARDING, J.H. 1997. *AMPHIBIANS AND REPTILES OF THE GREAT LAKES REGION*. THE UNIVERSITY OF MICHIGAN PRESS, ANN ARBOR.

## ***Bibliography and References***

---

- HEALY, W.R. 1974. *POPULATION CONSEQUENCES OF ALTERNATIVE LIFE HISTORIES IN NOTOPHTHALMUS V. VIRIDESCENS*. COPEIA 1:221-229.
- HENDEE, J.C.; STANKEY, G.H. AND LUCAS, R.C. 1990. *WILDERNESS MANAGEMENT*. INTERNATIONAL WILDERNESS LEADERSHIP FOUNDATION: GOLDEN, CO.
- HUNTER, M.L., A.J.K. CALHOUN, AND M. MCCOLLOUGH. 1999. *MAINE AMPHIBIANS AND REPTILES*. THE UNIVERSITY OF MAINE PRESS, ORONO.
- HURST, J.E. 2004. *AN EVALUATION OF HISTORICAL CHANGE IN WHITE-TAILED DEER WINTER YARDS IN THE ADIRONDACK REGION OF NEW YORK*. M.S. THESIS, STATE UNIVERSITY OF NEW YORK, COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY. SYRACUSE, NY.
- HYNES, H.B. 1972. *THE ECOLOGY OF RUNNING WATERS*. UNIVERSITY OF TORONTO PRESS. TORONTO, ONT, CANADA.
- JAFFE, H.W. AND JAFFE, E.B. 1986. *GEOLOGY OF THE ADIRONDACK HIGH PEAKS REGION: A HIKER'S GUIDE*. ADIRONDACK MOUNTAIN CLUB: GLENS FALLS, NY.
- JOHNSGARD, P.A. 1990. *HAWKS, EAGLES, AND FALCONS OF NORTH AMERICA, BIOLOGY AND NATURAL HISTORY*. SMITHSONIAN INSTITUTION PRESS, WASHINGTON DC.
- JOHNSON, A.K. 2001. *COPING, CROWDING AND SATISFACTION: A STUDY OF ADIRONDACK WILDERNESS HIKERS*. M.S. THESIS. SUNY COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY: SYRACUSE, NY.
- KENDALL, D.L. 1987. *GLACIERS AND GRANITE*. DOWN EAST BOOKS: CAMDEN, ME.
- KETCHLEDGE, E.H. AND LEONARD, R. 1982. *ADIRONDACK INSIGHTS: SUMMIT STABILITY*. ADIRONDACK. DECEMBER, 1982 ADIRONDACK MOUNTAIN CLUB: GLENS FALLS, NY.
- KETCHLEDGE, E.H., ET.AL. 1985. *REHABILITATION OF ALPINE VEGETATION IN THE ADIRONDACK MOUNTAINS OF NEW YORK STATE*. RESEARCH PAPER NE-552. USDA FOREST SERVICE, BROOMALL, PA.
- KIRKLAND, G., ET.AL. 1975. *MAMMAL SURVEY OF ESSEX COUNTY, NEW YORK*. SHIPPENBURG STATE COLLEGE, PA.
- KRETZER, W., GALLAGHER, J. AND NICOLETTE, J. 1989. *ADIRONDACK LAKES STUDY 1984-1987, AN EVALUATION OF FISH COMMUNITIES AND WATER CHEMISTRY*. ADIRONDACK LAKE SURVEY CORPORATION: RAY BROOK, NY.
- KRUMPE, E. E. & G. L. STOKES. 1993. *EVOLUTION OF THE LIMITS OF ACCEPTABLE CHANGE PLANNING PROCESS IN UNITED STATES FOREST SERVICE WILDERNESS MANAGEMENT*. IN PROCEEDINGS, 5TH WORLD WILDERNESS CONGRESS SYMPOSIUM ON INTERNATIONAL WILDERNESS ALLOCATION, MANAGEMENT AND RESEARCH. SEPTEMBER 1993. TROMS, NORWAY. INTERNATIONAL WILDERNESS LEADERSHIP FOUNDATION, FORT COLLINS, COLORADO
- LAMBERT JD, SD FACCIO, AND B HANSCOM, 2002. *MOUNTAIN BIRDWATCH: 2001 FINAL REPORT TO THE UNITED STATES FISH AND WILDLIFE SERVICE*. VERMONT INSTITUTE OF NATURAL SCIENCE: WOODSTOCK, VT.



- LAWYER, J. AND HAAS, J. 2008. *ADIRONDACK ROCK: A ROCK CLIMBER'S GUIDE*. ADIRONDACK ROCK PRESS: POMPEY, NY.
- LINDSEY, J. 1958. THE FISH CAR – ADIRONDACK – AN ERA PASSES. *THE NEW YORK STATE CONSERVATIONIST*. DECEMBER - JANUARY, 1958-59. VOLUME 13(3):31. NEW YORK STATE CONSERVATION DEPARTMENT: ALBANY, NY.
- MARCHLAND, P.J. 1987. *NORTH WOODS*. APPALACHIAN MOUNTAIN CLUB: BOSTON, MA.
- MATHER, F. 1884. *MEMORANDA RELATING TO ADIRONDACK FISHES WITH DESCRIPTIONS OF NEW SPECIES, FROM RESEARCHES MADE IN 1882*. NEW YORK STATE LAND SURVEY, APPENDIX E. P. 113- 182.
- MAUTZ, W.W. 1978. *SLEDDING ON A BUSHY HILLSIDE: THE FAT CYCLE IN DEER*. WILDLIFE SOCIETY BULLETIN 6:88-90.
- McMARTIN, B. 1993. *DISCOVER THE NORTHEASTERN ADIRONDACKS*. NORTH COUNTRY PUBLICATIONS: UTICA, NY.
- McMARTIN, B. 1994. *THE GREAT FOREST OF THE ADIRONDACKS*. NORTH COUNTRY PUBLICATIONS: UTICA, NY.
- MELLOR, D. 1995. *CLIMBING IN THE ADIRONDACKS: A GUIDE TO ROCK AND ICE ROUTES IN THE ADIRONDACK PARK*. ADIRONDACK MOUNTAIN CLUB: LAKE GEORGE, NY.
- MITCHELL, R.S. AND TUCKER, G.C. 1997. *REVISED CHECKLIST OF NEW YORK STATE PLANTS*. NEW YORK STATE MUSEUM: ALBANY, NY.
- NATIONAL SCIENCE AND TECHNOLOGY COUNCIL COMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES. 1998. *NATIONAL ACID PRECIPITATION ASSESSMENT PROGRAM BIENNIAL REPORT TO CONGRESS: AN INTEGRATED ASSESSMENT*. U.S. NATIONAL ACID PRECIPITATION ASSESSMENT PROGRAM, SILVER SPRING, MD. ([HTTP://WWW.NNIC.NOAA.GOV/CENR/NAPAP/NAPAP\\_96.HTM](http://www.nnic.noaa.gov/CENR/NAPAP/NAPAP_96.htm))
- NYS-DEC. 1980. *PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ON FISH SPECIES MANAGEMENT ACTIVITIES OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF FISH AND WILDLIFE*. ALBANY, NY.
- NYS-DEC. 1981. *PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ON UNDESIREABLE FISH REMOVAL BY THE USE OF PESTICIDES UNDER PERMIT ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF LANDS AND FORESTS BUREAU OF PESTICIDES MANAGEMENT*. ALBANY, NY.
- NYS-DEC. 1992. *PHARAOH LAKE WILDERNESS AREA UNIT MANAGEMENT PLAN*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION: ALBANY, NY.
- NYS-DEC. 1993. *PIGEON LAKE WILDERNESS AREA UNIT MANAGEMENT PLAN*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION: ALBANY, NY.

## ***Bibliography and References***

---

- NYS-DEC. 1994. *FIVE PONDS WILDERNESS COMPLEX UNIT MANAGEMENT PLAN*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION: ALBANY, NY.  
([HTTP://WWW.DEC.STATE.NY.US/WEBSITE/DLF/PUBLANDS/UMP/REG6/FIVEPONDS.PDF](http://www.dec.state.ny.us/website/dlf/publands/ump/reg6/fiveponds.pdf))
- NYS-DEC. 1999. *HIGH PEAKS WILDERNESS COMPLEX UNIT MANAGEMENT PLAN*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION: ALBANY, NY.  
([HTTP://WWW.DEC.STATE.NY.US/WEBSITE/DLF/PUBLANDS/ADK/HPWA/HPW\\_UMP.PDF](http://www.dec.state.ny.us/website/dlf/publands/adk/hpwa/hpw_ump.pdf))
- NYS-DEC. 2001. *ADIRONDACK SUBALPINE FOREST BIRD CONSERVATION AREA MANAGEMENT GUIDANCE*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION: ALBANY, NY.  
([HTTP://WWW.DEC.STATE.NY.US/WEBSITE/DFWMR/WILDLIFE/BCA/ADIR\\_MGS.HTML](http://www.dec.state.ny.us/website/dfwmr/wildlife/bca/adir_mgs.html))
- NYS-DEC. 2004. *DIX MOUNTAIN WILDERNESS AREA UNIT MANAGEMENT PLAN*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION: ALBANY, NY.  
  
([HTTP://WWW.DEC.STATE.NY.US/WEBSITE/DLF/PUBLANDS/UMP/REG5/DMWA.PDF](http://www.dec.state.ny.us/website/dlf/publands/ump/reg5/dmwa.pdf))
- NYS-DEC. 2004. *GIANT MOUNTAIN MOUNTAIN WILDERNESS AREA, BOQUET RIVER PRIMITIVE AREA UNIT MANAGEMENT PLAN*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION: ALBANY, NY.  
  
([HTTP://WWW.DEC.STATE.NY.US/WEBSITE/DLF/PUBLANDS/UMP/REG5/GMWC.PDF](http://www.dec.state.ny.us/website/dlf/publands/ump/reg5/gmwc.pdf))
- NYS-DEC. 2005. *SAINT REGIS CANOE AREA DRAFT UNIT MANAGEMENT PLAN*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION: ALBANY, NY.
- NYS-DEC. 2005. *SILVER LAKE WILDERNESS AREA UNIT MANAGEMENT PLAN*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION: ALBANY, NY.
- NEW YORK STATE FOREST COMMISSION, 1884. *MAP OF THE ADIRONDACK PLATEAU SHOWING POSITION AND CONDITION OF EXISTING FORESTS*. NEW YORK STATE FOREST COMMISSION: ALBANY, NY.
- O'NEIL, W. 1990. AIR RESOURCES IN THE ADIRONDACK PARK.\_ *THE ADIRONDACK PARK IN THE TWENTY-FIRST CENTURY, TECHNICAL REPORTS, VOLUME ONE*. COMMISSION ON THE ADIRONDACKS IN THE TWENTY-FIRST CENTURY: ALBANY, NY
- PEEK, J.M. 1997. *HABITAT RELATIONSHIPS. PAGES 351-376 IN FRANZMANN, A.W. AND C.C. SCHWARTZ (EDS.) ECOLOGY AND MANAGEMENT OF THE NORTH AMERICAN MOOSE*. SMITHSONIAN INSTITUTION PRESS, WASHINGTON, D.C.
- PFEIFFER, M. 1979. *A COMPREHENSIVE PLAN FOR FISH RESOURCE MANAGEMENT WITHIN THE ADIRONDACK ZONE*. NYSDEC: RAY BROOK, NY.
- PFINGSTON, R.A. AND F.L. DOWNS. 1989. *SALAMANDERS OF OHIO*. COLLEGE OF BIOLOGICAL SCIENCES, THE OHIO STATE UNIVERSITY, COLUMBUS, OHIO.

- PLATT C. 2005. NYS-DEC FOREST RANGER. PERSONAL INTERVIEW. KEENE, NY.
- PLUNZ, R., ED. 1999. *TWO ADIRONDACK HAMLETS IN HISTORY: KEENE AND KEENE VALLEY*. PURPLE MOUNTAIN PRESS: FLEICHMANN'S, NY.
- RESCHKE, C. 1990. *ECOLOGICAL COMMUNITIES OF NEW YORK STATE*. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK NATURAL HERITAGE PROGRAM. LATHAM, NY.
- RIMMER, C.C., K.P. MCFARLAND, J.D. LAMBERT, R.B. RENFREW. 2004. *EVALUATING THE USE OF VERMONT SKI AREAS BY BICKNELL'S THRUSH: APPLICATIONS FOR WHITEFACE MOUNTAIN, NEW YORK*. VERMONT INSTITUTE OF NATURAL SCIENCE. WOODSTOCK, VT.
- RIMMER, C.C., J.D. LAMBERT, AND K.P. MCFARLAND. 2005. *BICKNELL'S THRUSH CONSERVATION STRATEGY FOR THE GREEN MOUNTAIN NATIONAL FOREST*. VINS TECHNICAL REPORT 05-5. VERMONT INSTITUTE OF NATURAL SCIENCE. WOODSTOCK, VT.
- SAUNDERS, D.A. 1988. *ADIRONDACK MAMMALS*. ADIRONDACK WILDLIFE PROGRAM, STATE UNIVERSITY OF NEW YORK COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY, SYRACUSE, NY. SCHMITT, K. 1916.
- SCHMITT, K. 1916. *FIRE PROTECTION MAP OF THE ADIRONDACK FOREST*. NEW YORK CONSERVATION COMMISSION IN ALBANY, NY.
- SCOTT, W.B., AND CROSSMAN, E.J. 1973. *FRESHWATER FISHES OF CANADA*. FISHERIES RESEARCH BOARD OF CANADA: OTTAWA, ONT, CANADA.
- SEVERINGHAUS, C.W. 1953. *SPRINGTIME IN NEW YORK - ANOTHER ANGLE: WHAT GOES ON IN OUR ADIRONDACK DEERYARDS*. NEW YORK STATE CONSERVATIONIST 7:2-4.
- SMITH, H.P. 1885. *HISTORY OF ESSEX COUNTY*. D. MASON AND CO. SYRACUSE, NY.
- TRAPP, S., GROSS M. AND ZIMMERMAN, R. 1994. *SIGNS, TRAILS AND WAYSIDE EXHIBITS*. UNIV. OF WISCONSIN: STEVENS POINT, WI.
- TUTTLE, S.E. AND D.M. CARROLL. 1997. *ECOLOGY AND NATURAL HISTORY OF THE WOOD TURTLE (CLEMMYS INSCULPTA) IN SOUTHERN NEW HAMPSHIRE*. CHELONIAN CONSERVATION AND BIOLOGY 2:447-449.
- U.S. GENERAL ACCOUNTING OFFICE. 1989. *WILDERNESS PRESERVATION: PROBLEMS IN SOME NATIONAL FORESTS SHOULD BE ADDRESSED*. GAO/RCED-89-202. WASHINGTON, D.C. ([HTTP://ARCHIVE.GAO.GOV/D26T7/139617.PDF](http://archive.gao.gov/d26t7/139617.pdf))
- U.S. FOREST SERVICE. 1994. *LEAVE NO TRACE: A PROGRAM TO TEACH SKILLS FOR PROTECTING THE WILDERNESS ENVIRONMENT*. WASHINGTON, D.C.
- VAN VALKENBURG, N.J. 1987. *UNIT PLANNING FOR WILDERNESS MANAGEMENT*. THE ASSOCIATION FOR THE PROTECTION OF THE ADIRONDACKS: SCHENECTADY, NY.
- VERME, L.J. 1965. SWAMP CONIFER DEERYARDS IN NORTHERN MICHIGAN. JOURNAL OF FORESTRY 523-529.
- WALLACE, E.F. 1875. *DESCRIPTIVE GUIDE TO THE ADIRONDACKS*. WATSON GILL CO.: SYRACUSE, NY.
- WATERMAN, G. AND WATERMAN, L. 1993. *WILDERNESS ETHICS*. COUNTRYMAN PRESS: WOODSTOCK, VT.

This page intentionally left blank

## APPENDICES

- Appendix A - Facilities
- Appendix B - Acronyms
- Appendix C - Rare Communities and Species s
- Appendix D - Birds
- Appendix E - Adirondack Sub-alpine Fir Forest Bird Conservation Area
- Appendix F - Individual Pond Descriptions
- Appendix G - Poned Water Survey Data
- Appendix H - Classification of Common Adirondack Upland Fish Fauna
- Appendix I - Invasive Species Inventory
- Appendix J - Wilderness Areas: Guidelines for Management and Use
- Appendix K - Primitive Areas: Guidelines for Management and Use
- Appendix L - Public Comment
- Appendix M - Fire Tower Letter of Resolution
- Appendix N - Unit Maps

This page intentionally left blank

## APPENDIX A: FACILITIES

**Primitive Tent sites: (total 4) QUANTITY**

Vicinity of Gulf Brook lean-to	3
Vicinity of Biesemeyer lean-to	1

**Pit Privies: (total 2) QUANTITY**

Gulf Brook lean-to	1
Biesemeyer lean-to	1

**Lean-tos: (total 2)**

Gulf Brook	1
Biesemeyer	1

**Major Foot Bridges**

Tributary of Gulf Brook (Gulf Brook Trail)	1
Falls Brook (Elizabethtown Trail)	1
Spruce Hill Brook (Hurricane 9N Trail)	1
Bog Bridge (Hurricane 9N Trail)	Approximately 500 ft of bridging at various locations on trail

**Appendix A: Facilities**

---

**Parking Lots (total 6)**

<b>Name</b>	<b>Location</b>	<b>Capacity</b>
Hurricane 9N	Route 9N	5
Crow Clearing	O'Toole Road	11
Elizabethtown	Hurricane Road	3

**Trails – Listed by class**

---

<b>Location/Name</b>	<b>Length (mi.)</b>	<b>Marker</b>	<b>Maintenance Provided by:</b>	<b>Notes:</b>
<b>Class II Hiking Trails – Path</b>	<b>1.2 total</b>			
Old Military Road	1.2			
<b>Class III Hiking Trails – Primitive Trails</b>	<b>5.4 total</b>			
Soda Range (Nun-Da-Ga-O Ridge)	3.0			From Biesemeyer Lean-to to junction with Crows Trail
Elizabethtown Trail	2.0			From End of Hurricane Road to summit of Hurricane Mountain
Hurricane Crag Access Trail	.4			
<b>Class IV Hiking Trails – Secondary Trails</b>	<b>3.8 total</b>			
Crows Trail	1.3			From Crow Clearing, to the State Boundary east of Little Crow Mountain
North Trail to Hurricane	1.6			From Gulf Brook Lean-to, to Junction with Hurricane Trail



<b>Location/Name</b>	<b>Length (mi.)</b>	<b>Marker</b>	<b>Maintenance Provided by:</b>	<b>Notes:</b>
Lost Pond Trail	1.0			from Route 9N  From Gulf Brook Lean-to, to Biesemeyer Lean-to
<b>Class V Hiking Trails – Primary Trails</b>	<b>3.3 total</b>			
Hurricane Trail from Route 9N	2.3			From Route 9N Trailhead to summit of Hurricane Mountain
Gulf Brook Trail	1.0			From Crow Clearing to Gulf Brook Lean-to

**HMPA Trails – Summary (miles)**

	Class II (unmarked)	Class III	Class IV (marked trails)	Class V	Total
Trails in HMPA	1.2	5.4	3.8	3.3	13.7
Access trails on adjacent private land – unsecured access	0.0	0.4	0.0	0.0	0.4
<b>Total</b>	<b>1.2</b>	<b>5.8</b>	<b>3.8</b>	<b>3.3</b>	<b>14.1</b>

TRAIL CLASSIFICATION SYSTEM

TITLE	EXAMPLE	MARKING	TREAD	BARRIERS	USE LEVEL	ACCEPTABLE MAINTENANCE	
I	Unmarked Route	None	Intermittently apparent, relatively undisturbed organic soil horizon	Natural obstructions present,  Logs and water courses	Occasional	None	
II	Path	Old Military Road	Intermittent	Intermittently apparent, compaction of duff, mineral soils occasionally exposed	Same as unmarked route	Low, varies by location	Intermittent marking with consideration given to appropriate layout based on drainage, occasional barrier removal only to define appropriate route.
III	Primitive	Soda Range (Nun-da-Ga-O Ridge) Trail	Trail markers, sign at junction with secondary or other upper level trail	Apparent, soil compaction evident	Limited natural obstructions (logs and river fords)	Low	Drainage (native materials) where necessary to minimize erosion, blowdown removed 2-3 years, brushing as necessary to define trail (every 5-10 years).  Bridges only to protect resource (max - 2 log width).  Ladders only to protect exceptionally steep sections,  Tread 14"-18", clear: 3' wide, 3' high.
IV	Secondary	Crows Trail	Markers, signs with basic information	Likely worn and possibly quite eroded.  Rocks exposed, little or no duff remaining	Up to one year's accumulated blowdown,  Small streams.	Moderate	Drainage where needed to halt erosion and limit potential erosion (using native materials), tread hardening with native materials where drainage proves to be insufficient to control erosion. Remove blowdown annually. Brush to maintain trail corridor.  Higher use may warrant greater use of bridges (2-3 logs wide) for resource protection.  Ladders on exceptionally steep rock faces.  Tread 18"-24". Clear 4' wide, 3' High.

V	Trunk or Primary Trail	Hurricane Trail from Route 9N	Markers, signed with more information and warnings.	Wider tread, worn and very evident. Rock exposed, possibly very eroded.	Obstructions only rarely, Small streams	High	<p>Same as above; Plus: regular blowdown removal on designated ski trails, non-native materials as last resort,</p> <p>Extensive tread hardening when needed, bridge streams (2-4 logs wide) difficult to cross during high water, priority given to stream crossings below concentrations of designated camping.</p> <p>Tread 18"-26", clear 6' wide, 8' high, actual turn piking limited to 2% of trail length.</p>
VI	Front Country		Heavily marked, detailed interpretive signing	Groomed	None	Very High	<p>Extensive grooming, some paving, bark chips, wheelchair accessible.</p> <p>This is to be implemented within 500' of wilderness boundary.</p>
VII	Horse Trail		Marked as Trunk or Secondary	Wide tread, must be rather smooth.	Same as Trunk Trail.	Moderate to High	<p>Same as trunk trail, except use techniques appropriate for horses.</p> <p>Bridges: 6' minimum width with kick rails, nonnative dimensional materials preferred.</p> <p>Tread: 2'-4' wide, clear 8' wide, 10' high.</p>
VIII	Ski Trail		Marked High. Special markers, sign at all junctions with hiking trails.	Duff remains. Discourage summer use	Practically none due to hazards.	High	<p>Focus on removal of obstructions, maintenance should be low profile, tread determined by clearing 6' (Should be slightly wider at turns and steep sections. Provide drainage using native materials to protect resource.</p>

This page intentionally left blank

## APPENDIX B: ACRONYMS

ADA	American with Disabilities Act
ADAAG	American with Disabilities Act Accessibility Guidelines
ADK	Adirondack Mountain Club
ALSC	Adirondack Lakes Survey Corporation
ANC	Acid neutralizing capacity
APA	Adirondack Park Agency
APLUDP	Adirondack Park Land Use Development Plan
APIPP	Adirondack Park Invasive Plant Program
APSLMP	Adirondack Park State Land Master Plan
ATV	All Terrain Vehicle
BP	Years Before Present
BMP	Best Management Practices
DAM	New York State Department of Agriculture and Markets
DEC	New York State Department of Environmental Conservation
DMU	Deer Management Unit
DOT	New York State Department of Transportation
ECL	Environmental Conservation Law
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EQBA	Environmental Quality Bond Act
HPWA	High Peaks Wilderness Area
JMWA	Jay Mountain Wilderness Area
LAC	Limits of Acceptable Change

## ***Appendix B: Acronyms***

---

NBWI	Native-But-Widely-Introduced
NHPC	Natural Heritage Plant Community
NPS	National Park Service
NYCRR	New York Code of Rules and Regulations
NYS	New York State
OSP	Open Space Plan
SEQRA	State Environmental Quality Review Act
SUNY-ESF	State University of New York, College of Environmental Science and Forestry
TNC	The Nature Conservancy
UFAS	Uniform Accessibility Standards
USGS	United States Geologic Survey
UMP	Unit Management Plan
USDA	United States Department of Agriculture
USFS	United States Forest Service
UTAP	Universal Trail Assessment Process
WMU	Wildlife Management Unit

# APPENDIX C: RARE COMMUNITIES AND SPECIES

## Rare Communities and Species Documented by the Natural Heritage Program,

### Hurricane Mountain Primitive Area

Quality of Occurrence	Quad Map	Scientific Name	Common Name	Global Rank	State Rank	Most Recent Observation
-----------------------	----------	-----------------	-------------	-------------	------------	-------------------------

#### Birds

H	Elizabethtown	<i>Falco peregrinus</i>	peregrine falcon	G4	S3	NA
E	Elizabethtown	<i>Catharus bicknelli</i>	Bicknell's thrush	G4	S2S3	2000

#### Communities

B	Elizabethtown		spruce-fir rocky summit	G4	S3	1998
---	---------------	--	-------------------------	----	----	------

#### Vascular Plants

H	Elizabethtown	<i>Cynoglossum virginianum var. boreale</i>	northern wild comfrey	G5T4T5	S1S2	1935
CD	Elizabethtown	<i>Huperzia appressa</i>	Appalachian firmoss	G4G5	S2	1998

Source: New York Natural Heritage Program Database

Young (2001) and Regan (2001)

Technical Reference: Mitchell and Tucker (1997)

Quality of Occurrence: A = excellent F = failed to find based on a limited search  
 B = good X = extirpated  
 C = marginal H = historical with no recent information  
 D = poor ? = unknown  
 E = extant with insufficient I = introduced

Information to rank A-D

This page left intentionally blank



## APPENDIX D: BIRDS

**Table 1. Bird species documented in atlas blocks within, or partially within, Hurricane Mountain Primitive Area (HMPA) during the New York State Breeding Bird Atlas Project, 1980-1985.**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Federal<sup>1</sup></b>	<b>New York State<sup>2</sup></b>
Alder Flycatcher	<i>Empidonax alnorum</i>	MBTA	Protected
American Black Duck	<i>Anas rubripes</i>	MBTA	Game Species
American Crow	<i>Corvus brachyrhynchos</i>	MBTA	Game Species
American Goldfinch	<i>Carduelis tristis</i>	MBTA	Protected
American Kestrel	<i>Falco sparverius</i>	MBTA	Protected
American Redstart	<i>Setophaga ruticilla</i>	MBTA	Protected
American Robin	<i>Turdus migratorius</i>	MBTA	Protected
American Woodcock	<i>Scolopax minor</i>	MBTA	Game Species
Baltimore Oriole	<i>Icterus galbula</i>	MBTA	Protected
Barn Swallow	<i>Hirundo rustica</i>	MBTA	Protected
Barred Owl	<i>Strix varia</i>	MBTA	Protected
Belted Kingfisher	<i>Ceryle alcyon</i>	MBTA	Protected
Bicknell's Thrush	<i>Catharus bicknelli</i>	MBTA	Protected-SC
Black-and-white Warbler	<i>Mniotilta varia</i>	MBTA	Protected
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	MBTA	Protected
Blackburnian Warbler	<i>Dendroica fusca</i>	MBTA	Protected
Black-capped Chickadee	<i>Poecile atricapillus</i>	MBTA	Protected
Blackpoll Warbler	<i>Dendroica striata</i>	MBTA	Protected
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	MBTA	Protected
Black-throated Green Warbler	<i>Dendroica virens</i>	MBTA	Protected
Blue Jay	<i>Cyanocitta cristata</i>	MBTA	Protected
Blue-headed Vireo	<i>Vireo solitarius</i>	MBTA	Protected
Bobolink	<i>Dolichonyx oryzivorus</i>	MBTA	Protected
Boreal Chickadee	<i>Poecile hudsonicus</i>	MBTA	Protected
Broad-winged Hawk	<i>Buteo platypterus</i>	MBTA	Protected
Brown Creeper	<i>Certhia americana</i>	MBTA	Protected
Brown Thrasher	<i>Toxostoma rufum</i>	MBTA	Protected
Brown-headed Cowbird	<i>Molothrus ater</i>	MBTA	Protected
Canada Goose	<i>Branta canadensis</i>	MBTA	Game Species
Canada Warbler	<i>Wilsonia canadensis</i>	MBTA	Protected
Cedar Waxwing	<i>Bombycilla cedrorum</i>	MBTA	Protected
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	MBTA	Protected
Chimney Swift	<i>Chaetura pelagica</i>	MBTA	Protected
Chipping Sparrow	<i>Spizella passerina</i>	MBTA	Protected
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	MBTA	Protected
Common Grackle	<i>Quiscalus quiscula</i>	MBTA	Protected
Common Merganser	<i>Mergus merganser</i>	MBTA	Game Species
Common Raven	<i>Corvus corax</i>	MBTA	Protected
Common Yellowthroat	<i>Geothlypis trichas</i>	MBTA	Protected
Dark-eyed Junco	<i>Junco hyemalis</i>	MBTA	Protected
Downy Woodpecker	<i>Picoides pubescens</i>	MBTA	Protected

**Appendix D: Birds**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Federal<sup>1</sup></b>	<b>New York State<sup>2</sup></b>
Eastern Bluebird	<i>Sialia sialis</i>	MBTA	Protected
Eastern Kingbird	<i>Tyrannus tyrannus</i>	MBTA	Protected
Eastern Phoebe	<i>Sayornis phoebe</i>	MBTA	Protected
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	MBTA	Protected
Eastern Wood-Pewee	<i>Contopus virens</i>	MBTA	Protected
European Starling	<i>Sturnus vulgaris</i>	Unprotected	Unprotected
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	MBTA	Protected
Field Sparrow	<i>Spizella pusilla</i>	MBTA	Protected
Golden-crowned Kinglet	<i>Regulus satrapa</i>	MBTA	Protected
Gray Catbird	<i>Dumetella carolinensis</i>	MBTA	Protected
Great Blue Heron	<i>Ardea herodias</i>	MBTA	Protected
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	MBTA	Protected
Hairy Woodpecker	<i>Picoides villosus</i>	MBTA	Protected
Hermit Thrush	<i>Catharus guttatus</i>	MBTA	Protected
House Sparrow	<i>Passer domesticus</i>	Unprotected	Unprotected
House Wren	<i>Troglodytes aedon</i>	MBTA	Protected
Indigo Bunting	<i>Passerina cyanea</i>	MBTA	Protected
Killdeer	<i>Charadrius vociferus</i>	MBTA	Protected
Least Flycatcher	<i>Empidonax minimus</i>	MBTA	Protected
Magnolia Warbler	<i>Dendroica magnolia</i>	MBTA	Protected
Mallard	<i>Anas platyrhynchos</i>	MBTA	Game Species
Mourning Dove	<i>Zenaida macroura</i>	MBTA	Protected
Mourning Warbler	<i>Oporornis philadelphia</i>	MBTA	Protected
Nashville Warbler	<i>Vermivora ruficapilla</i>	MBTA	Protected
Northern Cardinal	<i>Cardinalis cardinalis</i>	MBTA	Protected
Northern Flicker	<i>Colaptes auratus</i>	MBTA	Protected
Northern Goshawk	<i>Accipiter gentilis</i>	MBTA	Protected-SC
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	MBTA	Protected
Ovenbird	<i>Seiurus aurocapillus</i>	MBTA	Protected
Peregrine Falcon	<i>Falco peregrinus</i>	MBTA-End	Endangered
Philadelphia Vireo	<i>Vireo philadelphicus</i>	MBTA	Protected
Pileated Woodpecker	<i>Dryocopus pileatus</i>	MBTA	Protected
Pine Siskin	<i>Carduelis pinus</i>	MBTA	Protected
Purple Finch	<i>Carpodacus purpureus</i>	MBTA	Protected
Red-breasted Nuthatch	<i>Sitta canadensis</i>	MBTA	Protected
Red-eyed Vireo	<i>Vireo olivaceus</i>	MBTA	Protected
Red-shouldered Hawk	<i>Buteo lineatus</i>	MBTA	Protected-SC
Red-tailed Hawk	<i>Buteo jamaicensis</i>	MBTA	Protected
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	MBTA	Protected
Rock Dove	<i>Columba livia</i>	Unprotected	Unprotected
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	MBTA	Protected
Ruby-crowned Kinglet	<i>Regulus calendula</i>	MBTA	Protected
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	MBTA	Protected
Ruffed Grouse	<i>Bonasa umbellus</i>	Unprotected	Game Species
Savannah Sparrow	<i>Passerculus sandwichensis</i>	MBTA	Protected
Scarlet Tanager	<i>Piranga olivacea</i>	MBTA	Protected
Sharp-shinned Hawk	<i>Accipiter striatus</i>	MBTA	Protected-SC
Song Sparrow	<i>Melospiza melodia</i>	MBTA	Protected
Spotted Sandpiper	<i>Actitis macularia</i>	MBTA	Protected
Swainson's Thrush	<i>Catharus ustulatus</i>	MBTA	Protected

Common Name	Scientific Name	Federal <sup>1</sup>	New York State <sup>2</sup>
Swamp Sparrow	<i>Melospiza georgiana</i>	MBTA	Protected
Tennessee Warbler	<i>Vermivora peregrina</i>	MBTA	Protected
Tree Swallow	<i>Tachycineta bicolor</i>	MBTA	Protected
Tufted Titmouse	<i>Baeolophus bicolor</i>	MBTA	Protected
Turkey Vulture	<i>Cathartes aura</i>	MBTA	Protected
Veery	<i>Catharus fuscescens</i>	MBTA	Protected
Vesper Sparrow	<i>Pooecetes gramineus</i>	MBTA	Protected-SC
Warbling Vireo	<i>Vireo gilvus</i>	MBTA	Protected
Whip-poor-will	<i>Caprimulgus vociferus</i>	MBTA	Protected-SC
White-breasted Nuthatch	<i>Sitta carolinensis</i>	MBTA	Protected
White-throated Sparrow	<i>Zonotrichia albicollis</i>	MBTA	Protected
White-winged Crossbill	<i>Loxia leucoptera</i>	MBTA	Protected
Winter Wren	<i>Troglodytes troglodytes</i>	MBTA	Protected
Wood Duck	<i>Aix sponsa</i>	MBTA	Game Species
Wood Thrush	<i>Hylocichla mustelina</i>	MBTA	Protected
Yellow Warbler	<i>Dendroica petechia</i>	MBTA	Protected
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	MBTA	Protected
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	MBTA	Protected
Yellow-rumped Warbler	<i>Dendroica coronata</i>	MBTA	Protected

<sup>1</sup>Federal Classification: Migratory Bird Treaty Act (MBTA); End (Endangered)

<sup>2</sup>New York State Classification: Protected-SC (Special Concern Species)

**Table 2. Bird species documented in atlas blocks within, or partially within, Hurricane Mountain Primitive Area (HMPA) during the New York State Breeding Bird Atlas 2000 Project, 2000-2005.**

Common Name	Scientific Name	Federal <sup>1</sup>	New York State <sup>2</sup>
Alder Flycatcher	<i>Empidonax alnorum</i>	MBTA	Protected
American Goldfinch	<i>Carduelis tristis</i>	MBTA	Protected
American Kestrel	<i>Falco sparverius</i>	MBTA	Protected
American Redstart	<i>Setophaga ruticilla</i>	MBTA	Protected
American Robin	<i>Turdus migratorius</i>	MBTA	Protected
American Woodcock	<i>Scolopax minor</i>	MBTA	Game Species
Barred Owl	<i>Strix varia</i>	MBTA	Protected
Belted Kingfisher	<i>Ceryle alcyon</i>	MBTA	Protected
Black-capped Chickadee	<i>Poecile atricapillus</i>	MBTA	Protected
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	MBTA	Protected
Blue Jay	<i>Cyanocitta cristata</i>	MBTA	Protected
Boreal Chickadee	<i>Poecile hudsonicus</i>	MBTA	Protected
Broad-winged Hawk	<i>Buteo platypterus</i>	MBTA	Protected
Brown Creeper	<i>Certhia americana</i>	MBTA	Protected
Brown Thrasher	<i>Toxostoma rufum</i>	MBTA	Protected
Brown-headed Cowbird	<i>Molothrus ater</i>	MBTA	Protected
Canada Goose	<i>Branta canadensis</i>	MBTA	Game Species
Canada Warbler	<i>Wilsonia canadensis</i>	MBTA	Protected

**Appendix D: Birds**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Federal<sup>1</sup></b>	<b>New York State<sup>2</sup></b>
Cape May Warbler	<i>Dendroica tigrina</i>	MBTA	Protected
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	MBTA	Protected
Chimney Swift	<i>Chaetura pelagica</i>	MBTA	Protected
Chipping Sparrow	<i>Spizella passerina</i>	MBTA	Protected
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	MBTA	Protected
Common Grackle	<i>Quiscalus quiscula</i>	MBTA	Protected
Common Merganser	<i>Mergus merganser</i>	MBTA	Game Species
Common Raven	<i>Corvus corax</i>	MBTA	Protected
Common Snipe	<i>Gallinago gallinago</i>	MBTA	Game Species
Common Yellowthroat	<i>Geothlypis trichas</i>	MBTA	Protected
Downy Woodpecker	<i>Picoides pubescens</i>	MBTA	Protected
Eastern Bluebird	<i>Sialia sialis</i>	MBTA	Protected
Eastern Kingbird	<i>Tyrannus tyrannus</i>	MBTA	Protected
Eastern Meadowlark	<i>Sturnella magna</i>	MBTA	Protected
Eastern Phoebe	<i>Sayornis phoebe</i>	MBTA	Protected
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	MBTA	Protected
Field Sparrow	<i>Spizella pusilla</i>	MBTA	Protected
Golden-crowned Kinglet	<i>Regulus satrapa</i>	MBTA	Protected
Gray Catbird	<i>Dumetella carolinensis</i>	MBTA	Protected
Great Blue Heron	<i>Ardea herodias</i>	MBTA	Protected
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	MBTA	Protected
Hairy Woodpecker	<i>Picoides villosus</i>	MBTA	Protected
Hermit Thrush	<i>Catharus guttatus</i>	MBTA	Protected
House Finch	<i>Carpodacus mexicanus</i>	MBTA	Protected
House Wren	<i>Troglodytes aedon</i>	MBTA	Protected
Indigo Bunting	<i>Passerina cyanea</i>	MBTA	Protected
Killdeer	<i>Charadrius vociferus</i>	MBTA	Protected
Least Flycatcher	<i>Empidonax minimus</i>	MBTA	Protected
Magnolia Warbler	<i>Dendroica magnolia</i>	MBTA	Protected
Mallard	<i>Anas platyrhynchos</i>	MBTA	Game Species
Mourning Dove	<i>Zenaida macroura</i>	MBTA	Protected
Mourning Warbler	<i>Oporornis philadelphia</i>	MBTA	Protected
Nashville Warbler	<i>Vermivora ruficapilla</i>	MBTA	Protected
Northern Parula	<i>Parula americana</i>	MBTA	Protected
Olive-sided Flycatcher	<i>Contopus cooperi</i>	MBTA	Protected
Osprey	<i>Pandion haliaetus</i>	MBTA	Protected-SC
Ovenbird	<i>Seiurus aurocapillus</i>	MBTA	Protected
Peregrine Falcon	<i>Falco peregrinus</i>	MBTA-End	Endangered
Philadelphia Vireo	<i>Vireo philadelphicus</i>	MBTA	Protected
Pileated Woodpecker	<i>Dryocopus pileatus</i>	MBTA	Protected
Pine Siskin	<i>Carduelis pinus</i>	MBTA	Protected
Purple Finch	<i>Carpodacus purpureus</i>	MBTA	Protected
Red Crossbill	<i>Loxia curvirostra</i>	MBTA	Protected
Red-eyed Vireo	<i>Vireo olivaceus</i>	MBTA	Protected
Red-shouldered Hawk	<i>Buteo lineatus</i>	MBTA	Protected-SC
Red-tailed Hawk	<i>Buteo jamaicensis</i>	MBTA	Protected
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	MBTA	Protected
Rock Dove	<i>Columba livia</i>	Unprotected	Unprotected
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	MBTA	Protected
Ruby-crowned Kinglet	<i>Regulus calendula</i>	MBTA	Protected

<b>Common Name</b>	<b>Scientific Name</b>	<b>Federal<sup>1</sup></b>	<b>New York State<sup>2</sup></b>
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	MBTA	Protected
Ruffed Grouse	<i>Bonasa umbellus</i>	Unprotected	Game Species
Scarlet Tanager	<i>Piranga olivacea</i>	MBTA	Protected
Sharp-shinned Hawk	<i>Accipiter striatus</i>	MBTA	Protected-SC
Song Sparrow	<i>Melospiza melodia</i>	MBTA	Protected
Swainson's Thrush	<i>Catharus ustulatus</i>	MBTA	Protected
Swamp Sparrow	<i>Melospiza georgiana</i>	MBTA	Protected
Turkey Vulture	<i>Cathartes aura</i>	MBTA	Protected
Veery	<i>Catharus fuscescens</i>	MBTA	Protected
White-throated Sparrow	<i>Zonotrichia albicollis</i>	MBTA	Protected
White-winged Crossbill	<i>Loxia leucoptera</i>	MBTA	Protected
Winter Wren	<i>Troglodytes troglodytes</i>	MBTA	Protected
Wood Duck	<i>Aix sponsa</i>	MBTA	Game Species
Wood Thrush	<i>Hylocichla mustelina</i>	MBTA	Protected
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	MBTA	Protected
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	MBTA	Protected
White-breasted Nuthatch	<i>Sitta carolinensis</i>	MBTA	Protected
White-breasted Nuthatch	<i>Sitta carolinensis</i>	MBTA	Protected

<sup>1</sup>Federal Classification: Migratory Bird Treaty Act (MBTA); End (Endangered)

<sup>2</sup>New York State Classification: Protected-SC (Special Concern Species)

This page left intentionally blank

# APPENDIX E: ADIRONDACK SUB-ALPINE FOREST BIRD CONSERVATION AREA MANAGEMENT GUIDANCE SUMMARY

**Site Name:** Adirondack Sub-alpine Forest Bird Conservation Area

**State Ownership and Managing Agency:** Department of Environmental Conservation

**Location:** Adirondack Mountain summits above 2,800 feet in Clinton, Essex, Franklin, Hamilton and Warren counties. Surveyed and confirmed nesting locations for Bicknell's Thrush (Atwood and Rimmer, et al. 1996) include: Mount Marcy, Algonquin Peak, Blue Mountain, Cascade Mountain, Giant Mountain, Kilburn Mountain, Hurricane Mountain, Lower Wolfjaw Mountain, Lyon Mountain, Mount Haystack, Phelps Mountain, Porter Mountain, Rocky Ridge Peak, Santanoni Peak, Snowy Mountain, Vanderwhacker Mountain, Wakely Mountain, Whiteface Mountain, Wright Peak.

**Size of Area:** Approximately 69,000 acres

**DEC Region:** 5

**General Site Information:** Adirondack Mountain summits over 2,800 feet in elevation, more specifically, those with dense subalpine coniferous forests favored by Bicknell's Thrush. Bicknell's Thrush prefer dense thickets of stunted or young growth of balsam fir and red spruce. Found less frequently in other young or stunted conifers, and heavy second growth of fir, cherry, birch.

**Vision Statement:** Continue to maintain the wilderness quality of the area, while facilitating recreational opportunities in a manner consistent with conservation of the unique bird species present.

**Key BCA Criteria:** Diverse species concentration site; individual species concentration site; species at risk site (ECL 11-2001, 3.f, g, and h). Peaks over 2,800 feet with dense subalpine thickets provide habitat for a distinctive bird community, which includes Bicknell's Thrush (special concern), Blackpoll Warbler, Swainson's Thrush.

**Critical Habitat Types:** Dense subalpine coniferous thickets. To a lesser degree, young or stunted and heavy second growth of cherry or birch.

**Operation and Management Considerations:**

*Identify habitat management activities needed to maintain site as a BCA.*

None identified for certain, although human access and acid rain could be impacting.

*Identify seasonal sensitivities; adjust routine operations accordingly.*

The BCA is comprised of lands that are within the Adirondack High Peaks Wilderness Area, and other lands within the broader Adirondack Forest Preserve. The Adirondack High Peaks Wilderness Area portion is subject to relatively stringent regulations and use limitations. Portions of the BCA that are not within the High Peaks Wilderness Area may have less stringent use limitations. Access to wilderness areas is completely limited to foot trails and non-motorized access, including horse trails. Access in wild forest and intensive use areas may include motorized forms of access. Examples include a road up Blue Mountain to transmitters, and a road up Whiteface. The road up Blue Mountain is used largely for administrative access to the transmitter towers. Whenever possible, routine maintenance on these towers or the access road should be scheduled outside the nesting season for Bicknell's Thrush (May through July). The road up Whiteface sees considerable use by the public. Trail and road maintenance activities have the potential to disturb nesting activities of high altitude birds (in particular, Bicknell's Thrush). Whenever possible, routine maintenance should be planned so that it can be completed outside of the normal nesting season. Should maintenance be needed during the nesting season, the use of non-motorized equipment would help to minimize the impacts.

*Identify state activities or operations which may pose a threat to the critical habitat types identified above; recommend alternatives to existing and future operations which may pose threats to those habitats.*

Ensure that bird conservation concerns are addressed in the Adirondack Park State Land Master Plan, individual unit management plans, and other planning efforts. For those areas where plans have already been completed, incorporate concerns for subalpine bird communities at the earliest opportunity. On May 18, 2000, Emergency Regulations were adopted for the High Peaks Wilderness Area, which comprises part of the BCA. These regulations prohibit camping above 4,000 feet; limit camping between 3,500 and 4,000 feet to designated areas; prohibit campfires above 4,000 feet, and require the leashing of pets above 4,000 feet.

*Identify any existing or potential use impacts; recommend new management strategies to address those impacts.*

There has been little research on what effect normal use of hiking trails has on nesting birds. Recreational use in some areas of the BCA is relatively high. More research is needed on whether there is a significant impact to bird populations from the current level of human visitation. The Adirondack High Peaks Wilderness portions of the BCA are remote locations and access is largely limited to foot trails. Motorized vehicles are not normally allowed. Those areas of the BCA outside of the High Peaks Wilderness Area allow the use of motorized vehicles and have fewer restrictions on other uses. The Unit Management Planning process for these areas should assess the effects of current levels of recreational use, and the need for new trails (including placement, timing, and construction method) on subalpine bird species (in particular, Bicknell's Thrush). Consideration should be given to prohibiting motorized vehicle access to subalpine forests above 2,800 feet.

**Education, Outreach, and Research Considerations:**

*Assess current access; recommend enhanced access, if feasible.*



Recreational use in some areas of the BCA is relatively high. Further study or research would help to assess impacts of recreational activities on nesting high altitude species. The need for protective measures will be discussed and incorporated as part of the planning process for the Adirondack Forest Preserve and Wilderness Areas that form the BCA, or at the earliest opportunity.

*Determine education and outreach needs; recommend strategies and materials.*

There is a need to identify to the public the distinctive bird community present in subalpine forests over 2,800 feet. The potential impacts of human intrusion need to be portrayed to the public, and a "please stay on the trails" approach may be beneficial. Continue partnerships with the National Audubon Society, High Peaks Audubon Society, Adirondack Mountain Club and other groups involved in education and conservation of birds of the Adirondack High Peaks.

*Identify research needs; prioritize and recommend specific projects or studies.*

Acid rain deposition may be having an impact on nesting success of songbirds at high elevations by causing die-offs of high altitude conifer forests, and killing snails and other sources of calcium needed for egg production. More research is needed on this. The curtailment of sulphur dioxide emissions and the reduction of acid rain is currently a significant New York State initiative. A detailed inventory and standardized monitoring of special concern species is needed for the area. In particular, all peaks above 2,800 feet should be surveyed for Bicknell's Thrush. The impact of the current levels of human use on nesting success needs to be assessed.

**Contacts:** Ken Kogut, DEC Region 5 Wildlife Manager, 518-897-1291

Thomas Martin, DEC Region 5 Regional Forester, 518-897-1276

**Sources:** Atwood, J. L., C. C. Rimmer, K. P. McFarland, S. H. Tsai, and L. R. Nagy. 1996. Distribution of Bicknell's thrush in New England and New York. Wilson Bulletin 108(4):650-661.

Bull, John L. 1998. Bull's Birds of New York State. Comstock Publishing Associates, Ithaca, NY.

NYSDEC Division of Lands and Forests. 1999. High Peaks Wilderness Complex Unit Management Plan. NYSDEC, Albany, NY.

Rimmer, C. C., Atwood, J., and L. R. Nagy. 1993. Bicknell's Thrush - a Northeastern Songbird in Trouble? Vermont Institute of Natural Science, Woodstock, VT.

State of New York Endangered Species Working Group. 1996. Species Dossier for Bicknell's Thrush. New York State Department of Environmental Conservation.

Wells, J. V. 1998. Important Bird Areas in New York State. National Audubon Society, Albany, NY.

Date BCA Designated: 11/16/01

Date MGS Prepared: 12/6/01

This page intentionally left blank

## APPENDIX F: INDIVIDUAL POND DESCRIPTIONS

### Pond Management Classifications

Adirondack Brook Trout Ponds – Adirondack Zone ponds which support and are managed for populations of brook trout, sometimes in company with other salmonid fish species. These waters generally lack warmwater fishes but frequently support bullheads. Management may include stocking.

Coldwater Ponds and Lakes – Lakes and ponds which support and are managed for populations of several salmonids. These waters generally lack warmwater fishes but frequently support bullheads. Management may include stocking.

Other Ponds and Lakes – Fishless waters and waters containing fish communities consisting of native and nonnative fishes which will be managed for their intrinsic ecological value.

Two-Story Ponds and Lakes – Waters which simultaneously support and are managed for populations of coldwater and warmwater game fishes. The bulk of the lake trout and rainbow trout resource fall within this class of waters. Management may include stocking.

Unknown Ponds and Lakes – Waters which could not be assigned to the subprogram categories specifically addressed in this document due to a lack of or paucity of survey information.

Warmwater Ponds and Lakes – Waters which support and are managed for populations of warmwater game fishes and lack significant populations of salmonid fishes. Management may include stocking.

### Individual Pond Descriptions

The NYS Biological Survey lists just one pond, Lost Pond, in the unit. It is likely there are other ponds that owe their ephemeral existence to beaver activity. Those temporary ponds are not discussed here.

#### 1. Lost Pond (P272 - CH)

Lost Pond is the only pond in the unit, and it has a surface area of only about 3 acres. Its maximum depth is 3 feet. Lost Pond has been stocked with various species on seven different occasions between 1957 and 1898. Species stocked included rainbow trout (in 1957), brook trout (in 1955 and 1898), and smallmouth bass (in 1942, 1940, 1938 and 1937). A 1984 fisheries survey collected no fish despite suitable water chemistries; an earlier survey conducted in 1975 captured only brown bullhead, which was considered at that time to be abundant. It is likely that water temperatures become too warm in summer and/or that the pond freezes too completely in the winter for it to sustain fish life. No stocking of Lost Pond at its current water levels is proposed.

Lost Pond will be managed to preserve its remaining aquatic community for its intrinsic value.

Management Class: Other

This page intentionally left blank

## APPENDIX G: PONDED WATER SURVEY DATA

**Table 1. Hurricane Mountain Primitive Area – Poned Water Physical Data**

Name	P#	File	Wshe d <sup>1</sup>	County	USGS Quad (7.5')	Area <sup>2</sup> (ac.)	Max. Depth (ft.)	Mean Depth (ft)	Last Chemistry Survey				
									Year	Source <sup>3</sup>	ANC (ueq/l)	pH	Conduct-i vity
Lost Pond	272	310	CH	Essex	Lewis	3.0	3.0	1.6	1984	ALSC	128.6	6.9	24.6
<i>Total area</i>						3.0							

**Table 2. Hurricane Mountain Primitive Area – Poned Water Biological Data**

Name	P#	File	Wshe d <sup>1</sup>	Mgt. Class	Area <sup>2</sup> (ac.)	Max. Depth (ft.)	Last Chemistry Survey		Fish species present and # caught <sup>4</sup>
							Year	Source <sup>3</sup>	
Lost Pond	272	310	CH	Brook Trout	3.0	3.0	1984	ALSC	No Fish

<sup>4</sup> CH – Champlain Watershed  
1 pond totaling 3.0 ac. Adk. Brook: 0 ponds, 0.0 ac. Other: 1 pond, 3.0 ac.

<sup>5</sup> New York State Biological Services Unit  
Coldwater: 0 pond, 0.0 ac. Unknown: 0 ponds, 0 acreage

<sup>6</sup> ALSC – Adirondack Lakes Survey Corporation

7 BHC – Brown Bullhead

GS – Golden Shiner

RW – Round Whitefish

BND – Blacknose Dace

NRB – Northern Redbelly Dace

ST – Brook Trout

BNM – Bluntnose Minnow

PKS –  
Pumpkinse  
ed

WS – White Sucker

CC – Creek Chub

RT – Rainbow Trout

<sup>1</sup> CH – Champlain Watershed

<sup>2</sup> New York State Biological Services Unit

<sup>3</sup> ALSC – Adirondack Lakes Survey Corporation

This page intentionally left blank

## APPENDIX H: CLASSIFICATION OF COMMON ADIRONDACK UPLAND FISH FAUNA

Classification of Common Adirondack Upland Fish Fauna Into Native, Nonnative, and Native But Widely Introduced,  
Adapted from George, 1980

Native To Adirondack Upland		
blacknose dace	redbreast sunfish	slimy sculpin
white sucker	finescale dace	lake chub
longnose sucker	creek chubsucker	common shiner
northern redbelly dace	longnose dace	round whitefish
Native Species Widely Introduced within the Adirondack Upland <sup>1</sup>		
brook trout	pumpkinseed	lake trout
brown bullhead	cisco	creek chub
Nonnative to Adirondack Upland		
golden shiner	northern pike	Atlantic salmon
chain pickerel	rock bass	walleye
largemouth bass	bluntnose minnow <sup>2</sup>	central mudminnow
brown trout	pearl dace	redhorse suckers (spp.)
Splake	smallmouth bass	black crappie
lake whitefish	yellow perch	fallfish <sup>3</sup>

<sup>1</sup> *These native fishes are known to have been widely distributed throughout Adirondack uplands by DEC, bait bucket introduction, and unauthorized stocking. This means that their presence does not necessarily indicate endemism. Other species listed above as native have been moved from water to water in the Adirondack Upland, but the historical record is less distinct.*

<sup>2</sup> *Not mentioned by Mather (1884) from Adirondack collections, widely used as bait.*

<sup>3</sup> *Adventive through stocking.*

**Appendix H: Classification of Common Adirondack Upland Fish Fauna**

---

rainbow smelt

fathead minnow<sup>4</sup>

banded killifish<sup>5</sup>

bluegill

rainbow trout

Johnny darter

---

---

<sup>4</sup> Not mentioned by Mather (1884) from Adirondack collections, minor element southern Adirondack Uplands (Greeley 1930-1935).

<sup>5</sup> Early collections strongly suggest dispersal as a bait form.



# APPENDIX I: INVASIVE SPECIES INVENTORY

## HURRICANE MOUNTAIN PRIMITIVE AREA

Because of the intermingled nature of private and public lands and embedded transport vectors, State Lands are, and are likely to be, affected by infestations of invasive species and subsequent degradation of natural system function. This report is prepared as a supplement to the invasive species recommendations submitted to the Unit management plan to provide NYS DEC staff with current inventory and management information on documented invasive plant species infestations that threaten exemplary communities and conservation targets within the Adirondack Park.

### Terrestrial Invasive Plant Inventory

During the inventory process invasive plant infestations will be assessed as a High, Medium or Low priority threat with regard to geophysical setting, management and invasive ownership.

High Priority assessments will be applicable to all terrestrial infestations occurring on state lands, especially where aquatic resources, naturally flowing waters, or human-influenced surface or storm water distribution will likely transport and spread seed, plant propagules or rhizomes away from the infestation.

Infestations may also be assessed as a High Priority that occur in an area in proximity to state land, such as on State, County, Town or seasonal road right-of-ways, and have multiple transport vectors that will likely expand the infestation onto state lands.

Medium Priority assessments may be applicable to infestations that are completely within maintained right-of-ways in proximity to state land and have moderate transport vectors. Infestations may also be assessed as a Medium Priority that have been managed and are now displaying marked reductions in biomass or density, or when an infestation of an invasive species is in low abundance, has limited distribution, and does not have the likelihood of aggressively spreading and displacing native flora or fauna in the Adirondack Park.

Low Priority assessments may be applicable to contained infestations occurring entirely on cultivated, residential or private lands in proximity to Unit boundaries, to infestations where the private land owner or caretaker will be educated about the necessary management controls, or, to isolated, singular occurrences of invasive plant, tree, or shrub species that have minimal transport vectors and display a reduced risk of expansion or distribution.

Terrestrial invasive plant infestations within DOT State Route ROW (right-of-way) are referenced by the green Reference Markers (RM) positioned every 0.2 mile along State Routes within the Park. Example: State Route RM 86-1202-1172.

## ***Appendix I: Invasive Species Inventory***

---

Terrestrial infestations occurring beyond NYS DOT ROW, along County, Town or back roads, private land settings, and on State Lands or DEC facilities are geo-referenced via a hand-held GPS unit utilizing UTM NAD 83 Program for Zone 18. Example: 4911698North (N) 590545East (E).

Terrestrial invasive plant species documented within, or in proximity to, the Unit include the following: common buckthorn ( *Rhamnus cathartica*) and Japanese barberry (*Berberis thunbergii*).

For species specific information regarding natural history, ecology, and reproduction, please refer to the Element Stewardship Abstracts (Addendum).

### **Terrestrial Locations**

There is one (1) high priority common buckthorn and one (1) high priority Japanese barberry infestation within the Unit.

At waypoints 597025 longitude, 4902830 latitude, multiple colonies of both invasive species are established just below the lower slope of Oakridge, approximately 300 yards east of State Route 9N.

There is one (1) medium priority common buckthorn and one (1) medium priority Japanese barberry infestation in proximity to the Unit.

At 4901392 N 599390 E multiple colonies of common buckthorn and Japanese barberry occur approximately 85 yards up the Little Crow trailhead of off Hurricane Road.

### **Terrestrial Invasive Management Actions**

The Department will enter into cooperative partnerships through Adopt-A-Natural-Resource Stewardship Agreements (AANR) and Temporary Revocable Permits (TRP) to facilitate containment and eradication of the invasive plant occurrences within the unit. Any eradication work involving the use of herbicides will be carried out under an Inter-Agency Guidelines for Implementing Best Management Practices (BMPs) for the Control of Terrestrial Invasive Plant Species on Forest Preserve Lands in the Adirondack Park (Invasive Plant Work Plan), developed by DEC and APA. This Invasive Plant Work Plan will provide a template for the process through which comprehensive active terrestrial invasive plant management will take place on state lands in the Adirondack Park. The Work Plan will provide protocols for implementing BMP's on state land. The protocols will describe what management practices are acceptable and when they can be implemented, who can be authorized to implement the management practices, and which terrestrial invasive plant species are targeted. The Work Plan will also describe a process by which the Department may enter into AANR's to facilitate individuals or groups seeking to manage terrestrial invasive plant species on state lands using the listed Best Management Practices, including herbicide use, in the appropriate circumstances. The Invasive Plant Work Plan will be subject to SEQRA and serve as the mechanism for assessing the impacts and suitability of eradication BMP's and actions.

APIPP staff will continue to work with the Unit Planner to eradicate the documented common buckthorn infestation affecting this Unit. Cultural controls, cut stump treatments, or a combination of these controls, is recommended to the Department. Cultural controls include cutting, mowing, girdling, excavation and under-planting. Cut stump applications utilizing 20% glyphosate from late summer through the dormant season are known to be effective against buckthorn. Small Japanese barberry plants can be hand pulled any time of the year. Foliar sprays with a 2% solution of glyphosate or triclopyr are effective. Cut stump treatments utilizing 25% glyphosate or triclopyr in water can be implemented at any time except when the ground is frozen.

### **Aquatic Plant Inventory**

Infestations located within and in proximity to a Unit may expand and spread to uninfected areas and threaten natural resources within a Unit; therefore it is critical to identify infestations located both within and in proximity to a Unit to identify high risk areas and prioritize Early Detection Rapid Response (ED/RR) and management efforts.

Longitude and latitude coordinates are used to indicate a lake with a documented infestation. Infestations may range from an isolated population to a lake-wide invasion. Knowledge of locations and coordinates of specific infestations within the lake is limited and variable and will be provided as available.

Eurasian watermilfoil is confirmed in the following lakes in the adjacent Taylor Pond Wild Forest:

Taylor Pond 442935N 0734926W

Union Falls Pond 442910N 0735618W

Augur Lake 442730N 0733006W

Long Pond 442309N 0732711W

Eurasian watermilfoil and curlyleaf pondweed are confirmed in the following lake:

Franklin Falls Pond 442615N 0735822W

Eurasian watermilfoil, water chestnut, curlyleaf pondweed, European frog-bit, and Yellow floating-heart are confirmed in the following lake:

Lake Champlain 443237N 0732031W

Eurasian watermilfoil is confirmed in the following lakes in the adjacent Hammond Pond Wild Forest:

Schroon Lake 434649N 0734642W

Lincoln Pond 440953N 0733320W

Bartlett Pond 440604N 0733039W

***Appendix I: Invasive Species Inventory***

---

Eagle Lake435253N 0733458W

Please see the Protect Your Waters website for complete information on prevention procedures for specific recreational users <http://www.protectyourwaters.net/prevention/> .

For species specific information regarding natural history, ecology, and reproduction, please refer to the Invasive Plant Atlas of New England program website <http://webapps.lib.uconn.edu/ipane/search.cfm>

# APPENDIX J: WILDERNESS AREAS: GUIDELINES FOR MANAGEMENT AND USE (APSLMP)

## Basic guidelines

1. The primary wilderness management guideline will be to achieve and perpetuate a natural plant and animal community where man's influence is not apparent.
2. In wilderness areas:
  - a) no additions or expansions of non-conforming uses will be permitted;
  - b) any remaining non-conforming uses that were not removed by the December 31, 1975 deadline provided for in the original version of the master plan will be removed by March 31, 1987;
  - c) non-conforming uses resulting from newly-classified wilderness areas will be removed as rapidly as possible and in any case by the end of the third year following classification; and,
  - d) primitive tent sites that do not conform to the separation distance guidelines will be brought into compliance on a phased basis and in any case by the end of the third year following adoption of a unit management plan for the area.
3. No new non-conforming uses will be permitted in any designated wilderness area.
4. Construction of additional conforming structures and improvements will be restrained to comply with wilderness standards for primitive and unconfined types of recreation and to permit better maintenance and rehabilitation of existing structures and improvements.
5. No new structures or improvements in any wilderness area will be constructed except in conformity with finally adopted unit management plans. This guideline will not prevent ordinary maintenance or rehabilitation of conforming structures or improvements, minor trail relocation, or the removal of non-conforming uses.
6. All conforming structures and improvements will be designed and located so as to blend with the surrounding environment and to require only minimal maintenance.
7. All management and administrative action and interior facilities in wilderness areas will be designed to emphasize the self-sufficiency of the user to assume a high degree of responsibility for environmentally-sound use of such areas and for his or her own health, safety and welfare.

8. Any new, reconstructed or relocated lean-tos or primitive tent sites planned for shorelines of lakes, ponds, rivers or major streams will be located so as to be reasonably screened from view from the water body to avoid intruding on the natural character of the shoreline and public enjoyment and use thereof. Any such lean-tos will be set back a minimum of 100 feet from the mean high water mark of lakes, ponds, rivers or major streams.
9. All pit privies will be located a minimum of 150 feet from the mean high water mark of any lake, pond, river, or stream or wetland.

### **Structures and improvements**

1. The structures and improvements listed below will be considered as conforming to wilderness standards and their maintenance, rehabilitation and construction permitted:
  - scattered Adirondack lean-tos, not including lean-to clusters, below 3,500 feet in elevation;
  - primitive tent sites below 3,500 feet in elevation that are out of sight and sound and generally one-quarter mile from any other primitive tent site or lean-to:
    - (i) where physical and biological conditions are favorable, individual unit management plans may permit the establishment, on a site-specific basis, of primitive tent sites between 3,500 and 4,000 feet in elevation, and,
    - (ii) where severe terrain constraints prevent the attainment of the guideline for a separation distance of generally one-quarter mile between primitive tent sites, individual unit management plans may provide, on a site-specific basis, for lesser separation distances, provided such sites remain out of sight and sound from each other, be consistent with the carrying capacity of the affected area and are generally not less than 500 feet from any other primitive tent site;
  - pit privies;
  - foot trails;
  - cross country ski trails;
  - foot trail and cross country ski trail bridges constructed of natural materials and, where absolutely necessary, ladders constructed of natural materials;
  - horse trails, except that any new horse trails will be limited to those that can be developed by conversion of appropriate abandoned roads, snowmobile trails, or state truck trails;

- horse trail bridges constructed of natural materials;
  - horse hitching posts and rails;
  - existing or new fish barrier dams, constructed of natural materials wherever possible;
  - existing dams on established impoundments, except that, in the reconstruction or rehabilitation of such dams, natural materials will be used wherever possible and no new dams will be constructed;
  - directional, informational and interpretive signs of rustic materials and in limited numbers;
  - peripheral visitor registration structures; and,
  - wildlife management structures on a temporary basis where essential to the preservation of wilderness wildlife values and resources.
2. All other structures and improvements, except for interior ranger stations themselves (guidelines for which are specified below), will be considered nonconforming. Any remaining non-conforming structures that were to have been removed by the December 31, 1975 deadline but have not yet been removed, will be removed by March 31, 1987. These include but are not limited to:
- lean-to clusters;
  - tent platforms;
  - horse barns;
  - boat docks;
  - storage sheds and other buildings;
  - fire towers and observer cabins;
  - telephone and electrical lines;
  - snowmobile trails;
  - roads and state truck trails;
  - helicopter platforms; and,
  - buoys.

**Ranger stations**

1. No new interior stations will be constructed and all remaining interior stations, other than Lake Colden, will be phased out on a scheduled basis determined by the Department of Environmental Conservation, in favor of stations or other facilities at the periphery of the wilderness areas at major points of access to provide needed supervision of public use. This phase-out should be accomplished as soon as feasible, as specified in the individual unit management plans.
2. New methods of communication and supply, complying with wilderness guidelines, will be employed with respect to all ranger stations maintained by the Department of Environmental Conservation after December 31, 1975.
3. Due to heavy existing and projected winter use in the Eastern High Peak area and the presence of the most rugged terrain in the Adirondacks, the Lake Colden station together with an associated on-ground line (i.e., a line laid on or just under the ground surface which rapidly becomes covered by leaves) for telephone communication may be retained indefinitely but their status will be periodically reviewed to determine if their eventual removal is feasible.

**Motor vehicles, motorized equipment and aircraft**

1. Public use of motor vehicles, motorized equipment and aircraft will be prohibited.
2. Administrative personnel will not use motor vehicles, motorized equipment or aircraft for day-to-day administration, maintenance or research.
3. Use of motorized equipment or aircraft, but not motor vehicles, by administrative personnel may be permitted for a specific major administrative, maintenance, rehabilitation, or construction project if that project involves conforming structures or improvements, or the removal of non-conforming structures or improvements, upon the written approval of the Commissioner of Environmental Conservation.
4. Such use of motorized equipment or aircraft will be confined to off-peak seasons for the area in question and normally will be undertaken at periodic intervals of three to five years, unless extraordinary conditions, such as a fire, major blow-down or flood mandate more frequent work or work during peak periods.
5. Irrespective of the above guidelines, use of motorized equipment or aircraft, but not motor vehicles, for a specific major research project conducted by or under the supervision of a state agency will be permitted if such project is for purposes essential to the preservation of wilderness values and resources, no feasible alternative exists for conducting such research on other state or private lands, such use is minimized, and the



project has been specifically approved in writing by the Commissioner of Environmental Conservation after consultation with the Agency.

6. Irrespective of the above or any other guidelines in this master plan, use of motor vehicles, motorized equipment and aircraft will be permitted, by or under the supervision of appropriate officials, in cases of sudden, actual and ongoing emergencies involving the protection or preservation of human life or intrinsic resource values -- for example, search and rescue operations, forest fires, or oil spills or similar, large-scale contamination of water bodies.
7. In light of the special circumstances involving Whitney Lake in the West Canada Lake Wilderness Area, seasonal float plane use from spring ice-out to and including June 15 and from October 15 to fall or winter ice-in may be allowed on that lake, by, and subject to permit from the Department of Environmental Conservation for an interim period ending no later than December 31, 1993. Such permits shall require annual reporting of all flights and the number of passengers to and from Whitney Lake. During the winter of 1988-89 the Department shall determine, from the use trends indicated, whether Whitney Lake should then be closed to float plane use for either or both seasonal periods or whether such use should be allowed to continue until the final deadline of December 31, 1993.
8. Written logs will be kept by the Department of Environmental Conservation recording use of motorized vehicles, motorized equipment and aircraft. The Department will prepare an annual report providing details of such motorized uses and the reasons therefore and file it with the Agency.

#### **Roads, snowmobile trails and state truck trails**

1. No new roads, snowmobile or state truck trails will be allowed.
2. Existing roads and state truck trails that were to have been closed by the December 31, 1975 deadline but have not yet been removed will be closed by no later than March 31, 1987. Any non-conforming roads, snowmobile trails or state truck trails resulting from newly classified wilderness areas will also be phased out as rapidly as possible and in any case will be closed by the end of the third calendar year following classification. In each case the Department of Environmental Conservation will:
  - close such roads and snowmobile trails to motor vehicles as may be open to the public;
  - prohibit all administrative use of such roads and trails by motor vehicles; and,
  - block such roads and trails by logs, boulders or similar means other than gates.

3. During the phase-out period:
  - the use of motorized vehicles by administrative personnel for transportation of materials and personnel will be limited to the minimum required for proper interim administration and the removal of non-conforming uses; and,
  - maintenance of such roads and trails will be curtailed and efforts made to encourage re-vegetation with lower forms of vegetation to permit their conversion to foot trails and, where appropriate, horse trails.

#### **All terrain bicycles**

1. Public use of all terrain bicycles will be prohibited.
2. Administrative personnel will not use all terrain bicycles for day-to-day administration but use of such vehicles may be permitted for specific major administrative research, maintenance, rehabilitation or construction projects involving conforming structures or improvements, or the removal of non-conforming structures in the discretion of the Department of Environmental Conservation.

#### **Flora and fauna**

There will be no intentional introduction in wilderness areas of species of flora or fauna that are not historically associated with the Adirondack environment, except: (i) species which have already been established in the Adirondack environment, or (ii) as necessary to protect the integrity of established native flora and fauna. Efforts will be made to restore extirpated native species where such restoration appears feasible.

#### **Recreational use and overuse**

1. The following types of recreational use are compatible with wilderness and should be encouraged as long as the degree and intensity of such use does not endanger the wilderness resource itself:
  - hiking, mountaineering, tenting, hunting, fishing, trapping, snowshoeing, ski touring, birding, nature study, and other forms of primitive and unconfined recreation.

- Access by horses, including horse and wagon, while permitted in wilderness, will be strictly controlled and limited to suitable locations and trail conditions to prevent adverse environmental damage.
2. Each individual unit management plan will seek to determine the physical, biological and social carrying capacity of the wilderness resource. Where the degree and intensity of permitted recreational uses threaten the wilderness resource, appropriate administrative and regulatory measures will be taken to limit such use to the capability of the resource. Such administrative and regulatory measures may include, but need not be limited to:
    - the limitation by permit or other appropriate means of the total number of persons permitted to have access to or remain in a wilderness area or portion thereof during a specified period;
    - the temporary closure of all or portions of wilderness areas to permit rehabilitative measures.
  3. An intensified educational program to improve public understanding of backcountry use, including an anti-litter and pack-in, pack-out campaign, should be undertaken.

#### **Boundary structures and improvements and boundary marking**

1. Where a wilderness boundary abuts a public highway, the Department of Environmental Conservation will be permitted, in conformity with a duly adopted unit management plan, to locate within 500 feet from a public highway right-of-way, on a site-specific basis, trailheads, parking areas, fishing and waterway access sites, picnic areas, ranger stations or other facilities for peripheral control of public use, and, in limited instances, snowmobile trails.
2. Where a wilderness boundary abuts a water body accessible to the public by motorboat, the Department of Environmental Conservation will be permitted, in conformity with a duly adopted unit management plan, to provide, on a site-specific basis, for ranger stations or other facilities for peripheral control of public use or for the location of small, unobtrusive docks made of natural materials on such shorelines in limited instances where access to trailheads or the potential for resource degradation may make this desirable.
3. Special wilderness area boundary markers will be designed and installed at major access points to enhance public recognition of wilderness boundaries and wilderness restrictions.

This page intentionally left blank

# APPENDIX K: PRIMITIVE AREAS: GUIDELINES FOR MANAGEMENT AND USE (APSLMP)

## Basic guidelines

1. The primary primitive management guideline will be to achieve and maintain in each designated primitive area a condition as close to wilderness as possible, so as to perpetuate a natural plant and animal community where man's influence is relatively unapparent.
2. In primitive areas:
  - (a) No additions or expansions of non-conforming uses will be permitted.
  - (b) Any remaining non-conforming uses that were to have been removed by the original December 31, 1975 deadline but have not been removed will be removed by March 31, 1987.
  - (c) Those non-conforming uses of essentially a permanent nature whose removal, though anticipated, cannot be provided for by a fixed deadline will be phased out on a reasonable timetable as soon as their removal becomes feasible.
  - (d) Non-conforming uses resulting from newly classified primitive areas will be removed as rapidly as possible, except for those described in c above, and in any case by the end of the third year following classification.
  - (e) Primitive tent sites that do not conform to the separation distance guidelines will be brought into compliance on a phased basis and in any case by the third year following adoption of the unit management plan for the area.
3. Effective immediately, no new, non-conforming uses will be permitted in any primitive area.
4. Upon the removal of all nonconforming uses, a designated primitive area that otherwise meets wilderness standards will be reclassified as wilderness.
5. Construction of additional conforming structures and maintenance of existing facilities and improvements will follow the guidelines for wilderness areas.
6. No new structures or improvements in primitive areas will be constructed except in conformity with finally adopted unit management plans. This guideline will not prevent

- ordinary maintenance rehabilitation or minor relocation of conforming structures or improvements or the removal of nonconforming uses.
7. All conforming structures and improvements will be located so as to blend with the surrounding environment and to require only minimal maintenance.
  8. All management and administrative actions and interior facilities in primitive areas will be designed to emphasize the self-sufficiency of the user to assume a high degree of responsibility for environmentally sound use of such areas and for his or her own health, safety and welfare.
  9. Any new, reconstructed or relocated lean-tos or individual primitive tent sites located on shorelines of lakes, ponds, rivers or major streams will be located so as to be reasonably screened from the water body to avoid intruding on the natural character of the shoreline and public enjoyment and use thereof. Any such lean-tos will be set back a minimum of 100 feet from the mean high water mark of lakes, ponds, rivers or major streams.
  10. All pit privies will be located a minimum of 150 feet from the mean high water mark of any lake, pond, river, stream or wetland.

#### **Structures and improvements**

1. All structures and improvements that conform to wilderness guidelines will be acceptable in primitive areas.
2. In addition, existing structures and improvements
  - (a) whose removal, though anticipated, cannot be provided for by a fixed deadline, or,
  - (b) in the case of areas not destined to become wilderness, whose retention is compatible with the character of the area and whose removal is not essential to protect the resource, will also be permissible, in each case as specified in a duly adopted unit management plan.
3. Non-conforming uses, other than those that meet the criteria in section 2 above, will be removed by no later than March 31, 1987.

#### **Ranger stations**

Ranger stations will be subject to the same guidelines as in wilderness areas, except that in areas not destined to become wilderness or in other special situations the indefinite retention of such

stations may be provided for as specified by the Department of Environmental Conservation in a duly adopted unit management plan.

**Motor vehicles, motorized equipment and aircraft**

1. All uses of motor vehicles, motorized equipment and aircraft permitted under wilderness guidelines will also be permitted in primitive areas.
2. Addition, the use of motor vehicles, motorized equipment and aircraft by administrative personnel will be permitted to reach and maintain existing structures, improvements or ranger stations:
  - (a) whose eventual removal is anticipated but cannot be removed by a fixed deadline; or,
  - (b) in primitive areas not destined to become wilderness whose presence is of an essentially permanent character; in each case as specified in a duly adopted unit management plan.

**Roads, snowmobile trails and state truck trails**

1. The guidelines specified for wilderness areas will also apply to primitive areas, except that:
  - continued use of existing roads, snowmobile trails and state truck trails by administrative personnel will be permitted, to the extent necessary to reach and maintain structures and improvements whose removal, though anticipated, cannot be effected by a fixed deadline or, in the case of primitive areas not destined to become wilderness, whose presence is of an essentially permanent character; and,
  - existing roads now legally open to the public may remain open for motor vehicles at the discretion of the Department of Environmental Conservation pending eventual wilderness classification, if their continued use will not adversely affect the character of the resources of the primitive area or impinge upon the proper management of an adjacent wilderness area;
  - existing snowmobile trails now legally open to the public may remain open for snowmobiles at the discretion of the Department of Environmental Conservation pending eventual wilderness classification if their continued use will not adversely affect the character or resources of the primitive area or impinge upon the proper management of the adjacent wilderness; in each case as specified in a duly adopted unit management plan.

2. Upon the closure of any road, snowmobile trail or state truck trail, such routes will be effectively blocked as provided in the wilderness guidelines.

**All Terrain Bicycles**

The same guidelines will apply as in wilderness areas except that all terrain bicycles may be used on existing roads legally open to the public and on state truck trails specifically designated for such use by the Department of Environmental Conservation as specified in individual unit management plans.

**Flora and fauna**

The same guidelines will apply as in wilderness areas.

**Recreational use and overuse**

The same guidelines will apply as in wilderness areas.

**Boundary structures and improvements and boundary marking**

The same guidelines will apply as in wilderness areas.



## APPENDIX L: PUBLIC COMMENT

Response to Public Comment received during public comment period 2/11/2010 – 3/26/2010

### ***Hurricane Mountain Fire Tower***

Many comments were received regarding the proposal to remove the fire tower from the unit. These comments fall into the two basic categories of those in favor of retaining the tower at its present location on Hurricane Mountain, and those in favor of its removal from the unit. Comments both for and against removal of the tower were based on many factors; these are addressed below in italics.

#### Comments in favor of Retaining the Hurricane Mountain Fire Tower at its current location:

1. Fire tower is a historic landmark on both the state and federal registers of historic places.

*The Hurricane Mountain Fire Tower is indeed on the state and federal registers of historic places. However, inclusion on these lists is not in itself a mandate to retain the tower on site, but it does require the Department to mitigate the impact of removing this historic resource. Specific plans for such mitigation have not been formalized at this time.*

2. Fire Tower is an integral part of local (Keene, Elizabethtown), regional (Adirondack), and state history. Fire Tower is part of Adirondack heritage.

*These statements are all borne out by the tower's inclusion on the state and national registers of historic places which recognize the tower's value to the people of New York State, as well as the citizens of the United States of America.*

3. Wilderness preservation needs to be balanced with historic preservation.

*Historic preservation is allowed in wilderness areas to the degree that it does not detract from the wild character of the unit. What structures may or may not be retained in wilderness have been determined by the APA through the APSLMP.*

4. Fire tower is compatible with wilderness classification (they do not detract from Wilderness).

*The Department is mandated to follow the guidance of the APSLMP. As per current guidance in this document, fire towers are not compatible with wilderness classification in the Adirondack Park.*

5. Fire tower enhances wilderness experience.

*How individuals perceive wilderness is subjective. Fire towers are one example of a facility that can enhance some peoples' wilderness experience while detracting from other peoples' wilderness experience. Public comment has been received stating both cases.*

6. There is broad public support for retention of the fire tower. Removal of the tower is out of touch with desires of the majority of residents. How can DEC ignore 5,000 signatures on a petition? Requests to retain the tower have been numerous and sensible. Ignoring these comments will send a message that the DEC caters to special interests, not the public.

*The Department's public participation process is not a vote but is a means of receiving input from the public on our proposed management decisions. There have been many public comments received regarding the Hurricane Fire Tower, with the majority of these in favor of retaining the tower on Hurricane Mountain.*

*The Department has taken these comments into consideration while formulating our final management decision.*

7. Fire Tower provides opportunity for those with opposing viewpoints to work together.
8. The fate of Adirondack fire towers was supposed to be determined through a comprehensive fire tower plan. DEC released a study, not a plan. Since there is no plan DEC has failed to meet its obligation to the public.

*Whether the document is called a comprehensive plan or a study is not a material issue. The final preferred alternative for this fire tower was considered in both the Fire Tower Study and this UMP.*

9. Retaining the Fire Tower will save tax payers the expense of removing it (especially during current fiscal crisis).

*While removing the fire tower will have associated costs, retaining the tower will have similar associated costs.*

10. Fire Tower has no adverse environmental impacts.

*The environmental impact of the existence of the fire tower on the summit of Hurricane Mountain is negligible. The only potential for significant impacts would be associated with maintenance or removal of the tower. However, either of these operations would be temporary, and could be scheduled for times when they would have the least impact on adjacent resources.*

11. The APSLMP is outdated and needs to be revised before any UMPs are amended or adopted (last comprehensive revision in 1985).

*Revision of the APSLMP is the responsibility of the APA.*

12. The existence of non-conforming structures should preclude wilderness classification. The APSLMP makes a circular argument by calling something with non-conforming structures a wilderness, and then saying they have to be removed because they are in a wilderness area.

*Classification of state lands within the Adirondack Park is the responsibility of the APA.*

13. The APSLMP is deficient in recognizing historical values (specifically the historic potential of fire towers).

*The APSLMP was written, and is interpreted by the Adirondack Park Agency.*

14. Change the APSLMP so existing structures can remain in wilderness.

*Revision of the APSLMP is the responsibility of the Adirondack Park Agency.*

15. All fire towers in the Adirondack Park should be retained for historic preservation.

*Although there is no formal comprehensive policy governing the management of fire towers on Forest Preserve land in the Adirondack Park, the Department will work to retain a system of fire towers in compliance with the APSLMP. Management decisions for individual fire towers will be addressed on a case by case basis through the unit management planning process.*

16. All fire towers in the state should be retained for historic preservation.

*The Adirondack Park State Land Master Plan does not allow this to occur.*

17. The fire tower is an educational resource.

*In addition to their duties related to fire detection and communication, fire observers also served the Department as spokespeople who could educate recreational users about wise use of the forest preserve as well as the many functions of the Department. This role is filled today at certain fire tower locations by summit guides.*

18. The fire tower is a recreational resource. Fire Tower makes a great hiking destination.

*Fire towers have been popular hiking destinations since they were first established in the early 1900s.*

19. The fire tower should be kept for future generations to experience.

*Removal of the fire tower from Hurricane Mountain will preclude the possibility of future generations experiencing the tower on site. However, it will provide future generations with a wilder experience.*

20. The fire tower is part of community character.

*Since 1919 a view of Hurricane Mountain Summit has included a view of the fire tower. The tower is part of the character of the local communities with a view of it, and loss of this character will be one of the impacts that will need to be mitigated under Office of Parks Recreation and Historic Preservation guidelines.*

21. Fire towers are a symbol of the strength needed to survive in the Adirondacks.

22. Fire towers attract visitors to the area.

*Fire towers have been popular hiking destinations since they were first established in the early 1900s.*

23. Fire towers are an integral part of the mountains they are on.

*The Hurricane Mountain Fire Tower has been in place for 91 years. With few exceptions, there is no one living today who can remember seeing the mountain without the tower. While there are those who wish to see the tower removed from the mountain, others have come to view the mountain and the tower as synonymous with each other.*

24. Fire towers enhance views from summits.

*Fire towers were installed to enhance the views from summits to facilitate more efficient fire detection.*

25. Fire towers are aesthetic resources when viewed from far away.

*Many people enjoy the view of fire towers from distant locations such as nearby towns or roadways. However, because Fire Towers stand out prominently on the mountains they occupy, they do not meet the following APSLMP guidance regarding structures in wilderness areas: "All conforming structures and improvements will be designed and located so as to blend with the surrounding environment..."*

26. Fire towers can be repaired and maintained at little or no cost to taxpayers via friends groups.

*No friends group has ever single-handedly restored a fire tower in DEC Region 5. Since the Division of Lands & Forests has care, custody and control of the Forest Preserve, we must be involved in these efforts. In almost every situation where a fire tower is restored, at a minimum, the Department has provided staff, labor and helicopter service.*

27. Fire towers help families enjoy the Adirondacks.

28. Fire towers symbolize man's stewardship (conservation history) of the Adirondack Park.

*The role of Adirondack fire towers in the conservation history of New York State, and the United States of America, were contributing factors to their inclusion on the State and National Registers of Historic Places.*

29. Reclassifying the HMPA from Primitive to Wilderness changes nothing on the ground. This is simply semantics.

*As stated in the introduction to the HMPA UMP, the HMPA is essentially being managed as wilderness at present. If the unit is reclassified to wilderness it will mean that the issues surrounding the power line, and the roads have been resolved (likely through establishing*

*smaller primitive areas) and the fire tower has been removed from the unit. With the exception of the fire tower, these alterations to the unit will not have a major effect. However, removal of the fire tower will have a major effect on the character of the unit which some will see as positive and others will see as negative.*

Comments in favor of Removing the Hurricane Mountain Fire Tower from its current location:

30. Removal of the fire tower conforms to APSLMP guidelines.

31. Removal of the fire tower will allow the area to be classified as wilderness.

*Removal of the fire tower is one step in bringing the HMPA into conformance with wilderness requirements. There are other issues that also need to be resolved before the HMPA can be reclassified to wilderness*

32. Fire tower is not necessary for views.

*The decision to remove the Hurricane Mountain Fire Tower from Hurricane Mountain is not based on whether or not it provides a view. It is based on conformance to the APSLMP.*

33. Fire tower has been on the summit too long and is just a hunk of junk.

34. Fire tower is in disrepair, and potentially dangerous.

*This is one of the issues taken into consideration in developing the preferred alternative.*

35. Other fire towers are being preserved.

*There are other towers in the Adirondack Park, however each is historically significant in its own right.*

**Gulf Brook Lean-to**

Many comments were received regarding the proposal to remove the Gulf Brook Lean-to from the unit. These comments are summarized below:

1. By what criteria is Gulf Brook considered a “major stream”, there is no definition of “major stream”.

*Interpretation of the APSLMP is the responsibility of the APA. APA staff have determined that Gulf Brook is a “major stream”.*

2. Lean-to may be exempt from APSLMP 100 foot setback provision because Gulf Brook is not a major stream as defined in APSLMP.

*Interpretation of the APSLMP is the responsibility of the APA. APA staff have determined that Gulf Brook is a “major stream”.*

3. Does DEC intend to remove, and possibly replace, every lean-to that does not currently meet APSLMP guidelines? If so, where will the funding come from? If not, why should the Gulf Brook Lean-to be slated for removal without replacement?

*Through the UMP process, the Department intends to bring every lean-to into compliance with the APSLMP. This will mean relocating, or removing each lean-to that does not currently conform to the APSLMP. Lean-tos may also be relocated or removed for reasons other than APSLMP compliance. The disposition of each lean-to will be determined in the appropriate UMP. We will necessary funding through the budget process.*

*The decision to remove, not relocate, the Gulf Brook Lean-to has been based on the objective of enhancing the wild character of the Gulf Brook Valley in the vicinity of the lean-to site. There have been a number of comments requesting that the lean-to remain at its current site, or be relocated nearby. These comments highlight the value of the lean-to to many different recreational users. While the Department recognizes the benefit this lean-to has provided, and could continue to provide, it also recognizes the benefit of providing a truly wild experience for users of the HMPA.*

4. Lean-to helps to cluster use.

*Lean-tos do tend to cluster use in their immediate vicinity. Depending on the lean-to site, this can have a positive or negative impact.*

5. Gulf Brook Lean-to is of particular value for the elderly or those with moderate disabilities.

*There are few, if any, lean-tos in the area that are as easily accessible as the Gulf Brook Lean-to. While removal of the lean-to will eliminate the opportunity for some users to have a lean-to camping experience within the HMPA, there will still be a designated campsite in the general area of the lean-to, and camping at large will still be allowed anywhere in the unit in accordance with Department regulations.*

6. Lean-to has served as an introductory camping experience for families with young children, individuals, and groups of adjudicated youth.

*While removal of the lean-to will eliminate the opportunity for some users to have a lean-to camping experience within the HMPA, there will still be a designated campsite in the general area of the lean-to, and camping at large will still be allowed anywhere in the unit in accordance with Department regulations.*

7. Lean-to is perfect for instilling a conservation ethic in children.

*While the lean-to can serve as a tool for teaching conservation of our natural resources, many other such tools exist.*

8. Lean-to has benefited many people and is valued by the local community.

*As per comments received, the lean-to has indeed benefited many people, and is valued by the local community. While the removal of this lean-to will be viewed as negative by some, the Department believes it will provide a net benefit by enhancing the wilderness character of the HMPA.*

9. Comments in support of retention of lean-to on current site:

- Current site adjacent to trail discourages misuse/abuse of lean-to due to the likelihood of being seen by fellow hikers.
- Cost of removal is not justified.
- Lean-to does not pose any safety hazards.
- Lean-to provides a taste of history.
- Current site is not causing any environmental degradation.
- Lean-to should be allowed to remain at its current location for the rest of its useful life, and relocated nearby once it is no longer useable.
- Support amendment to the APSLMP to permit the replacement and continued use of lean-to's less than 100 feet from water bodies as long as they do not threaten or adversely impact their immediate environment. The Gulf Brook lean-to has neither of these impacts.

*APA staff have determined that the Gulf Brook Lean-to is too close to a major stream (Gulf Brook) and therefore needs to be relocated or removed when in need of significant repair as per APSLMP guidelines. Interpretation or amendment of the APSLMP is the responsibility of the APA.*

10. Gulf Brook Lean-to should be relocated to a site compliant with the APSLMP, not removed from the unit.

*The Department believes that removing the lean-to will be more beneficial than relocating it because it will enhance the wilderness character of the HMPA.*

11. Support removal of Gulf Brook Lean-to.

12. Use of this lean-to helps divert use away from overcrowded areas such as Marcy Dam.

*Where overuse problems occur, it is usually best to try to manage them on site rather than trying to disperse them. There have been different schools of thought on the benefits of dispersing use verses concentrating (clustering) use, ultimately the demand for a certain recreational resource is based on its desirability to users.*

13. Removal of the Gulf Brook Lean-to might lead to overuse of the Biesemeyer Lean-to.

*While removal of the Gulf Brook Lean-to will likely increase the use of the Biesemeyer Lean-to, overuse of the Biesemeyer lean-to is not anticipated. Following removal of the*

*Gulf Brook Lean-to, use levels and resource impacts will be monitored at the Biesemeyer Lean-to to determine if any additional management actions are necessary.*

**General comments:**

1. Trails and bridges in the area should be widened to allow for safer use by cross-country and back-country skiers.

*The proposed trail classification for the HMPA was developed to accommodate current use levels and patterns while maintaining a high degree of wilderness character. Wilderness resources, in general, are managed to encourage self sufficiency and a high degree of responsibility for personal health, safety, and welfare; not for user convenience.*

2. Public parking should be provided on the portion of Jay Mountain/Wells Hill Road that crosses state land.

*The Department has considered the possibility of providing formal parking facilities along the portion of The Jay Mountain/Wells Hill Road that forms the boundary of the HMPA and the Jay Mountain Wilderness Area. Although no parking area is being proposed at this time the department will further evaluate this issue. If a parking area is determined necessary, an amendment to this UMP, or the Jay Mountain Wilderness Area UMP will be made.*

3. Status of Jay Mountain Road should be addressed by the HMPA since the APSLMP clearly identifies this road as a non-conforming use.

*The legal status of the Jay Mountain Road will require significant research to clarify the current situation. This level of detail is outside the scope of this UMP.*

4. DEC, APA, and the towns of Jay and Lewis should explore options for closing Jay Mountain (Wells Hill) Road past the last houses and combine the HMPA with the neighboring Jay Mountain Wilderness Area. These roads could be kept open to foot traffic, or mountain bikes (via a primitive corridor) at much less cost than current maintenance for motor vehicles.

*The Jay Mountain/Wells Hill Road is recognized as a town road maintained by the towns of Jay and Lewis where it travels through each municipality. If either, or both, towns formally abandon the respective portions of the road between the HMPA and the Jay Mountain Wilderness, the abandoned portions will be managed in the manner that is appropriate based on state highway laws, state environmental conservation laws, and the APSLMP.*

5. Lands adjacent to the HMPA should be considered high priorities for state fee acquisition or conservation easements.

*New York State acquires land according to the provisions of its Open Space Conservation Plan.*



6. Support reroute of North Trail to Hurricane to avoid multiple brook crossings.
7. Would like to see a bridge over Gulf Brook.

*As stated in the draft UMP, the Department has given consideration to reestablishing a bridge over Gulf Brook in the vicinity of the Gulf Brook Lean-to. For the reasons stated in the UMP, a bridge is not determined necessary at this site.*
8. Agree with proposal to retain lands under power line r-o-w and all lands to the west in primitive classification.
9. The NYSEG power line should be moved out to the road (route 9N) and buried.

*Moving the power line from the interior of the unit to the periphery would require authorization from NYSEG, NYS DOT, and adjacent landowners. It would also likely require a constitutional amendment. Another consideration with such a relocation is the presence of bedrock outcropping where lands of the HMPA meet route 9N. Burying a power line in this area would require drilling, or blasting that would likely have a significant impact. Furthermore, moving the power line out to the road will move it into the core area of a Recreational River corridor. While moving the power line to the periphery of the unit would enhance the wilderness character of the HMPA, it would have a negative effect on the East Branch of the Ausable Recreational River Corridor. In light of the above considerations, the Department will not consider such a proposal.*
10. Lands around roads leading to in-holdings in eastern portion of unit should be included in a newly created primitive corridor.

*The Draft HMPA UMP recommended that a Primitive Corridor be established for these roads to act as a buffer zone if the unit is reclassified as a wilderness area.*
11. If in-holdings within unit are purchased by NYS, roads should be removed and managed as wilderness.

*If in-holdings are acquired by New York State, any accessory roads will be managed in the manner that is appropriate based on state highway laws, state environmental conservation laws, and the APSLMP.*
12. The proposed Hurricane Crag Trail should be located away from sensitive wildlife areas, or dangerous precipices.

*The Department manages its lands according to current best management practices. These include locating trails away from areas where habitats of threatened and endangered species are known to exist.*
13. Seasonal closures of the Hurricane Crag Trail should be instituted if peregrine falcons begin hunting around or nesting on the nearby cliffs.

*As with other Adirondack rock climbing walls, the Hurricane Crag climbing routes will be closed during peregrine falcon nesting season if determined necessary by DEC staff.*

14. Where possible, trails should be kept away from streams, rivers, lakes, ponds, wetlands, or any other ecologically sensitive sites.

*The Department manages its lands according to current best management practices. These include locating trails away from streams, wetlands, and unstable slopes wherever possible; and avoiding areas where habitats of threatened and endangered species are known to exist.*

15. In light of anthropogenic climate disruption, present policies and limits on trapping and shooting of carnivore species may be too lax. For example, pine marten could be [sic] an early casualty of an overheating climate, acting synergistically with habitat fragmentation and excessive trapping.

*The department recognizes that marten have the potential to be overharvested by trappers, therefore, we employ a conservative approach to managing marten harvests in the Adirondacks. We accomplish this primarily through a bag limit system that limits the number of marten that a single trapper can harvest (currently 6 marten per season). Moreover, we closely monitor the harvest of this species through a trapping permit system that allows us to collect trapper effort and biological data that are vital to making inferences regarding harvest trends. Lastly, much of the marten harvest in the Adirondacks occurs next to roads and trails, effectively leaving large, remote areas as trapping refugia for these and other carnivores. The trapping refugia concept is widely regarded among furbearer biologists as an effective means for ensuring sustainable harvests of these species. Current marten harvests in the Adirondacks can hardly be considered "excessive." While you are correct that climate change and the possibility of habitat fragmentation may negatively influence marten populations in the future, there is much that we do not know concerning interactions of snow, competing fisher populations, habitat suitability, and prey populations and their influence on marten populations. Therefore, making predictions about additive population-level impacts of trapping are premature.*

16. The HMPA and Jay Mountain Wilderness Area UMPs should be combined into one document. Because these units are adjacent to each other and very similar, there is much redundant background information that could be consolidated. This would also be in keeping with APSLMP language that contemplates combining these units in the future.

*The HMPA and Jay Mountain Wilderness Area UMPs could be combined. The department will give due consideration to this suggestion when revising these plans in the future.*

# APPENDIX M: FIRE TOWER LETTER OF RESOLUTION

LETTER OF RESOLUTION  
BETWEEN  
THE OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION  
AND  
THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Whereas, the Department of Environmental Conservation (DEC) has completed an assessment of thirty-five fire towers under DEC jurisdiction which are either eligible for inclusion in the State and National Registers of Historic Places (NRE), or have been designated as a National Historic Landmark (NHL) (see attachment 1),

And whereas the DEC determined that the removal of eight fire towers and the transfer of four fire towers is an undertaking which will have an impact on those properties and has consulted with the Office of Parks, Recreation and Historic Preservation (OPRHP) pursuant to the New York State Historic Preservation Act (PRHPL §14.09);

Now, therefore, the DEC and the OPRHP agree that the undertaking shall be implemented in accordance with the following stipulations, in order to take into account the impact of the undertaking on historic properties.

### Stipulations

The DEC will ensure the following stipulations are carried out:

The disposition of subject fire towers under DEC jurisdiction will be conducted according to attachment 1

DEC shall make its best efforts to ensure that the instrument of conveyance for the transfer of fire towers to another public or private entity shall include a protective covenant to ensure that the historical or architectural aspects of the fire towers will be preserved and maintained.

The OPRHP shall not object to the disposition of the subject fire towers by the DEC if such dispositions are carried out consistent with this agreement.

NEW YORK STATE HISTORIC PRESERVATION OFFICER

BY: J Winthrop Aldrich

DATE: 12/13/94

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

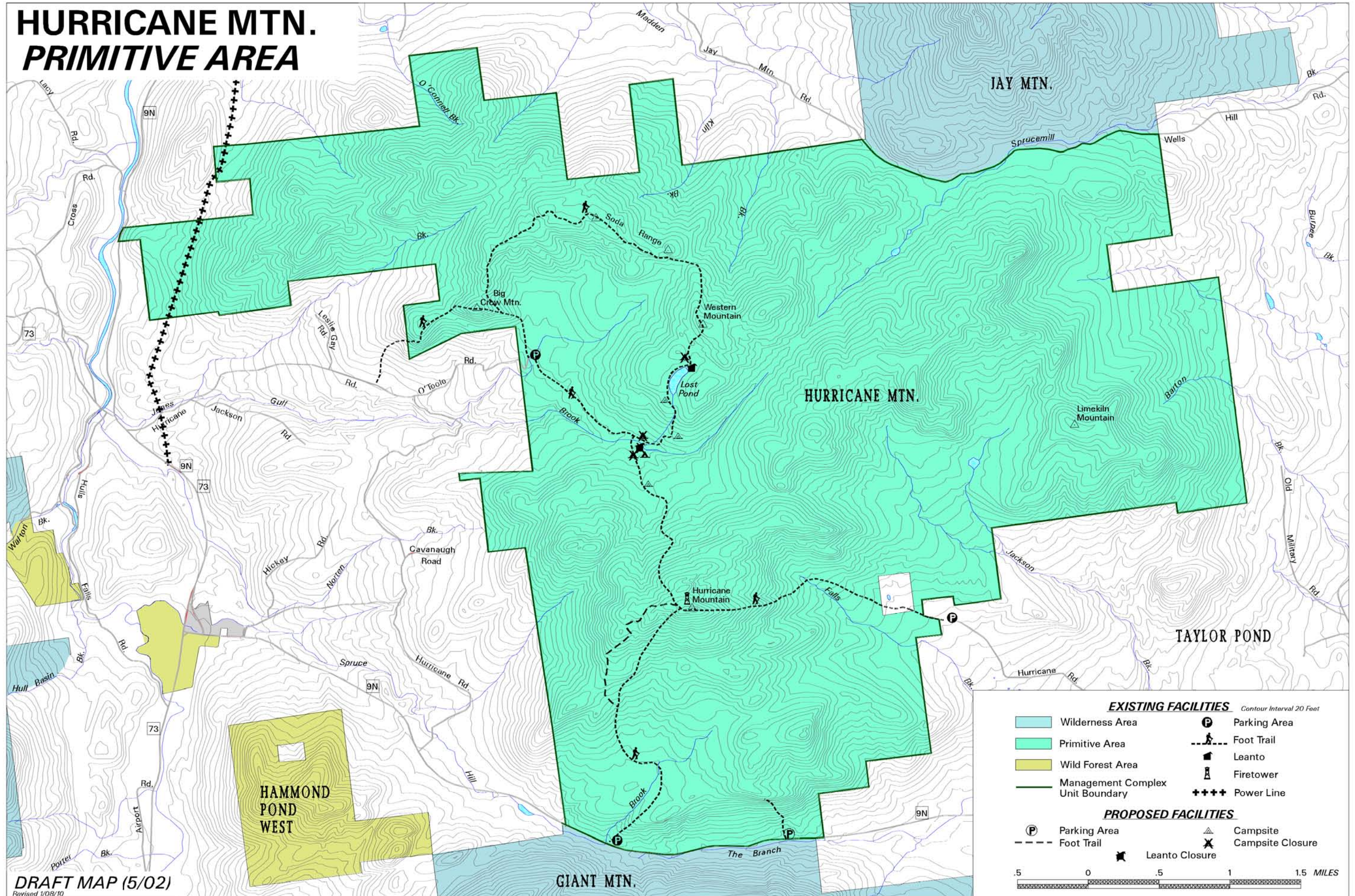
BY: Langdon Marsh

DATE: 5/18/94

This page intentionally left blank

## **APPENDIX N: UNIT MAPS**

# HURRICANE MTN. PRIMITIVE AREA



DRAFT MAP (5/02)  
Revised 1/08/10

**EXISTING FACILITIES** Contour Interval 20 Feet

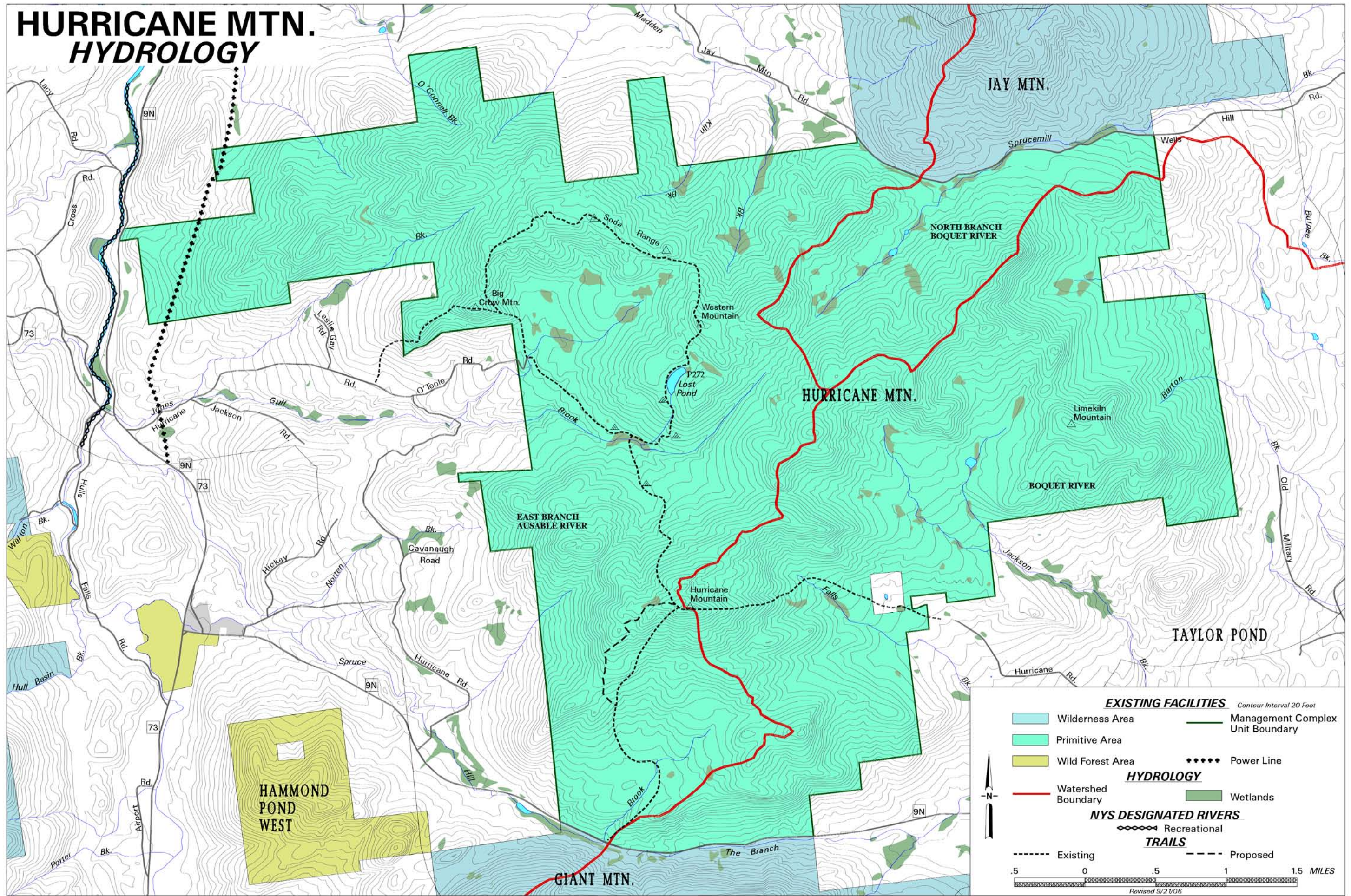
Wilderness Area	Parking Area
Primitive Area	Foot Trail
Wild Forest Area	Leanto
Management Complex Unit Boundary	Firetower
	Power Line

**PROPOSED FACILITIES**

Parking Area	Campsite
Foot Trail	Campsite Closure
Leanto Closure	

0.5 0 .5 1 1.5 MILES

# HURRICANE MTN. HYDROLOGY



**EXISTING FACILITIES** Contour Interval 20 Feet

- Wilderness Area
- Primitive Area
- Wild Forest Area
- Wetlands
- Management Complex Unit Boundary
- Power Line

**HYDROLOGY**

- Watershed Boundary

**NYS DESIGNATED RIVERS**

- Recreational

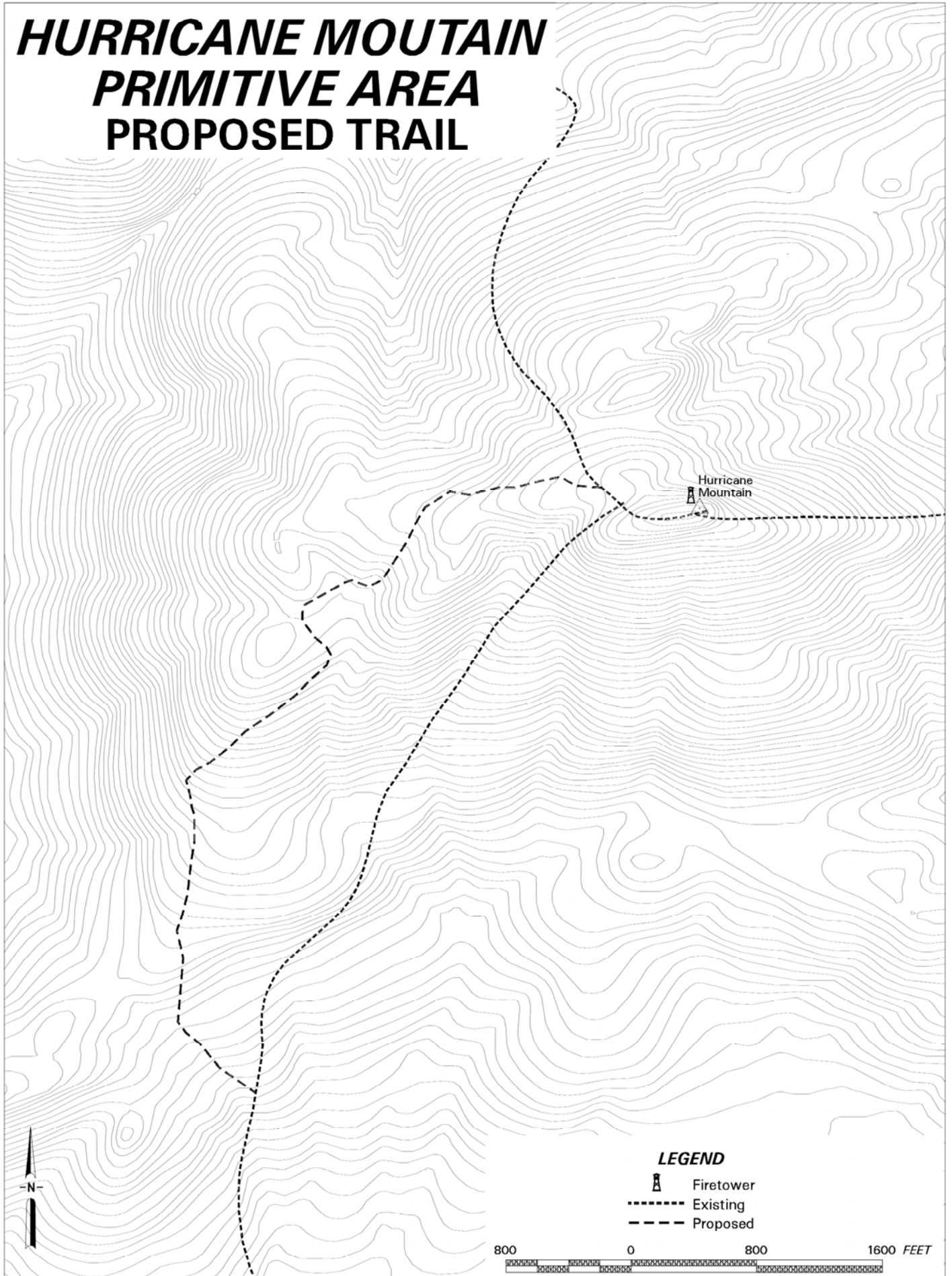
**TRAILS**

- Existing
- Proposed



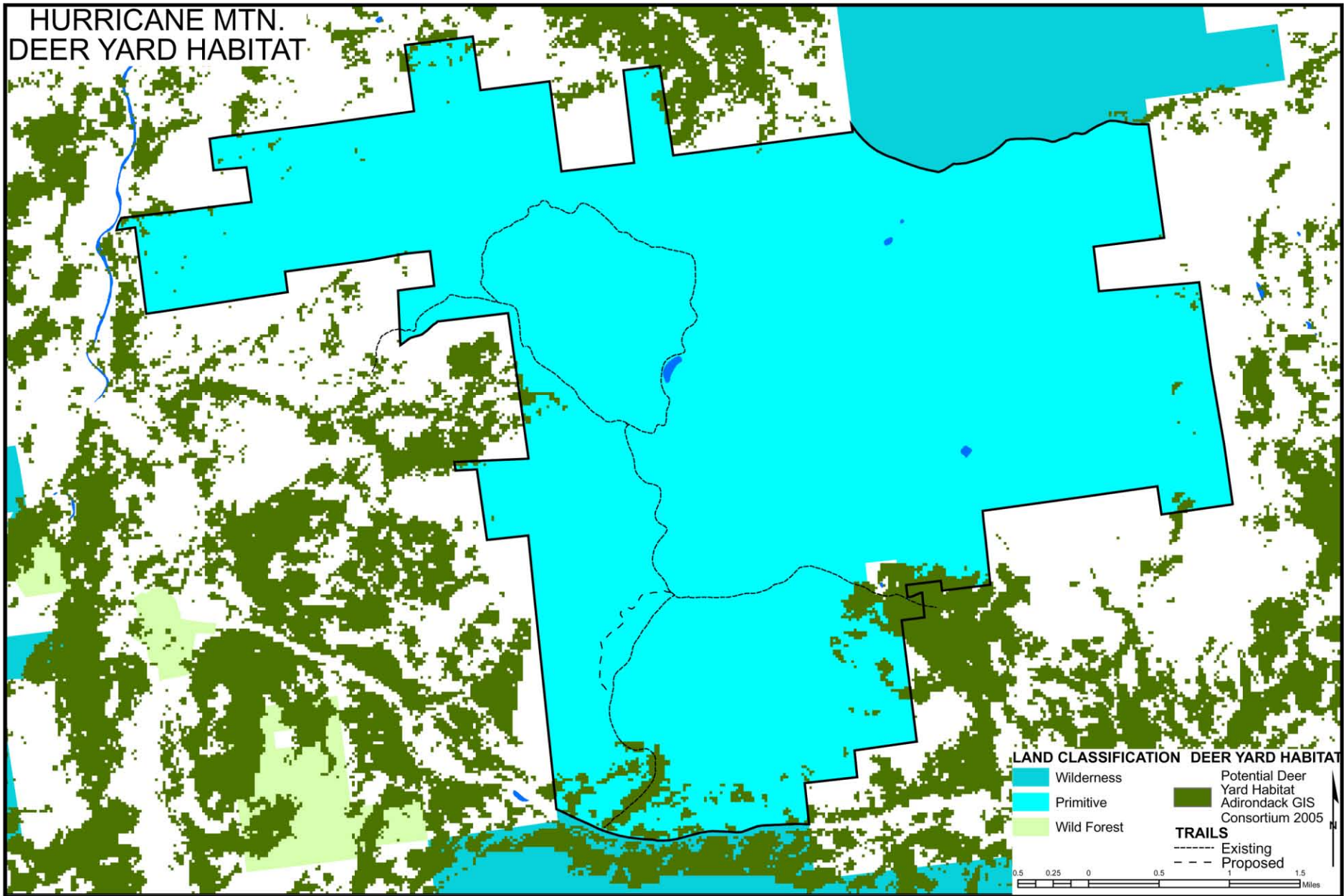
Revised 9/2/06

# HURRICANE MOUNTAIN PRIMITIVE AREA PROPOSED TRAIL

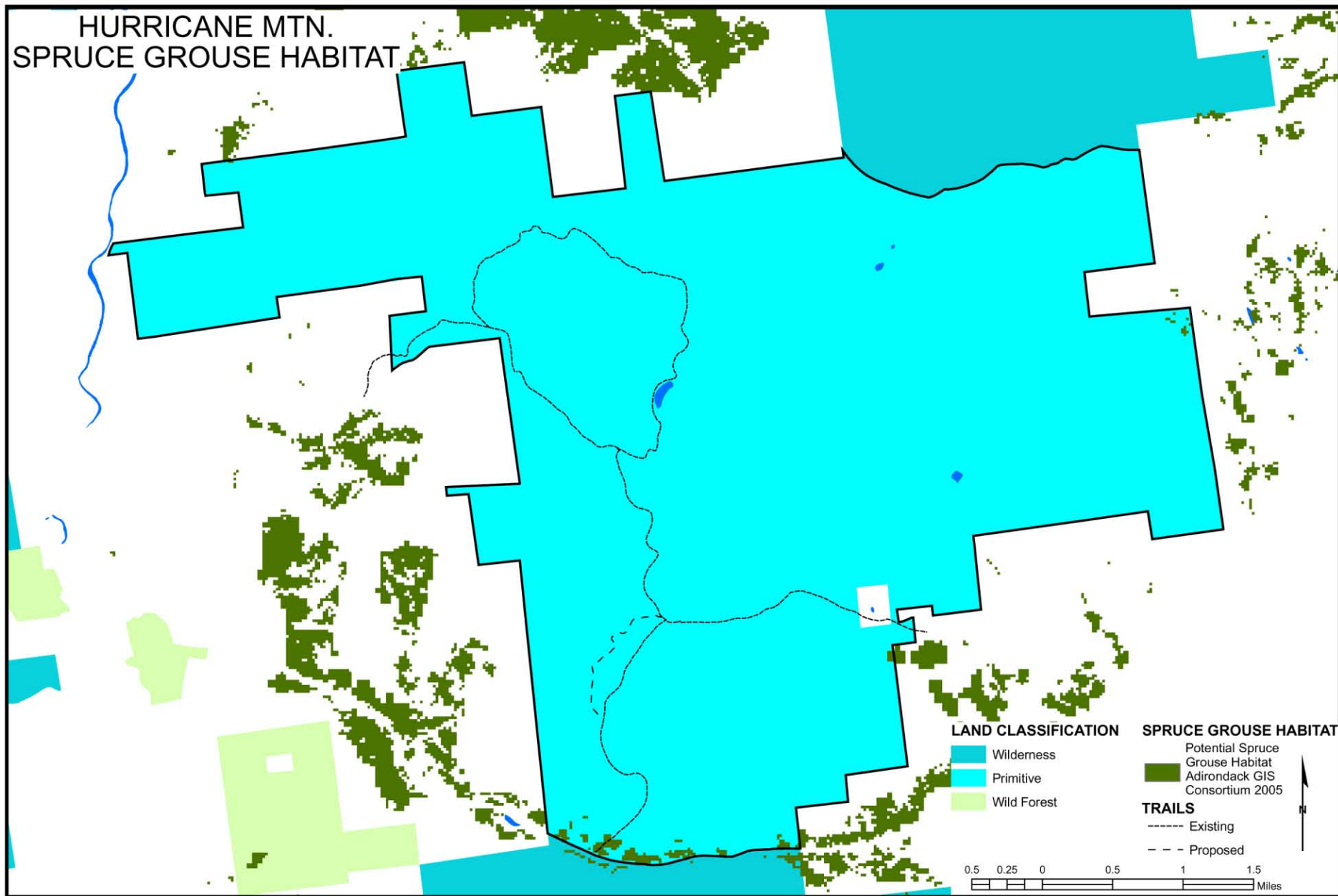




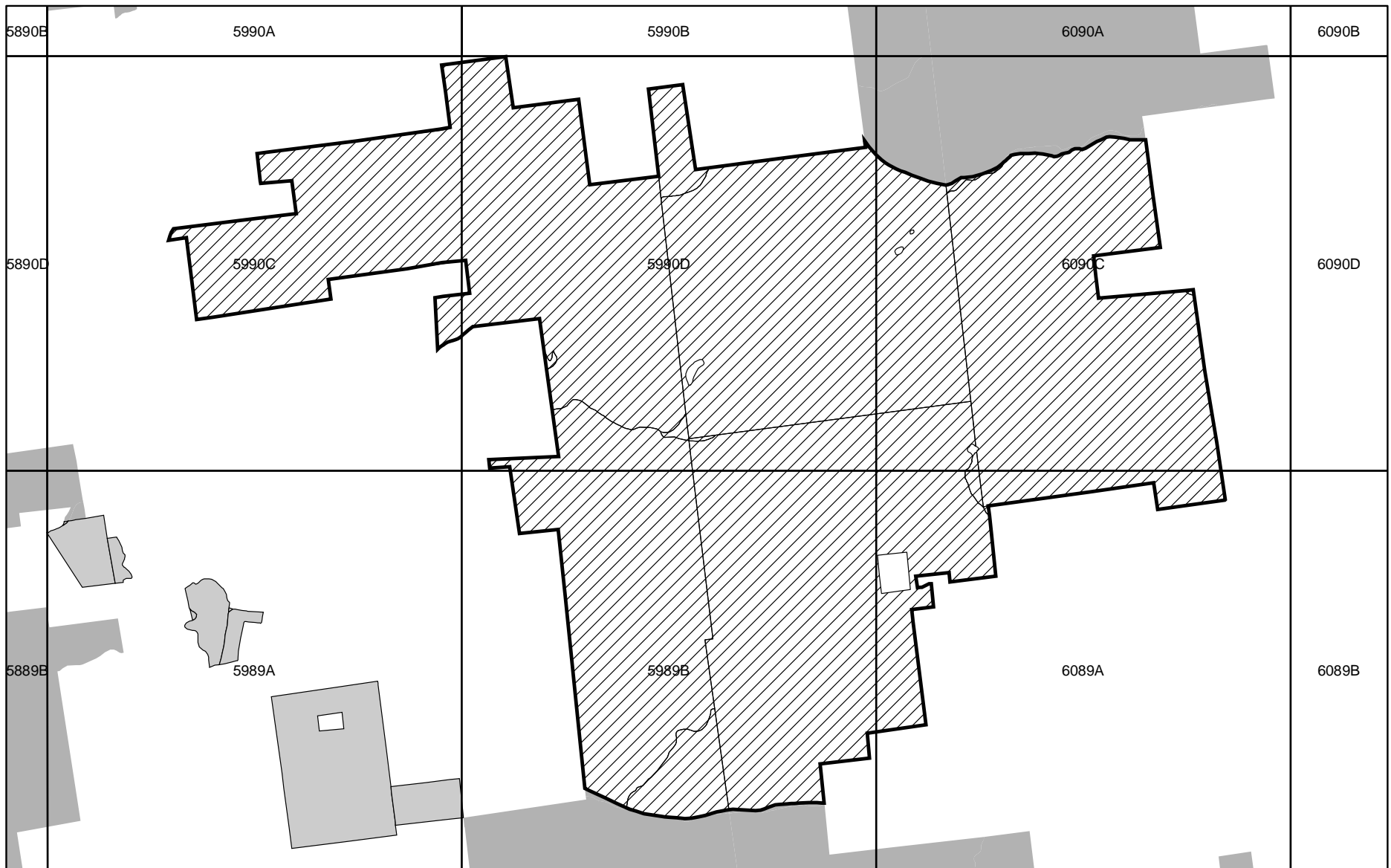
# HURRICANE MTN. DEER YARD HABITAT




# HURRICANE MTN. SPRUCE GROUSE HABITAT

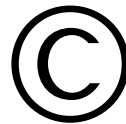


# HURRICANE MOUNTAIN BREEDING BIRD ATLAS



 Management Complex Unit Boundary

 Breeding Bird Atlas Block



## LAND CLASSIFICATION

 Wilderness

 Primitive

 Wild Forest