New York State
Department of Environmental Conservation

Division of Lands & Forests
Region 5

Dix Mountain Wilderness Area
Unit Management Plan Amendment

Towns of Elizabethtown, Keene and North Hudson
Essex County, New York

January 2004

George E. Pataki
Governor

Erin M. Crotty
Commissioner

Lead Agency:
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Erin M. Crotty
Commissioner

MEMORANDUM

To: The Record

From: Erin M. Crotty

Re: Unit Management Plan
Dix Mountain Wilderness Area

The Unit Management Plan for the Dix Mountain Wilderness Area has been completed. The Plan is consistent with the guidelines and criteria of the Adirondack Park State Land Master Plan, the State Constitution, Environmental Conservation Law, and Department rules, regulations and policies. The Plan includes management objectives and a five year budget and is hereby approved and adopted

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Erin M. Crotty, Commissioner

PREFACE

The Dix Mountain Wilderness 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 Dix Mountain Wilderness Area.

The Adirondack Park State Land Master Plan ("APSLMP" or "Master Plan") 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 recodified 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. The lands which are the subject of this UMP are classified by the Master Plan and described herein as the Dix Mountain Wilderness Area.

For all State lands falling within each major classification, the Master Plan sets forth management guidelines and criteria. These guidelines and criteria address 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.

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.

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."

Acknowledgments

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Table of Contents

Section 1 – Introduction

Planning Area Overview

The Dix Mountain Wilderness Area (DMWA) forms part of a complex of Wilderness Areas that collectively comprise one of the best known recreation areas in the Adirondack Park: the high peaks region[1]. While its topography varies considerably, the area is predominantly high mountain country, containing numerous mountain peaks in excess of 4,000 feet in elevation. The primary attraction is Dix Mountain, the highest peak in the unit with a summit elevation of 4,857 feet. In addition, many hikers seeking to climb all Adirondack summits in excess of 4,000 ft in elevation climb the remaining eight mountains with elevations above 4,000 ft in this unit. Half of these summits lack maintained trails. The Chapel Pond area attracts large numbers of rock climbers. The eastern portion of the wilderness remains trail-less and receives substantially less use, offering the best opportunities for solitude in the unit.

The proximity of the unit to and the similarity of terrain and attractions with the adjacent High Peaks Wilderness Area (HPWA) results in many similar management concerns across the units. The ability of users to utilize either area to experience a similar natural environment may result in management needs in both areas that are similar. Indeed, many recreational users perceive the DMWA and HPWA as the same resource. The potential for user shift from one unit to the other raises the continued possibility of future overuse problems in the DMWA. It is a goal of this plan to incorporate management practices established in the HPWA UMP in the DMWA to the degree that they are necessary to protect the resource, natural processes and visitor experience.

Easements

Two adjacent properties provide publicly accessible recreational opportunities by way of easements granted to the State of New York.

The Samuel Bloomingdale Easement was granted to the State of New York on July 31, 1963 and provides the only public access to the DMWA from the south. The easement transfers three rights to the State: 1) a public parking area of approximately 0.5 acres in size, for the sole purpose of allowing public use of the trails leading to adjacent Forest Preserve lands; 2) a development easement affecting an area within 1000 ft of the Elk Lake shoreline; and 3) the right to repair and maintain the Elk Lake dam. While public easements for the two trails leading to Slide Brook (DMWA) and Panther Gorge (HPWA) are not specifically granted, they are inferred in the deed language. The People of the State of New York do not have the right to travel on any other roads or trails on the Elk Lake Preserve, including the trail to Sunrise Mt. and the trail to Boreas Mtn. The road from Clear Pond to Elk Lake is gated at Clear Pond at the beginning of the big game hunting

[1] *Throughout this text the phrase "high peaks" will be used to describe the greater high peaks region – that area encompassing the Dix Mountain, Giant Mountain, and High Peaks Wilderness Areas, while the phrase "High Peaks" or HPWA refers to the High Peaks Wilderness Area as defined in the Adirondack Park State Land Master Plan. HPWC refers to the High Peaks Wilderness Complex, the complex formed by the High Peaks Wilderness Area, Ampersand Primitive Area and Johns Brook Primitive Area.*

season. While the State has access rights to the two aforementioned trails after the close of the big game season, the road remains closed until the end of the spring melt. Specific restrictions on public use and activities restricted under the conservation easement are identified in a deed filed by the Essex County Clerk in Book 415 of Deeds beginning at page 47.

The Adirondack Mountain Reserve (AMR or Ausable Club) easement was granted to the State of New York on May 23, 1978. This easement conveys the following rights to the State: 1) a conservation easement on a large portion of the AMR property and 2) a foot travel easement over 24 marked trails, and 3) the right to park up to 20 vehicles at an on-site location. Specific restrictions on public use and activities under the conservation easement are identified in a deed filed by the Essex County Clerk in Book 660 of Deeds beginning at page 197. The easement obtained by the State of New York provides only for access to 24 listed trails. It does not allow for public use of non-listed trails, other AMR land, or access to the Upper or Lower Ausable Lakes, including skiing when the lake surface is frozen and snow covered.

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 no private parcel inholdings in the DMWA. Principal adjoining landowners include: the Adirondack Mountain Reserve (7,500 acres), Finch Pruyn (46,000 acres), and the Elk Lake Preserve (12,000 acres).

More specifically, the DMWA comprises a single contiguous block of Forest Preserve made up of the following parcels:

- North River Head Tract:
  - Lots 15, 16, 17, 18, 19, 20, 21, 50, 51, 52, 53, 54, 55, 56, 57, 86, 87, 88, 89, 90, 91, 96, 92, 93, 94, 95, 117, 118, 119, 120, 121, and 122
  - Portions of Lots 13, 14, 22, 23, 46, 49, 58, 85, 97, 115, 116, and 123
- Paradox Tract
  - Lots 384, 397, 398, 428, and 427
  - Portions of Lots 383, 400, 401, 403, and 426
- Totten & Crossfield's Purchase
  - Township 44, Lot 4
    - Sublots 3, 6, and 9
    - Portions of Sublots 2, 5 and 8
  - Township 45
    - Portions of Lot 8
  - Township 48 (those portions not owned by the Adirondack Mountain Reserve)
  - Township 49
    - Lots 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, and 23
    - Portions of Lots 3 and 4
- Road Patent
  - Portions of Lots 22, 23, and 24
- Roaring Brook Tract
  - Lots 9, 10, and 78
  - Portions of Lots 8, 11, 12, 34, 79, and 80
- Tract West of Road Patent
  - Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 24
  - Portions of Lot 25

General Location

The DMWA consists of 45,208 acres of Forest Preserve in the towns of Elizabethtown, Keene and North Hudson, Essex County. The Unit is roughly bounded on the north by State Route 73, on the east by the Adirondack Northway (Interstate Route 87), on the south by Blue Ridge Road (County Route 2) and on the west by Elk Lake Preserve and AMR lands. There are no private inholdings within the Unit, however there are several other smaller private parcels adjacent to the Unit lying within the general boundary described above.

General Access

Access to the periphery of the DMWA is easily gained via Interstate Route 87, US Route 9, State Route 73, and by the Elk Lake Road in the Town of North Hudson. The interior is served by 33.5 miles of marked and maintained foot trails. Nearby hamlets include Keene Valley and North Hudson. 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 (140 miles), New York City (300 miles), and Montreal, Quebec (120 miles).

General History

By 1860, prior to the Civil War, New York had become a leading industrial state, yet the high peaks region of the north central Adirondacks was virtually unknown to outsiders. Few Europeans had explored its environs, and native Americans, most notably the Algonquins had been only occasional visitors. The high mountainous terrain and inhospitable climate discouraged most early visitors.

Both the Colonial government and the State, after the American Revolution, made large grants or patents of its so called “wild forest lands” to promote development. The present day bounds of the DMWA lie in six of these patents: North River Head Tract, Paradox Tract, Road Patent, Roaring Brook Tract, Totten and Crossfield's Purchase, and the Tract West of Road Patent. Speculators purchased these tracts and marketed them for agriculture, mining, and timbering.

Closely associated with this “wild” region were the exploits of early guides such as John Cheney (Upper Works), Harvey Holt and Orson Phelps (Keene Valley), and a host of others who introduced the public to the region. The first recorded ascent of Dix Mt. is attributed to the surveyor Rykert who blazed the northern line of Township 49, Totten’s and Crossfield’s Purchase in 1807 (Carson, 1927). This marked the second recorded ascent of a major Adirondack peak. In 1871 Colvin reported returning to Elk Lake by a newly cut trail, the first complete trail up the mountain. Later that same year the first trail from the north was cut by Orlando Beede from Keene Valley.

As timber supplies dwindled in the more accessible portion of the northern Adirondacks, timber men soon looked to the vast forests of the high peaks region. From the lowland swamps up to the highest slopes, any tree that was commercially valuable and accessible was harvested.

State acquisition of much of the unit occurred prior to the 1920's as logging companies or larger land owners either liquidated or abandoned their lands for taxes after harvesting the merchantable timber off of the lots. Major land owners who sold large lots to the State in the 1920's and 30's included: Adirondack Mountain Reserve (7838 ac.), Anderson Family (840 ac.), Champlain Realty (3061 ac.), Finch, Pruyn and Company

(3310 ac.), Keene Lumber Company (321 ac.), Griffin and Kenyon Lumber Companies (223 ac.), Raquette River Land Company (1316 ac.), Walker Family (2807 ac.). It is estimated that another 10,000 acres were acquired by the State through tax sales.

The high peaks region is often referred to as "Colvin Country" in tribute to Verplanck Colvin, Superintendent of the Adirondack Survey (1872-79), who initiated the first detailed survey of the region. Colvin's notes, records, maps, and annual reports of his surveys, defined the region and instilled a public awareness that in part, eventually led to the creation of the Adirondack Forest Preserve in 1885. Many of his original survey monuments can still be found today on high peaks summits.

Tourism became a major Adirondack commercial enterprise by the 1890's and local hotels and mountain resorts were popular throughout the country. Resorts such as the St. Huberts Inn and similar accommodations were found in Keene, Keene Valley and St. Huberts. Much of the present day trail system is an outgrowth of the early "hotel trails" which followed logging roads and/or footpaths to favored destinations, usually a lake or a mountain summit.

Adirondack guides and their sports (clients) were impressed with the quality and abundance of brook trout available in high peaks lakes. Big game hunters were drawn to the area in hopes of taking a white-tail deer or bear in a pristine setting.

During the summer and fall of 1903, six hundred thousand acres of forest land burned throughout the Adirondacks (Suter, 1904). Piles of tinder dry logging slash (limbs and tree tops that are left after the merchantable stems of trees are removed), a 72 day drought, and unseasonably high winds contributed to the fire storms. Fires raged over Cascade, Dix, Porter, Mt. Van Hoevenberg, Big Slide, and onto the north slopes of Mt. Marcy. Keene, Keene Valley, and St. Huberts were threatened by similar engulfing fires. Fall rains and moderating temperatures finally helped to extinguish the fires. The scenario repeated itself in 1908 and 1909 when an additional 300,000 acres burned Park wide. A 1916 Conservation Department map of the Adirondacks shows 43 percent of the DMWA was burned in these fires. While roughly 48% of the unit had been logged by that time, only 5% of the logged area had escaped the fires. Prompted by these events, the State's forest fire detection and fire fighting force was enlarged and updated. Fire towers were erected beginning in the early 1910's atop mountains surrounding the high peaks, including Boreas Mountain (removed), Hurricane Mountain, and on Mount Adams. Reform of lumbering practices, such as enactment of the "top lopping law" to reduce logging slash, also played a significant role in reducing the spread of fires.

Hurricanes and damaging storms have also had a pronounced effect on the high peaks region. On November 25, 1950, the most destructive storm to ever hit New York State whipped across the Adirondacks with devastating force. Many trails were clogged with fallen trees, and interior travel in many areas was impeded until a final clean up was completed in 1955. While this storm left little damage to the DMWA, later storms have left their footprint on the DMWA landscape. Most recently the effects of Hurricane Floyd, in September 1999, severely impacted the area northeast of Elk lake, including the hiking trail to Dix and the slopes of the Dix Range.

Following World War II, as Americans became more affluent and had more leisure time for outdoor activities, recreational use of the Adirondack Forest Preserve – and in particular, the high peaks – intensified and became the focus of public attention and concern. This concern led to several legislative studies and commissions. The high peaks were often mentioned due to their valuable scenic and natural resources which attracted heavy use. One such commission, the Temporary Study Commission on the Future of the Adirondacks, recommended a classification system which incorporated wilderness designation and protection.

Affirmed later by the Adirondack Park Agency Act and its subsequent APSLMP, three areas comprising most of the high peaks region were legally designated **Wilderness Areas** in 1972. These high peaks wilderness units included: Dix Mountain Wilderness Area, High Peaks Wilderness, and Giant Mountain Wilderness. The Adirondack Park Agency, in consultation with DEC, and with public support, concluded that significant portions of the high peaks region were in a wilderness or near wilderness condition despite past human influences. Both agencies agreed that a new management emphasis and direction was needed.

In 1978 the State acquired much of the higher elevations slopes surrounding the Upper and Lower AuSable Lakes which had remained in private ownership. This purchase resulted in the acquisition of the summits of most of the major mountain peaks on both sides of the Upper and Lower Ausable Lakes. In the DMWA this purchase included approximately 3269 acres on the south side of the lakes, including the Colvin Range and summits of Bear Den Mtn., Blake Mtn., Dial Mtn., Mt. Colvin, Nippletop, Noonmark, and Pinnacle. This purchase conveyed the remainder of the higher elevation lands in Township 48 to the State of New York. Coupled with this purchase was conveyance of the conservation and foot trail easement noted on page 2.

Since the 1960's the high peaks region has drawn the attention of environmentalists and scientists as the insidious effects of acid precipitation have taken their toll on the aquatic and terrestrial resources of high elevation ecosystems. The complex formed by these three Wilderness Areas is a valuable natural setting for research by many disciplines on this national and worldwide problem.

Section 2 – Inventory, Use And Capacity to Withstand Use

Natural Resources

PHYSICAL

Geology

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 1000-1300 million 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 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.

High peaks rocks are also 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. 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 on Macomb, Dix, and South Dix.

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 Wisconsian, reached its maximum advance across the high peaks over 21,000 years ago. It was thick enough to bury the summit of mile high Mt. Marcy, the highest point in New York, located 5 miles west of the DMWA in the adjacent High Peaks Wilderness Area. 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.

As the main continental glacier retreated, smaller mountain glaciers remained in the high peaks region. These smaller glaciers concentrated erosion within stream valleys and sharpened the landscape. Glacial retreat accentuated steep valley walls into "U" shaped valleys and naturally tended to form cliffs on mountaintops and on the sides of steep slopes. This is responsible for the ramp-and-cliff pattern on Algonquin and Big Slide. Ice movement and running melt water often followed, and straightened fault zones. Fault zones molded by glaciation and resultant flowing water include the Ausable Lakes, and the south fork of the Bouquet River. Where valley glaciers originated on high mountainsides, bowl-shaped cirques formed at the point of origin. Well-defined cirques on the valley heads of Dix, Hough and South Dix attest to this phenomenon. Retreating glaciers deposited accumulations of glacial till, a mixture of clay, silt, sand, and stone, in their wake which dammed stream channels to form numerous lakes, kettle ponds, and wetlands. Kettle ponds were created by huge melting blocks of ice, covered or partially covered by glacial drift (debris). Round Pond is a typical example of a remnant kettle pond.

Moraine lakes occurred when glacial debris blocked a river valley forming a natural dam, and altered drainage. Elk Lake was once a moraine lake which, over time, filled with vegetation and sediments.

Soils

All soils are formed by the chemical and physical breakdown of parent material. However, in the DMWA, soil composition is vastly different from the bedrock beneath. The soils in the DMWA are mostly derived from glacial deposits that have been moved and deposited as glaciers advanced and retreated. Soil characteristics are quite variable and fluctuate widely from location to location. They are basically grouped into four broad soil types; glacial tills, glacial outwash, organically derived, and hardpan (Jaffe and Jaffe, 1986). No one general characteristic describes them all.

Glacial tills are a mixture of clay, silt, sand, and stone. Their occurrence in the DMWA is widespread. They dominate the lower and middle slopes but thin out and disappear on the high slopes where the spruce/fir forest gives way to the subalpine zone of balsam fir. The deeper and richer soils occur around the base of the mountains, especially on terraces and those slightly elevated locations that escaped the fluvial phase in late glacial retreat, meaning places a hundred feet or so higher than the nearby river system. Hardwoods today dominate these richer soils with mixed conifer/hardwood stands found at the lower slopes with partially water-washed soils.

Glacial outwash soils are stratified soils deposited as eskers and moraines in areas subject to periods of flash-flooding during the glacial retreat and from which the nutrient-bearing silts and clays have been washed away. Because the soils are so stony and thus draughty, the fast growing and deep rooted pines out-compete the other more demanding tree species.

Organically derived soils are rich in vegetative matter in various states of decay, and occur in two physiographic situations: (a) on the highest mountain sides, typically above 4,000 feet elevation where the glacial tills washed down slope in early post-glacial time and left exposed bedrock, and (b) in the low wetlands where impeded drainage created saturated soils on top of glacial outwash or bedrock and where upland forest plants could not survive. In both situations sphagnum moss dominates the early stages of plant succession and in the low wetlands may convert ponds into peat bogs and meandering streams into mucky swamps. On the sloping land surfaces near the high summits, the accumulated layers of black humus created by sphagnum and other mosses on top of the bedrock are invaded by various herbaceous plants and in time are replaced by mountain paper birch, the sole pioneering tree species, and

by balsam fir, the sole climax species in this drastic timberline ecosystem. The subalpine and alpine organic soils are the most fragile and easily damaged types in the high peaks region.

Many DMWA sites have a cement-like, very dense hardpan texture, lying one to two feet below ground surface. This causes shallow rooting of vegetation; especially tree species, and limits their ability to absorb soil nutrients and water. This limits height and diameter growth and makes them susceptible to wind-throw. During period of heavy and prolonged rains, these soils are easily saturated and water may sit upon the surface reflecting poor internal drainage (Ketchledge, 1994).

Terrain/Topography

The topography ranges from the low-lying river valley of the Bouquet River to the sixth highest point in New York State atop Dix Mountain. Although there is considerable variation in terrain, the DMWA is predominantly high mountain country.

The mountains are mainly grouped in the central to western portion of the DMWA; most peaks surpass elevations of 3,000 feet. Dix Mountain is the highest point in the unit with a summit elevation of 4,857 feet. The unit has nine peaks with elevations above 4,000 feet.

Maximum relief (change in elevation) across the unit is 3,993 feet from atop Dix Mountain (4,857 ft.) down to Walker Brook (864 ft. elev).

Water

The DMWA lies within the Upper Hudson and Lake Champlain watersheds. The unit is drained by small, high gradient, headwater streams. The majority of those streams flow generally south to The Branch and the Schroon River which is tributary to the Hudson River. Northern portions of the unit drain via the Boquet River to Lake Champlain, with a very limited area feeding the Ausable River, also tributary to Lake Champlain.

Ponded waters in the DMWA range in size from small beaver flows to 19 acre Chapel Pond. The NYS Biological Survey lists 11 ponded waters within the unit. However, field checks determined that one of those waters is drained. Also, three small ponds are shown on topographic maps that are not listed in the Biological Survey. Thus the unit includes 13 ponded waters with an estimated combined area of about 100 acres.

Appendix X lists the major ponded water in the unit with a brief narrative pertaining to their important features, including past and current management, accessibility, size, water chemistry, and fish species composition. Tables 1 and 2 in Appendix X give additional information about the ponded waters including physical, chemical and biological data.

Wetlands

The wetlands of the DMWA 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 and photography. 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, including the osprey, northern harrier, the least bittern, Jefferson salamander, and spotted salamander (species of

special concern). For the visitor, expanses of open space wetlands provide a visual contrast to heavily forested wilderness settings.

While most of the unit's wetlands occur in low-lying areas, they can also be found on mountain summits and anywhere soil is seasonally or perennially saturated with water. Summit wetlands are characterized by cool, moist, shallow soil environments and resemble the tundra of northern latitudes. Some of New York's rarest flora are encountered in these elevated wetland communities.

APA GIS data identifies 179 wetlands in the DMWA with a total area of 997.3 ac (403.6 HA). The largest wetlands in the unit are found along the southern and eastern portions of the unit, along the West Mill and Walker Brook drainages, the head of the Upper Ausable Lake and near Elk Lake. These wetlands are mostly coniferous, characterized by dense stands of red spruce, black spruce and balsam fir. Some serve as important deer wintering areas.

Climate

The region's climate, in general terms, is best described as cool and moist. Climatic conditions vary considerably throughout the unit and are influenced by such factors as slope aspect, elevation, distance and direction from large bodies of water, 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 40 and 60 inches per year; snowfall ranges from 100-150 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.

Air Resources and Atmospheric Deposition

The effects of various activities on DMWA 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 has been documented by many researchers over the last two decades. While permanent monitoring sites have not been established in the DMWA 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 primary cause (National Science and Technology Council Committee on Environment and Natural Resources, 1998). The following findings of the National Acid Precipitation Assessment Program (National Science and Technology Council Committee on Environment and Natural Resources, 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 red spruce, 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 forest 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 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 µeq/L are considered to be chronically acidic. Lakes with ANC values between 0 and 50 µeq/L are considered susceptible to episodic acidification; ANC may decrease below 0 µeq/L during high-flow conditions in these lakes. Lakes with ANC values greater than 50 µeq/L are considered relatively insensitive to inputs of acidic deposition (Driscoll 2001). 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 Adirondack Lakes Survey Corporation (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 regional or national limits are placed on emissions of acid rain precursors. (New York State recently enacted additional limits on emissions within the state.)

Monitoring

In 1986, the ALSC surveyed a total of seven waters in this unit (see Appendix XI). Summaries of those data can be found on the ALSC website – http://www.adirondacklakessurvey.org (see ALS Pond Information). 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 DMWA unit, six LTM waters are located in relatively close (within 10 miles) proximity to the west and south of DMWA.. These include Avalanche Lake, Lake Colden, Marcy Dam Pond, Heart Lake, Owen Pond and Clear Pond. Annual summaries of 22 chemical parameters are downloadable from the ALSC website.

BIOLOGICAL

Vegetation

The DMWA 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.

Not much is known about the original forests of the DMWA, but they are believed to have been a mixture of mature, old growth northern hardwoods, spruce-fir, and eastern white pine forest types. These forests were characterized by dense shade, many cavity trees, significant ground debris, and few natural openings. Insect outbreaks, disease, wind and wildfire were vital parts of the natural environment and the major agents of change. Few DMWA forests have survived to make the transition from the pioneer stage to the theoretical climax forest stage.

Extensive softwood cutting prior to Forest Preserve acquisition, severe wildfires in 1903 and 1908, and the "great blowdown of 1950" have altered the composition of this forest dramatically. In most cases, the softwood component has been eliminated or significantly reduced and replaced by northern hardwoods. It is estimated that less than five percent of the high peaks region remains in its original forest condition (Ketchledge, 1967). Historically and ecologically, these factors have contributed to a great diversity of forest cover types which support a vast variety of animal and plant species.

In general, DMWA vegetation can be categorized into six land zones based by elevation and topographical position on the landscape. Each land zone has plant communities, associations of plant species that scientists recognize as belonging together under certain circumstances and site requirements. The six vegetation zones identified by Ketchledge are:

- Lowland Conifers Zone (to 1,500 feet):

  Red spruce - balsam fir associations are especially common to the low lying areas of the eastern valleys, including Walker and West Mill Brooks, where high soil moisture and poor drainage dominate soil conditions. Tree species common to this association include black and red spruce, balsam fir, red maple and white and yellow birch. Infrequent associates are northern white cedar, alder and tamarack. The forest tends to be quite dense and little sunlight reaches the forest floor. Extreme shade and acidic soils preclude many ground plants. The forest floor is relatively open.

- Mixed Conifers and Hardwoods Zone (to 2,500 feet):

  A mixed forest of conifers and hardwoods is encountered as the elevation rises above the spruce swamps and drainage improves. Red spruce and balsam fir noticeably fade. Increased elevation and improved drainage favor the growth of maples, birches, eastern hemlock and eastern white pine. The dominant ground cover is viburnum, commonly called hobble-bush. Various ferns, grasses and wild flowers are evident.

- Northern Hardwoods Zone (to 2,500 feet):

  Northern hardwoods are the most widespread forest association in the DMWA. It is found on the better drained, more fertile uplands. Deep glacial soils with elevation up to 2,500 feet, favor a forest

association of sugar maple, American beech and yellow birch. Black cherry and white ash are minor associates.

- Upper Spruce-Fir Zone (2500 feet to 3100 feet):

  Above 2,500 feet red spruce and balsam fir forests reappear reminiscent of northern boreal forests. Red spruce and balsam fir prevail in nearly pure stands. They reflect cooler temperatures and increased moisture as elevations rise. Ground cover is almost non-existent due to lack of sunlight on the forest floor.

- Sub-alpine Zone (3100 feet to 4000 feet):

  In this zone red spruce generally fades giving way to balsam fir. Approaching 4,000 feet the balsam fir is often stunted and misshapen, barely able to survive the onslaught of cold, drying winds and infertile soils. Here the trees grow almost prostrate as the "krumholz" (meaning crooked wood) forest is encountered. Slightly above the krumholz, timberline is soon reached. Timberline is the point of elevation beyond which climatic conditions become so harsh that tree life cannot survive.

- Alpine Zone (4000 feet and above):

  In the DMWA the most limiting of all environments are encountered above 4,000 feet. This zone resembles the arctic tundra of the far north. Ground cover is scant and open areas with bare rock are frequent. The common theme among all vegetation in this zone is to stay small and grow low to the ground in order to survive (Marchand, 1987). Alpine zone communities include dwarf willows and birches in sheltered depressions, heaths, mosses and lichens, alpine flowers, grasses, sedges, and rushes. Of the Adirondack Park's six million acres, only 85 acres comprise the Alpine ecozone. Of the 85 acres, one (1) acre is located in the DMWA (DiNunzio, 1972). This zone contains some of New York State's rarest and most endangered plant species (Ketchledge, 1994).

Exemplary Vegetative Communities

The DMWA has four exemplary vegetative communities that serve as outstanding examples of the biological diversity of the Adirondack Park (Adirondack Council, 1988; The Nature Conservancy Exemplary Communities):

Marcy Swamp

COVER TYPE: Coniferous swamps, bogs and fens

AREA: 220 acres

TOWN: North Hudson; COUNTY: Essex

Natural Heritage Program Community: Northern White Cedar Swamp

Bisected by the Elk Lake-Marcy Trail, this community is characterized by old-growth northern white cedar more than two feet in diameter and over 40 feet tall, intermixed with red spruce and balsam fir. The cover type extends on to private land.

Ausable Club Old Growth

COVER TYPE: Northern hardwoods (hemlock)

AREA: 1150 acres

TOWN: Keene; COUNTY: Essex

Natural Heritage Program Community: Hemlock – northern hardwood forest

One of the most majestic stands of hemlock and northern hardwoods in the Adirondack Park is located on the Adirondack Mountain Reserve property. Hemlock predominates this stand however there are large specimens of sugar maple and yellow birch. Three foot diameter hemlock, ninety to one hundred feet tall are not uncommon. The cover type occurs mostly on private land.

Chapel Pond Valley

AREA: 100 acres

TOWN: Keene; COUNTY: Essex

Natural Heritage Program Community: acidic talus slope woodland

Chapel Pond Valley is large and in a very good landscape context (surrounded by wilderness area).

High Peaks Tundra

COVER TYPE: Alpine tundra

AREA: 40 acres[1]

TOWNS: Keene, Newcomb and North Elba; COUNTY: Essex

Natural Heritage Program Community: Alpine Meadow

The alpine tundra contains some of New York's rarest plants. They are found in tundra-like habitats resembling those of the Arctic. This condition is encountered on the State's highest peaks and the total area covered by alpine vegetation approximates 40 acres on 19 peaks, 18 of which are in the High Peaks Wilderness. Approximately 0.8 acres on the summit of Dix Mountain represents the only presence of this community in the DMWA (DiZunzio, 1972).

The alpine environments are characterized by climates having cool, moist and windy conditions throughout most of the year. Summit temperatures are usually 10-20°F cooler than the lowlands and precipitation is greater. Winds exceeding 40 mph are common. These factors greatly curtail the growing season, reducing it to two months or less. This severity of climate often dictates the type and quantity of vegetation present on any one summit.

Mosses and lichens are the simplest plants found on these summits, but the key to alpine tundra ecology is sphagnum moss. The sphagnum holds water that otherwise would be lost to cold, drying winds. It provides a seed bed for other plants and forms a matrix to which plant roots attach. Major plant species taking hold in the sphagnum include cottongrass, Lapland rosebay, leatherleaf, bog laurel, sheep laurel, Labrador tea, small cranberry and alpine bilberry. The sphagnum complex is very fragile and is easily damaged by visitor trampling. Once the sphagnum matrix is destroyed, a near irreversible process of erosion and plant loss begins.

[1] *Although the Alpine ecozone encompasses 85 acres, only 40 of those acres support vegetation.*

Extirpated Vegetation

To date researchers have documented extirpation of the following species from the High Peaks Alpine Zone (Regan, 2001 and Young, 2001): *Deschampsia atropurpurea* – mountain hairgrass and *Harrimanella hyponoides* – moss plant. Historical records exist for *Poa interior* – inland bluegrass however the existence of this species has not been recently observed.

Invasive Plant Species

Originally, the wilderness of the North American continent held a great diversity of plants and animals. Today, the natural areas that have survived are small islands in a sea of developed land. As a result, natural areas are vital to the preservation of the native plants and animals that make up the biological heritage and diversity of the United States.

In new ecosystems, invasive plants outcompete native species because the new ecosystem lacks the natural enemies that kept these plants in biological balance in their native habitats. Invasive plants that produce large numbers of seeds and have mechanisms for rapid seed dispersal have more pronounced impacts on an ecosystem and require more complicated management strategies than native plants.

Invasive plants modify natural habitats by replacing a diverse system with single species stands, altering the water or fire regime, changing the nutrient status of the soil and humus, removing a food source (for wildlife), introducing a food source where none existed before, or altering sedimentation processes. Such alterations may have profound effects on the composition of both the flora and fauna of the region and on the landscape as a whole.

Invasive plant species pose one of the greatest threats to the conservation of biological diversity, and are a significant problem for land managers across New York State. Invasive plants are second only to habitat destruction as a threat to biological diversity (Invasive Plant Council of New York, http://www.ipcnys.org). The large expanses of intact forested communities in the interior of the Park are largely devoid of impacts from invasive plant species. This includes State land units such as the Giant Mtn. Wilderness Area. Invasive plant species have been identified throughout the Adirondack Park and have the potential pose a serious threat to the natural communities of this Unit.

The Adirondack Park Invasive Plant Partnership (APIPP), a partnership between NYSDEC, APA, NYSDOT, and the Adirondack Nature Conservancy, was established as a pilot project in 2001 to pool resources in an effort to monitor and control the spread of invasive plant species in the Park. The program utilizes a network of organization staff and volunteers to survey, monitor, and where needed undertake eradication activities. A comprehensive survey for the presence of invasive species in the DMWA does not exist, however some locations in the unit have been surveyed.

A principle of APIPP is to promote early detection and management of exotic invasive plant species. This effort has also developed best management practices for use once infestations are identified. Garlic mustard, purple loosestrife, Japanese knotweed and Phragmites have been identified as the primary threats to the Adirondack ecosystem by APIPP.

A comprehensive survey for the presence of invasive plant species has not been completed within the Adirondack Park. The present inventory focus has been a Park-wide roadside survey since researchers believe roadsides are the primary avenue for spread of new infestations into the area. As a result of these surveys several sites nearby or in the Unit have been identified.

The principles of early detection and management are critical to successful management of this threat in the Unit. Once identified, actions aimed at eliminating these plants while the stands are small in size should be adopted. Infestations on nearby private lands and in other areas of forest preserve can pose a threat to the natural communities of this Unit.

Wildlife

Field inventories of wildlife species have not focused specifically on the Forest Preserve Management Unit level. However, various inventory projects undertaken by DEC and others have included the DMWA in their scope. The species included in Appendices IV through VII and IX were compiled by combining the results of various surveys, publications, and the reports of observers.

Birds

As a result of the unit's transitional character in terms of climate and vegetation, there is an overlapping of typically northern, eastern and southern bird species.

According to New York State Breeding Bird Atlas data, 123 species of birds are believed to breed within the DMWA (Appendix IX). Some species thought to occur occasionally within the unit are not shown in the Bird Atlas data. Birds associated with marshes, ponds, lakes and streams are numerous and include the common loon, great blue heron, green heron, American bittern, a variety of ducks, Canada goose and shore birds such as the spotted sandpiper. The most common ducks include the American black duck, mallard, wood duck, hooded merganser, and common merganser. Birds of prey common to the unit include the barred owl, great horned owl, red-tailed hawk, sharp-shinned hawk, and broadwinged hawk. Songbirds, such as woodpeckers, flycatchers, wrens, thrushes, vireos, warblers, blackbirds, finches, grosbeaks, and sparrows occupy one or more of the ten habitat types found in the unit.

Bicknell's thrush, a Species of Special Concern, has been identified by several sources as occuring within the unit (NYS Breeding Bird Atlas, Lambert et.al., 2002). Bicknell's thrush breeding range includes young and stunted spruce stands and dense stands of balsam fir generally at higher elevations. While found in the HPWA as low as 2700 ft. (Lake Colden) it is most numerous on higher ridges up to an elevation of 4500 ft. Levine (1998) has identified breeding season reports in 27 Adirondack and 14 Catskill mountains. In 2000 New York State created an Adirondack Sub-alpine Bird Conservation Area to identify habitat where management action should take into account breeding areas of Bicknell's thrush and other high elevation breeding species.

Bird Conservation Areas

In September of 1997, §11-2001 of the Environmental Conservation Law of New York was established creating the New York State Bird Conservation Area Program. The program is designed to safeguard and enhance bird populations and their habitats on selected state lands and waters.

In November of 2001, 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). Included in the designation were lands over 2,800 feet elevation in the DMWA. The site was nominated because of its diverse species concentration, individual species concentration and its importance to species at risk, in particular the Bicknell's Thrush (special concern).

The vision for the Adirondack Subalpine Forest BCA is to "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" (NYSDEC, 2001). The Department has developed Management Guidance Summary to identify education and research needs, and to outline operational management considerations. Considerations specific to the unit include:

Operation and Management Considerations:

- The BCA is comprised of lands that are within the DMWA and other lands within the broader Adirondack Forest Preserve. The HPWA portion is subject to relatively stringent regulations and use limitations. Portions of the BCA that are not within the HPWA may have less stringent use limitations.
- To ensure disturbances are kept to a minimum, trail maintenance and construction activities should be accomplished outside of the breeding season, when possible. If, in accordance with Department policy, motorized equipment use is necessary, such use shall be minimized during the breeding or nesting periods.

Education, Outreach and Research Considerations:

- 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.
- 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.

Mammals

While no comprehensive inventory of species is available, Appendix IV lists mammals whose habitat indicates a that they may be present in the DMWA. Larger mammals known to inhabit the DMWA include white-tailed deer, moose, black bear, coyote, bobcat, raccoon, red fox, gray fox, fisher, marten, mink, muskrat, striped skunk, river otter, beaver, porcupine, and varying hare.

A variety of smaller mammals reside in the Unit. They include bats, shrews, moles, and mice, along with the short-tailed weasel, long-tailed weasel, eastern chipmunk, and red squirrel.

Most species are distributed relatively evenly throughout the unit, although the populations of weasel, mink, muskrat, otter, and beaver are concentrated near water, and the varying hare and red squirrel are mostly confined to stands of spruce and fir.

Although suitable habitats exist for the continued survival of all species presently occurring in the DMWA, the process of forest succession set in motion by wind, insects and disease, past logging and forest fires, continues to alter the composition of forest communities. Large areas are presently occupied by young forest stands which became established after disturbance. The current decline in upper-elevation stands of spruce and fir, and the widespread die back of beech, caused by the spread of the beech bark disease, continually creates openings in the forest canopy of the unit.

The populations of the varying hare at higher elevations may increase as young stands of spruce and fir grow beneath older stands of white birch and northern hardwoods. Marten thrive under habitat conditions brought about by natural forest disturbances. However, in the absence of any future disturbances, the maturation of climax forest communities may lead to reductions in hare and marten populations. On the other hand, the populations of various species of birds and mammals which require tree cavities for reproduction should increase as forest stands mature.

White-tailed deer are found throughout the DMWA. However, the habitat conditions of the unit make it one of the least productive areas for deer in New York. The size of the deer population is limited by severe winter, insufficient deer browse and few suitable deer wintering areas.

Deer wintering areas usually are lowland areas covered by forests of spruce and fir which serve as shelter when snow accumulates to depths of 20 inches or more. These same areas are used by deer nearly every winter. Severe winter weather virtually confines deer to wintering areas for long periods during which the depletion of available browse can lead to high deer mortality. Severe decline in the deer population can be traced directly to adverse winters. The carrying capacity of deer wintering areas limits the carrying capacity of the entire annual range of the deer population.

Although relatively numerous, black bears are seldom encountered in the unit by hikers on the trail, although bears are occasionally encountered in some of the more popular camping areas, such as Slide Brook and the Boquet River Lean-to. To date, negative bear – hiker conflicts have not been identified as a management problem.

The once extirpated moose population has naturally regained a foothold in the periphery of the DMWA. Moose occasionally have migrated from the north and east into the Adirondack region for decades. Since 1980, they have arrived in sufficient numbers to have established a scattered resident population, recently estimated to contain 200 or more individuals. A few sightings have been reported in the DMWA. Although moose prefer to feed on species of woody vegetation generally found in forests of earlier successional stages than those occurring in the DMWA, moose in general find later-stage forest habitats more suitable than do white-tailed deer and may come to occupy the unit in greater numbers in the future. Experience from Vermont and New Hampshire indicates that the moose population is expected to increase in the future.

Amphibians and Reptiles

Relatively short summers and the long, cold winters of the DMWA limit the number of species of reptiles and amphibians. Three species of turtles, eight species of snakes, eight species of salamanders, one species of toad, and six species of frogs are believed to be residents of the DMWA (Appendices V and VI). Species found in marshes or ponds and along wooded streams include the following: turtles - snapping, painted; snakes - northern water, redbelly, common garter, eastern ribbon, brown, ringneck; toad - American; salamanders - red-spotted newt, spotted, blue-spotted, spring, two-lined, mountain dusky; frogs - bullfrog, pickerel, green, wood, mink, gray treefrog.

A few species can be found under logs and leaf litter on the forest floor or in forest openings. These species do not require moist surroundings to survive: snakes - ringneck, smooth green, milk, common garter; salamanders - redback; and turtle - wood.

<u>Endangered, Threatened, Species of Special Concern and Other Unique Species</u>

The peregrine falcon is the sole New York State listed endangered species found in the DMWA. A peregrine falcon nesting site was located in 1999 in the vicinity of Chapel Pond. The nest was successful in 1999. In 2000 two adult falcons were observed, however the nest failed. In 2001 no activity was identified.

Threatened species of wildlife which may be residents of the DMWA consist of the northern harrier and osprey. The New York State Breeding Bird Atlas shows the northern harrier as a confirmed breeder in one of the 15 blocks which are wholly or partially contained in the DMWA. Although the osprey population in New York has declined along with other raptors in past decades, the population now appears to be rising naturally. According to information gathered during DEC's annual osprey surveys, no nests have been found within the DMWA, several have been identified nearby in the Hammond Pond Wild Forest.

Species of special concern, as listed in Title 6 New York Code of Rules and Regulations (NYCRR) Part 182, which may be present in the DMWA, include the small-footed bat, Bicknell's thrush, common loon, northern raven, common nighthawk, eastern bluebird, wood turtle, Jefferson salamander, and spotted salamander.

In an extensive project undertaken to determine the status of the common loon in New York, DEC staff surveyed 557 lakes in the northern part of the state during 1984 and 1985. According to the Atlas, loons were confirmed breeders in two of the unit's 15 blocks and possible breeders in one.

The northern raven, which has not been common in the Adirondacks since the last century, is beginning to make a comeback. Ravens have been found actively nesting on cliffs near Chapel Pond. Ravens were confirmed breeders in five of the unit's 15 Atlas blocks, probable breeders in two, and possible breeders in one

The presence of the small-footed bat, wood turtle, Jefferson salamander, or spotted salamander has not been confirmed in the unit.

Typical Adirondack Species

There are a number of wildlife species found in New York State whose habitat requirements include extensive areas of forest cover relatively undisturbed by human development. Often, like the yellow-nosed vole and the northern three-toed woodpecker, these are northern species who find the habitat conditions of the central Adirondacks similar to the boreal spruce-fir forests of Canada. A list of species whose range in New York is generally confined to the Adirondacks and which may be found within the DMWA include:

Birds:

bald eagle
osprey
peregrine falcon
northern raven
ring-necked duck
common goldeneye
common merganser
northern three-toed woodpecker
gray jay
boreal chickadee
ruby-crowned kinglet
Philadelphia vireo
olive-sided flycatcher
yellow-bellied flycatcher
Tennessee warbler
northern Parula warbler
Cape May warbler
bay-breasted warbler
blackpoll warbler
Bicknell's thrush
Swainson's thrush
Lincoln's sparrow
rusty blackbird
evening grosbeak

Mammals:

black bear
bobcat
fisher
marten
moose
yellow-nosed vole

Extirpated Species

The elk, timber wolf, cougar and wolverine once inhabited the DMWA. All have disappeared from the Adirondacks. The mammals' disappearance was mostly a result of unregulated harvest and habitat destruction in the nineteenth century. Projects to reestablish the peregrine falcon, bald eagle, and Canada lynx have been conducted.

Between 1989 and 1992, the New York State College of Environmental Science and Forestry at Syracuse University (CESF) conducted an experimental program of lynx releases in Northern New York. Over 80 lynx were caught in northwestern Canada and released in the Adirondacks. All of the lynx were radio collared at the time of release, and the radios provided information of survival and dispersal of these animals. Wide dispersal from the release area has been observed and mortality has been high, especially mortality caused by vehicle collision. Some of the released lynx dispersed farther than anyone expected. Lynx from the CESF release showed up in Pennsylvania, New Jersey, Massachusetts, New Hampshire, Quebec, Ontario, New Brunswick, and other parts of New York. One lynx was found a straight line distance of 485 miles from the release site, 8 months later and 2 pounds heavier than at the time of release. Home ranges of the released lynx were large, and there is still no firm evidence of lynx reproduction. The researchers did receive reports of lynx with litters but were unable to confirm them.

The Wildlife Conservation Society of the Bronx Zoo conducted surveys in the high peaks area of New York in 1998 attempting to document the presence of lynx. No evidence of lynx was found. The lynx is considered extirpated in New York because there is no evidence of any remnant population of resident animals.

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 glacier. Such species presumably had access to most Adirondack waters. Additional species gained access about 13,000 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 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). Natural fish barriers prevented the establishment of NBWI fishes found downstream. Today, natural fish barriers are considered to be an indicator that a pond historically contained a very simple fish community. In these circumstances brook trout would have been capable of maintaining themselves by natural spawning.

Watershed morphometry probably severely limited the diversity of fishes in the DMWA. The unit includes extreme headwater portions of the Lake Champlain and Hudson Watersheds 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 ponds in the unit that sustain fish are at elevations of 1400 ft or higher, and natural barriers to upstream fish migration (e.g. waterfalls) exist between the unit's ponds and waters peripheral to the park. Concerning portions in the Hudson Watershed, the Hadley-Luzerne Falls and possibly Spier Falls were barriers at elevations above historic Lake Albany. As Lake Albany drained, two additional barriers, Glens Falls and Bakers Falls, formed. Several hundred additional feet of elevation from the Hadley-Luzerne Falls to ponds in the unit, and the resulting high gradient, lotic habitat, would have acted as a strong filter, if not a barrier, to many species. Similar barriers to upstream fish movement are present for portions in the Champlain Watershed. Rainbow and Alice Falls on the Ausable, and Split Rock and Wadhams Falls on the Boquet are barriers. Other falls and extremely high gradient stream sections restrict fish movement up to the unit from the Boquet and Ausable Rivers.

Its headwater nature and the extreme gradients of streams draining the area would have caused low fish diversities in the DMWA 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 head water areas and would probably have been abundant 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 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.

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. Native-but-widely-introduced (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 if they have been introduced.

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 Adirondack Lakes Survey Corporation (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. Table 3 presents information on species known to be native, native-but-widely-introduced (NBWI), and nonnative. It should be noted that the native classification does not mean those species were found in every water nor even in a majority of waters. For example, of 1,123 waters surveyed by the ALSC 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, demonstrates that "native" does not necessarily imply a historically ubiquitous distribution. Barriers, high stream gradients, low stream fertilities, and rigorous climatic conditions following retreat of the glacier 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 acid 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 el 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).

Acid deposition has had little impact on the fisheries resources in the DMWA. With one exception, the pH ranges from 6.6 to 7.6 on area ponds for which chemistry data is available. The exception is Cranberry Pond with a pH of 5.0.

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, have increased due to stocking. Within the DMWA, brook trout populations maintained by natural reproduction have been nearly eliminated.

Simple fish communities containing only brook trout, or brook trout in association with one or a few other fishes, are depressed within the unit. In ponds currently managed for brook trout abundance is low compared to other DEC managed waters.

Streams

Small, high gradient, headwater streams dominate the flowing waters of the DMWA. The majority of those streams flow generally south to The Branch and the Schroon River which is tributary to the Hudson River. Northern portions of the unit drain via the Boquet River to Lake Champlain, with a very limited area feeding the Ausable River, also tributary to Lake Champlain. These streams support coldwater communities of fishes which are likely to include: brown trout, brook trout, cutlips minnows, common shiners, blacknose dace, longnose dace, northern redbelly dace, creek chub, white sucker and slimy sculpin. The streams in the unit are not stocked, except that landlocked Atlantic salmon fry are stocked in portions of the North and South Forks of the Boquet River. After about two years in the stream, the salmon emigrate to Lake Champlain where they spend their adult lives. Water falls prevent salmon from returning from Lake Champlain to the streams in the unit.

VISUAL/SCENIC RESOURCES/LAND PROTECTION

The natural landscape of the DMWA is an important wilderness element. The DMWA affords a variety of open space and scenic views: each dramatic and diverse.

Author Lincoln Barnett summed it up best in his 1974 classic book, *The Ancient Adirondacks*, "...there are deep, silent forests, plunging ravines and gorges, tumbling waterfalls, still lakes, soaring mountains, and bird haunted wetlands."

One does not necessarily need to hike great distances to enjoy the beauty of this open space. From afar, the DMWA can best be viewed from State Route 73, and from Interstate Route 87. An excellent panoramic view of the Wilderness may be seen from the shores of Elk Lake, a private resort on the southern boundary of the Unit.

Favored interior viewpoints are many. A partial list includes the summits of the Dix Range, Nippletop, Noonmark, Bear Den, and numerous points along the Bouquet River, other streams and wetland areas throughout the unit.

CRITICAL HABITAT

Several areas within the DMWA which have been identified as important wildlife habitats include:

Bicknell's thrush – upper elevation stands of young and stunted spruce stands and dense stands of balsam fir.

Deer Wintering Areas – There are five deer wintering areas which lie wholly or partially in the DMWA: a fairly extensive deer yard that follows the outlet of Big Marsh Pond, up through Little Marsh Pond and then along Niagara Brook; East Inlet to Elk Lake, encompassing Dix Pond; West Inlet to Elk Lake. The Lindsay Brook and West Mill Brook areas were mostly abandoned by deer after the construction of the Northway, but they still hold a few deer every winter. These areas were formerly part of a very extensive and important wintering area that followed the Schroon River.

Peregrine Falcon Nesting Sites – Chapel Pond, Lower Ausable Lakes.

Common Loon – Elk Lake.

Round Whitefish – Chapel Pond.

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

Man-Made Facilities

In contrast with the high mileage of trails Ranger cabins, and lean-tos in the adjacent HPWA, there are very few man-made facilities in the DMWA. An exhaustive inventory of campsites, trails and other maintained facilities or improvements are listed in Appendix II.

Past Influences

CULTURAL

The high peaks region has been an important part of the cultural heritage of the 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 HPWC has been a problem, the area in general, and especially specific areas of the high peaks today, continue 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 high peaks 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.

Writers, philosophers, painters and government officials have been inspired by the Adirondacks and the High Peaks. Presidents Theodore Roosevelt and Grover Cleveland took solace in the natural beauty of the area. Many writers have expounded on the importance of our natural environment to meet some of our basic human needs. Important Adirondack painters included Charles Cromwell Ingham, Thomas Cole, Asher B. Durand, Arthur Fitzwilliam Tait, Samuel Colman, Alexander Helwig Wyant, and Winslow Homer, most of whom were considered part of the Hudson River School of painters. This school was the first truly American school of painting which lasted from approximately the mid to late 1800's. Paintings of this school characteristically contained beautiful landscapes and showed a great reverence for nature.

Seneca Ray Stoddard was a popular figure from this era for the hundreds of landscape photographs he took to document the majestic beauty of the Adirondacks and the high peaks. Although paintings, lithographs and etchings were the most popular art forms in the 1800's, advanced technology has given more prominence to photography and other forms of media in more recent times as used by Elliot Porter, Albert Gates, Nathan Farb, Carl Heilman II and many others. Prominent artists, photographers and painters continue to be stimulated by the uniqueness of the area. The lack of physical development on the landscape of the DMWA is one of its most important attributes and continues to make it the unique place it is today. This very lack of development is a magnetic force which attracts so many to the area's beauty (O'Neil, 1990)

ARCHEOLOGICAL AND HISTORIC RESOURCES

The term cultural resources encompasses a number of categories of human created resources including structures, archaeological sites and related resources. The Department is required by the New York State Historic Preservation Act (SHPA) (PRHPL Article 14) and 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 Adirondack Park State Land Master Plan. 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 2001. 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 effect 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. This agreement was designed to accommodate the requirements of the Adirondack Park State Land Master Plan and the State Historic Preservation Act. No fire towers or other structures are present within the DMWA.

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 precontact Native American camps and villages to Euroamerican 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 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 Dix Mountain Wilderness Area

Quad	Site Name	Description
Mount Marcy	Cedar Point Road	An early road connecting Lake Champlain and the Newcomb area passed through the southeastern portion of the DMWA. Topographic maps from the 19th century document a road following the Niagara Brook drainage and terminating at Clear Pond.
Schroon Lake	Schroon River (Roth's) Forge, HAA 113-1	Built in 1857 by Jacob Parameter, operated by E. B. Walker & Co. and by Phelps, Walker and Parameter for 4-5 years, then back to Parameter. In 1858 indicated as on the north bank of the West Branch of the Schroon River on Lot 25. Spotted as "Branch Iron Works" and "Walker & Co" In 1861 became property of John Roth. Had 4 fires with ore brought from Moriah and the Paradox Lake Beds. Made blooms, billets and slabs. In 1866 called "Roth's Forge" with 2 fires and 1 hammer. Forge lost by Roth 1881, then owned by Powell Smith and after 2 years by Clark & True. Destroyed by fire in 1883.

The archaeological inventory of the DMWA is very limited but reflects the known general characteristics of the areas history. The single precontact site appears to contains components from several different time periods suggesting long standing use of the area. Euroamerican sites within the unit reflect land use prior to state acquisition, primarily those related to resource extraction industries.

Table 2: Known Historic Sites in the Dix Mountain Wilderness Area

Quad	Site Name	Description
Mount Marcy Schroon Lake	Cedar Point Road	An early road connecting Lake Champlain and the Newcomb area passed through the southeastern portion of the DMWA. Topographic maps from the 19th century document a road following the Niagara Brook drainage and terminating at Clear Pond.

Public Use

LAND RESOURCES

While the terrain of the DMWA is quite similar to the nearby HPWA, recreational use of this area is much less. A physically fit individual could traverse the DMWA from North to South in a single day, crossing over the summit of Dix Mt. The smaller geographic area of the DMWA lends itself predominantly to day use. Overnight use is generally concentrated in the vicinity of Slide or Lilian Brook or near the Bouquet River Lean-to.

Climbing the trail-less peaks is a popular activity. Trailhead registers from Elk Lake indicate that most overnight users traveling from that trailhead climb at least one of the "trail-less Dixes" as part of their trip. A significant number of users climb all four of the trail-less Dixes as a day trip, sometimes even including the summit of Dix in the trip.

Access to the DMWA is largely self-limiting from the south due to the private land and deeded limits on parking at Elk Lake. The eastern approaches to the Unit from US Route 9 are generally used by a small number of hikers and hunters looking for a remote trail-less experience. Access from the North has been more problematic due to the popularity of the destinations in this area, ease of access, limits on parking area development caused by the severe terrain, and concentration of trailheads at the Adirondack Mountain Reserve.

Recreational use is difficult to measure. There are only five developed trailheads; however, the wilderness boundary abuts Highway 73 for 6.1 mi., providing a multitude of potential access points for which DEC has no registration or documented use data. Additionally there are three access points along the eastern boundary that are reached via passageways under the Adirondack Northway (Lindsay Brook, West Mill Brook, and Walker Brook). These deeded access points are lightly used, however no specific usage data is available. Trailhead registration data is incomplete for many years, however data has been collected in a systematic manner for the years 2000 and 2001. The visitation data for 2001 and several prior years that data was available for most trailheads is depicted in the Table 3.

Rock climbing activities are quite popular in the unit. Mellor (1995) identifies nine distinct climbing areas on the west side of Route 73 in the vicinity of Chapel Pond. Principle attractions include the cliffs adjacent to Chapel Pond, the so-called "Beer Walls" (Chapel Pond Pass) and the "King Philip Wall," adjacent to the spring of the same name. The "Beer Walls" are the most highly–used climbing area in the Adirondack Forest Preserve due, in part, to the ease of access from the highway, the diversity of difficulty and the abundance of clean climbing routes. "The Empress" rising from the Chapel Pond slab is arguably the most popular friction climbing route in the Adirondack Park. The King Philip area provides several easy instructional routes that are popular with youth camps in the area.

Table 3: Trailhead Registrations, DMWA

Trailhead	2001	2000	1999	1988	1984
AMR Lake Road (HPWA & DMWA)	11,426	11,207	9,925[1]	674	623
Stimson Trail	1,078	1,036	882 [2]	n/a	n/a
Weston Trail	3,909	3,682	4,335	2,066	2,114
Round Pond	3,453	3,225	2,897	1,733	1,370
Elk Lake	1,945	1,898[2]	2,221	n/a	1,382
TOTAL Registrants	**23,812**	**23,048**	**22,259**	—	—

Instructional routes – those that are "top-roped"[3] and with a low level of difficulty – are extremely rare in this area. In the Route 73 corridor between Northway Exit 30 and the Village of Lake Placid there are only a half-dozen routes that offer the characteristics which make them ideal instructional areas. These areas see an incredible amount of use and associated impact in the form of severe devegetation, tree mortality, and erosion at the base of the routes where the groups congregate and at the top of the routes where trees are used as belay anchors. Often one or two large groups monopolize most of the climbing area, displacing other climbers. Large groups are often poorly managed, creating unsafe conditions for both climbers and observers. Larger groups cause substantially greater environmental impacts than the equivalent number of climbers in smaller sized groups.

Most climbing routes are accessed from DOT highway pull-off areas. Parking is routinely a problem throughout the summer and on holiday and fall weekends. The terrain limits the ability to provide off-highway parking and results in dangerous conditions as climbers end up parking on the highway shoulder, often on blind curves. There are presently no official trails to any climbing areas in the DMWA. This situation has caused the proliferation of herd paths, causing erosion problems and development of extraneous trails.

Regardless of the inherent deficiencies in relying on unmonitored trailhead registrations as an index of recreational use, it is evident that the use of this area is much less than even the lighter used trailheads in the HPWA. This is not to say that the DMWA is not threatened by over use. The increase in use, as indicated by trailhead registration data, is similar in magnitude to that at other high peak trailheads, roughly a doubling of visitors over the past 20 years. Several of the use restrictions imposed in the nearby HPWA have the potential to significantly increase the use of adjacent wilderness areas, including the DMWA in the near future. Campfire restrictions and group size limits appear to be effective in limiting associated impacts in the HPWA, however the response by the public to those restrictions is either compliance with the regulations or displacement to other areas with similar characteristics, such as the DMWA and Giant Mountain

[1] *Trail closed for portion of Fall season due to forest fire on Bear Den Mtn.*

[2] *Trailhead closed to public use in Spring 2000 due to Hurricane Floyd damage.*

[3] *A single pitch climb where the belay system is anchored at the top of the climbing route*

Wilderness Area. This displacement is evident in recent increases in trailhead registrations at DMWA trailheads while nearby trailheads serving the HPWA have recorded a decline in registrations over the same period. Johnson (2001) observed user displacement from the HPWA to other Adirondack Forest Preserve Wilderness Areas due to social, resource and other factors.

Projecting future demand and use of the DMWA is difficult, to say the least. 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 and take them closer to home. The proximity of the Adirondack region to major eastern metropolitan centers makes primitive camping an attractive alternative. A strong Canadian dollar may increase the number of Canadian visitors to the region. Concern over airline security and potential terrorism attacks to metropolitan areas increases the likelihood that shorter trips, reachable by automobile, may be more likely. Conversely, the aging of the baby-boomer generation may reduce the overall population interested in primitive backcountry recreation activities. Uncertainty in the future underscores the importance of monitoring use and health of the Forest Preserve so that adverse impacts can be identified and addressed early.

WILDLIFE

Past studies by DEC indicate that few sportsmen stop at trailhead registers. However, it can be assumed that the DMWA in general is attractive to those hunters and trappers desiring solitude because of its generally rough terrain, and lack of easy access to interior locations, in spite of relatively low densities of wildlife populations. Hunting is a popular activity in the DMWA. The most popular areas tend to be the trail-less portions of the Unit: the West Mill and Niagara Brook drainages and the Bouquet River area. This phenomena naturally segregates two often conflicting uses: hiking and hunting. Reports of hunter – hiker conflicts in the unit are virtually non-existent.

Hunting pressure for big game originates principally from points around the perimeter of the unit, such as St. Huberts, Keene Valley, North Hudson, and along Routes 9 and 73. The area around West Mill, Lindsay and Niagara Brooks and the North and South Forks of the Bouquet River are popular camping places for hunting parties.

The popularity of the special hunting season for muzzle-loading firearms, first opened in the 1977-78 season, has been on the increase throughout the Adirondacks. A legislative change in 1991 allowed successful muzzle-loader hunters to purchase a second tag valid for an antlered buck during the regular season only. In 2002, a legislative package restructured hunting licenses to provide a muzzleloading tag with the purchase of muzzleloading privileges. Regulatory changes in that year also allowed the use of optical sights on muzzle-loaders during special seasons as well as regular seasons. These changes have significantly increased interest in muzzle-loader hunting, although use of portions of the DMWA remains relatively light.

The Bureau of Wildlife monitors the populations of game species partly by compiling and analyzing harvest statistics, thereby quantifying the effects of consumptive wildlife use. In addition to deer and bear harvest statistics, information on the harvest of small game and furbearers is compiled by town, county, and Wildlife Management Unit (WMU). The DMWA is totally within Wildlife Management Unit 5F. Harvest statistics for the town of Elizabethtown have not been included in this plan since only 66 acres of the DMWA lie in the Town. The following analysis is based solely on data for the towns of Keene and North Hudson.

Since the two towns contain a total of 347 square miles of deer range, the densities of deer harvest for each of the past three years can be calculated and are found to range from 0.26 to 0.67 deer per square mile.

Although it is not known how the deer harvest is distributed within the towns, it can be assumed that, because of the unit's heavily forested condition and relative inaccessibility to hunters, fewer deer per square mile are harvested within the DMWA than in surrounding areas. The narrow range of variation in annual harvest densities, along with the recognition that regulations allowing the taking of bucks only have little impact on the reproduction capacity of a deer population, lead to the conclusion that the populations of the four towns, and within them the DMWA, are capable of withstanding current and anticipated levels of consumptive use.

An analysis of black bear harvest figures for the four DMWA towns (Appendix VII), coupled with a study of the age composition of harvested bears, has indicated that hunting within the towns has had little impact on the reproductive capacity of the bear population. Although it is not known how the bear harvest is distributed within the towns, it can be assumed that, because of the relative inaccessibility of the interior of the DMWA, fewer bear per square mile are harvested within the unit than in surrounding areas. Under existing regulations, the unit's bear population is capable of withstanding current and anticipated levels of consumptive use.

The Bureau of Wildlife monitors furbearer harvests by requiring trappers to tag the pelts of beaver, bobcat, coyote, fisher, marten, and otter. Harvest figures by town are shown in Appendix VII. Beaver, fisher, and marten can be susceptible to over-harvest to a degree directly related to market demand and ease of access. Harvest regulations are changed when necessary to protect furbearer populations.

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 in the DMWA is relatively light. Under current regulations, these species undoubtedly are capable of withstanding any amount of hunting and/or trapping pressure likely to be brought to bear within the unit.

Despite the lack of wildlife information specific to the DMWA, no need has been identified to obtain such information for widely distributed species. It is more practical to study and manage populations over broader areas defined by ecological characteristics that extend beyond Forest Preserve Units' boundaries.

FISHERIES

Quantitative angler use estimates and their economic impact for the DMWA are not available. Fishing pressure on the unit's streams is probably light. Chapel and Round Ponds are probably the most frequently fished ponds, with brook trout being the primary target species. Trout fishing on lakes and ponds typically peaks in April, May, and June when trout can still be found in the cool water near the surface. Surface fishing activity declines in the summer due to formation of a thermocline which causes fish to move to deeper water.

DEC angling regulations are designed to conserve fish populations in individual waters by preventing over-exploitation. When necessary, populations of coldwater game fishes 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 coldwater and warmwater 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.

WATER RESOURCES

The predominant recreational use of the water resources in the DMWA is for aesthetic purposes and a source of water for camping. With the exception of Chapel Pond there is a lack of large ponds, lakes and navigable waterways in the DMWA. Visitors frequently canoe and fish Chapel Pond, however there is no navigable ingress or egress. Other ponds in the interior of the unit are visited occasionally by hunters and fishermen, most notably, Cranberry, Lilypad and Rhododendron Ponds. Round Pond is a popular interior destination for camping and is a likely destination for brook trout anglers. Most camping sites in the unit are found adjacent to streams or other water sources. Angling use is light and the bog-like nature of many of the ponds makes their utility as a recreational resource unlikely.

Relationship Between Public and Private Land

Recreational use of the DMWA is somewhat dependent on adjacent land holders. Four of the five public trailheads originate on private lands. Over the years the DEC has acquired public recreational easements to provide perpetual access to the DMWA. DEC staff work closely with the AMR and owners of Elk Lake to ensure that the access rights of the public are maintained and that the impacts of public use on the landowners rights are minimized.

By and large, the largest potential impact to the DMWA resource is from adjacent management units. High use pressure and associated negative impacts to the HPWA have been addressed in a Management Plan for that Unit (NYS-DEC, 1999). One significant management strategy employed in that UMP involved promulgation of additional regulations that directly affect visitor use. These regulations have, as a side effect, increased use pressures on adjacent areas that are perceived to offer a similar type of visitor experience, as evidenced by increasing registrations at DMWA and GMWA trailheads while registrations at nearby HPWA trailheads has decreased in the same time period.. Furthermore, implementation of the HPWA UMP could include more restrictive measures in the future, including direct regulation of use through a permit system. Should those provisions of the UMP be implemented it can be expected that a significant portion of the excess use may be displaced into surrounding management units, including the DMWA.

Capacity to Withstand Use

In general, the level of human use of the DMWA does not appear to significantly impact the natural resources of the unit beyond its capacity to withstand recreational use. The DMWA exhibits few of the overuse parameters experienced in the nearby and highly overused, Eastern Management Zone of the HPWA. 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 Dix Mt. from the north and in some wet areas on the approach to the Colvin ridge line. Rock climbing sites in the vicinity of Chapel Pond and the King Philips Spring locally show signs

of soil compaction and erosion which is severe in some instances. This impact appears to be the result of overuse of that area, compounded by the many large groups that use those areas.

Physical inspections of the trails and campsites in the DMWA coupled with user feedback provide the following observations with respect to the capacity of the natural resources of the unit to withstand recreational use:

- Summer weekends and holidays see the greatest number of users. The summer holiday weekends see use levels in some portions of the unit that may reduce the level of solitude or primitive and unconfined recreation below that which might be acceptable in a wilderness setting. However, on the majority of non-holiday periods the level of use in the DMWA remains such that wilderness solitude can easily be experienced.
- Recent changes in management of adjacent Forest Preserve management units affects use in the DMWA. Recent implementation of increased use restrictions in the HPWA have resulted in a increase in use of the DMWA while use levels in the HPWA have stabilized. It is increasingly important for ongoing monitoring of DMWA use to ensure that displacement of use from the adjacent HPWA does not create unacceptable impacts in the DMWA. At this point in time, it is not possible to determine the extent that this change in use will impact the resource.
- The majority of primitive tent sites in the unit appear to be long established. Most appear to be fairly well self contained, however several camping sites tend to be clustered in the vicinity of existing lean-to sites.
- Recreational angling in the DMWA appears to be light and fishery inventories indicate that existing State fishing regulations are adequately protecting the fishery resource. Fishery managers are proposing management action which will maintain native populations, and possibly reintroduce native endangered species where appropriate and consistent with Department policy and he APSLMP guidelines.
- Likewise, hunting pressure in the unit appears stable. Hunting is not expected to impact overall numbers of any species population. Management action has been taken to protect known raptor nesting sites, with the result that populations remain stable. Should protected species exhibit a significant decline in numbers appropriate action will be taken consistent with Department policies and APSLMP guidelines.
- Easements covering four of the five trailheads have provisions for limiting access through the size of parking facilities. These provisions have provided a control mechanism which has limited overuse of much of the DMWA during peak use periods.

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 resistant/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 "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.

Establishing appropriate conditions is dependent on clearly stated management objectives. They are based on value judgements 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.

The existing capacity of the DMWA has been identified in terms of access points (parking) and interior facilities (campsites). The present inventory of parking areas indicates existing parking capacity for trailheads serving the Unit is 194 cars, distributed among 13 parking areas. This figure includes parking at the Zander Scott Trailhead, which serves both the Zander Scott trail to Giant Mt, in the GMWA and rock climbers using the cliffs at the eastern side of Chapel Pond. Parking at the Ausable Club serves users of both the DMWA and HPWA, as well as users who will not be venturing off the easement trails at the Ausable Mountain Reserve. Based on a rule-of-thumb average of 2.5 individuals per vehicle the Department estimates an overall capacity parking of parking areas bordering the DMWA is approximately 485 users.

A total of 30 primitive tent sites have been identified along with three lean-tos. The 33 established camping sites could presently accommodate a maximum of 396 overnight users, based on a maximum group size of 12 persons per group. Implementation of APSLMP-mandated overnight group sizes of 8 persons will lower this figure to 264. Overnight capacity, based on an average of four individuals per camping group, would be amount to an estimated of overnight user capacity at primitive tent sites of around 130 -- 140. This does not include camping at large, which is presently allowed throughout the DMWA pursuant to regulation.

STRATEGY

The long-term strategy for managing the DMWA 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, there has been worked up a written assessment of the current management situation and a set of assumptions about future trends, in which the specific management proposals which follow are rooted.

Limits of Acceptable Change (LAC) and Visitor Experience and Resources 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 DMWA (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.

A list of indicators which may be used by the Department for measuring and evaluating acceptable change on the DMWA are:

- Condition of vegetation in camping areas and riparian areas near lakes and streams;
- Extent of soil erosion on trails and at campsites;
- Noncompliant behavior;
- Noise on trails and in campsites;
- Conflicts between different user groups;
- Diversity and distribution of plant and animal species;
- Air and water quality;
- Physical and biological condition of rock climbing areas.

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 DMWA 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 DMWA.

Section 3 – Management and Policy

Land Management

Historically the Department has taken a minimalist management approach to the DMWA. This is likely due in large part to the concentration in use and facilities in the HPWA. Had the Department invested significant resources in developing the DMWA it is likely that many of the overuse situations that exist in the nearby HPWA would be mirrored in this unit. The lack of facilities in the unit is strongly influenced by past ownership. While much of the HPWA was in state ownership early in the 20th century, most of the access to the predominant attractions of the unit (the "high peaks") remained in private ownership throughout the 1920's and 30's, when the Department was investing heavily in backcountry infrastructure. As a result the DMWA retains more of a backcountry feel than much of the eastern zone of the HPWA.

The principle management activity has been trail maintenance. This work has been undertaken through a combination of Department trail crews, Adirondack Trail Improvement Society (ATIS) trail crews and the 46er club trail crews. The ATIS involvement in trail work dates back to the turn of the century when the trails emanating from the AMR were in private ownership. While many of these trails are now part of the Forest Preserve, ATIS remains a principle force in their maintenance, both through private funding and under contract by the Department.

WILDLIFE MANAGEMENT

Past wildlife management activity in the DMWA has generally focused around management and/or reintroduction of endangered species. To date wildlife management efforts have concentrated on reintroduction of the peregrine falcon, bald eagle and Canada lynx.

Efforts to reintroduce the peregrine falcon and the bald eagle through "hacking" programs began in 1981 and 1983, respectively. In a continuing program of yearly releases, 103 falcons were "hacked" in the Adirondacks through 1988. In 1985, two falcon nests were found, one to the north of the High Peaks Wilderness Area and one just to the east of the DMWA, the first Adirondack nests since 1956. In 1989 seven nests were active in the Adirondacks, producing 12 young. At present one nest is known to exist within the DMWA. Other historic nesting sites within the unit may come to be occupied as the population expands.

Between 1983 and 1985, 55 bald eagles were hacked within the Adirondack region. The first sexually mature eagles produced by the hacking program returned to nest in an area north of the HPWA in 1988. These nests fledged a total of five young to the wild in 1989. To date 20 young have fledged from these nests. Although most of the unit does not constitute suitable bald eagle habitat, two sites are known to have been used for nesting in the past and may come to be used again.

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 specially designed wooden railroad car 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 respectively 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 small–mouthed 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 (minnows, shiners, and dace) 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 piscivorus. 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. Only one pond in the DMWA, Dix Pond, is presently known to sustain brook trout by natural reproduction.

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 19th and 20th centuries is quite remarkable.

Recent Management Activities

Recent fish management in the DMWA has emphasized the native brook trout. Area waters generally are subject to statewide angling regulations, with the exception that the use of fish as bait is prohibited in the unit to minimize the potential for introducing additional nonnative fishes.

Biological data is available for nine of the ponded waters in the unit. Appendix XI, Tables 1 and 2 present pond-specific survey and management data for ponds in the unit. Little active fishery management has been conducted on streams within the unit because of their remoteness and small size. However, portions of the North and South Forks of the Boquet have been stocked with landlocked Atlantic salmon.

Management Guidelines

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 of the State of New York, the Adirondack Park State Land Master Plan, 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" by establishing basic guidelines. APSLMP management guidelines for Wilderness Areas are outlined in Appendix XIV.

It is important to understand that the APSLMP 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 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)
- 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)
- 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
- Fishery Management in Wilderness, Primitive and Canoe Areas, as amended – November 2, 1993 (O&D #93-35)
- Adirondack Subalpine Forest Bird Conservation Area – Management Guidance

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 will be reviewed and significant environmental impacts and alternatives will be assessed.

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 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 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.

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, Division of Fish and Wildlife*, dated December 1979.

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.

All pond reclamation projects will be in compliance with the "Programmatic Environmental Impact Statement on Fish Species Management Activities of the Department of Environmental Conservation" and *"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 Pesticide Management."*

The Americans with Disabilities Act (ADA) and Its Influence on Management Actions for Recreation and Related Facilities

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 a formal 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. Each Unit Management Plan prepared by the Department will outline a proposed assessment process and a schedule for completing the assessment. This activity is dependent on obtaining an inventory of all the recreational facilities or assets supporting the programs and services available on the unit. The assessment will also establish the need for new or upgraded facilities or assets necessary to meet ADA mandates, consulting the guidelines and criteria set forth in the Adirondack Park State Master Plan. The Department is not required to make each of its existing facilities and assets accessible. The facilities or assets proposed in this UMP are identified in the "Proposed Management Recommendations" section.

The Americans with Disabilities Act Accessibility Guidelines

The 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. The Access Board has proposed guidelines to expand ADAAG to cover outdoor developed facilities: trails, camp grounds, picnic areas and beaches. The proposed ADAAG is contained in the September, 1999 Final Report of the Regulatory Negotiation Committee for Outdoor Developed Areas.

ADAAG apply to newly constructed structures and facilities and alterations to existing structures and facilities. Furthermore, 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 or are contained in the proposed ADAAG 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 and proposed ADAAG will be used in assessing existing facilities or assets to determine compliance to accessibility standards. ADAAG is not intended or designed for this purpose, but using it to establish accessibility levels lends credibility to the assessment result. Management recommendations in each UMP will be proposed in accordance with the ADAAG for the built environment, the proposed ADAAG 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 ADAAG becomes an adopted rule of the Department of Justice, 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 Archaeological Site Protection:

The historic and archaeological sites located within the DMWA, as well as additional unrecorded sites that may exist on the property, are protected by the provisions of the New York State Historic Preservation Act (SHPA - PRHPL Article 14), ECL Article 9, 6 NYCRR 190.8 (g) and Education Law §233. No actions that would impact these resources are proposed in this Unit Management Plan. Should any such actions be proposed in the future they will be reviewed in accordance with the requirements of SHPA. Unauthorized excavation and removal of materials from any of these sites is prohibited by ECL Article 9 and Education Law § 233. In some cases additional protection may be afforded these resources by the federal Archaeological Resources Protection Act (ARPA).

The archaeological sites located on this land unit as well as additional unrecorded sites that may exist on the property 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 consultation with the New York State Museum and the Office of Parks, Recreation and Historic Preservation. 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.

DEED RESTRICTIONS

No known deeded restrictions or limitations have been identified on any parcels comprising any portion of the DMWA.

Administration and Management Principles

ADMINISTRATION

Administration of the DMWA is shared by several programs in the Department.

Within the context of the DMWA, Department programs fill the following 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, licences 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 ALSC is part of the Division of Air.

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, licence 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 DMWA 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.

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, 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 use 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 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 DMWA.

- 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 page 20; 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 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 (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 Outstanding Opportunities for 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 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 21). Except for those conforming structures, uses, and administrative actions specifically identified by the APSLMP, DEC is mandated to remove all non-conforming structures and uses not compatible with a wilderness environment as soon as possible.

- 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, with public input, 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.

Management Issues, Needs and Desires

Several issues are of concern for the Department and the public in the development of this plan. Information has been obtained from the public by way of an Open House, held on February 8, 2001 at Keene Valley Fire Department, by mail, and email. The following list of issues, needs and desires were received from the public and DEC staff. Some of the issues, needs and desires have not resulted in Proposed Management Actions being developed.

- **Application of regulations prescribed under the HPWA UMP:** The most comments received dealt with the degree to which the regulations adopted under the HPWA should be incorporated into the DMWA UMP. Opinions varied from support for wholesale adoption of all regulations to support for only subsets of the HPWA regulations. Most comments indicated that some regulations were needed; however, comments were mixed on which ones were needed. Specific concerns were regulations relating to group sizes, fires and restrictions on camping (where designated-site only camping is needed).
- **Management of the eastern portion of the DMWA:** The Department received comments on how the eastern portion of the management zone should be managed. Presently there are no trails in this unit. Some individuals have advocated for new trails in this zone, however the majority of individuals who commented on this issue appear to prefer that the zone remain trail–less.
- **Access concerns on Route 73:** Many comments identified congestion along Route 73 as a concern. As discussed elsewhere, off-road parking is extremely difficult due mainly to terrain constraints. The present road shoulder parking is a safety concern during the winter and peak–use weekends.
- **Potential for overuse:** Another concern identified is the potential for overuse problems that are being addressed in the HPWA to "spill-over" into the DMWA. This will likely become more of an issue as restrictions on use increase in the HPWA.
- **Lack of accurate use data:** As identified in most Department UMPs there is not a coordinated attempt to collect reliable data on recreational use in the unit.

The issues addressed above are addressed in the appropriate section(s) of the following chapter.

A summary of comments received during the public review/comment period have been included along with the Department's response in Appendix XV.

Section 4 – 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.

Bio-Physical Resources

WATER

Present Conditions:

Water quality studies have been conducted by the ALSC, researching the effects of acid deposition, and the Bureau of Fisheries routinely conducts biological surveys of area waters. 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 on the receiving end of more human disturbance than upland forest areas. Visitors must be advised that water ought not to be considered potable and must be properly treated before consumption.

No instances of aquatic invasive plant species have been identified within the unit however presently, 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 the Adirondack ecosystems has been underscored in the establishment of the Adirondack Park Non-Native Invasive Plant Species Project, 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 North and South Forks of the Bouquet River from their headwaters to their respective Route 73 bridges is designated as a "Scenic River" under the New York State Wild, Scenic and Recreational Rivers Act. 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. There are presently no structures, facilities or uses that are non-conforming with the direction provided in statute or regulation with respect to Scenic Rivers 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 Rivers Act or regulations promulgated thereunder.

Objectives:

- Stabilize and improve water quality.
- Monitor all riparian areas, including "scenic" river corridors, within the unit 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:

- Develop LAC indicators and standards for vegetation in riparian areas near lakes and streams
- Aquatic and riparian habitats will be maintained and/or improved. Any new use which would likely incur damage above LAC indicators of riparian vegetation will not be allowed.
- Any primitive campsite or lean-to which is not compliant with water and trail setback requirements will be closed and rehabilitated. Where a new site can be located compliant with APSLMP guidelines, the site will be relocated away from water and designated. Lean-tos will be relocated when major repair or replacement becomes necessary. Lean-tos must be set back at least 100 feet. Minimum setbacks for pit privies and non-designated campsites are 150 feet.
- Close or rehabilitate lake shore and streamside areas should they become severely impacted by bank erosion from recreation use.
- Biological survey work, such as ALSC and DEC studies, will be incorporated in all future water related planning activities.
- Continue to monitor activities under existing DEC rules and regulations on adjacent lands; especially timber harvesting and road building, that have the potential to impact DMWA waters.
- Advise the public through DEC information and education programs to treat all water prior to consumptive use.
- 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.
- Management of identified populations of invasive plant species should be undertaken. These actions may be carried out by NYSDEC personnel or by members of APIPP or other volunteers under supervision of NYSDEC through an Adopt a Natural Resource Agreement.
- Periodic monitoring and further management of identified invasive plant populations will be undertaken.

SOIL

Present Conditions:

Detailed soil maps are not available for the DMWA. Broad soil types (accurate to an area about 40 acres in size) were delineated on aerial photographs by the USDA Soil Conservation Service. Interpretations have not been completed for each soil type. Little information has been documented on wide-spread soil loss and deposition, except that there are sites where soil disturbances on trails, summits, stream sides, and campsites require rehabilitative actions. Trail widening, trail use during wet weather, camping too close to sensitive riparian areas, and summit trampling are contributing factors. The so-called "trail-less peaks" have multiple unmarked herd paths to their summits, none of which are receiving maintenance or erosion control. Trail maintenance funds to control erosion are needed.

Objective:

- Keep soil erosion and compaction caused by recreation use within acceptable limits that closely approximates the natural erosion process.

Management Actions:

- Inventory, map, and monitor soil conditions affected by recreation use.
- Develop LAC indicators and standards for soil erosion.
- When LAC standards are exceeded, correct undesirable conditions by rehabilitating the area and/or relocating use to more durable sites.
- Relocate trails, designated campsites, and lean-tos which are less than 100 feet from water, to reduce sedimentation and/or potential for contamination of water resources.
- Target trail maintenance to heavily eroded trails; develop a priority list based on resource need rather than on user convenience. Include trail-less peaks as well.
- Request voluntary compliance in seasonal closures of high elevation trails and certain low elevation trails during period of wet weather; usually from November 1- December 15 and April 1– May 15, or at appropriate times set by the area manager.

VEGETATION

Present Conditions:

Much of the DMWA'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 rare flora and tundra vegetation found atop Dix Mountain, small portions of old growth forest, wetland communities, and potentially some areas not yet identified through the unit management planning process.

The high peaks area is known world-wide for harboring an unusually large number of rare, threatened, and endangered species protected by federal and state law. Vegetation has been impacted by concentrated human activity in areas such as trail corridors, riparian areas, and mountain summits. On high elevation summits, trampling by people and pets is a major cause of species decline. Continued winter camping above 4,000 feet elevations, atop thin wind-blown snowpacks, places an added stress on alpine environments. Recreation during wet weather (late fall and early spring), at high elevations and on some low lying trails, exacerbates erosion and plant loss. Vegetation on some severely disturbed sites is not sufficient for natural revegetation.

Despite special designation, protective measures, and programs, such as the Nature Conservancy's Natural Area Registry, the New York Natural Heritage Program, and the Summit Stewards Program, many species remain in jeopardy and are near extinction due to heavy and sustained visitor use. The Summit Steward education program has contacted more than 171,000 summit visitors in the adjacent HPWA since its inception in 1989. Summit Steward presence in the DMWA is presently limited to 1-2 days per summer, mainly to undertake species inventory. Plant inventories and ecological mapping are on-going; however, not all areas have been inventoried.

No instances of terrestrial invasive species have been identified within the unit however presently, there is little existing inventory work available with respect to the presence of invasive plant species. The

importance of this issue to the Adirondack ecosystems has been underscored in the establishment of the Adirondack Park Non-Native Invasive Plant Species Project, a project jointly undertaken by the APA, NYS-DOT, Nature Conservancy and NYS-DEC.

Annual trail maintenance has focused on visitor safety and resource protection rather than on user convenience. Trees are cut, by permit, for construction and maintenance of authorized improvements when suitable materials cannot be brought in from sources outside the wilderness.

Objectives:

- Allow natural processes to play out their roles to insure that the succession of plant communities is not altered by human impacts.
- Preserve and protect known locations of sensitive, rare, threatened, and endangered species.
- Continue and enhance programs to identify and map sensitive, rare, threatened, and endangered species.
- Assist natural forces in restoring natural plant associations and communities where they have been severely altered by human activity.
- 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.

Management Actions:

- Develop LAC indicators and standards for condition of vegetation in camping areas and diversity and distribution of plant species.
- All vegetation protection and restoration programs will emphasize information and education as the primary means to reduce impacts and slow unnatural change.
- Continue botanical examinations to produce a more complete inventory of rare, threatened, and endangered species.
- The current citizen-sponsored alpine education and information, summit steward stewardship, and vegetation restoration efforts in place in the HPWA should be expanded to provide a steward on the summit of Dix Mtn. during the summer weekend periods.
- All proposed scientific research projects in the DMWA must be authorized by a temporary revocable permit issued by DEC.
- Ecological inventorying and mapping will be correlated with recreation, and fish and wildlife project plans to prevent unintended and undesirable impacts to sensitive, rare, threatened, and endangered species.
- A marker or unobtrusive sign may be developed and placed on the approaches and outer bounds of sensitive areas to inform the public of such significance and advise them of special precautions. For example, the public needs to know where the 3,500 and 4,000 feet in elevation contour is encountered because the APSLMP prohibits camping above 4,000 feet in wilderness areas and allows camping in wilderness areas between 3,500 and 4,000 feet only at designated campsites where physical and biological conditions are favorable (APSLMP, 2001, Page 21).

- Camping above 4,000 feet will be prohibited all times. This action, required by the APSLMP, is necessary to protect sensitive upper elevation spruce-fir ecotypes, subalpine and rare summit vegetation. This prohibition will be implemented through promulgation of rules and regulations to be included in 6 NYCRR Part 190.
- The HPWA seasonal voluntary trail closures, protecting vegetation and reducing erosion, will be extended into the DMWA, and may be employed on all trails, when the ground is wet; usually November 1 – December 15 (frost-in) and April 1 – May 15 (frost-out). Time frames may be altered at the discretion of the area manager. A list of alternative trails on drier sites will be provided to those who want to hike during these times of the year. If voluntary seasonal trail closures are ineffective in reducing damage to soils and vegetation during these seasons, mandatory restrictions may be implemented through the development of rules and regulations.
- There will be no cutting of vegetation in the DMWA to improve scenic vistas.
- Minimum impact techniques will be used to revegetate sites where concentrated use has destroyed natural vegetation. Native seedlings, trees, shrubs, and grasses will be planted to accelerate return to natural conditions when necessary. Rocks used in conjunction with rehabilitation will be utilized from those found on-site or off-site providing that off-site material conforms as much as possible to the natural rock of the area.
- Visitors will be encouraged to use portable cook stoves and refrain from building campfires. Such messages will be prescribed in LEAVE-NO-TRACE™ wilderness education and information programs.
- As an additional protective measure for summit vegetation, rules and regulations will be promulgated to prohibit the ignition or maintenance of campfires elevations of 4,000 feet or higher, at any time.
- As an additional protective measure for riparian vegetation, rules and regulations will be promulgated to prohibit the ignition or maintenance of campfires below 4,000 feet except in legal camping locations (designated campsites, lean-to sites, and areas 150 ft or more from road, trail or water).
- Vegetation in alpine areas will be monitored annually or more frequently as required so that changes can be detected before unacceptable conditions arise.
- Vegetation at primitive tent sites will be monitored in conjunction with the campsite monitoring program described in the following section on campsites.
- 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.
- Management of identified populations of invasive plant species should be undertaken. These actions may be carried out by NYSDEC personnel or by members of APIPP or other volunteers under supervision of NYSDEC through an Adopt a Natural Resource Agreement.
- Periodic monitoring and further management of identified invasive plant populations will be undertaken.

WILDLIFE

Present Conditions:

A number of changes have occurred over the past several decades that have impacted a variety of wildlife species within the DMWA. Habitat changes have resulted from pre-Forest Preserve logging, wildfires, acid precipitation, recreation use, natural plant succession, protection of the forest and wildlife species through legislation, attempted reintroduction of extirpated species of wildlife and immigration of extirpated species to the area. The development of Interstate 87 had disrupted one of the region's larger deer wintering yards. These factors tend to place DMWA wildlife into three categories: (1) wilderness-dependent wildlife, (2) wilderness-associated wildlife, and (3) common wildlife found. Most wildlife management activities have been directed to improving knowledge of the wildlife found in the unit.

One of the original factors attracting visitors to the Adirondacks, in general, was the vast array of hunting, fishing and trapping opportunities. The APSLMP indicates that these uses are legitimate and compatible with wilderness concepts (APSLMP, 2001, Page 26). DEC policy encourages these activities as part of a larger wilderness experience, not just a quest for game (Doig, 1976).

Habitat areas heavily used by wildlife are often also choice locations for human trails and campsites. (Hendee and others, 1990) Bears often scrounge for food and garbage where people habitually camp. While negative human/bear encounters are minimal, the concentration of camping in distinct locations poses the potential for this to be a problem in the future. Domestic pets, mainly dogs, may also harass and stress wildlife.

Objectives:

- Re-establish 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.
- Monitor and afford extra protection, where warranted, to species which are endangered threatened or of special concern that are currently using the DMWA.
- Maintain and perpetuate annual hunting and trapping seasons as legitimate uses of the wildlife resources compatible with wilderness recreation.
- 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.
- Develop and implement protocols, procedures and philosophies designed to minimize, alleviate and respond to nuisance wildlife complaints in wilderness areas.

Management Actions:

- Monitor peregrine falcons and bald eagles for nesting activity. Produce informational materials and signs to educate rock climbers that falcon nesting is occurring in certain sites and that climbing is prohibited at these sites during nesting.
- Monitor moose that enter the area through visual observation, reports from the public and by radio collaring moose whenever the opportunity presents itself.
- Continue pelt sealing of species to determine level of harvest, guarding against over harvest for species especially vulnerable to trapping (marten and fisher).

- Stress the wilderness aspect of hunting in the DMWA by refraining from developing programs that would attract additional hunters to high use areas.
- Promote education efforts stressing multiple use and hunting seasons that are concurrent with other anticipated uses of the area. Advise non-hunters of the fact that there is hunting in the wilderness area so that they may dress and act accordingly during the hunting season.
- Advise visitors to the area that the potential for conflict with wildlife exists and suggest means of avoiding conflicts through a combination of on-site signage, printed Department media, and direct contact with Department staff.

FISHERIES

Present Conditions:

The DMWA continues to support two biological gems - treasured relics from the Adirondack's past. Those include the only known population of a native strain of brook trout, and a population of round whitefish which are listed as endangered in New York. However, this wilderness unit's fish communities are far from pristine.

Ponds in the DMWA did not escape the massive fish introductions by humans described above for the Adirondacks in general. Known non-native fishes are present in six out of the seven ponds for which fish data are available (Appendix XI, Table 2). In addition to known non-natives, native-but-widely-introduced fishes are present in all seven of the ponds for which fish data is available.

Early fisheries surveys are generally not available to document the progression of fish introductions in the DMWA. None of the ponds in the unit were surveyed (netted) prior to 1930. Surveys subsequent to that date for Chapel and Round Ponds document recent changes in those waters. In Chapel Pond, netting during 1951 collected lake trout, white suckers, brook trout, and creek chubs. In 1963, pumpkinseed were collected for the first time, and in 1964 golden shiners, rock bass, and brown bullhead were first collected. Chapel was reclaimed in 1975 and a survey in 1983 collected rainbow trout, brook trout, golden shiners, white suckers, creek chubs and blacknose dace (rock bass, pumpkinseed and brown bullhead had been present prior to the reclamation but were absent in 1983). More recent surveys collected round whitefish, but no other introductions since the 1983 survey. A 1930 survey of Round Pond collected brook trout, creek chubs, longnose suckers (presumably white suckers based on more recent surveys), and brown bullheads. By 1956, golden shiners and pumpkinseed were established in Round Pond, and by 1973 fathead minnows were also established.

Of particular interest is Dix Pond, home to one of only several known Adirondack heritage strains of brook trout. Dix Pond is the natal home of the Dix Pond Heritage Strain of brook trout and the pond supports the only known population of that strain. To sustain a native strain through the Adirondack's history of logging, fires, stocking of non-native fishes, and stocking of other brook trout strains, is exceptional; to be the only known population of that strain is precarious. Additional fish introductions or other disturbances could eliminate the strain. The DMWA also sustains a population of round whitefish, in Chapel Pond. Round whitefish are endangered in New York. George (1980) states that the round whitefish: "...is at the extreme southeastern extent of its range in the Adirondacks and must be considered highly vulnerable to competition and predation by invading southern (fishes)."

Both the round whitefish and self-sustaining populations of brook trout were historically much more abundant in the Adirondacks then presently (George 1980).

Several ponds in the unit that contain nonnatives cannot be returned to natural conditions (natives only). Wetlands preclude effective treatment with rotenone or no natural fish barrier or site to construct a fish barrier exists. As other fishes become established in these waters, it is likely that brook trout will be eliminated from these ponds. These ponds cannot be restored with current technology.

Objectives:

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.

- 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 SLMP. 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 SLMP.
- 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:

- Reduce the distribution of nonnative and native-but-widely-introduced fish species, and increase the abundance of the depressed native brook trout. This will include reclaiming Twin, Round and Rhododendron Ponds. The abundance of round whitefish may also be enhanced by stocking in Round Pond (following a reclamation), depending on the availability of round whitefish for stocking.
- Manage seven ponds as Adirondack brook trout ponds including: Twin, Round, Lilypad, Rhododendron, Big Marsh, Little Marsh and Dix. Protecting the Dix Pond Heritage strain of brook trout is of particular importance; appropriate strategies are discussed in the description of Dix Pond.
- Maintain and enforce regulations that prohibit the use of fish as bait in the unit. The use of fish as bait is a potentially significant vector for introductions of disruptive non-natives.
- 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 DMWA along with other waters that provide similar fish resources; they will not highlight the Dix waters over other waters.
- Conduct biological surveys of waters within the unit as required.
- 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." Heritage strains of brook trout are preferred in ponds where habitat and the degree of competition allow viable brook trout populations to be maintained. Historically associated species that are predators on brook trout would not be stocked in waters with good brook trout populations. If the abundance of non-native/competing fishes increases to the point that the viability of the brook trout population declines, then brown trout are likely to be stocked.
- Manage Chapel Pond as a coldwater pond. The endangered round whitefish, found in Chapel Pond, will continue to be protected via regulations and education.

LAND PROTECTION

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.

Aside from public roads and riparian boundaries, the unit has 43.1 miles of boundary lines that must be maintained on a regular basis.

Objectives:

- Locate and post all boundary lines on a scheduled basis.
- Physically identify APSLMP unit designations on the ground for administrative and public use.

Management Actions:

- Physically inspect the boundary to determine resurvey and maintenance needs; assign a priority to each. 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. Mark boundaries where they cross any trail, road, or stream. Monitor boundaries 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 DMWA with specific signage identifying the unit's designation, so that both DEC personnel and the public know individual unit designations.

Man-Made Facilities

TRAILS

Present Conditions:

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.

An inventory of DMWA trails was completed in 2001 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 II). DEC has incorporated this system into its DMWA 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 the Appendices. The classification system acknowledges the fact that all trails do not require the same degree nor frequency of maintenance.

Several sections of the DMWA 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, the point of being able to control erosion is passed. Summit trails, with these long steep grades, tend to channel water and create gullies accelerating erosion (Trapp et.al., 1994). These are “weak links” in the system and require extensive work and investment.

Trail maintenance and reconstruction is needed on the majority of the Unit's trails. DEC relies on volunteers and trail contractors to close the gap. User groups, clubs, and other organizations raise resources, financial and otherwise, for trail work. Contributions come in terms of labor, materials, and planning assistance. Other programs, such as cost-sharing, ADK Chapter, Adirondack 46ers, and ATIS trail adoption also help. The use of volunteers and contractors, though effective, has associated costs and other limitations. For example, DEC personnel must devote time to planning and coordination, training, supervision, and logistical support to volunteers. Trail planning is conducted semi-annually between staff, potential trail contractors, and volunteers.

The southeastern third of the DMWA remains an area with no marked trails or facilities. Its remoteness and high degree of solitude could be lost if major trail development in this area occurs.

Many trails in the unit are marked with trail markers of private organizations. These trails were originally built on private lands which subsequently were purchased by the State. By and large, maintenance of these trails continues to be undertaken by the organization identified on the private markers on those trails.

Several maintained trails descend from the Colvin Pinnacle Ridge to the Upper Ausable Lake. The 1977 trail easement between the Adirondack Mountain Reserve and the State of New York excluded the sections of these trails that were on private land from future public use. Since that time these trails have served solely as access for members of the adjacent club to access the ridge line.

Several popular rock climbing areas, including the Beer Walls near Chapel Pond are laced by a network of impromptu trails. These trails follow no sort of order and are often in locations that are causing severe compaction and erosion and other related resource impacts.

Objectives:

- Provide visitors with a trail system that offers a range of wilderness recreational opportunities in a manner that keeps physical and visual trail and resource impacts to a minimum.
- Maintain trails to appropriate wilderness standards.
- Identify need for trail relocations and/or need for new trails.
- Identify potential "trail-less" areas to preserve a sense of remoteness and solitude.
- Provide a unified system of trail signage and markers on Forest Preserve lands.

Management Actions:

- Formally adopt, as a matter of Department policy, the trails classification and standards system proposed in Appendix II for all trail management activities. Under this system, all developed trails will be maintained, relocated, or reconstructed to specified standards. Wilderness trail maintenance will emphasize resource protection and visitor safety rather than user convenience or comfort.
- Develop LAC indicators and standards for extent of soil erosion on trails.
- Develop LAC indicators and standards for noise on trails.
- Trail construction, relocation, or reconstruction activities will not be undertaken in the absence of an approved trail project plan.
- 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. Bridge repair and construction will occur only in cases where public safety and/or resource protection is jeopardized.
- The Adirondack Park Agency will be consulted in any trail management activities in wetlands and in areas adjacent to wetlands to determine if an Agency wetlands permit is required.
- Trail sections, vulnerable to excessive damage, which cannot be relocated, will be designated and closed during wet seasons. Postings will be done at trail heads and through the media. Voluntary compliance will be the first strategy employed; mandatory regulation and enforcement will be the actions of last resort.
- Ladders made from natural materials may be used to assist users over Class III, IV or V trails on certain slopes in order to protect soils and vegetation if no alternatives exist . Devices such as cable and ropes are non-conforming improvements (APSLMP, 2001, Page 21) and will not be utilized.
- Contractual and volunteer trail maintenance agreements, approved by DEC, may be renewed annually and additional volunteer agreements will be sought.
- Marking informal trails with plastic ribbons, paint, or blazes or other devices without DEC approval will be prohibited by regulation.

- Trails signed with other than official DEC trail markers or signage will be replaced with official DEC signage and markers over the five year life of the plan to comply with a 1982 Division directive regarding trail marking. Trails adopted by various organizations will be formalized using the Adopt-a-Natural Resource program (ONR-1). Appropriate signage and recognition will be utilized to recognize those organizations' role in maintenance as provided for under ONR-1.
- Trails on Forest Preserve that serve solely as private access from adjacent parcels will not be designated as Department trails. Marking and maintenance of trails connecting the private AMR trails from the Upper Ausable Lake to the Pinnacle ridge will not be permitted.
- Access trails to rock climbing areas will be identified and classified as either Class II or III trails. All trails will be maintained, relocated, or reconstructed to specified standards, as identified in the trails classification and standards system.
- The trails paralleling the North and South Forks of the Bouquet River will be classified as Class II trails.
- Existing access trails at Lindsay, West Mill and Walker Brooks will be maintained as Class 2 trails. They will remain unmarked primitive trails that access the trailless southeastern third of the Unit. No other facilities will be proposed for this portion of the Unit.

TRAILHEADS

Present Conditions:

The DMWA is served by eight developed entry points, four of these are situated on private land, one adjacent to Round Pond, and another three are accessed through the adjacent Hammond Pond Wild Forest. 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, 1987). 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. Three trailheads at the Adirondack Mountain Reserve, and one trailhead at Elk Lake are secured through deeded easements.

Managing parking at trailheads is a problem at popular trailheads on peak weekends and holidays. Terrain constraints along Rt. 73 are limiting factors in location and expansion of parking facilities. The mountainous terrain often results in ingress to and egress from these parking areas on blind turns and areas with little visibility to passing motorists. When parking lots reach capacity, visitors park along roadsides, and occasionally trespass on private lands and restrict private rights-of-ways. Illegal parking in the vicinity of the AMR has greatly diminished in recent years through actions identified in the HPWC UMP. Improper and unsafe parking remains a problem at other Route 73 access points and is a problem shared by DEC, the Department of Transportation (DOT), and town governments. These issues were identified in the Route 73 Scenic Corridor Management Plan. Potential funding sources exist for improvement of pull-off parking areas identified in this plan.

The APA has long been aware of parking safety and overuse problems at trailheads along the Rte. 73 corridor. As a followup to the development of the Route 73 Scenic Corridor Management Plan, APA applied for, and received, federal funds under the Transportation Equity Act for the 21st Century (TEA-21) to

inventory and study the parking related safety problems along the Route 73 travel corridor and make some infrastructure improvements. The project, expected to be complete by the end of 2003, will examine the nature and extent of trailhead parking and public safety use problems along Rte 73, develop an overall management plan to mitigate these safety related problems, and make appropriate physical improvements to identified selected priority trailhead parking locations consistent with applicable APA, DOT and DEC statutory and regulatory requirements.

In 1999, DEC and the Town of Keene implemented a parking shuttle system for the Garden which significantly reduced management problems with parking at the Garden trailhead. The demonstration project was continued in 2000, 2001 and 2002 and is being considered for a long-term solution to Garden parking problems identified in the HPWC UMP.

The Town of Keene has established "No Parking" zones on town highways leading to popular trailheads such as at the Adirondack Mountain Reserve.

Litter is picked up by volunteers and DEC personnel. Adjunct facilities, such as privies, trailhead shelters, and signs are provided at the more popular trailheads.

Objectives:

- Provide and manage adequate trailhead facilities to protect resource values and to accommodate visitor needs.
- Indirectly manage interior use by balancing parking lot capacities to interior visitor capacities.
- Prohibit parking on access roads adjacent to parking facilities.
- Mitigate parking problems in cooperation with affected parties.

Management Actions:

- Revisit, analyze, and update existing easements to determine improvement needs.
- Barricade the old tote road leaving the King Philips Spring parking area.
- Erect signage alerting motorists to upcoming trailheads along Route 73. Work with local government, DOT and State Police to establish no-parking zones adjacent to road shoulder parking facilities to reduce unsafe parking.
- Maintain the present parking area capacities as peripheral control for managing interior use. Improvement or relocation of parking areas should be considered in highway right of way maintenance by either DOT or through Scenic Corridor Management Plan action items.
- Recommend improvement of the existing parking area at Round Pond Trailhead and the Chapel Pond and "Beer Walls" climbing access areas consistent with the New York State Route 73 Scenic Corridor Management Plan.
- Investigate expansion of the Keene Hiker Shuttle to service the Round Pond trailhead during summer holiday weekends.
- Establish a physical information and education presence in the Unit during peak use periods.
- Schedule routine maintenance of trailheads and litter removal.

- Develop partnerships with local governments and outside volunteers to maintain and snowplow roadside trailhead parking facilities.

CAMPSITES

Present Conditions:

Despite the size of the DMWA, the land area for environmentally suitable camping is quite small. High elevation eco-types, steep mountains, rock outcrops, wetlands, poorly drained soils, etc., severely restrict camping and intensify the demand for available campsites. Campsite suitability diminishes with an increase in elevation due to shallow, highly erodible soils, with poor drainage, and a coniferous tree overstory that tends to hold moisture. As noted above, the APSLMP limits camping to designated sites at elevations between 3,500 and 4,000 feet and prohibits all camping above 4,000 feet because of fragile ecological conditions.

Existing camping regulations permit camping only at locations that are at least 150 feet or more from a road, trail or water or at specific sites designated by the Department (6 NYCRR §190.3(b)). The former is referred to as the "150 foot rule" which permits "at-large" camping subject to those requirements. Currently camping is prohibited on sites above 4,000 feet from April 30 to December 15 of each year to protect fragile alpine environments (6 NYCRR §190.3(d)). This does not comply with APSLMP requirements that prohibit camping above 4,000 feet at all times. There are no other regulations to restrict tent camping or provide separation distances at or near lean-tos.

Also present in the unit are several campsites along roadsides that are directly accessible by motor vehicles. These locations exist at Chapel Pond, and locations where the Boquet River crosses NY73.

Objectives:

- Reduce, eliminate, or mitigate the adverse effects on natural resources that result from improperly located campsites.
- Comply with the APSLMP campsite standards to disperse use.
- Eliminate all camping above 4,000 feet at all times to comply with the APSLMP.
- Maintain historical camping opportunities where such use is compliant with APSLMP guidelines.

Management Actions:

- The on-going campsite and lean-to inventory and monitoring program in the eastern High Peaks will be expanded to cover the DMWA. This study will be used to identify and designate campsites that comply with APSLMP standards by YEAR THREE of this plan. Campsites will be selected on physical criteria and the sight and sound criteria of the APSLMP. Actions to address inappropriate motor vehicle access to sites will be implemented at the completion of the campsite study and the TEA-21 improvement project for parking facilities on NY73. Such actions may include road closure with barricades or the designation of an off-highway parking area and the closure of related campsites.
- The above mentioned studies will also address issues relating to clustered non-designated campsites in the Chapel Pond area and the area at the base of the Chapel Pond Slab climbing area. The study

will identify campsites in these areas to be designated and those that should be closed and relocated to locations compliant with APSLMP guidelines.

- Develop LAC indicators and standards for extent of soil erosion at campsites.
- Develop LAC indicators and standards for noise in campsites.
- Develop LAC indicators and standards for condition of vegetation in camping areas
- 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, designed to accommodate a maximum of eight people on a temporary or transient basis, and located so as to accommodate the need for shelter in a manner least intrusive to the environment (APSLMP, 2001, Page 18). Campsites will be designated to direct campers to previously used disturbed areas, to define proper camp locations, to disperse use, or limit adverse impacts to resources and other campers.
- Camping sites adjacent to lean-tos that do not comply with APSLMP guidelines will be closed and revegetated. Sites will be relocated if appropriate locations can be identified.
- Three primitive tent sites in the vicinity of the Boquet River Lean-to will be relocated attempt to maintain the APSLMP 1/4 mile separation guideline to the degree possible. Where a 1/4 mile separation can not be accommodated sites will be located at least 500 ft. from any nearby site. Potential relocation sites will be considered between the junction of the trail from the summit of Noonmark Mtn. and the Round Pond trail and the lean-to site. The severe slopes of the trail beyond this point preclude establishment of camping sites beyond this point.
- Locate and construct two additional primitive camping sites along the Bouquet River in the general area between the junction of the trail from the summit of Noonmark Mtn. and the Round Pond trail and the Bouquet River lean-to site. The additional sites will be located to attempt to maintain the APSLMP 1/4 mile separation guideline to the degree possible. Where a 1/4 mile separation can not be accommodated sites will be located at least 500 ft. from any nearby site.
- Construct an additional primitive tent site in the vicinity of Elk Pass.
- Relocate one of the existing primitive tent sites from the vicinity of Lilian Brook to the area where the Hunter's Pass trail crosses the East Inlet, north of Dix Pond.
- The remaining campsites at Slide Brook (4 sites)and Lilian Brook (2 sites) will be relocated to attempt to maintain the APSLMP 1/4 mile separation guideline to the degree possible. Where a 1/4 mile separation can not be accommodated sites will be located at least 500 ft. from one another and outside of sight and sound. The lack of camping opportunities nearby available water on the 4.3 mi. section of trail between Elk Lake and the Beckhorn/Elk Pass trail junction poses a terrain constraint that limits the potential locations of available camping in this area.
- So-called "at-large" camping will be permitted in accordance with 6 NYCRR, §190.3(b). This regulation prohibits camping within 150 feet 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 3,500 feet in elevation.
- Where terrain permits, primitive tent sites shall be properly screened and a minimum of 150 feet from water and trails. Where the 150 ft setback can not be achieved sites may be located at lesser

setback distances, provided however that in no case shall they be less than 50 feet from such features regardless of site durability.

- All closed campsites will be restored to a natural condition. Fire rings, tree stumps and other evidence of past use will be removed.
- Annual work plans shall incorporate campsite maintenance and rehabilitation.
- Primitive tent sites in popular areas will be monitored annually; all campsites throughout the wilderness will be reinventoried every 5 years. Indicators and standards will be developed for primitive tent sites. Primitive tent sites will be closed, revegetated and/or relocated when standards are exceeded.
- Primitive tent sites at elevations between 3,500 and 4,000 feet will be monitored and evaluated to determine their effectiveness in reducing resource damage and dispersing use.
- Motor vehicle access to the primitive tent site on the southerly bank of the South Fork of the Boquet River where the river crosses Route 73 will be blocked. The access is in poor condition and generally not accessible to most vehicles. Parking remains available across the highway and the campsite will remain open.

SIGNS

Present Conditions:

Signs are provided to mark trails, minimize impacts, and provide safety information. Signage is kept to a minimum to avoid interfering with wilderness values and guidelines.

Currently, Lands and Forests, Operations, and Fish and Wildlife all use signs in the unit. 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.

Progress is being made to use smaller sign boards (6"x 16") at interior locations. Sign theft and vandalism is an occasional problem near wilderness boundaries.

Objectives:

- Provide for the minimal use of signs necessary to manage and protect the wilderness resource and provide for user safety.
- Bring current signing into compliance with wilderness standards: i.e., made of rustic materials and limited in number (SPSLMP, 2001, Page 22).

Management Policies and Actions:

- Update and maintain sign inventory annually.
- Coordinate and review all sign needs through a single area manager.
- Signs will be provided for visitor safety and resource protection, not for the convenience of the user.
- Signs may be erected at trail junctions, showing directions with arrows; wording will be reduced to the minimum necessary.

- No new memorial trail signs or plaques of any kind will be placed in the unit without written Department approval.
- Minimize regulatory signs at interior locations in favor of signs posted at trailheads or access points and published, where feasible, in brochures and maps or otherwise made available to users prior to entry into the unit.

LEAN-TOS

Present Conditions:

Prior to the advent of light-weight backpack tents, lean-tos were erected for user convenience and to provide shelter from inclement weather. The structures were often built immediately adjacent to trails and close to water and firewood sources. They were sometimes clustered in scenic areas to accommodate increased visitor demand and to facilitate maintenance. Many were afforded stone and concrete fireplaces, pit privies, and picnic tables.

During the summer season, these sites are now generally dominated by novice users and/or large groups. Many do not bring tents nor possess adequate camping gear. This lack of proper equipment and personal shelter causes serious safety problems when the lean-tos are full and visitors are forced to seek shelter elsewhere.

The APSLMP acknowledges lean-tos as conforming structures, provided they meet minimum setback distances (100 ft.) from water and have proper sight and sound separation distances from adjoining campsites or other lean-tos (APSLMP 2001, Page 21). .

Objectives:

- Limit existing lean-tos to appropriate locations as prescribed by the APSLMP.

Management Actions:

- Inventory and evaluate all lean-tos on a case by case basis as to whether they should be maintained in place, relocated, or eliminated. These decisions will be based on prescribed management criteria and will include consideration of the following: distance from water and trails, soils and drainage, topography, existing use patterns - especially in relation to sight and sound separation distances from other campsites, distance from roads and/or trailheads, and strategic locations for safety protection based on past histories of search and rescue efforts in a particular geographic location. If a lean-to cannot be relocated to a legally acceptable site within 1/4 mile of its present location, it will be removed and not be replaced.
- The Bouquet River lean-to is located within 100 ft. of the Bouquet River. Structural maintenance of this lean-to will cease. The lean-to will be replaced when structural repairs are necessary or sooner should funding for replacement become available.
- Relocated lean-tos will be set back a minimum distance of 100 feet or more from the water as required by the APSLMP. This same minimum setback will also apply to trails where feasible.

- The maximum capacity of any lean-to site (including associated tent camping) shall not exceed 8 persons.
- Communicate facility changes to the public through the media, the unit's information and education programs, trailhead messages, and personal contact.

SANITATION

Present Conditions:

Improper waste disposal can affect the environment and the health and safety of wilderness visitors. Most overnight use is concentrated around lakes and streams. As use increases, water quality protection becomes increasingly important. Some hikers have reported contraction of protozoan parasitic diseases, such as giardiasis, from contaminated drinking water sources. Improper disposal of human waste in the backcountry, coupled with high concentrations of users, compounds this problem. Soaps, shampoos, and other wastes affect the delicate chemical/biological balance of area waters. Soap suds and leftover food scraps can be found on the shores of many lakes and streams.

Public cooperation with the "pack it out" policy for litter removal has helped considerably. However, litter still remains a problem in some areas, e.g., trailhead parking facilities, popular campsite and lean-to locations, and in fire rings. Broken glass and unburned refuse take much expense and time to clean-up and are a safety risk to Department staff and volunteers cleaning up these areas.

Proper human waste disposal is of critical importance in regularly visited places. DEC uses pit privies (outhouses) in areas where use levels are usually high and adequate dispersal of "catholes" - buried wastes - is difficult. The APSLMP requires that all pit privies be located a minimum distance of 150 feet from water (APSLMP, 2001, page 21). Aside from high elevation sites (above 3,500 feet) having cool, wet, and shallow soils inhibiting decomposition, pit privies can be effective in minimizing health risks and water contamination if they are properly located and maintained. Chemical, vault and composting toilets have not been used in the wilderness. The appropriateness of these toilets in wilderness is questioned (Cole, 1989). Decisions about appropriateness involves tradeoffs between increasing the number and extent of toilet facilities for sanitary benefits and reducing levels of use in problem areas.

Objectives:

- Prevent or mitigate the adverse chemical/biological and visual effects that result from the improper disposal of human waste.

Management Actions:

- Information and education efforts and LEAVE-NO-TRACE™ programs will stress proper treatment of drinking water and the need for proper human waste disposal.
- The "pack it out" policy for litter will be given renewed emphasis. All litter will be bagged and packed out. Users will be encouraged not to burn garbage in fire rings.
- Use of any soap or detergent, or the disposal of food scraps in any waters will be prohibited by regulation.
- Campsites will be located where waste disposal will not be a problem (for example, where soil is deep).

CAMPFIRES

Present Conditions:

Even though the number of visitors using portable gas stoves is increasing, there are campfire rings at every established campsite in the DMWA. Virtually every established campsite shows some evidence of fire: blackened rocks, charcoal, hacked trees, and occasionally partially burned garbage, melted and broken glass. With the exception of the alpine and subalpine zones where fires are prohibited above 4,000 feet, campfires can be built almost anywhere. They occasionally are improperly built in parking lots, in the middle of trails, inside lean-tos, and along the immediate shorelines of lakes and ponds. "There is no question that camp fires have substantial environmental impacts" (Cole and Dalle-Moll, 1982).

Conversely, campfires have historically been associated with the camping expreience. Many users value the presence of a campfire as an important part of their backcountry camping experience. While many users now carry portable backpacking stoves, eliminating their need for a fire for cooking, the fire remains an important social focus. Existing Department regulations allow for fires for the purpose of "cooking, warmth or smudge" on most public forest land in the State (6 NYCRR §190.1[a]) except for portions of the HPWA where stricter regulations have been promulgated.

Physical impacts associated with campfires in the backcountry are numerous. Although actual fire sites are quite small, a more serious aspect involves firewood gathering which by itself causes widespread impacts. This activity greatly increases the area of disturbance around campsites. The disturbed areas can be 10-20 times greater in size than the actual devegetated zone around the campsite. Campfires consume wood which would otherwise decompose and replenish soil nutrients. Excessive firewood gathering has fostered the cutting of live and standing dead trees once all available on-ground sources are consumed. The latter are habitats to many cavity nesting birds and insects. Pulling off limbs results in visual impacts for other users. Unburned refuse left in fire rings has attracted wildlife in search of food and leads to increased human/wildlife conflicts, especially with bears.

DEC has attempted to build fire rings in popular locations to concentrate fire use in order to avoid excessive damage. DEC staff routinely advocate the use of small portable gas stoves. With the exception of an open fire ban in the eastern zone of the HPWA, few DEC rules and regulations currently address fire use.

Objectives:

- Reduce the effects of recreational use of campfires on DMWA natural resources and the natural scene as viewed by visitors.

Management Actions:

- The LEAVE-NO-TRACE™ program will stress proper fire use in appropriate locations, encourage greater use of portable gas stoves, and explain the rationale for avoiding the use of campfires.
- Document campsite areas where serious ecological and/or visual impacts due to fire use are occurring as part of the campsite inventory and monitoring program. Restrict or prohibit fires by regulation in severely impacted areas if needed.
- Campfires shall be prohibited by regulation at an elevation of 3,500 feet or higher, at any time. The following will be used to inform visitors of the closure and the rationale behind it: the unit's overall information and education program; media announcements; permit attachments; maps; and signs.

- Regulation will be promulgated restricting campfires to only be allowed in safe locations at primitive tent sites (designated campsites), lean-tos or in any other area below 4,000 ft elevation and at least 150 feet from any road, trail, or water.

Public Use and Access

PUBLIC USE

Present Conditions:

Many visitors consider large groups inappropriate and undesirable in wilderness. Aside from behavioral factors, the potential to cause impact varies with party size and the type of user. Parties larger than 8 than 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.

Regardless of activity (overnight or day use), large groups commonly create congestion problems in trailhead facilities, on trails, rock and ice climbing sites, and mountain summits. It is very difficult to control and confine large groups in vulnerable locations, such as on alpine 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 currently limits group size in wilderness areas to no more than 12 persons per party. 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 no restrictions limiting day use. Groups of any size may enter the DMWA. Day use groups exceeding 20 persons are increasingly common. With restriction of day use group sizes in the HPWA, trails in adjacent units, including the DMWA are seeing increasing numbers of large day groups. 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.

The number of pets, particularly dogs, brought into the backcountry is increasing. Dogs are encountered on trails, in campsites, along shorelines, and atop summits. Some dogs are well controlled; others are not. DEC receives general complaints of barking dogs, dog fights, dog bites (to humans and other dogs), threatening actions as dogs establish territories in and around campsites, summit trampling by unleashed dogs, fecal contamination of water resources, conflicts with bears, and harassment of deer and other wildlife. A serious encounter with a dog off a leash can result in a lawsuit as well as fines.

Many wilderness managers agree with Cole (1996) that greater attention should be given to the management of day users – the particular problems day users create and the varied recreation opportunities they seek which may or may not require a wilderness setting.

While long term data on use of the DMWA is lacking, Department staff have observed an increase in recreational use of the DMWA since adoption of use restrictions in the nearby HPWA. While recreational use in the HPWA has decreased in the last 3 years, use in the DMWA has increased. Use of the DMWA by larger groups has also increased, with greater numbers of tour busses dropping off large numbers of users at DMWA trailheads. Wilderness management literature (Hendee, et.al 1990, Cole 1989, 1994, Cole, Petersen, and Lucas, 1987) have correlated larger group size with increasing ecological and social impacts. It is believed that restrictions on group size in the HPWA has shifted these impacts to the DMWA and GMWC.

Selecting a specific group size regardless of activity requires judgement; 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).

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.
- Provide fair and equitable access to interior camping facilities.
- Manage rock climbing sites to minimize environmental impacts.
- Keep the effects of visitor use on resources to a minimum.
- Increase visitor self-sufficiency and knowledge of personal protection.

Management Actions:

- Adopt regulations to limit the maximum number of persons per campsite to eight . 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 maximum number of persons per campsite to eight.
- A maximum day use limit of 15 persons per party will be established by regulation in YEAR ONE.
- 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 have the ability to treat their own water, cook their own food, etc. and 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.
- Develop uniform method of collecting use data across the unit.
- Develop LAC indicators and standards for extent of soil erosion at rock climbing areas.

- Develop LAC indicators and standards for noncompliant behavior.
- Develop LAC indicators and standards for managing conflicts between different user groups.
- Information about limits will be disseminated through the unit's information and education and LEAVE-NO-TRACE™ programs and regulations will be enforced. Informing visitors of limits during trip planning and/or prior to arrival is essential.
- Those groups requiring 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.
- All pets, except hunting dogs in appropriate hunting season under the control of a licensed hunter, will be required by regulation to be leashed at campsites and lean-tos, elevations above 4,000 feet, or at areas where the public has congregated. No dog may be left unattended at any time and must be under the complete control of the owner or handler at all times.
- Adopt regulations to:
    - Prohibit the possession of glass containers, other than those necessary for medication.
    - 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 un the APSLMP.

ROCK AND ICE CLIMBING

Present Conditions:

The Adirondack region remains one of few areas in the country where the placement of fixed climbing anchors (bolts) is not common–place. The reputation of the region is one of traditional climbing, one where bolts and pitons are the exception rather than the rule. The use of fixed anchors, particularly fixed expansion bolts, placed in holes drilled into the rock has been an issue of controversy in public land management (Access Fund, 2001). Fixed anchors have long been used by climbers as a method of protection where use of traditional removable protection (camming devices, chocks and nuts) is not possible. Fixed anchors, including bolts and slings placed around trees have also been used for rappel anchors. This practice can provide some level of protection to the natural resource by reducing damage to trees by girdling, caused when rappel ropes wrapped around trees are pulled down at the end of a climbing session. When placed indiscriminately, bolts and related fixed anchors can mar cliff faces and result in visibility impacts from the ground. The use of fixed anchors as a resource protection tool, when properly managed can be a important management tool to protect the natural resource. Use of fixed anchors for protection on a climb that might not be possible without the placement of fixed or artificial anchors has engendered much more controversy both within and without the climbing community. The use of fixed anchors for this purpose in some areas has fundamentally altered the sport of climbing, resulting in a "climbing gym" atmosphere where numerous bolts are used to create a route where none previously existed. While this has occurred in some locations on Forest Preserve, it has not yet occurred in this Unit. The appropriateness of this use of fixed anchors considered to some as contrary to wilderness philosophy.

At this point in time the placement of bolts, or other fixed anchors which involve drilling or defacement of the rock is a violation of Department regulations (6 NYCRR 190.8(g) -- "No person shall deface, remove,

destroy, or otherwise injure in any manner whatsoever any . . . rock, fossil or mineral . . . excepting under permit from the Commissioner of Environmental Conservation and the Assistant Commissioner for State Museum and State Science Service . . .”). The APSLMP does not discuss the appropriateness of fixed anchors in the Adirondack Forest Preserve.

Large rock and ice climbing groups have become a management issue at several locations in the Unit. Large groups cause a disproportionate amount of physical impact to a site, have a large social impact, and often exhibit poor supervision by group leaders causing safety issues both with other members of the group and with other climbers in the immediate area. The very nature of the climbing activity concentrates use on a very small area. Individuals who are not climbing congregate at the base of the climb, causing loss of vegetation and erosion. Erosion, compaction and soil loss at the base of several top-roped climbs has been measured in excess of three feet. This congregating effect also impacts other climbing parties since multiple climbing routes begin in close proximity to one another and open space at the base of the climbs is already quite limited. Due to the limited number of climbing routes suitable for group instructional purposes one large group routinely can monopolize all the suitable “top-rope” routes in an area. Often single individuals from these climbing groups will hike in to a climbing area in advance of the remainder of the group to “claim” use of favored top-rope climbs by establishing belay systems, effective excluding any other individuals or groups from using those routes.

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.
- Provide fair and equitable access to rock and ice climbing resources..
- Manage rock climbing sites to minimize environmental impacts.
- Keep the effects of visitor use on resources to a minimum.

Management Actions:

- All rock climbing groups will be limited by regulation to a maximum size of 10 persons and limited to utilizing a maximum of three roped climbing routes at any given time. Affiliated groups shall maintain a separation distanced of at least one mile. Department regulations will be promulgated to take effect in YEAR TWO of the plan implementation. The public will be alerted to the impending change through an information and education effort during YEAR ONE. To minimize the risk associated with rock and ice climbing rescue operations, the Department will continue rescue training operations in these areas. It is expected that the size of the administrative use of climbing sites by the Department for rescue training will exceed the group size limits on no more than 8 occasions in a given calendar year. The regulations will not prohibit this use.
- Stabilize soil at the top and base of climbing routes where erosion is identified as a problem.
- A temporary moratorium will be established relative to the establishment of new, or replacement of existing, bolts or fixed pitons. The Department will undertake an inventory of all existing fixed anchors in the Unit during Year One of implementation of this plan. The Department will 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. Such group will be convened during Year

One of implementation with establishment of policy by the Department by the end of Year Two of plan implementation..

- Access trails to climbing routes will be identified and classified as a Class 2 Trail (Path). Access trails at the Beer Walls and King Phillips Spring will be classified as a Class 3 trail (Primitive Trail).
- At popular climbing areas, kiosks providing climbing-specific LEAVE-NO-TRACE™ information shall be erected within 500 ft. of the wilderness boundary and in conformance with the APSLMP Boundary structures and improvements and boundary marking guidelines.,
- Information about limits will be disseminated through the unit's information and education and LEAVE-NO-TRACE™ programs and regulations will be enforced. Informing visitors of limits during trip planning and/or prior to arrival is essential.
- Establish a pit privy at the Beer Walls and King Phillips Spring sites.

TRAIL-LESS PEAKS

Present Conditions:

The DMWA has 4 trail-less peaks with elevations of 4,000 feet or more. None of these peaks have a DEC designated marked trail to their summit nor do they receive any scheduled maintenance. The peaks have special significance to the Adirondack 46'ers, an association of climbers who have ascended all 46 Adirondack Peaks above 4,000 feet. Heightened recreation use and the popularity of being an aspiring "Adirondack 46'er" has led to a proliferation of "herd paths" up, down, and across these summits. Thus, term "trail-less" peak is a misnomer due to recent popularity of climbing to these summits.

The 46'ers had placed canisters with sign-in registration forms on top of many summits to verify ascents. These are illegal under 6 NYCRR §190.8(i), and non–conforming to the APSLMP. In conjunction with the implementation of the HPWA UMP, these canisters were removed in May 2001.

A pilot program, begun in 1997, in cooperation with the 46'ers and the Adirondack Mountain Club to reduce undesired trails on the aforementioned summits was very successful. The most environmentally sound route up Tabletop Mountain was selected, minimally marked with rock cairns, and all extraneous routes were closed and brushed-in. The latter action also helped reduce impacts at nearby Indian Falls which was traditionally the point of departure from the Van Hoevenberg Trail to Tabletop. Similar efforts were undertaken on Street and Nye Mountains in 1998. The HPWA UMP provides direction for the expansion of this program to all trail-less summits over 4,000 ft. elevation in the unit

Objectives:

- Continue to provide for a unique recreational experience distinctive to the backcountry of the DMWA, yet keep physical and visual trail and resource impacts to a minimum.

Management Policies and Actions:

- Maintain the cooperative effort with the Adirondack 46'ers to designate the most environmentally durable route(s) up each peak and close all others to public use.
- Designated routes will be assigned Class II status, a foot path, with due consideration given to appropriate layout based on drainage, and occasional blowdown removal to define the route. Remedial maintenance will be employed as required to stem erosion and vegetation loss.

- Closed routes will be barred with brush to obliterate unwanted paths and erosion control devices will be put in place where necessary.
- Collect better use data and monitor site conditions on so-called "trail-less peaks."
- Continue information and education efforts to promote safety and reduce impacts..

ACCESS FOR PERSONS WITH DISABILITIES

Present Conditions:

Past management of the DMWA 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 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 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.

Objectives:

- Increase access opportunities for people with disabilities where such development is economically feasible, does not alter the fundamental nature of existing programs, is compliant with Department regulation and policy, and conforming under the guidelines of the APSLMP.

Management Actions:

- Improve the canoe launching site at the north shore of Chapel Pond and access from the highway to provide accessibility for people with disabilities . Close two designated camping sites at this location and convert into 6 car accessible parking area. Provide directional signage at the Chapel Pond parking area directing users to the launch site. Consultation with APA will be necessary to ensure that the launch structure complies with APSLMP guidelines.
- Sign the launch area to prohibit camping and parking of motor vehicles.
- Incorporate accessible signage at trailhead access points.
- Conduct inventory of facilities.
- Identify other potential opportunities in the unit.

Proposed Regulations

Several of the management proposals outlined in this section require the promulgation of new rules and regulations in accordance with DEC policies and procedures, the State Environmental Quality Review Act (SEQRA), and the APSLMP. Statutory authority for regulatory change is found in ECL §9-0105(3) and ECL §9-0105(3) §§ 816.1 through 816.3 . Section 816.3 of the act directs DEC 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 190These 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 DMWA:

- 190.13(c) Group size restrictions: which prohibit day use groups of sixteen or more people, prohibit camping groups of nine or more people on or after July 1, 2004, and prohibit such numerical limitations unless such group has 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 4,000 feet in elevation, and prohibit camping above 3,500 feet in elevation but equal to or less than 4,000 feet in elevation except at a primitive tent site.
- 190.13 (e) . prohibitions on campfires above 4,000 feet in elevation and at elevations of 3,500 feet or less at any location within 150 feet from any road, trail, spring, stream, pond or other body of water except that a campfire may be ignited or maintained [in a fire ring] at a primitive tent site or lean-to site.
- 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 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,
    - cut or clear trails, or the marking of summits with canisters except by written permission of the department,
    - and prohibiting unattended pets or pets not under the complete control of their owners.
    - Also, failing to have proof of a valid and current rabies inoculation for any dog which is accompanying them,
    - erecting or maintaining any commemorative features, such as signs, plaques or markers depicting cultural sites;
    - undertaking any research project except under permit of the department, and
    - possessing a glass container, except that glass containers which are necessary for the storage of prescribed medicines shall be exempt from this prohibition.
- Promulgate the following additional rules and regulations, under 6 NYCRR §190.13, pertaining to rock climbing at climbing sites:

- In the Dix Mountain Wilderness Area no person shall
  - be part of a group organized for the purpose of rock climbing which exceeds 10 persons.
  - be a member of an affiliated group whose total number exceeds the numerical limitations established above.
  - be a member of a climbing group utilizing more than three distinct climbing routes at a given time.

- In the Dix Mountain Wilderness Area, no person shall fail to leash pets at primitive tent sites, at lean-to sites, at elevations above 4,000 feet, or at other areas where the public congregates. Nor shall any person fail to maintain complete control over their pet provided that this provision shall not be applicable to hunting dogs which, with a licensed hunter, are actively hunting during appropriate hunting seasons at locations other than primitive tent sites, lean-to sites, at elevations above 4,000 feet, or at other areas where the public congregates.

Section 5 – 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 is 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 to not include capital expenditures for items such as equipment, nor do they include the value of program staff salaries. Where existing staff resources will be utilized for implementation of a specific action, an estimate of the amount of staff time required to complete that task is listed.

Annual Maintenance and other Activities	Estimated Annual Cost
Boundary Line Maintenance (10 miles/year @ $400/mi.)	$4,000
Basic Trail Maintenance – blowdown removal and drainage clearing	$32,100
Conduct biological and chemical surveys of selected unit waters to assess fisheries management needs and to determine progress towards management objectives.	10 person-days
Stock fish in unit water consistent with Bureau of Fisheries policies and the *Programmatic Environmental Impact Statement on Fish Species Management Activities of the Department of Environmental Conservation, Division of Fish and Wildlife (1980).*	$900
Expand the funding for the Summit Steward program to incorporate a weekend presence on Dix Mtn.	$5,000
Remark 1/5 of trails marked with private trail markers with official DEC Foot Trail markers. Establish alternate means of recognizing trail maintenance efforts of other organizations.	$500
Rehabilitation of rock climbing sites and access routes.	$8,000
Establish preferred route(s) to four trail-less peaks.	$5,000
Enact voluntary trail closures during “frost–in” and “frost–out.”	n/a
Total Cost – Annual maintenance and other activities.	$55,510

Year 1 (SFY 2003)	**Estimated Cost**
Rock Climbing LNT Kiosks for Beer Walls, Chapel Pond and King Philips spring.	$3,000
Inventory of fixed expansion bolts in unit.	10 person-days
Convene focus group to develop Adirondack Forest Preserve-wide policy on use of fixed climbing anchors.	50 person-days
Install pit privy at the "Beer Walls"	$500
Install road barricade on access trail from King Phillips spring.	$1,500
Upgrade four trailhead registers to Class II standard design.	$1,200
Trail maintenance – Round Pond-Dix trail.	$8,000
Trail maintenance – Elk Lake-Dix trail.	$8,000
Complete trail logs for all unit trails. Develop priority list of trail maintenance needs.	$3,000
Develop and print DMWA brochure.	$5,000
Promulgate regulations, as identified.	5 person-days
Limit day-use groups to 15 people per group	n/a
Baseline inventory of all established campsites.	$1,500
Develop uniform method of collecting use data across the unit.	3 person-days
Reclaim Twin and Round Ponds.	$6,000
Request DOT sign parking areas on Route 73.	1 person-days
Total Cost – Year 1	$37,769

Year 2 (SFY 2004)	**Estimated Cost**
Trail maintenance – Round Pond-Dix trail	$8,000
Trail maintenance – Elk Lake-Dix trail.	$8,000
Reclaim Rhododendron Pond.	$350
Limit overnight camping to 8 people per group.	n/a
Limit rock climbing groups at Chapel Pond/ "Beer Walls" and King Philips Cliff to 8 people per group.	n/a
Develop assessment process for disabled assess. Identify potential disabled access possibilities in the unit.	10 person-days
Develop LAC guidelines and standards to monitor environmental and sociological conditions.	30 person-days
Relocate or close non-conforming camping sites.	$10,000
Improve disabled access to car-top boat access site at Chapel Pond. Convert existing camping area to 6 car parking area.	$15,000
Total Cost – Year 2	$41,390

Year 3 (SFY 2005)	**Estimated Cost**
Trail maintenance – Round Pond-Dix trail.	$8,000
Reprint DMWA brochure.	$5,000
Total Cost – Year 3	$13,000

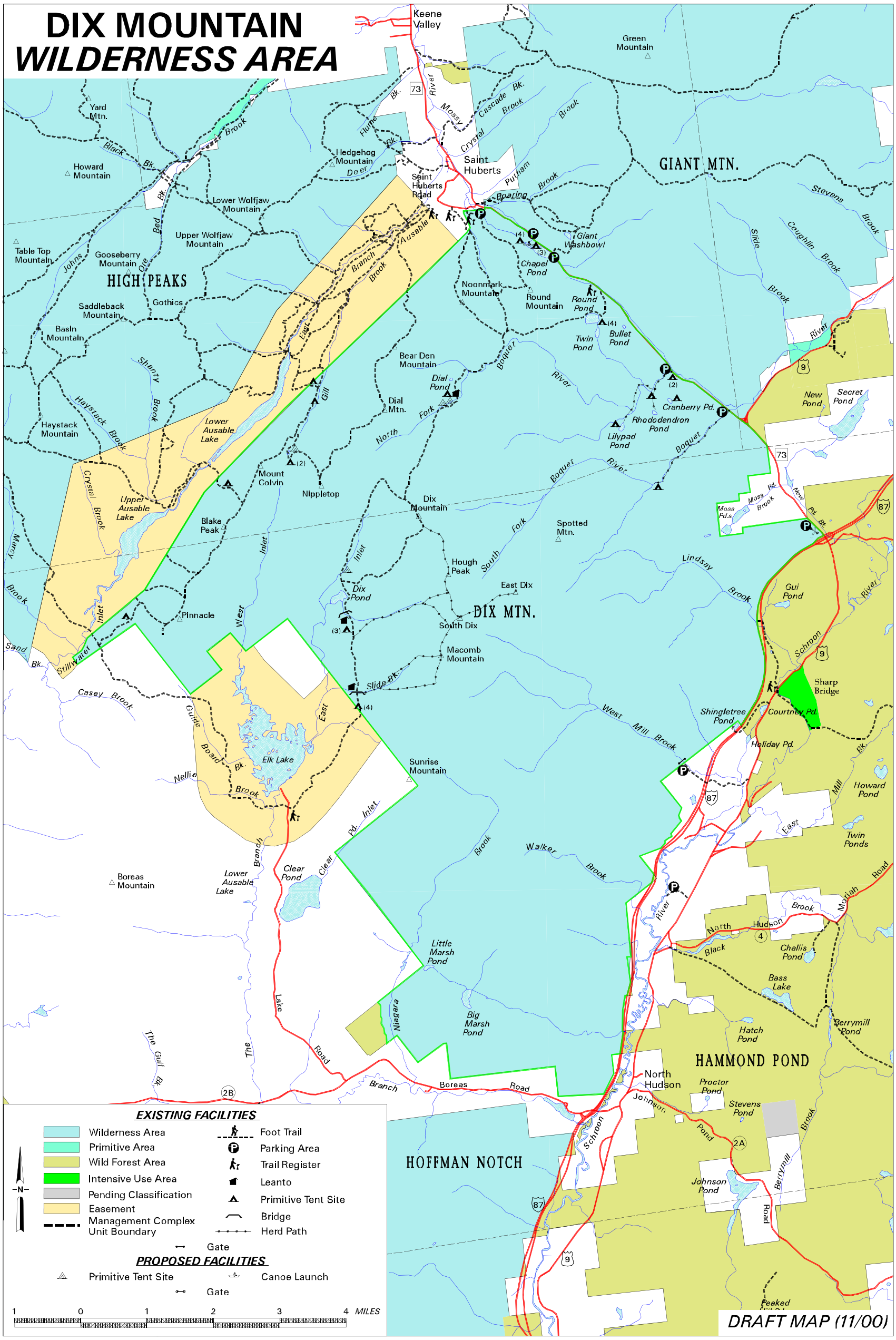
Year 4 (SFY 2006)	**Estimated Cost**
Trail maintenance – Round Pond-Dix trail.	$8,000
Re-measure/monitor all established campsites.	$1,500
Total Cost – Year 4	$9,500

Year 5 (SFY 2007)	Estimated Cost
Trail maintenance – Round Pond-Dix trail.	$8,000
Initiate UMP review and 5–year update.	200 person-days
Total Cost – Year 5	$8,200

Cost Summary

Annual recurring costs:	$ 277,500
Five year annual total:	$ 109,550
Total cost of management:	**$ 387,050**

Appendix I – Unit Map



Appendix II – Facilities

Remote Campsites:	(total 30)	QUANTITY
Chapel Pond		7
Cranberry Pond		1
Elk Pass		2
Gill Brook Trail		1
Lilian Brook		3
Lilypad Pond		1
Mt. Colvin from the Carry Trail		1
North Fork of Bouquet River (interior)		1
North Fork of Bouquet River (adjacent to Rt. 73)		2
Pinnacle from Elk Lake Marcy Trail		1
Rhododendron Pond		1
Round Pond		4
Slide Brook		4
South Fork of Bouquet River		1

Pit Privies:	(total 8)	QUANTITY
Bouquet River Lean-to site		1
Chapel Pond		2
Lilian Brook		2
Round Pond		1
Slide Brook		2

Lean-tos:	(total 3)
Bouquet River	
Lilian Brook	
Slide Brook	

Major Foot Bridges	(total 2)
Lilian Brook	
Slide Brook	

Appendix II – Facilities

Parking Lots	**(total 13)**	
Name	**Location**	**Capacity**
Beer Walls	Rt 73, Town of Keene	24[1]
Bouquet River – North Branch	Rt. 73, Town of North Hudson	10[2]
Bouquet River – South Branch	Rt. 73, Town of North Hudson	10[3]
Chapel Pond	Rt. 73, Town of Keene	10
Elk Lake	Elk Lake Rd., Town of North Hudson	12[4]
King Philips Spring	Rt. 73, Town of North Hudson	25
Lake Road (AMR)	AuSable Club Dr, Town of Keene	20 (by deed)[5]
Round Pond	Rt. 73, Town of Keene	28[6]
Zander Scott Trailhead / Chapel Pond Rock Climbing	Route 73 0.5 mi. east of Chapel Pond	40[7]
Henry L. Stimson Trailhead	Ausable Club Dr, Town of Keene	0[8]
Walker Brook	off Rt 9, Town of North Hudson	3
West Mill Brook	off Rt.9, Town of North Hudson	6
S. Burns Weston Trailhead	Ausable Club Dr, Town of Keene	6

Road Barriers:	**(total 2)**
Elk Lake, private road beyond Clear Pond, closed seasonally, log barrier	
West Mill Brook, at Forest Preserve boundary - steel gate on former log road	

[1] *Total parking, combination of two roadside pulloff areas.*

[2] *Capacity for 5 vehicles off highway and 5 vehicles on highway shoulder*

[3] *Road shoulder parking*

[4] *Provides parking for both DMWA and HPWA trails*

[5] *Provides parking for DMWA, HPWA and AMR easement trails.*

[6] *Capacity of parking lot is 8. Road shoulder parking is approximately 20 cars*

[7] *Estimated road shoulder parking – no official parking area. This area provides shared parking for Giant Mtn trail hikers as well as parking for rock climbers accessing any of a number of cliffs in the immediate vicinity in both the DMWA and GMWA.*

[8] *Parking provided in AMR public parking lot at southerly junction of Ausable Club Dr. and Rt 73*

Trails – Listed by class

49.31 mi. marked trails (56.4 mi. total), including 12.45 mi. on adjacent easements

Location/Name	Length (mi.)	Marker	Maintenance Provided by:	Notes:
Class II Foot Trails – Paths	**12.4 mi total**			
East Dix from South Dix	0.9	*none*	use	Herdpath
Hough Peak from The Beckhorn trail	1	*none*	use	Herdpath
Lilian Brook to Hough/South Dix Col	1.6	*none*	use	Herdpath
Lilian Brook to Macomb/South Dix Col	0.7	*none*	use	Herdpath
Macomb from South Dix	0.8	*none*	use	Herdpath
Macomb via Slide Brook	1.5	*none*	use	Herdpath
North Fork Bouquet River	3.3	*none*	use	Herdpath
South Fork Bouquet River	1.8	*none*	use	Herdpath
South Dix from Hough Peak	0.8	*none*	use	Herdpath
Walker Brook access path	1.8	none	use	Herdpath
West Mill Brook access path	2	none	use	Herdpath
Class III Foot Trails – Primitive Trails	**3.81 mi total**			
Carry Trail to the Colvin range	1.1 (0.3[1])	ATIS	ATIS	
Indian Head via Gill Brook	0.7 (0.7[1])	ATIS	ATIS	
Gill Brook from Indian Head via Fish Hawk Cliffs	0.7 (0.5[1])	ATIS	ATIS	
Pinnacle Ridge to AMR Boundary (1)	0.6	ATIS	ATIS	No public access
Pinnacle Ridge to AMR Boundary (2)	0.7	ATIS	ATIS	No public access
Pinnacle Ridge to AMR Boundary (3)	0.01	ATIS	ATIS	No public access
Class IV Foot Trails – Secondary Trails	**26.9 total**			
Noonmark Mt from Ausable Club Rd.	2.1 (0.5[1])	ATIS	ATIS	Henry L. Stimson Trail
Noonmark via Felix Alder Trail	2.7	ATIS	ATIS	Stimson trail summit via to Dix Trail
Round Mt. from Ausable Club Rd.	3.0 (0.05[1])	ATIS	ATIS	S. Burns Weston Trail
Round Mt. to Felix Alder Trail	0.5	ATIS	ATIS	
Nippletop via the Lake Rd.	5.9 (0.8[1])	ATIS	ATIS	Henry Goddard Leach Trail
Nippletop via Elk Pass	1.5	ATIS	ATIS	
Mt Colvin & Blake Mt via Gill Brook	2.9 (1.4[1])	ATIS	ATIS	
Gill Brook Bypass trail	0.5 (0.5[1])	ATIS	ATIS	
Indian Head via AMR Boathouse	0.8 (0.8[1])	ATIS	ATIS	

[1] *Adirondack Mountain Reserve easement mileage*

Location/Name	Length (mi.)	Marker	Maintenance Provided by:	Notes:
Blake Peak from Elk Lake-Marcy Trail	4	ATIS	ATIS	
Dix Mt via Hunters Pass	3.0	DEC-Red	46-R	
Class V Foot Trails – Primary Trails	**18.6 total**			
Dix Mt. via Round Pond	6.8	DEC-Blue	46-R	
Elk Lake to jct with Hunters Pass & Beckhorn trails	4.3 (1.9[1])	DEC-Red	46-R	
Dix Mt via The Beckhorn	2.3	DEC-Yellow	46-R	
Elk Lake Marcy Trail	5.2 (5.0[1])	DEC-Blue	DEC	
			1.7 mi maintained my ATIS	

[1] *Samuel Bloomingdale (Elk Lake) easement mileage*

TRAIL CLASSIFICATION SYSTEM – DIX MOUNTAIN WILDERNESS AREA

TITLE	EXAMPLE	MARKING	TREAD	BARRIERS	USE LEVEL	ACCEPTABLE MAINTENANCE
I Unmarked Route	Fisherman's Path	None	Intermittently apparent, relatively undisturbed organic soil horizon	Natural obstructions present, logs and water courses	Occasional	None
II Path	Macomb via Slide Brook	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	Carry Trail to the Colvin range	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		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.

TRAIL CLASSIFICATION SYSTEM – DIX MOUNTAIN WILDERNESS AREA

TITLE	EXAMPLE	MARKING	TREAD	BARRIERS	USE LEVEL	ACCEPTABLE MAINTENANCE
V Trunk or Primary Trail	Round Pond trail to Dix Mt.	Markers, signed with more information and warnings.	Wider tread, worn and very evident. Rock exposed, possibly very eroded.	Obstructions only rarely, small streams	High	Same as above; Plus: regular blowdown removal on designated ski trails, non-native materials as last resort, 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. Tread 18"-26", clear 6' wide, 8' high, actual turn piking limited to 2% of trail length.
VI Front Country	none in DMWA	Heavily marked, detailed interpretive signing	Groomed	None	Very High	Extensive grooming, some paving, bark chips, handicapped accessible. This is to be implemented within 500' of wilderness boundary.
VII Horse Trail	none in DMWA	Marked as Trunk or Secondary	Wide tread, must be rather smooth.	Same as Trunk Trail.	Moderate to High	Same as trunk trail, except use techniques appropriate for horses. Bridges: 6' minimum width with kick rails, nonnative dimensional materials preferred. Tread: 2'-4' wide, clear 8' wide, 10' high.
VIII Ski Trail	none in DMWA	Marked High. Special markers, sign at all junctions with hiking trails.	Duff remains. Discourage summer use	Practically none due to hazards.	High	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.

Appendix III – Definitions/Acronyms

ADA	American with Disabilities Act
ADAAG	American with Disabilities Act Accessibility Guidelines
ADK	Adirondack Mountain Club
AFR	Assistant Forest Ranger
ALSC	Adirondack Lakes Survey Corporation
AMR	Adirondack Mountain Reserve, the Ausable Club
ANC	Acid neutralizing capacity
APA	Adirondack Park Agency
APLUDP	Adirondack Park Land Use Development Plan
APSLMP	Adirondack Park State Land Master Plan
ARTC	Adirondack Regional Tourism Council
ATV	All Terrain Vehicle
ATIS	Adirondack Trail Improvement Society
BP	Before Present
CAC	Citizens' Advisory Committee
DEC	New York State Department of Environmental Conservation
DMU	Deer Management Unit
DMWA	Dix Mountain Wilderness Area
DOC	New York State Department of Corrections
DOT	New York State Department of Transportation
ECL	Environmental Conservation Law
EIS	Environmental Impact Statement
EPA	Environmental Protection Act of 1993
EQBA	Environmental Quality Bond Act
FAA	Federal Aviation Administration
FR	Forest Ranger
HPWA	High Peaks Wilderness Area
HPWC	High Peaks Wilderness Complex
LAC	Limits of Acceptable Change

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
ORDA	Olympic Regional Development Authority
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
USFS	United States Forest Service
WMU	Wildlife Management Unit

Appendix IV – Mammalian Inventory

MAMMALS OF THE DIX MOUNTAIN WILDERNESS AREA

SCIENTIFIC NAME	COMMON NAME	HABITAT TYPES	PROTECTED STATUS (NYS)	NATURAL HERITAGE PROGRAM RANK
Alces alces	Moose	DF, MF, CF, wetlands	game species	S1
Blarina brevicauda	Northern Short Tailed Shrew	all habitats	unprotected	S5
Canis latrans	Coyote	all habitats	game species	S5
Castor canadensis	Beaver	MF, adjacent to water	game species	S5
Clethrionomys gapperi	Southern Red-Backed Vole	DF, CF, boreal forest	unprotected	S5
Condylura cristata	Star-nosed Mole	DF, wetlands	unprotected	S5
Didelphis virginian	Virginia Oppossum	villages, roadsides	games species	S5
Eptesicus fuscus	Big Brown Bat	wooded, semi-wooded area	unprotected	S5
Erethizon dorsatum	Porcupine	DF, MF, CF	unprotected	S5
Glaucomys sabrinus	Northern Flying Squirrel	CF, MF	unprotected	S5
Glaucomys volans	Southern Flying Squirrel	DF, MF	unprotected	S5
Lasioncteris noctivagans	Silver-Haired Bat	forests adj. lakes, ponds	unprotected	S4
Lasiurus cinereus	Hairy Bat	DF, MF	unprotected	S4
Lasiurus borealis	Red Bat	all, forested areas	unprotected	S5
Lepus americanus	Varying Hare	CF, MF, alder swamps	game species	S5
Lutra canadensis	River Otter	lakes, ponds, streams	game species	S5
Lynx rufus	Bobcat	DF, MF, CF	game species	S4
Marmota monax	Woodchuck	open areas, DF, roadsides	unprotected	S5
Martes americana	Marten	DF, MF, CF	game species	S3
Martes pennanti	Fisher	DF, MF, CF	game species	S3
Mephitis mephitis	Striped Skunk	open Forests, fields, villages	game species	S5
Microtus pennsylvanicus	Meadow Vole	old fields, bogs, marshes	unprotected	S5
Microtus chrotorrhinus	Rock Vole	moist talus slopes	unprotected	S4

MAMMALS OF THE DIX MOUNTAIN WILDERNESS AREA

SCIENTIFIC NAME	COMMON NAME	HABITAT TYPES	PROTECTED STATUS (NYS)	NATURAL HERITAGE PROGRAM RANK
Microtus pinetorum	Woodland Vole	DF, meadows	unprotected	S5
Mus musculus	House Mouse	buildings	unprotected	SE
Mustela erminea	Ermine	DF, MF, CF, old fields	game species	S5
Mustela vison	Mink	forested wetlands	game species	S5
Mustelas frenata	Long-tailed Weasel	old fields, DF	game species	S5
Myotis leibii	Small-footed Bat	unknown/caves	special concern	S1
Myotis keea	Keenes Myotis	woodlands buildings	protected	S5
Myotis sodalis	Indiana Bat (Indiana Myotis)	caves (winter) summer (unk.)	endangered	S1
Myotis lucifugus	Little Brown Bat	buildings, caves	unprotected	S5
Odocoileus virginianus	White-tailed Deer	DF, MF, CF	game species	S5
Ondatra zibethicus	Muskrat	marshes, rivers w/cattail	game species	S5
Parascalops breweri	Hairy-tailed mole	DF	unprotected	S5
Peromyscus leucopus	White-footed Mouse	woodland edges, DF, CF, MF	unprotected	S5
Peromyscus maniculatus	Deer Mouse	DF, CF, MF, open areas	unprotected	S5
Pipistrellus subflavusl	Eastern Pipistrelle	open areas, woodland edges	unprotected	S5
Procyon lotor	Raccoon	DF, MF, CF, adjacent to water	game species	S5
Rattus norvegicus	Norway Rat	buildings	unprotected	SE
Sciurus carolinensis	Gray Squirrel	mature DF, villages, towns	game species	S5
Sorex palustris	Water Shrew	high elevation, woodlands	unprotected	S4
Sorex dispar	Longtailed or Rock Shrew	talus slopes	unprotected	S4
Sorex hoyi	Pygmy Shrew	woodland edges	unprotected	S4
Sorex fumeus	Smokey Shrew	DF, MF	unprotected	S5
Sorex cinereus	Masked Shrew	all habitat with ground cover	unprotected	S5

MAMMALS OF THE DIX MOUNTAIN WILDERNESS AREA

SCIENTIFIC NAME	COMMON NAME	HABITAT TYPES	PROTECTED STATUS (NYS)	NATURAL HERITAGE PROGRAM RANK
Sylvigaus transitionalis	New England Cottontail	forests edges, brushy areas	game species	S3
Sylvilagus floridanus	Eastern Cottontail	fields, bogs, brushy areas	game species	S5
Synaptomys cooperi	Southern Bog Lemming	DF, bogs	unprotected	S4
Tamias striatus	Eastern Chipmunk	DF, MF, hedgerows	unprotected	S5
Tamiasciurus hudsonicus	Red Squirrel	CF, MF	unprotected	S5
Urocyon cinereoargenteus	Gray Fox	lightly wooded, brushy areas	game species	S5
Ursus americanus	Black Bear	DF, CF, MF	game species	S5
Vulpes vulpes	Red Fox	woodland edges, DF, open areas	game species	S5
Zapus hudsonius	Meadow Jumping Mouse	open and brush areas in swamp	unprotected	S5

Habitat Keys:

CF – Coniferous Forests

DF – Deciduous Forests

MF – Mixed Forests

Brush – Brushy areas, usually abandoned farmlands

* Based on NYSDEC Vertebrate Abstract Data; Significant Habitat Unit, Delmar, New York

Appendix V -- Amphibian Inventory

AMPHIBIANS OF THE DIX MOUNTAIN WILDERNESS AREA

SCIENTIFIC NAME	COMMON NAME	HABITAT TYPES	PROTECTED STATUS (NYS)	NATURAL HERITAGE PROGRAM RANK
Ambystoma maculatum	Spotted Salamander	DW, pools	special concern	S5
Ambystoma laterale	Blue-spotted Salamander	DW, MF, pools	special concern	S4
Bufo americanus	American Toad	all areas	unprotected	S5
Desmognathus ochrophaeus	Mountain Dusky Salamander	logs adjacent to streams	unprotected	S5
Desmognathus fuscus	Dusky Salamander	streams	unprotected	S5
Eurycea bislineata	Two-lined Salamander	streams	unprotected	S5
Gyrinophilus porhyriticus	Spring Salamander	streams, wetlands	unprotected	S5
Hyla versicolor	Gray Treefrog	forests near streams, pools	unprotected	S5
Notophthalmus viridescens	Red-Spotted Newt	DF, MF, lakes, ponds	unprotected	S5
Plethodon cinereus	Redback Salamander	all woodlands	unprotected	S5
Rana clamitans	Green Frog	swamps, lakes, ponds, pools	game species	S5
Rana catesbeiana	Bullfrog	swamps, lakes, ponds, pools	game species	S5

Habitat Keys:

CF - Coniferous Forests

DF - Deciduous Forests

MF - Mixed Forests

Pools - Vernal pools or quiet water needed for breeding

Streams - Lives in, or adjacent to streams, or springs, wetlands

* Based on NYSDEC Vertebrate Abstract Data; Significant Habitat Unit, Delmar, New York

Appendix VI – Reptile Inventory

REPTILES OF THE DIX MOUNTAIN WILDERNESS AREA

SCIENTIFIC NAME	COMMON NAME	HABITAT TYPES	PROTECTED STATUS (NYS)	NATURAL HERITAGE PROGRAM RANK
Caelydra serpentina	snapping turtle	marshes, rivers, bogs, lakes	unprotected	S5
Chrysemys picta	painted turtle	marshes, rivers, bogs, lakes	unprotected	S5
Clemmys insculpta	wood turtle	woodlands adj. to ponds, brooks	special concern	S4
Diaophis punctatus	ringneck snake	moist woodlands	unprotected	S5
Lampropeltis triagulum	milk snake	DF, CF, MF, brush	unprotected	S5
Nerodia sipedon	northern water snake	Lakes, ponds, rivers, bogs	unprotected	S5
Orpheodrys vernalis	smooth green snake	meadows, grassy marshes	unprotected	S5
Storeria occipitomaculata	redbelly snake	moist woodlands, bogs	unprotected	S5
Storeria dekayi	brown snake	all, esp. old growth forests	unprotected	S5
Thamnophis sauritus	eastern ribbon snake	adj. to streams, swamps	unprotected	S5
Thamnophis sirtalis	common garter snake	All	unprotected	S5

Habitat Keys:

CF - Coniferous Forests

DF - Deciduous Forests

MF - Mixed Forests

Brush - Brushy areas, usually abandoned farmlands

* Based on NYSDEC Vertebrate Abstract Data; Significant Habitat Unit, Delmar, New York

Appendix VII – Consumptive Recreation

New York State Deer Take by Town

	Keene (Town)		North Hudson (Town)		TOTAL	
Year	Bucks	Total	Bucks	Total	Bucks	Total
2001	98	106	29	33	168	139
2000	99	108	55	57	154	165
1999	66	71	46	48	112	119
1998	42	47	47	53	89	100
Annual average take	87	83	44	48	131	131
Percentage of Town in DMWA	13%	13%	26%	26%	20%	20%
Estimated annual take in DMWA	11	11	11	12	26	26

New York State Bear Take by Town

Year	Keene (Town)	North Hudson (Town)	TOTAL
2001	12	5	17
2000	14	10	24
1999	3	5	8
1998	1	5	6
Annual average take	8	6	14
Percentage of Town in DMWA	13%	26%	20%
Estimated annual take in DMWA	1	2	3

New York State Furbearer Harvest by Town

Town	2000-01	1999-2000	1998-1999	Annual Average
	BEAVER			
Keene	6	7	53	22
North Hudson	22	45	16	28
Total	28	52	69	50
	FISHER			
Keene	6	17	12	12
North Hudson	32	34	13	26
Total	38	51	25	38
	OTTER			
Keene	2	0	1	1
North Hudson	10	7	2	6
Total	12	7	3	7
	BOBCAT			
Keene	0	0	4	1
North Hudson	0	0	0	0
Total	0	0	4	1
	COYOTE			
Keene	0	11	0	4
North Hudson	1	2	0	1
Total	1	13	0	5
	MARTEN			
Keene	0	13	0	4
North Hudson	1	16	0	6
Total	1	29	0	10

Appendix VIII – Rare Communities and Species

Rare Communities and Species Documented by the Natural Heritage Program

Quality of Occurrence	Quad Map	Scientific Name	Common Name	Global Rank	State Rank	Most Recent Observation
Communities						
B	Dix Mountain		alpine krummholz	G3G4	S2	1989
A	Dix Mountain		beech-maple mesic forest	G4	S4	1990
B	Dix Mountain		cliff community	G5	S4	1989
E	Dix Mountain		mountain fir forest	G3G4	S2S3	1989
A	Dix Mountain		mountain spruce-fir forest	G2G3	S2	1990
C	Dix Mountain		alpine meadow	G3G4	S1	1989
AB	Dix Mountain		spruce-northern hardwood forest	G3G4	S3S4	1989
A	Dix Mountain		spruce-fir rocky summit	G4	S3S4	1996
A	Keene Valley		acidic talus slope woodland	G4	S3S4	1997
A	Keene Valley		hemlock-northern hardwood forest	G4G5	S4	1992
E	Keene Valley		alpine meadow	G3G4	S1	1989
A	Mount Marcy		spruce-northern hardwood forest	G3G4	S3S4	1998
A	Paradox Lake		riverside sand/gravel bar	G5	S5	1995
	Underwood		spruce-fir rocky summit	G4	S3S4	1996
Vascular Plants						
E	Dix Mountain	*Agrostis mertensii*	northern bentgrass	G5	S2	1989
D	Dix Mountain	*Draba arabisans*	rock-cress	G4	S2	1989
BC	Dix Mountain	*Dryopteris fragrans*	fragrant cliff fern	G5	S1	1989
E	Dix Mountain	*Empetrum nigrum ssp hermaphroditum*	black crowberry	G5T5	S3	1989
D	Dix Mountain	*Juncus trifidus*	arctic rush	G5	S2	1989
H	Dix Mountain	*Saxifraga paniculata*	white mountain-saxifrage	G5	S1	1965
BC	Dix Mountain	*Solidago simplex var randii*	mountain goldenrod	G5T4	S2	1989

Rare Communities and Species Documented by the Natural Heritage Program

Quality of Occurrence	Quad Map	Scientific Name	Common Name	Global Rank	State Rank	Most Recent Observation
E	Dix Mountain	*Vaccinium boreale*	high-mountain blueberry	G4	S2	1989
CD	Dix Mountain	*Woodsia glabella*	smooth woodsia	G5	S1	1989
C	Keene Valley	*Agrostis mertensii*	northern bentgrass	G5	S2	1989
H	Keene Valley	*Carex cumulata*	clustered sedge	G4	S2S3	1941
C	Keene Valley	*Empetrum nigrum ssp hermaphroditum*	black crowberry	G5T5	S3	1989
C	Keene Valley	*Scirpus cespitosus*	deer's hair sedge	G5	S2	1989
C	Keene Valley	*Solidago multiradiata var arctica*	alpine goldenrod	G5T4	S2	1989
H	Rocky Peak Ridge	*Poa glauca*	white bluegrass	G5	S1	1960
Birds						
A	Rocky Peak Ridge	*Falco peregrinus*	peregrine falcon	G4	S3B, SZN	2001

Source: New York Natural Heritage Program Database
Young (2001) and Regan (2001)

Technical Reference: Mitchell and Tucker (1997)

Quality of Occurrence:

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

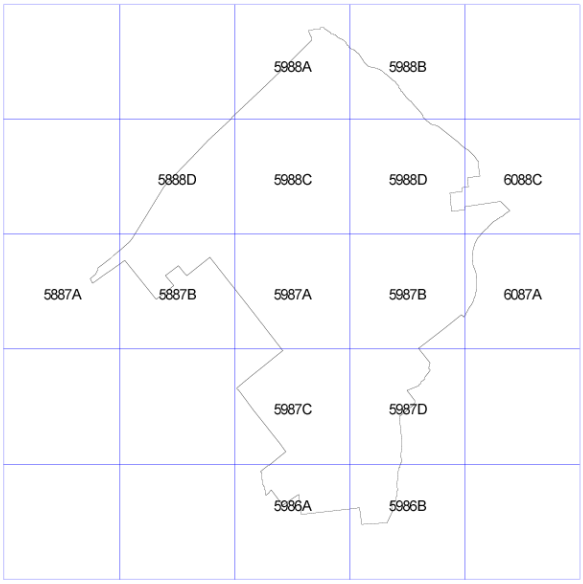
Appendix IX – Birds

NEW YORK STATE BREEDING BIRD ATLAS

BREEDING SPECIES OF THE DIX MOUNTAIN AREA - 2000

Alphabetical Order by Scientific Name

Summary of the following survey blocks covering the DMWA:



		Number of Blocks			
Scientific Name	**Common Name**	**Possible**	**Probable**	**Confirmed**	**TOTAL**
	KITES, EAGLES, HAWKS & ALLIES				
Buteo jamaicensis	red-tailed hawk	1	1	1	3
Circus cyaneus	northern harrier	--	--	1	1
Accipiter gentilis	northern goshawk	1	1	--	2
Buteo platypterus	broad-winged hawk	--	2	4	6
Accipiter striatus	sharp-shinned hawk	1	--	1	2
Pandion haliaetus	osprey	--	1	1	2

		Number of Blocks			
Scientific Name	**Common Name**	**Possible**	**Probable**	**Confirmed**	**TOTAL**
	KINGFISHERS				
Ceryle alcyon	belted kingfisher	3	2	3	8
	SWANS, GEESE & DUCKS				
Anas platyrhynchos	mallard	--	--	1	1
Anas rubripes	American black duck	1	--	1	2
Aix sponsa	wood duck	--	1	1	2
Lophodytes cucullatus	hooded merganser	--	1	1	2
Mergus merganser	common merganser	4	--	1	5
	SWIFTS				
Chaetura pelagica	chimney swift	--	3	2	5
	BITTERNS, HERONS & ALLIES				
Ardea herodias	great blue heron	--	1	2	3
Butorides virescens	green heron	--	--	1	1
Botaurus lentiginosus	American bittern	--	1	1	2
	WAXWINGS				
Bombycilla cedrorum	cedar waxwing	5	5	2	12
	GOATSUCKERS				
Chordeiles minor	common nighthawk	--	--	1	1
Caprimulgus vociferus	whip-poor-will	--	1	1	2
	GROSBEAKS & BUNTINGS				
Pheucticus ludovicianus	rose-breasted grosbeak	3	5	3	11
Passerina cyanea	indigo bunting	1	1	5	7
Cardinalis cardinalis	northern cardinal	--	--	1	1
	VULTURES				
Cathartes aura	turkey vulture	--	1	1	2
	CREEPERS				
Certhia americana	brown creeper	1	2	2	5
	PLOVERS & LAPWINGS				
Charadrius vociferus	killdeer	1	--	1	2
	PIGEONS & DOVES				
Zenaida macroura	mourning dove	2	2	7	11
	JAYS, MAGPIES & CROWS				
Corvus brachyrhynchos	American crow	2	1	3	6
Cyanocitta cristata	blue jay	2	3	9	14
Corvus corax	northern raven	1	2	5	8

		Number of Blocks			
Scientific Name	**Common Name**	**Possible**	**Probable**	**Confirmed**	**TOTAL**
	CUCKOOS, ROADRUNNERS & ANIS				
Coccyzus erythropthalmus	black-billed cuckoo	--	1	1	2
	TOWHEES, BUNTINGS, SPARROWS & ALLIES				
Junco hyemalis	dark-eyed junco	1	4	4	9
Passerculus sandwichensis	savannah sparrow	--	--	1	1
Spizella passerina	chipping sparrow	5	3	4	12
Melospiza lincolnii	Lincoln's sparrow	1	--	1	2
Spizella pusilla	field sparrow	1	--	1	2
Melospiza melodia	song sparrow	3	3	4	10
Pipilo erythrophthalmus	eastern towhee	--	--	1	1
Zonotrichia albicollis	white-throated sparrow	9	3	3	15
Melospiza georgiana	swamp sparrow	1	--	3	4
	CARACARAS & FALCONS				
Falco peregrinus	peregrine falcon	1	--	1	2
Falco sparverius	American kestrel	--	--	1	1
	FINCHES				
Coccothraustes vespertinus	evening grosbeak	--	1	3	4
Carduelis pinus	pine siskin	--	--	1	1
Carduelis tristis	American goldfinch	--	6	2	8
Carpodacus mexicanus	house finch	--	--	1	1
Carpodacus purpureus	purple finch	1	3	6	10
	LOONS				
Gavia immer	common loon	1	--	2	3
	SWALLOWS				
Hirundo rustica	barn swallow	4	2	1	7
Tachycineta bicolor	tree swallow	6	3	3	12
Petrochelidon pyrrhonota	cliff swallow	1	--	--	1
Riparia riparia	bank swallow	2	--	2	4
	BLACKBIRDS				
Molothrus ater	brown-headed cowbird	--	3	--	3
Dolichonyx oryzivorus	bobolink	--	--	2	2
Agelaius phoeniceus	red-winged blackbird	2	2	5	9
Euphagus carolinus	rusty blackbird	--	1	2	3
Icterus galbula	Baltimore oriole	1	1	1	3
Quiscalus quiscula	common grackle	7	1	2	10

		Number of Blocks			
Scientific Name	**Common Name**	**Possible**	**Probable**	**Confirmed**	**TOTAL**
	SKUAS, GULLS, TERNS & SKIMMERS				
Larus argentatus	herring gull	--	--	1	1
	MOCKINGBIRDS, THRASHERS & ALLIES				
Toxostoma rufum	brown thrasher	1	1	1	3
Dumetella carolinensis	gray catbird	1	4	1	6
	CHICKADEES & TITMICE				
Poecile hudsonicus	boreal chickadee	--	--	5	5
Poecile atricapillus	black-capped chickadee	6	6	3	15
	WOOD WARBLERS				
Dendroica petechia	yellow warbler	--	1	3	4
Dendroica coronata	yellow-rumped warbler	2	9	2	13
Geothlypis trichas	common yellowthroat	4	5	4	13
Vermivora ruficapilla	Nashville warbler	4	2	4	10
Dendroica castanea	bay-breasted warbler	--	--	1	1
Seiurus aurocapillus	ovenbird	7	4	3	14
Dendroica fusca	Blackburnian warbler	2	6	6	14
Seiurus noveboracensis	northern waterthrush	-	1	1	2
Dendroica magnolia	magnolia warbler	1	3	5	9
Setophaga ruticilla	American redstart	7	3	5	15
Dendroica pensylvanica	chestnut-sided warbler	3	3	3	9
Vermivora peregrina	Tennessee warbler	--	--	1	1
Parula americana	northern parula	--	1	1	2
Mniotilta varia	black-and-white warbler	3	1	8	12
Wilsonia canadensis	Canada warbler	2	2	7	11
Dendroica caerulescens	black-throated blue warbler	4	5	2	11
Oporornis philadelphia	mourning warbler	--	--	1	1
Dendroica striata	blackpoll warbler	3	1	3	7
Dendroica virens	black-throated green warbler	3	5	7	15
	PARTRIDGES, GROUSE & TURKEYS				
Bonasa umbellus	ruffed grouse	5	1	3	9
Meleagris gallopavo	wild turkey	--	--	1	1
	WOODPECKERS & ALLIES				
Colaptes auratus	northern flicker	2	1	4	7
Picoides villosus	hairy woodpecker	6	2	3	11
Dryocopus pileatus	pileated woodpecker	1	3	5	9

		Number of Blocks			
Scientific Name	**Common Name**	**Possible**	**Probable**	**Confirmed**	**TOTAL**
Sphyrapicus varius	yellow-bellied sapsucker	7	3	2	12
Picoides pubescens	downy woodpecker	4	1	2	7
Picoides arcticus	black-backed woodpecker	--	1	--	1
	RAILS, GALLINULES & COOTS				
Rallus limicola	Virginia rail	1	--	--	1
	KINGLETS				
Regulus calendula	ruby-crowned kinglet	--	1	1	2
Regulus satrapa	golden-crowned kinglet	2	2	7	11
	SANDPIPERS, PHALAROPES & ALLIES				
Actitis macularia	spotted sandpiper	--	--	3	3
Scolopax minor	American woodcock	1	1	1	3
	NUTHATCHES				
Sitta canadensis	red-breasted nuthatch	3	4	6	13
Sitta carolinensis	white-breasted nuthatch	1	4	5	10
	TYPICAL OWLS				
Bubo virginianus	great horned owl	--	--	1	1
Strix varia	barred owl	--	--	4	4
Asio otus	long-eared owl	--	--	2	2
	STARLINGS & ALLIES				
Sturnus vulgaris	European starling	1	--	2	3
	TANAGERS				
Piranga olivacea	scarlet tanager	--	2	4	6
	HUMMINGBIRDS				
Archilochus colubris	ruby-throated hummingbird	1	2	5	8
	WRENS				
Troglodytes troglodytes	winter wren	3	5	2	10
Troglodytes aedon	house wren	1	--	--	1
	THRUSHES				
Turdus migratorius	American robin	7	2	2	11
Catharus bicknelli	Bicknell's thrush	1	--	1	2
Catharus fuscescens	veery	3	4	6	13
Sialia sialis	eastern bluebird	--	--	2	2
Catharus ustulatus	Swainson's thrush	1	3	5	9
Hylocichla mustelina	wood thrush	--	5	6	11
Catharus guttatus	hermit thrush	2	4	5	11

		Number of Blocks			
Scientific Name	**Common Name**	**Possible**	**Probable**	**Confirmed**	**TOTAL**
	TYRANT FLYCATCHERS				
Tyrannus tyrannus	eastern kingbird	2	3	2	7
Sayornis phoebe	eastern phoebe	2	1	2	5
Contopus virens	eastern wood-pewee	--	4	3	7
Empidonax alnorum	alder flycatcher	1	3	4	8
Empidonax flaviventris	yellow-bellied flycatcher	1	--	3	4
Empidonax minimus	least flycatcher	2	3	6	11
Myiarchus crinitus	great crested flycatcher	1	2	5	8
Contopus cooperi	olive-sided flycatcher	--	2	4	6
	VIREOS				
Vireo gilvus	warbling vireo	--	3	--	3
Vireo olivaceus	red-eyed vireo	5	5	5	15
Vireo philadelphicus	Philadelphia vireo	--	1	--	1
Vireo solitarius	blue-headed vireo	5	4	3	12

Appendix X – 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

This list of ponded waters in the Dix Mountain Wilderness was obtained from the NYS Biological Survey. One pond (P5457 UH) is listed in the Biological Survey but is now drained (apparently it was a beaver flow). That former pond is included in the following discussion and in Tables 1 and 2, for consistency with the Biological Survey. However, the acreages have been reduced to reflect conditions as observed in the field. Also, three ponds are shown on recent topographic maps but were not included in the Biological Survey. Those waterbodies are very small and may be ephemeral. They, too, are included in the following.

1. **Chapel Pond** (CH-P274)

   Chapel Pond is the largest pond in the Dix Mountain Wilderness with a surface area of 19 acres and a maximum depth of 85 ft. Round whitefish, listed as endangered in New York State, are present in Chapel Pond. A total of three round whitefish were collected in 1986 (an ALSC survey); none in 1998; and one each in 1999 and 2000. Those surveys did not target round whitefish specifically, but nets were set for coldwater fishes, which would include round whitefish. Thus, the catch rates (0.5 per experimental-gillnet-night in 1999 and 2000) indicate a low abundance of round whitefish. In addition to round whitefish, Chapel Pond supports brook and rainbow trout sustained by stocking, white suckers, golden shiners (non-native), and creek chubs (native but widely introduced).

   Round whitefish are listed as endangered in New York, so possession of them is illegal. Signs are/will be posted at Chapel Pond to inform anglers of the presence, and protected status, of round whitefish. Furthermore, round whitefish are not commonly taken by angling. Therefore the level of protection

afforded by current procedures is considered adequate to protect the round whitefish from population level effects of harvest. However, the possible introduction of additional nonnative fishes is a threat to the round whitefish population in Chapel Pond. The use of fish as bait is prohibited in Chapel Pond. Also, stocking of fish by any entity other than DEC is prohibited in all waters of the state, unless a permit is obtained from the Department. Those regulations provide a level of protection from introductions of nonnative fishes. Additional, viable procedures to deter direct human introductions of fishes are not available.

Concern has been expressed about potential impacts of salt, from road deicing, on the aquatic life of Chapel Pond. ALSC analyses indicated very low concentrations of salt (chemical composition is NaCl): Cl averaged 0.89 mg/l and Na averaged 0.96 mg/l in the 1986 ALSC samples. Those concentrations are relatively similar to nearby Lilypad Pond with no road located upstream (Cl averaged 0.40 mg/l and Na averaged 1.48 mg/l in the 1984 ALSC samples). In contrast, average concentrations in Upper Cascade Lake were 28.8 mg/l Cl, and 11.8 mg/l Na in the 1984 sample. Nor is there evidence of any substantial increase in salt concentrations in Chapel Pond since 1984. Na and Cl have not been specifically analyzed in more recent samples. However conductivity measurements are available, and conductivity would have increased if salt concentrations had increased. Conductivity measurements for Chapel Pond averaged 27.3 in 1986, 23.2 in 1998, 28.0 in 1999, and 27.0 in 2000. Again for comparison, conductivities in Upper Cascade Lake averaged 117 in 1984 and 321 in 2001. The concentrations for all of the above waters are well below levels where chronic (or acute) toxicity is expected for fish or invertebrates.

Chapel Pond will continue to be managed as a coldwater pond to preserve its native fishes in the presence of nonnative species. The pond will be reclaimed upon the establishment of additional non-natives and/or a decline in round whitefish. Following a reclamation, management will emphasize round whitefish in combination with brook trout. When a reclamation is determined to be appropriate, the UMP will be amended to include the reclamation in the Schedule for Implementation, and the pond narrative will be revised to reflect the new survey data.

Management Class: Coldwater

2. **Bullet Pond** (CH-P327)

Bullet Pond is a small, 1.2 acre, waterbody with a maximum depth of 4 ft. Bullet Pond is apparently fishless, as no fish were collected during the 1986 ALSC survey.

Bullet Pond will be will be managed to preserve its aquatic habitat.

Management class: Other

3. **Twin Pond** (CH-P328)

Twin Pond is small, 4.4 acres, and supports: two non-native fishes, golden shiners and bluntnose minnows; three native-but-widely introduced fishes, brown bullheads, pumpkinseeds and, based on an early survey, creek chubs; and blacknose dace and white suckers. Twin Pond is closely connected to Round Pond which is located shortly upstream. A small, low gradient stream about 200 ft long connects the two ponds.

Twin Pond will be reclaimed along with Round Pond to eliminate non-native fishes. Subsequent management will emphasize the native brook.

Management Class: Adirondack Brook Trout

4. **Round Pond** (CH-P329)

   Round Pond has a surface area of 17.2 acres and a maximum depth of 36 ft. The most recent fishery survey collected brook trout sustained by stocking, the non-native golden shiners, native-but-widely introduced brown bullhead and pumpkinseed, as well as white suckers. Round Pond is closely connected to Twin Pond and probably contains the additional fishes listed as present in Twin Pond. Round Pond will be reclaimed in conjunction with Twin Pond and will be stocked with an Adirondack Heritage Strain of brook trout. In addition, Round Pond may have habitat suitable to sustain round whitefish. A survey during late July, 1984 found favorable temperatures and dissolved oxygen in deep sections of the pond. If a suitable source for round whitefish can be developed, they will be stocked following the reclamation to increase their security in the Dix Mountain Unit, and in the state overall.

   Round Pond will be reclaimed in conjunction with Twin Pond, and will be managed as an Adirondack Brook Trout pond. If round whitefish are successfully established, the pond's management class will be considered to be coldwater.

   Management Class: Adirondack Brook Trout

5. **Lilypad Pond** (CH-P330)

   Lilypad Pond has a surface area of 4.2 acres and a maximum depth of 4 ft. The pond supports brook trout sustained by stocking, the non-native golden shiner, the native-but-widely introduced creek chub, and black nose dace.

   Lilypad Pond will be managed as an Adirondack brook trout pond to preserve its native fishes in the presence of nonnative species.

   Management Class: Adirondack Brook Trout

6. **Cranberry Pond** (CH-P332)

   Cranberry Pond is small, 2.5 acres, with a maximum depth of 3.6 ft. A 1984 survey collected no fish. A low pH (5) and its shallow depth which makes winter-kill likely probably contribute to the absence of fish in this pond.

   Cranberry Pond will be managed to preserve its aquatic habitat.

   Management class: Other

7. **Rhododendron Pond** (CH-P333)

   Rhododendron Pond has a surface area of 2.2 acres and a maximum depth of 12.5 ft. A 1984 fisheries survey collected brook trout sustained by stocking, non-native golden shiners, and native-but-widely introduced brown bullhead. The pond is reclaimable based on an inspection during 2000. Expectations are to reclaim the pond and restock with native brook trout.

   Rhododendron Pond will be reclaimed and will be managed as an Adirondack Brook Trout pond.

   Management Class: Adirondack Brook Trout

8. **Big Marsh Pond** (UH-P454)

   Big Marsh Pond has a surface area of 19 acres and a maximum depth of 14 ft. A 1987 fisheries survey collected brook trout sustained by stocking, the non-native golden shiner, native but widely introduced

creek chubs and brown bullheads, and northern redbelly dace. A site inspection in 2000 found a large area of wetlands on the pond.

Big Marsh Pond will be managed as an Adirondack brook trout pond to preserve its native fishes in the presence of nonnative species.

Management Class: Adirondack Brook Trout

9. **Little Marsh Pond** (UH-P455)

Little Marsh Pond has a surface area of 5 acres. A fisheries survey has not been conducted. A site inspection in 2000 determined that a large area of wetlands is present on the pond.

Little Marsh Pond will be managed to preserve its aquatic habitat.

Management class: Other

10. **Dix Pond** (UH-P460a)

Dix Pond is an 18-acre water body with a maximum depth of 4 ft. A 1987 survey collected brook trout, creek chubs and white suckers. Dix Pond is the natal water for the Dix Pond heritage strain of brook trout, and the pond is the only location presently sustaining that strain. The status of the strain in Dix Pond will be monitored. Of particular concern would be the establishment of additional competing fishes in this pond.

The Dix Pond strain of brook trout should be established in additional waterbodies to reduce its potential for extinction. Department resources are presently being directed towards other heritage strains of brook trout. However, when circumstances permit and when suitable recipient waters are available, expectations are to transfer Dix strain brook trout to additional waters. That process will require helicopter access for staff and collecting gear, and to bring out the fish or eggs with minimum stress to the fish or eggs. Substantial difficulties are involved with transferring either eggs or fish. First, a minimum of 100 fish (50 pairs) are recommended to assure obtaining the full genetic diversity of the population. Obtaining eggs from that many pairs in Dix Pond is likely to be very difficult. For example, a test netting on October 17 - 20, 2000 collected 37 brook trout, but only four were ripe females (11 were ripe males). At a rate of four pairs after three days of the net fishing, several spawning seasons would likely be required to obtain the desired number of pairs. Transferring eggs would also require use of hatchery facilities which is problematic. Transferring fish requires a sizable quantity of water and relatively quick delivery to the recipient water. Nevertheless, transferring fish, instead of eggs would probably be the preferred procedure.

While establishing populations in other ponds is the best procedure to continue the strain's survival, the Dix strain needs to be protected within Dix Pond. A major threat to the strain within the pond is the possible introduction of additional competing, or predacious, fishes. Regulations prohibit the use of fish as bait in the Dix Unit, and stocking of fish by any entity other than the DEC without a permit from the Department is illegal. Those regulations provide a level of protection from introductions of nonnative fishes. The relative remoteness of the pond (a 4 mile hike) is a deterrent to carrying in a bucket of live fish in additional to fishing gear. Additional, viable procedures to deter direct human introductions of fishes are not available.

Dix Pond will be managed to protect the Dix Pond strain of brook trout. Management will include a reclamation if additional fish introductions threaten this population and if a refuge population can be established for restocking. When a reclamation is determined to be appropriate, the UMP will be

amended to include the reclamation in the Schedule for Implementation, and the pond narrative will be revised to reflect the new survey data.

Management class: Adirondack Brook Trout

11. **Unnamed Pond** (UH-P5457)

    An onsite inspection during 2000 determined that this pond was dry. It is listed herein for consistency with the Biological Survey Database.

    Management class: (drained)

12. **Dial Pond** (CH but no pond number assigned)

    This small, 1 acre, pond has not been surveyed.

    Management class: Unknown

13. **Unnamed Ponds** (3) (On the divide between CH and UH, but no pond numbers assigned)

    This cluster of three very small ponds, with a combined area of less than 1 acre, has not been surveyed.

    Management class: Unknown

14. **Unnamed Pond** (UH but no pond number assigned)

    This 5 acre pond has not been surveyed. It is shown as a pond on some maps and a wetland on other maps. Thus, it is apparently very shallow and is unlikely to support fish during winter ice conditions and during drought conditions.

    Management class: Unknown

Appendix XI – Ponded Water Survey Data

Table 1. Dix Mountain Wilderness – Ponded Water Physical Data

Name	P#	File	Wshed[1]	County	USGS Quad (7.5')	Area[2] (ac.)	Max. Depth (ft.)	Mean Depth (ft)	Last Chemistry Survey Year	Source[3]	ANC (ueq/l)	pH	Conductivity
Chapel Pond	274	317	CH	Essex	Rocky Peak Ridge	19.3	85.0	31.0	1986	ALSC	74	6.9	28
Bullet Pond	327	366	CH	Essex	Underwood	1.2	4.0	3.0	1986	ALSC	55	6.6	18
Twin Pond	328	367	CH	Essex	Underwood	4.4	8.0		1973	ALSC		6.9	
Round Pond	329	367	CH	Essex	Underwood	17.2	36.0	14.0	1984	ALSC	85	6.9	22
Lilypad Pond	330	369	CH	Essex	Underwood	4.2	4.0	2.7	1984	ALSC	319	7.6	45
Cranberry Pond	332	371	CH	Essex	Underwood	2.5	3.6	2.0	1984	ALSC	5	5.0	10
Rhododendron Pond	333	372	CH	Essex	Underwood	2.2	12.5	6.0	1984	ALSC	36	6.4	18
Big Marsh Pond	454	787	UH	Essex	Blue Ridge	19.0	14.0	4.7	1987	ALSC	170	7.2	30
Little Marsh Pond	455	788	UH	Essex	Blue Ridge	4.9							
Dix Pond	460a	800	UH	Essex	Dix Mountain	18.0	4.0	2.7	1987	ALSC	165	6.8	28
Unnamed Pond	5457	none	UH	Essex	Underwood	0.0			none				
Dial Pond	none	none	CH	Essex	Dix Mountain	1.0			none				
Unnamed Ponds (3)	none	none	UH/CH	Essex	Dix Mountain	0.9			none				
Unnamed Pond	none	none	UH	Essex	Paradox Lake	5.0			none				
					Total area	99.8							

[1] *CH – Champlain Watershed; UH – Upper Hudson Watershed*

[2] *New York State Biological Services Unit*

[3] *ALSC – Adirondack Lakes Survey Corporation*

Table 2. Dix Mountain Wilderness – Ponded Water Biological Data

Name	P#	File	Wshed[1]	Mgt. Class	Area[2] (ac.)	Max Depth (ft)	Last Biological Survey Year	Source	Fish Species Present and Number Caught[3]
Chapel Pond	274	317	CH	Coldwater	19.3	85.0	2000	DEC	RW(1), ST (3), RT(1), WS(16), GS, CC
Bullet Pond	327	366	CH	Other	1.2	4.0	1986	ALSC	None caught
Twin Pond	328	367	CH	Adk. Brook	4.4	8.0	1973	DEC	GS(10), BNM(16), BND(13), WS(7), BHC(1), PKS(34), CC.
Round Pond	329	367	CH	Adk. Brook	17.2	36.0	1984	ALSC	ST (15), GS (52), WS (38), BHC (22), PKS (4)
Lilypad Pond	330	369	CH	Adk. Brook	4.2	4.0	1984	ALSC	ST (15), GS (81), CC (2), BND (2)
Cranberry Pond	332	371	CH	Other	2.5	3.6	1984	ALSC	None caught
Rhododendron Pond	333	372	CH	Adk. Brook	2.2	12.5	1984	ALSC	ST (6), GS (185), BHC (3)
Big Marsh Pond	454	787	UH	Adk. Brook	19.0	14.0	1987	ALSC	ST (10), GS (5), NRB (1), CC (39), BHC (65)
Little Marsh Pond	455	788	UH	Adk. Brook	4.9		1932	DEC	
Dix Pond	460a	800	UH	Adk. Brook	18.0	4.0	1987	ALSC	ST (32), CC (57), WS (6)
Unnamed Pond	5457	none	UH	(drained)	0.0		none		
Dial Pond	none	none	CH	Unknown	1.0		none		
Unnamed Ponds (3)	none	none	UH/CH	Unknown	0.9		none		
Unnamed Pond	none	none	UH	Unknown	5.0		none		

Total: 13 ponds totaling 99.8 ac. Adk. Brook: 7 ponds, 69.9 ac. Coldwater: 1 pond, 19.3 ac. Other: 2 ponds, 3.7 ac. Unknown: 3 ponds, unknown acreage

[1] *CH – Champlain Watershed; UH – Upper Hudson Watershed*

[2] *New York State Biological Services Unit*

[3] *BHC – Brown Bullhead; ST – Brook Trout; RT – Rainbow Trout; GS – Golden Shiner; BNM – Bluntnose Minnow; RW – Round Whitefish; PKS – Pumpkinseed; BND – Blacknose Dace; WS – White Sucker; NRB – Northern Redbelly Dace; CC – Creek Chub*

Appendix XII – 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[1]		
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[2]	central mudminnow
brown trout	pearl dace	redhorse suckers (spp.)
Splake	smallmouth bass	black crappie
lake whitefish	yellow perch	fallfish[3]
rainbow smelt	fathead minnow[4]	banded killifish[5]
bluegill	rainbow trout	Johnny darter

[1] 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 endemicity. Other species listed above as native have been moved from water to water in the Adirondack Upland, but the historical record is less distinct.

[2] Not mentioned by Mather (1884) from Adirondack collections, widely used as bait.

[3] Adventive through stocking.

[4] Not mentioned by Mather (1884) from Adirondack collections, minor element southern Adirondack Uplands (Greeley 1930-1935).

[5] Early collections strongly suggest dispersal as a bait form.

Appendix XIII – State Environmental Quality Review Act Requirements (SEQR)

SEQR
State Environmental Quality Review
NEGATIVE DECLARATION
Notice of Determination of Non-Significance

Identifying # _____

Project No.: **Date:** August 16, 2002

This notice is issued pursuant to Part 617 of the implementing regulations of Article 8 (State Environmental Quality Review Act) of the Environmental Conservation Law.

The Department of Environmental Conservation as lead agency, has determined that the proposed action described below will not have a significant impact on the environment and a Draft Environmental Impact Statement will not be prepared.

Name of Action: Dix Mountain Wilderness Area Unit Management Plan

SEQR Status: Type I Action

Conditioned Negative Declaration: No

Description of Action: Comprehensive unit management plan addressing use of and preservation of public lands. Actions include boundary line marking and maintenance, trail and parking lot construction, search and rescue operations, maintenance of existing facilities, public information and education, and public use controls.

Location: Adirondack Forest Preserve, Towns of Elizabethtown, Keene and North Hudson, Essex County.

Reasons Supporting this Determination:

The entire purpose of this unit management plan for the Dix Mountain Wilderness Area is to manage this resource as a Wilderness area pursuant to the management guidelines for Wilderness areas in the APSLMP. The APSLMP defines a "Wilderness area" as "an area where the earth and its community of life are untrammeled by man–where man himself is a visitor who does not remain...an area of state land or water having primeval character, without significant improvement or permanent human habitation, which is protected and managed so as to preserve, enhance and restore, where necessary, its natural conditions..."

This UMP sets forth management goals and objectives to protect, preserve and where necessary restore the Dix Mountain wilderness area by monitoring and regulating human use of the area so that user impacts are virtually nonexistent. For example, one of the plan's management objectives is to indirectly manage interior use by balancing parking lot capacities to interior visitor capacities. In addition, campsites will be designated to direct campers to previously used disturbed areas, to define proper camp locations, to disperse use, or limit adverse impacts to resources and other campers. Through regulation, at-large camping will be prohibited above 3500 ft in elevation in order to protect the resource. Other regulations are being proposed in the plan to limit public use via limiting group size for day use, rockclimbing, and camping in order to protect the resource Rather than having adverse impacts to the environment, this UMP will have beneficial impacts.

Specifically, this plan proposes to maintain, reconstruct and relocate trails to appropriate wilderness standards (see Appendix II). These wilderness trail standards emphasize resource protection and visitor safety rather than user convenience or comfort. For example, such trail maintenance will include: drainage (using native materials) only where necessary to minimize erosion, bridges only where necessary to protect the resource, ladders only where necessary to protect exceptionally steep sections. APA will be consulted in any management activities in wetlands and in adjacent to wetlands to determine if an APA wetlands permit is required. The APA wetlands permit process ensures that wetlands will not be negatively impacted as that process requires a site specific assessment of impacts.

The plan proposes to inventory and evaluate all lean-tos on a case by case basis as to whether they should be maintained in place, relocated, or eliminated. These decisions will be based on prescribed management criteria and will include consideration of the following: distance from water and trails, soils and drainage, topography, existing use patterns, especially in relation to sight and sound separation distances from other campsites, distance from roads and/or trail- heads, and strategic locations for safety protection based on past histories of search and rescue efforts in a particular geographic location. If a lean-to cannot be relocated to a legally acceptable site within 1/4 mile of its present location, it will be removed and not replaced. The maximum capacity of any lean-to site shall not exceed 8 persons. Obviously, all of the above management criteria for lean-tos are designed to avoid or minimize impacts from human use to the resource.

The plan proposes to improve a disabled access to a car-top boat access site at Chapel Pond, and to convert an existing camping area to 6 car parking area. The 6-car parking area will be located at an existing disturbed site (a camping area), and will involve removing approximately 6 trees, graveling, removal of boulders and minimal leveling of the area. Thus, vegetation and resource disturbance will be minimal, and not significant. Given the limited capacity of this 6-car parking area, there will not be a significant increase in usage of the area. In addition, public safety will be enhanced by providing safe-off road parking facilities.

The plan also proposes to reclaim Twin, Round, and Rhododendron ponds. Pond reclamations are a Division of Fish and Wildlife program which will be carried out pursuant to the *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*, March 24,1981. All fish stocking in the plan will be

undertaken pursuant to the *Programmatic Environmental Impact Statement on Fish Species Management Activities of the Department of Environmental Conservation,* December, 1979. 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,* October, 1990.

The plan proposes locating several primitive tent sites. This would involve no resource disturbance, no ground hardening, and no tree cutting. Instead, existing formal tent sites that are setback from water and are in compliance with APSLMP guidelines will be designated as official primitive tent sites so that users are directed to camp at sites that will have the least impact on the resource. Thus, the location of primitive tent sites will not have a significant impact on the environment.

All tree cutting activities will be in compliance with the Commissioner's Delegation Memorandum #84-06 on Tree Cutting in the Forest Preserve.

For Further Information:

Contact Person: Kristofer A. Alberga, Senior Forester
Address: NYSDEC - Region 5 Headquarters
PO Box 296, Route 86
Ray Brook, NY 12977
Telephone: (518) 897-1350

For Type I Negative Declarations, a Copy of this Notice Must be Filed With:

- Chief Executive Officer of the Towns of Elizabethtown, Keene and North Hudson, Essex County.
- Lead Agency, DEC, Region 5;
- Any involved agencies (APA);
- Any person requesting a copy; and
- Environmental Notice Bulletin.

Appendix XIV – 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, l987;
   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 3l, l987. 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 l5 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, l993. Such permits shall require annual reporting of all flights and the number of passengers to and from Whitney Lake. During the winter of l988-89 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, l993.

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 therefor 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 3l, l987. 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 revegetation with lower forms of vegetation to permit their conversion to foot trails and, where appropriate, horse trails.

All terrain bicycles

l. 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.

Appendix XV – DEC Response to Public Comments Received on the Unit Management Plans for the Dix Mtn. Wilderness Areas

(Except where noted comments apply to both the Dix Mtn. Wilderness Area and Giant Mtn. Wilderness Area.)

Formal public comments were solicited from the Department on the draft UMPs between December 28, 2002 and April 17, 2003. The Department held two public meetings, one in Keene and a second in Albany, to present the draft plans and accept public comments. The Department received 111 written or e-mailed comments. In addition 20 oral comments were received at the public meetings, often with additional comments in writing.

ROCK AND ICE CLIMBING

The majority of comments received were from recreationists who were concerned with proposals relating to direct management of rock and ice climbing. Action alerts posted on websites for the Access Fund and NEIce.com resulted in a number of form letter responses being received by the Department. Concerns expressed from climbers came from locations as distant at New Zealand. Comments received relating to rock climbing generally fell into a number of distinct categories:

1. Fixed anchors are an accepted aspect of climbing and restriction of use of fixed anchors would be counter-productive to identified goals of resource protection. Numerous examples of how anchors can protect the resource were identified by commentors along with several recommendations on management action that could allow bolts while indirectly managing the amount of new anchors being placed.

   Regulations are already in place that regulate defacement of rock (needed to place a fixed bolt anchor) and leaving personal material on-site except under permit from the Department. The use of fixed anchors is generally accepted by the climbing community, however their use in wilderness and primitive areas is a concern to some and has been debated. Regulation of the use of fixed anchors in wilderness areas across the country varies. The plan proposes a process to address these concerns on the Adirondack Forest Preserve, including the DMWA and GMWA.

2. A ban on replacement of fixed anchors will result in old, existing placements becoming unsafe and dangerous.

   Placement of existing bolts on Forest Preserve has been undertaken by individuals in violation of existing Department regulations. The Department has not condoned placement of these anchors, does not inspect, maintain or

recommend that they be used. The anchors present in the unit will be inventoried shortly after plan adoption. The policy development process will establish the future disposition of these anchors and appropriate management action will be taken at that time.

3. Concerns identified relative to restrictions on roadside camping near the Beer Walls and Chapel Pond.

   Concern was identified with conversion of one camping site and another illegal camping site for construction of barrier free access site for car top boats. The Department has identified several sites at this location that are compliant with APSLMP and are not identified for removal. The closure of the camping site will require users to park at the Chapel Pond parking area and carry their gear a short distance to the remaining camp sites. It will, however, not eliminate the availability of camping in the vicinity of the beer walls.

4. Concerns that DEC is focusing access restrictions on the climbing community.

   The Department is focusing management action on areas of overuse and resource degradation. In some instances overuse and/or resource degradation is related to rock climbing activities. Management actions proposed in this plan are in response to identified resource management issues throughout the units, with actions proposed to resolve those issues.

5. A group size restriction on climbing, one route and no more than 8 people, focuses more impact on a smaller area than a slightly larger group with allowances for several ropes. Three ropes and 10 people would allow for active climbing by all individuals in the group, minimizing impacts from large groups milling around the base of a single climbing route.

   The Department has modified this action to allow for groups of up to 10 persons and no more than three routes, in an effort to better distribute use. The intergroup spacing requirements remain as proposed.

6. Comments were received identifying other social and health and safety concerns relating to large groups using climbing resources.

   The Department is aware of these concerns and believes that proposed management actions will begin to address this issue. Monitoring of use will be an essential component of determining whether the implemented management actions have addressed these concerns.

7. Comments were also received asking for the Department to uphold a ban on any fixed anchors on Forest Preserve.

   The Department has proposed a process be implemented to identify how fixed anchors will be managed in the Forest Preserve.

8. The use of some forms of fixed anchors, specifically slings left atop climbing routes serve to protect the existing vegetation, are essential in numerous situations, and can be substantially invisible by use of earth-toned colors.

   The Department expects that this concern will be addressed in the fixed anchor policy developed during implementation of this plan.

9. Visual impacts of bolts can be mitigated by use of colored anchor brackets.

   The Department acknowledges this observation.

10. Group size restrictions should be unit-wide. Focusing on several distinct areas that are presently a problem will likely force groups into other unimpacted areas which can not sustain that level of increased use.

    The Department concurs and has made this change in the Plan.

11. Access trails to climbing areas should be managed as Class 3 trails.

    The Department will classify trails at the Beer Walls, King Phillips Spring and access trails to Roaring Brook Falls as Class 3 trails. Other trails will be classified as Class 2 trails. Monitoring of the trail condition and use will form the basis of whether a trail would be upgraded to a Class 3 trail in the future.

VISITOR USE

1. DEC should gather data relating to use by day users and overnight users, including percentages of both user types.

   The Department has estimated percentages of use (day vs. overnight) by a sampling of trailhead registers. At this point in time the Department believes that this level of detail is sufficient to characterize use in the units.

2. Group size restrictions are excessively restrictive with respect to youth camps and other organized camps. A maximum group size of 8 persons is economically prohibitive to organized camps.

   The APSLMP establishes a capacity limit for a primitive tent site as no more than 8 persons and three tents. The Department is mandated to manage Forest Preserve lands in compliance with the APSLMP. Since the capacity of a tent site in wilderness has been established under the APSLMP, the Department must manage overnight use within those established limits.

3. Comments have been received both in favor of additional restrictive measures and in favor of less or no restrictions on control of pets in the back country.

The Department believes that the proposal, as identified in the public draft, will address pet concerns identified by users during the scoping sessions. Undesirable encounters between dogs and other dogs or people will be monitored. Should the proposed controls on dog use not prove to address concerns identified in the UMPs additional restrictive measures will be considered.

4. Trails on trail-less peaks should be formalized as marked trails.

   The Department believes that the program proposed in the UMP will stabilize and protect the resource from impact by those hikers seeking to climb the "trail-less" peaks. These peaks currently see light use and establishment of these trails as Class 3 or 4 trails would fundamentally change the character of the experience and only serve to attract additional use and impact.

5. Opposition to camping ban above 4000 ft in winter.

   The APSLMP does not provide for camping above 4,000 ft in elevation at any time of year. The UMP reflects this management direction.

6. Request for a comprehensive definition of a glass container with respect to proposed regulations.

   The Department believes that the existing language used in existing regulations (6 NYCRR 190.12) and proposed in the DMWA and GMWA UMPs will restrict undesired glass materials from the units and provide for materials that can not be otherwise carried in plastic reusable containers.

WILDLIFE

1. Unit specific data is lacking on wildlife populations. Better wildlife inventories should be part of all UMPS, budgeted and scheduled. Planning for the return of extripated species should be improved.

   To date, recovery plans have not been formalized for species listed as endangered that migrate or breed within the units. As new information becomes available, the Department will recommend recovery programs. The breeding bird surveys are presently an ongoing statewide project. Studies on wildlife populations should be conducted on a region- or park-wide basis.

2. Bird species lists should be organized in phylogenic order to be more useful.

   The species list has been resorted by Order.

NATURAL RESOURCES

1. Baseline biological data is lacking relating to specific natural resources in the unit.

   The Natural resource inventory utilizes the best data available during the planning process. Where additional information is deemed necessary for management of the natural resources management actions to develop that information have been noted.

ADDITIONAL MAPS NEEDED

1. Forest Cover Type Map

   The Department does not believe that this information is essential for the planning decisions needed in this plan. General forest cover data is not accurate to a scale that would be usable for site specific decision making. Where facility development is proposed, forest cover, wetlands and other environmental data are used to develop a specific work plan for the facility.

2. Water Resources Map (wetlands, streams, rivers, lakes and ponds)

   A wetlands map was prepared for planning use. The scale necessary for this map to be visible does not lend itself to duplication in the published copy of the UMPs. The large scale map is available for review at the both the Albany and Ray Brook offices of DEC and at the APA offices and on the NYSDEC website.

3. Map showing condition of all boundary lines is needed.

   The Department does not have this material inventoried in such a manner as could be easily developed into a visual map.

OTHER

1. Identify overarching goals for management. Description of wilderness values is needed.

   Overarching goals for management of wilderness areas are established in the APSLMP. Specific management principles for Forest Preserve lands in general, and wilderness areas specifically, are identified in the UMP.

2. LAC process should be expanded.

   The LAC process is not a "one size fits all" approach to planning. It's use in the DMWA and GMWA units is proposed where LAC is the most appropriate tool and can be successfully implemented.

3. Trip ticket system should be considered as an information gathering and education tool.

DEC does not believe that this approach is warranted at this time. The trip ticket program is costly to implement in terms of materials and staff time in maintaining register facilities on a daily basis. Data analysis is the highest expense, both in terms of funding and personnel involved. This monitoring method is useful in managing areas of extremely high use. Department experience also indicates that the program is least valuable in areas where day use is the predominant type of activity, such as the DMWA and GMWA.

4. Establishment of new trail with modern trail design practices may be more cost effective in the long run than mitigative methods.

   The Department concurs with this assessment. It is not always possible to redesign and relocate entire trails with existing resources. New trails and planned rerouting of existing trails are designed using the most current design techniques available. Where funding and/or partnerships with other organizations allow trails may be relocated in the future, pursuant to approved UMPs or UMP amendments.

5. Comments seeking more discussion of fire history.

   Fire history is briefly discussed in the plans where warranted. Detailed discussion of this history in the plan, while interesting, does not impact management other than to identify why several unique geographic features appear in the unit.

6. Discrepancy between trail figures and guidebooks.

   Discrepancies exist between the UMP and guidebooks for several reasons, including trail reroutes and differences in how trails were measured. Guidebooks rely on slope distances that are measured by rolling a wheel along the surface of the trail. Trail distances identified in the public draft UMP were pulled from digital map data at a scale of 1:24000 and are measured in horizontal distances. The guidebook distances have been incorporated in this final draft.

7. Requests were received for inclusion of truck, horse, mountain bicycle, and ATV trails at numerous locations in the Units and that forest lands below 4,000 ft elevation be managed for forest products.

   These requests are directly in opposition to mandates in the APSLMP for lands classified as wilderness. Their inclusion in the UMPs was not considered.

8. Request DEC reconsider removal of private trail markers in favor of State Markers.

   Trails on public lands or on lands where the State holds a trail easement are owned and managed by the State either directly, under contract with a trail maintenance organization or through volunteer trail adopters. It is the Department's stance that these trails should be identified in using a uniform trail

marking plan as identified in policy and specifically in the DMWA specified in a March 16, 1982 memorandum from State Forester Van Valkenberg to Regional Director Monroe. Other appropriate ways of recognizing the efforts of trail volunteers will be implemented.

MAP CORRECTIONS

1. Round Pond parking area is missing from the map.

   The convention used in development of the draft facilities map implied that where a trail register was shown a parking lot also existed. The final map shows a trail register marker where a register exists and will also show a parking marker if a parking area also exists.

Specific Comments – Dix Mountain Wilderness Area

1. Designated Campsites between 3500-4000 ft elev. should be considered in cols between South Dix and Macomb and between Hough and the hogback ridge to the south.

   The Department will evaluate the potential for designation of camping sites in this location in conjunction with the planned baseline inventory of established campsites in Year One of implementation. Should existing camping sites noted above be found to be otherwise in compliance with the APSLMP and of a character that is likely to be resilient to repeated use they may be established at that time.

2. Clarify accessability at Elk Lake and Ausable Lakes

   Clarifications on the limited access rights of the public has been included in the plan.

3. A total ban on campfires is needed.

   The Department does not feel that a general ban is necessary at this time, though assessment and monitoring of campsites included in this UMP is intended to identify when significant problems or impacts arise from public use activities. The Department does issue temporary restrictions on open fires when fire danger warrants.

4. Provide access and trails from new rest area on Northway between Exits 29 and 30.

   State regulations regarding the use of parking areas at highway rest areas will not allow for use of these areas as parking lots for access to adjacent public

lands. New York State Department of Transportation Regulations (17 NYCRR 156.3), does not allow for vehicles to be left unattended in the rest area, unless the operator or passenger is within the rest area. The regulations also do not allow for parking of vehicles for longer than three hours during the hours of darkness.

5. Concern relating to closure of trails leading to Colvin-Pinnacle ridge from Upper Ausable Lake.

   These trails serve only for private access from the Ausable Club property at the Upper Ausable Lake. The lake and the trails leading from the lake are closed to public access. The Department does not provide for access trails from adjacent private lands that are not open to the public.

6. There are 4 access routes under Northway, not three as identified.

   This has been addressed in the text of the UMP.