NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Lake Champlain Islands Management Complex Public Draft Unit Management Plan

Including:

Valcour Island Primitive Area
Schuyler Island Primitive Area
Champlain Islands Wild Forest
Peru Dock Boat Launch Intensive Use Area
Port Douglas Boat Launch Intensive Use Area
Willsboro Bay Boat Launch Intensive Use Area

Towns of Ausable, Peru and Plattsburgh – Clinton County

Towns of Crown Point, Chesterfield, Ticonderoga, Westport and Willsboro – Essex County

ANDREW M. CUOMO
Governor

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Comments will be accepted until **September 19, 2015**.

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PREFACE

The Lake Champlain Islands Management Complex 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, New York State 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 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 islands in Lake Champlain.

The Adirondack Park State Land Master Plan (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 that are the subject of this Unit Management Plan (UMP).

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

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

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

Executive Law §816(1) provides in part that "until 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." Thus, the Master Plan and the UMPs have the force of law in guiding Department actions.

Need for a Plan

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

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

No Action Alternative

From a legal perspective, the “No Action” alternative of not writing a UMP is not an option. The Department is required to prepare a management plan for the LCIMC pursuant to the Master Plan and Executive Law § 816. In addition, a UMP serves as a mechanism for the Department to study and identify potential areas for providing access to the LCIMC for persons with disabilities in accordance with the Americans with Disabilities Act (ADA of 1990). The UMP also serves as an administrative vehicle for the identification and removal of nonconforming structures as required by the Master Plan.

From an administrative perspective, the “No Action” alternative is not an option. The Department has the statutory responsibility under Environmental Conservation Law (ECL) §§3-0301(1)(d) and 9-0105(1), to provide for the care, custody, and control of these public lands. The UMP will provide the guidance necessary for staff to manage the area in a manner that protects the environment while at the same time providing suitable outdoor recreation opportunities to the public.

Organization of the Plan

This UMP is intended to be a working document, used by both State personnel and the public. Specific references are cited and included in the bibliography. The content of each section is briefly summarized below:

Section I introduces the area, provides a general description with information on the size and location of the Unit, access, and a brief chronology of the history of the general area.

Section II provides an inventory of the natural, scenic, cultural, fish and wildlife, and associated resources along with an analysis of the area's ecosystems. Existing facilities for both public and administrative use are identified, along with an assessment of public use and carrying capacity. Adjacent land uses, access, and impacts are also discussed.

Section III includes descriptions of past management activities, existing management guidelines, and an outline of issues identified through the inventory process with input from the planning team and public. This section lays the foundation for the development of specific management strategies necessary to attain the goals and objectives of the Master Plan. An assessment of needs and projected use are also discussed.

Section IV will identify specific management proposals as they relate to natural resources, uses, or facilities. These proposed actions will be consistent with the management guidelines and principles and are based on information gathered during the inventory process, through public input and in consultation with the planning team. This section also identifies management philosophies for the protection of the area while providing for use consistent with its carrying capacity.

Section V includes a schedule for implementation and identifies the budget needs to carry out the work described in the UMP.

At the end of the text is a list of relevant definitions, cited references and bibliography, and various technical appendices including map inserts showing detailed area information. Adirondack State Land Master Plan quotations used within this document are from the approved November 1987, Updated 2001 edition.

What the Plan Does Not Do

The proposed management actions identified in this plan are primarily confined to the LCIMC lands. Activities on adjacent State lands or private property are beyond the scope of this document and will only be discussed as they relate to uses and impacts to the LCIMC. In addition, this UMP cannot suggest changes to Article XIV, Section 1 of the New York State Constitution or conflict with statutory mandates or Department policies. All proposals must conform to the guidelines and criteria set forth in the Master Plan and cannot propose to amend the Master Plan itself.

State Environmental Quality Review Act (SEQRA)

The State Environmental Quality Review Act requires that all agencies determine whether the actions they undertake may have a significant impact on the environment. The intent of the legislation is to avoid or minimize adverse impact on the resource. The guidelines established in the Master Plan for developing unit management plans express these same concerns. Any development presented in the plan must take into consideration environmental factors to insure that such development does not degrade that environment. The overall intent of this UMP is to identify mitigating measures to avoid or minimize adverse impacts.

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CONTENTS

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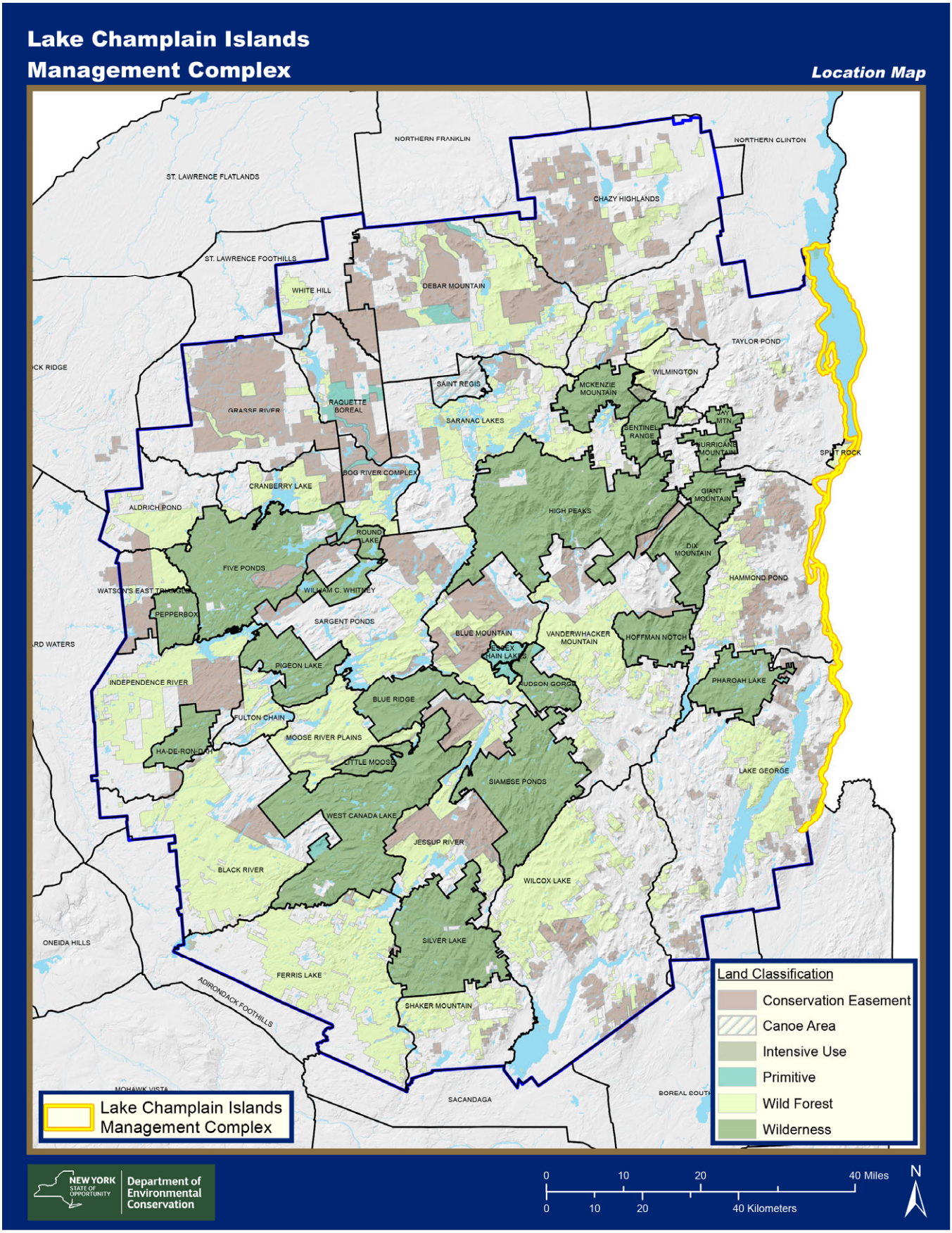
Lake Champlain Islands
Management Complex
Location Map
NORTHERN FRANKLIN
NORTHERN CLINTON
ST. LAWRENCE FLATLANDS
CHAZY HIGHLANDS
ST. LAWRENCE FOOTHILLS
WHITE HILL
DEBAR MOUNTAIN
TAYLOR POND
WILMINGTON
SAINT REGIS
MCKENZIE MOUNTAIN
RAQUETTE BOREAL
GRASSE RIVER
SARANAC LAKES
SENTINEL RANGE
HURRICANE MOUNTAIN
SPLIT ROCK
BOG RIVER COMPLEX
CRANBERRY LAKE
GIANT MOUNTAIN
ALDRICH POND
HIGH PEAKS
ROUND LAKE
DIX MOUNTAIN
FIVE PONDS
HAMMOND POND
WILLIAM C. WHITNEY
PEPPERBOX
SARGENT PONDS
BLUE MOUNTAIN
VANDERWHACKER MOUNTAIN
HOFFMAN NOTCH
PIGEON LAKE
INDEPENDENCE RIVER
HUDSON GORGE
PHAROAH LAKE
BLUE RIDGE
FULTON CHAIN
MOOSE RIVER PLAINS
LITTLE MOOSE
LAKE GEORGE
SIAMESE PONDS
WEST CANADA LAKE
JESSUP RIVER
BLACK RIVER
WILCOX LAKE
ONEIDA HILLS
SILVER LAKE
FERRIS LAKE
ADIRONDACK FOOTHILLS
SHAKER MOUNTAIN
SACANDAGA
Land Classification
Conservation Easement
Canoe Area
Intensive Use
Primitive
Wild Forest
Wilderness
Lake Champlain Islands
Management Complex
NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation
0 10 20 40 Miles
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SECTION I: INTRODUCTION

The primary purpose of this UMP is to establish a public partnership between the Department, local governments, interested groups and citizens to cooperatively develop and share strategies for the use, conservation, enhancement, and enjoyment of these areas in accordance with Article 14 of the State Constitution and the Adirondack Park State Land Master Plan (APSLMP). Comprehensive planning allows for the exchange of ideas and information before actions—that can have long-term effects—are taken. This is necessary to afford consistent management direction by establishing clearly stated management goals and objectives and the means necessary to implement them.

One of the most important aspects of the planning process is to introduce and to involve the public in the care and stewardship of State lands. This element increases the Department's awareness of, and responsiveness to, the values and opinions expressed by citizens and further assists the Department when making decisions concerning the management of public lands. This UMP is designed to guide the management of this area for a five-year period commencing when the UMP is approved by the Commissioner of the Department. Monitoring is essential to determine whether management goals and objectives are being met. If a management action is clearly ineffective and necessitates a change, alternatives will then be analyzed and a new action proposed and implemented, following APSLMP guidelines and public review, through the UMP amendment process.

A. Planning Area Overview

The islands that are a part of the LCIMC encompass approximately 1,133.8 acres of Forest Preserve lands on six of the seven state-owned islands in Lake Champlain - Valcour, Schuyler, Cole, Garden, Sheepshead, and Signal Buoy. A seventh state-owned island, Crab Island, is located outside of the Adirondack Park, is administered by The Office of Parks Recreation and Historic Preservation (OPRHP), and will not be addressed in this UMP. There are also 28.1 acres of land that make up the three boat launch site(s) (BLS) included in the LCIMC which are administered by the Department's Bureau of Fisheries: Peru Dock BLS, Port Douglas BLS and Willsboro Bay BLS.

Valcour Island and Schuyler Island are both classified as Primitive with respect to the APSLMP. Cole, Garden, Sheepshead and Signal Buoy Islands are all classified as Wild Forest. The three boat launch sites in the LCIMC are classified as Intensive Use. The Department of Environmental Conservation (Department) has the primary responsibility for developing and implementing management plans for the State-owned lands in the Adirondack Park. The APSLMP classifies all state lands in the Adirondack Park and provides criteria that define the range of facilities and allowed uses within each classification.

The LCIMC contains about 13 miles of hiking trails, 34 designated campsites and provide a variety of day-use opportunities; all but five of the primitive tent sites are located on Valcour Island. Recreational activities include hiking, picnicking, visiting the Bluff Point Lighthouse on Valcour Island, wildlife and bird watching. Issues addressed in the planning process include identifying the range of appropriate recreational activities for the various islands, providing for public access, and the management and protection of natural and historic resources.
A seasonal caretaker is employed specifically for maintenance of Valcour and Schuyler Islands and the Peru Dock BLS with most of his energies being spent on Valcour Island and the Peru Dock BLS. The caretaker is responsible for issuing camping permits as well as other maintenance duties.

B. Unit Geographic Information

The last major glacier to affect the Champlain Valley, the Wisconsian, occurred over 21,000 years ago and was thick enough to bury the summit of Mt. Marcy (5,344 feet above present day sea level). As the glacier began to melt around 13,000 years ago, piles of sand, gravel, and rock were left along its edge. Streams of water from the melting glacier carried and deposited a large amount of these materials, as well as various silts and clays, into the Champlain Valley. Water and snow melt continue to shape the landscape, gradually wearing down the mountains and carrying sediments to Lake Champlain.

The melt water from a massive lobe of ice, left by the retreating glacier, within the valley, formed the ancient Lake Vermont - which extended from the Green Mountains to the Adirondacks. About 12,000 years ago, when Lake Vermont drained and the St. Lawrence Valley became ice free, salt water flooded the lake bed, forming an estuary to the Atlantic. The Champlain Sea, as this ocean arm has become known, covered the same area as the lower levels of Lake Vermont. The marine invasion ended about 10,000 years ago as the land slowly rebounded from the weight of the glacial ice. The Champlain Sea became isolated and eventually became a separate freshwater basin.

Lake Champlain is only a small part of a geographic area called the Lake Champlain Basin. This basin stretches from the Adirondack peaks east to the Green Mountains of Vermont and north into Quebec. Lake Champlain is renowned as one of the nation's most beautiful and valued resources. This area has long been home to Native Americans, along with more than 600,000 residents today.

Lake Champlain is an elongated lake with a north to south orientation. The lake flows from Whitehall, New York north almost 129 miles across the U.S. - Canadian border to its outlet at the Richelieu River in Quebec. From that point, the lake's waters join with the waters of the St. Lawrence and eventually make their way into the Atlantic Ocean at the Gulf of the St. Lawrence. For much of its length the lake makes up the border for New York and Vermont. The lake's watershed is bound to the east by the Connecticut River Basin and to the southwest by the Hudson River Basin, where it is connected by means of the Champlain Canal.

Lake Champlain is one of the largest freshwater lakes in the United States, with 435 square miles of water surface, over 80 islands and 587 miles of shoreline. After the Great Lakes, Lake Champlain is considered to be the sixth largest freshwater lake in the United States. The lake has a length of 129 miles and is 13 miles wide at its widest point. Most of the over 80 islands located in Lake Champlain are located on the Vermont side. Unlike many other lakes, it is not shaped like a bowl nor is it evenly mixed. Lake Champlain is broken into five distinct areas each with its different physical characteristics: South Lake, Main Lake, Mallets Bay, Inland Sea and Missisquoi Bay. The LCIMC UMP lands are all located within the Main Lake section. The Main Lake, also called Broad Lake, runs from Crown Point north to Rouses Point. This section contains approximately 81% of the Lake's entire water volume. This is also the coldest and deepest section of the lake with a maximum depth of 400 feet. This depth is located off Split Rock Point.

The lake has a great variation in water level from the spring high lake level to the dry summer low level. The maximum range has an average of 9.4 feet deviation. The mean elevation of the lake is 95 feet above sea level with a historical record high of 103.2 feet recorded in 2011, and a record low of 92 feet recorded in 1908. In Lake Champlain, a unique term describes the maximum lake level achieved before reaching flood stage. This term "full pool" relates to a lake level of 99 feet. Once above the full pool level of 99 feet, the lake is considered to be flooding.

Lake Champlain as a whole is a unique environmental setting due to its varying width, great depths and the overall size of its watershed. Most of the shoreline has a gentle sloping profile except for some steep cliffs on the New York side. Some of these cliffs are at the location of Clinton County Community College, called Bluff Point.

Valcour Island is approximately 968.5 acres in size and located near the City of Plattsburgh in the Town of Peru. The surrounding area is historically significant due to the Revolutionary War Battle of Valcour Island and the pivotal War of 1812, Battle at Plattsburgh Bay. Schuyler Island is 161 acres in size and located in the Town of Chesterfield. The other four islands: Garden Island, in the Town of Peru, Cole Island, in the Town of Westport, Sheepshead Island, in the Town of Crown Point and Signal Buoy, in the Town of Ticonderoga are all comprised of less than one acre of land surface.

The Champlain Valley is cradled by the Green and Taconic Mountains to the east and the Adirondacks to the west. All six islands included in the LCIMC (with the one minor exception being the Coast Guard tower on Valcour Island) are owned in fee by the State of New York with their boundaries being the mean high water mark of Lake Champlain.

Table: LAKE CHAMPLAIN ISLANDS MANAGEMENT COMPLEX REAL PROPERTY DATA

Valcour Island

DATE	PROJECT #	SELLER	ACREAGE	TOWN
9/20/63	CL-47.1	C. Hammett et al	480	Plattsburgh/Peru
3/6/64	CL-47.10	Wm. Davey	0.503	Plattsburgh
5/1/64	CL-47.6	P. Grant	1.16	Peru
6/22/65	CL-47.2	Shuttleworth	326.9	Peru
7/19/66	CL-47.12	Mason	0.18	Plattsburgh
12/73	CL-47.3	Yager	5	Peru
12/73	CL-47.13	TNC (Seton)	129.5	Peru
12/3/79	CL-70	Washbourne	1.66	Plattsburgh
4/29/80	CL-71	Mason & Murray	1	Peru
5/14/81	CL-69	B. Brown Winslow	7.8	Peru
6/27/86	CL-68	Raboff	13.3	Peru
11/86	CL-67	Raboff	1.5	Peru
		Total	968.503	

Garden Island (Sea Gull or Gunboat Island)

DATE	PROJECT #	SELLER	ACREAGE	TOWN
5/9/63		Original - Sovereign[1]	Less than 1.0	Peru

Schuyler Island (Whitney Island or Isle au Chapons)

DATE	PROJECT #	SELLER	ACREAGE	TOWN
9/15/64	E-138	Lake Champlain Transportation Co.	161.35	Chesterfield

Cole Island (Coll or No-Man's)

DATE	PROJECT #	SELLER	ACREAGE	TOWN
		Original - Sovereign	Less than 1.0	Westport

Sheepshead Island

DATE	PROJECT #	SELLER	ACREAGE	TOWN
		Original - Sovereign	Less than 1.0	Ticonderoga

Signal Buoy Island

DATE	PROJECT #	SELLER	ACREAGE	TOWN
		Original - Sovereign	Less than 1.0	Ticonderoga

Peru Dock Boat Launch Site

DATE	PROJECT #	SELLER	ACREAGE	TOWN
10/65	CL-7.1	Stewart's Patent	0.41	Peru
12/8/64	CL-7.2	Stewart's Patent, Vincent & Myrtle Jerry	2.38	Peru
8/16/65	CL-7.3	Stewart's Patent, Mary M. Thomas	1.92	Peru
	CL-7.4	Lake Champlain, NYS OGS	4.5 underwater	Peru
5/7/68	CL-7.5	Stewart's Tract, Homer R. Ladd	1.25	Peru

Port Douglas Boat Launch Site

DATE	PROJECT #	SELLER	ACREAGE	TOWN
9/15/64	E-138.2	Adgate Patent, Lake Champlain Transportation Company	2.54	Chesterfield

[1] Sovereign lands are lands that passed directly from the British Crown to the State of New York and have never been granted or sold to a private party. New York appropriated Crown property within its borders through the Act of Attainder of 1779.

Willsboro Bay Boat Launch Site

DATE	PROJECT #	SELLER	ACREAGE	TOWN
8/15/63 6/22/66	E-27A	Montressor Patent, Charles Rowley, Jr.	6.5	Willsboro
	E-27B	Lake Champlain, NYS OGS	8.6	Willsboro

As noted above, all six islands that are the subject of this plan are owned in fee by the State of New York with the exception of the Coast Guard Tower Parcel on Valcour Island. The Clinton County Historical Association (CCHA) owns a permanent easement that grants that organization the right to preserve the Bluff Point Light House and its ancillary structures. The area contained within this easement is approximately 1.4 acres. In addition, the Federal government owns approximately 0.1 acre on which a steel tower, that used to support a solar-powered aid to navigation (ATON) light, stands. Additional documentation associated with the land area involved and the nature of the easement held by CCHA is located in Appendix (C).

C. General Location

The six islands and three BLS in the LCIMC, running from north to south in Lake Champlain, are located starting just east of Plattsburgh, Clinton County and run south to Ticonderoga in Essex County. The islands and BLS are located on the western half of the lake. When traveling south on the lake from Plattsburgh, the first island encountered is Valcour Island, the largest of the islands included in the LCIMC. Valcour Island is located approximately one mile east of the Department's Peru BLS. The Peru Dock BLS is located on State Route 9, 1.5 miles north of the hamlet of Valcour. Just to the south of Valcour Island is Garden Island. Located 12 miles to the south of Garden Island is Schuyler Island. Schuyler is located just a mile from the Department's Port Douglas BLS. The Port Douglas BLS is located on Essex County Route 16, 3 miles southeast of the Village of Keeseville in the Town of Chesterfield. Continuing south, Willsboro Bay is found on the the western shore of the lake. At the southern-most end of the bay is Willsboro Bay BLS, the third BLS included in this UMP. The Willsboro Bay BLS is located in the Essex County Town of Willsboro on County Route 27, three miles east of the Village of Willsboro.

Continuing south from the Willsboro Bay BLS past the hamlet of Westport is Cole Island. This island is located 25 miles south of the Willsboro Bay BLS and just 1000 feet off shore. From Cole Island, it is another 14 miles by water to the south past Port Henry and Crown Point to Sheepshead Island. From there, another 2.5 miles south along the western shore of Lake Champlain, there is a small island with a Coast Guard signal buoy set in the water adjacent to it; this is Signal Buoy Island. Signal Buoy Island is the southern-most land unit included in the LCIMC UMP.

D. Acreage

The LCIMC planning project encompasses approximately 1,162 acres of Forest Preserve lands on six islands and three boat launches: Valcour, Schuyler, Cole, Garden, Sheepshead, Signal Buoy, Peru Dock BLS, Port Kent BLS and Willsboro Bay BLS. Valcour Island is the largest of the islands in the LCIMC. A small parcel of land less than one acre in size that was historically an island located between Valcour Island and Ausable Point Campground is still on the tax role as being taxable land under the jurisdiction

of the Department. This island called "No Name" no longer exists as determined from repetitive site visits and aerial photo examinations during the planning period of this UMP.

Sub Unit	Acreage	Classification
Valcour Island	968.503	Primitive
Schuyler Island	161.35	Primitive
Garden Island	Approximately 1	Wild Forest
Cole Island	Approximately 1	Wild Forest
Sheepshead Island	Approximately 1	Wild Forest
Signal Buoy Island	Approximately 1	Wild Forest
Peru Dock BLS	10.5	Intensive Use
Port Douglas BLS	2.5	Intensive Use
Willsboro Bay BLS	15.1	Intensive Use

E. General Access

Access to the islands in the LCIMC can be gained by boat from one of the many private marinas or boat launch sites on either the New York or Vermont side of the lake. In addition, the Department maintains three public boat launches (Peru, Port Douglas and Willsboro Bay) on the lake.

Valcour Island is located within two miles of the City of Plattsburgh and 15 miles of the City of Burlington in Vermont. The remaining islands in the LCIMC are located in areas where the shoreline on both sides of the lake are relatively rural.

F. General History

The Department commissioned the Lake Champlain Maritime Museum to develop a historical and archaeological narrative of the New York Islands in Lake Champlain. The product of this request was the document, "Historical and Archaeological Narrative of New York Islands in Lake Champlain," prepared by Sara R. Brigadier and Adam I. Kane (2003). The following general history was compiled from this document.

The Lake Champlain waterway has been a strategic possession in North America for the extent of known historical records. Use of the lake has been desirable for humans living in the region from pre-contact times to the present. As such, there are extant historic records regarding human use of the lake and its islands, along with a legacy of archaeological materials in terrestrial sites.

Cole Island is a small island located south of Westport near the New York shore of Lake Champlain. Historical records reflect activity in the region of the lake surrounding the island, but very few mention

the island by name. Thus, the majority of human usage is surmised based on the islands location and the likelihood that the island has been a campsite throughout the centuries. Archaeologically, the island has thus far yielded no information to contribute to the record of human history in the area.

Schuyler Island has national historical prominence stemming from one event. Following the Revolutionary War Battle of Valcour Bay in 1776, Schuyler Island served as an overnight regrouping site for the battered American fleet as they struggled to escape their British pursuers. The island is located off Port Kent, New York, once a prosperous Lake Champlain port. A considerable amount of military and commercial traffic passed through the waters surrounding the island, however, records of this traffic have proven hard to find. The island has seen some archaeological work; a terrestrial survey by a New York State archaeologist in the 1920s located four possible burial mounds on the island.

Valcour Island, located south of Plattsburgh, and across from Peru, New York, is the largest of the New York islands in Lake Champlain and has the most extensive recorded history. This island and the adjacent Valcour Bay, was the site of a major battle of critical importance to the nascent republic during the Revolutionary War, and has been witness to a wealth of newsworthy events over the past three centuries. Valcour Island and its surrounding lake bottom have received the most archaeological attention of the New York Islands, and have yielded a considerable amount of material relative to North American military history and human use of the lake as a vital waterway.

The New York Islands in Lake Champlain all possess strategic locations relative to the New York shoreline and to lake traffic. The recorded history of these islands indicates that they have played key roles in the development of the Lake Champlain region, both politically and commercially. To date, archaeological finds on the islands, combined with their locations, indicate that the islands were used during the pre-contact period by Native Americans, and their historical and archaeological records delineate their continued human usage into the present.

1. Native American History

The Champlain Valley's cultural history began nearly 11,300 years ago, when Paleo-Indians moved into the region following the retreating Laurentian ice sheet. Native Americans have been living in the Champlain Valley continuously from that time to the present. The lake has served as a resource for food, water, tools, spiritual guidance, and transportation. During prehistory, Native Americans lived in small campsites and villages along the lake's shoreline, utilizing specific techniques and tools to extract the lake's resources. Vestiges of their occupation sites and lakeside workshops have been discovered throughout the Champlain Valley.

An unknown number of prehistoric sites now lie submerged because of changing lake levels and isostatic rebound in the Champlain Valley. These sites are not well documented, and the lack of information has greatly affected modern understanding of Native Americans' utilization of the lake's resources. There is no doubt that Lake Champlain and its preceding water bodies have played a significant role in the lives of all Native Americans living in the Champlain Valley.

2. Euro-American History (1609-Present)

Since its earliest exploration by Europeans, the Champlain Valley has consistently played an important role in North American history. The prominence of this area is due to the north-south corridor that Lake Champlain creates from the St. Lawrence Valley. As in Native American culture, the lake continued to serve

as a highway for the transport of ideas, communication, commerce, and people, as well as providing food, water, and spiritual guidance. Lake Champlain is described as being "a living body," not a passive witness to history.

3. French and British Military Conflict (1664-1763)

Between 1664 and 1763, the Champlain Valley witnessed a continuous struggle between the French and British Empires for control of Lake Champlain and its tributaries. These water routes were strategic highways that provided access into the interior of the Northeast in a period when the only viable means of transportation in a rugged land was by water. Expeditions and forts had been continually raised in defense of rival claims of the Champlain Valley and its waterways. Armies and war parties transported themselves on Lake Champlain in fleets of canoes, schooners, and sloops. This period ended after the French and Indian War, when Britain assumed control of most of France's territorial claims in North America.

The French and Indian War had demonstrated that whoever controlled the waters of Lake Champlain controlled the Champlain Valley. Despite the condition of their Army, in July 1776 the Americans had vessels sailing the waters while the British had no fleet available. Until the British could gain naval supremacy on Lake Champlain, their Army could not advance unprotected. Throughout the summer of 1776, American and British forces at opposite ends of the lake worked furiously to assemble naval squadrons.

4. Battle of Lake Champlain

On October 11, 1776, the American and British fleets met on the western side of Valcour Island. The American fleet consisted of eight gondolas, three row galleys, two schooners, one sloop, one cutter and bateaux. The vessels in the British fleet were not only larger with better sailing characteristics, but they were also crewed by professional sailors under the command of skilled naval officers. The British force, under the direction of Captain Thomas Pringle and the overall command of Governor Guy Carleton, had almost twice the Americans' firepower.

American fleet commander Benedict Arnold selected the battle site. Lying about halfway between Crown Point and St. John's, Valcour Island provided the American fleet with both a natural defensive position and relief from the increasingly blustery autumn weather. Arnold's vessels sheltered west of the island, knowing that the British fleet would sail past on the east side. The Americans were at a disadvantage being out-gunned and out-manned in seamanship, and they hoped that the British vessels would have difficulty beating back against the wind after spotting the American line at anchor.

On the morning of October 11th, the British ships sailed past the southern end of Valcour Island, then turned north against the wind as they approached to engage the American fleet. For the next several hours, the British and American vessels engaged in an intense battle. Fortunately, for the outmatched Americans, most of the large British vessels were unable to work far enough against the wind to engage them. Instead, the bulk of the fighting that day was by British gunboats that rowed within musket range of the American line. Both sides sustained significant casualties, and the American schooner Royal Savage, one of Arnold's largest vessels and flagship, ran aground on the southwestern corner of Valcour Island.

The battle halted at nightfall, and one hour after the fighting stopped the gunboat Philadelphia sank from damage suffered in the exchange of cannon fire. At dusk, Arnold called a council of war, and the American officers agreed to attempt an escape by rowing past the British. As the British burned Royal Savage and

provided a distraction on the eastern side of the inlet, the American fleet rowed south to safety along the New York shoreline with oars muffled and a shrouded light in each vessel's stern. Remarkably, the fleet passed the British undetected, and by morning, they reached Schuyler Island and halted to stop their leaks and mend their sails. During the flight, Arnold had abandoned two weakened gunboats, Spitfire and Jersey. A gunboat located in 1997, which sank to the bottom the night of October 11, 1776, was Spitfire, one of these two gunboats.

As Arnold and his fleet recovered at Schuyler Island, the sun rose over a British fleet that expected to complete a rapid and decisive victory. They were mortified to discover that the Americans had slipped past their blockade and hastily set off in pursuit. As the British moved south, they overtook and claimed the abandoned gunboat Jersey, while Spitfire was already resting on the bottom of the Lake. Out of Arnold's fleet of 15 vessels, only four returned safely to Fort Ticonderoga. Meanwhile, the American troops at Fort Ticonderoga and Mount Independence worked feverishly to increase the strength of their fortifications. The local militia was called to arms, and by late October, the American defensive line bristled with more than 12,000 troops. Considering the strength of the rebel force, the lateness of the season, and a sense that they had already made sufficient gains in that year, the British decided to break off the campaign and return to Canada for the winter.

Tactically, the Battle of Valcour Island was a sound defeat that resulted in the Americans' loss of control of Lake Champlain. Strategically, however, it proved to be one of the most decisive engagements of the war. The presence of the American fleet on Lake Champlain in 1776 forced the British to delay their invasion long enough to build a flotilla that could challenge the enemy. The British fleet was certainly superior, but the 1776 campaign season was essentially over by the time the ships were built and the battle was won. The following year, the British invaded swiftly through the Champlain Valley, but they were surprised to find death and defeat at Saratoga. Arnold's brave little fleet had slowed the British invasion long enough to give the Americans time to amass a larger, stronger, and better-prepared rebel army, placing the 1776 naval contest on Lake Champlain at the heart of that victory. General John Burgoyne's surrender at Saratoga in October of 1777 convinced the French to enter the fray on the side of the Americans, an alliance that ultimately led to the American victory at Yorktown in 1781 and independence.

5. Cole Island

The Legend of Father Jogues

The recorded history of Cole Island begins in the early seventeenth century. The sole legend surrounding Cole Island concerns its role as the location for the torture of a Jesuit priest by the Iroquois. In 1642, Father Isaac Jogues was a 35-year-old veteran "Black Robe," or missionary, experienced in the wilds of western New France. Despite the extensive activities of the Society of Jesus in the fur trade, Father Jogues is reputed to have traveled west for the purpose of converting Native Americans to Christianity, rather than turning a profit.

Father Jogues was traveling with a group of civilians and church officials on August 2, 1642, when attacked by a party of Mohawk Indians. The Mohawks took 22 prisoners and headed up the Richelieu River toward Lake Champlain. After eight days of travel the party camped on one of Lake Champlain's southern islands and was joined by a war party of about 130 Iroquois headed north. Local tradition holds that this island was Cole Island, although there is no true archaeological or historical proof.

Though small, Cole Island is tucked into a well-sheltered harbor that offers protection from the strong south winds, making it a popular anchorage for recreational boaters. Paul Grinwis, a director from Camp

Dudley, remembers seeing sixty to seventy different boats anchored in Cole Bay at one time, quite a number for the small inlet. Camp Dudley is the country's oldest active YMCA summer camp, founded in 1903, and occupies the shoreline across from and north of the island.

6. Schuyler Island

Schuyler Island apparently originates with the militarily famous Schuyler family, and is also know by the French as Isle aux Chapons. In 1690, Captain John Schuyler, grandfather of the Revolutionary War Major General Philip Schuyler, traveled through the Schuyler Island area with militia and Mohawk warriors on his way to raid La Prairie near Montreal. The next year, Major Peter Schuyler, Mayor of Albany and brother of John Schuyler, also attacked La Prairie after following the same route that his brother had taken a year earlier.

In 1760, the British army camped at Schuyler Island while heading north during the French and Indian War. In 1776, the Island again became an important military facility when Benedict Arnold's American fleet used the island to regroup following the Battle of Valcour Island. After the Battle of Valcour Island on October 11, 1776, the American fleet desperately sailed and rowed their battered vessels through the night to elude the British. The short time the Americans spent on Schuyler Island was desperate. Crews worked around the clock scuttling gear and repairing hulls and rigging.

Unfortunately, the only records pertaining to Schuyler Island for the nineteenth and twentieth centuries were the deeds to the property on file in Essex County. The traceable deed records on file at the Essex County Clerk's Office reveal that the island was owned by at least fifteen individuals or partners between 1827 and 1960. During that time the island was sometimes farmed and the remains of a barn, hand-dug well, and tilled furrows can easily be seen from the inland area. Interestingly, for much of its history, the owner of Schuyler Island also owned a lakefront property with a dock on the mainland, presumably for the purpose of accessing and supplying the island. Schuyler Island changed hands six times from 1827 to 1843, and was then purchased by Charles M. Watson. The Watson family retained ownership of Schuyler Island until 1891, when Charles' widow Elizabeth sold the property to Luther Whitney, a well-known marine contractor on Lake Champlain. During that time, the island received the nickname "Whitney Island" and in the later deeds, was referred to as both Whitney and Schuyler Island.

Schuyler Island remained in the Whitney family until 1950 when Grace Adgate Dean sold the property to Van Winkle Todd. A 1950 article from the Essex County Republican described the purchase of Schuyler Island by Van Winkle Todd from Grace Adgate Dean and Dolly M. Adgate, which renewed the property's paper trail. The article refers to two elements of the island's history not otherwise documented. One is the existence of a farm on the Island and the other is of Luther Whitney's ownership. It is also understood that stone taken from Schuyler Island was used to build the Burlington, Vermont, harbor breakwater.

In November of 1967, Schuyler Island was sold to New York State under the Recreation Bond Program from the Lake Champlain Transportation Company. At that time there were plans laid to incorporate Schuyler Island into a recreational complex that included Cumberland Bay, Valcour Island, and Au Sable Point. None of these plans for Schuyler and Valcour Islands were ever developed.

There is a United States Coast Guard Navigational Aid (i.e. light tower) on the Island, but documentation surrounding the Navigational Aid extends only as far back as 1965. This lack of records is likely due to a fire in the 1970's that destroyed many Coast Guard records at the Burlington station.

7. Valcour Island

The earliest historical reference to the Island's existence comes from the Journal of Samuel de Champlain, who passed several beautiful islands after entering the lake, presumably Isle La Motte, Long Island (Grand Isle), and Valcour. His guides told him the islands had been inhabited by Indians, but were abandoned for a long time because of war between the Algonquins and Iroquois.

At the time of early European settlement of the Upper Lake Champlain Basin, it is likely Valcour Island was covered by mature forest of both hardwood and softwood trees, with eastern white pine (Pinus strobus) being predominant. The French name, Isle De Valcour means "Isle of Pines" (Tyrell). Being readily accessible by boat and of moderate terrain, all of the original mature forest on the island have been harvested, making the present forest all second growth.

Valcour Island has seen many private dwellings since the mid-nineteenth century, including at least one summer camp in the early twentieth century. It is likely that Zephaniah Platt received the original land grant for Valcour Island, but inconclusive by a search of property deeds at the Clinton County Clerk's Office. When the property on the island sold in the mid-nineteenth century, it was split into three sections that remained relatively intact until the mid-twentieth century. These sections were: the northern half of the Island, upon which the Bluff Point Lighthouse stands; the northern half of the southern section; and the remaining southern quarter. From 1846 through 1928, the different portions of the island passed through at least 25 different owners, with some of them selling and then repurchasing the same land.

The early to mid-nineteenth century represents a lull in the historic activities on the island. By 1846, the island was divided into its three segments, with the two larger portions each containing over four hundred acres. At that point in the island's history, it was already inhabited and under cultivation. Activities on the island were not well documented until the late 1860's when a man named Orren Shipman entangled the property in a series of legal disputes. From the deeds to the property, researchers have established that he had purchased the titles to two of the island's three portions, the north half and the north half of the south half. However, it appears that he missed several payments and his mortgages were foreclosed, much to the chagrin of the Dawn Valcour Agricultural and Horticultural Association, discussed below.

The Dawn Valcour Agricultural and Horticultural Association

The Dawn Valcour Agricultural and Horticultural Association, commonly known as the Dawn Valcour Society, was a commune established on Valcour Island in 1874. The short-lived association was an experiment in socialism and free love; the experiment ended after only one year. In the spring of 1874, Chicago liberal Colonel John Wilcox decided to establish a community that would be "the Head Center of Advanced Spiritualism and Free Love." Already associated with a group of eleven like-minded individuals, his dream hinged on finding a place to establish the colony and he began advertising immediately. Shortly thereafter, Orren Shipman of Colchester, Vermont, saw the ad in "Woodhull and Claflin's Weekly" and offered his land for the experiment. Shipman had purchased the northern half of Valcour Island from Daniel Fay in 1870, and due to a series of questionable land transactions and failure on Shipman's part to pay for the land, he lost the property in 1875. Unfortunately, for the Dawn Valcour Society, Shipman's fraud did not become apparent until they were bankrupt.

In exchange for the use of 800 acres of land on Valcour Island and nurseries on the Vermont side of Lake Champlain, Shipman proposed that the community pay him $26,000 plus payment of no more than $9,000 he had accumulated in debts. Colonel Wilcox inspected the property, which Shipman claimed was worth $100,000, and finding it satisfactory, wrote to his group asking them to join him. Near the end of August of

1874, Mrs. Hannah Augusta White and eleven others arrived at Valcour. Soon thereafter, ten more recruits joined the original twelve, which included Shipman, from the Midwest. A few days after arriving, several members of the group left, apparently disgusted with Shipman and his property, which was smaller than he had claimed it to be.

The utopian community strove to include "celebates, free lovers and believers in the sacredness of marriage" and proposed to be a "community of property by investment of capital and labor." They emphasized "the education of head, heart and hands, government by enlightened practical goodness – and free criticism, hating no one – cultivating love to God and love to man, to dwell with freedom, purity and harmony, passing on to the highest attainment to know self, truth and wisdom." However, from the beginning of their undertaking, the mission of the Dawn Valcour Society was clouded by scandal and misrepresentation caused by the society's open assertions of their belief in free love. As a result, when the Society tried to boost membership after the departure of some of their initial participants, it was difficult to attract people from the conservative local community.

Colonel Wilcox was the guiding hand of the community, but a young, beautiful woman from New York City, Mrs. H. Augusta White, was an equally strong force. The poet, author and lecturer arrived at Valcour "in pure conjugal love" with a young Canadian man named J.H. Woodhouse who shared her beliefs and goals for the Society. The 21-year-old Woodhouse had worked in Chicago as a machine operator in a sash factory and as a typesetter for a publisher before becoming enamored with the 27-year-old White and her principles of free love.

The Bluff Point Lighthouse

In an interesting turn of events, the Dawn Valcour Society's questionable benefactor, Mr. Orren Shipman, made another land sale. In 1872, he sold to the United States the property rights for a small strip of land upon which the Bluff Point Lighthouse would be built, with the actual property sale occurring in 1873; the facility was fully functional by 1874. When built, the Bluff Point Lighthouse was part of a series of beacons constructed by the Federal government along Lake Champlain. Built 95 feet above the mean lake water level on the west side of the island, the light tower itself is 36 feet tall, and originally contained a fixed white light in a fifth order lens. The lighthouse protected the busy channel between Valcour Island and the New York shore for 57 years before falling into disrepair.

The lighthouse was built from dark-blue limestone, its upper walls shingled with cedar shakes and a coated tin and copper roof. It contains a kitchen, living room and bathroom on the first floor, and three bedrooms and a spiral staircase that leads into the light tower above the second floor. While in service, the structure was a home for the lighthouse keeper and his family; the light keeper recorded weather conditions and fuel consumption on a daily basis. In 1929, a steel framework tower was built about 100 feet from the lighthouse on a 100 square foot concrete pad by the Federal government. The original lighthouse was decommissioned in 1931 and sold for approximately $800.

In 1986, New York State began negotiating with the lighthouse's fourth and last private owner, Dr. Adolph Otto Raboff, to purchase the lighthouse and the land that it sat upon. The structure was sound, but had fallen into disrepair due, in part, to vandalism. Worried that the State would destroy the structure or let it continue to decline, Raboff included a clause in the sale contract that gave the Clinton County Historical Association a conservation easement for the lighthouse.

In 1987, the Clinton County Historical Association began establishing a $35,000 endowment for the restoration and maintenance of the lighthouse. The repairs involved a mixture of paid labor and volunteer work, while several local businesses donated services or goods to the project. CCHA applied to have the lighthouse listed on the National Register of Historic Places in 1988. By 1993 the lighthouse was listed on both the National Register and on New York State's Register of Historic Places.

In November of 2004, the United States Coast Guard, the New York State Department of Environmental Conservation, and CCHA completed the relighting of the historic Bluff Point Lighthouse, returning the lighthouse to its original duties as a true aid to navigation.

Camp Penn

A summer camp for boys, Camp Penn owned 500 acres of woods and meadow, including its own dairy and farm, on Valcour Island. The camp was founded in 1906, as 1918 marked its twelfth season, but the duration of its existence on Valcour Island has yet to be determined. In 1905, the Bissell family owned the south quarter of the island; the north half of the southern section was owned by Frances Rogers; and Marcia Kennedy owned the northern half of the island. The section of the island that Camp Penn was located on could not be determined.

State Ownership

In 1963, the New York State Conservation Department began implementing a plan to purchase the entire island for use as a recreational area. By 1966, State recreation planners had begun developing plans for both Valcour and Schuyler Islands, with recreational boaters as the target audience for the schemes. The plans seemed to be initially popular, but by 1970, Plattsburgh residents were less enthusiastic about the development of the island that had served as a battlefield in the Revolutionary War. Extensive plans regarding the project were made, but due to negative public opinion by local residents and environmentalists, the development plan was cut back from mass-recreational development to the installation of nature trails, picnic and camping spots, a beach, and moorings for boaters. In 1971, a portion of Valcour Island was transferred to the Department and in 1973 the balance of the island was included in the Adirondack State Park. After the movement of the Adirondack Park Blue Line Boundary in 1973, the state began acquiring additional parcels in an effort to acquire the entire island. As of 2015, Valcour Island is entirely owned by the State of New York, except for a 0.1 acre parcel which houses a steel Coast Guard Tower; this small parcel is owned by the U.S. Coast Guard.

8. Signal Buoy, Garden and Sheepshead Islands

These three islands have historically received low levels of use. Signal Buoy and Sheepshead Islands were sovereign lands. Sheepshead Island has historically received some light levels of day use and an occasional overnight user. Sheepshead Island has one primitive tent site.

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SECTION II: INVENTORY, USE AND CAPACITY TO WITHSTAND USE

A. Natural Resources

1. Physical

a. Soils and Geology

The Champlain Valley was formed during the Ordovician period 450 million years ago when the North American and European continents collided and huge chunks of land between what are now known as the Adirondacks and Green Mountains dropped down. This was the origination of Lake Champlain. Over time, glaciers molded the valley as they plowed over the land, picking up sand and gravel and breaking down sections of rock. This debris acted as the scouring grit that would round out the valley into the lake we recognize today.

Igneous intrusions, as often seen on the shores of Valcour Island, occurred during the Cretaceous period approximately 100 million years ago. These igneous intrusions are visible as dark colored dikes in the limestone.

All soils are formed by the chemical and physical breakdown of parent material. The soils on the islands also formed in this manner. The soils throughout the Champlain Valley originated from clay, silt, sand, gravel and rocks distributed by glaciers during the last Ice Age, 10,000 to 12,500 years ago. At the end of the Ice Age, around 12,500 years ago, the glaciers began to melt and recede, depositing their sediments. The glaciers left piles of sand, gravel, and rocks along their edges that were later carried by the streams that originated from the melting of the glaciers.

Valcour, Garden, Schuyler, Cole, Sheepshead, and Signal Buoy Islands are formed predominantly of Ordovician limestone bedrock. The Soils and Geology section below was developed from personal interviews, on-site visits, and written documentation from Gerald Smith and the U.S.D.A. Essex County Soil Survey.

Valcour Island – The surface soils of Valcour Island are separated into two main soil groups: Benson Loam and Kingsbury - Rhinebeck Complex.

Benson Loams consist of shallow, somewhat excessively drained and excessively drained soils that formed in high lime glacial till or in wind and water deposited material mixed with till or congeliturebate over limestone. These soils are on uplands where bedrock is at a depth of less than 20 inches. Some areas have limestone sinks or solution cracks. The soils are found on slopes ranging from 0% to 50%. The available water capacity is moderate or low. Permeability is moderate or moderately slow.

Kingsbury - Rhinebeck Complex consists of very deep, somewhat poorly drained soils that formed in high lime lacustrine or marine sediments that are high in clay content. These soils are found on lake plains with slopes ranging from 0% to 50%. The available water capacity is high. The permeability is moderately slow in the surface, and slow in the subsoil and substratum.

Garden Island is predominantly exposed Ordovician limestone bedrock. A portion of the bedrock making up the island is covered with a thin layer of Benson Loam.

Schuyler Island – The distribution of soils on this island are relatively complex. The core of the island is a shelf of folded limestone from the Beekmantown formation, but bedrock is located within 40 inches of the surface in a narrow band along the shoreline in the southeast quadrant of the island. The soils in the southeast quadrant of the island are mapped as being shallow [10 to 20 inches deep to bedrock] "Farmington" soils and moderately deep [20 to 40 inches to bedrock] "Galway" soils.

Directly north of the shallow limestone bedrock area, lying in a narrow trough separating the limestone area from the main north-south trending ridge making up the island, is an area of very deep [greater than 6 feet deep to bedrock], relatively wet, heavy clay soils. This area is mapped "Kingsbury clay."

Lying in narrow bands in the northwest and southeast quadrants, and at the north and south tips of the island, are areas of very deep, stony, loamy, glacial till soils. These areas are mapped "Amenia fine sandy loam."

Occupying most of the central north-south ridge of the island, and the northeast quadrant is a very complex area of gravelly, loamy soils underlain by heavy clay, and most likely throughout most of the map unit, the clay is then underlain by stony, loamy glacial till deposits. The drainage trench dug at the old house site at the top of the ridge best illustrated this with a sequence of about 2 feet of stony, loamy gravel over about 2 to 3 feet of heavy clay, over stony, loamy, compact glacial till. The soils in this unit are mapped "Claverack loamy sand" which is a sandy soil over heavy clay, but they would probably more closely fit a "Varysburg taxajunct" soil no longer in the Essex County legend. Varysburg soils are loamy, gravelly ancient beach ridge deposits underlain by heavy clay. The Varysburg series was in the Essex mapping legend at one time, but was dropped and combined with Claverack, which is its closest fit. Other small areas where these Varysburg soils were mapped along the lake area are at the Crater Club in Essex, and a few places on Willsboro Point. Within the Claverack [Varysburg taxajunct] unit in the northeast quadrant of the island is a small area of very wet, heavy clay. This area is mapped "Covington clay."

A couple of wet spot symbols, and a few gravel spot symbols were placed on the soils map. The wet spots indicate significantly wetter soils that were too small to map out at the scale used; in general, these two areas are probably poorly drained clay with a little sand on top. The gravel spot symbols show that most of the Claverack surface and subsoil is gravelly instead of the modal sandy particle size.

Glacial and pro-glacial/post-glacial deposition of sediments on the island are very complex as is most of the lake plain area in Essex County. First, thick ice deposited a layer of stony, loamy, compact glacial directly on top of the local bedrock. As the main ice lobe receded northward up the Champlain Valley, a pro-glacial lake followed the receding ice and deposited variable depths of silts and clays in the lake bottom. Finally, as lake levels, and later on as the Champlain Estuary levels dropped exposing the present day island, wave action eroded and re-worked the clay and till deposits giving us the complex sediments we see today.

Brief descriptions for these soils follow. Detailed typical descriptions of Farmington, Galway, Kingsbury, Amenia, Claverack and Covington soils can be found in the Essex County Soil Survey, which is available online at http://soils.usda.gov.

32B Kingsbury clay - 3 to 8% slopes. This is a very deep, gently sloping, somewhat poorly drained, high lime, clayey soil formed in marine and lacustrine sediments. Surface runoff is slow. Permeability is slow in the surface and very slow in the subsoil and substratum. Available water capacity is high.

- New York farmland of statewide importance.
- This map unit has potential hydric inclusions in Essex County.

34A Covington clay - 0 to 3% slopes. This is a very deep, nearly level, poorly and very poorly drained, high lime soil formed in clayey sediments. Surface runoff is very slow. Permeability is moderately slow in the surface and slow or very slow in the subsoil and substratum. Available water capacity is high.

- This map unit is considered to be a hydric soil unit in Essex County.
- New York farmland of statewide importance.

41B Claverack loamy fine sand - 3 to 8% slopes. This is a very deep, gently sloping, moderately well-drained, medium to high lime soil formed in sandy over clayey sediments. Surface runoff is slow. Permeability is rapid in the sandy upper part and slow or very slow in the lower subsoil and substratum. Available water capacity is moderate.

- New York prime farmland.

The Varysburg series consists of very deep, well-drained and moderately well-drained soils on dissected lake plains. They are nearly level to steep soils formed in gravelly outwash material and the underlying very slowly permeable clayey lacustrine sediments. Slope ranges from 0 to 50%. Permeability is moderate to moderately rapid in the gravelly mantle and very slow in the clayey lacustrine material.

73B Amenia silt loam - 3 to 8% slopes. This is a very deep, gently sloping, moderately well-drained, high lime, loamy soil formed in glacial till deposits. Surface runoff is slow. Permeability is moderate in the surface and subsoil, and slow in the substratum. Available water capacity is high.

- New York prime farmland.

77B Farmington-Galway Complex, rocky - 3 to 15% slopes. This is a shallow and moderately deep, gently sloping, well-drained, high lime, loamy soil unit formed in glacial till deposits over limestone bedrock. Surface runoff is slow. Permeability is moderate. Available water capacity is very low.

- New York farmland of statewide importance.

Cole Island – Soils consist of lacustrine silts and clays perched on top of a small shelf of limestone. Lacustrine sediments are from 15 to 25 feet thick on top of limestone. The limestone itself rises from 0 to 8 feet above lake level. The summit of the island is gently sloping and soils are classified as "Vergennes clay." Side slopes of the island are very steep and are classified as Vergennes clay near the top of the slope, but become more silty at the base and are better classified "Dunkirk silt loam." The Vergennes profile observed on summit of the island has unusually thick albic horizon [~ 20 inches] suggesting that accelerated erosion from agricultural operations has never occurred.

30B [VeB] Vergennes clay - 3 to 8% slopes. This is a very deep, gently sloping, moderately well-drained, high lime, clayey soil formed in marine and lacustrine sediments. Surface runoff is slow. Permeability is slow or very slow. Available water capacity is moderate.

- New York farmland of statewide importance

30E/F [VeE] Vergennes clay - 25 to 45% slopes. This is a very deep, very steep, moderately well-drained, high lime, clayey soil formed in marine and lacustrine deposits usually adjacent to streams. Surface runoff is very rapid. Permeability is slow or very slow. Available water capacity is moderate.

185EF [DuE] Dunkirk silt loam - 25 to 45% slopes. This is a very deep, very steep, well-drained, high lime, silty clay soil formed in lake-laid sediments. Surface runoff is very rapid. Permeability is moderate in the surface and upper subsoil, and moderately slow below. Available water capacity is high.

Sheepshead Island – The island is made up of lacustrine silts and clays covering a small shelf of limestone that rises above lake level 0 to 15 feet. Lacustrine sediments are from 1 to 8 feet thick on top of limestone. Outcrops of limestone make up at least 15% of the island. The entire island is strongly sloping and soils are classified as Vergennes clay where they are greater than 6 feet deep, and are classified as deep, moderately deep, and shallow taxajuncts of Vergennes clay where they are less than 6 feet deep.

30C [VeC] Vergennes clay - 8 to 15% slopes. This is a very deep, strongly sloping, moderately well-drained, high lime, clayey soil formed in marine and lacustrine sediments. Surface runoff is medium. Permeability is slow or very slow. Available water capacity is moderate.

- New York farmland of statewide importance

Signal Buoy Island – Soils appear to consist of flaggy limestone glacial till that has been reworked by wave action removing the fine grained particles and leaving rock fragments, gravels, and sands, resembling a somewhat active beach ridge. The high percentage of limestone flagstones and channers indicate that perhaps limestone bedrock is not very far below the surface. Soil is extremely gravelly loamy sand ranging to fragmental on the surface. The soil that most closely resembles this soil in the Essex legend would be a "Howard very cobbly fine sandy loam." This soil also has similar origins as the soils on the island. Water tables and, therefore, drainage class are affected directly by lake level.

112B [HcB] Howard very cobbly fine sandy loam, 2 to 8% slopes, loamy substratum. This is a very deep, gently sloping, well-drained, high lime, soil formed in gravelly beach deposits 4 to 6 feet deep over calcareous, dense glacial till. Surface runoff is slow. Permeability is moderate or moderately rapid in the surface, moderately rapid in the subsoil and upper substratum, and slow in the lower substratum.

- New York farmland of statewide importance.

b. Terrain/Topography

The topography of the islands is relatively flat. All the islands consist of Ordovician limestone bedrock with most areas containing less than 30 inches of soil. Some small sections of Schuyler and Valcour have deeper soil depths of up to 60 inches. Valcour and Schuyler Islands have sharp cliffs, as well as gently sloping shorelines. Schuyler Island is relatively flat after its initial ascent from the lake level. Valcour Island is more

hilly and rolling with gentle sloping beaches that give way to steep bare cliffs up to 30 feet in elevation above the lake level. Garden Island juts sharply out of the water with 15 to 20 foot bare limestone cliffs. Sheepshead, Cole and Signal Buoy Islands are all more mellow and gently sloping as they rise out of the lake.

Even though the islands cover a small acreage value, they are widely dispersed throughout the main lake section and are located on various sections of U.S. Geological Survey (USGS) 7.5 x 15 minute quadrangle topographical maps. The following USGS quadrangle (quad) maps cover the LCIMC: The northern half of Valcour Island is mapped on the USGS Plattsburgh quad. The southern half of Valcour Island, Garden Island, and the northern half of Schuyler Island are mapped on the Keeseville quad. The southern half of Schuyler Island is mapped on the Willsboro Bay quad while Cole Island can be found on the Westport quad. Both Sheepshead and Signal Buoy Islands are mapped on the Crown Point quadrangle.

c. Water

There are no notable water bodies found in the LCIMC.

d. Wetlands

The wetlands data for the LCIMC was taken from the New York State Regulatory Freshwater Wetlands layer for Essex County. The maps only show wetlands on Valcour Island; there may or may not be wetlands present on the other islands but the information available shows none. The wetland acreage for Valcour is 15.4 acres. These 15.4 acres are broken up into three separate areas. These three areas will be managed to protect, preserve and maintain their wetland character.

e. Air Resources

Air Resources and Atmospheric Deposition

The effects of activities on the LCIMC air quality have not been sufficiently measured nor determined. Air quality and visibility in the LCIMC appears to be good to excellent, rated Class II (moderately well controlled) by federal and state standards. 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 LCIMC, 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 (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 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 forests in some ecosystems, which occurs through direct impacts via increased foliar susceptibility to winter damage, foliar leaching, leaching of soil nutrients, elevation of soil aluminum levels, and/or creation of nutrient imbalances. Excessive amounts of nitrogen cause negative impacts on soil chemistry similar to those caused by sulfur deposition in certain sensitive high-elevation ecosystems. It is also a potential contributor to adverse impacts in some low-elevation forests.

Sensitive receptors

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

Sugar maple decline has been studied in the eastern United States since the 1950's. 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, New England, and the southern Appalachians. The high-elevation spruce-fir forest of the Adirondacks and Northern New England are identified as one of four areas nationwide with a sensitive ecosystem and subject to high deposition rates.

Effects of Acidic Deposition on Hydrologic Systems

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

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

Permanent LTM monitoring sites are located around this Unit.

Summaries of those sites data can be found at (http://www.adirondacklakessurvey.com) see ALSC Information. The Adirondack Long-Term Monitoring (LTM) program, managed by the ALSC, has been sampling chemistry in 52 lakes across the Adirondack Park on a monthly basis.

2. Climate

The region's climate, in general terms, is best described as cool and moist. The mountains on either side of the lake offer protection and help to moderate the climate of the lake and its surrounding area. The climate in the Champlain Valley is the mildest in northern New York and Vermont. The temperatures in the valley are moderated by the lake until it freezes over, usually in late January. The lake will usually remain frozen until late March.

Summers tend to be warm with cool nights. Maximum daytime temperatures seldom exceed 95°F. Cool breezes blow inland from the lake in the summer. Winters are long and cold. Extremes of temperature from 0°F, often accompanied by high winds, to as high as 85°F are common. Annual precipitation, in rainfall, is between 30 and 50 inches per year. The Champlain Valley growing season is approximately 150 days.

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 southerly during the summer, but may be modified by topography. During winter months, the prevailing winds change to a northwesterly direction with occasional storms coming from the northeast. 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.

3. Biological

a. Vegetation

Besides the endangered and rare species, which are discussed in the Critical Habitat section, the islands consist of native northeastern conifers and northern hardwoods. The islands are home to several varieties of grass. These open grassy areas are remnants of earlier times when portions of the islands were actively farmed. Generally speaking, the island vegetation is well diversified. The upland areas primarily found on Valcour, but also on the other islands, are home to a variety of northern hardwood species. The lower, wetter areas are home to the conifers and softwoods. These species are all common on the surrounding lands outside of this unit.

Northern hardwoods on the islands in the LCIMC are found on the better-drained, more fertile uplands. The glacial soils favor a forest association of sugar maple, red maple, American beech, white and yellow birch, as well as black cherry and white ash, which are minor associates.

The establishment of white and black spruce, eastern white cedar, hemlock, white pine and balsam fir species reflect cooler temperatures, increased moisture, and lower elevations closer to the lake.

As the elevation rises, a mixed forest of conifers and hardwoods is common. The highest point in the LCIMC is on Valcour Island, at a height of 191 feet above sea level. Increased elevation and improved drainage favor the growth of maples, birches, eastern hemlock and eastern white pine. The dominant ground cover is mountain laurel and hobble-bush. Various ferns, grasses and wild flowers are also present. The forest tends to be quite dense and little sunlight reaches the forest floor.

The forest canopy consists of a wide variety of tree species including some more often associated with climates that are milder than the Adirondacks, such as swamp white oak (Quercus bicolor). The perimeter of Valcour Island from Indian Point around its southern end, up the eastern shore to Beauty Bay, and the northern shore of Bluff Point is predominantly softwoods with northern white cedar (Thuja occidentalis) being the most common. Other softwoods found scattered and in groves on the island include:

Eastern white pine	(*Pinus strobus*)
Red pine	(*Pinus resinosa*)
Eastern hemlock	(*Tsuga canadensis*)
Red spruce	(*Picea rubens*)
White spruce	(*Picea glauca*)
Black spruce	(*Picea mariana*)
Balsam fir	(*Abies balsamea*)
Juniper	(*Juniperus communis*)

The shoreline from Beauty Bay around the north end of the island, down the west shore to North Bay and around Bullhead Bay is predominantly hardwoods. Species include:

Cottonwood	(*Populus deltoides*)
Quaking aspen	(*Populus tremuloides*)
Big tooth aspen	(*Populus grandidentata*)
Swamp white oak	(*Quercus bicolor*)
Basswood	(*Tilia americana*)
White ash	(*Fraxinus americana*)
Sugar maple	(*Acer saccharum*)
Red maple	(*Acer rubrum*)
American elm	(*Ulmus americana*)

The meadows range from successional old fields where over 50% of the area is forbs, grasses and herbs, to successional shrub land where over 50% of the area is in shrubs, to the successional northern hardwoods. The island also supports many alpine species such as rock sandwort, dwarf shadbush and alpine rush. This is partially due to constant buffeting of winds.

Natural influences are generally subtle, but sometimes become dramatic as they continue to shape the vegetation and wildlife found on the islands. An example of dramatic influence was the unique ice storm of January, 1998.

The ice storm caused significant natural thinning of both softwoods and hardwoods on certain areas of the island. This damage is still evident in 2015. In locations with shallower soils, trees were up-rooted. Where soils were deeper or there was mutual support, whole tops or upper branches were broken off. Large white pines were especially susceptible to having upper branches ripped from their trunks. Aspen also had extensive broken tops.

Less dramatic, but consistant, is the influence of wind, as witnessed by the shape of the tree crowns along the shoreline, especially on the high bluffs at the south end of Valcour Island. Along with the wind, the impact of wind-driven lake ice and wave action on exposed shorelines makes these areas inhospitable for vegetation found in the more sheltered areas of the islands. Still, these habitats are home to unique species that could not survive elsewhere. Most trees along the northern shore of Valcour Island show numerous scars from wind-driven lake ice grinding against them.

Invasive Plants

Terrestrial Invasive Plant Inventory

In 1998, the Adirondack Nature Conservancy's Invasive Plant Project initiated ED/RR surveys along Adirondack Park roadsides. Expert and trained volunteers reported 412 observations of 10 plant species throughout the area surveyed, namely NYS DOT Right-of-Ways (ROW). In 1999, the APIPP was expanded to include surveying back roads and the "backcountry" (undeveloped areas away from roads) to identify the presence or absence of 15 invasive plant species. Both surveys were conducted under the auspices of the Invasive Plant Council of New York's "Top Twenty List" of non-native plants likely to become invasive within New York State. A continuum of ED/RR surveys now exists under the guidance of the APIPP.

Assessments from these initial ED/RR surveys determined that four terrestrial plant species would be targeted for control and management based upon specific criteria such as geophysical setting, abundance

and distribution, multiple transport vectors and the likelihood of human-influenced disturbance. The four priority terrestrial invasive plant species are: purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), japanese knotweed (*Polygonum cuspidatum*) and garlic mustard (*Alliaria petiolata*).

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

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

Aquatic Invasive Plant Inventory

Aquatic invasive plant species documented in the Adirondack Park are Eurasian watermilfoil (*Myriophyllum spicatum*), water chestnut (*Trapa natans*), curlyleaf pondweed (*Potamogeton crispus*), fanwort (*Cabomba caroliniana*), European frog-bit (*Hydrocharus morsus-ranae*), and yellow floating-heart (*Nymphoides peltata*). Species located in the park that are monitored for potential invasibility include variable-leaf milfoil (*Myriophyllum heterophyllum*), southern naiad (*Najas guadalupensis*), and brittle naiad (*Najas minor*). Additional species of concern in New York State, but not yet detected in the park, are starry stonewort (*Nitellopsis obtusa*), hydrilla (*Hydrilla verticillata*), water hyacinth (*Eichhornia crassipes*), and brazilian elodea (*Egeria densa*).

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

While a comprehensive survey for the presence of aquatic invasive plant species has not been completed at present, APIPP volunteers have monitored the Lake Champlain waters. Eurasian watermilfoil, water chestnut, curlyleaf pondweed, European frog-bit, and yellow floating heart were detected in Lake Champlain. The APIPP Park-wide volunteer monitoring program aims to maintain a long-term monitoring program on Lake Champlain and other lakes. All aquatic invasive species pose a risk of spreading via transport mechanisms, such as seaplanes, motorized and non-motorized watercraft, (canoes, kayaks, jet skis, motor boats etc.) and associated gear and accessories.

b. Wildlife

The islands in Lake Champlain provide important habitat for a variety of wildlife species. No recent mammalian surveys specific to the LCIMC have been conducted, although most of the mammal species typical of the region are present on Valcour and Schuyler Islands. Due to habitat limitations, the other islands have greatly reduced mammalian diversity, with Signal Buoy Island having no resident mammal populations due to its submersion during periods of high water. The state will manage all wildlife according to the Department's Wildlife regulations.

Generally, wildlife species found on the islands are the same as elsewhere in the Lake Champlain Basin. The habitat on both Valcour and Schuyler Islands support a small whitetail deer (Odocoileus virginianus) population with no natural predators. Deer hunting is allowed and should continue if the habitat is to be protected. On Valcour, the plentiful supply of apple trees and other plants for deer browse will continue to support a reasonable population of deer. However, on both islands, as succession continues to turn the old meadows into mature forest, the food supply will be reduced, thus reducing the number of deer the island can sustain, unless some dramatic natural events such as wind or ice return areas to early successional stages.

The islands of Lake Champlain provide important habitat for a number of bird species. The NYS Breeding Bird Atlas indicates many species are documented breeding in the blocks covering Valcour and Schuyler Islands. A detailed listing is included as Appendix G. Particularly notable is that Valcour was home to the largest great blue heron rookery in New York State with a peak count of approximately 550 nests, located on the southern end of Valcour Island. This rookery was somewhat difficult to access and not excessively prone to disturbance by recreational activities. Prior to 2006, periodic surveys indicated the nest count in the rookery to be stable. Beginning in 2006, the rookery began to decline due to nest predation. By 2010, one nest was located in the rookery and that nest failed, and since then productivity has been extremely low. Great blue herons from this rookery foraged throughout the central part of Lake Champlain, and likely ranged as far as 20 miles inland during foraging activity. Other bird species also use the islands and surrounding waters of Lake Champlain for foraging, and as stopovers during spring and fall migrations. Bald eagles have been observed in the vicinity of Valcour and Schuyler Islands. The cliffs on the south end of Valcour Island are a historic peregrine falcon eyrie, although there has been no nesting there for several decades.

The New York State Bird Conservation Area Program was established in 1997 to safeguard and enhance bird populations and their habitats on state lands and waters. The goal of the Bird Conservation Area (BCA) Program is to integrate bird conservation interests into agency planning, management and research projects, within the context of agency missions. Legislation in the form of Environmental Conservation Law (ECL §11-2001) establishing the BCA program was enacted by the New York State Legislature, and signed into law on September 5, 1997.

The BCA Program is modeled after the National Audubon Society's Important Bird Areas (IBA) program, which began in New York in 1996. The BCA Program applies criteria developed under the IBA program to state-owned properties. To date, fifty-nine BCA sites have been designated.
In September of 2006, Valcour Island was designated as a BCA. A BCA is an area of special concern designated to "safeguard and enhance" populations of wild birds native to New York State and the habitats therein that birds are dependent upon for breeding, migration, shelter, and sustenance. Valcour Island, having been historically the largest blue heron rookery in the state, was the background for Valcour being designated as a Wading Bird Concentration Site and Individual Species Concentration Site (ECL §11-2001, 3. d and g). As a Wading Bird Concentration Site and Individual Species Concentration Site, Valcour Island BCA supported approximately 550 active great blue heron nests. The BCA also supports a variety of other waterbird, waterfowl, shorebird and landbird species during both the breeding season and spring and fall migration. While the heron rookery has been abandoned on Valcour Island due to natural predation, it is expected that the rookery may return in the future.

Another bird species receiving management attention on Lake Champlain is the double-crested cormorant. Double-crested cormorant populations have risen dramatically in recent decades throughout North America. This population increase is due to a reduction in the mortality caused by persistent toxic

chemicals, and better overwinter survival due to the expansion of the fish farm industry in southern states. The Migratory Bird Treaty Act has prohibited taking cormorants, and in recent years, cormorant populations have reached nuisance proportions. Resource managers and the general public have raised concerns about the impacts of cormorants on fisheries resources, and negative impacts on other waterbirds through displacement from nesting sites.

Although they are beyond the scope of this plan, the largest cormorant nesting colonies on Lake Champlain are located on privately owned islands (Four Brothers Islands, NY, and Young's Island, VT). Four Brothers Island, owned by The Nature Conservancy, had the second largest double-crested cormorant nesting colony in New York State, with 2,779 nests counted in 2003. Young's Island, owned by the State of Vermont, had a colony with 1,325 nests counted in 2002. In 1997, prior to control action, 1,866 cormorant nests were counted on Young's Island.

For several years, the Vermont Department of Fish and Wildlife, under a permit issued by the USFWS, has oiled eggs in cormorant nesting colonies on Young's Island to control the cormorant population. Research indicates this action has been effective, but has had the unintended consequence of causing cormorants to move to colonies where no control action has occurred, possibly to establish new colonies (personal communication, Dave Capen.)

In 2003, the U.S. Fish and Wildlife Service published an Environmental Impact Statement regarding the cormorant population, recommending revision of the aqua culture depredation order and establishment of a public resource depredation order. The public resource depredation order authorizes state Fish and Wildlife agencies to protect public resources (fish, wildlife, plants, and habitat) by the taking of cormorants. The federal public resource depredation order was most recently re-authorized in 2014 for an additional five years. On Lake Champlain, primarily among those actions is limiting expansion of cormorant nesting to new areas in order to avoid negative impacts upon other water birds. Cormorant nests will be destroyed if the birds attempt to establish new nesting colonies on any islands or shoreline owned by New York State. If new nesting attempts occur on private land, Bureau of Wildlife staff will seek permission from the landowner for control actions.

c. Fisheries

There are no protected or stocked streams in the LCIMC. There are no fishery resources specific to the LCIMC. Therefore, there are no species-oriented fisheries management actions proposed for the LCIMC. The Bureau of Fisheries administers the three public boat launches in the management complex; Peru Dock BLS, Port Douglas BLS, and Willsboro Bay BLS. There are 11 public boat launches on the New York side of Lake Champlain, including those administered by the Department's Bureau of Fisheries, OPRHP and the Department's Division of Operations, thus; these three launches represent a large proportion of the public access opportunities to Lake Champlain.

4. Visual/Scenic Resources/Land Protection

The Bluff Point Lighthouse offers spectacular views across the main section of the surrounding Lake as well as the surrounding heavily forested landscape of New York and Vermont from the viewing deck. All the Islands in the LCIMC offer visitors expansive views of the Lake and surrounding mountains in both New York and Vermont. The steep cliffs on Valcour Island have many small caves and igneous intrusions. These igneous intrusions are visible as dark-colored dikes in the limestone. These dikes were formed during the Cretaceous period around 100 million years ago when lava was forced up through the limestone. Of the

islands in the LCIMC, Valcour has the most expansive list of rare and endangered species. The island also is home to a variety of rare habitats.

5. Critical Habitat

The islands in the LCIMC host a wide variety of plant and animal species as well as rare natural communities. Most of the species found on the islands are also found in other areas of the Adirondack Park. However, due to ecological factors, change in climate, and human factors, some species warrant protection. According to the New York Natural Heritage Program (NYNHP), various plant and animal species and communities have been identified as rare, threatened, endangered or protected.

The outcropping Ordovician limestone bedrock that forms Valcour Island is unusual and gives rise to a mosaic of uncommon communities and the largest concentration of rare plants in eastern Clinton County. Valcour Island hosts seventeen examples of rare plants, which fall into the eight natural communities that are documented on the Island: cobble shore wet meadow, inland calcareous lakeshore, calcareous shoreline outcrop, limestone woodland, northern white cedar rocky summit, silver maple-ash swamp, mesotrophic dimictic lake, and northern white cedar swamp. Additionally, the northern white cedar swamp on Valcour Island historically supported a large western hemisphere rookery where great blue herons (*Ardea herodias*) nested communally.

The Natural Heritage Program has recorded extant populations of rare plants. Historically, others have been known to exist on the island, but have not been located on recent searches. All but one of the populations of rare plants occur in areas frequented by the recreating public. A list is included in Table 1 below. One historic species occurred both on the shores and in aquatic beds (American shore-grass, *Littorella americana*) of Valcour. One species that has not been relocated is the historical report of calypso (*Calypso bulbosa*), a swamp species that has not been relocated recently here or elsewhere in New York. The shore plants are found mostly on the more protected shores in the bays and on the lower, more accessible limestone ledges. Upland woods species are located mostly on the southern and northeastern portions of the island. These are the areas where campsites and hiking trails are concentrated. The aquatic beds occur in the more protected bays where boats find favorable anchorage.

The woodland rarities are located mostly in rugged areas that were never developed under former private ownership. In the woods, elements are located both near and far from trails. Visitor use of trails is evident, but the untracked woods show little evidence of visitor use. Also, woodland populations tend to be fairly small and well-scattered throughout the potential habitat. Such a pattern makes a species less vulnerable to random destruction by natural events or human activity than another pattern with populations concentrated in a few locations. However, in spite of a decade of intense botanical survey work, five of the woodland species have not been relocated. The reasons are not clear, and may be different for each species.

6. Ecological Communities

The New York Natural Heritage Program has done extensive surveys of Valcour Island. A January, 1998 report by the New York Natural Heritage Program has identified eight different ecological communities as defined in the book "Ecological Communities of New York State" published by the New York State Department of Environmental Conservation and Natural Heritage Program. These include:

- Calcareous shoreline outcrop;

- Cobble shore wet meadow;
- Inland calcareous lakeshore;
- Mesotrophic dimictic lake (Aquatic beds);
- Northern white cedar swamp;
- Silver maple-ash swamp;
- Northern white cedar rocky summit;
- Limestone woodland.

A Calcareous shoreline outcrop is a relatively common community of limestone bedrock outcrops with large diverse and relatively pristine occurrence along the shores of Valcour Island. The most extensive areas are on the south and southeast shore, but occur elsewhere in patches around the entire island. The shoreline from Cystid Point to Smugglers Harbor is especially impressive as the rock gently slopes eastward into Lake Champlain. Vegetation is sparse with most plants rooted in rock crevices. Mosses and lichens can be found in protected, moist areas. In general the vegetation in this community on Valcour Island is not vulnerable to human impact under current use patterns.

Cobble shore wet meadow is an area of shoreline cobbles with a substrate of cobbles and sand that is kept wet by intermittent flooding or seepage. Vegetation is generally sparse, but can be very vulnerable to public use. On Valcour Island, the cobble shore wet meadow community is found at several locations, the most extensive being the shores on the north end of the island. There are some seeps with diverse vegetation in relatively pristine condition with few exotics. While the north shore is less hospitable to boats and camping, the Perimeter Trail passes along the edge of this community. Management consideration should be given to minimizing use on lands of the cobble shore wet meadow adjoining this section of trail. The northern two-thirds of shoreline in Smugglers Harbor contain a low open meadow of cobble/sand character with some seepy areas. This is a small, diverse and relatively pristine area and vulnerable to trampling because of intense use by people with boats. Management actions should minimize routing users through the meadow.

The south shore of Bluff Point and the east shore of Bullhead Bay both have narrow bands of the cobble shore wet meadow community. These sites are fairly well buffered by other natural communities, contain few exotics, and display only limited evidence of trampling. Considering the historical evidence of human use including picnic tables on the attractive beach setting of the northern shore of Bullhead Bay, the potential for human impact to this area is great.

The last identified area of cobble shore wet meadow on the island is the northeast shore of North Bay. The shore is an herbaceous meadow that is lush and homogenous with the plants growing between the cobbles. This is a moderate size shore in good condition with few exotics and fairly well buffered by other natural communities. There is some evidence of trampling.

Inland calcareous lakeshore is a gravely, sandy or muddy shore of an inland lake or pond with calcareous water and seasonally fluctuating water levels. The substrate is either saturated or flooded. Vegetative cover may be sparse. Valcour Island has three locations along its west shore where this community is found. The first is an emergent marsh on a mucky/sandy shore of the cove located on the northwest shore, north of Valcour Landing. This marsh is small but in good condition. There are no immediate threats from human activity because its muddy character makes it less appealing to walkers; however, there could be potential problems if small watercraft travel into the marsh to get to the shore.

The next area heading to the south, is in North Bay where there is another small emergent marsh on a mucky/sandy shore area. There are few exotics present. Like the previous area, the muddy character of the marsh makes it less vulnerable to trampling. However, the cove's location between Butterfly Bay and the Valcour lighthouse increases the potential for impact. Being a well-protected bay, it could be subject to some problems from small boat use.

The third area of inland calcareous lakeshore is along the southeast shore of Bullhead Bay, south of the little point that extends into the bay. Close proximity to Bullhead Bay's sandy beach and the Perimeter Trail increases the potential for trampling.

Mesotrophic dimictic lake is an aquatic community with moderately clear water, medium transparency, moderate amounts of plant nutrients, moderate primary productivity, lake sediments with moderate amounts of organic matter and moderately well oxygenated water. Characteristic fishes are warm water species. These lakes typically have a diverse mixture of submerged macrophytes. This community is found in the shallow bays and coves surrounding Bluff Point. Waters are generally clear to 10 feet. Adjacent shores are cobble shore, cobble shore wet meadow, sandy shore and calcareous shoreline outcrop. These fairly pristine bays are very accessible, open, and desirable for recreational use. Some Eurasian milfoil is present. With easy access to the areas around Bluff Point, some impact from watercraft traffic is already apparent.

The four remaining ecological communities are all upland and interior. Two are swamps and two are predominantly dry areas with shallow soils at higher elevations.

Northern white cedar swamp is a conifer or mixed swamp that occurs on organic soils in cool poorly drained depressions and along streams, often spring fed or enriched by seepage of cold, minerotrophic ground water resulting in a stable water table and continually saturated soils often rich in calcium. As the name implies, the characteristic tree is the northern white cedar (*Thuja occidentalis*) which makes up more than 30% of the canopy. On Valcour Island there are approximately fifteen acres of this community in a drainage that flows northeast into Smuggler's Harbor. While northern white cedar is the predominant species, there is a significant amount of balsam fir (*Abies balsamea*) and black spruce (*Picea mariana*) also in the canopy. This gives the area a boreal appearance with a mossy ground layer containing such species as bunchberry (*Cornus canadensis*), gold thread (*Captis trifolia*), and starflower (*Trientalis borealis*). The Perimeter Trail runs along this area and across the drainage just as it reaches Smugglers Harbor. The swamp is dense and wet enough not to invite much foot traffic. The trail should be kept on dry tread in areas that are seasonally wet to prevent widening by people trying to keep their feet dry.

Silver maple-ash swamp is a hardwood swamp that occurs on poorly drained soils along the lakeshore and in poorly drained depressions. It is characterized by uniform wet conditions with minimal seasonal fluctuations. The dominant tree species are silver maple (*Acer saccharinum*), ash (*Fraxinum sp.*) and at one time, American elm (*Ulmus americana*). This community is represented on Valcour Island in a near lake level depression of about 15 acres between Bluff Point and the rest of the island. The characteristic tree species are found here plus a scattering of swamp white oak (*Quercus bicolor*) along its edge, especially on the low shore ridges between the swamp, Bullhead Bay and North Bay. This is a small mature swamp buffered on all sides by natural communities. There are no threats to this community as long as no unnatural alterations are made to the hydrological regime.

Northern white cedar rocky summit is a community that occurs on cool, dry, rocky ridge tops and summits where the bedrock is calcareous, and the soils are more or less calcareous. Vegetation is sparse or patchy

with northern white cedar (*Thuja occidentalis*) as the predominant tree species. Approximately one acre of northern white cedar rocky summit exists in a narrow strip of very dry, open edge limestone woodland at the top of the bluffs along the southern end of Valcour Island. Because of its fragile character, it is vulnerable to trampling by hikers. The high bluffs with good vistas are inviting to island visitors. The Perimeter Trail goes very close to the bluffs, making it difficult to keep people from walking to the edge.

Limestone woodland occurs on shallow soils over limestone bedrock and usually includes numerous rock outcrops. Tree cover may be predominantly softwood, hardwood or mixed. It may include a rather wide variety of tree and other vegetative species.

On Valcour Island, limestone woodland is the largest ecological community, occupying about 450 acres. Starting at the southern end of the island, the limestone woodland community extends along the eastern half of the island to the sharp drop off near Beauty Bay and on Bluff Point. An excellent example of this community, it consists of open canopy forest with mixed conifers and hardwoods on shallow rocky soils over limestone bedrock. The size of the community, and the fact that most people do not leave the trail and shoreline, makes it less vulnerable to human impact. Bluff Point is an exception where intensity of use may grow and present a threat to sensitive organisms in that area. Management of the limestone woodland community on Valcour Island should ensure that the intensity of use on Bluff Point is concentrated in a way that discourages random trampling through sensitive areas. It may be necessary to prohibit camping on Bluff Point and to designate specific trails.

The January, 1998 report does not identify the meadows as being in any particular natural community; however, all of them are in various early stages of succession representing a continuum of three ecological communities. The centers are more open with mostly grasses and herbaceous plants such as thistle (*Cirsium sp.*), milkweed (*Asclepias sp.*) and goldenrod (*Solidago sp.*), which represent a successional old field community. Other areas are more advanced with dogwood (*Cornus sp.*), sumac (*Rhus typhina*), (*Viburnum sp.*) and other shrubs representative of a successional shrubland. The edges of the old meadows are most advanced with pioneer tree species such as poplars (*Populus sp.*), birches (*Betula sp.*), ash (*Fraxinus americana*), white pine (*Pinus strobus*) and other pioneer tree species. These areas are indicative of a successional northern hardwood community. In some old clearings, especially near the north end of the island, there are dense thickets of hawthorne (*Crataegus sp.*) and buckthorn (*Rhamnus alnifolia*). Many areas on the island have dense patches of poison ivy (*Taxicodendron radicans*), especially in the clearings.

Table 1. THREATENED, RARE AND ENDANGERED PLANTS

The following is a list of vascular plants currently found on Valcour Island or for which there is a historical record of its past existence. Globally, these are all ranked G4 or G5; however, their state rank is S1 or S2, meaning there are less than 20 known occurrences in New York State.

Detailed information on these species is on record with the New York Natural Heritage Program. (Ives,1998)

New York Natural Heritage Program species list for Valcour Island (January, 1998).

Rock-Cress	(*Draba glabella*)
Giant Pine-Drops	(*Pterospora andromedea*)
Veiny Meadow-Rue	(*Thalictrum venulosum*)
Melic-Oats	(*Trisetum melicoides*)
Calypso*	(*Calypso bulbosa*)
Hooker's Orchid*	(*Platanthera hookeri*)
Handsome Sedge	(*Carex formosa*)
Black-Edge Sedge*	(*Cares nigromarginata*)
Rock-Cress	(*Draba arabisans*)
Blunt Spikerush*	(*Eleocharis obtusa var. ovata*)
Water Milfoil	(*Myriophyllum alterniflorum*)
Dwarf Sand-Cherry	(*Prunus pumila var. depressa*)
Northern Reedgrass	(*Calamagrostis stricta ssp. inexpansa*)
Rocky Mountain Sedge	(*Carex backii*)
Crawe Sedge	(*Carex crawei*)
Golden Corydalis	(*Corydalis aurea*)
Northern Wild Comfrey	(*Cynoglossum virginianum var. boreale*)
Ram's-Head Ladyslipper	(*Cypripedium arietinum*)
Northern Reedgrass	(*Calamagrostis stricta ssp. stricta*)
Hitchcock's Sedge	(*Carex hitchcockiana*)
Reflexed Sedge*	(*Carex retroflexa*)
Downy Lettuce*	(*Lactuca hirsuta*)
American Shore-Grass*	(*Littorella americana*)
Sweet Coltsfoot	(*Petasites frigidus var.palmatus*)

* Historical Records Only

The shore and aquatic rarities are much more vulnerable than in other upland communities. Use of these areas is intense in the summer. Boats moored overnight are abundant in all bays and coves, especially on the sheltered east shore. Some evidence of trampling has been located on shoreline communities. Nutrient enrichment undoubtedly affects waters of the bays. Shore and aquatic rarities are mostly inconspicuous, but most of these species are present as small populations in few locations, and are subject to severe natural disturbance from ice scour, storm waves, and periodic high lake levels. Random events or single occurrences of heavy use on a particular site are much more likely to extirpate a shore species than a woodland species on Valcour Island.

Garden Island is an undeveloped one-acre limestone island about 0.5 miles south of Valcour Island. It supports a grassy meadow with one rare plant, northern tansy-mustard (*Descurainia pinnata ssp. brachycarpa*), which has not been observed anywhere else in eastern Clinton County. Access to the island is limited by 15-20 foot cliffs, so visitor impact is low. The weedy, non-native character of the meadow may threaten the rare tansy-mustard. A rock cress (*Draba glabella*) reported historically from this island has not been relocated.

B. Man-Made Facilities

The LCIMC has a large inventory of facilities, considering its small acreage. This is mostly due to the central location of the two largest islands to Plattsburgh, Peru and Vermont. There are approximately 13 miles of designated foot trails in the LCIMC, most of which are located on Valcour Island. One small section of trail exists on Schuyler Island. The condition of these foot trails varies little from trail to trail. This is primarily due to a combination of the level of use and the layout of the trails. The main reason people use the foot trails in the LCIMC are for short walks while camping on the islands or in the safe harbors surrounding the islands. The most heavily used trails are the trails accessing the Bluff Point Lighthouse. Other trails are well used, but at a lower level. A detailed summary of all the trails in the LCIMC is in Appendix A.

1. Historical Management

The decade of the 1960's saw the purchase and development of many of New York's waterway access sites. These projects ranged from modest and often largely undeveloped sites to large boat launching facilities like the Willsboro Bay BLS. Fewer, but still significant numbers of access sites came into existence during the 1970's. Since then, the addition of new boating and waterway access sites has been modest, with more emphasis on improving and remodeling existing sites. According to the Strategic Plan for Modernization of Department of Environmental Conservation Waterway Access Facilities in New York State 1987 (Strategic Waterway Plan), many facilities deteriorated due to inadequate annual maintenance [monies], with a resulting loss of fishing and boating opportunities.

A critical development was the 1984 enactment of the "Wallop-Breaux Amendment to the Federal Dingell-Johnson Act, which provided Federal money to the states through the Sport Fish Restoration Fund. The amended act provided for an expanded tax base to support the restoration fund. The result has been an increased annual Sport Fish Restoration Fund, 10% of which must be spent on boating access enhancement programs. This funding source has been used to support salaries for increased design work and to upgrade existing facilities. The bulk of the Sport Fish Restoration Fund has been and will continue to be used for annual recurring maintenance of existing sites.

2. Current Management

As described in the Strategic Waterway Plan, providing access to the waterways of New York State is an integral part of a sound fisheries management program and is consistent with the Department's mission. As detailed in the 2009 New York State Open Space Conservation Plan, (Open Space Plan) an important planning document jointly prepared by the Department and OPRHP, waterway access provided by the Department will focus on fishing while OPRHP directs its efforts at the full range of recreational boating and water recreation. Because the Department administers all boating access sites within the Adirondack Park, a BLS must provide for users other than anglers. However, the stated function of Department boat launching sites is reflected in the general design character and scope of Department facilities. The Department will continue to provide recreational opportunities in keeping with our mission "to conserve,

improve and protect New York's natural resources and environment and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well-being."

The counties served by the boat launches in the LCIMC, Clinton and Essex, are rated as moderate in their immediate need for improved boating access.

The 2014 edition of the State Comprehensive Outdoor Recreation Plan (SCORP) is an essential recreation-planning document written and periodically updated by the OPRHP. This document has identified boating access needs on Lake Champlain similar to those described in Department plans. SCORP calls for improvements to existing launching sites, including launch ramp and dock repairs, dredging and the need for improved supporting facilities, such as pump outs and restrooms. SCORP also identifies the need for improving public access during winter months for ice fishing. The Department will assess its launch sites for suitability as winter access locations. Sites like the Port Douglas BLS lend themselves to winter access because the simplicity of the design, and lack of landscape islands and curbs, facilitates winter plowing without undue damage. Willsboro Bay BLS is a commonly used access point for ice fishing.

There are 11 public boat launches on the New York portions of Lake Champlain. Three of the boat launches are in the LCIMC and administered by the Department's Bureau of Fisheries: Peru Dock BLS, Port Douglas BLS, and Willsboro Bay BLS.

a. Peru Dock Boat Launch

The Peru Dock BLS is located on State Route 9, 1.5 miles north of the hamlet of Valcour. The boat ramp consists of a macadam-surfaced approach that is large enough to accommodate large car and trailer units. The ramp is a double width, concrete slab pitched at a near optimal 14% slope. The ramp extends 50 feet. The ramp is outfitted with aluminum floating docks, which were state of the art when installed. They continue to serve very well and as a model for a well-equipped launch facility. Concrete wing walls located on either side of the ramp provide shore protection at the Peru Dock. These walls have some minor cracks, but are structurally sound and should serve for many years to come. The parking areas (2) will together hold 50 cars and trailers. There is a flush toilet facility, rare among Department boat launch facilities. Additionally, there is a boat pump out for boats equipped with sanitary facilities. This is one of three Department boat launches on Lake Champlain that provide a boat pump out. During a boating needs assessment conducted in preparation for the 1987 Strategic Plan for Modernization of Department of Environmental Conservation Waterway Access Facilities in New York State, prepared jointly by the Departments Division of Fish and Wildlife and the Division of Operations, the Peru Dock BLS was considered to be "clearly the best boat access facility in Region 5..."

The facility continues to provide excellent boating access to Lake Champlain. No major modifications are anticipated for this site during the scope of this plan. However, there is a periodic buildup of sediment on the end of the boat ramp causing problems for larger boats during low water periods. This sediment build up was remedied with a minor dredging project in 1996. Years later, sediment has again built up and the Department has received numerous complaints, especially during the low water year of 2002. When funding becomes available, the site will be dredged a second time, in accordance with all applicable regulations. This type of project is generally allowed under the US Army Corps of Engineers Nationwide Permit, with standard sediment controls. Minor modifications to the Peru Dock BLS have been undertaken to make the facility accessible to persons with disabilities.

In addition to the parking area, bathroom facilities, and boat ramp, this facility also contains two other structures, both of which were on the property when the Department acquired it. The first, an old garage located on the northwest corner of the property, provides storage of maintenance and search and rescue equipment. The second building is a caretaker's house, with a two-bay garage and small apartment. This building also provides storage of maintenance equipment and overnight accommodations for maintenance personnel when needed.

b. Port Douglas Boat Launch

The Port Douglas BLS is located in Essex County just off County Route 16, approximately 3.0 miles southeast of the Village of Keeseville, in the Town of Chesterfield. The site was purchased in 1964 and likely developed as a BLS shortly thereafter. The Town of Chesterfield obtained a U.S. Army Corps of Engineers permit in 1982 and undertook modest improvements at that time. However, the Town facility was less than ideal and a more modern facility was desired by both the Department and Town of Chesterfield officials. The present launch was installed in1994. The current facility consists of a modern two-lane concrete launch ramp with aluminum floating docks. Shoreline protection is afforded by steel sheet-pile bulkheads, which are a weathered brown color. This form of shore protection has proven very durable and utilized at several Department launch facilities along Lake Champlain. The Port Douglas BLS is considered adequate. It was constructed as a no frills facility with limited funding. However, the ramp, parking area, and floating docks adjacent to the ramp are all good quality and in good repair. The Town of Chesterfield has assisted in upgrading the dock configuration and provides a great deal of annual maintenance assistance. The site is successful in large part due to the cooperative spirit with the Town. No major modifications are anticipated for this site during the scope of this plan, but some minor improvements were recently undertaken. Modifications were made to make the facility accessible to persons with disabilities. As part of these modifications, a portable, accessible rest room facility was added, enclosed in a simple wooden screening. Accessible parking was also added, and appropriate signage posted.

c. Willsboro Bay Boat Launch

The Willsboro Bay BLS is located in Essex County, Town of Willsboro, on County Route 27, approximately 3 miles east of the Village of Willsboro. The land for the launch was purchased with funds from the Park and Recreation Land Acquisition Bond Act in 1963. This spacious site has parking space for 100 cars and trailers. The current Willsboro facility was constructed in 1968. This facility is currently in need of visual improvements, but the infrastructure is sound and serves its purpose well. The launch apron is wide enough for large boats and vehicles to turn around. The concrete ramp is in good repair and is the only twin, two-lane launch in the LCIMC. The ramp's pitch is at a somewhat less than optimum angle of 11.6% slope, but because the ramp is long and water depths are sufficient, the low angle does not present a problem. Shore protection is provided by steel sheet piling, which is a weathered brown color. An inspection of the site conducted in 1986 concluded that the Willsboro site "approaches 100% functionality as is. This is a very large, well designed and constructed site that has withstood the test of time and the elements very well." This site is still in very good condition; however, new floating docks are urgently needed. A new wooden cap for the steel bulkhead and minor repairs would also be helpful, but are less critical. There is a vault toilet facility. Additionally, there is a boat pump out for boats equipped with sanitary facilities. This is one of three Department boat launches on Lake Champlain to provide a boat pump out. As is the case with the other LCIMC boat launches, the site is now accessible to persons with disabilities. These improvements included modifications to the present toilet facility and designation of accessible parking spots.

C. Past Influences

1. Cultural

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.

2. Historical

Within the Adirondack Park on state lands, the number of standing structures is generally limited due to the requirements of the APSLMP. Often those that remain are structures that relate to the Department's land management activities such as fire towers, "ranger" cabins and related resources. The APSLMP required the Department to remove the many private camps that were acquired by the Department with the land parcels on Valcour, as they were non-conforming with the APSLMP requirements for Primitive Areas. All but one of these camps have been removed.

The one camp that remains, "The Seton House," has been determined to be eligible for listing on the State and National Historic register by OPRHP. In addition to its historical value, the house could also provide a location for the Department to interpret the history of the island and surrounding historical area. The dock that once provided access to the home now provides access for Department personnel to perform island maintenance, search and rescue operations, fire-fighting activities, and other Department functions.

D. Public Use

1. Land Resources

In the summer of 2003, after holding an initial public open house regarding the development of the LCIMC UMP, a user survey was conducted in order to determine the appropriateness of some of the management actions suggested by the public during the public comment period. Over 550 users were surveyed and completed by recreational users of many nationalities, offering both a French and English version. The responses, recorded in a database, were reviewed to determine the preferred types of recreational activities, types of access used, areas most often visited, and types of users. The survey data also helped to answer land management questions pertaining to overcrowding, trash, mooring, privacy, use conflicts, trail use and availability of bathroom facilities. In addition, the database was used to determine what the majority of users felt needed the most improvement. Review of the survey helped in determining the need for maintenance and new facility development.

The aesthetic appeal of the islands in the LCIMC and easy access via Lake Champlain lead to a high level of sustained use during the late spring through early fall. When boating in Lake Champlain, the Islands provide access to scenic natural areas that feel relatively remote from civilization. The beaches on Valcour Island and the protective harbors around it receive high levels of use. The beaches are frequently used for frisbee, sun bathing, cooking, swimming and other recreational uses. Day users commonly use the three stone fire rings found on the beach in Bullhead Bay for cooking meals. These fire rings are frequently left in a littered condition. Most of the beach use is concentrated in Bullhead Bay, North Bay, and the designated

beach picnic area in Butterfly Bay. Motor boat users as well as others aware of this attractive site often use the lakeside picnic area at Butterfly Bay.

The bays around Valcour Island are used on an almost continuous basis from late spring to early fall. On weekends and holidays, the bays are full of sailboats, predominantly from Canada. Along with the Canadian sailboats, many local users from Vermont and New York frequent the numerous sheltered bays around the Island.

Users have diverse backgrounds and speak primarily English and/or French. There is no actual data on use numbers since there is no centralized access point. Some use figures can be derived from camping permits, boat launch registers and anecdotal data. Most boat users, however, do not use the boat launch site registers making the data collected less reliable than that of trail registers at multi-use trailheads. Since data for use of the Islands was not available, the user survey was completed to determine user satisfaction, use type, length of stay, party size, user age and home harbor location. The data collected was helpful in determining the need for management actions from trail building to campsite construction. The compiled user survey data clearly showed that user conflicts, user dissatisfaction caused by historical land management and heavy use were not significant.

The campsites around Valcour provide some of the most sought after camping locations on the lake. During any warm sunny summer day, these sites are quickly filled. Most weekdays one can find a campsite, but the most desired sites are often occupied. During July 4th and the Canadian holiday, Canada Day (usually July 1st) the bays around Valcour Island are fully used.

The hiking trails on Valcour are a great way to enjoy the island. The trail system extends from the southern end, looping around the circumference and includes two bisector trails that cut through the center of the island. When hiking the Perimeter Trail, located around the circumference of the island, there are two historic structures: the Seton House and Bluff Point Lighthouse. The Lighthouse is open to the public on specific occasions scheduled by the Clinton County Historic Association for viewing and interpretation. The trails around the island provide for an excellent natural experience and offer great scenic vistas.

In the future, the finger dock at the Seton House may serve as access to an interpretive trail that would originate at the Seton House. The dock also currently provides access to the southern end of the island, which is important in case of emergency as well as island maintenance. This dock serves as a landing point for maintenance activities such as trail and campsite maintenance.

The shore dock located near the Lighthouse has historically served multiple purposes. It provided access to the middle of the island. This dock was in an excellent location for an emergency landing if the need arose to help someone injured on the island while camping or visiting the historic Lighthouse. The dock also served as a landing point for maintenance activities such as trail, campsite or Lighthouse maintenance. Additionally at times, the dock provided access to the historic Lighthouse by visitors with reduced mobility.

The three campsites and two pit privies located on Schuyler Island provide additional camping locations on the lake. These sites receive much lower levels of use than those on Valcour, but on a warm sunny weekend, they can be expected to fill up quickly. Most weekdays one can find a campsite here. During the week surrounding July 4th and Canada Day, when the protected bays and primitive tent sites around Valcour Island are fully used, overflow users often seek a primitive tent site in this area.

In addition to the primitive tent sites on Valcour and Schuyler Islands, there are two other sites in the LCIMC: one each on Cole and Sheepshead Islands. Neither of these sites have pit privies. These islands are both too small to sustain overnight camping and these sites will close as an action of this UMP. Cole Island is also home to a stone monument. At one time, the monument had a plaque but the plaque was removed and its location is unknown. No other facilities are located on these two islands.

The three boat launch sites: Peru, Willsboro and Port Douglas, all receive considerable use. Peru BLS however receives the most use. Peru BLS serves as the primary NYS local free public access point for the Crab, Valcour and Garden Islands section of Lake Champlain. Due to the high level of use found at Peru BLS, along with the location and geography of the site, it was chosen as a great location for a new monument area, which will involve the relocation of several Revolutionary War-era monuments to a central location. The new site will allow easy access to these monuments currently located at separate locations off the beaten path. The new monument area design is included in Appendix L.

There is only one trail register in the LCIMC at this time. The register is located at the Peru BLS. It is the class 3 standard box type. The register data recorded in this box does not directly correlate with the use of the LCIMC Islands. Most of the users using the Peru BLS site do not sign in at the register box in the summer. This box receives a much lower percentage of user sign up than most of the register boxes in the park. This register is used mostly by those participating in winter ice fishing. The historical register data from this register box is included in Appendix B.

2. Wildlife

Valcour and Schuyler Islands are utilized for hunting, primarily for whitetail deer, but also for waterfowl, and other small game. Deer hunting is permitted and should continue to be, in order to protect the islands habitat. There is no apparent need for special regulations at this time. The plentiful supply of apple trees and other plants for deer browse will continue to support a reasonable population of deer. However, as succession continues to turn the old meadows into mature forest, the food supply will be reduced. Unless some dramatic natural events such as wind or ice return areas to early successional stages reducing the size of deer herd, the island will sustain. Other wildlife species commonly occurring on the island are varying hare and red fox.

3. Fisheries

Statewide, fishing was the activity most often identified as the purpose for boating trips, although the percentage varied widely by site. At the Lake Champlain facility at Fort Ticonderoga, 83% of surveyed boaters listed fishing as the primary purpose of their outing. Pleasure boating and water skiing were the next two most often cited purposes (1990 Statewide Survey). Since the islands contain no water bodies, there is no pertinent fishing information for the LCIMC.

4. Water Resources

The islands in the LCIMC do not contain any inland water bodies.

E. Recreational Opportunities for Persons with Disabilities

The Federal Americans with Disabilities Act of 1990 (ADA) along with the Architectural Barriers Act of 1968 (ABA) and the Rehabilitation Act of 1973, have important implications for the management of all public

lands, including the LCIMC. An explanation of the ADA and its influence on management actions is provided under Section III; Management Guidelines.

In 1997, the Department adopted policy CP-3, Motor Vehicle Access to State Lands under Jurisdiction of the Department of Environmental Conservation for People with Disabilities, which established guidelines for issuing temporary revocable permits allowing qualified people with disabilities to use motor vehicles to gain access to designated routes on certain state lands. There are no existing CP-3 routes in the planning area.

The Bluff Point Lighthouse is a facility that is of interest to many users. The access route and facility itself were evaluated for accessability and ability to be upgraded for universal access. In addition to the lighthouse and lighthouse access route, portions of the Perimeter Trail were also evaluated for being upgraded to become universally accessible.

The New York State Department of Environmental Conservation is committed to providing recreational opportunities to persons with disabilities. The three public boat launches in the LCIMC are named in the Consent Decree for Civil Action No. 98-CV–1117 (LEK-RWS), commonly called the Galusha Settlement, which commits the Department to providing accessibility at many of its existing recreational facilities. Plans were implemented to rehabilitate the existing boat launch sites to bring them into compliance. At Port Douglas BLS, an accessible portable toilet facility is provided. The existing vault toilet facilities at Willsboro Bay BLS and the sanitary sewer toilets at Peru Dock BLS were also made accessible. The Willsboro Bay and Port Douglas boat launches were both constructed on relatively gentle slopes, making these facilities accessible was relatively easy. The Peru Dock BLS site is relatively steep.

F. Capacity to Withstand Use

Carrying Capacity Concepts

The LCIMC, like any other natural area in the Forest Preserve, cannot withstand ever-increasing, unlimited visitor use without suffering the eventual loss of its essential, natural character. This much is intuitive. What is not intuitive, though, is how much use and of what type the whole area - or any particular site within it - can withstand before the impacts of such use cause serious degradation of the very resources being sought after and used. Such is a land manager's most important and challenging responsibility: to work to ensure a natural area's "carrying capacity" is not exceeded while concurrently providing for visitor use and benefit.

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 the vegetation of related resources" (Arthur Carhart National Wilderness Training Center, 1994). This concept, in decades past, was modified to address recreational uses as well; although in its application to recreational use, it has been shown to be significantly flawed when the outcome sought has been the "maximum number" of people who should visit and recreate in an area such as the LCIMC. Much research showed that the derivation of such a number is not useful.

Essentially, this is because the relationship between the amount of use and the resultant amount of impact is not linear (Krumpe and Stokes, 1993). For many types of activities, for instance, most of the impact occurs with only low levels of use. In the case of trail erosion, once soil starts to wash away, additional foot travel does not cause the impact upon the trail to increase proportionately. It has been

discovered that visitor behavior, site resistance/resiliency, type of use, etc. may actually be more important in determining the amount of impact than the amount of use, although the total amount of use is certainly still a factor (Hammit and Cole, 1987).

This makes the manager's job much more involved than simply counting, redirecting, and (perhaps) restricting the number of visitors in an area. Influencing visitor behavior can require a well-planned, multi-faceted educational program. Determining site resistance/resiliency always requires research (often including much time, legwork and experimentation). Shaping the types of use affecting an area can call for not only education, research, and development of facilities, but also the formulation and enforcement of a set of regulations that some users are likely to regard as objectionable.

Nevertheless, the shortcomings of a simple carrying capacity approach have become so apparent that the basic question has changed from the old one, "How many is too many?" to the new, more realistic one: "How much change is acceptable?" The Department embraces this change in approach while recognizing the tasks it calls for in developing the best foundation for management actions. Professionally informed judgements must be made such that carrying capacity is given definition in terms of resource and social conditions that are deemed acceptable. These conditions must be compared with the real, on-the-ground conditions; certain projections must be made and management policies and actions must be drafted and enacted with an aim toward maintaining or restoring the conditions desired.

This shift in managers' central focus - away from trying to determine how many visitors an area can accommodate, to trying to determine what changes are occurring in the area and whether or not they are acceptable, is as critical in a management complex with Type II Primitive areas and Wild Forest areas like the LCIMC as it is in a Wilderness. All such areas are Forest Preserve units that must be protected, as per the state Constitution, as "forever wild." Furthermore, the APSLMP dictates in the very definition of Wild Forest areas that their "essentially wild character" be retained.

The magnitude of this challenge is made evident by other statements and acknowledgments found in the APSLMP concerning Wild Forest areas. The 1972 APSLMP claim that "many of these areas are under-utilized" remains seemingly true, and from this determination and the determination that these areas "are generally less fragile, ecologically" comes a directive that "these areas should accommodate much of the future use of the Adirondack Forest Preserve."

Clearly, a delicate balancing act is called for, and yet just as clearly, the Department's management focus must remain on protecting the resource. "Future use" is not quantified in the above directive, but it is generally quantified and characterized in the definition of Wild Forest as only "a somewhat higher degree of human use" when compared to Wilderness and Primitive and whereas certain "types of outdoor recreation... should be encouraged," they must fall "within constitutional constraints... without destroying the wild forest character or natural resource quality" of the area.

A central objective of this plan is to lay out a strategy for achieving such a balance in the LCIMC. This strategy reflects important guidelines and principles, and it - along with the guidelines and principles - have directed the development of the management proposals detailed in Section VIII.

Strategy

The long-term strategy for managing the LCIMC 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 Wild Forest and Primitive area 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 is a written assessment of the current management situation and a set of assumptions about future trends, in which the specific management proposals that 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 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 LCIMC (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 that incorporate them.

In outline, the Departments approach applies four factors in identifying potential management actions for an area, which are:

- 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 that may be used by the Department for measuring and evaluating acceptable change on the LCIMC are:

- condition of vegetation in camping areas and riparian areas near wetlands and streams;
- extent of soil erosion on trails and at campsites;
- non-compliant behavior;
- noise on trails and in campsites;
- conflicts between different user groups; and
- diversity and distribution of plant and animal species.

These indicators form the basis for the proposed management actions presented in Section IV. Each applicable resource area or facility type identified in Section IV will be assessed for its present condition and its desired future condition. This approach will require flexibility, determination and patience. It will not be possible to complete all inventories and assessments called for by this strategy - and by the APSLMP - in this plan's five-year timeframe. 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 LCIMC UMP will be useful to: 1) revise and refine management actions if evaluation shows that desired conditions are not being attained or sustained; and 2) to create 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 LCIMC.

The 1990 Statewide Boating Survey provides information useful in assessing the ability of Lake Champlain to withstand current and near-term levels of boating use. Public sites contributed only 28% of all boat use on lakes during peak periods (summer weekends and holidays). The public access points did contribute a larger relative percentage, but a smaller actual number, of boats in use during spring and fall seasons. Springtime usage is generally characterized by very light levels of use. Boating densities were considered low on all waters studied during the spring season. Public launching facilities contributed 40% of boat users during this period. The summer season was, as expected, the busiest time for boating. Peak numbers of boats present and boat densities were observed during the summer, with double the use on weekends as on weekdays. During these peak times, boat density averaged 48 acres per boat in 17 study waters. While the 17 study waters did not include Lake Champlain, the boating density on Lake Champlain would be expected to be lower than what was observed on the smaller waterbodies studied. In the fall, boating usage dropped to levels similar to those encountered during the spring, with an average weekend boat density of 129 acres per boat. Spring and fall weekday boating use was extremely light (499 acres per boat).

The 1990 Statewide Boating Survey concluded that boating use on New York's waterways was relatively light, especially during spring and fall, weekdays and even summer weekends at times other than mid-day. The mean peak boating density was calculated to be 88 acres per boat. The 1989 (SCORP), a planning document prepared by OPRHP and updated every 5 years, established boating density standards which vary by activity. A minimum of 0.2 acres/boat are needed for stationary fishing. More area is needed for powered activities. Six to eight acres per boat are required for power boating and sailing and 15-20 acres for waterskiing. Available information indicates that boating densities are modest and the resource is capable of withstanding the current use levels.

During the past ten years, the Department has modernized several of its boat launching facilities within the Adirondack Park including facilities on Lake Champlain. However, these facility upgrades have generally not included increased parking, which is the overriding limitation of facility use. The Department has improved, but not significantly increased, boating access to Lake Champlain. Expansion of facilities may be necessary at some time in the future.

1. Land Resources

No overall management plan was previously developed for the region encompassed by this UMP. Management actions were generally reactive to existing or potential environmental impacts or the needs and desires of past users. Public use management of the islands acquired since the late 1800's consisted of gradual establishment of facilities and a long period of custodial management. The designated trails in the LCIMC are believed to have received moderate recreational use in past years. Of the trails in the LCIMC, the Valcour Island Lighthouse trail receives the greatest use. This trail, along with the others in the LCIMC have received periodic maintenance from year-to-year.

Of the six islands listed as part of this management complex, Valcour Island receives the greatest number of users. It is also the island with the most rare and endangered physical and biological resources that are at risk or threatened by overuse.

Schuyler Island receives low to moderate levels of use. The use level that the island currently experiences is sustainable. The island has a very small portion of its total area impacted by human use and this area continues to show limited negative resource impacts. The small area on the western shore that does receive use is well suited as an island access point. The three campsites on the island are well located in terms of land protection and user satisfaction.

Garden Island, Sheepshead Island, Cole Island and Signal Buoy Island are all too small to sustain overnight use. These islands do not receive much use due to their small size and location. Of these four islands, Cole receives the heaviest levels of day use due to its location just off shore from Camp Dudley, a YMCA summer camp. The use is comprised of picnicking and camp-based programs.

2. Fish and Wildlife Resources

There are no protected or stocked streams in the LCIMC. There are no fishery resources specific to the LCIMC; therefore, there are no species oriented fisheries management actions proposed for the LCIMC.

The islands in Lake Champlain provide important habitat for a variety of wildlife species. No recent mammalian surveys specific to the LCIMC were conducted, although most of the mammal species typical of the region are present on Valcour and Schuyler Islands. Due to habitat limitations, the other islands have greatly reduced mammalian diversity, with Signal Buoy Island having no resident mammal populations because of submersion during periods of high water. A list of mammals likely to be encountered is included as Appendix F.

G. Education, Interpretation and Research

There are two facilities on Valcour Island that can be used to facilitate historical use interpretation. The Historic Bluff Point Lighthouse is already used for this purpose. The Seton House could also be developed to be an interpretive facility. The Clinton County Historical Association, under an Adopt-A-Natural Resource

Agreement (AANR), provides docents to staff the Lighthouse during the times the Lighthouse is open to the public. The Seton House is not currently open to the public or used as an interpretive center.

Local sporting good shops are another way for the public to get information on the LCIMC. Many of the guides and employees for these shops are familiar with the LCIMC. These people are often very knowledgeable and can provide the public and Department staff with valuable information. The information the public receives may not only come from the owners, employees and guides of these shops, but also from printed materials, such as maps and booklets, that are sold in the shops. Either way, the public usually accepts this information as official. For this reason, it is important that the Department work with private enterprises to ensure that quality information be provided to the public.

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III. MANAGEMENT AND POLICY

A. Past Management

The administration of Forest Preserve land is the responsibility of the Division of Lands and Forests. The responsibility for the enforcement of Department rules and regulations lies with the Office of Public Protection. The Division of Operations conducts interior construction, maintenance and rehabilitation projects. The Division of Fish, Wildlife and Marine Resources manages the state's fish and wildlife resources.

1. Land Management

No overall management plan has previously been developed for the region encompassed by this UMP. Management actions were generally reactive to potential environmental impacts or the needs and desires of users. The acreage of the lands in the LCIMC is not large compared to other state land units within the Adirondack Park, but some of the islands require a great deal of management nonetheless. To help achieve the high level of management some groups wish to see, they have asked for permission to volunteer and help maintain certain facilities. AANRs provide permission for these groups to perform volunteer activities on state lands. AANRs are an important tool in providing needed maintenance to specific trails and facilities. The specific activities allowed by an AANR are outlined in the agreement. The Clinton County Historic Association is active in the unit and has a current AANR with the Department.

2. Wildlife Management

Valcour Island was the site of a predator control study carried out between 1940 and 1945. The purpose of the study was to evaluate the effects of predator control on small mammal and game abundance. During the course of the study, 1,244 predators representing 25 different species were removed from Valcour Island. Fifty-two percent of the animals removed were avian predators, including 162 long-eared owls. It was concluded that initially predator control did permit an increase in small mammal and game abundance, compared to a control area on the mainland. However, continued removal did not prevent a severe decline in game populations due to increased levels of disease.

No surveys of reptiles and amphibians have been conducted on the LCIMC. However, a reptile and amphibian atlas was compiled for all of New York State. The scale of this data is at the level of USGS 7.5 minute quadrangle. This information for the Plattsburgh, Keeseville, and Willsboro Bay quadrangles, which cover Valcour and Schuyler Islands, is presented in Appendix F. Notable among the reptile species is the possible presence of the timber rattlesnake, an endangered species in New York, on Trembleau Mountain, the mainland adjacent to Schuyler Island.

B. Management Guidelines

1. Guiding Documents

This UMP 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 APSLMP, and established Department policy.

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

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. 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 Department 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 UMP's, state land project management, and state land activity compliance. The MOU also outlines a process for the interpretation of the APSLMP.

The APSLMP provides guidance for the use and management of lands classified by establishing basic guidelines. The LCIMC UMP contains Forest Preserve units with the APSLMP classification of Primitive, Wild Forest and Intensive Use.

"Primitive" is defined, in relevant part, on page 26 of the APSLMP, as:

"A Primitive Area" is an area of land or water that is either:

1. essentially wilderness in character but, (a) contains structures, improvements, or uses that are inconsistent with wilderness, as defined, and whose removal, through a long-term objective, cannot be provided for by a fixed deadline, and/or (b) contains, or is contiguous to, private lands that are of a size and influence to prevent wilderness designation; or,
2. of a size and character not meeting wilderness standards, but where the fragility of the resource or other factors require wilderness management.

<u>Structures and Improvements</u>

1. All structures and improvements that conform to wilderness guidelines will be acceptable in primitive areas.
2. In addition, existing structures and improvements,

a) whose removal, though anticipated, cannot be provided for by a fixed deadline, or, in the case of areas not destined to become wilderness, whose retention is compatible with the character of the area and whose removal is not essential.
b) Appendix XV – Primitive Areas: Guidelines for Management and Use (APSLMP) to protect the resource, will also be permissible, in each case as specified in a duly adopted unit management plan.

Motor Vehicles, Motorized Equipment and Aircraft

1. All uses of motor vehicles, motorized equipment and aircraft permitted under wilderness guidelines will also be permitted in primitive areas.
2. Additionally, the use of motor vehicles, motorized equipment and aircraft by administrative personnel will be permitted to reach and maintain existing structures, improvements or ranger stations:

    a) whose eventual removal is anticipated but cannot be removed by a fixed deadline; or,
    b) in primitive areas not destined to become wilderness whose presence is of an essentially permanent character; in each case as specified in a duly adopted unit management plan.

"Wild Forest" is defined, in relevant part, on page 32 of the APSLMP, as:

> *"An area where the resources permit a somewhat higher degree of human use than in Wilderness, Primitive, or Canoe areas while retaining an essentially wild character. A Wild Forest area is further defined as an area that frequently lacks the sense of remoteness of Wilderness, Primitive or Canoe areas and that permits a wide variety of outdoor recreation."*

Wild Forests are generally less fragile than Wilderness or Primitive areas, and thus more human impacts can be tolerated. However, the natural resources and natural forest setting must still be protected in a Wild Forest despite the expanded recreational opportunities that can be provided.

"Intensive Use" is defined, in relevant part, on page 38 of the APSLMP, as:

> *"An Intensive Use Area" is an area where the state provides facilities for intensive forms of outdoor recreation by the public. Two types of intensive use areas are defined by this plan: campground and day-use areas.*

Intensive Use Areas provide overnight accommodations or day-use facilities for a significant number of visitors to the Park and often function as a base for use of Wild Forest, Wilderness, Primitive and Canoe areas.

Department policy has been developed for the public use and administration of Forest Preserve lands. Select policies relevant to the management of the LCIMC include:

- Administrative Use of Motor Vehicles and Aircraft in the Forest Preserve (CP-17);
- Motor Vehicle Access to State Lands Under the Jurisdiction of the Department for People with Disabilities (CP-3);
- Standards and Procedures for Boundary Line Maintenance (NR-91-2; NR-95-1);
- Tree Cutting on Forest Preserve Land (O&D #84-06);

- Cutting and Removal of Trees in the Forest Preserve (LF-91-2);
- Division Regulatory Policy (LF-90-2);
- Adopt-A-Natural Resource (ONR-1);
- Policies and Procedures Manual Title 8400 - Public Land Management;
- Temporary Revocable Permits - TRP's (Policies and Procedures Manual Title 8426).

The Department also maintains a policy to provide guidelines for the design, location, siting, size, classification, construction, maintenance, reconstruction and/or rehabilitation of dams, fireplaces, fire rings, footbridges, 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 UMP 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.

2. Application of Guidelines and Standards

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

- Locating trails to minimize necessary cut and fill;
- Wherever possible, lay out trails on existing old roads or clear or partially cleared areas;
- Locating trails away from streams, wetlands, and unstable slopes wherever possible;
- Use of proper drainage devices such as water bars and broad-based dips;
- Locating trails to minimize grade;
- Using stream crossings with low, stable banks, firm stream bottom and gentle approach slopes;
- Constructing stream crossings at right angles to the stream;
- Limiting stream crossing construction to periods of low or normal flow;
- Using stream bank stabilizing structures made of natural materials such as rock 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 primitive tent site 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 sites to minimize necessary cut and fill;
- Locating sites in areas with ample soil depth for pit privies;
- Wherever possible, lay out sites in existing or partially cleared areas;
- Locating sites away from streams, wetlands, and unstable slopes wherever possible;
- Locating sites to minimize grade;
- Avoiding areas where habitats of threatened and endangered species are known to exist;
- Re-vegetating closed sites.

Application of the Americans with Disabilities Act (ADA)

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 requires, in part, that reasonable modifications must be made to the services and programs of public entities, 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.

Title II also requires that new facilities, and parts of facilities that are newly constructed for public use, are to be accessible to people with disabilities. In rare circumstances where accessibility is determined to be structurally impracticable due to terrain, the facility, or part of facility is to be accessible to the greatest extent possible and to people with various types of disabilities.

Consistent with ADA requirements, the Department incorporates accessibility for people with disabilities into the planning, construction and alteration of recreational facilities and assets supporting them. This UMP incorporates an inventory of all the recreational facilities or assets supporting the programs and services available on the unit, and an assessment of the programs, services and facilities on the unit to determine the level of accessibility provided. In conducting this assessment, DEC employs guidelines that ensure that programs are accessible, including buildings, facilities, and vehicles, in terms of architecture and design, transportation and communication to individuals with disabilities.
Any new facilities, assets and accessibility improvements to existing facilities or assets proposed in this UMP are identified in the section containing proposed action steps.

The Department is not required to make each of its existing facilities and assets accessible as long as the Department's programs, taken as a whole, are accessible.

For copies of any of the above-mentioned laws or guidelines relating to accessibility, contact the DEC Universal Access Program Coordinator at 518-402-9428 or UniversalAccessProgram@dec.ny.gov.

3. Deed Restrictions

The parcel of land deeded with the Bluff Point Lighthouse is approximately one acre in size. Management of the lighthouse is subject to deeded restrictions. While the parcel is Forest Preserve and owned by New York State, CCHA has specific deeded rights to maintain the structure. A copy of the deed is included as Appendix C.

C. Administration and Management Principles

1. Administration

Several programs within the Department share responsibility for the administration of the LCIMC:

The Division of Lands and Forests - manages the Forest Preserve and State Forest lands. This division also acquires, maintains and promotes responsible use of public lands.

The Division of Operations - is responsible for designing, building and maintaining Department facilities. This division operates Department public campgrounds and maintains facilities such as roads, trails, lean-tos and parking areas. In the LCIMC, they also provide a caretaker to administer island and BLS maintenance.

The Division of Fish, Wildlife and Marine Resources - protects and manages fish and wildlife species. It also protects and manages habitat and provides for public fishing, hunting and trapping opportunities. This division is responsible for managing the Wildlife Management Areas (WMA) and Public Boat Launch Sites (BLS).

The Division of Water - protects water quality in lakes and rivers by monitoring water bodies and controlling surface run-off.

The Division of Law Enforcement - enforces environmental conservation laws relating to hunting, fishing and trapping, endangered species, possession, transportation and sale of fish and wildlife, and laws relative to environmental quality such as pollution.

The Division of Public Affairs and Education - is the communication link to the public by promoting citizen participation in the UMP process.

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 of the public using the State's resources. Forest Rangers are the stewards of the State lands and are responsible for fire control and search/rescue functions.

2. Management Principles

The call for a management approach that balances the need for recreational use with the need to preserve the character of the area, and the capacity of the resources to withstand use presents a challenging and complex task - one that requires both a long-term and a day-to-day approach to problem solving. There may be no right answer to a problem - in a decision making process; the key is to apply a systematic rationale based on monitoring and evaluation.

This UMP is intended to serve as the basic management tool for the LCIMC for a five-year period following APA determination of conformity with the APSLMP, public comment, and approval by the Department's Commissioner. Implementation will commence following approval by the Commissioner.

An interdisciplinary team has developed the management proposals listed in the next section to meet APSLMP criteria and guidelines. All management objectives are designed to help meet the goals of preserving the area's wild forest character while providing a range of acceptable recreational opportunities. All planned actions require monitoring to determine their effectiveness in ensuring that the natural characteristics that define these primitive and wild forest areas are protected.

All necessary work in the LCIMC will be accomplished with the minimum tool concept. This concept requires that every management action be scrutinized first, to see if the action is necessary, and then

plan to do it with "minimum tools" to accomplish the task. The chosen tool, equipment, or structure should be the one that least degrades the character of the lands temporarily or permanently.

D. Management Issues, Needs and Desires

Issue identification is an important element of the planning process that comes only through public participation. An issue is defined as a point or question of public discussion or interest that needs to be addressed or decided upon in the planning process. Issues help identify where the Department needs to focus its management efforts in the future.

Several issues are of concern for the Department and the public in the development of this plan. Information was obtained from the public by way of an Open House, held on July 30, 2003, at the Clinton County Community College, by mail, and email. The following list of issues, needs and desires were received from the public and Department staff. Some of the issues, needs and desires have not resulted in Proposed Management Actions to be developed. Where this has occurred, a justification for the exclusion is provided.

1. Enhance Recreational Opportunities

Despite past recreational development, little recreational development has occurred in the LCIMC in recent years. Lack of an approved UMP has limited this area's recreational potential to meet public demands. Issues raised by the public include: future maintenance of the footpaths, docks, buildings and other facilities, as well as places where new facilities should be developed. For example**:**

Mooring and anchoring - This topic, as it relates to overuse, was reviewed through the completion of a comprehensive user survey, as well as discussions with Department staff familiar with the island. The ideas presented regarding mooring or anchoring were determined to be a further degradation of the primitive character of the island than the current situation. Rather than initially implementing anchoring restrictions, the minimum tool approach will be used. This approach will progressively attempt to address the concern of overuse. It is possible that the outcome may be some type of mooring restriction imposed, but it is generally felt that this action would be an inappropriate first step.

Seton House - The stone house, constructed in 1929 and formerly owned by the Seton family, has been determined to be eligible for listing on the State and National Historic registers by OPRHP. The house is in moderate condition and needs some roof repairs. The house could provide the Department with a location for an interpretive center or storage for emergencies and maintenance.

Bluff Point Lighthouse - This is an historical structure listed on the State and National Historic Register. Currently, CCHA volunteers with support from Department staff maintain the lighthouse. The outbuilding (Jeep Shed) behind the lighthouse was severely damaged in a winter storm in 2003 and its debris removed that spring. The old outhouse, adjacent to the lighthouse, is not being maintained. A replacement outhouse was installed just off the lighthouse parcel. At this time, the Department has no plans to maintain the old outhouse or to rebuild the old outbuilding.

Valcour Island Primitive Tent Sites – Many of the tent sites on the island do not conform to APSLMP guidelines due to separation distances. The primitive tent sites that do not comply with APSLMP guidelines

will be closed or relocated. The map in Appendix L depicts the planned closure and relocation of the campsites.

Picnic Tables - Picnic tables are non-conforming structures in Primitive Areas as per the APSLMP. Picnic tables will be removed from Valcour and Schuyler Islands.

Cement Fireplaces - These fireplaces are non- conforming with APSLMP guidelines and will be retained but not replaced. As the fireplaces naturally wear down, they will be replaced with stone fire rings with cement pads as needed for fire control.

Outhouses - These facilities are currently in compliance with APSLMP guidelines. The Department plans to continue maintaining them on the islands.

ADA Accessibility - The Seton House dock will be upgraded to allow access to the Perimeter trail and Seton House for persons with disabilities. An ADA accessible dock will be constructed on the western edge of Bullhead Bay to provide access to the two proposed ADA accessible campsites, as well as the proposed ADA accessible trail and the ADA accessible trail to the Lighthouse.

The Peru BLS will have the two monuments relocated and combined into one new ADA accessible facility between the restrooms and Lake Champlain on the flat area that is currently grass. A detailed drawing and description is available in Appendix L.

Schuyler Island Campsites - The three primitive tent sites on Schuyler Island are currently non-conforming with APSLMP guidelines. This requires that one site be relocated or closed to meet APSLMP guidelines. The approach to the existing three sites is not accessible due to the steep, rocky nature of the trail from the water. Alternate locations will be reviewed in an attempt to meet accessibility standards when relocating the primitive tent site.

Schuyler Outhouses - These outhouses are conforming and will continue to be maintained.

Schuyler Fireplaces - These fireplaces are non-conforming and will be removed by a method of natural degradation. As the fireplaces naturally wear down and degrade, they will be replaced with stone or steel fire rings with cement pads as needed for fire control.

Cole Island Monument - Maintain the monument and provide Department signs to interpret the monument.

2. Preserve Cultural Resources

The historical and archaeological sites located in LCIMC, 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 - Article 14 PRHPL), Article 9 of Environmental Conservation Law, 6 NYCRR § 190.8 (g) and Section 233 of the Education Law. No actions that would impact these resources are proposed in this UMP. 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 Article 9 of the ECL and Section 233 of the Education Law. In some cases, additional protection may be afforded these resources by the Federal Archaeological Resources Protection Act (ARPA).

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

The LCIMC contains many cultural resources that document the early history and life styles of residents in the area. Interpretation of these cultural resources helps define the evolution of the landscape encountered in the LCIMC today. Questions of concern include the following:

- identify and protect area cultural resources;
- determine how various management activities and recreational uses affect area cultural resources; and
- provide information and interpretation of this area's past.

Education, Information, and Interpretation

Education, information, and interpretation are the means that connect people and places, influence behaviors, and help instill a sense of responsibility and stewardship for wild places.

- Provide information and educational materials to visitors before they arrive in the region, at trailheads, and in the interior.
- Provide maps and brochures to help visitors enjoy the amenities of the LCIMC.
- Provide information to outside groups, organizations, area businesses, and Chambers of Commerce.

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IV. PROPOSED MANAGEMENT ACTIONS

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

A. Bio-Physical Resources

1. Water

Present Conditions:

The islands that make up the LCIMC all lie in the New York State portion of Lake Champlain. Most of the Lake Champlain watershed is drained by small headwater streams that are tributaries to the larger rivers such as the Saranac and Ausable Rivers. Portions of the New York rivers which drain into Lake Champlain are classified as a recreational rivers by the New York Wild, Scenic, and Recreational Rivers Act of 1972, (ECL §15-2714(3)C).

A serious threat to the fishery resource of the Adirondack Park is acid precipitation. The LCIMC is located on the eastern side of the park, where waters have not been greatly impacted. Further, the LCIMC is situated at relatively low elevation and the lake is part of a huge watershed. These factors all provide increased resistance to the impacts of acidification. Due to the size of the lake and watershed overall, it makes pH adjustment by applications of agricultural limestone (liming) very unlikely. The bedrock under much of the lake is calcareous which provides a great deal of buffering.

Objectives:

- Maintain and improve overall water quality.
- Reduce the potential for pathogenic contamination from all water sources.

Management Action:

- Advise the public, through information and education programs, to treat all water prior to consumptive use.

2. Soil

Present Conditions:

Little information has been collected to document soil loss through human disturbance on trails, shorelines and at primitive tent sites. Erosion is a natural and continuous occurrence. There are areas on Valcour Island where human disturbance on trails, campsites, and water access sites has caused increased erosion. Maintenance actions at these sites could reduce the amount of human-influenced erosion. Soil compaction is frequently the result of human activity. Sites where visitors congregate will become compacted. Sections of the trails on Valcour have boardwalks and bridges. These trails require boardwalks and bridges to control and prevent future erosion and resource degradation.

Objectives:

- Keep soil erosion caused by recreation use within acceptable limits that closely approximates natural processes.
- Remediate and stabilize areas that have significant erosion.

Management Actions:

- Prepare a detailed inventory of all trails and areas requiring erosion control.
- Correct problem areas by rehabilitating the area and/or relocating use to more durable sites when possible.
- Establish routine maintenance on all designated trails and establish a priority list based on resource needs rather than on the convenience of users.
- Locate campsites in the best areas to minimize soil compaction and erosion.

3. Wetlands

Present Conditions:

The wetlands found in the LCIMC provide great ecological, aesthetic, and educational value in their capacity to receive, store, and slowly release rainwater and snow melt. Wetlands protect water resources by stabilizing water flow and minimizing erosion and sedimentation. In general, they are one of the most productive habitats for fish and wildlife, and afford opportunities for fishing, hunting, wildlife observation, and photography. The wetlands in the LCIMC are small in nature, but still provide these contributions.

There are a few vernal pools located on Valcour Island. Vernal pools are small wetlands that occupy shallow depressions flooded in the spring or after a heavy rainfall, but are usually dry by mid-summer. Many vernal pools refill in the fall. These tiny wetlands support a diverse group of invertebrates that include species of frogs, salamanders, newts, and toads.

Objectives:

- Minimize the impacts of construction and maintenance activities on wetlands.
- Allow natural processes to operate freely to ensure that the succession of native plant communities are not altered by human use.
- Protect known locations of sensitive, rare, threatened, and endangered plant species.

Management Action:

- Relocate trails and campsites that are less than 100 feet from wetlands to reduce sedimentation and/or contamination of wetlands.

4. Vegetation

Present Conditions:

Much of the LCIMC has been altered by development, agriculture, wind, fire, ice storm, and pre-Forest Preserve logging. Despite these influences, the LCIMC has several unique ecosystems requiring special attention and study. These include areas of rare flora, wetland complexes, and forest communities such as the communities on Valcour Island. Because of the intermingled nature of private and public lands and embedded transport vectors, state lands are, and likely to be, affected by infestations of invasive species

and subsequent degradation of natural system function. The extent of exotic or non-native species introductions that compete with indigenous vegetation within the LCIMC is unknown at this time.

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

Invasive Plants

The negative impacts of invasive species on natural forest and aquatic communities are well documented. Colonization and unrestrained growth of invasive species cause the loss of biodiversity, interruption of normal hydrology, suppression of native vegetation, and significant aesthetic, human safety and economic impacts. Terrestrial and aquatic invasive species have been identified at increasing rates of colonization along roadsides in campgrounds, and in water bodies of the Forest Preserve. Some of these species have the potential to colonize backcountry lands, lakes and ponds and degrade natural resources of the Forest Preserve.

Although in the context of a global society, the transfer of species from one location to another may be viewed as part of a "natural process," there may be occasions when this relocation of non-native species becomes unacceptable and an active response is warranted.

The Department of Environmental Conservation has created an Office of Invasive Species to work with various universities, state agencies and non-profit groups in coordinating a response to invasive species. The Department is a member and will continue to collaborate with other partners of the Adirondack Park Invasive Plant Program (APIPP) (Adirondack PRISM) to support education, inventory, research, control protocol, and control of invasive species. An inventory and analysis of the current distribution of invasive species on Forest Preserve lands will provide the necessary information on the present extent of invasive exotics and provide the basis for long-term decision-making.

In 2010, the Department and the Adirondack Park Agency developed Inter-Agency Guidelines for Implementing Best Management Practices for the Control of Terrestrial and Aquatic Invasive Species on Forest Preserve Lands in the Adirondack Park (see Appendix H). These guidelines provide a template for the process through which comprehensive active terrestrial and aquatic invasive species management will take place on Forest Preserve lands in the Adirondack Park. The Department shall be responsible for the management of terrestrial and aquatic invasive species on Forest Preserve lands while the Agency will be responsible for providing review of, and advice on, APSLMP compliance and permit jurisdiction.

The control methods and Best Management Practices (BMP's) contained in these guidelines restrict the use of herbicides so that adverse impacts to non-target species are avoided and native plant communities are restored. Aquatic invasive species will be managed using non-mechanical harvesting techniques (hand pulling) and temporary benthic matting as described in the guidelines. Use of pesticides for aquatics is not a part of this guidance. The guidelines are meant to be a dynamic document that is periodically revised to reflect new invasive species threats, continuing inventory of the Forest Preserve, and evolving invasive species management techniques.

Efforts should be made to restore and protect the native ecological communities in the LCIMC through early detection and rapid response efforts to eradicate or control existing or newly identified invasive species populations. Adoption of the guidelines and implementation through the UMP and site-specific work planning process, gives the Department the basic tools needed to preserve, protect and restore the natural native ecosystems of the Forest Preserve.

Prior to implementing containment and/or eradication controls, terrestrial invasive plant infestations occurring within the LCIMC will need assessments on a site-by-site basis. The geophysical setting and the presence, or absence, of sensitive native flora within or adjacent to the targeted infestation often predicts the BMP's and limitations of the control methodology.

Infestations occurring within specific jurisdictional settings may trigger a permitting process, as do most terrestrial infestations occurring within an aquatic setting. The species itself often dictates whether manual management controls, e.g. hand-pulling or cutting, or the judicious, surgical application of herbicides is warranted in order to best control that specific species in that specific setting. The implementation of BMP's does not guarantee invasive plant containment or eradication. Many infestations require multiple, seasonal control efforts to reduce the density and biomass at that setting. Adaptive management protocols suggest that implementation of integrated control methodologies may provide the best overall efficacy
at specific infestations.

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

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

Construction Projects

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

Trail Maintenance

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

Field Sampling

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

Angling Tournaments/Derbies

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

Restoration of sites where invasive plant management occurs is critical to maintain or enhance historical ecological function and structure. Restoration should incorporate best available science to determine effective techniques and the use of appropriate native or non-invasive plant species for site restoration. Educating natural resource managers, elected officials, and the public is essential to increase awareness about the threat of invasive species and ways to prevent their introduction and transport into or out of the LCIMC. Invasive species education should be incorporated in staff training and citizen licensing programs for hunting, fishing, and boating, through signage, brochures, and identification materials, and included in information centers, campgrounds, community workshops, and press releases.

Aquatic Invasive Plant Recommendations

All aquatic invasive species pose a risk of spreading via transport mechanisms that may include seaplanes, motorized and non-motorized watercraft (canoes, kayaks, jet skis, motor boats etc.) and associated gear and accessories. Some measures are currently under development to help educate the public about controlling the spread of exotic and invasive species. Signs have been placed at some access points and Department boat launches which warn about the threat of exotic species, including specific information on some aggressive species such as Eurasian water milfoil. Additional research and collaboration among partners and stakeholders should occur to develop an appropriate, effective, and approved prevention and integrated plant management plan.

Objectives:

- Allow natural processes to operate freely to insure that the succession of native plant communities are not altered by human use.
- Prevent the establishment of non-native invasive vegetation.
- Through the NYS Invasive Species Task Force, the Department will investigate use of appropriate educational signage at public boat launches to mitigate or prevent the spread of non-native or invasive plants.
- Educate natural resource managers, elected officials, and the public about the threat of invasive species and ways to prevent their introduction and transport into or out of the LCIMC. Incorporate information in staff training and citizen licensing programs for hunting, fishing, and boating, and through signs, brochures, and educational materials; this should be included in information centers, community workshops, and press releases.
- Protect known locations of sensitive, rare, threatened, and endangered plant species.
- Promote programs and studies that identify rare ecological communities.
- Remove any identified invasive species found on state lands.

Management Actions:

- Encourage botanical examinations to produce a more complete inventory and understanding of area ecosystems by expanding New York Natural Heritage Program (NYNHP) and the Nature Conservancy (TNC) programs in the LCIMC.
- Re-inventory rare and endangered species on a five-year cycle.
- Utilize case studies and management recommendations afforded by NYNHP in managing sensitive areas.

- Ecological inventories and maps will be correlated with recreation and wildlife project plans to prevent unintended and undesirable impacts to sensitive areas prior to any new facility construction or major maintenance of existing facilities.
- Monitor impacts on vegetation from such things as trail widening, erosion, and camping.
- The Department will enter into cooperative partnerships through Adopt-A-Natural-Resource Stewardship Agreements (AANR) and Temporary Revocable Permits (TRP) to facilitate containment and eradication of the invasive plant occurrences within the LCIMC. Any eradication work involving the use of herbicides will be carried out under an Inter-Agency Work Plan for Management of Terrestrial Invasive Plant Species on State Land in the Adirondack Park (Invasive Plant Work Plan), developed by the Department and the APA. This Invasive Plant Work Plan will provide a template for the process through which comprehensive active terrestrial invasive plant management will take place on state lands in the Adirondack Park. The Work Plan will provide protocols for implementing BMP's on state land. The protocols will describe what management practices are acceptable and when they can be implemented, who can be authorized to implement the management practices, and which terrestrial invasive plant species are targeted. The Work Plan will also describe a process by which the Department may enter into AANR's to facilitate individuals or groups seeking to manage terrestrial invasive plant species on state lands using the listed BMP's. The Invasive Plant Work Plan will be subject to SEQRA and serve as the mechanism for assessing the impacts and suitability of eradication BMP's and actions.
- Prior to implementing containment and/or eradication controls, terrestrial invasive plant infestations occurring within the LCIMC need assessments on a site-by-site basis. The geophysical setting and the presence, or absence, of sensitive native flora within or adjacent to the targeted infestation often predicts the BMP's and limitations of the control methodology. The BMP's suggested for use on state lands are included as Appendix H.
- Avoid construction in critical habitats/ecological communities and habitats of known rare plants.

5. Wildlife

Present Conditions:

The LCIMC hosts a variety of Adirondack wildlife. Most of the species found on the mainland can be found on the islands. Many species depend on area habitats for nesting, rearing, and survival. Recreational hunting is a major use of the LCIMC because of the abundant deer population on Valcour and Schuyler Islands. Many visitors come to the islands to view wildlife, especially along the shorelines.

Objectives:

- Expand the Department's knowledge of wildlife species within the LCIMC.
- Enhance wildlife-viewing opportunities.
- Maintain and perpetuate annual hunting and trapping seasons as legitimate uses of the LCIMC.
- Protect the historical Heron rookery location on Valcour Island.

Management Actions:

- Monitor deer populations in the LCIMC through visual observation, deer surveys, and public input.
- Continue pelt sealing of furbearers to determine harvest levels, guarding against over-harvest for species especially vulnerable to trapping, such as marten and fisher.

- Identify bird-viewing locations on the islands by maps, brochures, and/or signs.
- Monitor the location of the Valcour Island Heron Rookery and close facilities as needed to protect the rookery.

6. Fisheries

There are no protected or stocked streams in the LCIMC or other fisheries resources; therefore, no species-oriented fisheries management actions are proposed for the LCIMC. The Bureau of Fisheries does administer three public boat launches in the management complex: Peru Dock BLS, Port Douglas BLS and Willsboro Bay BLS. Management actions for the three public boat launches in the LCIMC are discussed below in the Parking Areas and Boat Launches section.

B. Land Protection

1. Administration

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. Since this plan is managing islands and three boat launches, there is very little opportunity or need to increase the State's holdings covered under this UMP.

Coast Guard Land

The steel light tower, located on Valcour Island next to the Bluff Point Lighthouse, is no longer used by the United States Coast Guard as a navigation aid. The tower is located on a small piece of U.S. Coast Guard owned land. This is the only piece of Valcour Island that is not in State ownership. The Coast Guard is in the process of surplusing these sites. It is expected that the Coast Guard will surplus this tower and the land it is on within the next five years.

Objectives:

- Maintain boundary lines at boat launches.
- Provide public access to all state lands.
- Physically identify APSLMP unit designations on the ground for administrative and public use.
- Complete public acquisition of the U.S. Coast Guard lands if they become available.

Management Actions:

- Physically inspect the boundary lines of all LCIMC lands to determine survey and maintenance needs; assign a priority to each.
- Undertake maintenance activities to ensure all boundaries are identified and marked within the five-year implementation of this UMP.
- Brush, paint, and sign all boundary lines at least once every seven years.
- Monitor boundaries for unauthorized activities.
- Sign unit boundaries with boundary signs identifying the land classification of the unit.

- Sign trailheads, trails and other entrances to the LCIMC with specific signage identifying the unit's designation, so that both Department personnel and the public know individual unit designations.
- Evaluate the tower and land it resides on for possible acquisition to the Forest Preserve or CCHA if the U.S. Coast Guard decides to surplus it.

C. Man-Made Facilities

1. 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. Trail maintenance and some reconstruction is needed on the majority of the LCIMC trails. The Department does not currently have all the resources necessary to conduct all the trail maintenance work itself. The Department 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. The use of volunteers and contractors, though effective, has associated costs and other limitations. For example, Department personnel must devote time to planning and coordination, training, supervision, and logistical support to volunteers.

An inventory of the LCIMC trails has been completed and incorporated into a trail classification system. The trail classification system used was patterned after the U.S. Forest Service's Nationwide Trails Program as endorsed by the U.S. General Accounting Office, 1989 (Appendix A) was the suggested system. This system is being incorporated into the LCIMC and each trail has been assigned a classification based on its present condition and level of use. Two trail classifications are used, unmarked footpaths (Class I), and primitive trails (Class III). Trail standards and maintenance prescriptions, reflecting different types and levels of use, are defined for each class in Appendix A. The classification system acknowledges the fact that not all trails require the same degree nor frequency of maintenance.

The LCIMC currently has little variation of trail types and uses. The two most popular trail destinations are the Bluff Point Lighthouse and the Seton House. Some of the trails need more maintenance than others. The Perimeter trail around Valcour specifically needs maintenance. The trail has many boardwalks and small bridges that vary in age and need for replacement. An inventory of the bridges and boardwalks is included in Appendix A.

There are areas on Valcour Island where human disturbance on trails has caused increased erosion. Maintenance actions at these sites have served to reduce the amount of human influenced erosion. Soil compaction has also been evident on some of these trails from resulting human activity. Some of the aforementioned trail sections have had boardwalks and bridges built in order to help control and prevent future erosion and resource degradation.

Objectives:

- Provide visitors with a trail system that offers a range of recreational opportunities in a manner that keeps physical and visual trail and resource impacts to a minimum.

- Maintain trails to appropriate standards.
- Identify need for trail relocations and/or need for new trails.
- Provide access to areas as appropriate and needed in a manner that protects the resource.
- Identify potential "trail-less" areas to protect the flora and fauna.
- Provide a unified system of trail signage and markers on Forest Preserve lands.
- Make trails universally accessible where possible.
- Avoid, when possible, construction in critical habitats/ecological communities and habitats of known rare plants.
- The need for new bridges or other trail-hardening facilities will depend upon the use on the trail and will focus on resource protection, not user convenience.
- The use of pressure-treated lumber on bridges and dry-tread will be preferred over untreated lumber in recognition of treated lumber's capacity to remain sound for more than 20 years in service and in light of the APSLMP guideline directing that structures be designed to require minimal maintenance.

Management Actions:

- Make the trail to the lighthouse accessible to persons with disabilities.
- Maintain trails and related facilities in a manner consistent with the APSLMP.
- Conduct annual inspections of all trails using a combination of Department staff and volunteers.
- Construct new bridges and boardwalks, where needed, to minimize resource impacts.
- Maintain all bridges and boardwalks in order to protect the resource.
- Develop a self-guided interpretive tour of the island supported by current technology.
- Provide a barrier-free trail from the boat docks to the perimeter trail.
- Remove blow-down, as needed.

2. Trailheads

Present Conditions:

There are currently no specifically identified trailheads in the LCIMC. There is one trail register located at Peru BLS as well as a caretaker's cabin, which might be considered a trailhead to some. The only island that has a significant trail system is Valcour Island, located directly across the lake from the Peru Dock BLS. This UMP makes recommendations for the development of two floating docks for island access. The locations of these two docks will serve to define the trailheads on the island in the future. In addition to the access docks, the beaches located in North Bay and Bullhead Bay also naturally serve as access points for the island.

Objectives:

- Provide locations for access to the islands.
- Provide bilingual signs that are easily visible from the water.

Management Action

- Install bilingual signs at North Bay, Bullhead Bay and the boat docks that clearly delineate the areas as access points.
- Make developed locations for accessing the islands clearly visible from the water.

3. Trail Registers

Present Conditions:

There is only one trail register in the LCIMC at this time. The register is located at the Peru BLS; it is the class 3 standard box type. The register data recorded in this box does not directly correlate with the use of the LCIMC Islands. Most who use the Peru BLS do not sign in at the register box. This box receives a much lower percentage of user sign-up than many others in the Park. The historical register data from this register box can be found in Appendix B.

Objectives:

- Record public use numbers.
- Provide a list of users for search and rescue activities.

Management Actions:

- Maintain all register boxes in the LCIMC.
- Install class II register boxes at the two new boat dock sites on Valcour Island, the Port Douglas BLS and Willsboro BLS.
- Install a class 2 register box at the beaches in North Bay and Bullhead Bay.

4. Boat Docks

Present Conditions:

The three remaining docks found around Valcour Island are in varying states of disrepair. The Seton House dock is the only one that remains in a usable condition. The shore dock, which historically provided access to the lighthouse for visitors and maintenance activities was severely damaged by ice during the spring of 2004. Most of the dock fell into the water and the portion that remains is too small to use. The third dock, located in Paradise Bay on the eastern side of the island, is falling apart and portions of the dock completely submerged during high water periods. The section of the dock that remains above water has large holes in its concrete surface.

Objectives:

- Provide access to Valcour Island for people with disabilities.
- Provide boat accessible docks for the maintenance of Valcour Island.
- Provide access to Valcour Island for fire suppression and search and rescue operations.

Management Actions:

- Replace the deteriorated shore dock located near the lighthouse with a new structure in Bullhead Bay. This structure will be designed to be accessible and capable of holding two large motor boats or sailboats on a windy day.
- Repair and maintain the Seton House dock.
- Bring the Seton House dock up to current accessibility standards.
- In the future, the dock in Paradise Bay will be examined for removal and the possibility of replacement with a new floating dock constructed from foam or other suitable flotation material with a covering of natural materials.

5. Seton House

Present Conditions:

The Seton House is an historic camp located on the southeast side of the island. Access to this old stone camp is provided by a concrete and stone "L-shaped" finger dock, as well as the Perimeter trail on the island. Due to the remote location and heavy use of the island and its facilities, law enforcement and search and rescue operations can be difficult. The Seton House dock is one of the only access points to the southern end of the island. Retaining this historic structure complies with the APSLMP for type II primitive areas.

The Seton House was evaluated by the Department's Historic Preservation Officer and OPRHP, whom determined it is eligible for listing on both the National Register and on the New York State Register of Historic Places. The structure displays the way the island was historically used, and is an example of how the island was home to many private camps prior to State ownership. The stone structure is in relatively good condition and could supply the Department with an opportunity for the development of an interpretive center for the history of the island and adjacent Valcour Bay battle site.

Objectives:

- Allow the historic structure of the Seton House to degrade naturally.
- Retain and maintain the concrete Seton House dock.
- Provide universal access to the island.

Management Actions:

- Develop interpretive signs outlining the historic nature of the Seton House.
- Provide a barrier-free access trail from the Seton dock to the Seton House and Perimeter trail.
- Provide maintenance to the structure as needed to minimize safety hazards as it degrades.

6. Bluff Point Lighthouse

Present Conditions:

In cooperation with the CCHA and the U.S. Coast Guard, the Bluff Point Lighthouse, located on Valcour Island, was relit in 2004. The project 's complications ranged from issues dealing with Federal aid to navigation laws to NYS constitutional laws dealing with tree cutting in the Forest Preserve. After years of work, an agreement was reached in the winter of 2004 to maintain the lighthouse light on a five-year maintenance schedule, which would minimize the tree cutting needed to abide by the Coast Guard's minimum arc of visibility requirements for this location. The U.S. Coast Guard is responsible for maintaining the aid to navigation and performing the needed tree cutting to maintain the arc of visibility. All tree cutting on the island is overseen and approved by the Department before any cutting takes place. It is understood that a minimal amount of tree cutting will take place on a regular five-year cycle to deal with tree growth.

The Bluff Point Lighthouse is a Department-owned facility with an easement owned by the Clinton County Historical Association. This easement allows the Historic Association to maintain the historic lighthouse. The lighthouse is listed on the national historic register and all maintenance is overseen and reviewed as to its being in keeping with the historic nature of the lighthouse by the Department's Historic Preservation Officer. The Department has issued an Adopt-A-Natural Resource Agreement (AANR) to the CCHA to allow

them to give tours, maintain the grounds around the lighthouse, and conduct fund-raising activities in which all monies are put into lighthouse maintenance activities.

The shore dock, which historically provided access to Valcour Island for visitors with disabilities and maintenance personnel to reach the lighthouse, was severely damaged by ice break-up and is no longer usable. This causes an access problem for maintaining the lighthouse, its grounds, and other island facilities.

Many of the users that visit Valcour Island and the Bluff Point Lighthouse are not from the United States and often speak foreign languages. This makes the development of signs and public notifications of management changes a difficult task. At a minimum, half of the users are from Canada and speak French with some English. There is no actual data on use numbers since there is no centralized access point. Some use figures are derived from camping permits, the lighthouse sign-in book and boat launch register data.

In addition to the lighthouse, there were two other structures on the property at the time of state acquisition. The first is an old shed or outbuilding (Jeep Shed). The building was severely damaged by winter storms during the 2003 winter. In the spring of 2003, the debris from the building was removed due to fear that the debris could catch fire and the fire could spread to the lighthouse. The second building is the old outhouse for the lighthouse. There is no specific plan to maintain the old historic outhouse or rebuild the old outbuilding.

Objectives:

- Provide interpretive tours to the public and provide historical information regarding the lighthouse, Valcour Island and surrounding area.
- Provide universal access to the lighthouse.
- Retain and maintain the historic structure of the lighthouse.

Management Actions:

- Build a new accessible dock.
- Maintain the Bluff Point Lighthouse.
- Maintain AANR agreements with the CCHA.
- Install a trail register at the lighthouse.
- Maintain the new outhouse at the lighthouse.

7. Primitive Tent Sites

Present Conditions:

A primitive tent site, commonly referred to as a designated campsite, is one identified by a Department permissive sign or disk, providing space for not more than three tents, which may have an associated pit privy and fire ring, 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 on the surrounding environment (APSLMP, 2001).

The APSLMP guidelines (APSLMP) define primitive tent sites as conforming improvements under the following criteria:

> *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: 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.*

Primitive tent sites will be designated to direct campers to previously used disturbed areas, to define proper camp locations, to disperse use, and limit adverse impacts to resources and other campers. Steep shoreline, eco-types, steep hills, rock outcrops, wetlands, poorly drained soils, etc., severely restrict camping and intensify the demand for available tent sites. Many of the primitive tent sites have been located close together due to these terrain constraints. This campsite development method has caused tent sites to be developed in a manner that does not conform to the APSLMP with regard to sight and sound limiting distances. Existing Department camping regulations require camping to be at designated sites or locations that are at least 150 feet or more from a road, trail or water (6 NYCRR §190.3(b)). The latter is referred to as the "150 foot rule" which permits "at-large" camping subject to those requirements.

Many of the campsites currently located on Valcour Island are non-conforming with the guidelines outlined in the APSLMP in terms of sight and sound separation distances. The campsites on Schuyler Island are also non-conforming to the APSLMP due to their close proximity to one another. The heavy use of Valcour Island for camping makes closing sites a second choice to the first choice of relocating them, which would bring the campsites into compliance with the APSLMP. Unfortunately, not all 29 of the primitive tent sites that are currently located on the island can be relocated in conformity with APSLMP sight and sound separation guidelines due to terrain constraints and required protection of rare and endangered plants, and the historical location of the heron rookery. The map in Appendix L displays the current locations of the primitive tent sites on the island, as well as the plan for the relocating and closing of sites during year two of the implementation period of this UMP.

The relocation plan is designed to bring the primitive camping on the island into APSLMP compliance, while providing needed resource protection and to accommodate public use. The campsites were evaluated, based on soil erosion, endangered plant and animal protection, safety and ease of access, as well as the ability to locate a tent and outhouse. The resulting map outlines the best locations for the new sites and the sites that should be closed due to their proximity to the other sites and lower evaluation score. On Valcour Island, eight sites will be relocated and eight sites will be closed; thus, leaving a total of 21 primitive tent sites.

The site located on the southern tip of the island at Pebble Beach is currently used mostly by paddlers. With the development of the Northern Forest Canoe trail and Lake Champlain Paddlers trail over the past few years, it is more evident that a location on Valcour Island needs to be designated as a site for paddler's only. When traveling on Lake Champlain by non-motorized means, it can be difficult at times to reach planned destinations due to weather events and long travel distances on open water. When planned destinations at difficult to reach locations are full, this can cause unforeseen hardships for paddlers. Valcour Island receives a high level of use, and non-motorized users seeking shelter on the island during a high use period may not be able to find an available primitive tent site. Both Valcour and Schuyler Islands have primitive tent sites designated as sites for paddlers, but these sites are not restricted from use by

motorized users. This issue has historically been resolved through the allowance of at-large camping. With the primitive camping regulations on Valcour Island becoming more restrictive, the need for a primitive site that is limited to non-motorized use has become more evident.

The campsites on Valcour and Schuyler Islands are all provided to the public on a first-come, first-serve basis. During the summer months, a seasonal caretaker is on-site to maintain the island's facilities and to issue camping permits. The camping on both islands is restricted to designated sites only and on Valcour, camping is further restricted to camping by permit only. The caretaker has, historically, visited sites daily and when he would find a site to be occupied, he would meet with the campers and provide them with a permit allowing a varying length of stay up to a maximum of two weeks. Historically, the largest user conflict that has existed on Valcour Island concerning overnight camping is the abuse of the permit system. Users would arrive mid-week and setup a tent, receive a multiple night camping permit and go home until the weekend. These users would then return to Valcour Island Friday night to spend the weekend camping. In the past two years, this problem has been largely resolved through a method of vigilant enforcement of the camping permits.

The minimum tool concept is the preferred method of resolving issues pertaining to overuse. The heavy use the island receives during the summer months, along with the non-conforming site and sound separation distances of the tent sites and remote location from the regional working circle, has caused some site degradation issues. The best method of addressing these issues is a stepped approach. Additional restrictive measures will be deployed over time as deemed appropriate by the land manager and will be continually modified until the appropriate level of resource protection is acquired. This may require a heavier level of restriction initially to get the protection needed than what is required for long-term management. If it is determined that less restrictive measures will suffice, management actions will be modified.

An analysis of existing camping locations and the separation distance between sites in the LCIMC revealed that many individual sites were non-compliant with the guidelines set forth in the APSLMP. With compliance of the APSLMP forefront in mind, the plan of relocating sites and allowing camping at designated sites only, by permit only, best attains the management objective when fully implemented. If portions of the site relocation plan are not implemented, it is felt that camping at designated sites only would not be an appropriate action to propose. The Department provides for so-called "at-large" camping in accordance with 6 NYCRR, §190.3(b). This regulation prohibits camping within 150 feet of any road, trail, spring, stream, pond, or other body of water except at camping areas designated by the Department. Without the regulation restricting camping to designated sites only, campers would be able to find many suitable site locations for overnight stays. This method of allowing camping is less desirable than the method of relocating sites as previously described, since it provides a lower level of resource protection.

The four remaining islands in the LCIMC are Garden, Cole, Sheepshead and Signal Buoy, and are too small to sustain overnight use. The primitive camping on Cole and Sheepshead Islands has caused erosion and sanitation problems as well as soil compaction and vegetation loss.

Objectives:

- Bring all primitive tent sites into compliance with the APSLMP guidelines.
- Reduce, eliminate, or mitigate the adverse effects on natural resources that result from improperly located tent sites.

- Manage visitor use to keep impacts on the resource and experiences of all visitors at an acceptable level consistent with the concept of the classification designation of the area as described by the APSLMP.
- Encourage both overnight and day users to keep parties small and establish desirable maximum party sizes.
- Provide camping opportunities for persons with disabilities.
- Provide camping opportunities specifically for non-motorized users.
- Provide appropriate screening of tent sites from water bodies.
- Direct the public to designated camping locations by providing information via the internet and in publications at area trailheads.

Management Actions:

- Close the primitive tent sites on Cole and Sheepshead Islands.
- All new, reconstructed or relocated tent sites will be set back a minimum of 100 feet from the mean high water mark of the lake and will be located to be reasonably screened from the water body to avoid intruding on the natural character of the shoreline and the public enjoyment and use thereof.
- All closed tent sites will be restored to a natural condition. Fireplaces, tree stumps and other evidence of past use will be removed. The use areas will be replanted with native seedlings.
- Adopt regulations restricting overnight group size to eight people, day use group size to fifteen and camping at designated sites by permit only.
- Limit the disturbed area associated with each individual campsite to what is required to accommodate no more than three tents and eight people. This will be implemented over a two-year period.
- YEAR ONE – Inform the public of the impending primitive tent site closure or relocation 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.
- Monitor primitive tent sites in popular areas annually. Survey locations where illegal camping is believed to be occurring.
- When relocating the site on Schuyler to meet APSLMP guidelines construct the new accessible tent site according to ADAAG guidelines.
- Bring the two campsites located on the Perimeter trail between Bullhead Bay and the Bluff Point lighthouse up to ADAAG standards. Provide disabled accessible facilities and outhouses. These sites will be available on a first-come, first-serve basis to all users.
- Designate a site near the Seton House and build it to meet ADAAG for accessible tent sites. This site will ideally be located along the proposed barrier-free Perimeter trail.
- Designate the site located on Pebble Beach on the southern tip of Valcour Island as non-motorized use only.
- Develop LAC indicators and standards for conditions of vegetation, campsite size and erosion in camping areas.
- Re-vegetate heavily used areas and tent sites to adequately screen them from the water.
- Revise campsite locations to comply with APSLMP site and sound separation distances as shown on the final campsite conditions map in Appendix L. This will be completed over a two-year period starting post UMP as labor and resources are available. A significant reduction in the number of campsites on the island will be a required part of this modification. The island

currently has 29 primitive tent sites; post- UMP the island will have 21 sites with the site at Pebble Beach on the southern end of the island delineated for use by non-motorized users only. Additionally, existing and relocated sites will be re-vegetated in an attempt to further screen the sites from the water.

- Perform tent site overuse monitoring study. Re-inventory campsites every five years.
- Maintain primitive tent sites using appropriate tools as needed.
- Review and develop actions to respond to the results of the designated tent sites monitoring study. Compare the tent site monitoring study results with the LAC standards and indicators for monitoring campsite size, loss of vegetation and erosion developed for the island. Review and modify as needed, management actions to achieve the required resource protection level as defined by the LAC standards and indicators. Options may include, but will not be limited to employing a limitation to the maximum length of stay. This option would limit the length of stay allowed by permit to a maximum of four nights per visit. Under this option, the Department would no longer issue two-week camping permits. Between Memorial Day and Labor Day, the maximum length of stay would be limited to four nights per visit on Valcour Island primitive tent sites.

8. Sanitation

Present Conditions:

There are currently 29 pit privies in the LCIMC. There are 27 pit privies located on Valcour Island and two on Schuyler Island. All of the pit privies are located at primitive tent sites except for two on Valcour Island, which are located on the bisector trail and Bluff Point Lighthouse.

Proper human waste disposal is of critical importance in regularly visited places. The Department uses pit privies (outhouses) in areas where use levels are usually high and adequate dispersal of "catholes" - buried waste - is difficult. The APSLMP requires that all pit privies be located a minimum distance of 150 feet from water (APSLMP, 2001, page 21). Pit privies can be effective in minimizing health risks and water contamination if they are properly located and maintained. At this time, Port Douglas and Willsboro Bay boat launch sites use a chemical type toilet. At the Peru Dock BLS, sanitary sewer-type toilets are provided.

Improper waste disposal can affect the environment and the health and safety of visitors. Improper disposal of human waste, coupled with high concentrations of users, compounds this problem. Soaps, shampoos, and other wastes affect the delicate chemical/biological balance of area waters. Soapsuds and leftover food scraps can be found on many of the primitive campsites in the LCIMC. All but two of the primitive campsites on Valcour and Schuyler Islands have pit privies provided. The two that do not have pit privies are being closed or relocated. In addition to the pit privies located at the campsites, there are pit privies provided at locations along the hiking trails and at island facilities. These pit privies are needed to protect and maintain the resource. The pit privies are in varying condition and maintained on an irregular schedule.

Objectives:

- Provide pit privies at campsites, popular attractions, and needed locations.
- Prevent or mitigate the adverse chemical/biological and visual effects that result from the improper disposal of human waste.
- Reduce, eliminate, or mitigate the adverse environmental and visual effects that result from heavy visitor use.

- Maintain the sanitary sewer-type toilet facilities at the Peru Dock BLS.
- Minimize litter in the LCIMC.

Management Actions:

- Maintain pit privies at all primitive tent sites on Valcour and Schuyler Islands.
- Maintain pit privies at heavily visited sites in the LCIMC.
- Construct accessible pit privies at designated accessible tent sites.
- 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.
- Tent sites will be located where waste disposal will not be a problem (for example, where soil is deep).

9. Historic Locations, Memorials, and Plaques

Present Conditions:

Within the LCIMC, there are a few locations where historic features are readily accessible by trail or road. One new facility of this type is scheduled to be developed during the term of this UMP and some historic interpretation is proposed through sign development. The Daughters of the American Revolution (DAR) Monument located just south of the Peru Dock BLS is planned to be moved and incorporated into a site at the Peru Dock BLS. This site will include interpretive panels, two monuments, and a flagpole. The DAR monument is currently located inside the Route 9 right-of-way (ROW) and is being deteriorated by the road maintenance activities and winter salting. A second monument commemorating Valcour Bay as a national historic landmark is also planned to be moved and included in this facility.

Lt. Col. Gerald W. Birks was a Canadian who often visited Valcour Island. Lt. Col. Gerald W. Birks' memorial is located on the shore of Valcour Island below the mean high water mark in Smugglers Cove, surrounded by a cast iron fence. Inside the fence, two bronze plaques can be found and the remnants of where a third was located. Historical records describe a cairn that was first erected by Lt. Col. Gerald W. Birks, who for many years sailed his yacht, the "Nomad" on the lake with high school and college students as crew. Lt. Col. Birks traveled overseas in World War I with many of his crewmembers, four of whom were killed; their names are inscribed on the first plaque. After World War II, a second plaque was added with the names of five members of his crew who died in that conflict.

The third and final plaque read, "1872-1950 - To the Captain of the Nomad, Gerald Walter Dirks, O.B.E. who sailed these waters for many a year and found safe harbor in this cove. Placed by his crew in affectionate (Six) memory." The Nomad Memorial, as it is known, has been determined eligible for listing in the State and National Registers of Historic Places.

Objectives:

- Identify and promote, where appropriate, historic and archaeological sites.
- Enhance public knowledge of the area's cultural and historic resources.

Management Actions:

- Build the memorial and interpretive site as proposed in Appendix L, Map SK-1 at the Peru Dock BLS in compliance with ADA standards. Make pathways shown in Appendix L, Map SK-1 ADA compliant.
- Move the DAR monument and the Historical Valcour Bay monument out of the Route 9 ROW and into the Peru Dock BLS memorial and interpretive site.
- Update and Install the Lake Champlain Basin Program signs developed for the Peru Dock BLS.
- Retain the stone monument on Cole Island.
- The Department will not maintain the cast iron plaque and cast iron fence located on Valcour Island's eastern shore, allowing natural process to take place. The fence will be removed in year three of the plan.
- Remove as found, illegal user-placed memorials or plaques.
- Assist with the development of an interpretive brochure for the Bluff Point Lighthouse, other historically significant sites, and Valcour Island, if considered necessary, in cooperation with the CCHA.
- Determine if the plaque that was on Cole Island is appropriate for retention. If found to be appropriate, install a replacement Department-approved plaque or sign.
- Allow the existing historic remains of the Seton family home, pump house and other old camps to deteriorate naturally.

10. Picnic Tables

Present Conditions:

The primitive tent sites located on Valcour Island all have wood picnic tables. These structures (picnic tables) were initially installed on Valcour Island as a land management tool to control and contain use to specified areas and limit damage caused by visitors constructing their own. The APSLMP does not list picnic tables as conforming structures in Primitive Areas. Therefore, in order to bring the primitive tent sites on Valcour Island into compliance with the APSLMP, these picnic tables must be removed.

Objective:

- Manage the Valcour Island Primitive Area in conformance with the Primitive Guidelines for Management and Use in the APSLMP.

Management Actions:

- Existing picnic tables on primitive tent sites located south of the Nomad trail that connects Indian Point and Smuggler's Harbor will be removed in year one of this plan.
- Existing picnic tables on primitive tent sites located north of the Nomad trail will be removed in year three of this plan.

11. Campfires (Fire Places and Fire Rings)

Present Conditions:

Campfires have historically been associated with the camping experience. Many users value the presence of a campfire as an important part of their camping experience. While many users now carry portable stoves, eliminating their need for a fire for cooking, the fire remains an important social focus. Existing Department regulations allow fires for the purpose of "cooking, warmth or smudge" on most public

forestland in the State (6 NYCRR §190.1[a]) except for portions of the High Peaks Wilderness Area where stricter regulations have been promulgated.

Even though the number of visitors using portable gas stoves is increasing, there are campfire rings at every established campsite in the LCIMC. Every campsite in the LCIMC shows evidence of fire: blackened rocks, charcoal, hacked trees, and occasionally partially burned garbage, melted and broken glass. "There is no question that campfires have substantial environmental impacts" (Cole and Dalle-Moll, 1982).

Physical impacts associated with campfires are numerous. Although actual fire locations 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 tent sites. The disturbed areas can be 10-20 times greater in size than the actual de-vegetated zone around the campsite. Campfires consume wood that 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 have been 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.

A fireplace is a permanent structure constructed of stone and/or cement designed to control campfires. A fire ring is a temporary cluster of rocks that may be located over a cement pad. Except for fire-sensitive areas, standard fireplaces are non-conforming uses anywhere other than intensive use areas.

The Department has built cement fireplaces in popular locations to concentrate fire use in order to avoid excessive damage and reduce the natural risks of open fires. The primitive tent sites on Valcour and Schuyler Islands all have cement fireplaces with steel cooking grills. These structures are non-conforming with the APSLMP guidelines for Wilderness and Primitive areas.

Objectives:

- Manage visitor use to keep impacts on the resource and experiences of all visitors at an acceptable level consistent with the concept of the classification designation of the area as described by the APSLMP.
- Keep the effects of visitor use on resources to a minimum.
- Reduce the effects of recreational use of campfires on physical and aesthetic resources.
- Bring the LCIMC into compliance with the APSLMP guidelines.
- Provide safe conditions for public use of fire in fire sensitive areas.

Management Actions:

- As cement fireplaces reach the end of their functional life, replace them with conforming stone fire rings and fire resistant bases, as needed.
- Remove user created fire rings at undesirable locations.
- Construct new fire rings with concrete bases at all new primitive tent sites.
- Adopt regulations to allow fires only at designated locations.
- Place two fire rings on concrete bases on the beach in Bullhead Bay for day users.

12. Parking Areas and Boat Launches

Present Conditions:

There are currently three boat launches with paved parking areas in the LCIMC. All three of the parking areas provide parking for access to the boat launches. The parking lots are paved and large enough to accommodate the current use levels.

The three boat launches included in the LCIMC: Peru Dock BLS, Port Douglas BLS, and Willsboro Bay BLS, are structurally sound facilities with ramps, bulkheads and parking areas of a size sufficient to provide adequate boating opportunities during the planning period. No large-scale reconstruction or upgrades of any of these sites are anticipated during the near term. However, significant maintenance and repairs are needed. Additionally, all three sites have been made accessible to persons with disabilities.

Peru Dock Boat Launch

Peru Dock BLS is being maintained as necessary. The site has also been made accessible for persons with disabilities. The modifications necessary to make the facility accessible included renovations to the existing toilet building including installation of ramped pathways, designation and marking of accessible parking and construction of an accessible pathway from the parking area to the boat ramp. Because of the long, moderately steep grade, this pathway included accessible landings and a concrete pathway.

A periodic problem at the Peru Dock BLS is the accumulation of material at the end of the ramp, which causes problems and potential damage to boats, especially during low-water periods. The ramp area will be dredged to alleviate this recurring maintenance need as it becomes necessary. Necessary permits and appropriate environmental safeguards will be in place prior to any dredging operations.

In addition to the parking area, bathroom facilities, and boat ramp, this facility also contains two other structures, both of which were on the property when the Department acquired it. The first, an old garage located on the northwest corner of the property, is used for storage of maintenance and search and rescue equipment. The second building, a caretaker house that contains a two-car garage and small apartment, is also used for storage of maintenance equipment. This house also provides overnight accommodations for maintenance personnel when needed. Both of these facilities are managed by the Division of Operations and maintained as needed.

Port Douglas Boat Launch

Port Douglas BLS is being maintained as necessary. The site has been made accessible for persons with disabilities. The modifications necessary to make the facility accessible included construction of a pad to hold a portable/accessible toilet, designation and marking of accessible parking, and designation of an accessible pathway from the parking area to the boat ramp.

A periodic problem at the Port Douglas BLS is the deposition of material in the parking lot and on the launch ramp, resulting from high storm water from an adjacent hillside. This recurring problem was addressed and changes made to the storm water control structure during the 1994 modernization of the site. Since the modernization of the Port Douglas BLS, there have not been problems with accumulated sediments in the ramp area sufficient to require dredging. However, if such accumulations do occur, the ramp area will be dredged to alleviate the problem. Necessary permits and appropriate environmental safeguards will be in place prior to any dredging operations. The Town of Chesterfield has purchased additional floating docks to provide temporary dock space adjacent to the launch ramp. The original dock

mounting system proved inadequate. Past maintenance at the Port Douglas BLS included installation of a rigid mounting system for the auxiliary docks. The docking system is now adequate for users.

Willsboro Bay Boat Launch

The Willsboro Bay BLS is maintained as necessary. The site was made accessible for persons with disabilities. The modifications necessary to make the facility accessible included renovations to the existing toilet building including installation of ramped pathways, designation and marking of accessible parking, and designation of an accessible pathway from the parking area to the boat ramp.

While structurally sound, the Willsboro Bay BLS is in need of significant repairs. The present wooden floating dock system is in poor condition. It will be replaced with a modern, aluminum floating dock system including installation of a rigid dock mooring system. The steel sheet pile shore protection is in good condition and will serve for many years. However, the wooden cap has deteriorated and must be replaced. The parking area is in need of repaving. These required maintenance items will be undertaken as funds become available.

A periodic problem that is recurring at the Willsboro Bay BLS is the accumulation of material at the end of the ramp, which causes problems and potential damage to boats, especially during low-water periods. The ramp area will be dredged to alleviate this recurring maintenance need. Necessary permits and appropriate environmental safeguards will be in place prior to any dredging operation.

Objectives:

- Provide safe parking for boat launch access and LCIMC users.
- Maintain all boat launch sites.
- Provide public access to fisheries facilities.
- Provide access for persons with disabilities.

Management Actions:

- Maintain the parking lots as needed.
- Provide for plowing of the Peru Dock BLS for ice fishing access under a TRP or AANR.
- Maintain the Peru BLS site.
- Maintain the Port Douglas BLS site.
- Maintain the Willsboro BLS site.
- Dredge the base of the Port Douglas boat ramp if accumulated sediments in the ramp area become sufficient to require dredging.
- Dredge the base of the Peru boat ramp if accumulated sediments in the ramp area become sufficient to require dredging.
- Dredge the base of the Willsboro boat ramp if accumulated sediments in the ramp area become sufficient to require dredging.

13. Signs

Present Conditions:

Signs mark trails to minimize impacts and provide information. Signage is kept to a minimum to avoid interfering with Primitive and Wild Forest values. There is currently no unit-wide sign inventory.

Currently, Lands and Forests, Operations, and Fish and Wildlife all use signs in the unit. The unofficial trailheads in the unit are not well identified and currently do not have signs delineating the areas as access points. There are several entrance points to the LCIMC and the only Department information that could be thought of as access information, at one of these access points, is located at the Peru BLS, in the register box. This box provides minimal information regarding access to the Islands in the LCIMC or use of the BLS. Interior signing is limited to trail junctions, special information and regulatory signs. The signs in the LCIMC should all be bilingual due to the large amount of French speaking Canadian users. None of the signs are bilingual at this time.

Objectives:

- Provide signs necessary to manage and protect the resource and provide user information.
- 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 LCIMC 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 LCIMC.

Management Actions:

- Develop, update and maintain a sign inventory.
- Coordinate and review all sign needs through a single area manager.
- Replace old rotten and damaged signs.
- Install new signs at all proposed trailheads including North Bay and Bullhead Bay on Valcour Island.
- Remove pipe sign hangers.
- Develop an interpretive tour of the LCIMC using current technology. Provide links to this tour on the signs.
- Design and build signs to interpret the historic nature of the Seton House and other sites.

D. Public Use and Access

1. Public Use

Present Conditions:

Access to the primitive tent sites on Valcour and Schuyler Islands, as well as the hiking trails, can only be accomplished with a boat due to the location of the islands in Lake Champlain approximately one mile from the nearest mainland. Interior access on Valcour is all but impossible in many locations at times, due to a lack of good landing locations due to the heavy winds and the steep rocky terrain found on the shores of the island.

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. There are no restrictions limiting day use. Groups of any size may enter the LCIMC. When staying overnight, stricter restrictions apply. Sheepshead and Cole Islands have been receiving day use by groups that are too large for the islands to sustain. This use has caused loss of vegetation, soil erosion, and soil compaction.

While visitor use information for the LCIMC is generally lacking, Department staff have observed an increase in recreational use of the LCIMC. Presently, the only trail register in the LCIMC is located at the Peru Dock BLS. Current estimates on public use are largely based on assessments of physical condition of tent sites, trails, access points, field diaries of Department personnel, and interviews with users. Camping permits show some level of use of Valcour and Schuyler Islands, but these are incomplete since all overnight users are only required to obtain a permit during the summer months. Even during the summer, not all users receive a permit, especially if they arrive late in the afternoon and leave early the next morning. Combined, these techniques can only provide general assumptions of total use. The user information from the camping permits and the trail register is located in Appendix B.

When dealing with public use, group size, and access -- a fundamental issue comes to light. Selecting a specific group size regardless of activity requires judgment; no magic formula exists to calculate an ideal number. The situation is parallel to setting speed limits to control use on highways. Research indicates that the size of a group should be low, ideally 4-6 people per group, but generally less than 10 persons per party to be effective in reducing environmental and sociological impacts (Cole, 1987). Many visitors consider large groups inappropriate and undesirable. Aside from behavioral factors, the potential to cause impact varies with party size and type of user. Parties larger than eight persons in a group have been documented to cause greater impacts to certain environmental and sociological resources than smaller groups (Cole, 1987, 1989; USDA Forest Service, 1994; and Dawson, 2002). The APSLMP (2001) establishes a maximum design capacity for primitive tent sites to no more than three tents and eight persons. Although large party use in the LCIMC represents a small proportion of total users, they contribute a disproportionate amount of impact when compared to smaller parties.

Valcour Island currently has a designated picnic area, including picnic tables, located on the periphery of the island. Developed picnic areas are non-conforming with the APSLMP guidelines for primitive areas.

Objectives:

- Manage visitor use to keep impacts on the resource and experiences of all visitors at an acceptable level consistent with the concept of Primitive and Wild Forest areas 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 facilities.
- Keep the effects of visitor use on resources to a minimum.
- Increase visitor self-sufficiency and knowledge of personal protection.

Management Actions:

- Develop a uniform method of collecting use data across the LCIMC.
- Remove picnic tables related to the picnic area on Valcour Island.

- Information about limits of group size and length of stay will be disseminated through the unit's information and education, LEAVE-NO-TRACE™ programs, and regulations will be enforced. Informing visitors of limits during trip planning and/or prior to arrival is essential.
- Limit group size by regulation to fifteen persons for day use and eight for overnight use.
- Install Class 2 Trail Register Boxes at the Valcour Island boat docks.
- Install a Class 3 Register Box at the access point for Schuyler Island.

2. Access for Persons with Disabilities

Present Conditions:

When possible, all new Department facilities, including parking areas, pedestrian recreational trails, boating access locations, and campsites will comply with the requirements of the ADA and the existing and proposed ADAAG. Existing facilities, while not specifically required to comply with ADA and ADAAG, were inspected to determine if compliance is possible. Potential locations to accommodate access for persons with disabilities were identified in the planning process. The two main challenges to ADA and ADAAG compliance for trails, campsites, and parking areas are the requirements for a firm and stable surface and acceptable slope considerations. Although, the LCIMC has a great deal of rough, rocky, and steep terrain which limits access for persons with disabilities, potential locations to improve access for persons with disabilities were identified at Valcour and Schuyler Islands. There is currently no specifically improved access to any of the LCIMC Islands for persons with disabilities**.**

The New York State Department of Environmental Conservation is committed to providing recreational opportunities to persons with disabilities. The three public boat launches in the LCIMC are named in the Consent Decree for Civil Action No. 98-CV–1117 (LEK-RWS), commonly called the Galusha settlement, which commits the Department to providing accessibility at many of its existing recreational facilities. Plans have been implemented to rehabilitate the existing boat launch sites and bring them into compliance. At Port Douglas, an accessible portable toilet facility has been provided. The existing vault-type toilet facilities at Willsboro and the sanitary sewer toilets at Peru Dock were also made accessible. The Willsboro Bay and Port Douglas boat launches are both constructed on relatively gentle slopes. These facilities have been made accessible. The Peru Dock BLS site is relatively steep. An accessible route from the parking area to the top of the boat ramp has been developed to assist with access for persons with disabilities.

Objective:

- Provide the highest level of accessibility for persons with disabilities consistent with the American with Disabilities Act (ADA) to the extent it does not alter the fundamental nature of programs offered to the public.

Management Actions:

- Build one accessible dock for persons with disabilities on Valcour Island in Bullhead Bay.
- Improve the Seton House dock and access from the dock to the Island facilities to provide access for persons with disabilities.
- Provide access for persons with disabilities to the Bluff Point Lighthouse and other Valcour Island facilities.
- Develop an accessible site on Schuyler Island.

- Improve the trail from the proposed disabled access dock location in Bullhead Bay to the lighthouse so that it conforms to the ADAAG trail standards.
- Upgrade two existing primitive tent sites up to ADAAG standards (see Primitive Tent Site section above).
- Establish one additional primitive tent site, built to ADAAG guidelines north of the Seton House (see Primitive Tent Site section above).
- Build the Peru Dock interpretive site.

3. Nearby Public Land Use

Present Conditions:

Public use discussions pertaining to the use of the bays surrounding Valcour Island have been a part of the planning process since the initial public meeting for this plan. The public use of the bays surrounding Valcour Island for anchorage and mooring sites has been portrayed as a distraction to users' solitude and wilderness quality experiences while visiting the island. While this use, along with other uses, all play into the quality of one's wilderness experience, it is felt that the close proximity of the mooring and anchoring of boats to the users on the island plays a larger role than that of the heavily developed shoreline, nearby airport or navigational channel.

While use in the bays around Valcour Island is usually low, at times such as national holidays, like the U.S. Independence Day and some Canadian Holidays, use can be very high. The bays surrounding Valcour Island are enjoyed by motor boaters, sailors and other water-based recreationalists. During the summer season, boaters anchor in the sheltered harbors surrounding Valcour Island. During personal interviews with boaters and discussions with Department staff managing the island facilities, it has been determined that most users that seek sheltered harbor around Valcour Island do not go on the island. Many users simply stay overnight in their boats on their way to or from Montreal. Others visit the bays surrounding Valcour Island during the day to find a spot out of the wind to enjoy the sun, calm waters for swimming and companionship. In order to address this issue and adhere to the APSLMP's guidelines to manage the island as close to wilderness as possible, the Department has reviewed New York State's jurisdiction on the water surrounding Valcour Island.

The Department does not have jurisdiction over the lands below the mean high water mark in the Lake Champlain waters surrounding Valcour Island. The lands below the mean high water mark are under the jurisdiction of the New York State Office of General Services (OGS). As such, the unit boundary for the LCIMC is defined as the mean high water mark. Along with the issue of land jurisdiction, the U.S. Coast Guard regulates navigation on Lake Champlain. Valcour Island is surrounded on both sides by the U.S. Coast Guard delineated navigable channel, hence the reason the Bluff Point Lighthouse is located on the island and equipped with an Aid to Navigation Light (ATON). In order for the Department or OGS to restrict anchoring/mooring, permission would have to be granted by the Coast Guard to New York State for any action taken that could affect navigation on the lake. Any restriction to the anchoring/mooring around Valcour Island would have to be completed through a process defined by the U.S. Coast Guard.

Some islands on the Vermont side of Lake Champlain have anchoring restrictions that were enacted to protect swimming areas. Even though the islands are all located in Lake Champlain, they are managed quite differently and due to their locations in the lake, the U.S. Coast Guard

views them differently. The islands in Vermont are intensively managed campgrounds with swimming beaches. Prior to the anchoring restriction, that was imposed adjacent to the swimming beaches in Vermont, boaters were causing a significant safety hazard to swimmers inside the designated swimming areas. Due to the close location of the Vermont Islands to Burlington, which already has specific anchorage restrictions surrounding the breakwater, and the clear and obvious safety hazard which was present at the swimming areas, the process of obtaining U.S. Coast Guard anchorage restriction was much simpler than that which would be required for the waters surrounding Valcour Island in New York, based on wilderness quality and user solitude.

In addition to the different reasoning for restricting anchoring/mooring (public safety vs. wilderness quality and solitude), Valcour Island's location in the middle of the navigational channel makes this type of restriction that much more complicated.

Objective:

- Provide a quality wilderness experience with solitude to users.

Management Actions:

- Monitor public use of the waters surrounding Valcour Island.
- Develop LAC indicators and standards for solitude and wilderness quality of Valcour Island users.
- Limit the anchoring/mooring in the bays surrounding Valcour Island by requesting that users voluntarily seek alternate anchorage during periods of high use.

Management alternatives considered, but not selected for implementation.

- No Action Alternative - The Department has the statutory responsibility under Environmental Conservation Law (ECL) §§3-0301(1)(d) and 9-0105(1), to provide for the care, custody, and control of these public lands. This action was not selected because taking no action would not fulfill the Department's responsibility to provide for the care, custody, and control of these public lands.
- Special Anchorage Area – In this alternative, the State would approach the U.S. Coast Guard for permission to establish a special anchorage area around Valcour Island for purposes of restricting anchoring/mooring, based on solitude and wilderness quality degradation to users on Valcour due to the anchoring/mooring use in the bays.
- Request New York State Office of General Services (OGS) to begin the process defined by the U.S. Coast Guard and U.S. Army Corp. of Engineers for the establishment of a special anchorage area around Valcour Island or transfer jurisdiction of the lands and waters both inside and outside the park surrounding Valcour Island to the Department. The process includes, but is not limited to a study by the U.S. Army Corp of Engineers, U.S. Coast Guard supervised public hearings, the surveying, mapping and development of a special anchorage area on Lake Champlain navigation charts, and the naming of a harbormaster who would have jurisdiction over the waters included in the special anchorage area. This alternative was not selected because the overriding required U.S. Coast Guard conditions for health and safety that would allow for this action do not exist.
- Ban mooring/anchoring – In this alternative, the State would ban mooring/anchoring on State owned lands under water surrounding Valcour Island. This action was not selected because the

APA Act, APSLMP and over a century of the public's demonstrated attitude toward the Forest Preserve and the Adirondack Park as a whole, suggest a need to balance public use with protection of the resources. Banning of public use in its entirety would not be an appropriate action without having first implemented a minimum tool approach followed by a strong background of proof displaying a need for such a level of restriction to provide for resource protection.

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V. SCHEDULE FOR IMPLEMENTATION AND ESTIMATED BUDGET

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

Annual Maintenance and other Activities	Estimated Cost
Perform routine maintenance as required at boat launches, including: mowing, paving repairs, installation and removal of docks, and operation of toilet facilities.	$2,000 per BLS $6,000 Total
Annual Invasive species inventory	5 person days
Monitor for LAC indicators.	7 person days
Maintain trails in the unit.	$1,000
Manage vegetation on the trails on Valcour Island, once in July and once in August.	$500
Maintain signs in unit.	3 person days
Maintain boundary lines and signs that delineate unit classification.	$500
Boat operation cost for Island Maintenance and facility management	$5,000
Maintain historic structures, monuments and facilities.	3 person days & $2,000
Maintain the bridges and boardwalks on Valcour Island.	$1,000
Camping Permit, Campsite, Hiking trail and Outhouse Maintenance	100 person days
Install/Remove Temporary Docks	$2,000
Maintain Docks on Valcour Island.	$2,000
Total	**118 person days & $20,000**

Year 1	Estimated Cost
Build one new ADA accessible dock on Valcour Island at Bullhead Bay.	$25,000
Initiate rule making.	10 days
Develop and implement a sign inventory.	5 person days
Develop a self-guided interpretive tour with current technology.	10 person days & $2,500
Maintain AANR agreements and seek additional adopters.	1 person day
Maintain the lighthouse.	10 person days
Make needed repairs to the lighthouse.	$5,000 & 10 person days
Total	**46 person days & $32,500**

Year 2	Estimated Cost
Install five class II register boxes: two at the BLS sites, two at the boat docks on Valcour and one at the lighthouse. Install one class 3 trail register at Schuyler Island.	$2,275 & 3 person days
Put wire mesh over the Seton House chimneys to keep birds and animals out.	$500 & 2 person days
Repair the Seton House dock.	$35,000 & 5 person days
Develop, construct and install interpretive signs at the Seton House.	$5,000 & 5 person days
Bring the Lighthouse access trail up to ADAAG guidelines.	$8,000 & 5 person days
Close Primitive tent sites; build replacements and re-vegetate old sites. Valcour- Schuyler -	$10,000 $8,000 Total: $18,000 & 15 person days
Improve and develop ADAAG accessible campsites.	$1,000 & 4 person days
Build the Peru Dock Interpretive Site with monuments and signs.	$20,000 & 7 person days
Build accessible pit privies at designated accessible sites (three).	$600 each Total: $1800
Total	**$91,575 & 46 person days**

Year 3	Estimated Cost
Provide screening of heavily used areas and tents sites from the water and trails.	52 person days
Develop LAC indicators and standards.	10 person days
Develop handout for Valcour Island.	15 person days
Close 1 campsite on Cole Island and 1 campsite on Sheepshead Island.	$100 4 person days
Remove the fence on the Eastern shore of Valcour Island.	$1,000
Construct a barrie- free trail to the Seton House and Perimeter trail from the Seton dock.	$8,000
Total	**81 person days & $9,100**

Year 4	Estimated Cost
Dredge Peru Dock BLS to remove accumulated material at end of ramp.	$10,000
Place two stone fire rings on concrete bases on the beach in Bullhead Bay for day users.	$1,000
Dredge Willsboro Bay BLS to remove accumulated material at end of ramp.	$10,000
Total	**$21,000**

Year 5	Estimated Cost
Inventory campsites on Valcour and Schuyler Islands for overuse.	$5,200 10 Person days
Mark and sign the short connecting trail from the beach in Butterfly and North Bays to the Perimeter trail to discourage people from walking along the shore to get to the existing trail.	$100 1 Person day
Re-Inventory rare and endangered species.	$25,000
Total	**11 Person days & $30,300**

Cost Summary

Annual Maintenance Costs: $ (Five years @ 118 person days) 590 person days & (Five years @ $20,000 /year) $100,000

Five-year specific projects total: 184 person days & $184,475.

Total UMP Implementation Cost of LCIMC for 5 years: 774 person days & $284,475.

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APPENDIX A: FACILITIES

Primitive Tent Site (locations): (total 30)		QUANTITY
	Schuyler Island	3
	Cole Island	1
	Valcour Island	29
	Sheepshead Island	1

Foot Bridges: (total 21)		QUANTITY	Width (x) Length
	Valcour Island (bog bridge)	1	4 feet x 45 feet
	Valcour Island (bog bridge)	1	4 feet x 50 feet
	Valcour Island (bog bridge)	1	3 feet x 60 feet
	Valcour Island (bog bridge)	1	5 feet x 25 feet
	Valcour Island (bog bridge)	1	4 feet x 15 feet
	Valcour Island (bog bridge)	1	4 feet x 8 feet
	Valcour Island (bog bridge)	1	4 feet x 200 feet
	Valcour Island (bog bridge)	1	4 feet x 150 feet
	Valcour Island (bog bridge)	1	4 feet x 150 feet
	Valcour Island (bog bridge)	1	4 feet x 25 feet
	Valcour Island (board walk)	1	4 feet x 12 feet
	Valcour Island (board walk)	1	4 feet x 20 feet
	Valcour Island (board walk)	1	4 feet x 12 feet
	Valcour Island (board walk)	1	4 feet x 120 feet
	Valcour Island (board walk)	1	4 feet x 20 feet
	Valcour Island (board walk)	1	4 feet x 20 feet
	Valcour Island (board walk)	1	4 feet x 60 feet
	Valcour Island (board walk)	1	4 feet x 8 feet
	Valcour Island (board walk)	1	5 feet x 10 feet
	Valcour Island (board walk)	1	6 feet x 15 feet
	Valcour Island (board walk)	1	4 feet x 8 feet

Trail registers (Standard Box type): (total1)		QUANTITY
	Peru Boat Launch Site	1

Boat Launches and Fishing Access Sites: (total 3)		QUANTITY
	Peru Boat Launch Site	1
	Port Douglas Boat Launch Site	1
	Willsboro Bay Boat Launch Site	1

Parking Areas: (total 3)		
Name	Location	Capacity
Peru Boat Launch Site	Peru Boat Launch Site	50 Cars and Trailers
Port Douglas Boat Launch Site	Port Douglas Boat Launch Site	20 Cars and Trailers
Willsboro Bay Boat Launch Site	Willsboro Bay Boat Launch Site	100 cars and Trailers

Trails – Listed by class

13.07 mi. total of non - motorized trails

Location/Name	**Length (mi.)**	**Marker**	**Maintenance Provided by:**	**Mountain Bikes Ok (MTB)**	**Notes:**
Class II Foot Trails – Paths					
Sheepshead Trail	0.1	NA	DEC	NO	Herd path
Schuyler Island Trail	0.3	NA	DEC	NO	Herd path
Cole Island Trail	0.1	NA	DEC	NO	Herd path
Class III Foot Trails – Primitive					
Royal Savage Trail	1.4	DEC - Yellow	DEC	NO	Northern Trail from east to west sides of Valcour Island
13 & 14 Connector	0.2	none	DEC	NO	Site # 13 & 14 connection to Perimeter trail
Nomad Trail	1.17	DEC - Yellow	DEC	NO	Southern Trail from east to west sides of Valcour Island
Lighthouse Loop Trail	0.6	None	DEC	NO	Circle Trail around the Bluff Point Lighthouse
Perimeter Trail	9.2	DEC - Yellow	DEC	NO	Trail around the Perimeter of Valcour Island

Trail Classifications

TITLE	EXAMPLE	MARKING	TREAD	BARRIERS	USE LEVEL	ACCEPTABLE MAINTENANCE
I Unmarked Route	Campsite & Privy trails	None	Intermittently apparent, relatively undisturbed organic soil horizon	Natural obstructions present, logs and water courses	Occasional	None
II Unmarked Path	Valcour Island Light House Loop Trail	None	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	Valcour Island Perimeter Trail	Trail markers, sign at junction with secondary or other upper level trail	Apparent, soil compaction evident	Limited natural obstructions (logs and river fords)	Low	Drainage (native materials) where necessary to minimize erosion, blowdown removed 2-3 years, brushing as necessary to define trail (every 5-10 years). Bridges only to protect resource (max - 2-log width). Ladders only to protect exceptionally steep sections, Tread 14"-18", clear: 3' wide, 3' high.
IV Secondary	None in LCIMC	Markers, signs with basic information	Likely worn and possibly quite eroded. Rocks exposed, little or no duff remaining	Up to one year's accumulated blowdown, small streams.	Moderate	Drainage where needed to halt erosion and limit potential erosion (using native materials), tread hardening with native materials where drainage proves to be insufficient to control erosion. Remove blowdown annually. Brush to maintain trail corridor. Higher use may warrant greater use of bridges (2–3 logs wide) for resource protection. Ladders on exceptionally steep rock faces. Tread 18"-24". Clear 4' wide, 3' High.
V Trunk or Primary Trail	None in LCIMC	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 LCIMC	Heavily marked, detailed interpretive signing	Groomed	None	Very High	Extensive grooming, some paving, bark chips, accessible. This is to be implemented within 500' of wilderness boundary.

TITLE	EXAMPLE	MARKING	TREAD	BARRIERS	USE LEVEL	ACCEPTABLE MAINTENANCE
VII **Horse Trail**	**None in LCIMC**	**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 LCIMC**	**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 B: TRAIL REGISTER & CAMPING PERMIT DATA

Use numbers in the following tables denote numbers of person days.

Location	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	TOTAL
	Year 2006												
Peru Dock Trail Register								5					
Valcour Island Permits						743	1851	744	36				**3,374**
Schuyler Island Permits													
Total													**3,379**

Location	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	TOTAL
	Year 2005												
Peru Dock Trail Register						7	6	3					**16**
Valcour Island Permits						281	1584	1048	24				**2,937**
Schuyler Island Permits													
Total													**2,953**

Location	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	TOTAL
	Year 2004												
Peru Dock Trail Register						2	9						**11**
Valcour Island Permits						82	1378	541	317				**2,318**
Schuyler Island Permits													
Total													**2,329**

Location	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	TOTAL
	Year 2003												
Peru Dock Trail Register		6					8	4					**12**
Valcour Island Permits						731	2,012	1,261	118	39			**4,161**
Schuyler Island Permits													
Total													**4,173**
	Year 2002												
Peru Dock Trail Register						2	12						**14**
Valcour Island Permits					5	1113	2872	1610	163				**5,763**
Schuyler Island Permits						286							**286**
Total													**6,063**

Location	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	TOTAL
	Year 2001												
Peru Dock Trail Register		5					3						**8**
Valcour Island Permits					65	598	2959	2000	279				**5,901**
Schuyler Island Permits					96	112							
Total													**6,117**
Location	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May.**	**Jun.**	**Jul.**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**	**TOTAL**
	Year 2000												
Peru Dock Trail Register													
Valcour Island Permits					21	553	1657	1436	391	13			**4,071**
Schuyler Island Permits					224	32							**256**
Total													**4,327**

Location	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	TOTAL
	Year 1999												
Peru Dock Trail Register						2		6					**8**
Valcour Island Permits					229	750	2139	1159	585	63			**4,925**
Schuyler Island Permits					221	102							**323**
Total													**5,256**

Data in above tables only represents the period of time a caretaker was on staff to write permits. During some years, funding and budgeting constraints limit the period of time a caretaker is on staff and a lack of data in May and or October during those years may have resulted.

APPENDIX C: BLUFF POINT LIGHTHOUSE DEED

Proceeding 6078
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Q-AFP CLINTON 67

I N D E N T U R E

Made the 10th day of November in the year nineteen hundred eighty-six,

BETWEEN ADOLPH RABOFF and KATHLYN RABOFF, his wife, residing at 87 Plympton Street, Middleboro, Massachusetts 02346, parties of the first part,

And THE PEOPLE OF THE STATE OF NEW YORK, parties of the second part.

WITNESSETH, that the parties of the first part in consideration of FORTY THOUSAND AND NO/100 DOLLARS ($40,000.00), lawful money of the United States, paid by the parties of the second part, do hereby grant and release unto the said parties of the second part, and their successors and assigns forever,

ALL THAT CERTAIN PIECE OR PARCEL OF LAND, with the building and improvements situated thereof, situate, lying and being in the Town of Peru, County of Clinton and State of New York, more particularly bounded and described as follows:

BEGINNING at a center punch mark in a brass marker set in a concrete monument, marked U.S.L.H.E.; said monument setting directly above a brass plug in the bed rock and bearing S 23° 53' 46" W a distance of 71.74 feet from the southwest corner of the old lighthouse situated on the parcel being conveyed; thence running S 12° 26' 14" E a distance of 50 feet to a center punch mark in a brass marker set in a concrete monument; thence N 77° 33' 46" E along the line fence to a corner; then N 12° 26' 44" W a distance of 250 feet more or less, along the line fence to a corner; thence S 77° 33' 46" W a distance of 250 feet more or less, along the line fence to the shore of Lake Champlain; thence southerly along said Lakeshore a distance of 200 feet more or less to a point; thence N 77° 33' 46" E a distance of 9.1 feet more or less to the center of a brass plug in the rock; thence continuing on said course of N 77° 33' 46" E, a distance of 87.815 feet to the point of beginning.

Being the same premises by a different description conveyed by Walter H. Church and Beatrice R. Church to Adolph Raboff and Kathlyn Raboff, his wife, dated and recorded January 13, 1958 in the Clinton County Clerk's Office in Liber 395 of Deeds at page 291.

TOGETHER with the appurtenances and all the estate, rights and interest of the parties of the first part in and to said premises.

CERTIFICATE OF RECORD OF DEED

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ADIRONDACK FOREST PRESERVE

Acquisition for Q-AFP CLINTON 67 Pro. No. 6078

Owners ADOLPH RABOFF & KATHLYN RABOFF
County Clinton

STATE OF NEW YORK)
) ss.:
CLINTON COUNTY CLERK'S OFFICE)

I, BERNARD AMELL, Clerk of the County of Clinton, do hereby certify, that on the 13th day of November 1986 at 2109 o'clock p.m., there was recorded in this office a deed of which the following is an abstract:

Deed Warranty

ADOLPH RABOFF AND
KATHLYN RABOFF Date

Cons. $40,000.00

TO
THE PEOPLE OF THE
STATE OF NEW YORK

CONVEYS the following property:

WITNESS my hand and official seal this

13th day of November 1986

Bernard Amell
Clinton County Clerk

CERTIFICATE OF RECORD OF DEED

Acquisition for Valcour Island Lighthouse Conservation Easement
Owner Adolph and Kathlyn Raboff
County Clinton

STATE OF NEW YORK)
) ss.:
CLINTON COUNTY CLERK'S OFFICE)

I, BERNARD AMELL, Clerk of the County of Clinton, do hereby certify, that on the 3rd day of November 1986 at 3:10 p.m., there was recorded in this office a deed of which the following is an abstract:

Deed Conservation Easement
Date October 24, 1986
Cons. $1.00

TO
Clinton County
Historical Association

CONVEYS the following Conservation Easement:

ALL THAT CERTAIN PIECE OR PARCEL OF LAND, with the buildings and improvements situated thereof, situate, lying and being in the Town of Peru, County of Clinton and State of New York, more particularly bounded and described as follows:

BEGINNING at a center punch mark in a brass marker set in a concrete monument setting directly above a brass plug in the bed rock and baring S 23° 53' 46" W a distance of 71.74 feet from the southwest corner of the old lighthouse situated on the parcel being conveyed; thence running S 12° 26' 14" E a distance of 50 feet to a center punch mark in a brass marker set in a concrete monument; thence N 77° 33' 46" E along the line fence to a corner; thence N 12° 26' 44" W a distance of 250 feet more or less, along the line fence to a corner; thence S 77° 33' 46" W a distance of 250 feet more or less, along the line fence to the shore of Lake Champlain; thence southerly along said Lakeshore a distance of 200 feet more or less to a point; thence N 77° 33' 46" E a distance of 9.1 feet more or less to the center of a brass plug in the rock: thence continuing on said course of N 77° 33' 46" E, a distance of 87.815 feet to the point of beginning.

WITNESS my hand and official seal this
3rd day of November 1986
Bernard Amell
County Clerk

Liber 679
Page 346

This Indenture, made this 24th day of October, 1986 between:

Adolph Raboff and Kathlyn Raboff, his wife, of 87 Plympton Street, Middleboro, Massachusetts 02346, hereinafter GRANTOR and the Clinton County Historical Association, a non-profit education corporation organized and existing under the education law of the State of New York with its office at Box 332 City Hall, Plattsburgh, New York 12901, hereinafter GRANTEE

WITNESSETH:

WHEREAS, the Grantor is the owner in fee of certain property situate on Valcour Island in the Town of Peru, County of Clinton and State of New York more particularly described in Schedule A attached hereto and made a part hereof and hereinafter referred to as the "premises," and

WHEREAS, the premises are improved by a certain lighthouse which has been determined to be eligible for listing on the National and State Registers of Historic Places; and

WHEREAS, the Grantor has contracted to sell the premises to the People of the State of New York, but desires to provide for the continued maintenance and preservation of the lighthouse and its ancillary structures by granting to the Grantee a conservation easement providing that the grantee have the perpetual right to maintain the lighthouse and its ancillary structures in accord with the standards of the Secretary of the Interior for Preservation of Historic Structures presently set forth in Part 68 of Title 36 of the Code of Federal Regulations (1986); and

WHEREAS, the Grantee, by resolution of its Board of Directors dated June 18, 1986 has authorized the acceptance of such a conservation easement;

NOW THEREFORE, the Grantor, in consideration of one dollar and other good and valuable consideration, hereby grants to the grantee, its successors and assigns, in perpetuity and in accordance with the following terms and conditions, a conservation easement over the premises consisting of the permanent and perpetual right, privilege and easement of entering on the premises and doing all things necessary thereon to preserve and maintain the lighthouse and its ancillary structures in accord with the Standards of the Secretary of Interior as now promulgated or hereinafter amended and to maintain the historic open character of the premises.

1. This grant is made pursuant to the provisions of Article 49, Title 3 of the Environmental Conservation Law of the State of New York.
2. The parties agree that the present physical condition of the lighthouse and its ancillary structures is accurately set forth in a certain document entitled Physical Inspection Report of Valcour Island

Lighthouse dated September 29, 1986. Such report includes a narrative description, photographs, and a print of DEC Map No. 6661 and is on file in the Albany Office of the Department of Environmental Conservation together with a copy of this indenture as required by Article 49, Title 3 of the Environmental Conservation Law. Each party also acknowledges receipt of a copy of such Physical Inspection Report.

3. By its execution of this document, the Grantee accepts this conservation easement and certifies to the Grantor that it is a qualified conservation organization authorized to acquire interests in real property and exempt for federal tax purposes pursuant to Section 501(c)(3) of the Internal Revenue Code of the United States.

4. This grant may not be assigned by the Grantee without the express written consent of the Commissioner of Environmental Conservation which consent shall not be unreasonably withheld.

This grant may not be modified except by written instrument subscribed by the Grantee and the Commissioner of Environmental Conservation.

Actual consideration is less than $100.00.

IN WITNESS WHEREOF, the parties hereto have executed this indenture on the day and date first above written.

_____

ADOLPH RABOFF, GRANTOR

_____

KATHLYN RABOFF, GRANTOR

CLINTON COUNTY HISTORICAL ASSOCIATION

BY: _____

ITS: _____
GRANTEE

STATE OF MASSACHUSETTS)
) ss:
COUNTY OF PLYMOUTH)

On this 24th day of October, 1986 before me personally came ADOLPH RABOFF and KATHLYN RABOFF to me known and known to me to be individuals described and who executed the foregoing indenture and they duly acknowledged to me that they executed the same.

Barbara G. Howard
Notary Public
My Commission Expires: Jan. 23 1992

Notary Public

STATE OF NEW YORK)
) ss:
COUNTY OF CLINTON)

On this 3rd day of November, 1986 before me personally came Helen W. Allen to me known and who by me being duly sworn did depose and say that she resides at Town of Plattsburgh, New York and is the Director/Curator of the Clinton County Historical Association, the Corporation described in and which executed the foregoing indenture and that she subscribed her name thereto pursuant to order of the Board of Directors of said Corporation.

_____
Notary Public
State of New York

ROBERT T. BOOTH
Notary Public, State of New York
Qualified in the County of Clinton
My Commission Expires March 30, 1988

SCHEDULE A

ALL THAT CERTAIN PIECE OR PARCEL OF LAND, with the buildings and improvements situated thereof, situate, lying and being in the Town of Peru, County of Clinton and State of New York, more particularly bounded and described as follows:

BEGINNING at a center punch mark in a brass marker set in a concrete monument, marked U.S.L.H.E.; said monument setting directly above a brass plug in the bed rock and bearing S 23° 53' 46" W a distance of 71.74 feet from the southwest corner of the old lighthouse situated on the parcel being conveyed; thence running S 12° 26' 14" E a distance of 50 feet to a center punch mark in a brass marker set in a concrete monument; thence N 77° 33' 46" E along the line fence to a corner; thence N 12° 26' 44" W a distance of 250 feet more or less, along the line fence to a corner; thence N 77° 33' 46" E a distance of 9.1 feet more or less to the center of a brass plug in the rock; thence continuing on said course of N 77° 33' 46" E, a distance of 87.815 feet to the point of beginning.

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APPENDIX D: CAMPSITE MONITORING FORMS AND PROCEDURE

MONITORING FORM A

1)Old Site Number:_____ 1a) New Site Number_____
2) Inventoried By:_____ 3)Date:____/____/____

INVENTORY PARAMETERS

4) Substrate of site area: (B=bedrock C=cobble S=sand O=soil) _____
5) Number of Other Recreational Sites Visible: _____
6) Fire Ring Present: (y or n) _____
Construction: (stone or metal) _____
Condition: (1=good, 2=poor, 3=replace) _____
7) Privy Present:(y or n) _____
Condition: (1= good, 2=poor, 3=replace) _____
8) Picnic Table Present: (y or n) _____
Condition: (1=good, 2=poor, 3=replace) _____
9) Tree Canopy Cover:(1=0-25%,2=26-50%,3=51-75%,4=76-100%) _____

IMPACT PARAMETERS (Begin with Site Boundary Determination)

10) Condition Class: (3,4 or 5) _____
11) Vegetative Ground Cover Onsite:(Use categories below) _____
(1=0-5%, 2=6-25%, 3=26-50%, 4=51-75% 5=76-95%, 6=96-100%)
12) Vegetative Ground Cover Offsite:(Use categories above) _____
13) Soil exposure: (use categories above) _____
14) Tree Damage: None/Slight____, Moderate____, Severe_____
15) Root Exposure: None/Slight____, Moderate____, Severe_____
16) Number of Tree Stumps: _____
17) Number of Trails: _____
18) Number of Fire Sites: _____
19) Litter/Trash: (N=None, S=Some, M=Much) _____
20) Human Waste: (N=none, S=Some, M=Much) _____
21)Comments/Recommendations:_____
_____
22) Take Center point and Site Photographs:

Site Center point References

1)
2)
3)
4)

Satellite Site Dimensions

Island Site Dimensions

Site area from Program: _____
+Satellite Area _____
- Island Area _____ =
Total Site Area _____ (sq ft)

Transect Data

Azimuth	**Distance (ft)**
1)	
2)	
3)	
4)	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	
21)	
22)	
23)	
24)	
25)	

MONITORING FORM B

1)Old Site Number:_____ 1a) New Site Number:_____

2)Fire Ring Present:_____ Condition:_____

3) Privy Present:_____ Condition: _____

4) Picnic Table Present:_____ Condition: _____

5) Condition Class (1 or 2)_____ Site Size:_____(ft^2)

DESIGNATED CAMPSITE MONITORING MANUAL
DESCRIPTION OF PROCEDURES
FEBRUARY 2001

For the purpose of this manual, designated campsites are defined as those areas either designated by the Department with a yellow DEC designated campsite marker, or shown on an area brochure. In areas with multiple sites there may not always be undisturbed areas separating sites, and an arbitrary decision may be necessary to define separate sites. For each site, monitoring begins with an assessment of Condition Class: For sites rated Condition Class 1 or 2, complete Form B; for sites rated Class 3, 4 or 5, complete Form A. Form B is an abbreviated version of Form A and greatly reduces the amount of field time. The rationale for this approach is that detailed information on lightly impacted sites is not as critical to management.

During subsequent surveys an attempt should be made to relocate and reassess all sites from the proceeding survey. Former designated sites that have been closed, and are still being used, should be noted as illegal sites. Always note information regarding the history of site use under the comment parameter.

Materials:

Compass, peephole or mirror type(not corrected for declination)
GPS data recorder (GPS point will be taken at each sites center point)
Tape measure, 100-foot (marked in tenths)
Flagged wire pins (25 min), one large steel center point stake.
Digital camera
Clipboard, pencil, field forms, field procedures

Form A Procedures

Inventory Parameters

1. Site Number: All sites will be assigned an old site number as well as a new site number. Old site numbers will use the existing site numbering system, while new site numbers will be assigned following completion of the mapping of all sites.

2. Inventoried By: List the names of field personnel involved in data collection.

3. Date: Month, day and year the site was evaluated (e.g., June 12, 1999 = 06/12/99)

4. Substrate of site area: Record the predominant substrate for the area of human disturbance for each site using the coded categories below.

   B=bedrock - shelf bedrock, C=cobble - includes gravel size stone and up, S=sand - includes sandy soils that do not form a surface crust in trampled areas, O=soil - includes clays to loamy sands

5. Number of other sites visible: Record the number of other campsites, which if occupied, would be visible from this site.

6. Fire ring : if present or not (y or n)
    a. Construction: stone/ masonry or metal
    b. Condition: good=intact, functional for cooking, Poor= missing stones, broken , not functional for cooking but will contain open fire.

7. Privy: if present or not (y or n)
    a. Condition: good= functional, has door, wood not deteriorated(would you use it?), Poor= nonfunctional, door missing, wood rotten,

8. Picnic table: if present or not (y or n)
    a. Condition: good= usable, no broken boards, table is solid, Poor=not usable, broken/rotten boards, not sturdy

9. Tree canopy cover: Estimate the percentage of tree canopy cover directly over the campsite.
    1=0-25%, 2=26-50%, 3=51-75%, 4=76-100%

Impact Parameters

The first step is to establish the sites boundaries and measure its size. The following procedures describe use of the variable radial transect method for determining the sizes of recreational sites. This is accomplished by measuring the lengths of linear transects from a permanently defined center point to the recreation site boundary.

Step 1. Identify Recreation Site Boundaries and Flag Transect Endpoints.

Walk the recreation site boundary and place flagged wire pins at locations which, when connected with straight lines, will define a polygon whose area approximates the recreation site area. Use as few pins as necessary, typical sites can be adequately flagged with 10-15 pins. Look both directions along site boundaries as you place the flags and try to balance areas of the site that fall outside the lines with offsite(undisturbed) areas that fall inside the lines. Pins do not have to be placed on the site boundaries, as demonstrated in the diagram following these procedures. Project site boundaries straight across areas where trails enter the site. Identify site boundaries by pronounced changes in vegetation cover, vegetation height/disturbance, vegetation composition, surface organic litter, and topography. Many sites with dense forest over stories will have very little vegetation and it will be necessary to identify boundaries by examining changes in organic litter, i.e. leaves that are untrampled and intact versus leaves that are pulverized or absent. In defining the site boundaries, be careful to include only those areas that appear to have been disturbed from human trampling. Natural factors such as dense shade and flooding can create areas lacking vegetative cover. Do not include these areas if they appear "natural" to you. When in doubt, it may also be helpful to speculate on which areas typical visitors might use based on factors such as slope or rockiness.

Step 2. Select and Reference Site Center point.

Select a site center point that is preferably a) visible from all site boundary pins, b) easily referenced by distinctive permanent features such as larger trees or boulders, and c) approximately 5 feet from a steel fire ring if present. Embed a 5 inch nail in the soil at the center point location so that the head is 3-4 inches below the surface. During future sight assessments a magnetic pin locator can be used to locate the center point. Next, insert a large steel stake at the center point and reference it to at least three

features. Try to select reference features in three opposing directions, as this will enable future workers to triangulate the center point location. For each feature, take a compass azimuth reading and measure the distance (nearest 1/10 foot) from the center point to the center of trees or the highest point of boulders. Also measure the approximate diameter of reference trees at 4.5 feet above ground (dbh). Be extremely careful in taking these azimuths and measurements, as they are critical to relocating the center point in the future. Record this information on the back of the form.
Take a digital photograph that clearly shows the center point location in relation to nearby trees or other reference features, such as the fire ring, trees or boulders. Record a photo description, such as" center point location site 23 ", in the photo log.

Options: Some sites may lack the necessary permanent reference features enabling the center point to be accurately relocated. If only one or two permanent reference features are available, use these and take additional photographs from several angles. If permanent features are unavailable, simply proceed with the remaining steps without permanently referencing the center point. This option will introduce more error in comparisons with future measurements, particularly if the site boundaries are not pronounced. Note your actions regarding use of these options in the comment section.

Step 3. Record Transect Azimuths and Lengths.
Standing directly over the center point, identify and record the compass bearing(azimuth) of each site boundary pin working in a clockwise direction, starting with the first pin clockwise of north. Be careful not to miss any pins hidden behind vegetation or trees. Be extremely careful in identifying the correct compass bearings to these pins as error in these bearings will bias current and future measurements of site size. Next, anchor the end of your tape to the center point stake, measure and record the length of each transect(nearest 1/10 foot), starting with the same boundary pin and in the same clockwise direction as before. Be absolutely certain that the appropriate pin distances are recorded adjacent to their respective compass bearing.

Step 4. Measure island and satellite areas.
Identify any undisturbed islands of vegetation inside the site boundaries (often due to the clumping of trees and shrubs) and disturbed satellite use areas outside the site boundaries (often due to tent sites or cooking sites). Use site boundary definitions for determining the boundaries of these areas. Use the geographic figure method to determine the areas of these islands and satellites (refer to the diagrams following these procedures). This method involves superimposing one or more imaginary geometric figures (rectangles, circles or right triangles) on island or satellite boundaries and measuring appropriate dimensions to calculate their areas. Record the types of figures used and their dimensions on the back of the form; the size of these areas should be computed in the office using a calculator.
Site Remeasurement: During site remeasurement use the data from the last monitoring period to reestablish the center point and all site boundary pins. If steel nails were embedded in the ground, a magnetic pin locator can assist in this process. Place flagged wire pins at each transect boundary point. Boundary locations based on the following procedures:

1) Keep the same transect length if that length still seems appropriate, i.e., there is no compelling reason to alter the initial boundary determination.
2) Record a new transect length if the prior length is inappropriate ,i.e., there is compelling evidence that the present boundary does not coincide with the pin and the pin should be relocated either closer to or further away from the center point along the prescribed compass bearing. Use different colored flags to distinguish these current boundary points from the former boundaries.

3) Repeat steps 1 and 3 from above to establish additional transects where necessary to accommodate any changes in the shape of recreation site boundaries (diagram below). Also repeat step 4.
4) Leave all pins in place until all procedures are completed. Pins identifying the former site boundaries are necessary for tree damage and root exposure assessments.

These additional procedures are designed to eliminate much of the measurement error associated with different individuals making subjective judgements on those sites or portions of sites where boundaries are not pronounced. These procedures may only be used for sites whose center points can be relocated.

10. Condition class: Record the condition class you assessed for the site using the categories described earlier.

11. Vegetative ground cover on site: An estimate of the percentage of **live non-woody** vegetative ground cover (including herbs, grasses, and mosses and excluding tree seedlings, saplings, and shrubs) within the flagged campsite boundary using the coded categories listed next. Include any disturbed satellite use areas and exclude any undisturbed Island areas of vegetation. For this and the following two parameters, it is often helpful to narrow your decision to two categories and concentrate on the boundary that separates them. For example, if the vegetation cover is either category 2 (6-25%) or category 3 (26-50%), you can simplify your decision by focusing on whether vegetative cover is greater than 25%.
    1=0-5%, 2=6-25%, 3=26-50%, 4=51-75%, 5=76-95%,6=96-100%

12. Vegetative ground cover offsite: An estimate of the percentage of vegetative ground cover in an adjacent but largely undisturbed "control" area. Use the codes and categories listed earlier. The control site should be similar to the campsite in slope, tree canopy cover (amount of sunlight penetrating to the forest floor), and other environmental conditions. The intent is to locate an area that would closely resemble the campsite area had the site never been used. In instances where you cannot decide between two categories, select the category with less vegetative cover. The rationale for this is simply that, all other factors being equal, the first campers would have selected a site with the least amount of vegetation cover.

13. Soil exposure: An estimate of the percentage of soil exposure, defined as ground with very little or no organic litter (partially decomposed leaf, needle, or twig litter) or vegetation cover, within the campsite boundaries and satellite areas. Dark organic soil, which typically covers lighter colored mineral soil, should be assessed as bare soil. Assessments of soil exposure may be difficult when organic litter becomes highly decomposed and forms a patchwork with areas of bare soil. If patches of organic material are relatively thin and few in number, the entire area should be assessed as bare soil. Otherwise, the patches of organic litter should be mentally combined and excluded from assessments. Code as for vegetative cover.

14. Tree damage: Tally the number of live trees (> 1 in, diameter at 4.5 ft.) Within the campsite boundaries, including trees in undisturbed islands and excluding trees in satellite areas, into one of the rating classes described below. Assessments are restricted to trees within the flagged campsite boundaries in order to ensure consistency with future measurements. Multiple tree stems from the same species that are joined at or above ground level should be counted as one tree when assessing damage to any of its stems. Assess a cut stem on a multiple-stemmed tree as tree damage, not as a stump. Do not count tree stumps as tree damage. Take into account tree size. For example, damage for a small tree would be considerably less in size than damage for a large tree. Omit scars that are clearly not human-caused (e.g., lightning strikes).

During site remeasurement, begin by assessing tree damage on all trees within the site boundaries identified in the last measurement period. Tally the number of trees in areas where the boundary has

moved closer to the center point, i.e., former site areas that are not currently judged to be part of the site separately. Place a box around this number. Next, assess tree damage in areas where boundaries have moved further from the center point, i.e. expanded site areas that are newly impacted since the last measurement period. Circle these tallies. These additional procedures are necessary in order to accurately analyze changes in tree damage over time.

None/Slight- No or slight damage such as broken or cut smaller branches, one nail, or a few superficial trunk scars.

Moderate- Numerous small trunk scars and/or nails or one moderate-sized scar.

Severe- Trunk scars numerous with many that are large and have penetrated to the inner wood; any complete girdling of trees (cut through tree bark all the way around tree).

15. Root exposure: Tally the number of live trees (> 1 in, diameter at 4.5 ft.) Within the campsite boundaries, including trees in undisturbed islands and excluding trees in satellite areas, into one of the rating classes described below. Assessments are restricted to trees within the flagged campsite boundaries in order to ensure consistency with future measurements. Where obvious, omit exposed roots that are clearly not human-caused (e.g., stream/river flooding).

    During site remeasurement, begin by assessing root exposure on all trees within the site boundaries identified in the last measurement period. Tally the number of trees in areas where the boundary has moved closer to the center point, i.e., former site areas that are not currently judged to be part of the site separately. Place a box around this number. Next, assess root exposure in areas where boundaries have moved further from the center point, i.e. expanded site areas that are newly impacted since the last measurement period. Circle these tallies. These additional procedures are necessary in order to accurately analyze changes in root exposure over time.

    None/Slight- No or slight root exposure such as is typical in adjacent offsite areas.

    Moderate- Top half of many major roots exposed more than one foot from base of tree.

    Severe- Three-quarters or more of major roots exposed more than one foot from base of tree; soil erosion obvious.

16. Number of tree stumps: A count of the number of tree stumps (> 1 in. Diameter) within the campsite boundaries. Include trees within undisturbed islands and exclude trees in disturbed satellite areas. Do not include cut stems from a multiple-stemmed tree.

    During site remeasurement, begin by assessing stumps on all trees within the site boundaries identified in the last measurement period. Tally the number of trees in areas where the boundary has moved closer to the center point, i.e., former site areas that are not currently judged to be part of the site separately. Place a box around this number. Next, assess stumps in areas where boundaries have moved further from the center point, i.e. expanded site areas that are newly impacted since the last measurement period. Circle these tallies. These additional procedures are necessary in order to accurately analyze changes in stumps over time.

17. Number of trails: A count of all trails leading away from the outer campsite boundaries. Do not count extremely faint trails that have untrampled tall herbs present in their tread or trails leading out to any satellite sites.

18. Number of fire sites: A count of each fire site within campsite boundaries, including satellite areas. Include old inactive fire sites as exhibited by blackened rocks, charcoal, or ashes. Do not include areas where ashes or charcoal have been dumped. However, if it is not clear whether or not a fire was built on the site, always count questionable sites that are within site boundaries and exclude those that are outside site boundaries.

19. Litter/trash: Evaluate the amount of litter/trash on the site: n=None or less than a handful, S=some-a handful up to enough to fill a 2-1/2-gallon bucket, M=Much- more than a 2-1/2-gallon bucket.

20. Human waste: Follow all trails connected to the site to conduct a quick search of likely "toilet" areas, typically areas just out of sight of the campsite. Count the number of individual human waste sites, defined as separate locations exhibiting toilet paper and/or human feces. The intent is to identify the extent to which improperly disposed human feces is a problem. Use the following code categories: N=None, S=Some-1-3 sites, M=Much-4 or more sites evident.

21. Comments/Recommendations: An informal list of comments concerning the site: note any assessments you felt were particularly difficult or subjective, problems with monitoring procedures or their application to this particular campsite, or any other comment.

22. Campsite photograph: Select a good vantage point for viewing the entire campsite, preferably one of the site boundary pins, and take a digital picture of the campsite. Note the azimuth and distance from the center point to the photo point and record on the form. The intent is to obtain a photograph that includes as much of the site as possible to provide a photographic record of site condition. The photo will also allow future workers to make a positive identification of the site. Label disks with date, and site number.

23. Total campsite area: Calculate the campsite area based on the recorded transect measurements. Add the area of any satellite sites and subtract the area of any undisturbed islands to obtain the Total Campsite Area. Record campsite area to nearest square foot (ft^2).

Form B Procedures

Refer to the procedures described earlier, all procedures are the same with the exception of campsite size. Measure campsite size using the geometric figure method. Typically, class 1 and 2 campsites are quite small in size and this method should be both efficient and accurate. Be sure to record on form B the types of figures used (rectangle, square, triangles...etc.) And all necessary dimensions. Record campsite area to nearest square foot (sq.ft).

APPENDIX E: 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
ANC	Acid neutralizing capacity
APA	Adirondack Park Agency
APLUDP	Adirondack Park Land Use Development Plan
APSLMP	Adirondack Park State Land Master Plan
ARPA	Archaeological Resources Protection Act
ATV	All-Terrain Vehicle
BMP's	Best Management Practices
CCHA	Clinton County Historic Association
DAR	Daughters of the American Revolution
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
FR	Forest Ranger
HPWA	High Peaks Wilderness Area
HPWC	High Peaks Wilderness Complex
LAC	Limits of Acceptable Change
NHPC	Natural Heritage Plant Community
NIPF	Non-Industrial Private Forest Landowners
NYNHP	New York Natural Heritage Program
NYCRR	New York Code of Rules and Regulations
NYS	New York State
OPRHP	Office of Parks Recreation and Historic Preservation
OSP	Open Space Plan
SEQRA	State Environmental Quality Review Act
SHPA	State Historic Preservation Act
SUNY-ESF	State University of New York College of Environmental Science and Forestry
TNC	The Nature Conservancy
UFAS	Uniform Federal Accessibility Standards
USGS	United States Geologic Survey
UMP	Unit Management Plan
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service

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APPENDIX F: MAMMALS, REPTILES AND AMPHIBIANS

Reptiles and Amphibians

Type	Common Name	Scientific Name	NY	VT	Fed.	Notes
Frog	American Bullfrog	*Rana catesbeiana*				
Frog	American Toad (Frog)	*Bufo americanus*				
Frog	Gray Treefrog	*Hyla versicolor*				
Frog	Green Frog	*Rana clamitans*				
Frog	Mink Frog	*Rana septentrionalis*				
Frog	Northern Leopard Frog	*Rana pipiens*				
Frog	Pickerel Frog	*Rana palustris*				
Frog	Western (Striped) Chorus Frog	*Pseudacris triseriata*		E		
Frog	Wood Frog	*Rana sylvatica*				
Frog	Spring Peeper (Frog)	*Pseudacris crucifer*				
Salamander	Blue-spotted Salamander	*Ambystoma laterale*	SC	SC		
Salamander	Eastern Newt (Salamander)	*Notophthalmus viridescens*				
Salamander	Four-toed Salamander	*Hemidactylium scutatum*		SC		
Salamander	Jefferson Salamander	*Ambystoma jeffersonianum*	SC	SC		
Salamander	Mountain Dusky Salamander	*Desmognathus ochrophaeus*				no known Vermont population
Salamander	Northern Dusky Salamander	*Desmognathus fuscus*				
Salamander	Mudpuppy (Salamander)	*Necturus maculosus*		SC		
Salamander	Eastern Salamander	*Plethodon cinereus*				
Salamander	Spotted Salamander	*Ambystoma maculatum*				
Salamander	Spring Salamander	*Gyrinophilus porphyriticus*				
Salamander	Northern Two-lined Salamander	*Eurycea bislineata*				
Lizard	Common Five-lined Skink (Lizard)	*Eumeces fasciatus*		E		
Snake	Eastern (Black) Ratsnake	*Elaphe obsoleta*		T		
Snake	DeKay's Brownsnake	*Storeria dekayi*				
Snake	Common Gartersnake	*Thamnophis sirtalis*				
Snake	Eastern Ribbonsnake	*Thamnophis sauritus*		SC		
Snake	Milksnake	*Lampropeltis triangulum*				
Snake	Eastern (Black) Racer (Snake)	*Coluber constrictor*		T		
Snake	Northern Watersnake	*Nerodia sipedon*				
Snake	Red-bellied Snake	*Storeria occipitomaculata*				
Snake	Ring-necked Snake	*Diadophis punctatus*				
Snake	Smooth Greensnake	*Opheodry vernalis*				

Type	Common Name	Scientific Name	NY	VT	Fed.	Notes
Snake	Timber Rattlesnake	*Crotalus horridus*	T	E		only venomous snake in Basin
Turtle	Bog Turtle	*Clemmys muhlenbergii*	E			not seen in Basin since 1883
Turtle	Map Turtle	*Graptemys geographica*		SC		
Turtle	Painted Turtle	*Chrysemys picta*				
Turtle	Snapping Turtle	*Chelydra serpentina*				
Turtle	Spiny Softshell (Turtle)	*Apalone spinifera*	SC	T		
Turtle	Spotted Turtle	*Clemmys guttata*	SC	E		no known population in Basin
Turtle	Stinkpot (Common Musk) Turtle	*Sternotherus odoratus*		SC		
Turtle	Wood Turtle	*Clemmys insculpta*	SC	SC		

Mammals

Type	Common name	Scientific name	NY	VT	Fed.	Notes
Bat	Big Brown Bat	*Eptesicus fuscus*				
Bat	Eastern Pipistrelle (Bat)	*Pipistrellus subflavus*				
Bat	Hoary Bat	*Lasiurus cinereus*				
Bat	Indiana Bat	*Myotis sodalis*	E	E	E	
Bat	Little Brown Bat	*Myotis lucifugus*				
Bat	Northern Long-eared Bat	*Myotis keenii*				
Bat	Red Bat	*Lasiurus borealis*				
Bat	Silver-haired Bat	*Lasionycteris noctivagans*				
Bat	Small-footed Bat	*Myotis leibii*	SC	T		
Bear	Black Bear	*Ursus americanus*				
Beaver	Beaver	*Castor canadensis*				
Bobcat	Bobcat	*Felis rufus*				
Chipmunk	Eastern Chipmunk	*Tamias striatus*				
Cottontail	Eastern Cottontail	*Sylvilagus floridanus*				
Coyote	Coyote	*Canis latrans*				
Deer	Whitetail Deer	*Odocoileus virginianus*				
Fisher	Fisher	*Martes pennanti*				
Fox	Gray Fox	*Urocyon cinereoargenteus*				
Fox	Red Fox	*Vulpes vulpes*				
Hare	Snowshoe Hare	*Lepus americanus*				
Lemming	Southern Bog Lemming	*Synaptomys cooperii*				
Marten	Marten	*Martes americana*		E		
Mink	Mink	*Mustela vison*				
Mole	Hairytail Mole	*Parascalops breweri*				
Mole	Starnose Mole	*Condylura cristata*				
Moose	Moose	*Alces alces*				
Mouse	Deer Mouse	*Peromyscus maniculatus*				

Type	Common name	Scientific name	NY	VT	Fed.	Notes
Mouse	House Mouse	*Mus musculus*				
Mouse	Meadow Jumping Mouse	*Zapus hudsonius*				
Mouse	White-footed Mouse	*Peromyscus leucopus*				
Mouse	Woodland Jumping Mouse	*Napaeoza insignis*				
Muskrat	Muskrat	*Ondata zibethicus*				
Opossum	Virginia Opossum	*Didelphis virginiana*				
Otter	River Otter	*Lutra canadensis*				
Porcupine	Porcupine	*Erethizon dorsatum*				
Raccoon	Raccoon	*Procyon lotor*				
Rat	Norway Rat	*Rattus norvegicus*				
Shrew	Longtail Shrew	*Sorex dispar*		SC		
Shrew	Masked Shrew	*Sorex cinereus*				
Shrew	Pygmy Shrew	*Sorex hoyi*				
Shrew	Shorttail Shrew	*Blarina brevicauda*				
Shrew	Smoky Shrew	*Sorex fumeus*				
Shrew	Water Shrew	*Sorex palustris*				
Squirrel	Eastern Gray Squirrel	*Sciurus carolinensis*				
Squirrel	Northern Flying Squirrel	*Glaucomys sabrinus*				
Squirrel	Red Squirrel	*Tamiasciurus hudsonicus*				
Squirrel	Southern Flying Squirrel	*Glaucomys volans*				
Skunk	Striped Skunk	*Mephitis mephitis*				
Vole	Meadow Vole (Field Mouse)	*Microtus pennsylvanicus*				
Vole	Pine Vole	*Pitymys pinetorum*				
Vole	Rock Vole	*Microtus chrotorrhinus*				
Vole	Southern Red-backed Vole	*Clethrionomys gappen*				
Weasel	Longtail Weasel	*Mustela frenata*				
Weasel	Shorttail Weasel	*Mustela erminea*				
Woodchuck	Woodchuck	*Marmota monax*				

Endangered & Threatened

Fish	Scientific Name	NY	VT	Fed.	Notes
American Brook Lamprey	*Lampetra appendix*		T		
Channel Darter	*Percina copelandi*		E		
Eastern Sand Darter	*Ammocrypta pellucida*	T	T		
Lake Sturgeon	*Acipenser fulvescens*	T	E		
Mooneye	*Hiodon Tergisus*	T			
Northern Brook Lamprey	*Ichthymyzon fossor*		E		
Round Whitefish	*Prosopium cylindraceum*	E			
Stonecat	*Noturus flavus*		E		

Reptiles & Amphibians	Scientific Name	NY	VT	Fed.	Notes
Bog Turtle	*Clemmys muhlenbergii*	E			
Eastern Racer (Snake)	*Coluber constrictor*		T		

Eastern (Black) Ratsnake	*Elaphe alleghaniensis*		T		
Eastern Spiny Softshell (Turtle)	*Apalone spinifera*		T		
Five-lined Skink	*Eumeces fasciatus*		E		
Spotted Turtle	*Clemmys guttata*		E		
Western (Striped) Chorus Frog	*Pseudacris triseriata*		E		
Timber Rattlesnake	*Crotalus horridus*	T	E		

Birds	**Scientific Name**	**NY**	**VT**	**Fed.**	**Notes**
Bald Eagle	*Haliaeetus leucocephalus*	T	E	T	proposed for federal delisting
Black Tern	*Chlidonias niger*	E	E		
Common Tern	*Sterna hirundo*	T	E		
Golden Eagle	*Aquila chrysaetos*	E			
Grasshopper Sparrow	*Ammodramus savannarum*		T		
Henslow's Sparrow	*Ammodramus henslowii*	T	E		
Least Bittern	*Ixobrychus exilis*	T			
Loggerhead Shrike	*Lanius ludovicianus*	E	E		
Northern Harrier	*Circus cyaneus*	T			
Peregrine Falcon	*Falco peregrinus*	E			federally delisted/monitored
Pied-billed Grebe	*Podilymbus podiceps*	T			
Sedge Wren	*Cistothorus niger*	T	E		
Short-eared Owl	*Asio flammeus*	E			
Upland Sandpiper	*Bartramia longicauda*	T	E		

Mammals	**Scientific Name**	**NY**	**VT**	**Fed.**	**Notes**
Indiana Bat	*Myotis sodalis*	E	E	E	
Marten	*Martes americana*		E		
Small-footed Bat	*Myotis sodalis*		T		

Mussels	**Scientific Name**	**NY**	**VT**	**Fed.**	**Notes**
Black Sandshell	*Ligumia recta*		E		
Cylindrical Papershell	*Anodontoides ferussacianus*		E		
Eastern Pearlshell	*Margaritifera margaritifera*		T		
Fluted Shell	*Lasmigona costata*		E		
Fragile Papershell	*Leptodea fragilis*		E		
Giant Floater	*Pyganodon grandis*		T		
Pink Heelsplitter	*Potamilus alatus*		E		
Pocketbook	*Lampsilis ovata*		E		

APPENDIX G: BIRDS

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Avocet	American Avocet	*Recurvirostra americana*				Accidental			
Bittern	American Bittern	*Botaurus lentiginosus*	SC		CC		yes		
Bittern	Least Bittern	*Ixobrychus exilis*	T	SC			yes		rare nester
Blackbird	Red-winged Blackbird	*Agelaius phoeniceus*					yes		
Blackbird	Rusty Blackbird	*Euphagus carolinus*		SC			yes		
Bluebird	Eastern Bluebird	*Sialia sialis*					yes		
Bluebird	Mountain Bluebird	*Sialia currucoides*				Accidental			
Bobolink	Bobolink	*Dolichonyx oryzivorus*					yes		
Bobwhite	Northern Bobwhite	*Colinus virginianus*				Rare			escaped/released birds
Bunting	Indigo Bunting	*Passerina cyanea*					yes		
Bunting	Painted Bunting	*Passerina ciris*				Accidental			
Bunting	Snow Bunting	*Plectrophenax nivalis*							
Cardinal	Northern Cardinal	*Cardinalis cardinalis*					yes		
Catbird	Gray Catbird	*Dumetella carolinensis*					yes		
Chat	Yellow-breasted Chat	*Icteria virens*	SC			Rare			very rare visitor
Chickadee	Black-capped Chickadee	*Poecile atricapilla*					yes		
Chickadee	Boreal Chickadee	*Poecile hudsonica*					yes	yes	
Coot	American Coot	*Fulica americana*					yes		possible nester
Cormorant	Double-crested Cormorant	*Phalacrocorax auritus*					yes		first recorded in 1975
Cormorant	Great Cormorant	*Phalacrocorax carbo*				Rare			very rare visitor
Cowbird	Brown-headed Cowbird	*Molothrus ater*					yes		
Crane	Sandhill Crane	*Grus canadensis*				Rare			infrequent visitor
Creeper	Brown Creeper	*Certhia americana*					yes		
Crossbill	Red Crossbill	*Loxia curvirostra*					yes	yes	rare nester
Crossbill	White-winged Crossbill	*Loxia leucoptera*					yes	yes	irregular visitor
Crow	American Crow	*Corvus brachyrhyncos*					yes		
Crow	Fish Crow	*Corvus ossifragus*				Rare	yes		rare nester
Cuckoo	Black-billed Cuckoo	*Coccyzus erythropthalmus*			CC		yes		
Cuckoo	Yellow-billed Cuckoo	*Coccyzus americanus*				Uncommon	yes		
Dickcissel	Dickcissel	*Spiza americana*				Rare			

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Dove	Rock Dove	*Columba livia*					yes		
Dove	Mourning Dove	*Zenaida macroura*					yes		
Dowitcher	Long-billed Dowitcher	*Limnodromus scolopaceus*				Rare			
Dowitcher	Short-billed Dowitcher	*Limnodromus griseus*			CC	Uncommon			
Duck	American Black Duck	*Anas rubripes*					yes		
Duck	American Wigeon (Duck)	*Anas americana*					yes		rare nester
Duck	Barrow's Goldeneye (Duck)	*Bucephala islandica*				Uncommon			
Duck	Black Scoter (Duck)	*Melanitta nigra*				Uncommon			
Duck	Blue-winged Teal (Duck)	*Anas discors*					yes		
Duck	Bufflehead (Duck)	*Bucephala albeola*							possible nester
Duck	Canvasback (Duck)	*Aythya valisineria*				Rare			sightings in decline
Duck	Common Eider (Duck)	*Somateria mollissima*				Rare			
Duck	Common Goldeneye (Duck)	*Bucephala clangula*					yes		uncommon nester
Duck	Common Merganser (Duck)	*Mergus merganser*					yes		
Duck	Eurasian Wigeon (Duck)	*Anas penelope*				Rare			
Duck	Fulvous Whistling-Duck	*Dendrocygna bicolor*				Accidental			possibly escaped birds
Duck	Gadwall (Duck)	*Anas strepera*					yes		rare nester
Duck	Greater Scaup (Duck)	*Aythya marila*							
Duck	Green-winged Teal (Duck)	*Anas crecca*					yes		rare nester
Duck	Harlequin Duck	*Histrionicus histrionicus*				Rare			
Duck	Hooded Merganser (Duck)	*Lophodytes cucullatus*					yes		
Duck	King Eider (Duck)	*Somateria spectabilis*				Rare			extremely rare
Duck	Lesser Scaup (Duck)	*Aythya affinis*							
Duck	Long-tailed Duck	*Clangula hyemalis*				Rare			
Duck	Mallard (Duck)	*Anas platyrhynchos*					yes		
Duck	Northern Pintail (Duck)	*Anas acuta*					yes		
Duck	Northern Shoveler (Duck)	*Anas clypeata*				Uncommon			possible nester

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Duck	Red-breasted Merganser (Duck)	*Mergus serrator*					yes		rare nester
Duck	Redhead (Duck)	*Aythya americana*				Rare			
Duck	Ring-necked Duck	*Aythya collaris*							possible nester
Duck	Ruddy Duck	*Oxyura jamaicensis*				Rare			
Duck	Surf Scoter (Duck)	*Melanitta perspicillata*				Rare			
Duck	Tufted Duck	*Aythya fuligula*				Accidental			
Duck	White-winged Scoter (Duck)	*Melanitta fusca*							
Duck	Wood Duck	*Aix sponsa*					yes		
Dunlin	Dunlin	*Calidris alpina*				Uncommon			
Eagle	Bald Eagle	*Haliaeetus leucocephalus*	T	E	T				
Eagle	Golden Eagle	*Aquila chrysaetos*	E			Rare			
Egret	Cattle Egret	*Bubulcus ibis*					yes		
Egret	Great Egret	*Ardea alba*				Uncommon	yes		
Egret	Snowy Egret	*Egretta thula*				Rare	yes		historical nester
Falcon	American Kestrel (Falcon)	*Falco sparverius*					yes		
Falcon	Gyrfalcon (Falcon)	*Falco rusticolus*				Rare			
Falcon	Merlin (Falcon)	*Falco columbarius*				Uncommon	yes		
Falcon	Peregrine Falcon	*Falco peregrinus*	E		CC		yes		VT reintroduced/delisted
Finch	House Finch	*Carpodacus mexicanus*					yes		
Finch	Purple Finch	*Carpodacus purpureus*					yes		first recorded in 1968
Flycatcher	Acadian Flycatcher	*Empidonax virescens*				Accidental			
Flycatcher	Alder Flycatcher	*Empidonax alnorum*					yes		
Flycatcher	Fork-tailed Flycatcher	*Tyrannus savana*				Accidental			
Flycatcher	Great Crested Flycatcher	*Myiarchus crinitus*					yes		
Flycatcher	Least Flycatcher	*Empidonax minimus*					yes		
Flycatcher	Olive-sided Flycatcher	*Contopus cooperi*			CC		yes		
Flycatcher	Willow Flycatcher	*Empidonax traillii*					yes		
Flycatcher	Yellow-bellied Flycatcher	*Empidonax flaviventris*					yes		
Gnatcatcher	Blue-gray Gnatcatcher	*Polioptila caerulea*				Uncommon	yes		
Godwit	Hudsonian Godwit	*Limosa haemastica*			CC	Rare			
Goldfinch	American Goldfinch	*Carduelis tristis*					yes		
Goose	Brant (Goose)	*Branta bernicla*				Rare			
Goose	Canada Goose	*Branta canadensis*					yes		

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Goose	Greater White-fronted Goose	*Anser albifrons*				Rare			
Goose	Snow Goose	*Chen caerulescens*							LC Basin is migratory stop
Grackle	Common Grackle	*Quiscalus quiscula*					yes		
Grebe	Eared Grebe	*Podiceps nigricollis*				Accidental			
Grebe	Horned Grebe	*Podiceps auritus*							
Grebe	Pied-billed Grebe	*Podilymbus podiceps*	T	SC			yes		
Grebe	Red-necked Grebe	*Podiceps grisegena*							
Grosbeak	Blue Grosbeak	*Guiraca caerulea*				Rare			
Grosbeak	Evening Grosbeak	*Coccothraustes vespertinus*					yes		
Grosbeak	Pine Grosbeak	*Pinicola enucleator*							irregular visitor
Grosbeak	Rose-breasted Grosbeak	*Pheucticus ludovicianus*					yes		
Grouse	Ruffed Grouse	*Bonasa umbellus*					yes		
Guillemot	Black Guillemot	*Cepphus grylle*				Accidental			
Gull	Black-headed Gull	*Larus ridibundus*				Rare			
Gull	Black-legged Kittiwake (Gull)	*Rissa tridactyla*				Rare			
Gull	Bonaparte's Gull	*Larus philadelphia*							
Gull	Glaucous Gull	*Larus hyperboreus*				Uncommon			
Gull	Great Black-backed Gull	*Larus marinus*					yes		
Gull	Herring Gull	*Larus argentatus*					yes		
Gull	Iceland Gull	*Larus glaucoides*				Uncommon			
Gull	Ivory Gull	*Pagophila eburnea*				Accidental			
Gull	Laughing Gull	*Larus atricilla*				Rare			infrequent visitor
Gull	Lesser Black-backed Gull	*Larus fuscus*				Rare			very rare visitor
Gull	Little Gull	*Larus minutus*				Uncommon			
Gull	Ring-billed Gull	*Larus delawarensis*					yes		
Gull	Sabine's Gull	*Xema sabini*				Rare			
Gull	Thayer's Gull	*Larus thayeri*				Rare			unconfirmed sighting
Hawk	Broad-winged Hawk	*Buteo platypterus*					yes		
Hawk	Cooper's Hawk	*Accipiter cooperii*	SC	SC			yes		
Hawk	Northern Goshawk	*Accipiter gentilis*	SC			Uncommon	yes		
Hawk	Northern Harrier (Hawk)	*Circus cyaneus*	T	SC			yes		
Hawk	Red-shouldered Hawk	*Buteo lineatus*	SC				yes		
Hawk	Red-tailed Hawk	*Buteo jamaicensis*					yes		
Hawk	Rough-legged Hawk	*Buteo lagopus*							

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Hawk	Sharp-shinned Hawk	*Accipiter striatus*	SC				yes		
Heron	Black-crowned Night-Heron	*Nycticorax nycticorax*					yes		
Heron	Great Blue Heron	*Ardea herodius*					yes		
Heron	Green Heron	*Butorides virescens*					yes		
Heron	Little Blue Heron	*Egretta caerulea*				Rare			
Heron	Tricolored Heron	*Egretta tricolor*				Accidental			
Heron	Yellow-crowned Night-Heron	*Nyctanassa violacea*				Accidental			
Hummingbird	Ruby-throated Hummingbird	*Archilochus colubris*					yes		
Ibis	Glossy Ibis	*Plegadis falcinellus*				Rare			
Jay	Blue Jay	*Cyanocitta cristata*					yes		
Jay	Gray Jay	*Perisoreus canadensis*		SC		Uncommon	yes	yes	
Junco	Dark-eyed Junco	*Junco hyemalis*					yes		
Killdeer	Killdeer	*Charadrius vociferus*					yes		
Kingbird	Eastern Kingbird	*Tyrannus tyrannus*					yes		
Kingfisher	Belted Kingfisher	*Ceryle alcyon*					yes		
Kinglet	Golden-crowned Kinglet	*Regulus satrapa*					yes	yes	
Kinglet	Ruby-crowned Kinglet	*Regulus calendula*					yes	yes	
Lark	Horned Lark	*Eremophila alpestris*	SC				yes		
Longspur	Lapland Longspur	*Calcarius lapponicus*				Uncommon			
Loon	Common Loon	*Gavia immer*	SC				yes		VT - delisted/monitored
Loon	Red-throated Loon	*Gavia stellata*				Uncommon			
Martin	Purple Martin	*Progne subis*					yes		
Meadowlark	Eastern Meadowlark	*Sturnella magna*					yes		
Mockingbird	Northern Mockingbird	*Mimus polyglottos*				Uncommon	yes		
Moorhen	Common Moorhen	*Gallinula chloropus*				Uncommon	yes		
Nighthawk	Common Nighthawk	*Chordeiles minor*	SC	SC		Uncommon	yes		
Nuthatch	Red-breasted Nuthatch	*Sitta canadensis*					yes		
Nuthatch	White-breasted Nuthatch	*Sitta carolinensis*					yes		
Oriole	Baltimore Oriole	*Icterus galbula*					yes		
Oriole	Bullock's Oriole	*Icterus bullockii*				Accidental			
Oriole	Orchard Oriole	*Icterus spurius*				Uncommon	yes		occasional nester
Osprey	Osprey	*Pandion haliaetus*	SC				yes		VT - delisted/monitored
Ovenbird	Ovenbird	*Seiurus aurocapillus*					yes		
Owl	Barn Owl	*Tyto alba*		SC		Rare			

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Owl	Barred Owl	*Strix varia*					yes		
Owl	Boreal Owl	*Aegolius funereus*				Accidental		yes	
Owl	Eastern Screech-Owl	*Otus asio*					yes		
Owl	Great Gray Owl	*Strix nebulosa*				Rare			extremely rare
Owl	Great Horned Owl	*Bubo virginianus*					yes		
Owl	Long-eared Owl	*Asio otus*		SC		Uncommon	yes		
Owl	Northern Hawk Owl	*Surnia ulula*				Rare			irregular visitor
Owl	Northern Saw-whet Owl	*Aegolius acadicus*					yes		
Owl	Short-eared Owl	*Asio flammeus*	E	SC		Uncommon	yes		
Owl	Snowy Owl	*Nyctea scandiaca*				Uncommon			irregular visitor
Partridge	Gray Partridge	*Perdix perdix*				Rare	yes		
Pelican	American White Pelican	*Pelecanus erythrorhynchos*				Accidental			
Petrel	Leach's Storm-Petrel	*Oceanodroma leucorhoa*				Accidental			
Phalarope	Red Phalarope	*Phalaropus fulicaria*				Rare			
Phalarope	Red-necked Phalarope	*Phalaropus lobatus*				Rare			
Phalarope	Wilson's Phalarope	*Phalaropus tricolor*			CC	Rare			
Pheasant	Ring-necked Pheasant	*Phasianus colchicus*					yes		released non-native
Phoebe	Eastern Phoebe	*Sayornis phoebe*					yes		
Phoebe	Say's Phoebe	*Sayornis saya*				Accidental			
Pipit	American Pipit	*Anthus rubescens*							
Plover	Black-bellied Plover	*Pluvialis squatarola*							
Plover	American Golden-Plover	*Pluvialis dominica*				Uncommon			
Plover	Semipalmated Plover	*Charadrius semipalmatus*							
Rail	Sora (Rail)	*Porzana carolina*		SC		Uncommon	yes		
Rail	Virginia Rail	*Rallus limicola*					yes		
Rail	Yellow Rail	*Coturnicops noveboracensis*			CC	Accidental			
Raven	Common Raven	*Corvus corax*					yes	yes	
Redpoll	Common Redpoll	*Carduelis flammea*							irregular visitor
Redpoll	Hoary Redpoll	*Carduelis hornemanni*				Rare			
Robin	American Robin	*Turdus migratorius*					yes		
Ruff	Ruff	*Philomachus pugnax*				Accidental			
Sanderling	Sanderling	*Calidris alba*				Rare			
Sandpiper	Baird's Sandpiper	*Calidris bairdii*				Rare			
Sandpiper	Buff-breasted Sandpiper	*Tryngites subruficollis*			CC	Rare			
Sandpiper	Curlew Sandpiper	*Calidris ferruginea*				Accidental			

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Sandpiper	Least Sandpiper	*Calidris minutilla*							
Sandpiper	Pectoral Sandpiper	*Calidris melanotos*							
Sandpiper	Purple Sandpiper	*Calidris maritima*			CC	Rare			
Sandpiper	Semipalmated Sandpiper	*Calidris pusilla*							
Sandpiper	Solitary Sandpiper	*Tringa solitaria*							
Sandpiper	Spotted Sandpiper	*Actitis macularia*					yes		
Sandpiper	Stilt Sandpiper	*Calidris himantopus*				Rare			
Sandpiper	Upland Sandpiper	*Bartramia longicauda*	T	E	CC		yes		rare nester
Sandpiper	White-rumped Sandpiper	*Calidris fuscicollis*							
Shearwater	Greater Shearwater	*Puffinus gravis*				Accidental			
Shrike	Loggerhead Shrike	*Lanius ludovicianus*	E	E		Rare			
Shrike	Northern Shrike	*Lanius excubitor*							
Siskin	Pine Siskin	*Carduelis pinus*					yes		
Snipe	Common Snipe	*Gallinago gallinago*					yes		
Sparrow	American Tree Sparrow	*Spizella arborea*							
Sparrow	Chipping Sparrow	*Spizella passerina*					yes		
Sparrow	Clay-colored Sparrow	*Spizella pallida*				Rare	yes		
Sparrow	Field Sparrow	*Spizella pusilla*					yes		
Sparrow	Fox Sparrow	*Passerella iliaca*				Uncommon			
Sparrow	Grasshopper Sparrow	*Ammodramus savannarum*	SC	T		Rare	yes		
Sparrow	Henslow's Sparrow	*Ammodramus henslowii*	T	E	CC	Rare			
Sparrow	House Sparrow	*Passer domesticus*					yes		
Sparrow	Lincoln's Sparrow	*Melospiza lincolnii*				Uncommon	yes	yes	
Sparrow	Savannah Sparrow	*Passerculus sandwichensis*					yes		
Sparrow	Song Sparrow	*Melospiza melodia*					yes		
Sparrow	Swamp Sparrow	*Melospiza georgiana*					yes		
Sparrow	Vesper Sparrow	*Pooecetes gramineus*	SC	SC		Uncommon	yes		
Sparrow	White-crowned Sparrow	*Zonotrichia leucophrys*							
Sparrow	White-throated Sparrow	*Zonotrichia albicollis*					yes		
Starling	European Starling	*Sturnus vulgaris*					yes		
Swallow	Bank Swallow	*Riparia riparia*					yes		
Swallow	Barn Swallow	*Hirundo rustica*					yes		

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Swallow	Cliff Swallow	*Petrochelidon pyrrhonota*					yes		
Swallow	Northern Rough-winged Swallow	*Stelgidopteryx serripennis*					yes		
Swallow	Tree Swallow	*Tachycineta bicolor*					yes		
Swan	Mute Swan	*Cygnus olor*				Rare			
Swan	Tundra Swan	*Cygnus columbianus*				Rare			
Swift	Chimney Swift	*Chaetura pelagica*					yes		
Tanager	Scarlet Tanager	*Piranga olivacea*					yes		
Tanager	Summer Tanager	*Piranga rubra*				Accidental			
Tanager	Western Tanager	*Piranga ludoviciana*				Accidental			
Tern	Black Tern	*Chlidonias niger*	E	E	CC	Uncommon	yes		
Tern	Caspian Tern	*Sterna caspia*				Rare	yes		
Tern	Common Tern	*Sterna hirundo*	T	E	CC		yes		
Tern	Forster's Tern	*Sterna forsteri*				Rare			
Thrasher	Brown Thrasher	*Toxostoma rufum*				Uncommon	yes		
Thrush	Bicknell's Thrush	*Catharus bicknelli*	SC	SC	CC		yes	yes	
Thrush	Gray-cheeked Thrush	*Catharus minimus*				Rare			
Thrush	Hermit Thrush	*Catharus guttatus*					yes		
Thrush	Swainson's Thrush	*Catharus ustulatus*					yes		
Thrush	Varied Thrush	*Ixoreus naevius*				Rare			
Thrush	Wood Thrush	*Hylocichla mustelina*			CC		yes		
Titmouse	Tufted Titmouse	*Baeolophus bicolor*					yes		
Towhee	Eastern Towhee	*Pipilo erythrophthalmus*					yes		
Turkey	Wild Turkey	*Meleagris gallopavo*					yes		first reintroduced in 1969
Turnstone	Ruddy Turnstone	*Arenaria interpres*				Rare			
Veery	Veery	*Catharus fuscescens*					yes		
Vireo	Blue-headed Vireo (Solitary)	*Vireo solitarius*					yes		
Vireo	Cassin's Vireo	*Vireo cassinii*				Accidental			
Vireo	Philadelphia Vireo	*Vireo philadelphicus*				Rare	yes		
Vireo	Red-eyed Vireo	*Vireo olivaceus*					yes		
Vireo	Warbling Vireo	*Vireo gilvus*					yes		
Vireo	White-eyed Vireo	*Vireo griseus*				Rare			
Vireo	Yellow-throated Vireo	*Vireo flavifrons*				Uncommon	yes		
Vulture	Black Vulture	*Coragyps atratus*				Accidental			
Vulture	Turkey Vulture	*Cathartes aura*					yes		
Warbler	Bay-breasted Warbler	*Dendroica castanea*			CC	Uncommon	yes	yes	
Warbler	Black-throated Blue Warbler	*Dendroica caerulescens*			CC		yes	yes	
Warbler	Black-throated Green Warbler	*Dendroica virens*					yes	yes	

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Warbler	Blackburnian Warbler	*Dendroica fusca*					yes	yes	
Warbler	Blackpoll Warbler	*Dendroica striata*			CC		yes	yes	
Warbler	Blue-winged Warbler	*Vermivora pinus*				Rare	yes		
Warbler	Canada Warbler	*Wilsonia canadensis*			CC		yes		
Warbler	Cape May Warbler	*Dendroica tigrina*			CC	Uncommon	yes		
Warbler	Cerulean Warbler	*Dendroica cerulea*		SC	CC	Rare	yes		rare nester
Warbler	Chestnut-sided Warbler	*Dendroica pensylvanica*			CC		yes		
Warbler	Connecticut Warbler	*Oporornis agilis*			CC	Rare			
Warbler	Golden-winged Warbler	*Vermivora chrysoptera*	SC		CC	Uncommon	yes		
Warbler	Magnolia Warbler	*Dendroica magnolia*					yes	yes	
Warbler	Mourning Warbler	*Oporornis philadelphia*					yes		
Warbler	Nashville Warbler	*Vermivora ruficapilla*					yes	yes	
Warbler	Northern Parula (Warbler)	*Parula americana*					yes	yes	
Warbler	Orange-crowned Warbler	*Vermivora celata*				Rare			
Warbler	Palm Warbler	*Dendroica palmarum*					yes		
Warbler	Pine Warbler	*Dendroica pinus*				Uncommon	yes		
Warbler	Prairie Warbler	*Dendroica discolor*				Uncommon	yes		
Warbler	Prothonotary Warbler	*Protonotaria citrea*				Accidental			
Warbler	Tennessee Warbler	*Vermivora peregrina*				Uncommon	yes		
Warbler	Wilson's Warbler	*Wilsonia pusilla*		SC		Uncommon	yes		
Warbler	Yellow Warbler	*Dendroica petechia*					yes		
Warbler	Yellow-rumped Warbler	*Dendroica coronata*					yes		
Warbler	Yellow-throated Warbler	*Dendroica dominica*				Rare			
Waterthrush	Louisiana Waterthrush	*Seiurus motacilla*				Uncommon	yes		
Waterthrush	Northern Waterthrush	*Seiurus noveboracensis*					yes		
Waxwing	Bohemian Waxwing	*Bombycilla garrulus*							
Waxwing	Cedar Waxwing	*Bombycilla cedrorum*					yes		
Wheatear	Northern Wheatear	*Oenanthe oenanthe*				Rare			very rare visitor
Whimbrel	Whimbrel	*Numenius phaeopus*			CC	Rare			
Whip-poor-will	Whip-poor-will	*Caprimulgus vociferus*		SC	CC		yes		sightings in decline
Willet	Willet	*Catoptrophorus semipalmatus*				Rare			
Woodcock	American Woodcock	*Scolopax minor*					yes		

Type	Common name	Scientific name	NY	VT	FED	Incidence	Breeding	Upland	Notes
Woodpecker	Black-backed Woodpecker	*Picoides arcticus*		SC		Uncommon	yes	yes	
Woodpecker	Downy Woodpecker	*Picoides pubescens*					yes		
Woodpecker	Hairy Woodpecker	*Picoides villosus*					yes		
Woodpecker	Northern Flicker (Woodpecker)	*Colaptes auratus*					yes		
Woodpecker	Pileated Woodpecker	*Dryocopus pileatus*					yes		
Woodpecker	Red-bellied Woodpecker	*Melanerpes carolinus*				Uncommon	yes		first sighted in 1970's
Woodpecker	Red-headed Woodpecker	*Melanerpes erythrocephalus*		SC	CC	Uncommon	yes		rare nester
Woodpecker	Three-toed Woodpecker	*Picoides tridactylus*		SC		Rare		yes	
Woodpecker	Yellow-bellied Sapsucker	*Sphyrapicus varius*					yes		
Wood-Pewee	Eastern Wood-Pewee	*Contopus virens*					yes		
Wren	Carolina Wren	*Thryothorus ludovicianus*				Uncommon	yes		rare nester
Wren	House Wren	*Troglodytes aedon*					yes		
Wren	Marsh Wren	*Cistothorus palustris*					yes		
Wren	Sedge Wren	*Cistothorus platensis*	T	E	CC	Rare			
Wren	Winter Wren	*Troglodytes troglodytes*					yes		
Yellowlegs	Greater Yellowlegs	*Tringa melanoleuca*							
Yellowlegs	Lesser Yellowlegs	*Tringa flavipes*							
Yellowthroat	Common Yellowthroat	*Geothlypis trichas*					yes		

Note: The "Type" column groups species by common name. In a few cases, such as ducks and falcons, "Type" groups related species.

Sources: 1. The New York State Department of Environmental Conservation, 2. The Vermont Department of Fish and Wildlife, 3. Birds of Conservation Concern 2002, U.S. Fish and Wildlife Service, 4. Birdwatching in Vermont, Ted Murin and Brian Pfeiffer and 5. The Sibley Guide to Birds, David Allen Sibley

APPENDIX H: Interagency Guidelines for Implementing Best Management Practices for the Control of Terrestrial and Aquatic Invasive Species on Forest Preserve Lands in the Adirondack Park

2010

Prepared By
NYS Department of Environmental Conservation
and the
Adirondack Park Agency

I. Introduction

The negative impacts of invasive species on natural forest and aquatic communities are well documented (Appendix F). Colonization and unrestrained growth of invasive species cause the loss of biodiversity, interruption of normal hydrology, suppression of native vegetation, and significant aesthetic, human safety and economic impacts. Terrestrial and aquatic invasive species have been identified at increasing rates of colonization along roadsides in campgrounds, and in water bodies of the Forest Preserve within the past 10 years. Some of these species have the potential to colonize backcountry lands, lakes and ponds and degrade natural resources of the Forest Preserve.

These guidelines apply to Adirondack Forest Preserve lands, which are 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."*

The New York State Department of Environmental Conservation (DEC or Department) has jurisdiction over the Forest Preserve, and its management of these lands must be in keeping with this Constitutional provision.

Furthermore, DEC's management of the Adirondack Forest Preserve is governed by the Adirondack Park State Land Master Plan (Master Plan), which was initially adopted in 1972 by the Adirondack Park Agency (Agency or APA), with advice from and in consultation with the Department, pursuant to Executive Law §807 (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. The Master Plan sets forth the following classifications for State land within the Adirondack Park: Wilderness, Primitive, Canoe, Wild Forest, Intensive Use, Historic, State Administrative, Wild, Scenic and Recreational Rivers, and Travel Corridors, and sets forth management guidelines for each of these major land classifications.

Executive Law §816 requires the Department to develop, in consultation with the Agency, individual unit management plans (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 classifications of State Land within the Adirondack Park.

Executive Law §816(1) provides in part that until 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.

Article XIV, Section 1 of the New York State Constitution does not specifically address the issue of invasive species. However, since Article XIV directs that Forest Preserve lands be "forever kept as wild forest lands" and prohibits the removal or destruction of timber, care must be taken to ensure that decisions to eradicate invasive species do not result in a material cutting of Forest Preserve timber or adversely impact the wild forest character of Forest Preserve lands.

Although there are no explicit references to active invasive species management on Forest Preserve lands in the Master Plan, the Master Plan provisions are consistent with the concept of actively managing invasive species to protect the "wild forest" character of the Forest Preserve. For instance, page 1 of the Master Plan (2001 Update) states that, "If there is a unifying theme to the Master Plan, it is that the *protection and preservation* of the natural resources of the state lands within the Park must be paramount" (emphasis added). Surveys of Forest Preserve lands document the continued importation and expansion of invasive plants into and throughout the Adirondack Park (see Section II below). Given that models indicate that eradication of an invasive species becomes progressively more difficult, more expensive, and less effective the longer the species is allowed to grow without intervention (Chippendale 1991; Hobbs and Humphries 1995), it is critical for the Department and APA to address this problem in an expeditious manner.

The goal of these guidelines is to establish parameters known as best management practices (BMPs) for the control of terrestrial and aquatic invasive species while ensuring that such management activities do not alter the "forever wild" character of Forest Preserve lands. These guidelines are intended to harmonize the Constitution's "forever wild" provisions with the Master Plan's overriding directive to manage forest preserve lands for their protection and preservation. They have been developed pursuant to, and are consistent with, relevant provisions of the New York State Constitution, the Environmental Conservation Law (ECL), the Executive Law, the State Environmental Quality and Review Act (SEQRA), the Master Plan, and all other applicable rules and regulations, policies and procedures.

It is also important to determine if any regulatory jurisdictions or permits are triggered by a proposed management activity. For example, any management activities than may involve wetlands on private or public lands may require a permit from APA.

II. Present Extent of Terrestrial and Aquatic Invasive Species on Forest Preserve Lands

An inventory of invasive species that are present and a measure of the extent of the invasive species populations is essential to determining the correct course of action. The Department conducts ongoing regular, systematic surveys to identify and quantify the extent of terrestrial and aquatic invasive species on Forest Preserve units in the Adirondack Park. The results of this continued survey have been included in Appendix E of these Guidelines and documented in UMPs. Appendix E and UMPs should be updated at the end of each calendar year to reflect the survey data from the previous growing season. DEC will

present an annual report on the survey data from the previous growing season. The tabular information will include Forest Preserve land unit name, species name, total number of populations and area affected, and other pertinent information as identified by the Office of Invasive Species Coordination (OISC). Detailed location and population information shall be provided to the Regional Land Manager for each Region and be included in the iMap Invasive Species Database.

The Department shall seek to develop and foster a relationship with private landowners adjacent to or connecting Forest Preserve land units to share information regarding existing and potential invasive species populations or threats.

III. BMP's for the Control of Terrestrial and Aquatic Invasive Species and Procedure for Implementation

The general parameters or BMPs for the control of invasive species that apply regardless of the targeted species are set forth below. Specific control methods for select terrestrial and aquatic invasive species are attached as Appendix B. These BMP's will be implemented through site-specific work plans with corresponding SEQRA compliance, which must be approved by the Department's Central Office Bureau of Forest Preserve. Adopt-A-Natural Resource (AANR) Agreements with outside parties to conduct invasive species management must incorporate site-specific work plans with corresponding SEQRA compliance. It is anticipated that if the proposed activities conform to these guidelines, they will be consistent with constitutional directives and authorized pursuant to the APA/DEC MOU, and will not require approval through the UMP process. However, if the Department determines during its review of a proposed site specific work plan that proposed management activities may potentially have a material effect on the character or use of the land or the vegetation thereon, DEC and APA staff will then consult to determine if the activity should be reviewed and approved as part of an individual UMP or UMP Amendment. Furthermore, application of these guidelines to all such management activities on Forest Preserve lands throughout the Adirondack Park will ensure that cumulative impacts will be avoided due to the fact that the BMP's being implemented through these guidelines avoid and mitigate impacts to native ecological communities.

The following BMP's apply to the control and management of invasive species.

1. **Prevent the introduction of invasive plants and animals to uninfested sites.**
   Invasive species can be introduced to a site by moving infested equipment, sand, gravel, borrow, fill and other off-site material. Monitoring disturbed areas and proper sanitation of equipment will help prevent new infestations. BMP's to prevent the introduction of invasive species include:
   - Clean all clothing, boots, and equipment prior to visiting site;
   - Begin activities in uninfested areas before operating in infested areas;
   - Use native plants and weed-free seed and mulch (straw, wood fiber);
   - Use fill that does not have invasive plant seeds or material;
   - Keep equipment on site during the entire project;
   - Incorporate invasive plant prevention into roadwork layout, design, and decisions. Use uninfested areas for staging, parking and cleaning equipment. Avoid or minimize all types of travel through infested areas, or restrict to those periods when spread of seed or propagules are least likely;
   - When possible, to suppress growth of invasive plants and prevent their establishment, retain relatively closed canopies.

2. **Contain and treat new invasive plants and animals or those not yet well established.**
   Controlling small infestations is more effective and economical than trying to control well-established, rapidly spreading infestations. Selected control measures need to be based on species biology and the individual characteristics of an infestation.

3. **Minimize transport of invasive plants and animals from infested to uninfested areas.**
   Invasive species can be spread by moving infested materials and equipment. Cleaning vehicles and equipment (usually with steam or hot water) is the most effective method of preventing an introduction. BMP's involving the transport of off-site material and equipment include:
   - Determine the need and identify sites where equipment can be cleaned. Seeds and plant parts need to be collected when practical and effectively disposed of (e.g., burned, dried, bagged and taken to landfill, etc.). Remove mud, dirt, and plant parts from project equipment before moving it into a project area and clean all equipment before leaving the project site, if operating in infested areas.
   - Check, clean, and, when appropriate, dry all clothing, boots, and equipment (e.g., boats, trailers, nets, etc.) prior to visiting site.
   - Don't move firewood. All cut tree material should be either chipped or dispersed onsite.
   - Inspect material sources at site of origin to ensure that they are free of invasive plant material before use and transport. Treat infested sources for eradication, and strip and stockpile contaminated material before any use.
   - Inspect and document the area where material from treated infested sources is used annually for at least three years after project completion to ensure that any invasive plants transported to the site are promptly detected and controlled.
   - Minimize roadside sources of seed that could be transported to other areas.
   - Periodically inspect roads and rights-of-way for invasion. Inventory and mark infestations and schedule them for treatment.
   - Avoid working in infested areas if possible. Postpone such work until invasive plants have been eliminated from the site.
   - Perform road maintenance such as road grading, brushing, and ditch cleaning from uninfested to infested areas to help prevent moving seeds and plant material from infested areas into adjacent uninfested areas.
   - Clean road graders and other equipment immediately after operating in infested areas.
   - Clean all dirt and plant parts from the top and underside of mower decks.

4. **Minimize soil disturbance.**
   Invasive plants prefer and often thrive under disturbed conditions. Do not disturb the soil unless absolutely necessary. BMP's for activities involving soil disturbance include:
   - Before starting ground-disturbing activities, inventory invasive plant infestations both on-site and in the adjacent area.
   - Minimize soil disturbance and retain desirable vegetation in and around area to the maximum extent possible.
   - Monitor infested areas for at least three growing seasons following completion of activities. Provide for follow-up treatments based on inspection results.
   - Do not blade roads or pull ditches where new invaders are found, if possible.

- When it is necessary to conduct soil work in infested roadsides or ditches, schedule activity when seeds or propagules are least likely to be viable and to be spread.
- Do not move soil from infested area to prevent off-site spread.

5. **Maintain desirable species.**
   Establishing and maintaining competitive, desirable plants along roadsides and disturbed areas prevents or slows establishment of invasive plants. BMP's for re-vegetating disturbed areas include:
   - Re-vegetate all disturbed soil, except on surfaced roads, in a manner that optimizes plant establishment for that specific site, unless ongoing disturbance at the site will prevent establishment of invasive plants.
   - Use native material where appropriate and available. Re-vegetation may include planting, seeding, fertilizing, and mulching.
   - Monitor and evaluate success of re-vegetation in relation to project plan.
   - When re-vegetating areas that were previously dominated by invasive plants, try to achieve at least 90% control of the invasive before attempting restoration.

IV. General Practices

1. **Minimum Tool Approach** – State land stewardship involving invasive species management practices should always incorporate the principles of the Minimum Tool Approach. Any group or individual implementing such practices on State land should only use the minimum tools, equipment, devices, force, actions or practices that will effectively reach the desired management goals. Implicit in this document is the stricture to implement a hierarchy of management practices based upon the target species and site conditions starting with the least intrusive and disruptive methods. <u>For the management of aquatic invasive species, hand harvesting and benthic matting are to be used unless a different approach has been reviewed and approved by the Department and the Agency.</u>

2. **Erosion Control** - Some of the species specific methods described in Appendix B require digging or pulling of plants from the soil. Where vegetation is to be removed, it must be determined if the proposed control method and extent of the action will destabilize soils to the point where erosion is threatened. Generally if more than 25 square feet of soil surface is cleared or plant removal occurs on steep slopes, staked silt fencing should be installed and maintained as a temporary erosion control practice. In some cases seeding and organic, non-hay mulching may be required.

3. **Re-vegetation** - Although not required, replanting or reseeding with native species may sometimes be necessary. All of the species-specific control methods described in Appendix B are aimed at reducing or eliminating invasive species so that natives are encouraged to grow and re-establish stable conditions that are not conducive to invasive colonization. In most cases, removal or reduction of invasive populations will be enough to release native species and re-establish their dominance on a site. The site-specific work plan for treatment of invasive species should include monitoring provisions and contingency plans for re-vegetating the site.

4. **Composting** - Because of the extremely robust nature of invasive species, composting terrestrial invasive plants in a typical backyard compost pile or composting bin is not appropriate. However, methods can be used whereby sun-generated heat can be used to destroy the harvested plant materials, such as storage in a sealed 3 mil thickness (minimum) black plastic

garbage bags on blacktop in the sun until the plant materials liquefy. If a larger section of blacktop is available, make a black plastic (4 mil thickness minimum) envelope sealed on the edges with sand bags. The plant material left exposed to the sun will liquefy in the sealed envelope without danger of dispersal by wind. The bags or envelopes must be monitored to make sure the plants do not escape through rips, tears or seams in the plastic. **When composting is suggested later in the text it is understood that liquefying the plant material in or under plastic is the desired action; not disposal in backyard composters or open landfill composting piles.**

5. **Material Collection and Transportation** – While on the control site, place all cut plant material in heavy duty, 3 mil or thicker, black contractor quality plastic clean-up bags. Securely tie the bags and transport from the site in a covered vehicle in order to prevent spread or loss of the plant material during transport from the control work site to the appropriate staging or disposal location. The main root structure, root fragments and/or horizontal rhizomes from harvested controlled Japanese, giant or bohemian knotweed infestation should be bagged only to facilitate transport to an appropriate staging area. All knotweed root structure, root fragments and rhizome propagules should be separately bagged from any cut, aerial canes and crowns. Over an open bag, remove as much adherent soil as possible from the root/rhizome structure prior to spreading the root/rhizome parts out onto a secure, impervious surface. Once completely dried out, the root/rhizome structure may be burned or disposed of in an approved landfill.

   The mature, upright stems and canes of common reed and the knotweeds can be cut, formed into bundles and securely bound with rope or twine. The bundles may then be transported to an appropriate staging or disposal location that has an impervious or near-impervious surfaced area. After the bundles have completely dried out they may be burned at an approved incinerator or burn pit with an appropriate permit.

V. Management Protocols

a. All Department personnel whose duties involve outdoor field work on State land (e.g., UMP Planners and State Land Managers, Forest Rangers, ECOs, Operations, etc.) will report the location of suspected terrestrial and aquatic invasive species encountered during the course of their ordinary work and to implement BMP's when conducting or supervising work to remove invasive species from State land. Terrestrial and aquatic invasive species identification and management training will be provided as needed.

b. All site specific work plans must include a site map, an inventory of target and non-target species, an estimate of the size and age of the infestation, target species impacts and concerns, a Natural Heritage review, adjoining land uses and nearby State land units, a proposed treatment method and probability of success, treatment impacts and concerns, an assessment of treatment alternatives, a history of past treatment methods used on site, a timeframe by which the work will be undertaken and completed, a schedule of anticipated future work, and monitoring provisions to determine the effectiveness of the management action.

c. All work on State land will be conducted using the BMP's and species specific control methods listed in Appendix B, pursuant to the DEC – APA Memorandum of Understanding.

d. Any individual or group demonstrating an interest and appropriate expertise in implementing the species specific control methods may apply for an AANR agreement to manage terrestrial and aquatic invasive species.

e. The treatment of invasive species by Department personnel or any other party will only be undertaken pursuant to a site specific plan for the treatment of invasive species and pursuant to all applicable State, federal and local regulations regarding pesticide use, residue removal and disposal.

f. An AANR and a site specific work plan for treatment of invasive species are required for all non-Department personnel to implement species specific control methods and BMP's on State land.

g. All site specific work plans and applications for AANRs for the treatment of invasive species will be noticed in the Environmental Notice Bulletin for a 15 day public comment period prior to final approval by the Department.

h. Appropriate certification (NYS pesticide applicator certification) is required for pesticide applications. The only pesticide application allowed under these guidelines is spot treatment to individual plants using a back pack or hand sprayer, wick applicator, cloth glove applicator, stem injection or herbicide clippers. **No broadcast herbicide applications using, for example, a truck-mounted sprayer, are allowed. In all cases, all herbicide directions for use and restrictions found on the label shall be followed by a New York State Certified Applicator or Technician in an appropriate category.** The application methods described and allowed are designed to reduce or eliminate the possibility that non-target species will be impacted by the pesticide use. All pesticide treatments require follow-up inspection later in the growing season and/or the following year to assess and document effects and possibly re-treat any plants that were missed. The following guidelines apply with respect to the application of herbicides, which must be applied according to respective labels under federal and state law:

    - In wetlands with standing water, only the RODEO® glyphosate formulation may be used. If the standing water is greater than one acre in size and/or has an outlet to surface waters, an aquatic pesticides permit is required pursuant to ECL 15-0313(4) and (6) NYCRR327.1 in which case application can only be made by a Certified Applicator or Technician or supervised Apprentice licensed in "Category 5 – Aquatic Vegetation Control". In wetlands with no standing water, either the RODEO®, ROUNDUP ® or the AQUAMASTER® formulation may be used.
    - In uplands either ROUNDUP®, AQUAMASTER® or GLYPRO® may be used.
    - The propose use of herbicides must be detailed in a work plan.

i. All appropriate and applicable signage and public notification required for pesticide application by or on behalf of the Department shall be used, including adjacent landowner notification, newspaper notice, and temporary on and off-site signs.

j. These Guidelines do not authorize the use of motor vehicles, motorized equipment or aircraft. All use of motorized equipment on State lands under the jurisdiction of the Department within the Adirondack Park shall be in compliance with Commissioner's Policy Number 17 (CP-17), and other pertinent Department policy regarding the use of motorized equipment on Forest Preserve Lands.

k. A UMP or UMP Amendment may be required if the proposed implementation of an activity identified in these Guidelines is considered to cause a potential material change to the use of the land or the vegetation thereon due to its extent, intensity or duration.

l. Invasive species management materials and methods evolve; any deviation from the BMP's and species specific control methods must be approved by the Department after consultation with the Agency.

m. Any invasive species management action proposal that involves tree cutting for control or access must comply with constitutional requirements and will be carried out pursuant to LF-91 and a site specific work plan.

n. Appendix A of these Guidelines contains a list of species that are considered terrestrial or aquatic invasive species. Other species may be added over time recognizing the constant threat of new invasive species. Note that to be eligible for management actions under these Guidelines, species specific control methods must be accepted by the Department after consultation with the Agency. New or revised control methods may be developed by other entities, but also must be reviewed and accepted by the Department after consultation with the Agency.

o. Those individuals or groups applying for an AANR to manage any invasive species without an approved species specific control method must develop and submit a control method for the species of concern. The submitted control methods will be reviewed and must be approved by the Department and the Agency before the approval of a site specific work plan or issuance of the AANR agreement. Those individuals or groups applying for an AANR to manage aquatic plants identified in Appendix A are limited to hand-harvesting or benthic matting as described in a site specific work plan describing the full course of work.

VI. Potential Environmental Impacts

The control methods and BMP's contained in these Guidelines restrict the use of herbicides so that adverse impacts to non-target species are avoided and native plant communities are restored. Aquatic invasive species will be managed using non-mechanical harvesting techniques (hand-pulling) and temporary benthic matting as described in the Guidelines. Use of pesticides for aquatics is not a part of this guidance.

The removal of these species reduces the potential for disruption and harm to the native ecosystem. It is expected that by using the Guidelines invasive species populations will be managed, and hopefully eradicated, in a timely manner before significant impact to the Forest Preserve resource occurs. Successful implementation of these control methods and BMP's or other recommended control methods will allow natural processes to take place undisturbed by the impacts of invasive species colonization and proliferation.

Any of the control actions described in the Guidelines has the potential for environmental impact. For example, the use of pesticides may cause mortality to non-target species and cutting tress may have both visual and ecological impacts on the landscape. It is recognized that although the BMP's and species specific control methods seek to mitigate these impacts, the potential for impact is real and must carefully be weighed against all other possible actions, including the no-action alternative. It is

believed that the protection, preservation, and restoration of native flora and fauna in the Adirondacks is an action that is worth reasonable associated risk. These Guidelines represent a tool for land managers to reduce the potential for disruption and harm to Forest Preserve lands from terrestrial and aquatic invasive species. It is expected that these actions will lead to the preservation and restoration of native ecological communities on State lands within the Adirondack Park.

VII. Effect of This Action

The Guidelines seek to lay the ground rules for managing terrestrial and aquatic invasive species on Forest Preserve lands. It identifies certain species that, if left untreated, have the potential for colonizing backcountry land and water bodies causing severe disruption and degradation of natural systems. The Guidelines set out a protocol for action and recommend a set of comprehensive BMP's and specific control methods for dealing with invasive species of concern, and sets out a process for developing and incorporating new control methods for additional species. The control methods provide detailed guidance on the use of several techniques for managing terrestrial and aquatic invasive species including hand pulling, cutting, digging, matting and pesticides. Finally, the Guidelines identify a host of additional terrestrial and aquatic invasive species that require surveillance, early detection and, after appropriate consultation with the Regional Supervisor of Natural Resources a rapid response to protect Forest Preserve lands.

Adoption of the Guidelines and implementation through the UMP and site specific work planning process, gives the Department the basic tools needed to preserve, protect and restore the natural native ecosystems of the Forest Preserve.

VIII. Definitions

a. AANR – An Adopt-A-Natural-Resource Agreement is a stewardship agreement entered into between the Department and an individual or group pursuant to ECL section 9-0113 to preserve, maintain, or enhance state-owned resources. AANRs entered into pursuant to these Guidelines allow the implementation of these Guidelines and specify the responsibilities and limitations associated with the management activity. AANRs extend for a designated period of time and can be terminated by either party upon notification.

b. Adirondack Park Invasive Plant Program (APIPP) – A partnership including the Department, the Agency, Department of Transportation, and the Adirondack Nature Conservancy whose goals are:

    1. to coordinate a regional early detection and monitoring program in cooperation with staff, volunteers and the public;

    2. to facilitate invasive species management and control with public and private landowners; and,

    3. to increase public awareness and involvement to prevent the spread of invasive species through education and outreach.

c. Agency – The New York State Adirondack Park Agency (APA), its officers and employees.

d. Aquatic Invasive Plant Species – A plant that is typically found in wetland or riparian settings (including lakes, ponds, rivers or streams) that is capable of rapid reproduction and displacement of native species.

e. Area – Lands under the jurisdiction of the Department.

f. Best Management Practices (BMP's) – BMP's are state-of-the-art mitigation measures applied on a site specific basis to reduce, prevent, or avoid adverse environmental or social impacts.

g. Biological Control – A method of controlling pests (including insects, mites, weeds and plant diseases) that relies on predation, parasitism, herbivory, or other natural mechanisms. It can be an important component of integrated pest management (IPM) programs.

h. Certified Applicator – An individual who has successfully completed the course of training and licensing and who holds a valid, appropriate pesticide applicators certificate in New York State.

i. Control Method – A field tested recommendation for the most effective control of invasive species. Species specific control methods for terrestrial invasive species are attached in Appendix B. As of this writing, only hand harvesting and/or benthic matting are approved control methods for aquatic invasive species.

j. Department – The New York State Department of Environmental Conservation (DEC), its officers and employees.

k. Herbicide – A pesticide that is registered in New York State that kills plants. Due to the sensitive nature of Forest Preserve lands, only selected herbicides are included for use under these Guidelines. Glyphosate in the Roundup®, Rodeo®, Aquamaster ®, and Glypro® formulations are the herbicides of choice. In wetlands with standing water only the RODEO® formulation may be used. In wetlands with no standing water either the RODEO®, ROUNDUP ® or the AQUAMASTER® formulation may be used. In uplands either ROUNDUP®, AQUAMASTER® or GLYPRO® may be used. In all cases herbicides will be used in strict compliance with label precautions and the species specific control methods found in Appendix B.

l. Herbicide Application Method – The method of herbicide application will be by backpack sprayer, wick applicator, handheld spray or dropper bottle applicator, stem injection, or cloth glove applicator. No application will be allowed by broadcast sprays or by equipment permanently mounted on a vehicle.

m. Inter-Agency Guidelines ("Guidelines") – The document agreed to by the Adirondack Park Agency and the Department of Environmental Conservation that outlines regulated management of terrestrial and aquatic invasive species on State land.

n. Invasive Species – "invasive species" means a species that is:

   (a) nonnative to the ecosystem under consideration; and

(b) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purposes of this paragraph, the harm must significantly outweigh any benefits.

o. Pest – "Pest" means (1) any insect, rodent, fungus, weed, or (2) any other form of terrestrial or aquatic plant or animal life or virus, bacteria or other micro-organism (except viruses, bacteria or other micro-organisms on or in living man or other animals) which the Department Commissioner declares to be a pest.

p. Pesticide – Any substance or mixture of substances that is registered in New York State to kill pests. A pesticide may be a chemical substance, biological agent (such as a virus or bacterium), antimicrobial, disinfectant, plant regulator, defoliant, or other device used against a pest.

q. Site Specific Work Plan – A detailed description of work to be performed at a specific site, the Best Management Practices that will be used to perform the work and the desired final condition of the site once the work is complete.

r. Terrestrial Invasive Plant Species – A plant that is typically found in upland settings that is capable of rapid reproduction and displacement of native species.

IX. Goal of the Guidelines

The goal of the Guidelines is to restore and protect the native ecological communities on Forest Preserve lands in the Adirondack Park through **e**arly detection and rapid response efforts to eradicate or control existing or newly identified invasive species populations.

X. Objectives of the Guidelines

These Guidelines provide a template for the process through which comprehensive active terrestrial and aquatic invasive species management will take place on Forest Preserve lands in the Adirondack Park. The Guidelines provide protocols for implementing BMP's on Forest Preserve land. The protocols describe what management practices are allowed and when they can be implemented, who can be authorized to implement the management practices, and which terrestrial and aquatic invasive species are targeted. The Guidelines are a living document and should be revisited and revised periodically to reflect the dynamic nature of invasive species and the state of knowledge of best management practices.

Reference to these Guidelines will be included in UMPs as they are drafted or revised. UMPs will also include available inventory information on the distribution of invasive terrestrial and aquatic species on or in close proximity to the Unit. The Guidelines will guide invasive terrestrial and aquatic species management activities on Forest Preserve units. The site specific plan for treatment of invasive species will contain up-to-date invasive species inventory data, specific location information, and specific management recommendations for each species on each site including control actions, materials and methods, monitoring, contingencies and restoration actions.

The Guidelines also describe a process by which the Department may enter into AANR Agreements with and facilitate individuals or groups to manage terrestrial and aquatic invasive species on Forest Preserve lands using the listed best management practices, including pesticide use, in the appropriate circumstances. The AANR will be accompanied with a site specific plan for treatment of invasive species based on the BMP's in the Guidelines and include provision for monitoring and additional actions to

restore natural communities. As noted above, the site specific plan for treatment of invasive species will provide the detail regarding the selected management options on a site specific basis.

XI. Responsibilities

The responsibility for interpretation and update of these Guidelines and overall management shall reside with the cooperating agencies. The Department shall be responsible for management of terrestrial and aquatic invasive species on Forest Preserve lands while the Agency will be responsible for providing review of, and advice on, the management activities contained in the Guidelines and the assessment of materiality of proposed actions and the management recommendations in UMPs.

Appendix A. Invasive Species

The 92 species included here are non-native organisms that either occur in New York State or are found in adjacent states. They have a proven record of being invasive and disrupting native ecosystems. Asterisked species have recommended control methods that are included in Appendix B. This appendix should be reviewed and updated annually.

Trees

- Black locust (*Robinia pseudoacacia*)
- Norway and sycamore-leaved maple (*Acer platanoides, A. pseudoplatanus*)
- Tree-of-Heaven (*Ailanthus altissima*)
- Japanese tree lilac (*Syringa reticulata*)
- Princess tree (*Paulownia tomentosa*)
- Crack willow (*Salix fragilis*)
- European gray willow (*Salix cinerea*)

Shrubs

- Japanese, Morrow's, tatarian, Amur, Bell's and dwarf honeysuckles* (*Lonicera japonica, L. morrowii, L. tatarica, L. maackii, L. x. bella, L. xylosteum*)
- Autumn and Russian olive (*Eleagnus umbellata, E. angustifolia*)
- Cherry eleagnus (*Eleagnus multiflora*)
- Common and smooth buckthorn (*Rhamnus cathartica, R. frangula*)
- False Spiraea (*Sorbaria sorbifolia*)
- Multiflora and rugosa rose (*Rosa multiflora, R. rugosa*)
- Japanese and European barberry (*Berberis thunbergii, B. vulgare*)
- False indigo (*Amorpha fruticosa*)
- Winged euonymus (*Euonymus alata*)
- Butterfly bush (*Budleja davidii*)
- Blunt-leaved and common privet (*Ligustrum obtusifolium, L. vulgare*)

Vines

- Oriental bittersweet (*Celastrus orbiculata*)
- Porcelain-berry (*Ampelopsis brevipedunculata*)
- Mile-a-minute vine (*Polygonum perfoliatum*)
- Kudzu (*Pueraria montana var. lobata*)
- Common periwinkle (*Vinca minor*)

Herbs

- Purple loosestrife* (*Lythrum salicaria*)
- Japanese, giant and bohemian knotweed* (*Fallopia japonica var. japonica, F. sachalinensis, F. x bohemica*)
- Common reed* (*Phragmites australis ssp australis*)
- Garlic mustard* (*Alliaria petiolata*)
- Yellow iris* (*Iris pseudacorus*)
- Cypress and leafy spurge (*Euphorbia cyparissias, E. esula*)
- Giant Hogweed (*Heracleum mantegazzianum*)
- White and yellow sweet-clover (*Melilotus alba, M. officinalis*)
- Wild parsnip (*Pastinaca sativa*)
- Wild chervil (*Anthriscus sylvestris*)
- Reed canary-grass (*Phalaris arundinacea*)
- Black and Pale Swallowwort (*Cynanchum louiseae, C. rossicum*)
- Cup Plant (*Silphium perfoliatum*)
- Japanese stiltgrass (*Microstegium vimineum*)
- Flowering rush (*Butomus umbellatus*)
- Spotted and brown knapweed (*Centaurea stoebe ssp. micranthos, C. jacea*)
- Canada and bull thistle (*Cirsium arvense, C. vulgare*)
- Goutweed (*Aegopodium podagraria*)
- Lesser celandine (*Ranunculus ficaria*)
- Common and yellow foxglove (*Digitalis purpurea, D. grandiflora*)

Aquatics

- Eurasian and variable-leaf watermilfoil, and parrotfeather (*Myriophyllum spicatum, M. heterophyllum, M. aquaticum*)
- Fanwort (*Cabomba caroliniana*)
- Curlyleaf pondweed (*Potamogetion crispus*)
- Waterchestnut (*Trapa natans*)
- Common frog-bit (*Hydrocharis morsus-ranae*)
- Yellow floating-heart (*Nymphoides peltata*)
- Brazilian elodea (*Egeria densa*)
- Hydrilla (*Hydrilla verticillata*)
- Brittle naiad (*Najas minor*)
- Water-lettuce (*Pistia stratiotes*)
- Pacific mosquitofern (*Azolla filliculoides*)
- Didymo (*Didymosphenia geminata*)
- Starry stonewort (*Eichhornia crassipes*)
- Water hyacinth (*Pistia stratiotes*)
- Water primrose (*Ludwigia peploides*)
- Pond water starwort (*Callitriche stagnalis*)
- Three-stamen waterwort (*Elatine triandra*)
- European water fern (*Marsilea quadrifolia*)
- Water spangles (*Salvinia minima*)
- Giant salvinia (*Salvinia molesta*)
- Water soldier (*Stratiotes aloides*)

Insects

- Emerald ash borer (*Agrilus planipennis*)
- Asian long-horned beetle (*Anaplophora glabripennis*)
- Hemlock wooly adelgid (*Adelges tsugae*)
- Sirex woodwasp (*Sirex noctilio*)
- Asian gypsy moth (*Lymantria dispar*)
- Balsam wooly adelgid (*Adelges piceae*)
- Elongate hemlock scale (*Fiorinia externa*)

Appendix B. Species Specific Control Methods

CONTROL METHODS FOR PURPLE LOOSESTRIFE (*Lythrum salicaria*)

PLANT DESCRIPTION

Purple loosestrife is a wetland perennial native to Eurasia that forms large, monotypic stands throughout the temperate regions of the U.S. and Canada. It has a vigorous rootstock that serves as a storage organ, providing resources for growth in spring and re-growth if the plant has been damaged from cuttings. New stems emerge from the perennial roots enabling the plant to establish dense stands within a few years. Seedling densities can approach 10,000 - 20,000 plants/m² with growth rates exceeding 1 cm/day. A single, mature plant can produce more than 2.5 million seeds annually which can remain viable after 20 months of submergence in water. In addition, plant fragments produced by animals and mechanical clipping can contribute to the spread of purple loosestrife through rivers and lakes.

MANAGEMENT OPTIONS

1. Digging/pulling

Effectiveness:

Can be effective in small stands (i.e., <100 plants), low-med density (1-75% area), and <3 acres, especially on younger plants.

Methods:

Hand-pull plants <2 years old. Use mini-tiller for plants >2 years - gets most of roots with minimum soil disturbance, has 3 heavy duty prongs on 1 side that are pushed under base of plant, then pry back on handle to leverage plant out of ground. Tamp down all disturbed soil surfaces. Use weed wrench for plants > 2 years old - good with minimal soil disturbance. In mucky conditions, put base of wrench on small piece of wood (e.g., piece of 2x4) to keep wrench from sinking into mud. Use shovel for plants > 2 years old - dig up plant, then replace soil and any existing cover.

Cautions:

May increase habitat disturbance and increase spread of loosestrife. Requires follow-up treatments of sites for 3 years to eliminate re-sprouting from rhizome fragments left behind. Must pull/dig ENTIRE rootstock or re-rooting will occur. Must pull/dig before the plants begin setting seed or must remove flower/seed heads first (cut and place into bags) to prevent spread of seeds. Also remove previous year's dry seed heads. Erosion control may be necessary if greater than 25 square feet of soil surface is disturbed.

Disposal:
Bag all plant parts and remove from site. Compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits.

Sanitation:
Clean all clothing, boots, tools, equipment and transport vehicle to prevent spread of seed.

2. Cutting
Effectiveness:
Can be effective in small stands (i.e., <100 plants), low-med density (1-75% area), and <3 acres, especially on younger plants.

Methods:
Remove flower heads before they go to seed so seed isn't spread during the cutting or mowing activity. Must do repeated cutting and mulching to permit growth of grasses.

Cautions:
Need to repeat for several years to reduce spread of plants. Doesn't affect rootstalk and thus, cut pieces can be spread that will re-sprout. Once severed, stems are buoyant and may disperse to other areas and re-sprout. Removal of seed heads should be done as late in the growing season as possible yet before seed set. Early cutting without additional seed head harvest could allow re-sprouting with greater subsequent seed production.

Disposal:
Bag all plant parts and remove from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

3. Herbicide
Effectiveness:
Use when >100 plants and <3-4 acres in size.

Methods:
Use glyphosate formulations only. If possible spray seedlings before they reach 12" in height. Cut and bag flower heads before applying herbicide. Apply prior to or when in flower (late July/Aug) so plants are actively growing.

For spot application use:
- sponge tip applicator with wick.
- injection into stem(with large gauge needle).
- 32 oz. commercial-grade spray bottle with adjustable nozzle.

* see item #4 "Composting" in General Practices section.

* see item #4 "Composting" in General Practices section.

Cautions:
This herbicide is not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All treatment mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.
Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast within 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

4. Biocontrol
Two species of leaf-feeding beetle, *Galerucella calmariensis* and *G. pusilla*, have been shown to be effective in controlling purple loosestrife. Over 5 million of these beetles have been released in 30 states including New York, the northeastern and midwestern states as well as all of the Canadian Provinces. The beetles have shown dramatic decreases in purple loosestrife populations with subsequent increases in populations of native species. The scientific literature indicates that the beetles are very specific to purple loosestrife with only minor "spillover" effects that do not compromise non-target plant populations.

Effectiveness:
Use if site has at least a half acre of purple loosestrife of medium to thick density.
Best type of control for large patches of loosestrife >3-4 acres.

Methods:
The number of beetles released per site should be based on the size of the site, the density of loosestrife and the economics of purchase. More beetles are generally better than fewer.

Cautions:
Use only if mowing, pesticide and herbicide use are not active practices on the site. The site must not be permanently flooded and should be sunny. Use only if winged loosestrife, *(Lythrum alatum)* and waterwillow *(Decodon verticillatus)* are not major components of the plant community on the release site.

CONTROL METHODS FOR COMMON REED (*Phragmites australis ssp. australis*)

PLANT DESCRIPTION
Phragmites is a perennial grass that can grow to 14 feet in height. Flowering and seed set occur between July and September, resulting in a large feathery inflorescence, purple-hued turning to tan. Phragmites is capable of vigorous vegetative reproduction and often forms dense, virtually monospecific stands. It is unclear what proportion of the many seeds that Phragmites produces are viable. **Please note that identification of phragmites should be done by a professional botanist prior to treatment to distinguish the invasive non-native race from the non-invasive native.**

MANAGEMENT OPTIONS
1. Cutting / Mulching
Effectiveness:
Need to repeat annually for several years to reduce spread of plants. Hand-pulling, though labor intensive, is an effective technique for controlling common reed in small areas with sandy soils.

Can be effective in small stands (i.e., <100 plants), low-med density (1-75% area) and <3 acres. The cutting of larger stands having high stem densities is not an effective control method unless coupled with an immediate application of glyphosate to the freshly-cut, stem cross sections or with a cut-stem injection of glyphosate.

Methods:
The best time to cut common reed is when most of food reserves are in aerial portion of plant when close to tassel stage, e.g., at end of July/early August to decrease plant's vigor. Some patches may be too large to cut by hand, but repeated cutting of the perimeter of a stand can prevent vegetative expansion. Common reed stems should be cut below the lowest leaf, leaving a 6" or shorter stump. Hand-held cutters and gas-powered hedge trimmers work well. Weed whackers with a circular blade were found to be particularly efficient, though dangerous.
Cut and mulch dead stems in winter to remove them and promote germination of other species. Repeat in second year and then every 3-5 years.

Cautions:
Since common reed is a grass, cutting several times during a season, at the wrong times, may increase stand density. However, if cut in late July/early August, most of the food reserves produced that season are removed with the aerial portion of the plant, reducing the plant's vigor. This cutting regime may eliminate smaller colonies if carried out annually for several years. Manual or mechanical cuttings of larger, high density, monospecific common reed stands without the application of glyphosate, is not recommended.

Disposal:
Cut material should be removed from the site and composted* or allowed to decay on the upland to prevent sprouting and formation of rhizomes. Do not attempt to compost rhizomes.

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

2. Herbicide
Effectiveness:
Herbicide use is a 2 year, 2 step process because the plants may need a "touch-up" application, especially in dense stands since subdominant plants are protected by thick canopy and may not receive adequate herbicide in the first application.

Methods:
Use glyphosate formulations only. Apply after tasseling stage when nutrients going back to rhizome and will translocate herbicide into roots. After 2 to 3 weeks following application of glyphosate, cut or mow down the stalks to stimulate the emergence and growth of other plants previously suppressed. If the plants are too tall to spray, cut back in mid summer and apply glyphosate using a spray bottle for individual foliar spot treatments or swab, syringe w/large gauge needle or Nalgene wide-mouth, Unitary wash bottle to apply 1-2 drops of 50% glyphosate solution directly into each cut stem.

* see item #4 "Composting" in General Practices section.

Cautions:
This herbicide is not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.
Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

3. Black Plastic
Effectiveness:
Can be effective in small stands (i.e., <100 plants), low-med density(1-75% area). Plants die off within 3-10 days, depending on sun exposure.

Methods:
Cut plants first to 6-8" (hand-pushed bush hog or weed whacker w/blade). After cutting a stand of common reed, anchor a sheet of black plastic or dark tarp over the cut area using sand bags or rocks. High temperatures under the plastic will eventually kill off the plants. This technique works best when the treated area is in direct sunlight. Plastic should be at least 6 millimeters thick. Hold plastic in place with sandbags, rocks, biodegradable stakes, etc. Can treat runners along the plastic edges with a spot application of Rodeo® or Roundup®. The plastic can be removed the following year when the covered plants have been killed. A few common reed shoots may return. These can be cut, hand-pulled or re-treated with appropriate herbicide.

Cautions:
Must monitor to determine if shoots are extending out from under the plastic.

Disposal:
Can leave cut material under plastic or bag all plant parts and remove from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits.

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

4. Pulling
Effectiveness:
Can be effective in small stands (i.e., <100 plants). Very labor intensive control method, best results when infestation occurs in sandy soils.

Methods:
Hand-pull plants <2 years old. Use shovel for plants >2 years old - dig up plant, then replace soil and any existing cover.

Disposal:
Bag and remove all plant parts from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

* see item #4 “Composting” in General Practices section.

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

6. Excavation
Effectiveness:
Can be effective for patches up to ½ acre in size. Cost is the limiting factor.

Methods:
When working in wetlands only tracked equipment shall be used. Rubber-tired excavators can operate from adjacent pavement or upland areas.

Cautions:
The patch should be excavated to below the depth of rhizome development. Follow-ups later in the season or the following year must be conducted to verify that all the plants have been removed

Disposal:
Bag and remove all plant parts from site (compost at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

CONTROL METHODS FOR GARLIC MUSTARD (*Alliaria petiolata*)

PLANT DESCRIPTION
Garlic mustard is a naturalized European biennial herb that typically invades partially shaded forested and roadside areas. It is capable of dominating the ground layer and excluding other herbaceous species. Its seeds germinate in early spring and develops a basal rosette of leaves during the first year. Garlic mustard produces white, cross-shaped flowers between late April and June of the following spring. Plants die after producing seeds, which typically mature and disperse in August. Normally its seeds are dormant for 20 months and germinate the second spring after being formed. Seeds remain viable for up to 7 years.

MANAGEMENT OPTIONS
1. Pulling.
Effectiveness:
Hand pulling is an effective method for removing small populations of garlic mustard, since plants pull up easily in most forested habitats. It is best to pull plants when seed pods are not yet mature, but they can be pulled during most of the year.

Methods:
Soil should be stamped down firmly after removing the plant. Soil disturbance can bring existing garlic mustard seed bank to the surface, thus creating a favorable environment for additional germination within the control site.

Cautions:
Care should be taken to minimize soil disturbance but to remove all root tissues. Re-sprouting may occur from mature plants root systems if not entirely removed. Cutting is preferred to pulling when garlic mustard infestations are interspersed amongst native grasses/forbs or other sensitive or rare flora.

Disposal:
If plants have capsules present, they should be bagged and disposed of to prevent seed dispersal. Bag and remove all plant parts from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

2. Cutting
Effectiveness:
Cutting is effective for medium to large sized populations depending on available time and labor resources. Dormant seeds in the soil seed bank are unaffected by this technique due to minimal disturbance of the soil.

Methods:
Cut stems when in flower (late spring/early summer) at ground level either manually (with clippers or a scythe) or with a motorized string trimmer. This technique will result in almost total mortality of existing plants and will minimize re-sprouting.

Cautions:
Cuttings should be conducted annually for 5 to 7 years or until the seed bank is depleted.

Disposal:
Cut stems should be removed from the site when possible since they may produce viable seed even when cut. Bag and remove all plant parts from site (compost* at DOT Residency, dispose in approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

3. Herbicide
Effectiveness:
Roundup will not affect subsequent seedling emergence of garlic mustard or other plants.

Methods:
Use glyphosate formulations only. Product should be applied after seedlings have emerged, but prior to flowering of second-year plants. Application should be by spray bottle or wick applicator for individual spot treatments.

Cautions:

* see item #4 “Composting” in General Practices section.
* see item #4 “Composting” in General Practices section.

This herbicide is not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.
Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

CONTROL METHODS FOR JAPANESE, GIANT AND BOHEMIAN KNOTWEED (*Fallopia japonica ssp. japonica, F. sachalinensis, and F. x. bohemica*)

PLANT DESCRIPTION

The knotweeds are herbaceous perennials which forms dense clumps 1-3 meters (3-10 feet) high. Its broad leaves are somewhat triangular and pointed at the tip. Clusters of tiny greenish-white flowers are borne in upper leaf axils during August and September. The fruit is a small, brown triangular achene. Knotweed reproduces via seed and by vegetative growth through stout, aggressive rhizomes. It spreads rapidly to form dense thickets that can alter natural ecosystems. Japanese knotweed can tolerate a variety of adverse conditions including full shade, high temperatures, high salinity, and drought. It is found near water sources, in low-lying areas, waste places, and utility rights of way. It poses a significant threat to riparian areas, where it can survive severe floods.

MANAGEMENT OPTIONS

1. Digging

Effectiveness:
This method is appropriate for very small populations.

Methods:
Remove the entire plant including all roots and runners using a digging tool. Juvenile plants can be hand-pulled depending on soil conditions and root development.

Cautions:
Care must be taken not to spread rhizome or stem fragments. Any portions of the root system or the plant stem not removed will potentially re-sprout.

Disposal:
All plant parts, including mature fruit, should be bagged and disposed of in the trash to prevent re-establishment (stockpile* at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Sanitation:
Clean all clothing, boots, and equipment to prevent spread of seed.

* Stockpiling implies temporary storage prior to transfer to a permanent treatment facility.

2. Cutting

Effectiveness:

Repeated cutting may be effective in eliminating Japanese knotweed. Manual control is labor intensive, but is a good option where populations are small and isolated or in environmentally sensitive areas.

Methods:

Cut the knotweed close to the ground at least 3 times a year. Plant native species to act as competitors as an alternative to continued treatment.

Cautions:

This strategy must be carried out for several years to obtain success. Both mechanical and herbicidal control methods require continued treatment to prevent reestablishment of knotweed.

Disposal:

Bag all plant parts and remove from site (stockpile at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Sanitation:

Clean all clothing, boots, and equipment to prevent spread of seed.

3. Herbicide

Effectiveness:

Glyphosate treatments in late summer or early fall are much more effective in preventing re-growth of Japanese knotweed the following year.

Methods:

Use glyphosate formulations only. In late June/early July cleanly cut or mow down existing stalks/canes. Allow the knotweed to re-grow. After August 1, spray knotweed all re-growth with ROUNDUP®, RODEO®.

A cut-stem treatment utilizing glyphosate formulations can be an effective control for smaller colonies of knotweed. In early to mid-July cut the existing stems just below the 2nd or 3rd node above the soil surface. Immediately after cutting apply by swab or small spray bottle a 50% solution of glyphosate to the freshly-cut cross section and into the internodal cavity of each stalk/cane. Monitor treatment area by early to mid-August and repeat cut-stem treatment to any residual stems.

Stem injection is another promising control method for smaller colonies of knotweeds. Currently, a supplemental label for AQUAMASTER® (glyphosate) herbicide exists for this stem injection method. In late June/early July inject 5 mLs of AQUAMASTER® below the 2nd node above the ground of each stem in the clump. Use suitable equipment that must penetrate into the internodal region. JKInternational manufactures a stem injection tool that is suitable and recommended for this control method.

Cautions:

Established stands of Japanese knotweed are difficult to eradicate even with repeated herbicide treatments. However, herbicide treatments will greatly weaken the plant and prevent it from dominating a site. Adequate control is usually not possible unless the entire stand of knotweed is treated (otherwise, it will re-invade via creeping rootstocks from untreated areas).

These herbicides are not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.

Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

CONTROL METHODS FOR JAPANESE, MORROW'S, TATARIAN, AMUR AND BELL'S HONEYSUCKLES
(Lonicera morrowii, L. tatarica, L. japonica, L. maackii, L. x. bella)

PLANT DESCRIPTION – JAPANESE HONEYSUCKLE

Japanese honeysuckle *(Lonicera japonica)* is a perennial trailing or climbing woody vine of the honeysuckle family (Caprifoliaceae) that spreads by seeds, underground rhizomes, and aboveground runners. It has opposite leaves that are ovate, entire (young leaves often lobed), 4-8 cm long, with a short petiole, and variable pubescence. In the southern part of the range the leaves are evergreen, while in more northern locales the leaves are semi-evergreen and fall off in midwinter. Young stems are reddish brown to light brown, usually pubescent, and about 3 mm in diameter. Older stems are glabrous, hollow, with brownish bark that peels in long strips. The woody stems are usually 2-3 m long, (less often to 10 m). *Lonicera japonica* creates dense tangled thickets by a combination of stem branching, nodal rooting, and vegetative spread from rhizomes.

Lonicera japonica (including the varieties) is easily distinguished from native honeysuckle vines by its upper leaves and by its berries. The uppermost pairs of leaves of *Lonicera japonica* are distinctly separate, while those of native honeysuckle vines are connate, or fused to form a single leaf through which the stem grows. *Lonicera japonica* has black berries, in contrast to the red to orange berries of native honeysuckle vines. The fruits are produced September through November. Each contains 2-3 ovate to oblong seeds that are 2-3 mm long, dark-brown to black, ridged on one side and flat to concave on the other.

The fragrant white (fading to yellow) flowers of *Lonicera japonica* are borne in pairs on solitary, axillary peduncles 5-10 mm long, supported by leaflike bracts. The species has white flowers tinged with pink and purple. Individual flowers are tubular, with a fused two-lipped corolla 3-4 (-5) cm long, pubescent on the outside. Flowers are produced late April through July, and sometimes through October.

MANAGEMENT OPTIONS

1. Mowing and Pulling

Effectiveness

Removing the above ground portion of *Lonicera japonica* reduces current year growth but does not kill the plant, and generally stimulates dense regrowth. Cut material can take root and should therefore be removed from the site (not practical with most infestations).

Methods

Hand pulling is highly effective. Pull out Japanese honeysuckle by the roots in winter wherever it climbs, aim the roots upward and tie them in place. The absence of light energy causes the trailing vines to decline precipitously next year. This method greatly reduces spraying requirements.

Disposal:
All plant parts, including mature fruit, should be bagged and disposed of in the trash to prevent re-establishment (stockpile* at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Cautions
Mowing is an ineffective control method, stimulating growth and encouraging formation of dense, albeit shorter, mats. Bush-hogging is an ineffective control, as *Lonicera japonica* re-invades within one growing season.

2. Herbicide
Effectiveness
In northern states, *Lonicera japonica* retains some leaves through all or most of the winter (semi-evergreen or evergreen), when most native plants have dropped their leaves. This provides a window of opportunity from mid-autumn through early spring when it is easier to spot and treat with herbicides, fire or other methods without damaging native species.

Controls
A foliar application of 1.5% glyphosate shortly after the first frost appears to be the most effective treatment, applied after native vegetation is dormant and when temperatures are near and preferably above freezing. Applications within 2 days of the first killing frost are more effective than applications later in the winter. *Lonicera japonica* is less susceptible to herbicides after the first hard frost (-4^{o}C).

Cautions
Soil disturbance should be avoided in infested areas to minimize germination of seed in the seedbank. Treated plants should be re-examined at the end of the second growing season, as plants can recover from herbicide application.

These herbicides are not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.

Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act.

PLANT DESCRIPTIONS – BUSH HONEYSUCKLES
Exotic bush honeysuckles (Morrow's, Bell's, Amur and tatarian) are upright, multi-stemmed, oppositely branched, deciduous shrubs that range in height from 2 m to 6 m. The opposite leaves are simple and entire, and paired, axillary flowers are showy with white, pink, or yellow corollas. The fruits of *Lonicera spp.* are red, or rarely yellow, fleshy berries (Gleason and Cronquist 1991).

In flower, exotic bush honeysuckles can be distinguished from all native bush honeysuckles except swamp fly-honeysuckle (*L. oblongifolia*) by their hirsute (hairy) styles. In fruit, the red or rarely yellow berries of the exotics separate them from the blue- or black-berried natives waterberry (*L. caerulea*) and bearberry honeysuckle (*L. involucrata*). The exotic bush honeysuckles also generally leaf-out earlier and retain their leaves longer than the native shrub honeysuckles.

* Stockpiling implies temporary storage prior to transfer to a permanent treatment facility.

Within the exotic bush honeysuckles, *L. maackii* alone has acuminate, lightly pubescent leaves that range in size from 3.5 to 8.5 cm long and peduncles generally shorter than 6 mm. Its flowers are white to pink, fading to yellow, 15-20 mm long. Its berries are red or with an orange cast. Height ranges to 6 m.

In North America, there has been considerable confusion regarding the correct identification of *L. morrowii*, *L. tatarica*, and *L*. x *bella*, their hybrid. The literature contains a number of references to plants called by the name of one of the parents, but described as having characters more like those of the hybrid. *L.* x *bella*. The hybrid therefore, may be more common than the literature would indicate, and accurate field identification may be similarly problematic.

The two parent species of *L.* x *bella*, however, are dissimilar. *L. morrowii* has leaves that are elliptic to oblong gray-green, soft-pubescent beneath, and are 3-6 cm long. Its flowers are pubescent, white fading to yellow, 1.5-2 cm long, on densely hairy peduncles 5-15 mm long. The fruits are red. The height ranges to 2 m. *L. tatarica* has leaves that are ovate to oblong, glabrous, and are 3-6 cm long. Its flowers are glabrous, white to pink, 1.5-2 cm long, on peduncles 15-25 mm long. The fruits are red or rarely yellow. Height ranges to 3 m.

L. x *bella* has intermediate characteristics. The leaves are slightly hairy beneath. Flowers are pink fading to yellow, on sparsely hairy peduncles 5-15 mm. long. Fruits are red or rarely yellow. Height ranges to 6 m.

MANAGEMENT OPTIONS

1. Grubbing, Pulling, Cutting

Effectiveness

Mechanical controls include grubbing or pulling seedlings and mature shrubs, and repeated clipping of shrubs. Effective mechanical management requires a commitment to cut or pull plants at least once a year for a period of three to five years.

Methods

Grubbing or pulling by hand (using a Weed Wrench or a similar tool) is appropriate for small populations or where herbicides cannot be used. Mature *L. maackii* shrubs growing in shaded forest settings can be eradicated by clipping once a year, during the growing season, until control is achieved. Other bush honeysuckles growing in more open settings can be managed by clipping twice yearly, once in early spring and again in late summer or early autumn.

Disposal:

All plant parts, including mature fruit, should be bagged and disposed of in the trash to prevent re-establishment (stockpile* at DOT Residency, dispose of in an approved landfill or incinerate with appropriate permits).

Cautions

Any portions of the root system not removed can resprout. Because open soil can support rapid re-invasion, managers must monitor their efforts at least once per year and repeat control measures as needed. Winter clipping should be avoided as it encourages vigorous re-sprouting.

* Stockpiling implies temporary storage prior to transfer to a permanent treatment facility.

2. Herbicide

Effectiveness
Most managers report that treatment with herbicides is necessary for the control of *L. maackii* populations growing in full sun and may be necessary for all large bush honeysuckle populations.

Controls
Use formulations of glyphosate (brand names Roundup, and for use near water bodies, Rodeo) as foliar sprays or cut stump sprays and paints with varying degrees of success. Glyphosate is a non-selective herbicide which kills both grasses and broad-leaved plants. For cut stump treatments, 20-25% solutions of glyphosate can be applied to the outer ring (phloem) of the cut stem. 2% solutions of glyphosate can be used for foliar treatments. Glyphosate should be applied to the foliage late in the growing season, and to the cut stumps from late summer through the dormant season.

Cautions
The subsequent flush of seedlings following all herbicide treatments must also be controlled.
These herbicides are not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.

Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast within 12 hours because herbicide will be washed away before it can act.

CONTROL METHODS FOR YELLOW IRIS
(Iris pseudacorus)

Plant Description
Yellow iris *(Iris pseudacorus)* is a robust, clumping perennial herb in the Iridaceae (Iris family). *Iris pseudacorus* is easy to identify in flower, since it is the only totally yellow-flowered *Iris* in wild lands in the United States. At maturity, *I. pseudacorus* grows to a height of 0.40-1.5 meters (1.3-4.9 ft) tall. Its thick fleshy rhizomes often form dense horizontal mats, with each rhizome measuring 1 to 4 cm in diameter with roots that may extend vertically 10-20 (30) cm deep. The stiff, sword-like leaves are glaucous, number approximately 10 per ramet, are about 50-100 cm long by 10-30 mm wide, have raised midribs, and are arranged with sheathing and overlapping leaf bases.

Flowers of *I. pseudacorus* are borne on tall erect peduncles. Each inflorescence may have one to several large, showy flowers. The flowers measure 8-10 cm in diameter and vary from pale yellow to almost orange in color. The flowers are bisexual. The perianth segments (3 sepals and 3 petals) are fused at the base, and form a flaring tube with the sepals spreading and reflexed. The 3 stamens are each individually fused by their filaments to the sepals, and the showy tongue-shaped sepals are often adorned with brown spots or purple veins, and are generally less than 6 cm long. The petals are erect and less conspicuous, and are narrower than the sepals. The 3 style branches are petal-like with two-lobed lips, are mostly < 25 mm long, and

are opposite and curved over the sepals. *I. pseudacorus* has an inferior, 3-chambered ovary. Fruits are elongated capsules.

Seeds of *I. pseudacorus* are pitted, pale brown, disc-shaped (roughly circular and flattened), and measure approximately 2.0-5.0 mm in diameter and 0.5-3.0 mm tall. Seeds are arranged in three densely packed vertical rows within the seed pod or capsule. These erect capsules at maturity are a glossy green color and measure 4-8 cm in length, 5.0-8.0 mm in width, and are 3-angled and cylindrical.

1. Digging, Pulling, Cutting

Effectiveness

Manual or mechanical methods that remove the entire *I. pseudacorus* rhizome mass can successfully control small, isolated patches.

Methods

Pulling or cutting *I. pseudacorus* plants may provide adequate control, but only if it is repeated every year for several years to weaken and eventually kill the plant. Dead-heading (removing the flowers and/or fruits) from plants every year can prevent seed development and seed dispersal, but will not kill those plants.

Cutting the foliage, followed by a herbicide application (see below for details), can provide good control with minimal off-target effects.

Disposal:

If plants have capsules present, they should be bagged and disposed of to prevent seed dispersal. Bag all plant parts and remove from site (compost* at DOT Residency, dispose of in approved landfill or incinerate with appropriate permits).

Cautions

These methods, however, are very time and labor-intensive, since even small rhizome fragments can resprout. Additionally, digging disturbs the soil, may fragment rhizomes, and promote germination of *I. pseudacorus* and other undesirable species from the soil seed bank.

Care should be taken when pulling, cutting, or digging *I. pseudacorus*, since resinous substances in the leaves and rhizomes can cause skin irritation.

2. Herbicide

Effectiveness

Iris pseudacorus can be effectively controlled by herbicides. Since it usually grows in or adjacent to water, an aquatic-labeled herbicide and adjuvant must be used. Glyphosate (for example, trade names Rodeo®, Aquamaster® or Glypro®) applied in a 25% solution (13% a.i.) using a dripless wick/wiper applicator, or applied in a 5 to 8% solution if sprayed, when used with the appropriate non-ionic surfactant adjuvant, can effectively kill *I. pseudacorus*. *I. pseudacorus* can be effectively controlled by stem injection utilizing Aquamaster® applied at .5 to .7 mL. of product per flowering stem.

Controls

* see item #4 "Composting" in General Practices section.

The timing and choice of application technique will determine control efficacy and should work to minimize off-target effects. *Iris pseudacorus* can be controlled by either directly applying the herbicide to foliage, or by immediately applying herbicide to freshly cut leaf and stem surfaces. Herbicides can be directly applied to *I. pseudacorus* foliage or cut stems by a dripless wick system or using a backpack sprayer.

Cautions
These herbicides are not selective (kills both monocots and dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants. Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast within 12 hours because herbicide will be washed away before it can act.
Be sure to always take appropriate precautions and wear suitable clothing and equipment, and follow all instructions on the herbicide label. Use a biodegradable tracer dye in the herbicide mix so you can watch for accidental contact or spill of the herbicide.

Appendix C. Herbicide Labels and Material Safety Data Sheets (MSDS)

Appendix D. NYSDEC Steps for Using Herbicides to Control Invasive Plants

Appendix E. State Land Terrestrial and Aquatic Invasive Plant Inventory

In 2004 and again in 2005 Adirondack Nature Conservancy/Adirondack Park Invasive Plant Program staff and Student Conservation Association/AmeriCorps Environmental Steward staff in cooperation with the Department undertook a systematic effort to identify and quantify the extent of terrestrial invasive species on Forest Preserve units in the Adirondack Park. Documented priority invasive threats included garlic mustard (*Alliaria petiolata*), Japanese knotweed (*Fallopia japonica ssp. japonica*), common reed (*Phragmites australis ssp. australis*), purple loosestrife (*Lythrum salicaria*), and Japanese barberry (*Berberis thunbergii*). Other invasive species found included black locust (*Robinia pseudoacacia*), Japanese, Morrow's, tatarian, Amur and Bell's honeysuckles (*Lonicera japonica, L. morrowii, L. tatarica, L. maackii, L. x. bella*), Canada and/or bull thistle (*Cirsium arvense, C. vulgare*) and wild parsnip (*Pastinaca sativa*). The following summary table documents the 2005 field work. Detailed location and population information has been provided to the Regional Land Manager.

State Land Unit	Terrestrial Invasive Species Present	Total Number of Populations	Total Area Affected in Square Feet (acres)
Moose River Wild Forest	garlic mustard, honeysuckle, wild parsnip	12	3620 (.08)
Sargent Ponds Wild Forest	garlic mustard, Canada thistle	6	1210 (.03)
Blue Mountain Wild Forest	Japanese knotweed, wild parsnip	4	3950 (.09)
Vanderwhacker Mountain Wild Forest	purple loosestrife, Japanese knotweed, honeysuckle, Canada thistle	27	14310 (.33)
Shaker Mountain Wild Forest	garlic mustard Japanese knotweed, purple loosestrife, black locust, honeysuckle, common reed	33	38870 (.89)
High Peaks Wilderness	Japanese knotweed	1	13500 (.31)
Ferris Lake Wild Forest	garlic mustard, Japanese knotweed, purple loosestrife, common reed, Japanese barberry, honeysuckle	48	33780 (.78)
West Canada Lake Wilderness	garlic mustard, Japanese knotweed	3	420 (.01)
Black River Wild Forest	garlic mustard, common reed, Japanese knotweed, honeysuckle	14	11950 (.27)
Saranac Lakes Wild Forest	Japanese knotweed, Japanese barberry, Canada thistle, honeysuckle	12	6130 (.14)
Total		**160**	**127740 (2.93)**

In addition to the formal survey of the above nine Wild Forest units and one Wilderness unit, the survey team kept track of other invasive species occurrences on Forest Preserve lands noted during their ordinary course of work. Below is a summary table for several additional sites.

Location	Terrestrial Invasive Species Present	Total Number of Populations	Total Area Affected in Square Feet (acres)
Pepperbox Wilderness/Stillwater Dam	Japanese knotweed	2	700 (.02)
Cascade/Porter Mountain Trailhead and trail	garlic mustard	1	50 (.001)
Barnum Pond Boat Launch	purple loosestrife	1	1500 (.034)

Location	Terrestrial Invasive Species Present	Total Number of Populations	Total Area Affected in Square Feet (acres)
Second Pond Boat Launch	Japanese knotweed	1	550 (.013)
Camp Santanoni	Japanese knotweed	2	1200 (.03)
Mt. Arab Trailhead Parking Area	Japanese knotweed	4	2000 (.05)
Grass River/Special Trout Area Parking Area	Japanese knotweed	2	1050 (.024)
Schroon Lake Boat Launch	purple loosestrife	1	100 (.002)
Region 6 Boonville Field HQ	giant knotweed	1	300 (.007)
Lake Colby Boat Launch and Public Beach	purple loosestrife	2	400 (.01)
Total		**17**	**7850 (.18)**

There are approximately 81 Wilderness, Wild Forest, Canoe and Primitive State Areas in the Park that comprise 51 land management units. A straight extrapolation of the above data to all State land units would indicate 752 terrestrial invasive species populations occupying 600,378 square feet (13.8 acres). Of course, a straight extrapolation will not yield numbers as accurate as a comprehensive survey. Also it should be noted that the ten units were all Wild Forest areas and therefore have a higher level and more varied type of use than would be expected in Wilderness areas and potentially higher levels of terrestrial invasive species infestations. Furthermore, the numbers should be placed in context. There are approximately 2.4 million acres in Wilderness, Wild Forest, Canoe and Primitive classification. If there were 13.8 acres of terrestrial invasive species infestation it represents a very minute portion of the whole. This level of invasion is an indication that invasives are at very low population levels and the chance of eradication is high. It's also a sobering wake-up reminding us that *early detection and rapid response are key ingredients to protecting the natural systems on our State lands*. Experience in other parts of New York State and other states proves that if the infestation is allowed to consolidate it will be impossible to eradicate and will create an expensive, never-ending management effort merely to keep population levels low enough to limit environmental degradation.

The survey team also visited 28 of the 47 Department campgrounds in the Adirondack Park during summer 2005. Of the 28, 16 had minor to severe infestations of terrestrial invasive plants. The most common problem species was garlic mustard, followed by Japanese knotweed, purple loosestrife, and honeysuckle. The following table summarizes the extent of invasives knowledge on Forest Preserve campgrounds.

Campground	Terrestrial Invasive Species Present	Number of Populations
Paradox Lake Campground	garlic mustard, wild chervil	2
Lewey Lake Campground	garlic mustard	3
Limekiln Lake Campground	garlic mustard, honeysuckle	13

Campground	Terrestrial Invasive Species Present	Number of Populations
Carry Falls Camp Sites and Boat Launch	garlic mustard	several/many
Cranberry Lake Campground	garlic mustard	21+
Nick's Lake Campground	garlic mustard	49
Eighth Lake Campground	garlic mustard	33
Golden Beach Campground	garlic mustard	101+
Brown Tract Pond Campground	garlic mustard, honeysuckle	4
Lake Durant Campground	garlic mustard	6
Lake Eaton Campground	garlic mustard	6
Fish Creek-Rollins Pond Campground	garlic mustard	2
Meadowbrook Campground	garlic mustard	1
Moffitt Beach Campground	garlic mustard	14
Sacandaga River Campground	Japanese knotweed	5
Taylor Pond Campground	purple loosestrife	1
Total		**261+**

The inventory provides a preliminary indication that the following Department campgrounds appear to be free of target terrestrial invasive plant species: Wilmington Notch, Jones Pond, Buck Pond, Meacham Lake, Sharp Bridge, Au Sable Point, Putnam Pond, Little Sand Point, Point Comfort, Poplar Point, Forked Lake and Fourth Lake Picnic Area.

The following campgrounds and day-use areas have not been inventoried: Alger Island, Caroga Lake, Crown Point Reservation, Eagle Point, Hearthstone Point, Hinckley Reservoir Picnic Area, Lake George Battlefield Picnic Area, Lake George Battlefield, Lake George Beach, Lake George Islands, Lake Harris, Lincoln Pond, Luzerne, Moffitt Beach, Northampton Beach, Poke-O-Moonshine, Roger Rock and Tioga Point.

It is noted that not all terrestrial invasive species infestations require the use of herbicides. The protocols in section VI and the best management practices attached in Appendix B provide clear guidance as to which actions are best and allowed. In addition, all pesticide use will be approved by the Regional Supervisor of Natural Resources through an AANR agreement and based on a site specific plan for treatment of invasive plants.

2007 Field Inventory Data
Following is the update from Steven Flint based on 2007 field work. The survey team visited 40 of the 45 Department campgrounds in the Adirondack Park during summer 2007. Of the 40, 16 had minor to severe infestations of terrestrial invasive plants. The most common problem species was garlic mustard, followed by Japanese knotweed, purple loosestrife, and honeysuckle. The following table summarizes the extent of invasives knowledge on Forest Preserve campgrounds.

Campground	Terrestrial Invasive Species Present	Number of Populations
Paradox Lake Campground	garlic mustard, wild chervil, purple loosestrife	3
Lewey Lake Campground	garlic mustard, purple loosestrife	6
Limekiln Lake Campground	garlic mustard, honeysuckle	13
Carry Falls Camp Sites and Boat Launch	garlic mustard	several/many
Cranberry Lake Campground	garlic mustard	80+
Nick's Lake Campground	garlic mustard, honeysuckle	49
Eighth Lake Campground	garlic mustard, honeysuckle	33
Golden Beach Campground	garlic mustard	101+
Brown Tract Pond Campground	garlic mustard, honeysuckle, crown vetch	4
Lake Durant Campground	garlic mustard	6
Lake Eaton Campground	garlic mustard	6
Fish Creek-Rollins Pond Campground	garlic mustard at Rollins Pond, Fish Creek clean	2
Meadowbrook Campground	garlic mustard	1
Moffitt Beach Campground	garlic mustard, purple loosestrife	14
Sacandaga River Campground	Japanese knotweed	5
Taylor Pond Campground	purple loosestrife	3
Total		**326+**

The inventory provides a preliminary indication that the following Department campgrounds appear to be free of target terrestrial invasive plant species: Wilmington Notch, Buck Pond, Sharp Bridge, Point Comfort, Poplar Point, Eagle Point, Alger Island, Lincoln Pond and Fourth Lake Picnic Area.

The following campgrounds and day-use areas have not been inventoried: Hinckley Reservoir Picnic Area, Lake George Battlefield Picnic Area, Lake George Islands, Tioga Point, Indian Lake Islands and Lower Saranac Lake Islands.

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APPENDIX I: STATE ENVIRONMENTAL QUALITY REVIEW (SEQR) REQUIREMENTS

The State Environmental Quality Review Act (SEQRA) requires the consideration of environmental factors early in the planning stages of any proposed action(s) that are undertaken, funded or approved by a local, regional or state agency. A Long Environmental Assessment Form (LEAF) is used to identify and analyze relevant areas of environmental concern based upon the management actions in the draft unit management plan. For this plan, SEQRA review has been initiated with the preparation of the LEAF. Upon review of the information contained in the LEAF, there will not be a significant impact on the environment and a Negative Declaration has been prepared. Any changes that are made in this plan, based upon public comments, will be considered in the LEAF and determination of significance prior to completing the final plan.

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APPENDIX K: SETON HOUSE CONSULTATION WITH OPRHP

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks,
Recreation and Historic Preservation

Division for Historic Preservation
P.O. Box 189, Waterford, New York 12188-0189
518-237-8643

February 06, 2013

Charles E. Vandrei
NYS Department of Environmental Conservation
Bureau of State Land Management
625 Broadway, 5th Floor
Albany, New York 12233-4255

Re: DEC
Seton Camp (stone house),
Valcour Island,
PERU, Clinton County
13PR00530

Dear Mr. Vandrei:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP) concerning your project's potential impact/effect upon historic and/or prehistoric cultural resources. Our staff has reviewed the documentation that you provided on your project. Preliminary comments and/or requests for additional information are noted on separate enclosures accompanying this letter. A determination of impact/effect will be provided only after ALL documentation requirements noted on any enclosures have been met. Any questions concerning our preliminary comments and/or requests for additional information should be directed to the appropriate staff person identified on each enclosure.

In cases where a state agency is involved in this undertaking, it is appropriate for that agency to determine whether consultation should take place with OPRHP under Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law. In addition, if there is any federal agency involvement, Advisory Council on Historic Preservation's regulations, "Protection of Historic and Cultural Properties" 36 CFR 800 requires that agency to initiate Section 106 consultation with the State Historic Preservation Officer (SHPO).

When responding, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Deputy Commissioner for Historic Preservation

Enclosure

RESOURCE EVALUATION

Date:	2/5/2013	Staff:	Nancy Todd
Property:	Seton Camp	MCD:	PERU
Address:	Valcour Island	County:	Clinton
Project Ref. No.:	**13PR00530**	USN:	01911.000081

I. ☐ Property is individually listed on SR/NR :

Name of listing :

☐ Property is a contributing component of a SR/NR district:

Name of District:

II. ☑ Property meets eligibility criteria

☐ Property contributes to a district which appears to meet eligibility criteria.

Pre SRB: ☐ Post SRB: ☐ SRB Date

Criteria for inclusion in the National Register.

A ☑ **Associated** with events that have made a significant contribution to the broad patterns of our history;

B ☐ **Associated** with the lives of persons significant in our past;

C ☑ Embodies the distinctive characteristics of a type, period or method of construction; or represents the work of a master; or possess high artistic values; or represents a significant and distinguishable entity whose component may lack individual distinction;

D ☐ **Have** yielded, or may be likely to yield information important in prehistory or history.

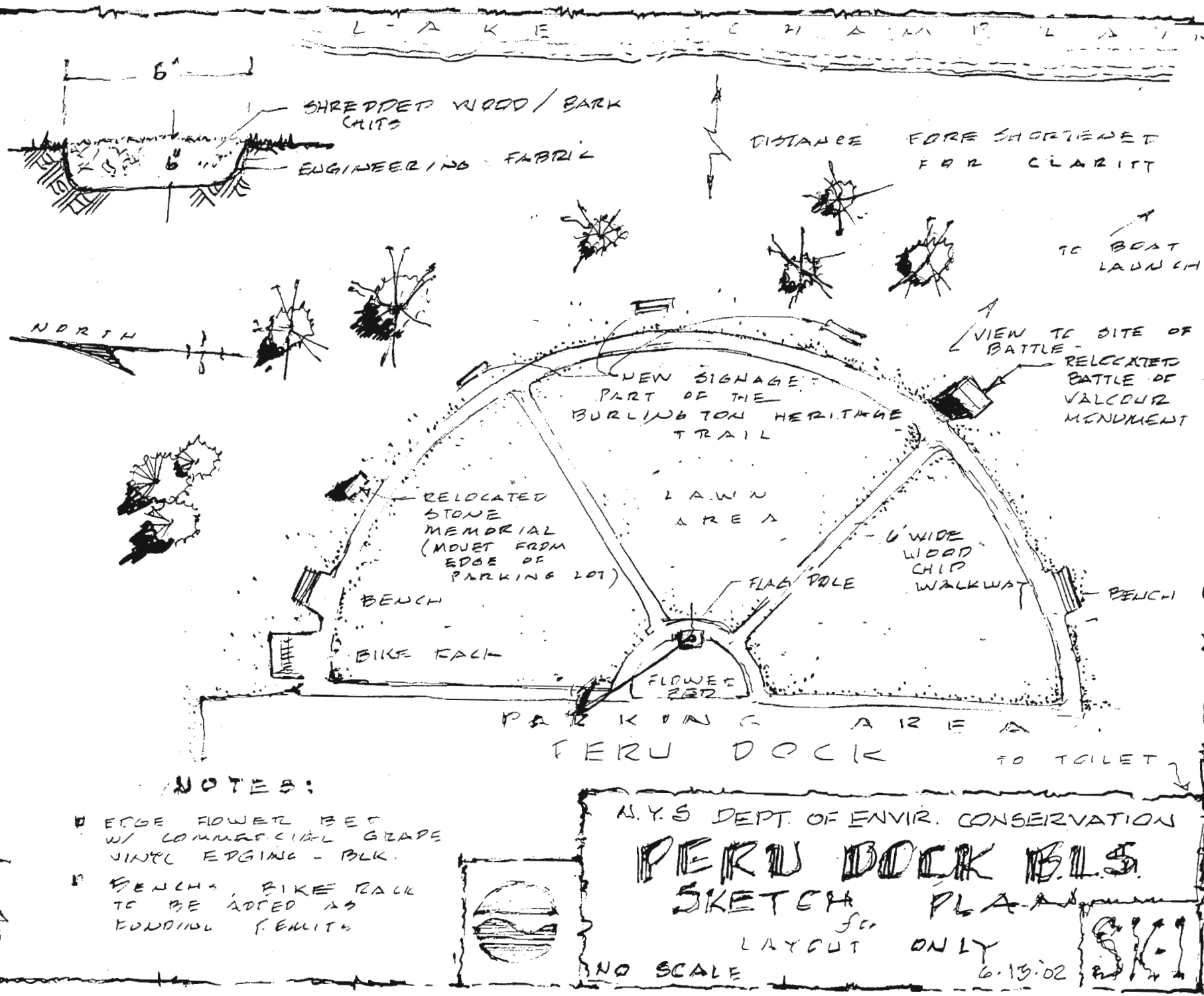
STATEMENT OF SIGNIFICANCE:

Based on the information provided, Seton Camp appears to be NRE. Included in the complex is a 1 1/2 story, slate-roofed house (1929) of rough-cut limestone construction; a stone pumphouse; and stone landscape features (steps and a wharf). The house was designed for Henry Seton (of Cambridge, MA) by Charles Hoyt (of Ausable Forks, NY). The camp is believed to be one of several dozen camps that once populated Valcour Island; it is the only survivor.

If you have any questions concerning this Determination of Eligibility, please call Nancy Todd at 518-237-8643. ext 3262

APPENDIX L: UNIT MAPS

SK-1 Peru Dock Boat Launch Site Memorial Design Map.
Lake Champlain Islands Management Complex Map.
Valcour Map 1 - Current conditions.
Valcour Map 2 - Proposed Final Conditions.



NOTES:

1. EDGE FLOWER BED W/ COMMERCIAL GRADE VINYL EDGING - BLK.
2. BENCH & BIKE RACK TO BE ADDED AS FUNDING PERMITS.

N.Y.S DEPT. OF ENVIR. CONSERVATION

PERU DOCK B.L.S.

SKETCH PLAN

for LAYOUT ONLY

NO SCALE

6-13-02

SK-1

PERU BOAT LAUNCH

VALCOUR ISLAND

GARDEN ISLAND

SCHUYLER ISLAND

PORT DOUGLAS BOAT LAUNCH

WILLSBORO BAY BOAT LAUNCH

COLE ISLAND

SHEEPSHEAD ISLAND

SIGNAL BUOY ISLAND

Plattsburgh

Crab Island

Valcour Island

Peru

Garden Island

Ausable Marsh WMA

Ausable Point

Wickham Marsh WMA

Keeseville

Schuyler Island

Port Douglas

LAKE CHAMPLAIN

LAKE CHAMPLAIN ISLANDS

TAYLOR POND

Burlington

Willsboro Bay

NEW YORK

VERMONT

Poke -O- Moonshine

Willsboro

SPLIT ROCK

Westport

HAMMOND POND

Cole Island

Port Henry

Crown Point

Putts Ck. WMA

Crown Pt.

Sheepshead Island

Signal Buoy Island

87 9 314 2 89 7 22 2 127 7 373 9 2 189 89 87 22 7 9N 22 17 125 9N 903

N

LAKE CHAMPLAIN ISLANDS *MANAGEMENT COMPLEX*

Primitive Area
Wild Forest Area
Intensize Use Area
Historic
NYSOPRHP Lands
State Administrative

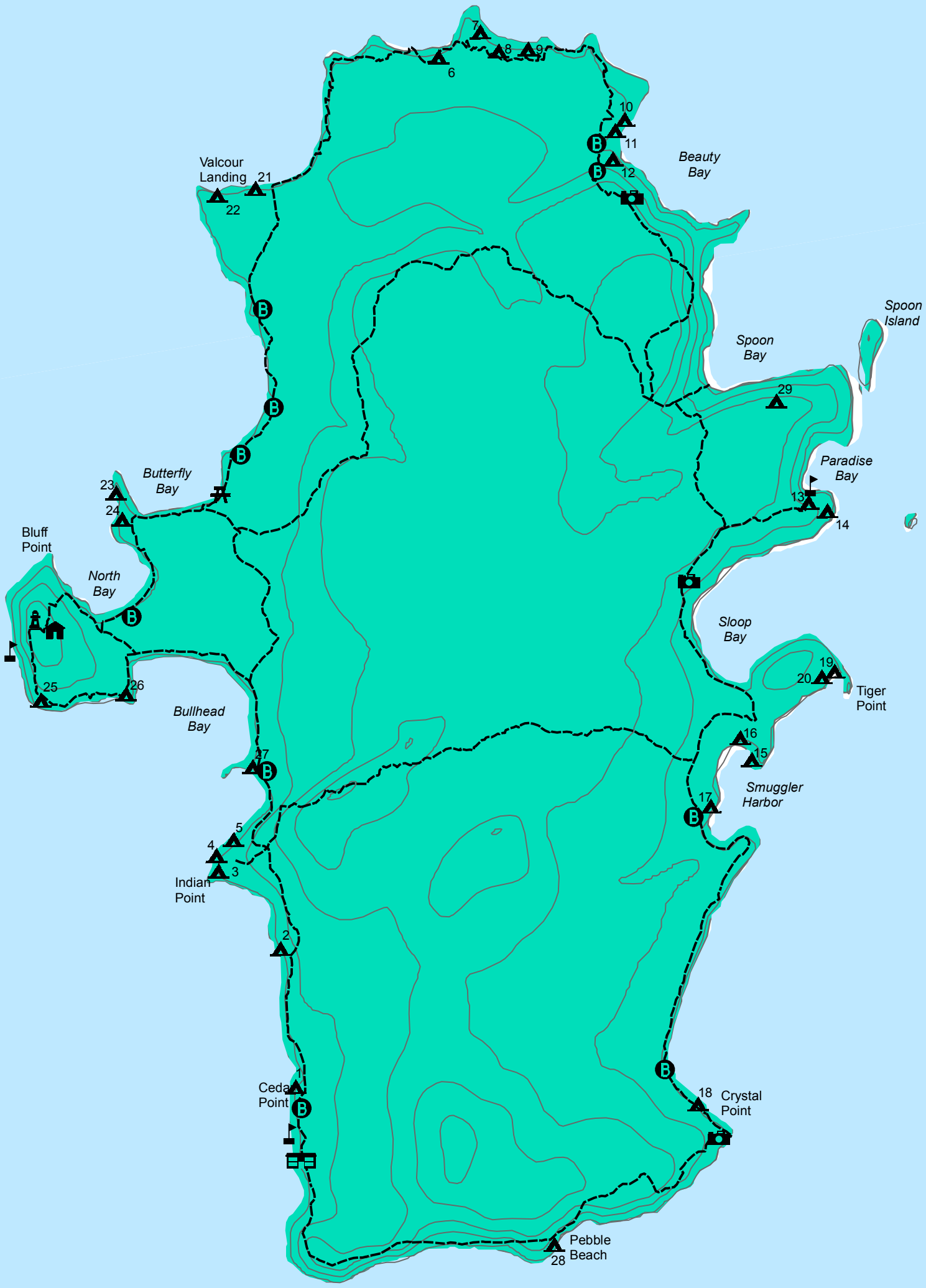
Management Complex Unit Boundary
Adirondack Park Boundary
N.Y. - Vt. Boundary
Boat Launch

4 0 4 8 MILES

DRAFT MAP (5/03)
Revised 2/26/07

VALCOUR ISLAND PRIMITIVE AREA

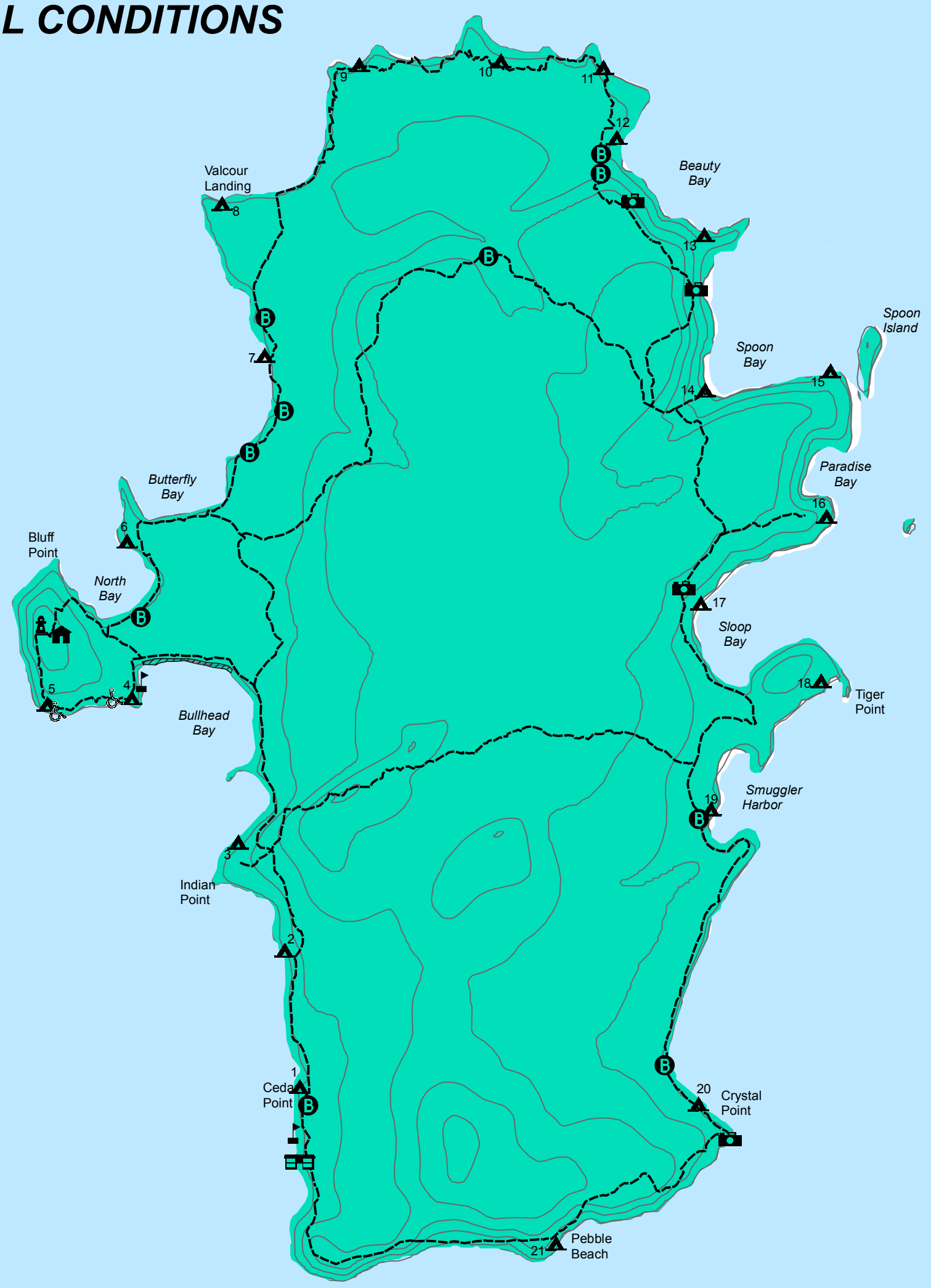
CURRENT CONDITIONS



DRAFT MAP 6/11 Revised 7/8/11

VALCOUR ISLAND PRIMITIVE AREA

PROPOSED FINAL CONDITIONS



DRAFT MAP 6/11 Revised 7/8/11

EXISTING FACILITIES

Contour Interval 20 Feet

- Primitive Area
- Foot Trail
- Coast Guard Tower
- Campsite
- Lighthouse
- Accessible Boat Dock
- Seton House
- Bridge
- Scenic Vista
- Accessible

N

0 500 1,000 2,000 3,000 Feet