

Eastern Interior Region Management Plan



Gassabias Stream

**Maine Department of Conservation
Bureau of Parks and Lands**



July 1, 2009

ADOPTION CITATION

In accordance with the provisions of 12 M.R.S.A. § 1847(2) and consistent with the Bureau of Parks and Lands Planning Policy and Integrated Resource Policy for Public Reserved and Nonreserved Lands, State Parks, and State Historic Sites (revised December 18, 2000 and amended March 7, 2007), this Management Plan for the **Eastern Interior Region** is hereby adopted.

RECOMMENDED: Willard R. Harris DATE: July 1, 2009

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APPROVED: Patrick K. McGowan DATE: July 1, 2009

Patrick K. McGowan
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Department of Conservation

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Acknowledgments

The Eastern Interior Region Management Plan was prepared through a collaborative effort involving contributions from the following Bureau of Parks and Lands staff:

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Joe Wiley – *IF&W Wildlife Biologist assigned to the Bureau of Parks and Lands*

In addition, much of the material in the Plan related to natural resources, especially geology and soils, hydrology and water quality, natural communities, wetlands, ecological processes, and rare plant and animal species was provided by the Maine Natural Areas Program (MNAP). MNAP staff conducted natural resource inventories for the Bureau and provided a detailed report, written by Brooke Wilkerson, which is referenced in Appendix H – “Natural Resource Inventory of the Bureau of Parks and Lands Eastern Interior Region” available upon request.

Information about archaeological and historic resources was provided by Art Spiess at the Maine Historic Preservation Commission.

The Bureau also acknowledges the helpful participation of the Eastern Interior Region Management Plan Advisory Committee (Appendix A), and the members of the public who participated in public meetings held during the preparation of this Plan.

I. Introduction

About This Document

This document constitutes a fifteen-year management plan (the Plan) for over 57,000 acres of public reserved land in the Eastern Interior region of Maine managed by the Maine Bureau of Parks and Lands (the Bureau). The Plan summarizes the planning process and character of the plan area, but its primary function is to 1) provide a description of the resources found on the properties addressed, 2) describe management issues identified by members of the public and Bureau staff, and 3) put forth management recommendations and resource allocations to be implemented over the next fifteen-year period.

One objective of the Plan is to provide a balanced spectrum of opportunities in keeping with the opportunities and resources available in the region as a whole. In developing the management recommendations for each parcel, the Bureau has considered this broader perspective. The region is unique in that the state conservation ownership represents only a portion of the large-scale conservation efforts on private lands that have occurred in recent years; for many of these the Bureau is either a partner or is an abutter. Management of the Bureau's lands now and in the future will need to consider the context of these projects and similar efforts anticipated in the near future.

The Plan is also a commitment to the public that these properties will be managed within prescribed legislative mandates and in accordance with the Bureau's *Integrated Resource Policy* and its stated mission and goals. Future revisions to these commitments will occur only after providing opportunities for public comment. The Plan provides guidance to Bureau staff with responsibility for managing these properties, including a degree of flexibility in achieving the stated objectives. This document is not, however, a plan of operations.

An important aspect of the management of public lands is monitoring and evaluation of proposed management activities in terms of stated objectives. This Plan describes monitoring and evaluation procedures for recreational use, wildlife management, management of ecological reserves, and timber management.

The Eastern Interior Management Plan will be in effect for the next 15 years. At five-year intervals, the Bureau will report to the Advisory Committee on accomplishments and changing conditions that may warrant amendments to the Plan. At the end of 15 years, a full revision will be undertaken. It is recognized all recommendations may not be accomplished within the Plan period.

What is the Eastern Interior Region?

Eastern Interior Plan Lands

Property Name	Fee Acres	Easement Acres
Bradley Unit	9,277	0
Bradley Kittridge Lot	229	0
Cary – Border Lot	230	0
Cary - Southwest Lot	105	0
Codyville - Tomah Mountain Lot	940	0
Codyville – Southeast Lot	175	0
Codyville - Northeast Lot	135	0
Duck Lake Unit (includes portions of Machias Phase II)	30,624	0
Grand Falls Schoolhouse	1	0
Grand Lake Stream Lot	915	0
Great Pond Lake Lot	450	0
Great Pond Outlet Lot	40	0
Hardwood Island (West Grand Lake)	49	0
Lakeville - Duck/Keg Lake Lot	890	0
Lakeville - Upper Dobsis Lot	610	0
Lakeville – Magoon Pond Lot	265	0
Machias River Unit	8,651	11,746
Macwahoc Lot	555	0
Mattawamkeag Lake	190	3,026
Molunkus Lot	485	0
Nicatous Lake	162	20,260
Reed -Thompson Deadwater Lot	995	0
Reed –Wytovitlock Lot	540	0
Webster Lot	790	0
Pending Acquisitions		
Lower Penobscot I (Amherst Fee)	Pending	
Lower Penobscot II (Great Pond Easement)		Pending
Machias River Phase III (Working Forest Easement)		Pending
Wabassus Lake (Bureau easement on DLLT land)		Pending
TOTAL	57,303	35,032

Other public or private conservation properties within or near the Plan area are mentioned in the Planning Context section, but are not the principal focus of this management plan. These properties include other lands managed by the Bureau including the Saint Croix River (managed as a state park) and Bible Point (a state historic site), certain boat launching facilities managed by the Boating Facilities Division, and trails managed by the Bureau's Off-road Vehicle Division. Also mentioned in the Regional Context section are conservation lands managed by the Maine Department of Inland Fisheries and Wildlife (IF&W), the Bureau of Sea Run Fisheries and Habitat (formally the Atlantic Salmon Commission), the U.S. Fish and Wildlife Service (USFWS), the Nature Conservancy (TNC), and the Downeast Lakes Land Trust (DLLT).

II. The Planning Process and Guidance

This section describes the Bureau's planning process for development of its management plans and the statutes and policies that guide its management decisions. The planning process includes a robust public participation effort, intended to provide input to the Bureau's management. In addition, the Bureau is guided by statutes requiring and directing the Bureau to develop management plans, and authority directing the Bureau to also create a system of ecological reserves. Overall, management of Bureau lands is guided by the Integrated Resource Policy (IRP), which itself was developed with a significant public process. Finally, the Bureau's forest management, where allowed under the multiple purpose management system defined by the IRP, is conducted sustainably, and is third party certified under the Sustainable Forestry Initiative (SFI) and the Forestry Stewardship Council (FSC) programs. The following describes these important influences guiding the development of this Plan in further detail.

The Planning Process

Overall, the Bureau's management planning process includes a series of steps, each involving interdisciplinary review and extensive efforts to solicit and consider public comment, in order to achieve a plan that integrates various perspectives and needs while protecting and conserving the resources of Bureau lands. At a minimum this involves three public meetings including a public scoping session, an advisory committee meeting to review a draft plan, and a general public meeting on the final plan. The following describes the plan process for the Eastern Interior Region Management Plan.

Resource Assessments: The first phase of the planning process included an examination of resources, issues and opportunities available on the Eastern Interior region properties. Beginning in the winter of 2007, Bureau staff undertook an intensive review of the natural and geological, historic and cultural, fisheries and wildlife, recreation, and timber resources on these properties. Much of this information was obtained by Department of Conservation (DOC) professionals conducting formal inventories of specific resources. Staff also participated in several reconnaissance field trips to parcels within the region, including a winter snowmobile tour in February 2008, and a spring tour in June 2008.

Issue Identification/Discussion through Public Meetings: Meetings to identify issues of concern to the public about these properties included:

- A Public Scoping Session held in Bangor on March 4, 2008 to hear from various members of the public regarding their concerns for the future management of these properties.
- A Focus Group (working group) meeting with landowners was held in Brewer on May 8, 2008 to exchange information and ideas on land management objectives.

Advisory Committee Formation and Review of First Draft: A Public Advisory Committee was formed in the spring of 2008 to review and discuss formally a first draft of the Plan. Members of this committee were selected on the basis of their resource expertise and regional and local

knowledge. An Advisory Committee meeting was held in Bangor on October 15, 2008 to discuss and receive comment on the first draft of the Management Plan.

Public Meeting on Final Draft Plan: Comments on the first draft from the Advisory Committee, general public, and resource professionals were considered in developing a final draft of the Plan. The final draft was presented at a general public meeting on March 24, 2009 in Brewer. A 30 day written comment period was provided following this public meeting to receive additional comments from the general public.

Commissioner's Review and Adoption: Following the final public meeting on the final draft plan, the Bureau considered all comments received, made decisions and revised the final draft. The Plan was reviewed by the Department of Conservation's Commissioner and adopted by the Commissioner and the Bureau of Parks and Lands Director.

Statutory Guidance

The Eastern Interior Region Management Plan is a commitment to the public that the Unit lands will be managed in accordance with the Bureau's mission and goals, and within prescribed mandates. Title 12 MRSA 1847 (2) requires the Bureau to develop multiple use management plans for public reserved lands and contains the following mandates (among others):

Multiple Use Management

- Management of the Eastern Interior lands is based on the principle of multiple use to produce a sustained yield of products and services, and sound planning (Title 12, Section 1847);
- The Units provides a demonstration of exemplary land management practices, including silvicultural, wildlife, and recreation management practices (Title 12, Section 1847).

Recreational Uses

- The Unit provides a wide range of outdoor recreational and educational opportunities (IRP); including provision of remote, undeveloped areas (Title 12, Section 1847).
- There is full and free public access to the Unit together with the right to reasonable use of those lands, except reasonable fees are charged to defray the cost of constructing and maintaining overnight campsites and other camping and recreation facilities. Restrictions on free and reasonable public access are imposed where appropriate to ensure the optimum value of the Unit as a public trust (Title 12 Section 1846).

Management guidance used in preparing this Plan is provided by the Integrated Resource Policy (IRP), adopted by the Bureau in 2000 after an extensive public process. The IRP is designed to be a planning and decision making tool for the Bureau. Its policies are consistent with statutory requirements mentioned above, with much greater detail provided for management and planning.

Summary of the Resource Allocation System

The Resource Allocation System is a land management-planning tool developed in the 1980s, and formalized in the *Integrated Resource Policy (IRP)*, adopted in December 2000. The Resource Allocation System, which assigns appropriate management based on resource characteristics and values, is based on a *hierarchy* of natural and cultural resource attributes found on the land base. The hierarchy ranks resources along a scale from those that are scarce and/or most sensitive to management activities, to those that are less so. The resource attributes are aggregated into seven categories or “allocations,” including (from most sensitive to least sensitive): special protection, backcountry recreation, wildlife management, remote recreation, visual consideration, developed recreation, and timber management.

This hierarchy defines the type of management that will be applied where these resource attributes are found, with *dominant* and *secondary* use or management designations as appropriate to achieve an integrated, multi-use management.

The following is a description of the Resource Allocation System categories applied in this Plan, the management direction defined for each category.

Designation Criteria for Special Protection Areas

- 1. Natural Areas**, or areas left in an undisturbed state as determined by deed, statute, or management plan; and areas containing rare and endangered species of wildlife and/or plants and their habitat, geological formations, or other notable natural features;
- 2. Ecological Reserves**, established by Title 12, Section 1801: "*an area owned or leased by the State and under the jurisdiction of the Bureau, designated by the Director, for the purpose of maintaining one or more natural community types or native ecosystem types in a natural condition and range of variation and contributing to the protection of Maine's biological diversity, and managed: A) as a benchmark against which biological and environmental change can be measured, B) to protect sufficient habitat for those species whose habitat needs are unlikely to be met on lands managed for other purposes; or C) as a site for ongoing scientific research, long-term environmental monitoring, and education.*" Most ecological reserves will encompass more than 1,000 contiguous acres.
- 3. Historic/Cultural Areas** (above or below ground) containing valuable or important prehistoric, historic, and cultural features.

Management Direction

In general, uses allowed in special protection areas are carefully managed and limited to protect the significant resources and values that qualify the areas for this allocation. Because of their sensitivity, these areas can seldom accommodate active manipulation or intensive use of the resource. Recreation as a secondary use is allowed with emphasis on non-motorized, dispersed activities. Other direction provided in the IRP includes:

Vegetative Management on ecological reserves, including salvage harvesting is also considered incompatible. Commercial timber harvesting is not allowed on either ecological reserves or special protection natural areas.

Wildlife management within these areas must not manipulate vegetation or waters to create or enhance wildlife habitat.

Management or public use roads are allowed under special circumstances, if the impact on the protected resources is minimal.

Trails for non-motorized activities must be well designed and constructed, be situated in safe locations, and have minimal adverse impact on the values for which the area is being protected. Trail facilities and primitive campsites must be rustic in design and accessible only by foot from trailheads located adjacent to public use roads, or by water.

Carry-in boat access sites are allowed on water bodies where boating activity does not negatively impact the purposes for which the special protection area was established.

Hunting, fishing, and trapping are allowed where they do not conflict with the management of historic or cultural areas or the safety of other users.

Research, interpretive trails, habitat management for endangered or threatened species, are allowed in special protection natural areas unless limited by other management guidelines.

Designation Criteria for Backcountry Recreation Areas

Relatively large areas (usually 1,000 acres or more) are allocated for backcountry recreational use where a special combination of features is present, including:

Superior scenic quality

Remoteness

Wild and pristine character

Capacity to impart a sense of solitude

Backcountry areas are comprised of two types:

Non-mechanized Backcountry Areas – roadless areas with outstanding opportunities for solitude and a primitive and unconfined type of dispersed recreation where trails for non-mechanized travel are provided and no timber harvesting occurs.

Motorized Backcountry Areas – multi-use areas with significant opportunities for dispersed recreation where trails for motorized activities and timber harvesting are allowed.

Management Direction

Trail facilities and campsites in all backcountry areas will be rustic in design and accessible from trailheads located outside the area, adjacent to management roads, or by water. All trails must be well designed and constructed, situated in safe locations, and have minimal adverse impact on the backcountry values.

Management roads and service roads will be allowed as a secondary use in those backcountry areas where timber harvesting is allowed.

Timber management in motorized backcountry areas will be an allowed secondary use, and will be designed to enhance vegetative and wildlife diversity. Salvage harvesting is allowed in motorized backcountry areas only.

Wildlife management in non-mechanized backcountry areas will be non-extractive in nature.

Designation Criteria for Wildlife Dominant Areas

- 1. Essential habitats** are those regulated by law and currently consist of bald eagle, piping plover, and least tern nest sites (these will usually be categorized as special protection as well as wildlife dominant areas).
- 2. Significant habitats**, defined by Maine's Natural Resource Protection Act, include habitat for endangered and threatened species, deer wintering areas, seabird nesting islands, vernal pools, waterfowl and wading bird habitats, shorebird nesting, feeding, and staging areas, and Atlantic salmon habitat.
- 3. Specialized habitat areas and features** include rare natural communities, riparian areas, aquatic areas, wetlands, wildlife trees such as mast producing hardwood stands (oak and beech), snags and dead trees, den trees (live trees with cavities), large woody debris on the ground, apple trees, and raptor nest trees, seeps, old fields/grasslands, alpine areas, folist sites (a thick organic layer on sloping ground), and forest openings.

Management Direction

Recreation and timber management are secondary uses in most wildlife dominant areas. Recreational use of wildlife dominant areas typically includes hiking, camping, fishing, hunting, trapping, and sightseeing. Motorized trails for snowmobiling and ATV riding are allowed to cross these areas if they do not conflict with the primary wildlife use of the area and there is no other safe, cost-effective alternative (such as routing a trail around the wildlife area). Direction provided in the IRP includes:

Habitat management for wildlife, including commercial and noncommercial harvesting of trees, will be designed to maximize plant and animal diversity and to provide habitat conditions to enhance population levels where desirable.

Endangered or threatened plants and animals – The Bureau will cooperate with the US Fish and Wildlife Service, National Marine Fisheries Service, Maine Department of Inland Fisheries and Wildlife, and Maine Natural Areas Program in the delineation of critical habitat and development of protection or recovery plans by these agencies on Bureau lands.

Timber management as a secondary use in riparian buffers will employ the selection system, retaining all den trees and snags consistent with operational safety. In other wildlife dominant areas it will be managed to enhance wildlife values.

Designation Criteria for Remote Recreation Areas

1. Allocated to protect natural/scenic values as well as recreation values. Often have significant opportunities for low-intensity, dispersed, non-motorized recreation.
2. Usually are relatively long corridors rather than broad, expansive areas.
3. May be a secondary allocation for wildlife dominant areas and special protection – ecological reserve areas.
4. Examples include trail corridors, shorelines, and remote ponds.

Management Direction

Remote recreation areas are allocated to protect natural/scenic values as well as recreation values. The primary objective of this category is to provide non-motorized recreational opportunities, therefore, motorized recreation trails are allowed only under specific limited conditions, described below. Timber management is allowed as a secondary use. Direction provided in the IRP includes:

Trail facilities and remote campsites will be rustic in design and accessible by foot from trailheads, management and/or public roads, or by water.

Existing snowmobile and all-terrain vehicle activity may be continued on well-designed and constructed trails in locations that are safe, where the activity has minimal adverse impact on protected natural resource or remote recreation values, and where the trails cannot be reasonably relocated outside of the area.

New snowmobile or all-terrain vehicle trails are allowed only if all three of the following criteria are met:

- (1) no safe, cost effective alternative exists
- (2) the impact on protected natural resource values or remote recreation values is minimal
- (3) the designated trail will provide a crucial link in a significant trail system

Access to remote recreation areas is primarily walk-in, or boat, but may include vehicle access over timber management roads while these roads are being maintained for timber management.

Designation Criteria for Visual Areas

Many Bureau-managed properties have natural settings in which visual attributes enhance the enjoyment of recreational users. Timber harvests which create large openings, stumps and slash, gravel pits, and new road construction, when viewed from roads or trails, may detract significantly from the visual enjoyment of the area. To protect the land's aesthetic character, the Bureau uses a two-tier classification system to guide management planning, based on the sensitivity of the visual resource to be protected.

Designation Criteria

Visual Class I. Areas where the foreground views of natural features may directly affect enjoyment of the viewer. Applied throughout the system to all shorelines, designated trails, and designated public use roads.

Visual Class II. Include views of forest canopies from ridge lines, the forest interior as it fades from the foreground of the observer, background hillsides viewed from water or public use roads, or interior views beyond the Visual Class I area likely to be seen from a designated trail or public use road.

Visual Class I Management Direction:

Timber harvesting is permitted under stringent limitations directed at retaining the appearance of an essentially undisturbed forest.

Openings will be contoured to the lay of the land and limited to a size that will maintain a natural forested appearance.

Within trail corridors or along public use roads it may be necessary to cut trees at ground level or cover stumps.

Branches, tops, and other slash will be pulled well back from any trails.

Scenic vistas may be provided.

Visual Class II Management Direction:

Managed to avoid any obvious alterations to the landscape.

Openings will be of a size and orientation as to not draw undue attention.

Designation Criteria for Developed Recreation Areas

Developed class I areas are low to medium density developed recreation areas, while developed class II areas have medium to high density facilities and use such as campgrounds with modern sanitary facilities.

Class I Developed Recreation Areas

1. Typically include more intensely developed recreation facilities than found in Remote recreation areas such as:
 - drive-to primitive campsites with minimal supporting facilities;
 - gravel boat launch areas and parking areas;
 - shared use roads and/or trails designated for motorized activities; and
 - trailhead parking areas.
2. Do not usually have full-time management staff.

Management Direction

Developed recreation areas allow a broad range of recreational activities, with timber management and wildlife management allowed as secondary uses. Direction provided in the IRP includes:

Timber management, allowed as compatible **secondary use**, is conducted in a way that is sensitive to visual, wildlife and user safety considerations. Single-age forest management

is not allowed in these areas. Salvage and emergency harvests may occur where these do not significantly impact natural, historic, or cultural resources and features, or conflict with traditional recreational uses of the area.

Wildlife management may be a compatible **secondary use**. To the extent that such management occurs, it will be sensitive to visual, and user safety considerations.

Visual consideration areas are often designated in a buffer area surrounding the developed recreation area.

Designation Criteria for Timber Management Areas

1. Area meets Bureau guidelines as suitable for timber management, and is not prohibited by deed or statute.
2. Area is not dominated by another resource category. Where other uses are dominant, timber management may be a secondary use if conducted in a way that does not conflict with the dominant use.

Management Direction

The Bureau's timber management practices are governed by a combination of statute and Bureau policy, including but not limited to policies spelled out in the IRP. These general policies include:

Overall objectives: The Bureau's overall timber management objectives are to demonstrate exemplary management on a large ownership, sustaining a forest rich in late-successional character and producing high value products (chiefly sawlogs and veneer) that contribute to the local economy and support management of public reserved lands, while maintaining or enhancing non-timber values (secondary uses), including wildlife habitat and recreation.

Forest certification: Timber management practices (whether as a dominant or secondary use) meet the sustainable forestry certification requirements of the Sustainable Forestry Initiative, and the Forest Stewardship Council.

Roads: Public use, management, and service roads are allowed. However, the Bureau, in practice, seeks to minimize the number of roads to that needed for reasonable public vehicular access or timber harvesting.

Recreational use: Most recreational uses are allowed but may be subject to temporary disruptions during management or harvesting operations. The Bureau has latitude within this allocation category to manage its timber lands with respect to recreational opportunities. It may, through its decisions related to roads, provide varying recreational experiences. Opportunities for hiking, snowshoeing, backcountry skiing, horseback riding, bicycling, vehicle touring and sightseeing, snowmobiling, and ATV riding all are possible within a timber management area, but may or may not be supported or feasible, depending on decisions related to creation of new trails, or management of existing roads and their accessibility to the public.

In addition, the IRP provides the following specific direction for timber management:

Site suitability: The Bureau will manage to achieve a composition of timber types that best utilize each site.

Diversity: For both silvicultural and ecological purposes, the Bureau will maintain or enhance conditions of diversity on both a stand and wide-area (landscape) basis. The Bureau will manage for the full range of successional stages as well as forest types and tree species. The objective will be to provide good growing conditions, retain or enhance structural complexity, maintain connectivity of wildlife habitats, and create a vigorous forest more resistant to damage from insects and disease.

Silvicultural systems: A stand will be considered single-aged when its tree ages are all relatively close together or it has a single canopy layer. Stands containing two or more age classes and multiple canopy layers will be considered multi-aged. The Bureau will manage both single- and multi-aged stands consistent with the objectives stated above for diversity; and on most acres will maintain a component of tall trees at all times. Silvicultural strategy will favor the least disturbing method appropriate, and will usually work through multi-aged management.

Location and Maintenance of Log Landings. Log landings will be set back from all roads designated as public use roads. Off-road yarding may be preferable along all gravel roads, but the visual intrusion of roadside yarding must be balanced with the increased soil disturbance and loss of timber producing acres resulting from off-road spurs and access spurs. All yard locations and sizes will be approved by Bureau staff prior to construction, with the intention of keeping the area dedicated to log landings as small as feasible. At the conclusion of operations, all log landings where there has been major soil disturbance will be seeded to herbaceous growth to stabilize soil, provide wildlife benefits, and retain sites for future management need.

The following is a summary of the total acres applied to each resource allocation in the Bureau lands of the Eastern Interior Region.

Eastern Interior Region Dominant Resource Allocations Acreages

Dominant Allocation	Acres
Special Protection	8,613
Backcountry Recreation	0
Wildlife	22,143
Remote Recreation	307
Developed Recreation Class I	98
Timber Management	25,160

Forest Certification

In 1999 the Bureau made the decision to demonstrate exemplary forest management through participation in two nationally recognized sustainable forestry certification programs. The Bureau was awarded certification of its forestlands under the Sustainable Forestry Initiative (SFI) and the Forest Stewardship Council (FSC) programs in 2002. These third-party audits were conducted to determine if these lands were being managed on a sustainable basis. Successful completion of the FSC/SFI systems also qualified the Bureau to enter into the “chain of custody” program to market its “green-certified” wood. The process for enrollment in this program was completed in 2003, with certified wood now being marketed from Bureau managed lands.

The process for conducting the SFI and FSC audits was rigorous and unique in that the Bureau underwent the two audit programs simultaneously. The audit was comprised of a field analysis of forest management practices at selected sites around the state, and an analysis of the Bureau's financial, personnel, policy development, and record-keeping systems. A Bureau-wide certification team was implemented to address “conditions” and “minor non-conformances” stipulated in the audit reports, including: significant enhancements to forest inventory data, development of a computerized forest-modeling program, a timeline for updating management plans for the entire land base, improvements in the use of Best Management Practices to protect water quality, and new commitments to public outreach and education programs. The Bureau is required to meet these conditions within certain timeframes in order to keep its certification status in good standing over the five-year certification period.

In 2006, the Bureau hosted its first full recertification by FSC, concurrently undergoing its first surveillance audit by SFI, the latter now required under SFI's updated standards. The Duck Lake Unit, Bradley Unit, and several small lots within the Eastern Interior Region were host to various components of the certification field audits between 2001 and 2006. Although the field portion took place during and immediately after a heavy November rainstorm, Best Management Practices implemented on Bureau lands were working well, and certifiers for both systems were very pleased with Bureau silviculture at all sites visited. As is usually the case, there were several conditions (now called Corrective Action Requests, or CARs) made by each certification system, which the Bureau will need to satisfy as it continues to improve its forest management which has already been certified as being exemplary. Subsequent compliance audits took place in the summer of 2007 and 2008. The outcome of those compliance audits was to award unconditional certification to the Bureau, with no CARs indicated.

Ecological Reserves

The Maine Forest Biodiversity Project (MFBP) was formed in 1994 to explore and develop strategies to help maintain Maine's existing native species and the ecosystems that contain them. The MFBP was a consensus-based collaborative effort involving approximately one hundred individuals representing a diverse spectrum of interests and opinions: landowners, sportsmen, educators, advocates for property rights, foresters, wildlife and land conservation professionals, and representatives of the scientific community, state and federal agencies, and the business community. The inventory of potential ecological reserves conducted by the MFBP took place between January 1995 and October 1997, with guidance from a twenty-member scientific advisory panel.

To fulfill the legislative intent, these ecological reserves were established as 1) benchmarks against which biological and environmental change could be measured; 2) habitats adequate to maintain viable populations of species whose habitat needs are unlikely to be met on other lands; and 3) sites for scientific research, long-term environmental monitoring, and education. In addition, public access, hunting, and fishing are among the allowed uses on ecological reserves. The ecological reserves include many of Maine's best examples of alpine meadows, lakes and streams, and old growth forests.

Beginning in 2002, the Department of Conservation worked with a multi-disciplinary committee to draft an *Ecological Reserve Monitoring Plan* to guide periodic data collection at the landscape, stand, and species levels. The monitoring program is tied closely to other statewide and nationwide forest monitoring programs that use U.S. Forest Service Forest Inventory and Analysis (FIA) methods. To date, 387 permanent monitoring plots have been established on 12 Ecological Reserves, with ongoing monitoring work increasing the number of plots each year. The long-term monitoring program and the value of ecological reserves to this program have been recognized as models for public lands throughout the northeast.

Based on the work by the MFBP the Maine Legislature in 2000 authorized the designation of ecological reserves on Department of Conservation lands, and 68,974 acres were designated by the Bureau of Parks and Lands Director at that time. In the Eastern Interior region, 3,870 acres of Public Reserved lands were designated as ecological reserves by the Director on the Duck Lake Unit. Two other ecological reserve areas (totaling 2,780 acres) were subsequently deeded to the state as part of the Machias River acquisition project and have since been added to the existing Duck Lake Unit between Fourth and Fifth Machias Lakes. These ecological reserve areas will be described in more detail in the Duck Lake Unit section of this Plan.

III. The Planning Context

Eastern Interior Region Plan Area - Overview

This management plan region is interior to the Bureau's Downeast Management Plan region. Its western boundary is roughly the Penobscot River, and it extends east to the Canadian border. The region's southern boundary is roughly Route 9 and it extends northward to include the southern portion of Aroostook County. The region is well known for its abundance of lakes, rivers and extensive wetlands, as well as large blocks of un-fragmented forested areas. The region's economy is tied to these natural resources.

Most of the Plan area is within the Eastern Lowlands biophysical region. The landscape is one of low relief, with elevations ranging from 200 to 600 feet - with the exception of a few taller hills, especially near West Grand Lake. Its many lakes, rivers and associated wetlands are the hallmark features that characterize the region. The region contains the largest concentration of peatlands, marshes, and swamps in Maine, with ten percent of the state-owned lands categorized as wetlands. Of significance are the large peatlands found in the Bradley Unit and a substantial sedge meadow on the Codyville Public Lot. Forest types in this region range from dry pine and intolerant hardwood communities to semi-rich hardwoods (MNAP, 2007).



Gassabias Lake and adjoining swamp

The climate is transitional, between that of coastal areas and the more continental climate of regions to the north and west. Mean maximum July temperature is 79° F and mean minimum January temperature is 3° F. Average annual precipitation is 46 inches, slightly higher than the state average. Precipitation decreases and snowfall increases from east to west. Snowfall varies from an annual average of 70 inches in the east to 100 inches in the west (MNAP, 2007).

Geology and Soils within the Region

According to Bob Marvinney, Maine State Geologist, the geological history of the region extends from Precambrian through Triassic times and the initiation of spreading of the modern Atlantic Ocean. Several terranes (small continents) of older rocks with largely independent histories are now coalesced in eastern coastal Maine and partially obscured by sedimentary rocks deposited in younger basins. The older rocks (Cambrian-Ordovician; 543-443 million years ago) consist largely of feldspar-rich schist and volcanically derived rock.

Obscuring the bedrock geology throughout the region is a thick sequence of glacial units, deposited during both the advance and melting of the last great ice sheet. Much of the landscape is covered in till dating from this time. Other glacial features include eskers, such as those running through the Duck Lake Unit, which were formed by water flowing through tunnels in the glacier, depositing coarse sediment. Scouring of thick glacial ice is responsible for rounding hills and carving lake basins throughout the region. Soils in the region are heavily influenced by this glacial history and tend to be coarse, and well drained. The water bodies on state lands within the region drain to the Downeast rivers, including the St. Croix, Machias, and Penobscot Rivers.

The Forest Landscape within the Region

The Eastern Interior region is characterized by relatively young mixed wood forests with a history of fire, budworm damage, and timber harvesting. Forests on the state-owned parcels are 50% softwood, 31% mixed-wood, and 19% hardwood. These percentages are similar to the forests in the Eastern Lowlands biophysical region in general. Statewide, Maine's forests tend to be more balanced between the three forest categories. The prevalence of softwood in the Eastern Interior region can be explained in part by its relatively poor, acidic soils, the prevalence of forested wetlands, and the history of disturbance in the region. Forest types on the state-owned lands range from the dry pine and intolerant hardwood communities at Duck Lake to pockets of semi-rich hardwoods in Codyville and Molunkus.

Fire, often started by lightning strikes, continues to be a significant influence on the natural communities in this region. Fire adapted systems, such as red pine forests, occur on thin soils, eskers, and glacial outwash sands in the region. Red pine cones can withstand high heat, and the seeds germinate on the newly exposed mineral soil, creating even-aged, uniform stands of red pine. As the trees mature, a thick layer of dry duff accumulates on the forest floor, priming the area for another fire. Examples of this community type can be found on the Duck Lake Unit and along Fifth Lake Stream.

The region also experienced heavy spruce budworm damage during the late 1970s and early 1980s. The Eastern Lowlands biophysical region is 44% spruce/fir forest compared with a statewide average of 32%, and this area was disproportionately affected by the budworm outbreak. Throughout eastern Maine, salvage harvests took place in response to this outbreak (MNAP, 2007).

Fisheries and Wildlife Resources within the Region

The presence of numerous sporting lodges and private camps attest to the area's long-standing four-season popularity for fishing, hunting, trapping, and boating – and more recently snowmobiling and ATVing. The Grand Lake Stream region and St. Croix watershed boasts the most concentrated number of Registered Maine Guides in the state. Abundant in the watershed are landlocked salmon, square-tailed trout, lake trout and some of the best small-mouthed bass fishing in Maine. As soon as the ice is out in the spring, trolling is occurs on waters such as West Grand Lake, Big Lake, and Pocumcus Lake. Grand Lake Stream itself is one of the most renowned fly fishing streams for landlocked salmon in the country (GLSGA, 2008). The importance and uniqueness of certain fisheries and wildlife habitat in the Eastern Interior region has led to various conservation initiatives and land acquisition projects involving a variety of local, non-profit, state, and federal interests and partners, described below.

Atlantic Salmon Habitat Protection (Maine Department of Marine Resources (DMR), Bureau of Sea Run Fisheries and Habitat (BSRFH)). In and abutting the Eastern Interior region are a number of rivers which have been the focus of Atlantic salmon restoration and protection efforts. Atlantic salmon within the Machias River are part of the Gulf of Maine Distinct Population Segment (DPS) that is listed as Endangered under the Federal Endangered Species Act. The “Final Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon (*Salmo salar*)” is the current management guidance document (see http://www.nefsc.noaa.gov/salmon/pic's/E-Library_keydocuments/Final_ATS_plan.pdf). On an annual basis, staff perform redd counts to assess returning adults, stocking fry, conduct electrofishing surveys to monitor abundance of Atlantic salmon juveniles, perform habitat surveys, and monitor temperatures at six locations throughout the drainage. Additional special projects include evaluating the effectiveness of stocking sexually mature adults into predefined reaches including Mopang Stream, using leaf processing to compare productivity between higher and lower juvenile salmon producing locations in two streams in the Machias River drainage, evaluating upstream movement of stocked fry, working with project partners such as Project SHARE to replace failing culverts with bottomless structures, and adding large woody debris to a 400 meter-long reach of Dead Stream to increase complexity.

A major conservation initiative along the Machias River has resulted in part due to the river's importance to the endangered Atlantic salmon. The Bureau has participated in this conservation initiative along with the BSRFH, The Nature Conservancy (TNC), Downeast Lakes Land Trust (DLLT), and many federal, state and private funders. The project has been implemented in three phases, with Phases I and II resulting in significant additions to the Bureau's Duck Lake Unit, and a brand new unit along the Machias River. These will be discussed in the Duck Lake and Machias River Unit specific sections of this Plan. The Machias River project has also resulted in a conservation easement along most of the Machias River corridor from Third Machias Lake to the ocean. The entire project, when complete, will protect 86 percent of the Atlantic salmon habitat within the Machias River system, which covers 20 percent of the entire wild Atlantic salmon in the United States. Phase III of the project, which will include a Bureau held conservation easement on the land area between Fifth and Second Lakes, and a fee ownership of the Wabassus Lake Forest by DLLT (with a Bureau held easement), is still pending.

The BSRFH and the Bureau of Parks and Lands have entered into a Memorandum of Understanding for management of fee and easement lands along the shores of the Machias River Corridor (see Appendix E).

Operational Plan for the Penobscot River

As part of ongoing planning effort for the Penobscot River, Blackman Stream and Chemo Pond have been identified as Phase 1 lakes for alewife restoration. The project includes exploring options to get passage for alewives both up and downstream. The Passadumkeag River, (which flows into the Penobscot River) to which Nicatous Lake and Stream are tributaries, is identified as a low priority for Atlantic salmon as it has multiple non-native species. However, as part of the operational plan, its potential for other diadromous species will be assessed (see <http://mainegov-images.informe.org/dmr/searunfish/reports/PenobscotPlanMarch2008.pdf>). The operational plan should be completed by March 2009.

State Wildlife Management Areas (WMA)

Within the Eastern Interior region, the Maine Department of Inland Fisheries and Wildlife (IF&W) operates three wildlife management areas. The primary objective for each IF&W owned wildlife management area is to maintain or create the highest quality upland or wetland wildlife habitats possible. This is accomplished by employing management techniques designed to utilize existing habitat types either to benefit the greatest variety of wildlife, or to provide an important habitat for a specific or "featured" species.

Dwinal Flowage WMA (1,985 acres) is located in Lee and Winn and consists mainly of impounded freshwater wetlands which support a seasonal brook trout fishery. The flowage is accessible by canoe and is open to trapping and hunting for all legal species.

Clayton's copper butterfly is a highly restricted subspecies of butterfly, which is a state listed endangered species. Shrubby cinquefoil, the host plant for the caterpillar, is abundant on the flowage. Dwinal Pond is the largest of 11 known locations with populations of Clayton's coppers in Maine.

Forest City WMA (650 acres) is also known as the Booming Ground Wildlife Management Area. It is located in the northeastern part of Forest City Township, Washington County, Maine, and is composed primarily of a peninsula formed by the dammed waters of the St. Croix River. It is bounded on the east by Spednik Lake and on the west by Mud Lake. An additional tract of wetland south of Mud Lake forms the remainder of the 650-acre wildlife management area. This WMA is mostly upland with some wetland bordering Spednik Lake. There is no water access on the property. Recreational use is limited to hunting, trapping, and wildlife watching. This area is also productive for eagles and moose. The upland portion of the WMA is a candidate ecological reserve.

Mattawamkeag River System WMA (6,625 acres) is within Drew Plantation, Webster Plantation and Kingman Township and closely borders the Mattawamkeag River. Recent acquisitions connected three contiguous parcels which now comprise this WMA. It contains a mix of wetlands, lowland conifer, shrub and peatland habitats. It's accessible by boat for its warm and cold water fisheries. Ice fishing and wildlife watching are also popular here. The former

Mattagodus Meadows WMA is now part of this larger WMA and consists of forested uplands and various wetland types. Some of these wetland areas include rare calcareous fens.

There are six federal or state listed threatened or endangered species inhabiting or associated with the Mattawamkeag River System WMA. IF&W has documented the occurrence of the sedge wren, a state listed endangered species; Tomah mayfly, a state listed threatened species; Clayton's copper butterfly, a state listed endangered butterfly; the bald eagle, a state and federally listed threatened species; the yellow lamp mussel, a state listed threatened mussel; and Atlantic salmon.

A portion of this WMA is a candidate ecological reserve.

National Wildlife Refuges

The *Sunkhaze Meadows National Wildlife Refuge* is located in the Town of Milford, approximately fourteen miles north of Bangor. The Refuge was established in 1988 to ensure the ecological integrity of the Sunkhaze Meadows peat bog and the continued availability of its wetland, stream, forest and wildlife resources to the citizens of the United States. The purpose of acquisition, under the authority of the Fish and Wildlife Act of 1956 was "... for the development, advancement, management, conservation, and protection of fish and wildlife resources ..." and "... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude" The Land and Water Conservation Fund was the source of funding for the purchase.

The Refuge protects the second-largest and most unique peatland in Maine. It contains several raised bogs or domes, separated from each other by extensive areas of streamside meadows. Sunkhaze Stream bisects the Refuge along a northeast to southwest orientation and with its six tributaries, creates a diversity of wetland communities. The bog and stream wetlands, along with the adjacent uplands and associated transition zones, provide important habitat for many wildlife species. The wetland complex consists primarily of wet meadows, shrub thickets, cedar swamps, extensive red and silver maple floodplain forests and open freshwater stream habitats, along with those plant communities associated with peatlands such as shrub heaths and cedar and spruce bogs.

Sunkhaze Meadows National Wildlife Refuge provides habitat for three plants, seven birds, two mollusks and three invertebrates listed as endangered or threatened by the state of Maine.

Historic and Cultural Resources within the Region

The lands of the Eastern Interior region have long been prized for their recreation and timber values. Most of the area has an extensive history of timber harvesting. Historically, softwoods have been favored, including hemlock which was heavily harvested for its bark to supply local tanneries beginning in the mid-1800s. Lumber was moved down the Machias River, the St. Croix River and others in the famous log drives that ended in the 1960s. Lumber was moved down river to Machas, Jonesboro, and other coastal towns to be shipped to Boston, New York and other ports. Sporting camps and guiding are a significant part of the history (and present) of this region. Today, the Grand Lake Stream area contains the highest concentration of Registered Maine Guides in the state. The guiding tradition began as early as the 1850s with fishermen

staying in tents along the stream and employing Native American guides. Over the years, people opened their homes periodically for sportsmen visitors, and boarding houses and sporting camps were built. Some of the original sporting camps are still in operation. Landlocked salmon and smallmouth bass fishing as well as hunting attracted visitors in large numbers by railroad and steamer. The “square stern canoe” known as the “Grand Laker” was invented in Grand Lakes Stream in 1923. (Weatherby’s, 2009)

Periodic finds of arrowheads and spearheads indicate pre-historic Native American land use along major ponds and river corridors in the region. Archeological findings have discovered people of the Laurentian Tradition may have inhabited the region as early as 6,000 BP (Judd et al., 1995). The region includes lands in both the Penobscot and St. Croix river drainages, which include the ancestral lands of the Penobscot Indian Nation and the Passamaquoddy Tribe. The Penobscot and Passamaquoddy people, though populations were severely diminished by war and disease following European arrival, still hold a strong presence and in the Eastern Interior region today. Both the Penobscots and Passamaquoddies hold land in the region today, with the Passamaquoddy Reservation in Oqiton Township abutting the Bureau’s Duck Lake Unit to the north.

Of more recent origin, old cellar holes are common in the Eastern Interior region, especially on many of the smaller state-owned parcels, many of which were treated as “poor farms” for destitute residents. Farming conditions on these lots were typically challenging due to the rocky, sandy, or wetland soil types and their subsequent low nutrient values.

Within this region, the Bureau manages one State Historic Site owned by the Bureau of Parks and Lands - *Bible Point*. This 27-acre property is located at the south end of Mattawamkeag Lake. The site was made famous by Teddy Roosevelt who visited the area beginning in 1878. As a young man under the guidance of his lifelong friend and guide Bill Sewall, Roosevelt camped at the southern end of Mattawamkeag Lake and hunted and fished throughout the area. It was reported that each day, Roosevelt would hike to a beautiful point of land at the confluence of the West Branch of the Mattawamkeag River and First Brook where he would read the bible. A plaque at the site commemorates Roosevelt's love for the area. It was erected in 1921 by Roosevelt biographer Hermann Hagedorn and it reads:

“This place, to which a great man in his youth liked to come to commune with God and with the wonder and beauty of the visible world, is dedicated to the happy memory of THEODORE ROOSEVELT. Stranger, rest here and consider what one man, having faith in the right and love for his fellow man was able to do for his country.”

Recreation Resources within the Region

Spednic Lake-St. Croix River Waterway

This spectacular corridor is located on the U.S./Canada border between the State of Maine and Province of New Brunswick. The Upper St. Croix was recognized as one of state’s twenty outstanding rivers in the 1982 Maine Rivers Study. As one of the most undeveloped major river corridors in the northeastern United States, it is a favorite destination for families and outdoor groups seeking a near -wilderness setting and wildlife viewing opportunities. Nearly 5,000

people paddle it each year, though the river feels un-crowded because of its constant turns through an unspoiled landscape. Recreation on this waterway is managed by the St. Croix International Waterway Commission. The Bureau manages river access points at Vanceboro, Little Falls from the Salmon Brook Road, and Loon Bay near the southern end of the corridor. Limited facilities are available at these locations for hand carry boat launching, day use, and camping.

Spednic Lake was identified as Maine's third largest undeveloped lake in the 1987 Maine Wildland Lakes Assessment. Its stunning landscape, created by retreating glaciers, attracts naturalists and canoeists. The lake supports one of Maine's last remaining native landlocked salmon fisheries and some of the best smallmouth bass habitat in the North America. The St. Croix also supports a recovering population of Atlantic salmon and is the site of international research on this species. The lake and river corridor provide a principal breeding ground for the region's bald eagle population and contain a number of rare plant habitats and old growth tree stands.

The Machias River Trip

In its entirety, the Machias River offers 76 miles of paddling from Fifth Machias Lake to the sea. A mix of smooth water, lakes, riffles, rapids, and technical ledge drops, the Machias has long been a lure to canoeists. Additionally, a variety of access points enable paddlers to run select portions of the trip, as opposed to the entire route.

Contained within the Eastern Interior region is the upper 40 mile portion, from Fifth Machias Lake to just below the Route 9 Bridge in T31 MD BPP. Included in this half of the river are Fifth, Fourth, Third, Second, and First Machias Lakes, Fifth and Fourth Lake Streams, and the approximately 16.5 mile section of the Machias River from the outlet of Third Lake to the Route 9 Bridge. This stretch of lake and river paddling courses through undeveloped forestlands and scenic shorelines. The Bureau owns much of the land along the route, and maintains several campsites. A majority of those sites are accessible by car (as well as by water), while some are accessed only by water. See Machias River Unit section of this Plan for recreational management recommendations on these lands.

The upper half of the Machias River, which is the half pertinent to this Plan, presents paddlers with conditions ranging from lake and flatwater paddling up to and including Class III whitewater.

Other Paddling Routes Associated with the Machias River

Gassabias Lake, within the Duck Lake Unit, provides a link between 5,212-acre Nicaous Lake and Fourth Machias Lake. Gassabias Stream flows between Gassabias and Nicaous Lakes. Heading eastward from the northeast shore of Gassabias Lake, there is a primitive portage path (a traditional Native American travel route between the Penobscot and Machias River watersheds). The Gassabias Portage is a little over two miles in length leading to Fourth Machias Lake. The resulting opportunity therefore, is that paddlers can extend their trips to include not only the Machias River but also scenic Nicaous Lake (on the shore of which the Bureau maintains primitive campsites).

Third Machias Lake can be paddled as part of a loop trip involving several lakes. The loop trail travels north from Third Machias to the Getchel Lakes and Wabassus Lake, to Pocumcus Lake, a portage across the Dobsis Dam to Sysladobsis Lake, and southward to Forth Machias Lake. The majority of land surrounding this route is owned by either the Bureau or DLLT, and both organizations provide water access campsites along the route.

Other Paddling Opportunities Involving Public Lands in the Eastern Interior Plan

The Mattawamkeag River provides another opportunity for an extended canoe trip in the region. The Mattawamkeag River trip can be undertaken in such a way as to allow a ninety mile route beginning at Fish Stream in Patten and ending at the confluence with the Penobscot, in the Town of Mattawamkeag.

Water-accessed campsites for this river trip are available on Bureau-owned lands or easement parcels at the southern outlet of Mattawamkeag Lake, where the West Branch of the Mattawamkeag River continues on towards Rt. 2A in Haynesville. The paddling distance from Island Falls to Rt. 2A in Haynesville is 24.5 miles, with a combination of lake and flatwater paddling and a few Class I and II rapids. The Bureau is in the process of developing additional campsites on its lands approximately half way along this 24 mile route.

Motorized Trail Opportunities

Motorized trail opportunities, primarily for ATV riding and snowmobiling, are an important and economically significant recreational resource within the Plan area. Eighteen local snowmobile clubs and thirteen ATV clubs, along with the Bureau’s Off Road Vehicle (ORV) Division, provide for the ongoing management and maintenance of this system, which includes approximately 1600 miles of snowmobile trails and significant east-west and north-south portions of the ITS (Interconnected Trail System), and several hundred miles of local and main artery ATV trails. Most of this system exists on private lands, with lesser sections located on state-owned lands and conservation easements. The ORV Division has a staff member who works on multiple use trails in the Downeast Region and also maintains a groomer and operator at its Beddington facility for maintenance of significant sections of ITS 81. Of importance to the ongoing success of the ORV program are the numerous partnerships with private landowners, including GMO (American Forest Management), Wagner Forest Management, Gardiner Land Company, H.C. Haines, Robbins Lumber, the Penobscot and Passamaquoddy Indian nations, and numerous smaller land owners. The ORV Division has also partnered with Project SHARE and Atlantic salmon interests in meeting stream crossing standards, including spending over \$250,000 in restoration and trail relocation projects.

Public Boat Access

The numerous boating facilities providing access to the waters of Eastern Interior Maine are important to the region’s economy and way of life.

State-assisted or State-owned Boat Sites near Eastern Interior Bureau Land Units

Waterbody	Minor Civil Division	County	Ramp Type	Notes
MOPANG LAKE	DEVEREAUX TWP	WASHINGTON	TRAILER	PRIMITIVE
PLEASANT RIVER LAKE	DEVEREAUX TWP	WASHINGTON	TRAILER	PRIMITIVE
PLEASANT RIVER LAKE	BEDDINGTON	WASHINGTON	TRAILER	PRIMITIVE
WEST GAND LAKE	GRAND LAKE STREAM	WASHINGTON	TRAILER	

WEST LAKE	T2 ND	HANCOCK	TRAILER	
SYSLADOBSIS LAKE	LAKEVILLE PLANTATION	PENOBSCOT	TRAILER	
LOWER LEAD MOUNTAIN POND	T28 MD	HANCOCK	TRAILER	PRIMITIVE
UPPER LEAD MOUNTAIN POND	T28 MD	HANCOCK	TRAILER	PRIMITIVE
FIRST CHAIN LAKE	T26 ED BPP	WASHINGTON	HAND CARRY	
PENNIMAN POND	T26 ED BPP	WASHINGTON	HAND CARRY	
SPEDNIC LAKE	VANCEBORO	WASHINGTON	TRAILER	
MEDDYBEMPS LAKE	MEDDYBEMPS	WASHINGTON	TRAILER	
LEWEY LAKE	PRINCETON	WASHINGTON	TRAILER	
LONG LAKE	PRINCETON	WASHINGTON	TRAILER	Greenland point
POCOMOOSHINE LAKE	PRINCETON	WASHINGTON	TRAILER	
GRAND FALLS FLOWAGE	BAILEYVILLE	WASHINGTON	TRAILER	
ST CROIX RIVER	BAILEYVILLE	WASHINGTON	TRAILER	

Boating Facilities on Eastern Interior Bureau Lands

Waterbody	Minor Civil Division	Lands Unit	County	Ramp Type	Notes
DUCK LAKE	T4 ND	Duck Lake	Hancock	Trailer	Primitive
MIDDLE UNKNOWN LAKE	T4 ND	Duck Lake	Hancock	Hand Carry	
LOWER UNKNOWN LAKE	T4 ND	Duck Lake	Hancock	Hand Carry	
GASSABIAS LAKE	T41 MD	Duck Lake	Hancock	Hand Carry	
THIRD MACHIAS LAKE	T43 MD BPP	Machias River	Washington	Trailer	Outlet, Primitive
THIRD MACHIAS LAKE	T43 MD BPP	Machias River	Washington	Trailer	Midlands, Primitive
SECOND MACHIAS LAKE	T37 MD BPP	Machias River	Washington	Hand Carry	
MACHIAS RIVER	T30 MD BPP	Machias River	Washington	Hand Carry	Wonderland CG
SALMON POND	T30 MD BPP	Machias River	Washington	Trailer	Primitive
MACHIAS RIVER	T31 MD BPP	Machias River	Washington	Hand Carry	
FIFTH LAKE STREAM	T41 MD	Machias River	Hancock	Hand Carry	Fifth Machias Lake
ST CROIX RIVER	LAMBERT LAKE TWP	St Croix River Parks	Washington	Trailer	Little Falls, Primitive
ST CROIX RIVER	LAMBERT LAKE TWP	St Croix River Parks	Washington	Trailer	Porters Meadow, Primitive
ST CROIX RIVER	Dyer Twp	St Croix River Parks	Washington	Trailer	Loon Bay, Primitive

Within the public lands in the Eastern Interior region, there are seven hand carry boat launching sites and seven trailerable boat sites as shown in the table above. All of the trailerable ramps are gravel surfaced and considered “primitive,” meaning the ramps are not constructed to industry standards and may not be suitable for more than small trailered or hand carry boats.

There are a number of lakes within the Plan area on the DOC boating access priority list, including Fourth Machias Lake, Upper Chain Lake, Lower Pistol Lake, Nicatous Lake, Lower Sabao Lake, Clifford Lake, Crawford Lake, and Wabassus Lake. This list is derived from the *1995 Department of Conservation/Department of Inland Fisheries and Wildlife Strategic Plan for Providing Public Access to Maine Waters for Boating & Fishing*, Appendix B-4. These lakes are listed as priorities because they are at least 500 acres in size, have inadequate public recreational boating access, and/or were identified in one of two boater surveys or by IF&W staff as needing better access. Generally, if a lake is listed as a priority, it may qualify for Boating Facility Funds for acquisition and development of a trailerable boat access site and for Land for Maine’s Future Funds for acquisition of a water access site.

Regional Conservation Efforts

Several important land conservation initiatives have taken place over the past several years in an effort to preserve and sustain the natural resource and cultural characteristics of this region. These initiatives involve partnerships of local, regional, state, and federal organizations, including public, private and non-profit organizations, resulting in large-scale acquisition of lands and conservation easements. The result is an evolving matrix of public and private conservation lands that complement one another to sustain the natural, cultural, economic and recreational resources of the region. The Bureau has been and will continue to be a partner in many of the conservation projects in the region, and will consider the broader context of these projects when planning for the management of its fee lands.

St. Croix River Waterway

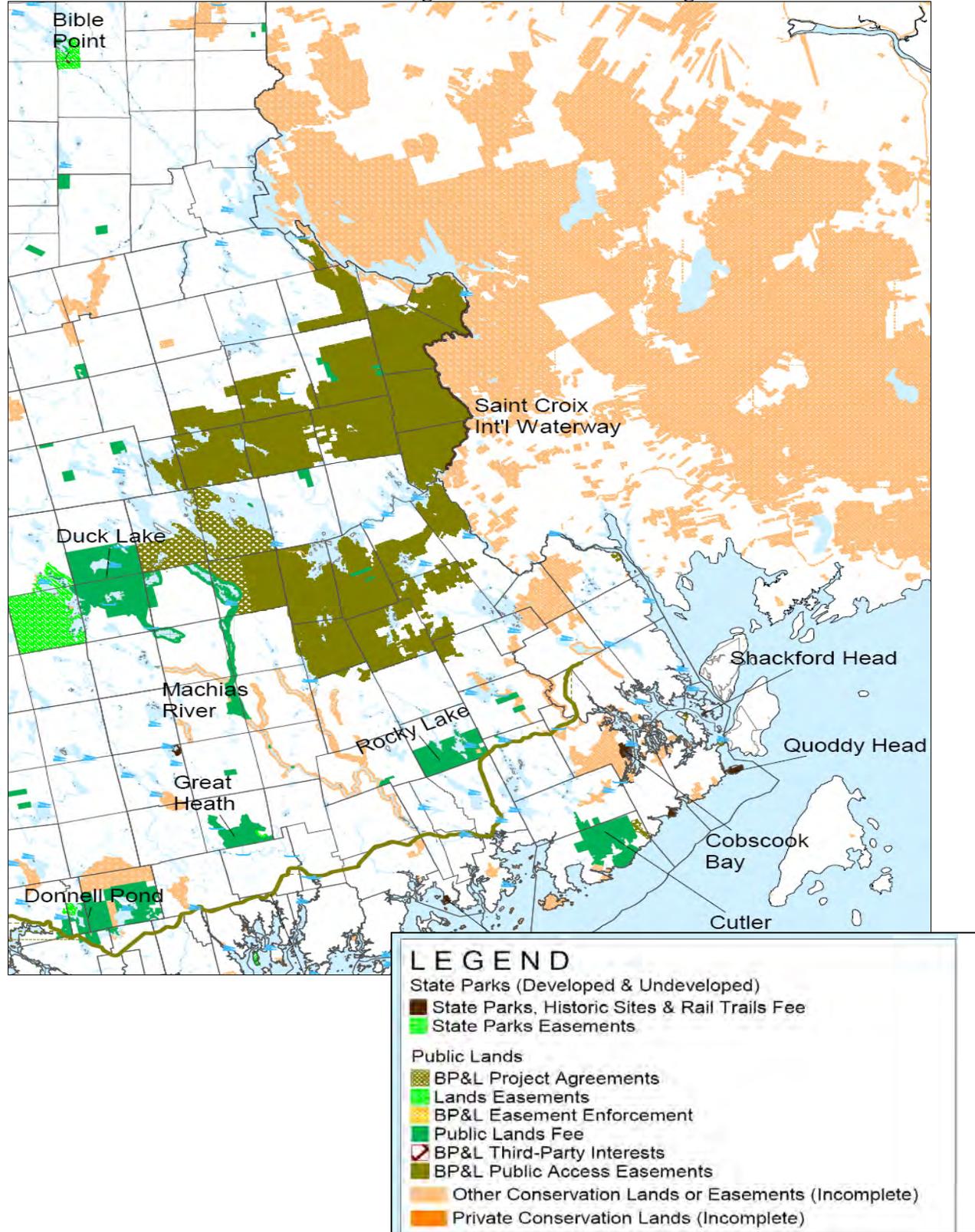
In 1994, by Executive Order, the governments of Maine and New Brunswick generated a long-term plan for the entire St. Croix waterway that included permanent protection of the Spednic and Upper St. Croix River area, one of the most pristine stretches of boundary water in eastern North America. Over the last decade, the two governments have made progress toward this goal through a series of acquisitions and easements, actively supported by the Woodie Wheaton Land Trust, the New England Forestry Foundation, Downeast Lakes Land Trust, and the St. Croix International Waterway Commission, among others.

In the 1990s, Maine protected twenty miles of Spednic Lake shoreline and a number of islands through a series of acquisitions and easements. New Brunswick acquired nearly all of the Canadian side of the lake and river, created an 11-island ecological reserve on the river, and more recently designated a 100-square mile area beside Spednic Lake as a provincial Protected Natural Area. The New Brunswick side of the St. Croix waterway is one of Canada's twenty six Canadian Heritage Rivers.

On the Maine side of the border, in the most recent acquisition completed in 2004, the New England Forestry Foundation (NEFF), Downeast Lakes Land Trust, and partners raised more than \$2.5 million for the public acquisition of a 500-foot, 50-mile conservation corridor on the upper St. Croix River and Spednic Lake. (This was the first phase of the Downeast Lakes Forestry Partnership, a partnership formed by the above mentioned organizations aimed at protecting lands in the Downeast Lakes region). The 34-mile upper St. Croix River corridor, from Vanceboro to Grand Falls Flowage, including several islands, is now managed as a recreational waterway by the Bureau of Parks and Lands through an agreement with the St. Croix International Waterway Commission. A shoreland corridor along 16 miles of Spednic Lake is managed by IF&W primarily for wildlife. The Land For Maine's Future Program provided the matching funding for this 3,000 + acre purchase.

Spednic Lake is one of Maine's largest undeveloped lakes and is valued by fishermen and paddlers. The St. Croix is one of Maine's least developed rivers and the upper section is renowned for backcountry canoeing. Both the lake and river serve as valuable habitat for bald eagles, wild landlocked salmon, smallmouth bass and many significant plants. These areas are managed by the Department of Inland Fisheries and Wildlife and the Bureau of Parks and Lands, respectively.

Conservation Lands In and Surrounding the Eastern Interior Region



Downeast Lakes Forestry Partnership

The Downeast Lakes Forestry Partnership was a joint effort of the Downeast Lakes Land Trust (DLLT), the New England Forestry Foundation (NEFF), and the Woodie Wheaton Land Trust (WWLT) to protect 342,000 acres of nearly contiguous woodlands and waterways in Washington County, Maine. Locally incubated, locally led, and locally supported, the project was designed to address the social and economic needs of Maine's easternmost county, while achieving far-reaching conservation goals. (DLLT, 2008)

The 342,000 acres conserved create a centerpiece for more than 1 million acres of essentially uninterrupted habitat across the international boundary from Maine to New Brunswick. This major initiative had three components:

- **St. Croix River Waterway:** as mentioned above, the Downeast Lakes Forestry Partnership acquired a 50 mile, 500 foot conservation corridor along Spednic Lake and the upper St. Croix River, which was subsequently transferred to the Bureau of Parks and Lands and the Department of Inland Fisheries and Wildlife for management.
- **Farm Cove Community Forest:** the Farm Cove Community Forest, 27,080 acres bordered by 62 miles of pristine lakeshore, was purchased on May 15, 2005, and is owned and managed as a community forest by Downeast Lakes Land Trust. The Forest includes a 3,560-acre ecological reserve and 3,751-acre late-successional management area, and is managed for sustainable timber production, wildlife habitat, and recreational use. DLLT is in the process of adding 6,628 acres around the southern shore of Wabassus Lake to this property.
- **Conservation Easement:** NEFF acquired an easement over 312,000 acres of the "Sunrise Tree Farm" on May 15, 2005, and the Maine Bureau of Parks and Lands acquired a public access easement on the same lands. The land is still owned by Typhoon, LLC and managed by Wagner Forest Mgt. Development rights are extinguished and public access is insured on this large landscape.

Lower Penobscot Forest Project (Hutchinson and Tetreault, 2005)

The Lower Penobscot Forest Project is a partnership between The Nature Conservancy (TNC) and the Forest Society of Maine (FSM), and a fee and easement acquisition by the Bureau of Parks and Lands that will conserve over 42,000 acres. This project will be the window to a broader view of conservation in the region—a view that connects the wetlands and woods of central Maine to the coastal forests and waters of Penobscot and Machias Bays. This area contains 75 miles of streams considered a conservation priority by TNC, multiple natural communities considered "exemplary" by MNAP and others, native brook trout fisheries, and 5,751 mapped acres of wading bird and waterfowl habitat. It contains excellent opportunities for hunting, fishing, hiking, camping, and other recreational activities. The University of Maine has many ongoing research projects in the area, and sustainable forestry will be practiced on much of the property.

The Lower Penobscot Forest project consists of three connected but distinct properties.

The streams of the Lower Penobscot Forests drain into Sunkhaze Meadows National Wildlife Refuge. The Nature Conservancy will purchase an easement on more than 12,000 acres along the southeast border of the Refuge to be managed as an ecological reserve. The project will buffer Sunkhaze from development, protect water quality, and conserve habitat for its diverse wetland and forest species. The property will be available for pedestrian access, for activities including hunting, fishing, and hiking. Its location provides connectivity between the Wildlife Refuge and the Bureau's Bradley Unit.

A working forest easement on 24,557 acres in the Townships of T32 MD and Great Pond will be purchased by TNC and transferred to the Bureau. This property has and will continue to be managed for a sustainable flow of forest products. This area contains the "horseback esker", a geologic feature of statewide significance, which is valued for views and berry-picking opportunities. Canoe access for the Sunkhaze Stream trip is on this property, as well as snowmobile and ATV trails that connect into the statewide networks. Youth programs by the Maine Youth Fish and Game Association are held on this property.

To the south, the remote ponds and red pine woodlands of the Amherst Tract will be acquired in fee by the Bureau of Parks and Lands. An ecological reserve will be designated on 2,000 acres of the property, while the remaining 3,270 will be managed as a working forest. This area is valued for scenic views from Bald Bluff Mountain and other hilltops, scenic and remote ponds, camping and fishing, and rare and exemplary natural communities. This is a pending acquisition, and will not be given resource allocations or management recommendations as a part of this plan.

To the west of Sunkhaze, the Penobscot River Restoration Project is slated to remove two dams from the river and bypass a third—reopening the river and its tributaries to eleven species of sea-run fish. The Lower Penobscot Forest Project will preserve the habitat being reopened for Atlantic salmon, shad, alewife and blueback herring along many of the streams and creeks of the watershed.

Summary of Planning Implications

The Eastern Interior Region is remarkable for both the abundance of natural and recreational resources and the wide-spread efforts by various groups and individuals to protect those resources. Conservation organizations working in this region range from the local (Downeast Lakes Land Trust) to the international (The Nature Conservancy). This presents opportunity for the Bureau to contribute to planning efforts on a regional scale while also planning locally for its fee lands. The Bureau has partnered and continues to partner with other public and private organizations and landowners in acquisitions of new lands and easements. The Bureau will continue to manage its lands with both a local and regional perspective.

IV. Properties and Resources within the Plan Area

Duck Lake Unit

Character of the Landbase

The 30,624-acre Duck Lake Unit is located in northern Hancock County within easy driving distance of Bangor. It is west of the community of Grand Lake Stream. The topography of the Duck Lake Unit is gently rolling with low hills, the tallest point being Duck Mountain at 1,169 feet above sea level, about 650 feet higher than Duck Lake. The low point on the Unit is along the shore of Fourth Machias Lake at about 314 feet. The Unit is considered semi-remote, containing a variety of important resources including six small lakes with excellent cold and warm water fisheries and numerous sand beaches. An ecological reserve comprising 6,650 acres has been established on the eastern portion of the Unit. The Unit is surrounded by a mixture of large industrial forest and conservation ownerships within this sparsely inhabited area of Maine.

The Duck Lake Ecological Reserve provides opportunities for both scientific study and low impact recreation, and contains many of the exemplary ecological features found on the Unit. The Duck Lake Ecological Reserve originally included 3,870 acres and has recently been expanded through deed reservations, to include a total of 6,650.

Other areas within the Unit provide opportunities for drive-to camping and motorized trail use. The Unit also contains large tracts of forest management areas, providing an important revenue source for the statewide management of the Bureau's Public Reserved system.

Most of the 200 species of wildlife indigenous to Maine can be found on the Duck Lake Unit. Wildlife habitat of particular note includes three zoned deer wintering areas and numerous small wetlands. However, there is a lack of age class diversity as a result of the Unit's burn history, which has resulted in a lack of habitat variety.

The lakes on the Unit provide the principal destinations for visitors and recreationists. The primitive camping facilities at Duck Lake, Gassabias Lake, and Middle and Lower Unknown Lakes are popular with families and fisherman alike. The cold waters of Duck Lake provide quality landlocked salmon and brook trout fishing in an area of the state more noted for its warm water fisheries. The Unknown Lakes (Upper, Middle and Lower), along with Gassabias Lake and Fourth Machias Lake, are known for their warm water fisheries including bass, pickerel, and perch.

Acquisition History

Public ownership in Duck Lake area spans a period dating back to the late 1700s and early 1800s when blocks of land (now known as townships) were delineated and sold by the Commonwealth of Massachusetts. Certain parcels were retained from these blocks for future settlements, known as the Minister, Ministry, and School lots, several of which comprise the current landbase. Additional lands were added when the former Maine Military Commission transferred its lands in 1961 to the State Forest Commission who held the state's public lands at that time. Land

trades and acquisitions with private industrial landowners conducted in 1978, 1985, 1999, and the Conservation Fund in 2005 provided additional lands to the current holdings within the Duck Lake Unit.

Transactions that created the Duck Lake Unit

Township	Transaction	Deed Date	Acres	Description
T4 ND	Original Public Lot	1800?	320	Northeast Corner of Duck Lake
T4 ND	Transfer from Maine Military Defense Commission	1961	6,250	Southwest Corner of T4 MD
T4 ND	Trade from Diamond International	1978	2,606	East side of Duck Lake
T4 ND	Trade from Dead River Co.	1978	1,520 (2,000 ft. Strip)	Upper, Middle Unknown Lakes (in trade for 640-acre public lot north of Duck Lake)
T4 ND	Trade from St. Regis Paper Co.	1978	2,896	Lower Unknown Lake, Unknown Stream
T40 MD	Purchase from TPL/Robbins Lumber	1999	264	Duck Lake/Nicatous Lake "Fee Connector"
T41 MD	Original Public Lots (2)	1800?	960	1) Southern half of Gassabias Lake, 2) South of Gassabias Lake
T41 MD	Trade from St. Regis Paper Co.	1978	7,086	South of Gassabias Lake and Fourth Machias Lake
T41 MD	Trade from Barbara Cassidy et.al. (Prentiss & Carlisle)	1985	2,097	West side of Gassabias Lake towards Nicatous Lake
T41 MD	Purchase from Conservation Fund	2005	2,360	Nicatous Lake, Gassabias Stream
T42 MD BPP	Trade from St. Regis Paper Co.	1978	1,485	Fourth Machias Lake, southwest side
T42 MD BPP	Purchase from Conservation Fund	2005	400	Southeast side of Fourth Machias Lake (Ecological Reserve-deed reservation)
T35 MD T36 MD T41 MD T42 MD	Purchase from Conservation Fund	2005	2,380	Fifth Lake Stream and Fifth Lake Shorelines (Ecological Reserve-deed reservation)
Total			30,624	

Natural Resources

Geology and Soils

The northernmost and southernmost portions of the Duck Lake Unit are underlain by acidic granite. Between these two bands of bedrock is a broad belt of moderately calcareous sedimentary/metasedimentary bedrock. Most of the surface deposits on the Unit consists of till. Other deposits include two north-south oriented eskers with one bordering the west side of Gassabias Lake, and the other running along the west side of the Unknown Ponds to the west side of Fourth Machias Lake, where it continues southward along Fifth Lake Stream. The area along the southern portion of this second esker also includes ice-contact glaciofluvial deposits.

The Unit is characterized by coarse textured boulder strewn soils. Many of these soils are inherently low in fertility with extensive fire history further lowering fertility. The Dixfield-Brayton-Hermon Association, a moderately well drained (very stony-fine sandy loam) dominates the central portion of the Unit. The Colonel-Dixfield-Lyman Association is found north of Duck Lake and surrounds Fifth Machias Lake. These loamy soils are somewhat excessively drained. South of Gassabias Lake and west and east of Duck Lake is the Skerry-Becket-Brayton Association, which is poorly to somewhat poorly drained (extremely stony-fine sandy loam). The esker south of Fourth Machias Lake is characterized as the Colton-Adams-Vassalboro Association. Not surprisingly, this soil is excessively drained with a gravelly sandy loam texture.

Hydrology and Water Quality

The eastern half of the Unit drains into Fourth Machias Lake and to the Machias River. The western half drains towards Niatous Lake, the Passadumkeag River, and eventually the Penobscot River. Gassabias Lake likewise drains toward Niatous Lake via Gassabias Stream. There are no active dams on any of the water bodies within the Unit, although the remains of old driving dams still exist on Unknown Stream, Fifth Lake Stream and Gassabias Stream. Key features of the water bodies in or bordering the Unit are summarized in the chart below (PEARL, 2008).

Water bodies in/or bordering the Duck Lake Unit

Water body	Acres	Maximum Depth (ft)	Direct drainage area (sq.mi.)	Trophic status	pH
Duck Lake	1,154	88	4.28	Oligotrophic	6.4
Fifth Machias Lake	1,058	27	11.49	Mesotrophic	
Fourth Machias Lake	1,913	26	45.26	Mesotrophic	6.78
Gassabias Lake	939	9	7.97	Eutrophic	
Lower Unknown Lake	184	25	1.17	Eutrophic	
Middle Unknown Lake	84	25	0.60	Mesotrophic	
Spencer Pond	35	5	1.91		
Upper Unknown Lake	51	14	2.10	Eutrophic	
Niatous Lake	5,212	56	26.3	Mesotrophic	6.5

Several lakes on the Duck Lake Unit have been selected by TNC as portfolio lakes, meaning they are high value waters that best represent the ecosystems, natural communities, and species characteristic of the region. Criteria used in evaluating lakes and ponds include water quality,

dam impacts, presence of rare or noteworthy species, rarity, and remoteness. Portfolio lakes on the Unit include: Duck Lake, Fourth Machias Lake, and Fifth Machias Lake.

Wetlands

There are 1,990 acres of open wetlands and 2,042 acres of forested wetlands on the Unit, concentrated mostly on the southern half of the Unit, especially along Fifth Lake Stream and other tributaries to Fourth Lake, and east and west of Gassabias Lake.

Ecological Processes

The area has an extensive history of fires, with fires recorded in 1885, 1920, 1935, 1944, and 1960. The 1934 and 1943 fires were larger and heavier burns concentrated in the southeast portion of the Unit. The 1960 fire was relatively small and actively controlled. The coarse, sandy, glacial soils of the region contribute to the conditions that encourage the spread of fire. The red pine communities that thrive on these sandy soils are adapted to periodic fires, which clear out any underbrush and expose mineral soil providing conditions for seeds to germinate.

Spruce budworm has also played a major role on the Unit, with the most recent outbreak during the period from the late 1970s to the early 1980s. While the scale of budworm damage covers millions of acres, the intensity varies considerably according to the balsam fir component of each stand (balsam fir being the preferred food of the budworm). Budworm damage is often most severe in transitional areas next to large openings of burned stands and along wetland transitional zones, both of which occur in abundance on the Unit. Thus, periodic fires and insect outbreaks can intensify the effects of each other’s disturbance.

Duck Lake Ecological Reserve and Exemplary Natural Communities

In general, exemplary natural communities in the Unit are concentrated around Gassabias Lake and Fourth Machias Lake, with almost all of the communities contained within the ecological reserve. Important communities include wetlands, red pine forests, hemlock forests, pine woodlands, mature and old growth softwood sites, and a large peatland. The ecological reserve is a total of 6,650 acres, with the original reserve of 3,870 acres added to with new holdings containing deeded reservations.

Ecological Reserve Acreage

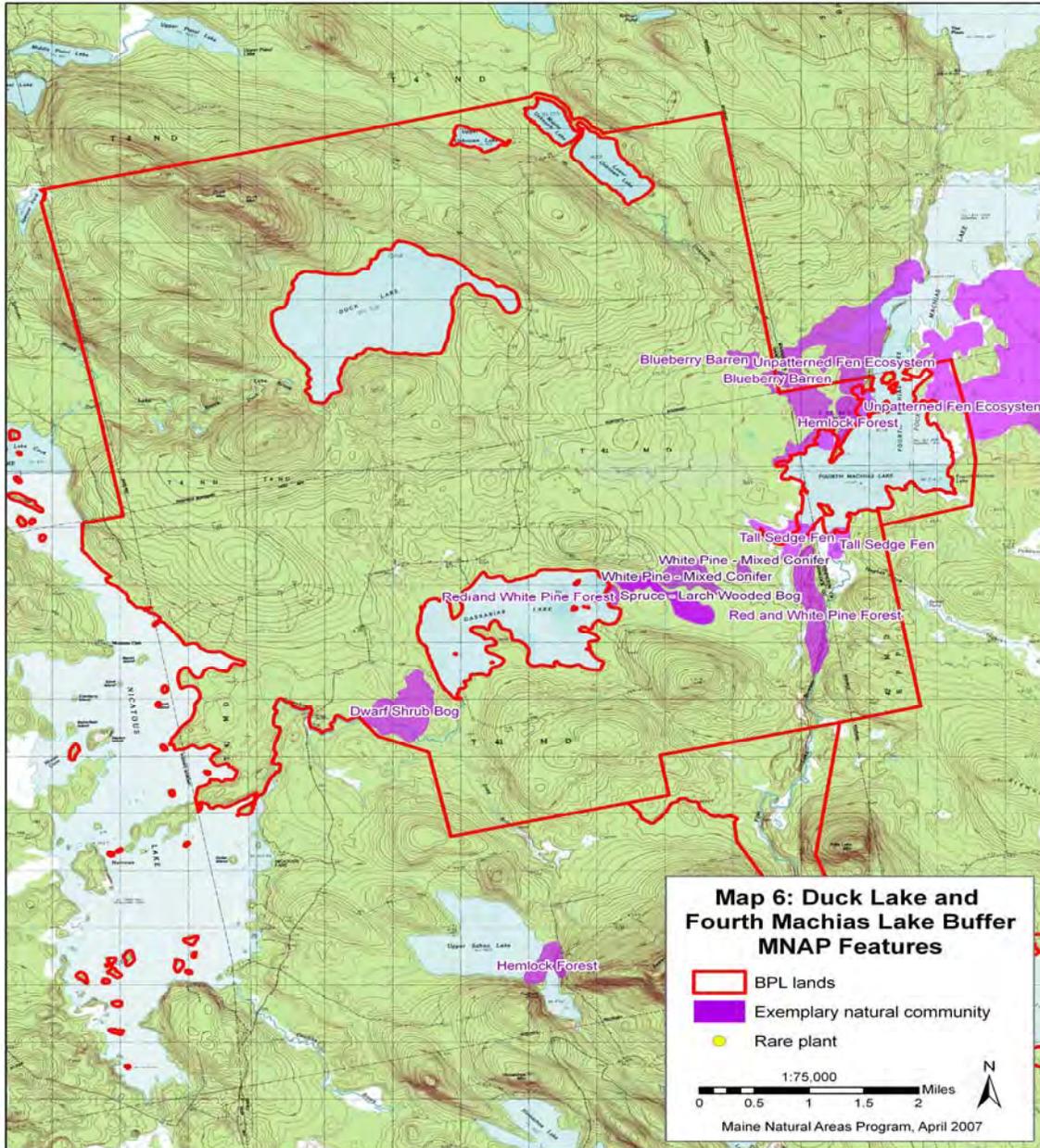
Unit	Ecological Reserve Location	Reserve Acres
Duck Lake (designated acres)	Gassabias-Fourth Machias Lake	3,870
Duck Lake (deeded acres)	Fourth Machias Lake	400
Duck Lake (deeded acres)	Fifth Lake Stream/Fifth Machias Lake	2,380
Total		6,650

The two ecological reserve acquisitions with deeded reservations (Fourth Machias Lake and Fifth Lake Stream/Fifth Machias Lake parcels) contain the goals of loon habitat conservation and restoration, protection of Atlantic salmon habitat, protection of ecological integrity and maintenance of traditional (non-motorized) public recreational uses. The deed specifies the property is to remain un-roaded (with the exception of the existing 42 00 0 road and a few access

roads for existing leases-holders). Motorized vehicles are allowed on these few exiting roads, but are restricted to these areas (Conservation Fund and State of Maine, 2006).

The original designated 3,870 acre Duck Lake Ecological Reserve contains many exemplary natural communities. (MNAP, 2007)

Exemplary Communities of the Duck Lake Unit



An exemplary *Hemlock Forest* is on a sandy esker complex on the east side of Fourth Machias Lake, including most of the narrow, boot-shaped peninsula that juts into the lake. In general, hemlock dominates the slopes while white pine dominates the ridges. This area is included in a

zoned deer wintering area that cannot be managed. The area appears to have an extensive fire history with a single layer canopy. One nearly 26-inch white pine was determined to be at least 110 years old.

An exemplary *Unpatterned Fen Ecosystem* includes areas on state and adjacent land east and west of Fourth Machias Lake. This approximately 1,900-acre peatland ecosystem includes a mosaic of intergrading community types including a Mixed Tall Sedge Fen, dominant near the lakeshore and inlet stream. The southeastern corner of the ecosystem supports a Sheep Laurel – Dwarf Shrub Bog. This unpatterned fen shows signs of past beaver activity. The canopy cover is very sparse, with only scattered, small tamarack trees. *Sphagnum* covers nearly 100% of the Mixed Tall Sedge Fen.



The exemplary Unpatterned Fen Ecosystem at Fourth Machias Lake.

A small *Blueberry – Lichen Barren* is located west of the Unpatterned Fen Ecosystem. This patchy, burn origin barren has a thick, dry organic layer over sandy loam soil. Charred stumps indicate the burn origin of the stand. Canopy closure is 20% and is dominated by white pine. The community is characterized by a thick layer of low species such as bracken fern, wintergreen, sheep laurel, and low bush blueberry.

The area around the southern edge of Fourth Machias Lake ranges from a *Mixed Tall Sedge Fen* close to the lake to a *Sweet Gale Mixed Shrub Fen* further away from the lake. There are no trees or large shrubs present in the area, although there are a few scattered small white pine saplings. The herbaceous layer covers over 90% of the total area and is dominated by sweet gale, with large components of cotton-grass and white beak-rush. Minor components of 10 other species were also found. The herbaceous layer was growing on a bed of *Sphagnum*.

An exemplary *Red Pine - White Pine Forest* grows on a narrow esker south of Fourth Machias Lake surrounded by a mixed hardwood forest with varying levels of maturity. Tiny pieces of charcoal and burned stumps were indicative of the fire history. The forest forms an extensive, single storied canopy layer, which contains predominantly red pine with only minor occurrences of white pine, paper birch, and quaking aspen. One red pine was found to be seventy years old with a diameter of fourteen inches, with the community originating after the 1934 fire.

The area northeast of Gassabias Lake includes an exemplary late-successional /old growth *White Pine – Mixed Conifer Forest*. The area shows little sign of harvest, though it may have been harvested at some point in the past. The forest canopy covers roughly 80% of the total area and is estimated to be 90 to 100 feet tall. Species include white pine, red pine, hemlock, red spruce, paper birch, and red maple. One red pine was measured nearly 21 inches and found to be 195 years old with another measuring seventeen inches in diameter and approximately 250 years old. One hemlock measured nearly nineteen inches and was found to be approximately 275 years old. The forest understory is very sparse, found only beneath canopy gaps. In general, the forest regeneration only occurs in areas where there has been a blowdown event. The northern portion of this mapped community tends to be younger (130 years) and not exhibiting as much old growth structure as the southern portion.

Another late-successional /old growth *Red Pine – White Pine Forest* on the east shore of Gassabias Lake is dominated by red pines between 170 and 220 years old. Both regeneration and herb layer are sparse.

South of the forest is an exemplary *Spruce – Larch Wooded Bog*. This mature, dry bog has 30% cover black spruce. In the western portion of the peatland, the dwarf shrub layer is dominated by black spruce, sheep laurel, and leatherleaf, while in the eastern portion of the peatland, rhodora dominates the dwarf shrub layer. Both sites have thick peat with low pH. The peat mat is saturated, and there are several pools of open water. In the narrow portion of the peatland is a slight gain in elevation, and the community transitions to a *Spruce – Fir – Broom-moss Forest*. This upland area is surrounded on three sides by the peatland. Mature black spruce up to fourteen inches in diameter dominates, and the understory consists of 30% cover dominated by black spruce regeneration. One of the larger black spruces measured thirteen inches in diameter and was found to be 120 years old.

The area along the shores of Gassabias Stream is a large *Sheep Laurel Dwarf Shrub Bog* that transitions to a *Mixed Tall Sedge Fen* adjacent to the stream. The area is relatively dry and hummocky with large amounts of leatherleaf and sheep laurel. There are also components of 10 other species including rhodora, Labrador tea, black spruce, cotton-grass, cranberry, sweet gale, and pitcher plant.

No rare plants have been found within the Unit.

Duck Mountain is a relatively small mountain with moderate slopes. The soils on the upper slopes are shallow and sandy, while the lower slopes contain deeper, richer soils and abundant glacial erratics. The lower slopes contain dense thickets of American beech, red maple, and hobblebush. A *Spruce – Fir – Broom Moss Forest* exists in a small pocket along the southeastern slopes. The forest canopy covers roughly 70% of this area and is dominated by red spruce. One tree measured 12 inches in diameter and was found to be 104 years old. The forest understory and herbaceous layers are very sparse, dominated by regenerating red spruce and balsam fir.

The top of Duck Mountain is a *Spruce – Northern Hardwood Forest* dominated by red spruce, with yellow birch, American beech, and eastern hop-hornbeam. These species combined to cover

roughly 70% of the total area. One red spruce was found to be 17 inches in diameter and found to be 141 years old. The extensive understory was dominated by regenerating red spruce and yellow birch. Red oak, some with diameters up to 25 to 30 inches, is also found in patches on the southwest side of the mountain.

Unknown Stream south of Lower Unknown Lake is bordered by a Mixed Tall Sedge Fen with pockets of Sweetgale Mixed Shrub Fen. Dead standing northern white cedar are the only trees. Common species to the area include sweet gale, leatherleaf, tussock sedge, bog aster, cinnamon fern, three-way sedge, pitcher plant, and inflated sedge. The soil is muck and the water table ranges from a few inches below the surface to six inches above the surface.

The newly acquired parcels bordering the southeast portion of Fourth Machias Lake and surrounding Fifth Machias Lake will likely be inventoried by MNAP in the summer of 2009.

Natural Resource Management Issues

- The Ecological Reserve area between Fourth and Fifth Machias Lakes has received some occasional recreational use by snowmobilers on traditional trails.
- There is interest from the environmental community in expanding the current Ecological Reserve to include the connective area all the way to the east shore of Duck Lake as identified in the 1998 McMahon Report.

Fisheries and Wildlife Resources

Wildlife resources on the Duck Lake Unit are comprised of several distinct elements, including a variety of wetland, shoreland, and upland habitat areas. The fisheries, particularly the cold water species of Duck Lake, provide an outstanding if not unique resource for the eastern Maine area.

Overall, the Unit is dominated by two forest conditions which affect habitat quality: areas where major fires took place in 1885, 1920, 1935, 1944, and 1960 now dominated by immature hardwood and balsam fir; and sawtimber-size spruce and hemlock stands. The area burned, with the exception of the 1960 fire, was measured in the thousands of acres. Lacking are mature stands of northern hardwoods with manageable size, age, and quality, resulting in an overall lack of habitat diversity and relatively low population levels for some species such as sugar maple, white ash, and yellow birch.

Fisheries

The cold waters of Duck Lake provide quality landlocked salmon and brook trout fishing in an area of the state more noted for its warm water fisheries. The Unknown Lakes (Upper, Middle, and Lower), along with Gassabias, Fourth, and Fifth Machias Lakes, are known for their warm water fisheries including bass, pickerel and perch. Nicaous Lake forms the southwestern boundary of the Unit, and supports both warm water and cold water fisheries.

The area around Upper Unknown Lake has been managed for its semi-remote quality and as a walk-to fishing destination since adoption of the 1989 management plan. In 1980 discussions took place regarding the possibility of reclaiming and stocking the lake with brook trout - a

species once thought to naturally occur in these waters – as a means to enhance the recreational experience of this area. IF&W then surveyed the lake and found significant populations of yellow perch and pickerel. While not providing ideal habitat, it was determined the trout population could survive in sufficient numbers if the competing warm water species were removed and a barrier dam constructed to prevent the migration of warm water fish from Middle Unknown Lake. Although the project was considered infeasible at the time, the Bureau and IF&W agreed to reevaluate its potential at some point, which led to a resurvey of the lake in July of 2008 (see Appendix F). This survey confirmed low pH and poor water quality for brook trout, with an abundance of yellow perch, pickerel, and suckers (but no bass). The reclamation cost was also estimated at \$30,000. The updated fisheries survey report proposed several alternative management strategies for managing the fish in the lake, including the stocking of fall yearling trout that could provide a cold season sport fishery.

Fish Species of the Duck Lake Unit

Water body	Lake Fish Species Inventory	Stocked Fish (since 1989)
Duck Lake	American eel, blacknose dace, brook trout, common shiner, creek chub, fallfish, lake chub, lake trout, landlocked salmon, pumpkinseed, rainbow smelt, round whitefish, white sucker, yellow perch	Brook trout, landlocked salmon
Fifth Machias Lake	American eel, white sucker, chain pickerel, banded killifish, pumpkinseed, white perch, brook trout, fallfish, yellow perch	
Fourth Machias Lake	American eel, alewife, brook trout, brown bullhead, chain pickerel, fall fish, lake chub, pumpkinseed, smallmouth bass, white perch, white sucker, yellow perch	
Gassabias Lake	Chain pickerel, fallfish, pumpkinseed, white perch, white sucker, yellow perch, brook trout	
Lower Unknown Lake	Banded killifish, brown bullhead, chain pickerel, fallfish, smallmouth bass, white perch, yellow perch, brook trout	
Middle Unknown Lake	Banded killifish, brown bullhead, chain pickerel, fallfish, smallmouth bass, white perch, yellow perch	
Spencer Pond	Brook trout, brown bullhead, creek chub, golden shiner, northern redbelly dace, white sucker	
Upper Unknown Lake	Brown bullhead, yellow perch, chain pickerel, white sucker	
Nicitous Lake	Brown bullhead, American eel, white sucker, chain pickerel, banded killifish, sunfish, smallmouth bass, white perch, golden shiner, rainbow smelt, yellow perch, blacknose dace, landlocked salmon, brown trout, brook trout, creek chub, fallfish	Brown trout, landlocked salmon

Wildlife

“Unroaded” habitat: There is a relatively un-roaded area in the Duck Lake Unit from Upper Unknown Lake along the eastern portion of the Unit to Fifth Machias Lake. The majority of the relatively un-roaded area is in ecological reserve status. The area to the north provides a significant wildlife travel corridor between Fourth Machias Lake and the ownership boundary north of Upper Unknown Lake. Operational necessity requires the Bureau to rebuild part of an existing road and realign an approximately 2,600 foot existing road segment to avoid erosion and sedimentation north and east of Lower Unknown Lake. There may be additional needs for road improvements or expansions, however, these are likely to be relatively minor and will not constitute a significant alteration to this relatively un-roaded area.

Deer Habitat Management

There are three small designated deer wintering areas on the Unit, however, the Unit contains great potential to manage for deer in coordination with other surrounding landowners. The northeast portion of the Unit in particular is conducive to managing for deer and enhancing habitat in all seasons.

Raptors and other birds

A bald eagle nesting site located on an island on Gassabias Lake has been mapped and protected under Maine’s Essential Habitat law. This site has recently hosted a non-breeding pair. Broadwing hawks, cooper’s hawks, sharpshin hawks, and goshawks are common, with nests routinely located and protected during harvesting operations. Black terns, as state-listed endangered species, have been documented on the wetlands along Dead Stream just southeast of Fourth Machias Lake.

Loons

Loons are commonly found on all of the bodies of water within the Unit, and nesting sites have been buffered from harvesting and recreation activities. The Machias Phase II acquisition project, which included frontage on Fourth and Fifth Machias Lakes, included a deed requirement making loon management a priority.

Beech Management

The maintenance and management of American beech trees across the Unit, and their importance in the production of high quality mast as a food source, has been a focus of the Unit wildlife program since the original management plan was adopted in 1989. Beech as a species has been and continues to be in decline across the state due primarily to the presence of the imported beech bark disease complex. The disease has been particularly devastating in eastern Maine. Although bear are the focus species relative to maintaining a healthy beech component, thirty five other wildlife species also utilize its mast as a food source. In 1999 the Bureau incorporated *Beech Management Guidelines for Mast Production* into its *Wildlife Guidelines*, which provides guidance in identifying and retaining genetically-resistant beech trees. The Bureau has thinned around oak seedlings and planted acorns on the Unit to provide hard mast, although the mast is not as nutritious as beech.

Ruffed Grouse

Enhancement of the ruffed grouse population has been routinely implemented as part of the timber management program, using small clear-cut blocks to encourage the dense young growth component of their preferred habitat. Although this approach has had considerable success in other areas of the state, a combination approach had better short term results on the Duck Lake Unit, which included a mix of variable strips along with the blocks.

Vernal Pools

Twenty vernal pools have been located and mapped throughout the Unit. These small, seasonal wetlands provide important habitat for certain species of frogs, salamanders, and invertebrates including the fairy shrimp. Management guidelines for the protection of these pools have been in place since the late 1990s and include portions of the adjacent upland. Although the guidelines are focused on the protection of the natural pools, a small number of man-made vernal pools (the result of past timber harvesting activities) are also being managed under these guidelines.

Lynx

Although the Duck Lake area is outside of the proposed critical habitat range for the Canada lynx, sightings have been reported from time to time. The primary food source for the lynx is the snowshoe hare, which thrives best in young softwood forests. Although there are significant amounts of this forest type on nearby private lands (the direct result of timber harvesting practices) the Bureau has managed for at least some component of young softwood habitat within the Unit, which has provided direct benefits to the lynx and other wildlife species as well.

Wetlands

There are 1,990 acres of open wetlands and 2,042 acres of forested wetlands within the Unit, concentrated mostly on the southern half of the Unit along Fifth Lake Stream, and east and west of Gassabias Lake. These wetlands provide important habitat for a variety of aquatic furbearers, large game, wading birds, and waterfowl. Past management of wetlands has been primarily protective in nature, but has included careful multi-age management of adjacent timber to encourage species diversity. Wood duck boxes have also been placed in appropriate areas and have been moderately successful.

Invasive Aquatic Plants

Invasive aquatics continue to be of statewide concern and importance to the Bureau's habitat management program, although the introduction has not occurred within the Unit. The Bureau works closely with IF&W, Department of Environmental Protection, and local groups to help monitor this important issue, and follows prevention guidelines and strategies, including signage at boat launch sites, as provided by IF&W.

Fisheries and Wildlife Management Issues

- Although there is interest from area sportsmen in reclaiming Upper Unknown Lake and restoring the trout population that once occurred there, recent lake survey data from the IF&W indicates that habitat conditions may not be favorable, and alternatives for experimental stocking have been proposed by IF&W.
- There is a significant interest throughout the Plan area in enhancing deer habitat where possible, due to the importance of this resource to the regional economy. There is also

interest among other landowners in the region to coordinate more with the Bureau in provision of deer habitat regionally.

- Loon management and updated knowledge on nesting sites will need to be prioritized in the Machias Phase II lands.
- American Beech stands continue to decline due to the beech bark disease complex, raising concerns about the future production of important wildlife mast. Past ruffed grouse habitat management has shown mixed results on the Unit.
- Invasive aquatics will continue to be an area of concern, although their introduction has not occurred within the Unit.

Historic and Cultural Resources

There is a long history of wood harvesting on the Unit lands. Traditionally, logs harvested on the eastern side of the Unit were floated down the Machias River, while logs on the western side were taken out via Niatous Lake. Hemlock was harvested in the late 1800s on the westerly side of the Unit to supply bark to the tannery on the Passadumkeag River in Lowell. The easterly side of the river supplied bark for the Grand Lake Stream Tannery. In the 1910s, logging camps were established, some of which had telephone lines installed. Trees targeted during these times were pine and spruce. Between 1956 and 1963, Eastern Pulp and Paper Company established a road that ran north-south on what was earlier known as the CCC Road (later the 32-00-0 Road), allowing access to areas previously inaccessible. These harvests frequently targeted hemlock and spruce to supply Eastern Fine Paper in Brewer. At times, sodium arsenate was used to chemically de-bark hemlock. This had a devastating effect on wildlife attracted to the salty chemical solution.

Fannie Pearson Hardy explored the area with her father and a guide in 1891, canoeing from Niatous Lake to Gassabias Lake and portaging to Fourth Machias Lake. She praises Gassabias Lake, calling it “a lovely lake” and “a paradise for small game” (Hardy, 1891). Having completed the portage between Gassabias and Fourth Machias Lakes, she offers a less charitable view of the latter: “The [Fourth] Machias end of the carry is even less cheering than the Gassabees [sic] terminus. The journal calls it ‘an unwholesome-looking place,’ and in my own mind it is associated with the Ancient Mariner and ‘a million million slimy things.’ When you get here you will wish you hadn’t come. Marshes half a mile wide extend back to the ‘dry kyle’ which fences the woods with dead trees, standing or fallen grim, gaunt and gray. The place is given over to pickerel, mud turtles, and ‘slimy things that crawl with legs.’” She continues, “A premium might safely be put on Fourth [Machias] Lake as the most unattractive piece of scenery in the State....but...our first and chiefest care was to get something to put in the kettle, and that can always be provided here.” Hardy describes Fourth Machias’s reputation as an excellent pickerel fishery, as well as a good location for eels and ducks. In fact, according to Dave Tobey, a local guide and camp owner with deep family roots in the area, in the 1930s, Fourth Machias Lake was commercially fished for pickerel. Pickerel would be salted, packed into barrels, and shipped by railroad to Boston.

The first road into Fourth Machias Lake was built in 1958. Both Fourth and Third Machias Lakes had dams that could be used to force water into the Getchel Lakes and, thus, into the St.

Croix River watershed, which included several hydropower dams. Most of the Fourth Machias dam was removed in 1978, while the Third Machias dam was removed in 1980.

Numerous historic Native American artifacts have been found along the banks of ponds in the Unit, including scrapers, arrowheads, and spearheads. In one sandy area of Fourth Machias Lake, there is a low rock wall which many think to be part of a weir that may have been constructed by Native Americans. (MNAP, 2007)

Historic Resource Management Issues

- Any manipulation of the lake and river shorefronts will have to be with regard to the potential presence of Native American artifacts.
- The Gassabias Lake-Fourth Machias Lake portage trail has historic importance as a travel corridor for Native Americans and early settlers.

Recreation Resources

The eight lakes within the Unit provide important fishing and camping destinations for visitors to this region, with snowmobile and ATV trails also available throughout the Unit. Duck Lake is noted for its unique cold-water fishery (landlocked salmon and brook trout) and for its numerous sand beaches. Gassabias Lake, the Unknown Lakes, and Fourth Machias Lake all support excellent warm-water fishing opportunities (see the Wildlife Resources section for a summary of the fisheries within the Unit).

Camping

The campground area at Longfellow Cove on Duck Lake was redesigned and expanded in response to public demand while providing for a use level appropriate in maintaining the fishery. The redesign involved dispersing and better delineating the campsites, however, much of the area continues to be subject to overuse with many of the newer sites receiving little use. Water access sites on the west end of the lake have been available to those seeking a more primitive and private camping experience. The campground style area at Middle and Lower Unknown Lakes also underwent a similar redesign, however this area also continues to experience periods of extensive use and overcrowding. The recent elimination of free camping on nearby private lands will undoubtedly create additional demand on these sites. In addition, the many of current camping facilities do not meet American with Disabilities Act (ADA) standards, and future upgrades will have to consider these improvements. An ADA approved vault toilet has been installed at the Unknowns camping area.

Camping Facilities on the Duck Lake Unit

Location	Type of Facility	Access	No. of Sites	Permit Required	Capacity
Duck Lake	Campground	Vehicle	10	No	40
Duck Lake	Campsite	Boat	3	No	13
Middle & Lower Unknown Lake	Campground	Vehicle	8	No	35
Upper Unknown Lake	Campsite	Foot	1	No	4

Gassibias Lake	Campsite	Vehicle	4	No	16
Fourth Machias Lake	Campsite	Boat	4	No	16
Nicatous Lake	Campsite	Boat	1	No	4
Outlet of Fifth Machis	Campsite	Boat	1	No	4



Duck Lake campsite

Boating Access

Boating access is important to the recreation management program on the Unit, with the facilities remaining rustic and somewhat limited in keeping with the area’s remote character. The previous management plan noted the trailerable boat site on Longfellow Cove on Duck Lake provided parking for 14 vehicles with trailers, however, the available space will only accommodate half that number. The ramp consists of a gravel surface and is considered “primitive,” meaning it has not been constructed to industry standards and may not be suitable for larger boats. Four other hand carry sites are located on Middle Unknown, Lower Unknown, and Gassabias Lakes, and on Fifth Lake Stream near Fifth Lake. The trailered launching of boats from the Unknowns and Gassabias Lake is not restricted, but is difficult to use due to their rustic nature. The boat launch on Fourth Machias Lake is on private land. These facilities are in need of improvements to correct safety and usability issues. These sites also do not meet ADA standards, although an ADA compliant privy was installed at the Unknowns. Future improvements will need to consider these access upgrades.

Boating Facilities on the Duck Lake Unit

Type of Facility	Location	Parking
Trailer (primitive)	Duck Lake	6-7 with trailers
Hand Carry	Middle Unknown Lake	1

Hand Carry	Lower Unknown Lake	0
Hand Carry	Gassabias Lake	1
Hand Carry	Fifth Lake Stream	2

In 2003 the Bureau acquired the so-called Duck Lake Fee Connector between Nicasious Lake and the original Unit boundary. Within the parcel is an area that may be suitable for the launching of boats on Nicasious Lake, but no effort has been made to develop the site. Further work is needed to determine the impact developing the site would have on the available access and use of the lake on abutting private lands.

Canoe Trails

Gassabias Stream from Gassabias Lake to Nicasious Lake offers a three-mile flat-water canoe trip through a variety of wildlife habitats, with the north side of the stream in public land ownership, and most of the south side in private ownership except where it abuts Gassabias Lake. The east side of Gassabias Lake also marks the start of the famous two and a half mile “Gassabias Portage to Fourth Lake,” traveled extensively by Native Americans and early American settlers en route to the Machias River.

Fifth Machias Lake and Stream to Fourth Machias Lake marks the beginning of the 76-mile trek to the Atlantic Ocean. This 11-mile section offers a remote and challenging experience. The stream meanders along a series of eskers known as “horsebacks” and provides a mixture of flatwater and Class I, II, and III rapids before it empties into Fourth Machias Lake. The water level drops quickly from Fifth to Fourth Machias lakes and is canoeable only in the spring.

Hiking Trail and Non-motorized Uses

Certain portions of the Unit, particularly the area around Upper Unknown Lake and the corridor from Unknown Stream to Fifth Machias Lake are largely un-roaded and receive only light recreational use. Hiking trail use in general has been limited to two areas: the short trail from Middle Unknown Lake to the Upper Unknown Lake campsite and the occasional use of the historic portage trail between Gassabias Lake and Fourth Machias Lake, and along Fifth Lake Stream.

Approximately 600 acres around Upper Unknown Lake had been allocated as a non-motorized backcountry area in the 1989 management plan. It has since been determined that little other recreational use has occurred in this area, with the exception of hunting.

With the recent acquisition of lands south of this portage trail, an overnight hiking trail opportunity now exists along the seven-mile stream corridor known as the “horseback” between Fourth and Fifth Machias Lakes. Further work is needed to determine the interest and feasibility of developing this trail, much of which would be located on lands recently-acquired as part of Phase II of the Machias River project. Although there are deed restrictions with respect to the designation of this area as an ecological reserve, a trail opportunity could be developed, provided there is sufficient interest and support, and that no construction occurs prior to the Natural Resources Inventory by the Maine Natural Areas Program (due to be conducted in the summer of 2009).

Motorized Trails

The Duck Lake Unit in general provides important destinations and connecting trails to regional ATV and snowmobile systems throughout the eastern region of the state. Hard surfaced roads on the Unit are classified as shared use roads, which permit ATV use. These roads and the multi-use trail to Grand Lake provide an important connection for ATV users in the area.

The ITS System: ITS 84, a major snowmobile trail providing the only east to west connection between Grand Lake Stream and the Milford area, passes through the Unit. ITS 81 travels north-south through the Unit connecting to ITS 84. The Department's Off-road Vehicle Division (ORV) has grooming equipment and an operator in Beddington responsible for the maintenance of a portion of ITS 81. The groomer travels north along the 32-00-0 Road as far as the Gassabias Bridge at the boundary of the Duck Lake Unit, closed by the abutting landowner and reconstructed by the Bureau ORV division with permission of the abutting landowner for use by ATVs and snowmobiles. This redesign was intentional to prevent passenger vehicle travel across it, consequently rendering the bridge too narrow for passage by snow groomers. A private club grooms the ITS on the north side of the bridge. The Bureau has since acquired the lands north of and abutting this bridge.

Backcountry/primitive snowmobile trails: On the east side of the Unit, a local primitive snowmobile trail known as the "Horseback Trail" follows an esker formation that abuts Fifth Lake Stream. This trail was designated, for one year, as a bypass route for a portion of ITS 81 located on the 32-00-0 road, when that road was plowed. This trail followed the horseback esker and connected the Stud Mill Road to the south with the Duck Lake Road to the north. Much of this trail was unsuitable for grooming due its narrow steep-sided nature. This trail has not been in official use since 2001. In 2001 the Bureau designated the portion of the Duck Lake Unit including the trail as an ecological reserve; informal use was allowed to continue pending development of this Plan. In 2005 the Bureau officially discontinued the portion of that trail within the Fifth Lake Stream parcel acquired by the Bureau as part of the Machias River acquisition project, as that parcel was subject to deeded restrictions prohibiting motorized use.

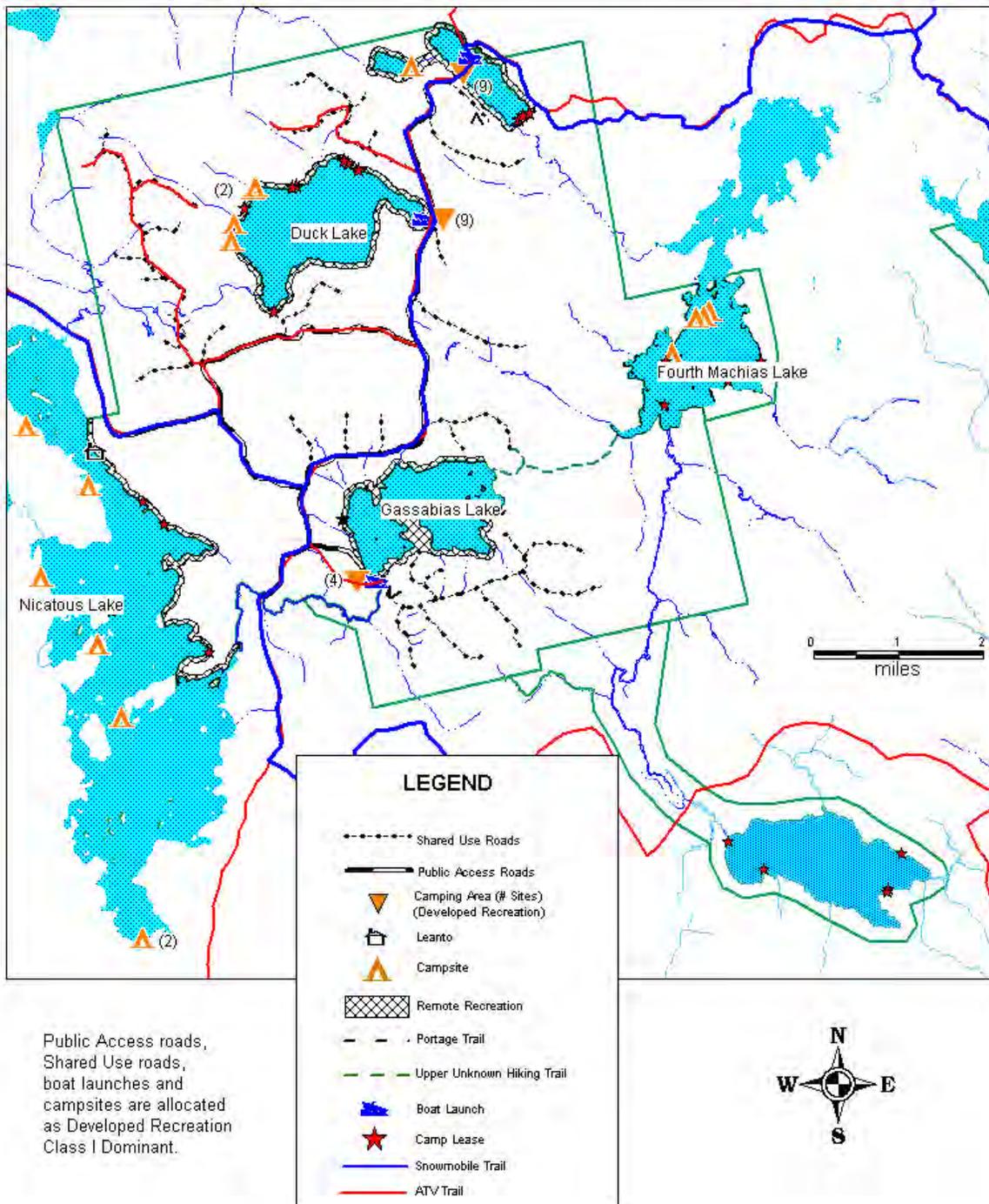
The temporary relocation of ITS 81 was the result of logging operations requiring the road to be plowed. Subsequently, removal of the truck bridge and installation of the ATV/snowmobile bridge on Gassabias Stream have prevented vehicular travel across the bridge. However, winter harvest operations within the Duck Lake Unit could still require plowing of these roads and temporary relocation of portions of ITS or local primitive trails using Bureau roads.



Gassabias Stream ATV/snowmobile bridge installed by the Bureau

In addition to the “Horseback Trail”, snowmobilers looking for a backcountry primitive trail experience use the Gassabias Portage Trail which provides access to Gassabias Lake from Fourth Machias Lake. This use was noted and specifically allowed in the 1989 Duck Lake Unit Management Plan. This trail, like the Horseback trail, is now within the Bureau-designated Duck Lake Ecological Reserve.

Duck Lake Unit- Recreation Allocations, Facilities and Infrastructure



Recreation Management Issues

- The campground areas at Duck Lake and the Unknowns are frequently over capacity from Memorial Day to Labor Day. There are environmental, social, and facility management concerns from this use, with limited staff time and Bureau resources available.
- The limited parking at popular use areas (Duck Lake, Gassabias Lake, and the Unknown Lakes) creates occasional conflicts between day users, boaters, and campers.
- Recent elimination of free camping on nearby private lands will most likely result in increased demand on existing campsites on the Unit.
- The vehicle access bridge (Gassabias Stream) on the 32-00-0 road was removed by the landowner and replaced by an ATV/snowmobile bridge in 2003 by the Bureau ORV division. There have been numerous negative comments about the loss of vehicle access resulting from this bridge.
- Recreational facilities and pathways throughout the Unit are not ADA-compliant.
- Although there is the potential for a boat access site on Nicatous Lake through the “fee connector” parcel, more needs to be done to determine the feasibility and impact from its development.
- Although an alternative snowmobile route to bypass the 32-00-0 is currently not needed, if the Bureau or another landowner should plow a portion of the road for logging operations, an alternative to re-route ITS 81 will be needed. This alternative cannot be in the Ecological Reserve.
- There is shoreline erosion at unimproved boat access sites on Gassabias Lake, Middle and Lower Unknown Lake, and Fifth Lake Stream. Safety and usability improvements are needed, along with upgrades to meet ADA standards at all boat site locations.
- There may be interest in developing/extending the existing non-motorized trail along the “horseback” along Fifth Lake Stream. The southerly portion of the corridor from Fifth to Fourth Machias Lakes along Fifth Lake Stream was deeded to the state as an ecological reserve, and may provide an opportunity for a hiking trail connecting Fifth Machias Lake to Gassabias Lake and the Unknowns. Provisions for campsites within this parcel are deed specific. Any campsite or trail construction can only be performed after the Maine Natural Areas Program conducts a Natural Resources Inventory in the summer of 2009.
- Primitive, un-groomed snowmobiling has continued along the Gassabias Portage Trail within the designated ecological reserve. A management recommendation consistent with the Ecological Reserves statute and Integrated Resource Policy is needed on the future use of this trail.
- The esker or “horseback” along Fifth Lake Stream (accessed from Fourth Machias Lake) has been a snowmobile destination for local residents and guided visitors. The area surrounding the “horseback” is now designated an ecological reserve, and the southern portion is within the area with deeded restrictions against motorized use. A management recommendation consistent with the Ecological Reserves statute and Integrated Resource Policy is needed on the future use of this trail.

Recreation Issues: Discussion

Primitive Snowmobile Trails in the Duck Lake Ecological Reserve: The statute which authorizes Bureau ecological reserves, 12 MRSA 1801, sub 4-A, addresses allowed uses and trails and roads for motorized vehicle use as follows (this same language is incorporated in the Bureau's Integrated Resource Policy).

- 1. Allowed Uses.** Allowed uses within an ecological reserve must be compatible with the purpose of the ecological reserve and may not cause significant impact on natural community composition or ecosystem processes. Allowed uses include non-manipulative scientific research, public education, and non-motorized recreation activities such as hiking, cross-country skiing, primitive camping, hunting, fishing and trapping . . . The removal of trees and construction of facilities associated with these allowed uses are allowed. The director may allow other uses when their impact remains low and does not compromise the purpose of the ecological reserve.
- 2. Trails and roads for motorized vehicle use.** The director shall allow the continuing use of an existing snowmobile trail, all-terrain vehicle trail or a road if the director determines the trail or road is well designed and built and situated in a safe location and its use has minimal adverse impact on the ecological value of an ecological reserve and it cannot be reasonably relocated outside the ecological reserve.

The existing primitive snowmobile trails both receive low use, are un-groomed and well designed for their intended uses and are situated in safe locations. Further, travel on snow protects the vegetation and soil causing minimal adverse impact on the ecological value of the reserve. The remaining issue is whether one or both of these trails could be reasonably relocated outside of the ecological reserve.

To address this issue, it is important to understand the purposes of these trails. Prior to the creation of the Fifth Machias Lake Ecological Reserve, both of these trails provided a backcountry primitive snowmobiling experience on trails connecting to relatively remote undeveloped lakes (Fourth and Fifth Machias Lakes and Gassabias Lake). The remote and undeveloped nature of these lakes, and the exemplary natural communities associated with them, are at once what attracted backcountry snowmobilers to them, and why ecological reserves now surround both Fourth and Fifth Machias Lakes and abut the east shore of Gassabias Lake.

The key concept that would allow these trails to remain in use is not that they are especially scenic, and provide a backcountry experience – the Bureau could choose to designate other scenic areas as mechanized backcountry recreation areas for this purpose – but that they also serve as destination trails to remote lakes.

The IRP does not address the difficulties of relocating trails that are “destination” trails – that serve to connect to a specific destination that provides an experience that cannot be relocated. In this case, the Director must decide, in his discretion, whether the trails can be reasonably relocated.

The Gassabias Portage Trail provides access from Gassabias Lake to Fourth Machias Lake, and from Fourth Machias Lake to Gassabias Lake. The problem is that the primitive trail system in this case requires travel across lakes – across Gassabias Lake to reach the Fourth Machias Lake, or across Fourth Machias Lake to reach Gassabias Lake. The IRP discourages the use of lakes as significant sections of snowmobile trails, due to potential safety issues.

The disallowance of motorized trails on the Fifth Machias Lake parcel has eliminated Fifth Machias Lake as a destination associated with the Horseback Trail. It now essentially results in a dead-end trail; stopping at the boundary of the Fifth Machias Lake Ecological Reserve. Because of this, concerns have been expressed that if use of the Horseback Trail continues to be allowed, snowmobilers may continue to travel south onto the Fifth Machias Lake Ecological Reserve in express violation of the terms of that acquisition.

Visual Resources

The scenic quality of the Unit, including its natural beauty, diversity, and contrast contribute significantly to the uniqueness and remote character of the Unit.

Visual Resource Management Issues

- Management of the resources should take into consideration visual quality; in particular, the background views as seen from the lakes, including the slopes of Duck Mountain north of Duck Lake.
- In visually sensitive areas harvesting should generally be limited to selection removals and designed to maintain the appearance of an intact forest canopy.
- Foreground views along trails and public access roads are also important to the visual management program and should be taken into consideration when timber harvesting or recreational facilities are planned.
- It may be desirable to include small patch cuts to create vistas or to break up the "wall" effect of the continuous forest edge along trails and public access roads.
- Natural processes should take precedent over any visual management activities where recreational use occurs in the Ecological Reserve.

Timber and Renewable Resources

The Duck Lake Unit provides significant forest management opportunities. Except for about 300 acres on or near Duck Mountain, only small areas are inoperable due to terrain. Some areas have insufficient fertility to be classed as commercial timberland, able to produce less than one-quarter of a cord per acre per year. This is often due to poor drainage, but includes some ledgey, rocky areas and areas where repeated hot burns from 60 years ago have made the sites somewhat marginal for supporting commercial tree growth. Most of this latter acreage is within the Unknown Stream portion of the 3,870 acre Ecological Reserve designated by the Bureau in 2000. Approximately 2,433 acres at that time were considered operable, but were removed from the Bureau's regulated acres. "Regulated acres" is defined as the portion of the commercial

forest landbase on which the sustainable harvest will be calculated at or near maximum sustainable levels (DOC, 2000).

The Bureau's harvesting activities at the Duck Lake Unit began in 1983 during the latter stages of the state's spruce budworm epidemic, aimed primarily at heavy salvage and pre-salvage of badly damaged softwoods. Most balsam fir larger than sapling size had died off by then, with heavy damage to both spruce and hemlock. The initial entry of 1983-85 included the largest "clearcut" ever conducted under Bureau management (375 acres) along with several other smaller clearcuts (20-40 acres). Since those entries, two natural developments have shown that these harvests were heavier than was necessary. First (and most important), the budworm epidemic unexpectedly collapsed after 1985. Second, hemlock, a species normally sensitive to disturbance and with little known history of its behavior following budworm epidemics recovered better than was expected once the feeding had ended.

Harvesting from 1986 onward has been of two general types. The first is selection or irregular shelterwood in well-stocked softwood and mixedwood stands, designed to favor spruce, pine, quality hemlock and hardwoods, while establishing desirable regeneration. The second has occurred in the burn origin stands (comprising 25% of the forestland). Most of these fires occurred in the late 1930s and 1940s, with some acres seeing recurring fires. Smaller burns have occurred as recently as the 1960s. Harvesting in these areas has attempted to improve the quality of the residual stand while making the harvesting operation commercially viable. This has been difficult due to the often low value of young hardwoods. Much of the harvest acres in the fire origin stands still have modest quality, but a significant proportion has been moved toward high quality mixed-wood and softwood (often pine) stands. Harvest volumes from 1983 through 1994 were approximately 80% softwood, due both to budworm and markets. Since that time the harvests have been almost 60% hardwoods, as more diverse markets have made them more profitable as pulpwood and biomass. This has enabled the Bureau to manage and improve a greater area of the lower quality stands.

Stand Type Characteristics (regulated acres only):

Softwood

Softwood types cover about 9,700 acres which is 45% of the Unit's regulated forest acres. These occur on all drainage classes, though they are least prevalent on well drained sites. Most are reasonably well stocked and average nearly 30 cords per acre, with spruce (nearly all red spruce) making up about 45% of the volume of softwood stands. Another 22% is hemlock with the Duck Lake Unit holding more hemlock volume than any other BPL land unit. Eleven percent is pine, (about three-quarters are white pine and one-quarter red pine). Cedar is next in volume at 7%, while yellow birch and red maple are the leading hardwoods, each with 4% of softwood type volume. Most softwoods except cedar are of good quality, though dwarf mistletoe is a problem on red and black spruce in some areas. Spruce is the most desirable management species except on droughty sites where pine should be favored. Hemlock is also very important on these acres and usually grows well. Areas currently in softwoods should be managed to stay in the type. Some mixed-wood areas, especially those of burn origin where the burns created more hardwoods, are on sites better suited to growing spruce, hemlock, and pine.

Mixed-wood

Mixed-wood types are found on about 6,800 acres which is 32% of the Unit's regulated area. There are three very different types of mixed-wood stands on this Unit. First, and probably least prevalent, are stands with no recent fire history and made up mainly of long lived species. These occur on sites with sufficient fertility to support quality growth on hardwoods such as yellow birch and red maple, and produce excellent softwoods. Current stocking is heavy to spruce and hemlock, with red maple, yellow birch, beech, and white pine significant. Management of this type of mixed-wood stand should favor good quality stems of current species.

The second type are the burn origin stands where seed source and/or low fertility has enabled softwoods to become a significant component. Many of these stands have low quality and remain under-stocked 60-70 years post-fire, and most are better suited for softwoods than hardwoods. Though the species mix varies greatly from site to site, generally spruce, red maple, paper birch, white and red pine, and occasionally beech, aspen, and fir are important. Management of this type of mixedwood stand should focus on improvement harvests favoring softwoods, especially pines, which are better adapted to limited fertility.

The third mixed-wood stand type is a burn origin matrix of hardwood/mixed-wood. This was caused because when fire moved through the area, portions were burned and portions were skipped. This may be the most abundant of the mixed-wood varieties and fertility and quality varies across the stands. Management should usually favor good quality stems of current species in the areas not burned, and encourage the spread of softwoods from these higher quality areas into the surrounding lower quality areas affected by fire.

On the best of the burn sites, aspen is often dominant and managing for this species and for ruffed grouse can be good for both timber and wildlife. Red maple, often an undesirable but fierce competitor on other lands, is often the best quality hardwood present on some of these burn-origin mixed-wood acres.

Hardwood

Hardwood types cover about 4,900 acres, or 23% of the Unit's regulated acres. Probably two-thirds of these types originated in mid-20th century fires. These range from reasonably fertile sites holding mainly mature aspen and birch, to "hot burn" areas where low fertility has caused hardwoods to become scrubby and decadent, and a better softwood understory is growing. In between are lands with moderate fertility, holding fair quality aspen, birches and red maple, with enough pine, spruce and fir in the mix to encourage management for future softwoods. The remaining hardwood acres have a less significant fire history and are dominated by beech. Sugar maple, yellow birch, and red maple are also present. A minority originated from the same 1930s-40s fires, but retained fertility and seed source led to the northern hardwood mix, often with a high yellow birch component. Older hardwood stands have mostly had several past harvests that sifted out the best sawlogs, lowering stand quality. In addition, even the best sites here are not especially fertile, also limiting quality, and the beech bark complex has nearly destroyed any quality in that species. Overall species mix in hardwood type is 20% aspen, 18% beech, 11% each of paper birch and sugar maple, and 9% each of red maple, spruce, and pines. Management should favor northern hardwoods where fertility is highest, regenerate aspen where it occurs now on sites fertile enough for it to grow well, and move toward greater softwood presence (often already occurring in the regeneration) on the less fertile lands.

Timber Management Issues

- Burn origin mixed-wood stands have low quality and remain under-stocked 60-70 years post-fire, and are often better suited for softwoods.
- The mistletoe-infected spruce should be targeted to the extent feasible.
- Blowdown of trees has been a problem on certain boulder strewn sites.
- Hardwood stands affected by “hot burns” suffer from poor fertility limiting their growth, and some older hardwood stands have had past harvests that lowered stand quality.

Transportation and Administrative Considerations

Public Access Roads

The Unit is surrounded by large, privately owned tracts of land, served by private roads. Public vehicle access to the Unit has changed significantly since adoption of the original management plan in 1989. The Gassabias Stream Bridge on the 32-00-0 road was removed by the adjacent landowner in 2000, effectively cutting off traditional vehicle access from the south. The primary access to the Unit currently is from the west via Nicaous Lake. The Bureau has been responsible for maintenance of the 11 miles of private road used to access the Unit. The Bureau has acquired a legal right of way over half of the six miles of private road from Nicaous. Since the 1989 plan, the Bureau has improved general road conditions and conducts annual grading on all public access roads. Access from the north from Springfield and Grand Lake Stream has recently been greatly improved on abutting lands, with corresponding increase in access traffic.

Lands recently acquired in the Nicaous portion of the Phase II Machias River acquisition project had numerous large landings at the time of purchase.

Life Flight Evacuation Locations

There are two evacuation sites on the Unit suitable for helicopters to land. **Duck1 T4ND** is located just off the 32-00-0 road between the Duck Lake and Unknown Lakes campsites. **GASS1 T41ND** is located on the 32-00-0 Road between the Gassabias Lake Road and the Crossover Road. Both of these sites are along the snowmobile and ATV trails and are signed.

Camplot Leases

There are 22 private residential camplot leases within the Unit, all of which were established by previous landowners. Six leases are located on Duck Lake, four on Fourth Machias Lake, three on Lower Unknown Lake, one on Gassabias Lake, three on Nicaous Lake and five on Fifth Machias Lake. The Nicaous and Fifth Machias Lake leases, as well as the two leases on the southeast shore of Fourth Machias Lake are on lands acquired as part of the Phase II Machias River project. One lease on Gassabias Stream was terminated in 2000 at the request of the campowner, the structures of which are now owned by the Bureau and are being considered as a replacement for the Bureau crew camp on the Duck Lake Road.

Administratively, these leases will continue on a five-year renewable basis as directed by statute, provided the terms and conditions of the lease agreements are met. In addition, no new camp leases will be developed.

Duck Lake Road Crew Camp

The Bureau has maintained a camp along the Duck Lake Road for management staff working in the area, however, its condition has deteriorated significantly and it has received little use since adoption of the original management plan in 1989. In 2000, a camplot lease on Gassabias Stream was terminated at the request of the campowner and the associated structures are now owned by the Bureau. The Bureau is considering either using them as a replacement for the Bureau crew camp on the Duck Lake Road, or converting the area to a campsite. Further study is needed to determine if the level of need will justify the cost of restoring the Gassabias Stream camp.

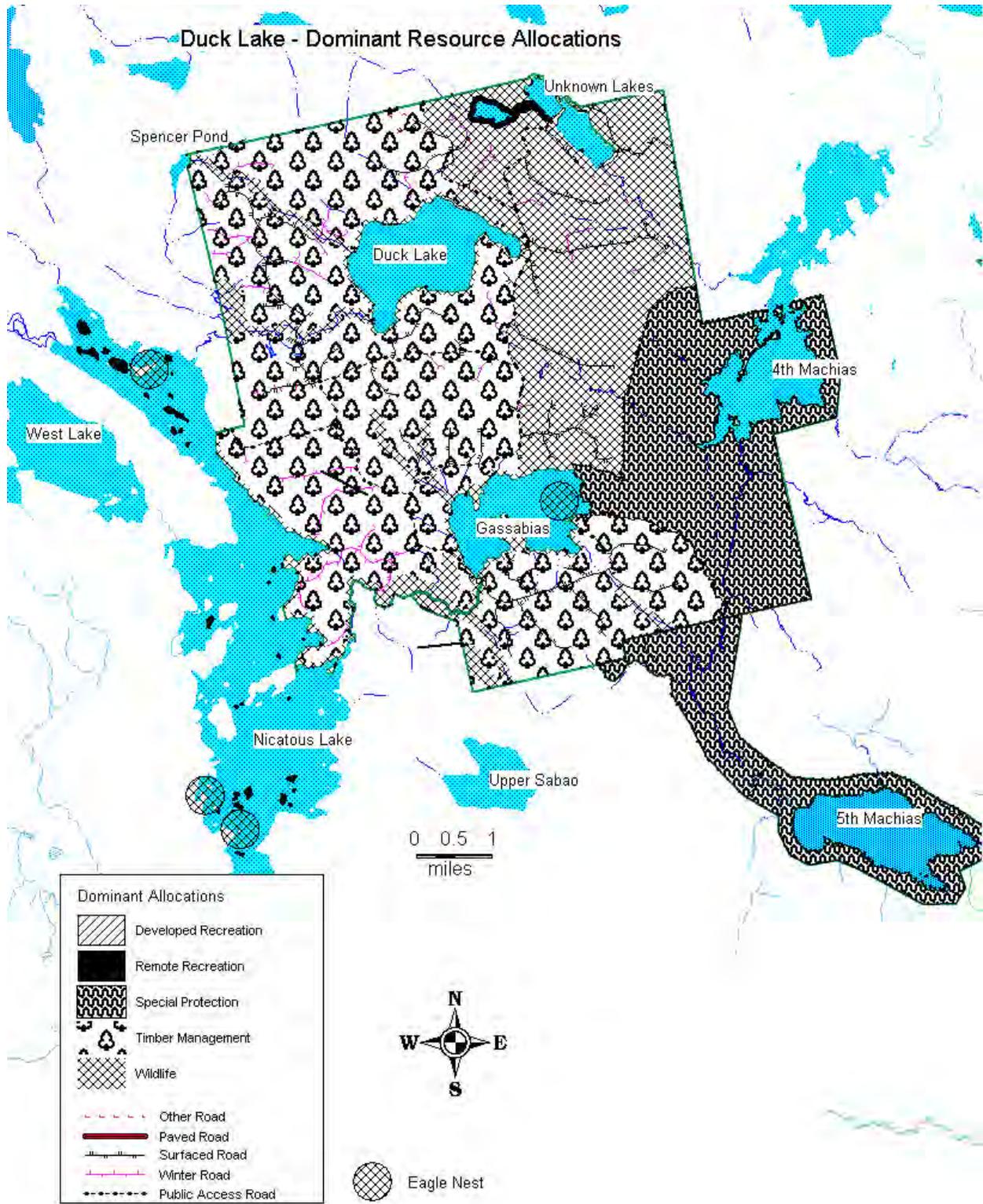
Inland Fisheries and Wildlife Camp

The Department of Inland Fisheries and Wildlife owns and maintains a camp on the southwest shore of Duck Lake. As recommended in the 1989 management plan, the camp was moved across the lake from its former site, with the site converted to a water access campsite.

Transportation and Administrative Management Issues

- The Duck Lake Road crew camp is in disrepair; the former camplot lease on Gassabias Stream is now owned by the Bureau and could be converted to serve as a replacement.
- Maps of shared use roads should be posted on the Bureau's website and on Unit sign boards.
- The bridge on Gassabias Stream now prevents vehicle through-travel, which continues to be a concern for some members of the public who used to access the Unit from the south.
- Some illegal motorized use has been reported by Sweetwater Trust in the deeded Ecological Reserve. They have requested the Bureau to place a barrier on the 42-08-0 Road where it crosses the ecological reserve boundary on the east side of Fifth Lake Stream.

Duck Lake - Dominant Resource Allocations



Duck Lake Unit Resource Allocations and Management Recommendations

The following resource allocation categories are listed in the order they appear in the allocation summary on page 10 of the Integrated Resource Policy.

Special Protection as a Dominant Use The special protection allocation as a dominant use will apply to the following areas:

- The Ecological Reserve on the easterly side of the Unit from Fourth Lake to Fifth Lake.
- The historic travel corridor from Gassabias Lake to Fourth Machias Lake (included within the Ecological Reserve).

Special Protection Management Recommendations

- Field staff will continue to identify and protect areas of ecological significance outside the Ecological Reserve. One such area is the seven acre mature sugar maple stand designated for protection by the Bureau in 1993.
- Primitive, non-groomed snowmobiling will be allowed on the existing Gassabias Portage Trail.
- Snowmobiling on the “Horseback Trail” in the Ecological Reserve will be discontinued. Signage explaining the non-motorized policy will be placed in appropriate places as determined by Bureau staff.

Wildlife Management as a Dominant Use

Wildlife management as a dominant use will apply to the following areas:

- The 5,985-acre area between Gassabias Lake and Upper Unknown Lake.
- Existing zoned deer wintering areas.
- Major wildlife riparian zones of 330 feet will be applied to all major streams, great ponds, and inland wading bird and waterfowl habitat. Minor riparian zones of 75 feet will be applied to all minor streams.
- Vernal pools, raptor nesting sites, and other specialized wildlife habitat. Areas surrounding bald eagle nests are considered “Essential Habitat” and will be managed for according to IF&W guidelines.

Basis for Wildlife Allocations:

Deer Wintering Areas: The Bureau’s goal is to increase the amount of softwood on the Unit, particularly where fire history has resulted in stocking of hardwoods. This is a long-term endeavor that dovetails both the silvicultural and wildlife goals for the property. The proposed wildlife allocation combines areas of historical winter deer use and primary softwood sites. To achieve the wildlife goals timber harvesting will need to be a strong secondary allocation. The proposed wildlife allocation contains approximately 6,000 acres. A little more than half of these acres (3,300) currently are dominated by softwood species other than pine with relatively dense crown closure (from 34% to 100% crown closure). Areas adjacent to the wildlife allocation also contain areas dominated by softwood types which contributes to the connectivity of suitable winter shelter. These softwood dominated stands meet IF&W’s “conforming cover” definition of

a deer wintering area but all the available acres may not be selected by deer during the winter. This is part of the rationale for the large proposed wildlife allocation. There are zoned deer wintering areas on nearby lands along the Dead Stream southeast of Fourth Machias Lake and on the west side of Fourth Machias south of Unknown Stream. Opportunity exists to coordinate deer habitat management with surrounding landowners across the region. In addition, management in deer wintering areas is coordinated with IF&W.

Riparian Zones: The Bureau designates a 330-foot riparian management area or zone along all of the lakes and ponds, major streams, and open wetlands within the Unit. A 75-foot riparian management area is established along secondary streams. These management zones protect important feeding and nesting areas and are used as wildlife travel corridors. Timber harvesting has played an integral role in the management of these riparian zones, with a goal of retaining key structural elements such as snag and den trees to encouraging a variety of tree species and age classes, while maintaining sufficient shoreline cover necessary for wildlife habitat and water quality protection.

Eagles Nest: A buffer has been maintained around the nest to protect it from harvesting and recreation activities, utilizing the *Bald Eagle Habitat Management Guidelines* developed by the Ontario Ministry of Natural Resources adapted for Maine habitat conditions. Although the eagle's endangered status is expected to be dropped, the Bureau has made no change to its habitat management policy due the eagles' importance as a wildlife resource.

Wildlife Management Recommendations

- Loon counts on Third and Fourth Machias Lakes will be prioritized, per deeded requirements that were made part of the Machias Phase II acquisition.
- Maintain a component of early-successional softwood forest within the Unit to enhance habitat for Canada lynx and other species.
- Look for/expand opportunities to enhance mature softwood habitats for softwood dependent species, especially deer. When feasible, coordinate with surrounding landowners in the provision of deer habitat on a regional basis. Continue the Bureau semi permanent seeding program to compliment adjacent landowner's wildlife food plots.
- The management goal for the 5,985-acre area between Gassabias Lake and Upper Unknown Lake portion allocated for wildlife is to increase the softwood stocking to maintain and expand use as deer wintering habitat, and to maintain a significant wildlife travel corridor between Fourth Machias Lake and the ownership boundary north of Upper Unknown Lake. Existing roads will be used in accomplishing wildlife management goals whenever possible.
- Continue implementation of the grouse habitat where sites conditions are favorable.
- Cooperate with IF&W in implementing an experimental brook trout fishery in Upper Unknown Pond for a three-year trial period. Stocking of yearling brook trout will occur in the fall.
- Continue to manage wetlands primarily through protective measures, but also include careful multi-age management of adjacent timber to encourage species diversity. Wood duck boxes will continue to be placed and maintained in appropriate areas.

Recreation and Visual Allocations Recreation management and visual allocations will apply to the following areas:

- The 100-acre area around Upper Unknown and the trail from Middle Unknown will be allocated as a remote recreation area, within the larger wildlife allocation.
- Public use and camping areas at Duck Lake, the Unknowns, and Gassabias Lake will be allocated as developed class I.
- The public use/shared use road system will be allocated as developed class I.
- Remote recreation as a secondary use will apply to shoreline areas on each of the waterbodies.
- Visual class I as a secondary use will apply to shorelines of the lakes, and public use roads.

Recreation and Visual Management Recommendations

- Primitive (non-groomed) snowmobiling from Fourth Machias Lake onto the “Horseback Trail” will be prohibited. Bureau staff will place signage explaining the non-motorized policy in appropriate locations and reserves the right to place barriers as necessary.
- Primitive, non-groomed snowmobiling across the historic portage trail between Gassabias and Fourth Machias Lakes (Gassabias Portage Trail) will be allowed to continue. Sledders are encouraged to connect to the Gassabias Portage Trail via the management roads to the north of Gassabias Lake rather than crossing the lake (though crossing Gassabias Lake is not prohibited).
- If an alternative to ITS 81 due to road plowing is needed in the future, the Bureau will seek to find an alternate route that avoids the ecological reserve and that utilizes trails or roads more suited to groomers. Staff will assess a new alternative to ITS 81 to be located in the Drag Brook Area, connecting into the existing Gassabias Road system. Any alternate trail will avoid the deer wintering area.
- The trail to Upper Unknown Pond will be managed for foot or snowmobile use.
- Safety, environmental, and ADA improvements will be made to the various primitive boat launching areas around the Unit as time and resources allow. The rustic nature of the facilities in the area will be considered when making improvements.
- Work with area residents and other interests in determining the suitability of providing a trailered boat access site on Nicatous Lake, to be located on the “fee connector” portion of the Unit. As an alternative, also evaluate improving the existing launch.
- Continue to monitor and develop strategies for managing popular public use areas on Duck Lake and the Unknowns.
- Because of the importance of motorized trail use in this area, continue to work with local ATV and snowmobile clubs and the Off-road Vehicle Division on an ongoing basis to address future connectivity or safety concerns.
- Develop a more formal trailhead off the Duck Lake Road near the Ecological Reserve on the northeast corner of Gassabias Lake for visitors to the Gassabias-Fourth Machias Lake Portage Trail old growth area.
- Explore the feasibility of managing the Ecological Reserve as a non-mechanized backcountry area and developing a hiking trail along the “Horseback Trail” at Fifth Lake Stream in conjunction with the trailhead to the Gassabias Portage Trail mentioned above.

Timber Management Allocations The timber dominant allocation will apply to the following areas:

- Most of the Unit, except for the ecological reserves, and wildlife dominant areas, will be managed as timber dominant.

- Areas allocated as wildlife dominant will allow timber management as an important secondary use, especially to maintain and enhance deer wintering areas.

Timber Management Recommendations

- Manage most of the well-stocked softwood acres to retain high spruce, hemlock, and pine components and a late-successional character, while producing high quality timber products and respecting viewsheds.
- Work to improve quality in the abundant acres of burn origin stands where quality is currently modest but the site allows for good growth.
- Encourage growth of pines, especially white pine, in both pine type stands and as significant components of softwood and mixedwood stands.
- Target mistletoe-infected spruce to the extent feasible given the above items.

Transportation and Administrative Management Recommendations

- The location of the evacuation sites will be put on Bureau maps and brochures.
- Continued communication between the Bureau and local snowmobile and ATV clubs is necessary to minimize conflicts on road use and for safety purposes.
- The Bureau will continue to communicate with its neighbor south of Gassabias Stream regarding the possible reinstallation of vehicular access from the south.
- The Bureau will decide which, if either, of the two Bureau camps on the Unit will be saved, and if so, how they will be maintained in an acceptable condition.
- Minimize road improvements and additions in the relatively un-roaded portion of the Unit to those deemed necessary to accomplish wildlife management goals. Use existing roads to accomplish management whenever possible.
- Place a barrier on the 42-08-0 Road where it crosses the ecological reserve boundary on the east side of Fifth Lake Stream to restrict motorized use.
- To enhance appearance and improve safety, no new log landings will be constructed on public access roads on the Nicatous portion of the Phase II Machias project.

Duck Lake Unit Dominant Allocations Acreages

Dominant Allocation	Acres
Special Protection	6,650
Wildlife	9,170
Remote Recreation	222
Developed Recreation Class I	36
Timber Management	13,709

Nicatous Islands and Conservation Easement

In 2000 the Bureau acquired from Robbins Lumber Company fee ownership of 78 islands in Nicatous Lake, and a 22,120-acre conservation easement on working forestlands for the entirety of T40 MD and the southeast corner of T3 ND. The islands range from a collection of large rocks to several large islands. The easement includes all of the western and northern shoreline of Nicatous Lake and the frontage on West Lake, and effectively extinguishes the development rights on the parcel. The acquisition of a 200-acre fee parcel on the eastern shore of the lake connects this parcel to the Duck Lake Unit, providing more than 50,000 acres of contiguous, publicly-held conservation lands. Robbins Lumber retained the right to manage timber, while granting public recreation management responsibility to the Bureau. Bureau staff incorporated this responsibility into the Duck Lake Unit management regime at the time of acquisition. An additional island, Dayton Island, was acquired as a gift from The Nature Conservancy. There is a camplot lease agreement with the former owners on a portion of the island itself, with the remainder available for general public use.

Primary access to the easement property is along the Morrison Ridge Road between the Nicatous Stream Road and the 32-00-0 Road, providing easy access to drive-to campsites on Upper and Lower Oxhead Ponds (five sites) and Loon and Crystal Ponds (two sites). The launching of boats also takes place at these sites, although these sites were not designed and constructed for that purpose. There is some erosion and overuse of an ATV access campsite. General upkeep and maintenance of these sites has required significant effort by Bureau staff.

Six water access camp sites are available on Nicatous Lake on the easement lands, with one located on the Duck Lake Fee Connector parcel along the east shore, and seven others on West Lake. Two sites on Nicatous Lake have walk-to access and are listed as requiring fire permits.

A boat launch site on West Lake is located on the northwest shore near the Nicatous Stream Road. Public launching on Nicatous Lake has been an area of issue and focus since the Bureau acquired the easement. Although there is an area just off the Nicatous Stream Road that has been used for boat launching; the site provides very little space with no opportunity for expansion. Boat launching and parking for a fee typically takes place at nearby Hemlock Lodge.

The 78 state-owned islands acquired from Robbins Lumber and a portion of Dayton Island provides opportunities for primitive camping at some sites and day use at others. Fire permits have not been issued for these sites, though unauthorized fires are common. There are no signs, kiosks, or privies available for visitors to these islands. Signs designating certain islands as day use only may be posted in the future.

Bradley Unit

Character of the Landbase

The Bradley Unit was acquired from International Paper Company (IP) and the Webber Heirs in 1985 as part of a public lands settlement that involved other lands around the state. The property is comprised of four connecting lots (two from IP and two from the Webber Heirs) totaling 9,277 acres, and a separate 229-acre parcel known as the “Kittridge Farm” Lot. These parcels were considered “trade lots” at the time they were acquired in anticipation of future transactions that never took place. The low, rolling topography of this area is a significant factor that led toward the emergence several wetland complexes on the Unit. Though occasional small ridges provide some slope, this parcel probably has less relief than any large Bureau tract with the exception of the Great Heath, with only about 180 feet elevation difference between the highest and lowest points.

The Unit also abuts the Lower Penobscot Forest Project area, a complex 42,000-acre conservation initiative (see “The Planning Context” section for more detail) involving the acquisition of private lands north and east of the property. The wetland complexes within the Unit are integral to the larger system of wetlands, woodlands, and watershed areas identified for protection within the project area.

The Webber parcels were heavily harvested from the 1940s to the 1980s, with most of the remaining trees being less than 60 years old. Both the IP and Webber parcels were extensively harvested in the 1980s. The Bureau conducted small harvests of its own in 1994, 1997, 2000, 2004, and 2006, targeting mostly aspen. The Kittridge Lot was harvested in 2004.

The only known cellar hole on the Unit is located on the Kittredge Lot where the area surrounding it was likely cleared at one time. In the early 1900s, the Bell Telephone Company cleared corridors throughout eastern Maine, including some corridors within the lands of the Bradley Unit, with the intention of connecting to the first ever trans-Atlantic cable. Though the project was never finished, the presence of occasional posts and guy wires are indicative of these early efforts.

Natural Resources

Ecological Processes and Wetlands

The four large wetland complexes comprise the key ecological features on the Unit, and their protection is critical to both the Unit properties and to the region. There are 2,469 acres of wetlands, including 437 acres in open wetland and three large peatlands. These peatlands range from a mature and dry wooded bog to an open peatland dominated by shrubs to a very wet forested swamp. Peatlands found in No. 26 and No. 32 swamps were formed by mats of Sphagnum moss that accumulated in basins. The southwestern and southeastern corner of the Unit is bordered by Great Works Stream, which is part of an extensive wetland complex that is a haven for waterfowl.

Geology and Soils

Most of the Unit is underlain by calcareous sedimentary/metasedimentary bedrock. The southernmost portions of Bradley also include moderately calcareous and acidic sedimentary/metasedimentary bedrock. The semi-calcareous bedrock is a contributing factor to the higher percentage of cedar in the wetland complexes. The dominant surficial geology type is till deposited during the last glaciation. The large wetland complexes are characterized by swamp, marsh, and bog deposits, and the southernmost portion of the Unit consists of fine-grained glaciomarine deposits. An esker runs north-south by the western boundary of Bradley with a small portion located within the Unit. Both the Bradley Unit and Kittridge Lot are underlain by the Colonel-Dixfield-Brayton Soil Association, characterized by somewhat poorly drained, coarse loamy soil; although the upland portions are primarily of the Telos-Chesuncook type.

Hydrology and Water Quality

There are no ponds, lakes, or major streams within the Unit, except where the southwest corner borders the floodplain of Great Works Stream, and where it crosses the southwest and southeast corners of the Lot. The stream, which is dammed near the southern boundary of the Kittridge Lot, includes large wetlands and important wildlife habitat. The waters of the Unit drain to the Penobscot River via Great Works Stream and Sunkhaze Stream.

Natural Communities

The forestlands are characteristic and typical of the surrounding low and rolling terrain, and are comprised mostly of softwood (64%) and mixedwood (34%), with only a few hardwood stands (2%).

No. 26 Swamp is considered an exemplary, mature Raised Level Bog Ecosystem. The peatland component consists of the Spruce – Larch Wooded Bog and Sheep Laurel – Dwarf Shrub Bog community types. The typical Spruce – Larch Wooded Bog area contains 20% cover of stunted black spruce with a diameter range of two to three inches. Beneath this partial canopy, a dense shrubby layer dominated by black spruce and mountain holly is found. The herb layer is also dense and dominated by black spruce, mountain holly, leatherleaf, rhodora, and huckleberry, with lesser amounts of other common species. Where the peatland is generally wetter, the Sheep Laurel – Dwarf Shrub Bog natural community type is common. Sphagnum moss covers over 90% of the total area.

No. 32 Swamp located just east of No. 26 Swamp contains a peatland comprised of the Spruce - Larch Wooded Bog community type, and is notably drier than the community at No. 26 Swamp. A canopy of black spruce, including some over 20 feet tall, covers 10% of the area. One black spruce was found to be roughly 125 years old with a diameter of five inches. The tall shrub layer is dominated by black spruce, with the small shrub layer containing moderate amounts of black spruce, with mountain holly and rhodora more common. The herbaceous layer is extensive, covering 80% of the total area, and diverse. The lack of surface water and the presence of a small black spruce canopy suggest that the slightly drier conditions have allowed a broader range of species to flourish.

Island Swamp, in the northern part of the Unit, is a forested swamp. The area does not fit easily into a single natural community type. The area has a “hummocky” topography with large amounts of standing and fallen deadwood, along with large amounts of surface water in pools. The canopy has 50% closure and contains relatively equal amounts of black ash, northern white cedar, and red maple, with lesser amounts of balsam fir. An 11.5 inch cedar was found to be about 130 years old. The dense shrub layer is dominated by a mixture of regenerating trees (black ash, balsam fir, cedar, and red maple) and shrubs including speckled alder and winterberry. The herbaceous layer covers 80% of the total area and is dominated by royal fern



No. 32 Swamp

and sensitive fern, along with the speckled alder and winterberry growing on the hummocks. Portions of Island Swamp once contained commercially grown and harvested cedar.

Lower Penobscot Forest Project
(See “*Planning Context*” section for more detail)

The Unit abuts an important conservation acquisition project area known as the Lower Penobscot Forest Project, a partnership between the Nature Conservancy and the Forest Society of Maine that includes the conservation of 42,000 acres of private lands. The project area abuts the Unit along its northern

and eastern boundary. The wetland complexes within the Unit are integral to the larger system of wetlands, woodlands, watershed, and Atlantic salmon habitat areas slated for protection under this project, which will also include the use of federal Forest Legacy funds to acquire and preserve a working forest component. The acquisition involves a fee purchase in the nearby Town of Amherst.

Natural Resource Management Issues

- The Maine Natural Areas Program has identified the significance and importance of the wetland complexes within the Unit, and have stated that any management within the Unit be planned with care and consideration for these resources, including a forested buffer around the wetlands and no new roads in wetlands.

Fisheries and Wildlife Resources

Wildlife

Wildlife considerations and management on the Unit consist mostly of the important habitat provided by the extensive wetlands. Wildlife riparian zones along the upland portions of these

areas have been maintained since acquisition of the property. Riparian zones have also been established where the property abuts Great Works Stream. The Bradley Unit and Kittridge Lot together provide approximately 1,164 acres of inland wading bird and waterfowl habitat. Although there are no documented deer wintering areas on the Unit, timber harvesting to enhance softwood cover for deer has been routinely incorporated into forest management planning, including the retention of cedar where found. Cedar is an important species in the Unit due to its relatively high occurrence by eastern Maine standards. Red oak is scattered through the upland stands and supplies hard mast in the absence of American beech.

The Northern Leopard Frog, a species of Special Concern according to IF&W, was found on the western edge of No. 26 Swamp during the 2006 inventory. The frog looks very similar to the more common pickerel frog and prefers “semi-terrestrial” habitat, such as damp wooded areas and meadows. It seeks shallow pools for breeding and returns to its home breeding area in the spring using solar, celestial, and/or lunar cues (Hunter, 2006).

The creeper mussel, a species of special concern, is known to occur on abutting private lands downstream from the dam on Great Works Stream. Water level management at the dam can impact their habitat.

Likewise, the sedge wren, an endangered species, has been found in the wetlands upstream of the dam on abutting private lands. Where the dam functions in part to maintain water levels in these wetland areas, management of the dam for this purpose should help protect the habitat needs of the wren.

Fisheries

Great Works Stream is the only waterbody on the Unit where there are fishery concerns and resources. The stream provides important Atlantic salmon habitat and has historically supported a population of the protected species. Populations of brook trout are also known to occur in these waters. A low head concrete dam on Great Works Stream near the landing on the Kittridge Lot is owned and maintained by the Bureau and includes a steep pass fishway installed in the early 1990s. The primary function of the dam is to maintain sufficient water levels for boating use and boat access to several camps upstream, and to maintain stable water levels in the extensive wetlands. The fishway was first operated in the spring of 2008 to pass alewives for spawning. Prior to this, fish passage was blocked by beaver dams. There continues to be concerns, however, about the overall condition of the dam, particularly the condition of the wing walls on either side. Little Birch Stream which drains Island Swamp also has a trout fishery.

Fisheries and Wildlife Management Issues

- Although there are no mapped deer wintering areas on the Unit, there is a history of deer use. Soil conditions do favor efforts to enhance softwood for deer use.
- Management recommendations from IF&W for areas containing Northern Leopard Frogs have been implemented, which includes a 250-foot forest buffer along the affected wetlands.
- The primary function of the Bureau-owned dam on Great Works Stream is to provide for fish passage; however, the dam is also important in maintaining water levels in the upstream

wetland areas, and for boat access on the stream. Additional work is necessary to determine the overall condition of the dam, particularly the wing walls on either side.

- Habitat considerations for the creeper mussel and sedge wren will need to be included in future decisions regarding operation and maintenance of the dam on Great Works Stream.

Recreation Resources

Recreational use of the property has consisted mostly of hunting and motorized trail use for connections to other areas of the region. Local ATV and snowmobile clubs have been active in developing and incorporating trails into a larger regional and statewide system that has now become an important recreational and economic resource to the Eastern Interior Plan Area in general. ITS 84, a major snowmobile thoroughfare that connects the Orono-Old Town-Milford area to eastern and northern Maine destinations passes through the Unit. The ITS 107 connector trail connects Clifton, Holden and Eddington to ITS 84. More recently there has been an increase in cross-country skiers, walkers, joggers and dog-walkers due to recent development near the Unit.

The boat landing on the Kittridge Lot is a popular day use spot for local residents. The site is also used by lessees owning camps on nearby private lands, dependent on sufficient water levels being available in order to maintain boat access. There is also some limited use of the stream for general recreation.

Recreation Management Issues

- The general recreational use of the Unit has been limited, due in part to the lack of vehicle access and the limited number of recreational resources available on the Unit. The ability to explore and manage any additional recreational opportunity will depend on the ability to obtain deeded access to the property.
- Improvements are needed at the Great Works Stream boat landing area and the access road, although the extent of those improvements has yet to be determined.

Timber and Renewable Resources

The forestlands of the Bradley Unit were commercially managed for many years, with much of the acreage heavily harvested during the 20 year period prior to state acquisition. An area of approximately 1,200 acres in size was less heavily harvested, with a significant overstory retained consisting primarily of white pine. More than 20% of the Unit is unsuitable for sustained timber management due mainly to the abundance of wetlands. A significant portion of areas suitable for timber management are on soils with poor drainage, though the majority has drainage and fertility sufficient to grow good softwoods along with fair hardwoods.

The Bureau conducted pine shelter-wood harvests in 1993-94, 1999-2001, and 2008 and improvement harvests in 1994-95 and 2007-08. Selection harvests were conducted on the Kittridge Lot in 2005 and 2007.

Due to its extensive harvesting history, the Unit may have the lowest volume per regulated acre of any large Bureau tract, with only 14 to 15 cords per acre. There is an abundance of large sapling and small pole-timber trees established or released by those heavy cuts, giving this Unit a larger proportion of early-successional habitat than most Bureau lands.

Stand Type Characteristics (regulated acres only)

Softwood type covers about 4,300 acres of the Unit or approximately 62% of the forest, and consists of 34% white pine, 26% cedar, 17% spruce, 9% red maple, and 5% fir. About 25% of the softwood stands are pine-dominant. The pine and spruce are mostly of good quality, though some pine is heavily limbed or crooked and there are areas of limited drainage where the spruce is in decline. Cedar is of poor quality and red maple is also of poor quality due to poor growing ground. Fir is mostly young and doing well. Management has and should continue to work towards increasing the pine component, which is already the highest for any unit-wide broad forest type on Bureau lands, while maintaining spruce in at least its present abundance. Regeneration from the 1970s harvests will have a high fir component, which may provide a commercial harvest that leaves spruce and pine with increased growing space. Hardwoods retained for diversity should be those found on the better micro-sites when feasible. Little harvesting is anticipated in the near future where cedar is the dominant species.

Mixedwood is found on 36% of the forest, and consists mostly of spruce (22%), white pine (21%), and red maple (18%). Four other species (aspen, hemlock, paper birch, and fir) each make up approximately six to seven percent of the volume. The residual over-story from pre-Bureau harvests is mostly of poor quality with the notable exception of pine. Young trees are higher quality, especially the pine. Although a few areas are fertile enough to grow quality hardwoods, pine and spruce should be encouraged first, along with hemlock where the site will grow it well. Fir should continue to be managed as an intermediate species.

Hardwood type on this tract is limited to less than 200 acres of young stands. Most of this is aspen-type, which holds mid-aged aspen over a younger component dominated by fir, hemlock, red maple, and white pine. Non-aspen hardwood type is found on only a few acres.

Summary of Timber Management Issues

- Current timber inventory is well below average for Bureau lands, but there is an abundant stocking of younger trees of overall good quality.
- Access is difficult throughout much of the parcel, due to the extensive bogs and connecting wetlands, and the manner in which most roads were built by the previous landowner. The low inventory and limited value of many stands will make any significant upgrade of the access a challenge.
- Lack of formal access to the Unit presents challenges for forest management access in the future.

Transportation and Administrative Considerations

Access to and within the Unit

The Bureau has no deeded access to the Unit. All access points to the property (Baker Brook Road, Parent Road, Kingsbury Road, 22-00-0 Road) are behind three gates owned by abutting

landowners. Options for establishing public vehicle access have been explored, although this would require purchase of a right-of-way on private roads, and possibly reestablishing of an old crossing on Little Birch Stream. The existing road system on the Unit constructed by the previous landowners is partially in place, but portions of it are in considerable need of upgrading, particularly if portions of this system are to be used for public vehicular access.

Remaining Title Issues

The Bureau was of the understanding that Webber Heirs would convey their ownership north of Great Works Stream, however deed descriptions left off a portion of one “old” lot and range. The result was approximately 45 acres and ½ mile of stream frontage was not legally conveyed. There is a camplot lease on this portion for which the Bureau has been collecting the lease fee since acquisition of the Unit. Staff attempted to obtain corrective deeds in 1992 but the matter was not settled.

Camplot Leases

There are thirteen camplot leases on the Unit established by previous landowners, including one on the island in Island Swamp which dates back to the 1920s. Most leases have been used as hunting camps. Access to most of these leases is along four-wheel-drive roads, with many lessees now using ATVs. Recent changes in ATV laws now require written permission from the Bureau, although these permits have not yet been issued. The lessees are also concerned about the future of their lease sites due to the lack of deeded access to the Unit.

Three leases were recently approved for relocation, mostly in response to construction of the transmission line corridor which ran through or in close proximity to many of these leases. There is also a camplot lease on Great Works Stream located where clear title to this portion of the Unit was never obtained (see Title Issues above). The Bureau, however, has continued to collect the lease fee since acquisition of the Unit.

Bangor Hydro Transmission Corridor

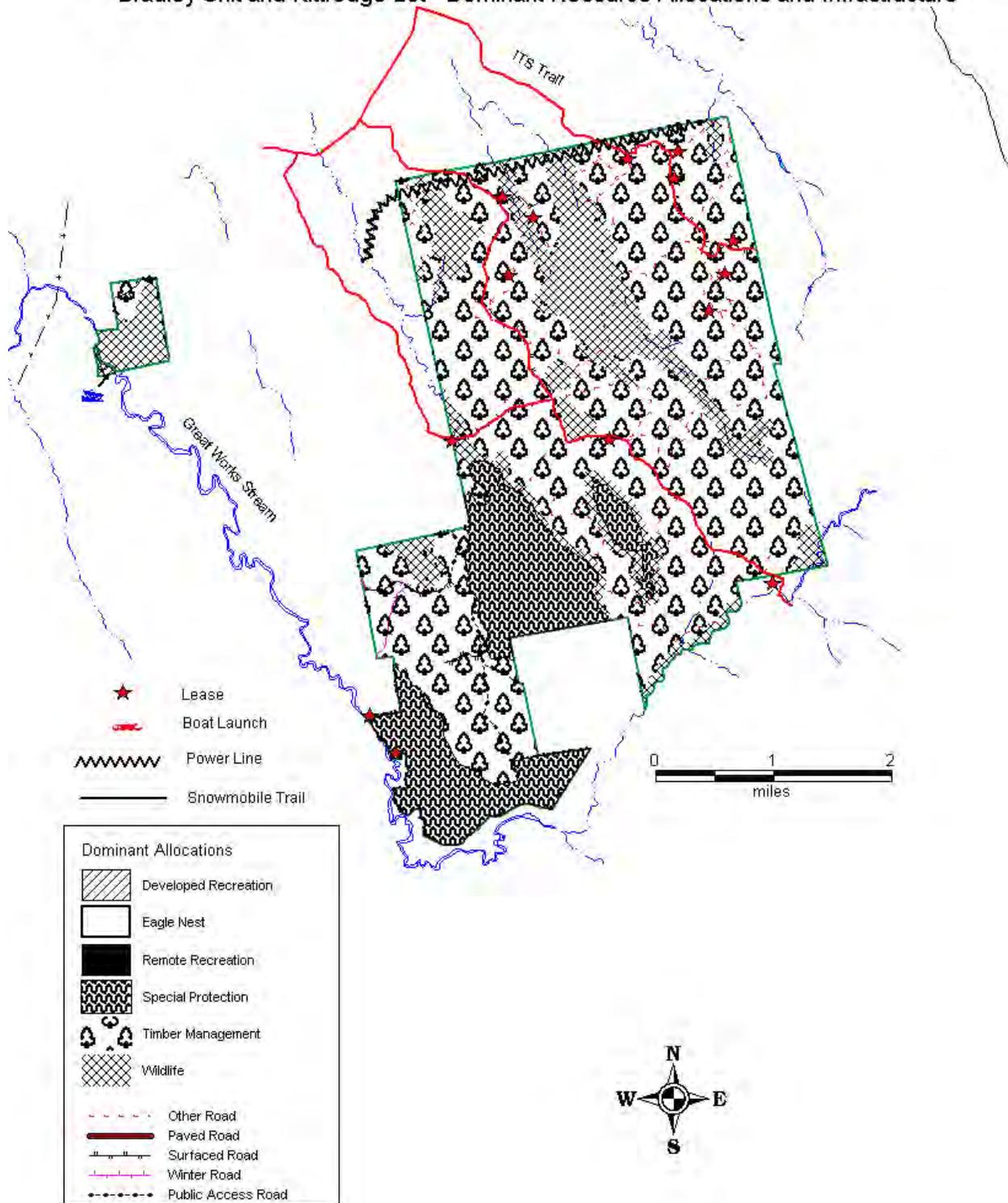
Bangor Hydro Electric Company has held a lease along a two and one-half mile corridor along the northern boundary of the Unit since 1990 in anticipation of needed expansions to its transmission line infrastructure in eastern Maine. In 2006 the lease was renegotiated to allow for the construction of a 170 foot right-of-way in the same location as part of its Northeast Reliability Interconnect project. Bangor Hydro has since built the transmission line, and is currently exercising its option to purchase the right-of-way. Certain administrative crossings have been held in reserve for the Bureau as part of the lease, which will continue if the corridor is sold.

Transportation and Administrative Management Issues

- There is no deeded access to the Unit. Vehicle access to the Unit requires crossing of private lands and are behind locked gates.
- The management road system within the Unit is currently in development, and considerable reconstruction is necessary along certain portions if it is also to be used for vehicular access in the future. Some roads will need to be removed from wetland areas and some new roads will need to be built.
- Camplot lessees require four-wheel-drive access or access by ATVs.

- There is concern among camplot lessees regarding the lack of deeded access to the Unit and future ability to access their camps.
- Relocation of several lease sites still needs to be completed.
- The Bureau continues to collect an annual lease fee from a lessee within an area of the Unit north of Great Works Stream where clear title was not obtained.
- With the Bangor Hydro transmission corridor now completed, there is an effort underway for Bangor Hydro to acquire this corridor in fee, the option of which was stipulated in the initial lease agreement for the corridor. The Bureau will need to secure the right to cross the powerline with new roads in any place legally allowable.

Bradley Unit and Kittredge Lot - Dominant Resource Allocations and Infrastructure



Bradley Unit Resource Allocations and Management Recommendations

The following resource allocation categories are listed in the order they appear in the allocation summary on page 10 of the Integrated Resource Policy.

Special Protection as a Dominant Use The special protection allocation as a dominant use will apply to the following areas:

- The 593-acre Great Works Stream reserve established in 1993.
- The acreage associated with Number 26 Swamp (677 acres) and Number 32 Swamp (103 acres).

Special Protection Management Recommendations

- The Bureau will apply the standard 330 foot major riparian zone buffer around these special protection areas (at the suggestion of MNAP).

Wildlife Management as a Dominant Use The wildlife management allocation as a dominant use will apply to the following areas:

- A 330 foot Riparian zone on Baker Brook, Great Works Stream, Number 16 Swamp, and Little Birch Stream.
- Island Swamp.
- All open wetlands.

Wildlife Management Recommendations

- Manage the timber in a way to retain all red oak as a hard mast food source.
- There will be very light cutting in cedar dominant areas.
- Retain shelter values of softwood stands that may support wintering deer.
- Apply IF&W management guidelines for areas containing Northern Leopard Frogs.

Recreation and Visual Management Areas Recreation management and visual allocations will apply to the following areas:

- The short section of the Dam Road on the Kittredge Farm Lot will be allocated as a public access road, and class I visual. All other roads will be designated management roads.

Recreation and Visual Management Recommendations

- Coordinate activities and development at the boat launch with IF&W and the Town of Bradley.
- Coordinate with local ATV and snowmobile clubs to provide interconnecting trails in appropriate places as needed.

Timber Management as a Dominant Use The timber dominant allocation (except where otherwise noted) will apply to the following areas:

- All areas not allocated as special protection areas or wildlife dominant areas will be timber dominant.
- Wildlife dominant areas will have timber as a secondary use.

Timber Management Recommendations

- Continue to manage for pine where feasible. Pre-commercial treatment may be necessary to keep some regeneration from being dominated by fir and hardwoods.
- Regenerate/salvage high risk black spruce stands in upland areas.
- Reduce fir component in young stands as they become operable.
- Work with abutting landowners (current and future) toward securing access for timber management.

Transportation and Administrative Management Recommendations

- Continue to work with the abutting landowners towards obtaining access rights for administrative, camplot lease, and general public use purposes.
- Work with Webber Heirs to resolve title issues on land and camplot lease north of Great Works Stream.
- As Bangor Hydro works toward purchase of their powerline corridor, look to secure the right to cross with new roads in any place legally permissible.

Bradley Unit and Kittridge Lot Dominant Allocations Acreages

Dominant Allocation	Acres
Special Protection	1,429
Wildlife	1,809
Developed Recreation Class I	2.5
Timber Management	6,248

Machias River Unit

Character of the Landbase

The Machias River, one of Maine's wildest and most cherished waterways, flows for 76 miles from Fifth Machias Lake to tidewater at the coastal town of Machias. The Bureau oversees stewardship and recreational use of the nearly unbroken woods along its shores, thanks to a remarkable effort that has protected more than 60,000 acres in the Machias River watershed—the country's largest, self-sustaining wild Atlantic salmon run. This landscape-scale conservation project, which has spanned more than 10 years and is still underway, is preserving 252 miles of river and shore frontage from development and subdivision, while ensuring that the region's working forests can keep contributing to the local economy. Recreational access to these lands is guaranteed through time, maintaining canoeing and sporting traditions that have endured for centuries. The Machias River project has received federal recognition and widespread support from Maine's congressional delegation.

The Machias River ranks with the St. John, the Allagash, and the Penobscot as one of Maine's most scenic and outstanding paddling rivers. Over the course of 76 miles, canoeists enjoy an array of water courses – from lakes and swamps to rapids and waterfalls. The river is well known as a sport fishery for both cold and warm water species, while providing important spring spawning and nursery habitat for the Atlantic salmon. As a result of declining statewide salmon populations over the past 15 years and the designation of the Gulf of Maine Distinct Population Segment (DPS) of the Atlantic salmon as endangered, the Machias became the focus of a significant conservation project. After years of planning and negotiations involving numerous conservation partners, landowners, and funding sources, a three-phase acquisition project was initiated to include the entire river corridor and its associated lakes and tributaries. As a result, the Bureau acquired a total of 13,791 acres along or near the Machias River and tributaries north of Route 9, including frontage on the Machias Lakes, Fifth Lake Stream, Gassabias Stream, and Nicatous Lake. A portion of this was added to the Duck Lake Unit. The newly acquired Machias River Unit includes the area from Third Machias Lake to Route 9.

The Machias River conservation project was implemented in three phases (with Phase III still in progress). Phase I of the project included a fee purchase of 6,129 acres, which became part of the new Machias River Unit, along with the conveyance of 18,443 acres of conservation easements along the river north and south of Route 9 to the state Bureau of Sea Run Fisheries and Habitat (formally the Atlantic Salmon Commission). The Bureau of Parks and Lands was given responsibility for managing river recreation within the easement area. A Memorandum of Understanding (MOU) between the Bureau of Sea Run Fisheries and Habitat (BSRFH) and the Bureau of Parks and Lands was established for all of the above lands, requiring the Bureau to consult with the BSRFH prior to conducting management activities relating to recreation facilities improvements, timber harvesting, and road improvements. The MOU also requires consultation with The Nature Conservancy, and provides a source for funding various management activities through an endowment (see Appendix E for MOU).

Phase II of the project included 7,785 acres along or near Third, Fourth, and Fifth Machias Lakes, Fifth Lake Stream, Gassabias Stream, and Nicatous Lake, with all but the lands on Third Lake (2,522 acres) to be managed as part of the Duck Lake Unit. The lands surrounding Third Machias Lake were added to the new Machias River Unit.

Phase III of the project is focused on the acquisition of lands between Fifth Machias Lake and Wabassus Lake providing connectivity between portions of Phase I and II lands and other conservation lands owned by DLLT. (The Farm Cove Community Forest, land bordering the northern portion of Fourth Lake and Fourth Lake Stream are owned by DLLT and subject to a BPL project agreement). As of 2008, Phase III has been designated as the highest priority project in the United States for funding by the federal Forest Legacy program, building on successes of Phase I and II.

The Machias River project provides the Bureau with great opportunity to collaborate with BSRFH, DLLT and others in recreation management, wildlife management, and conservation of an endangered species. The subject of this section—Machias River Unit—consists of the land along Third Machias Lake all the way south along the Machias River to Route 9.

Natural Resources

Natural and Geological Resources (MNAP, 2007)

First, Second, and Third Machias Lakes, along with Salmon Pond, have been selected by TNC as portfolio lakes, meaning they are high value waters that best represent the ecosystems, natural communities, and species characteristic of the region. Criteria used in evaluating lakes and ponds include water quality, dam impacts, presence of rare or noteworthy species, rarity, and remoteness.

First Machias Lake (122 acres) has a maximum depth of 30 feet. Third Machias Lake (2,558 acres) has a maximum depth of 28 feet and a direct drainage area of 14.2 square miles. Both lakes are considered eutrophic, meaning they are warm waterbodies with high nutrient values.

Geology and Soils

The Machias River parcel is underlain by acidic granite bedrock, with some portions near Third Machias Lake underlain by moderately calcareous sedimentary/metasedimentary rock. The river parcel is underlain primarily by ice-contact glaciofluvial deposits and till, with lesser amounts of esker and glaciomarine deposits. In general, river corridor is dominated by excessively drained, gravelly – sandy loam Colton-Adams-Vassalboro soils, while the area surrounding Third Machias Lake includes somewhat excessively drained, very stony – fine sandy loam Colonel-Dixfield-Lyman soils.

Wetlands

The River lands include 1,447 acres of open wetlands and 472 acres of forested wetlands.

Ecology and Natural Communities

The stretch of river between the outlet on Third Machias Lake and the Stud Mill Road just north of the inlet to First Machias Lake in T43 MD BPP and T37 MD BPP was surveyed by MNAP. A large portion of this segment consists of areas of slow moving water with small adjacent wetlands.

A small Sweetgale-Mixed Shrub Fen is found in the slow moving segment of river south of Third Machias Lake. Down river to another section of slow moving water, the river banks transition into a Mixed Graminoid Shrub Marsh. The segment of river between the area of slow moving water and Second Machias Lake has numerous segments of ripples and a section of Class I white water.

The eastern shoreline of Second Machias Lake has a very sandy and gravelly bottom. Pipewort, soft stem bulrush, twig-rush and pickerel weed make up the partially submerged aquatic beds along the edge of the lake.

The river segment below Second Machias Lake down to the Stud Mill Road is ecologically similar to the previous. Water bulrush, water lily, and floating pondweed are the dominant aquatic plants. A small inlet on the west side of the river leads into a beaver-controlled Sedge Leatherleaf Fen Lawn. This area is buoyant with sphagnum. Just south of this small pocket wetland is a raised Sheep Laurel Dwarf Shrub Bog. Rhodora is most abundant with moderate amounts of leatherleaf and sheep laurel. Red maple and mature white pine are scattered throughout this small bog. Continuing south towards the Stud Mill Road a small inlet enters on the west side of the stream. The edges of the stream are dominated by graminoids.

Three species of rare animals have been documented along the Machias River. The rare brook floater, a freshwater mussel, has been documented from five locations in the river (all were observed in 1994). The pygmy snaketail is a rare dragonfly that was documented from one section of river in 1996. Wood turtle is a species of concern in Maine. It was documented near the river in 1994.

Natural Resource Management Issues

- Road maintenance and repairs within the corridor are very sensitive due to the endangered Atlantic salmon habitat. The U.S. Fish and Wildlife Service, the BSRFH, the Washington County Soil and Water Conservation District and Project SHARE all want bank to bank free passage at water crossings that support or could support salmon. This requires the use of larger, more expensive culverts or crossing devices. To date, several of these replacements have been facilitated by funding available for such uses. The Bureau is a signed cooperator with Project SHARE, who holds a federal license to install such crossings.

Historic and Cultural Resources

The Machias River Corridor is rich in Native American and early Euro-American logging sites as the river was a major “highway” for both. There are numerous known aboriginal sites along the corridor from First to Fifth Machias and surely many undocumented. The numerous old

dams along the waterway have largely been breached with water levels now closer to natural levels.

The river's name derives from a Passamaquoddy Indian word meaning "bad little falls," which refers to a steep stretch of falls that now lies in downtown Machias—marking the river's transition to tidewater. The Machias River was a major travel route for the Passamaquoddy Indian tribe ("People of the Dawn"), who spent winters hunting and trapping animals such as mink, fisher, otter and beaver in the north woods, and migrated each spring to the coast to gather plants and shellfish. Along the shores of Machias Bay, petroglyphs that date back 3,000 years depicting animals and tribespeople testify to the significance of this long-standing tradition.

Following the arrival of European settlers in the late 1700s, the Machias River was a vehicle for transporting timber from the North Woods to coastal saw mills powered by the river's force. At the height of the lumbering boom, the Town of Machias had 20 sawmills processing lumber and exporting wood products.

While timber is still a valuable resource harvested through much of the river's watershed, the log drives along the Machias River ended by 1970 as timber operations became more mechanized and trucks were used to haul out logs. The last logging dams were removed from the Machias in 1974, restoring the river to its free-flowing condition and improving navigability for recreational users.

Historic and Cultural Resource Management Issues

- Facility improvements are sensitive due to the possible presence of Native American and Euro-American artifacts along the corridor.

Fisheries and Wildlife Resources

Fisheries

Acquisition of the Machias River Unit and the BSRF easement align with a system of seven rivers in Maine being protected as part of the Atlantic Salmon Recovery Plan. Riparian buffers are an important aspect of Atlantic salmon protection, as they protect critical habitat by regulating temperature through shading, regulating streamflow, protecting water quality and providing organic input. Habitat degradation can lead to decreased production of salmon smolts if certain water quality, quantity and land use parameters are not met (Kleinschmidt Associates, 1999). The riparian buffers now provided along the Machias River will be managed in concert with the BSRF to effectively protect water quality, temperature, flow and other important parameters for Atlantic salmon recovery.

Other fish species in this system are important to guides and fishermen. The fishery in First Machias Lake includes American eel, alewife, banded killifish, brook trout, chain pickerel, white sucker, common shiner, creek chub, lake chub, pumpkinseed, smallmouth bass, white perch, and yellow perch. The fishery at Third Machias Lake include alewife, American eel, brown bullhead, white sucker, chain pickerel, banded killifish, pumpkinseed, smallmouth bass, white perch, rainbow smelt, brook trout, fallfish, and yellow perch.

Wildlife

Three species of rare animals have been documented along the Machias River. These include the brook floater, a freshwater mussel found in five locations, the pygmy snaketail, a rare species of dragonfly found in one location, and the wood turtle, a species of concern in Maine.

Wading bird and waterfowl habitat on the river lands total 1,663 acres. There is a 113-acre portion of a zoned deer wintering area along Thompson Brook where it enters the river just south of Third Lake.

Fisheries and Wildlife Management Issues

- The entire corridor is considered Atlantic salmon habitat. The Bureau of Sea Run Fisheries and Habitat holds an easement and timber rights on a 250 foot strip along each side of the river, for habitat protection and enhancement purposes. They have communicated the possibility of working with the Bureau to implement fisheries enhancement projects that may include timber cutting. The Bureau will need to consider Atlantic salmon needs and consult with BSRF before performing any timber management, road construction, or recreational construction.
- Management activities near areas containing the rare brook floater, pygmy snaketail dragonfly, and the wood turtle should be planned in consultation with IF&W species management guidelines.
- Loon nest protection needs to be a priority on this Unit.
- Although deer use is low on the Unit, some management for deer wintering areas is desirable. There is interest in coordinating DWA management with adjacent landowners.

Recreation and Visual Resources

At the core of any recreational management considerations will be the need to coordinate facilities and use with important salmon habitat needs. Any management will also need to be in consideration of the high quality experience provided by the river itself, host to many guided and un-guided canoe trips. On the Machias River Unit, there are 25 campsites in seven locations, including five sites on Third Machias Lake. Many of these sites and use areas are vehicle accessible, with the 52-00-0 Road from Route 9 to the Studmill Road providing the main access to the corridor. Most of the campsites and facilities with the heaviest use are located along this stretch, including the campgrounds on Route 9 and the confluence of the West Branch.



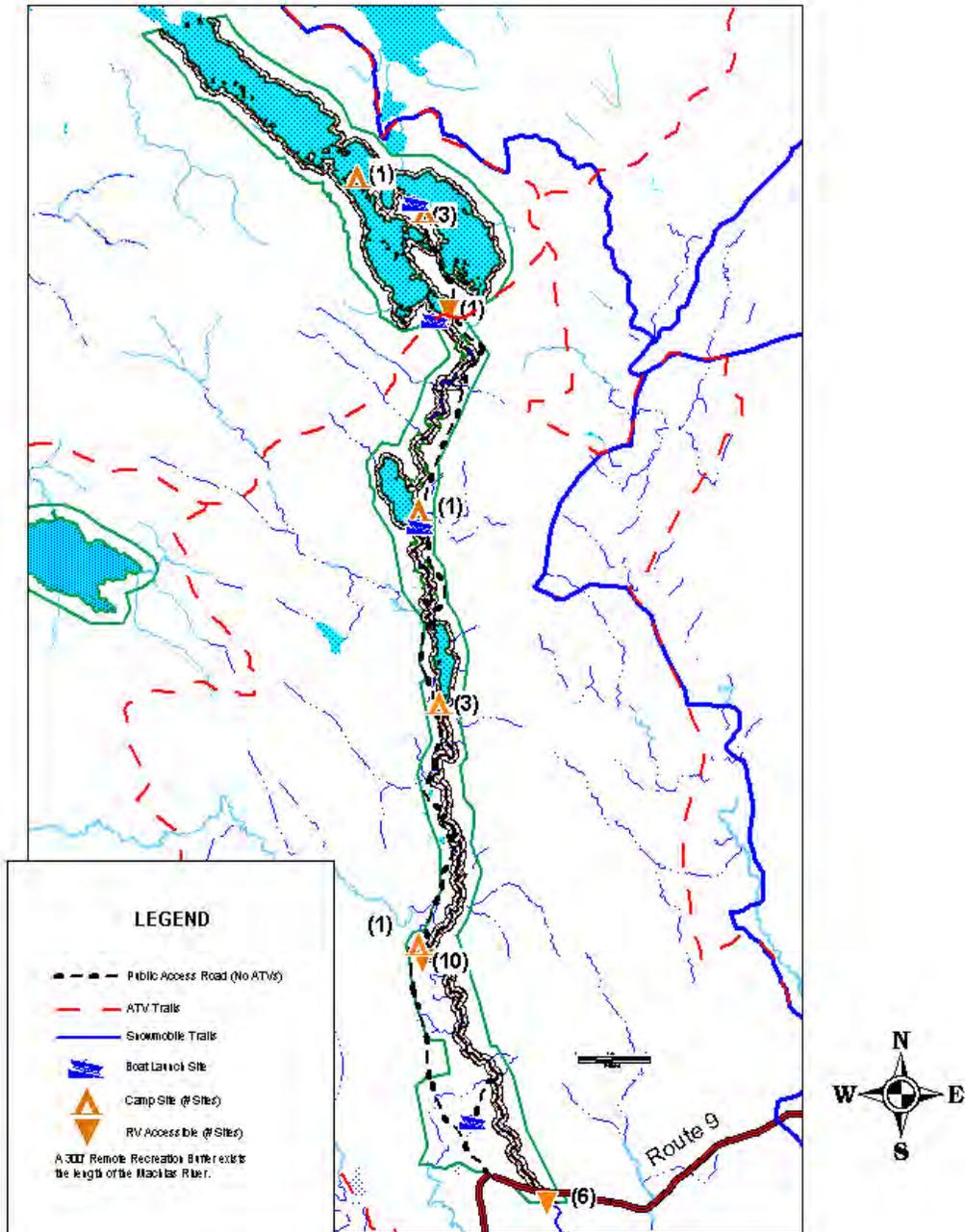
Boating on the Machias River

There are six boat launching areas along the river course: two on the river located at the so-called “Wonderland” campsite and the Route 9 campground, two on Third Machias Lake, one on Second Machias Lake, and one on Salmon Pond. These sites are all considered primitive (unimproved) and are better suited for hand carry launching. The heavier used site on Third Machias Lake is not in a good location, and could possibly be relocated to the “middle ground” area of the state’s ownership. Salmon Pond holds potential for developing an ADA compliant launching and fishing area.

Although known for its boating and fishing resources, the area from Route 9 to the Studmill Road along the east side of the river has potential for a non-motorized trail that could include hiking, mountain biking and/or horse-back riding, although this section lacks viewpoints. Allowance for existing motorized access/crossings would need to be considered.

Due to the heavy truck and car traffic along the 52-00-0 Road, its use by ATVs has not been permitted for safety reasons. Some ATV riders have expressed interest in connecting trails from campsite areas to the current ATV system west of the river. The 50-00-0 road from the West Branch Campsite/Log Landing would provide a connection to the regional system if permissions by the abutting landowner could be obtained.

Machias River- Recreation Allocations, Facilities and Roads



Recreation and Visual Resources Management Issues

- The campsite facilities along the corridor have seen increased pressure and use as the result of the closing and privatization of several nearby camping areas. This is expected to put an additional burden on staffing and financial resources necessary to manage the recreation sites along the river.
- There is an opportunity to provide ADA accessible fishing access to Salmon Pond. A single car parking spot with a foot path to a removable dock could provide access to this 10-acre pond stocked with brook trout by IF&W.
- The current boat launching site on Third Machias Lake is not in a good location. The so-called “middle ground” between the southern arms of the lake may provide a more suitable location, if known important archeological sites can be avoided. Due to the lake’s Management Class 2 status, the Bureau would have to submit evidence to the Land Use Regulation Commission showing the proposed boat launch location is more suitable than the existing location.
- Traditional use and maintenance of the lake access campsites on Third and Fourth Machias Lakes by guides from the Grand Lake Stream area could conflict with general public use. There is an opportunity to cooperate with the guides to coordinate and improve these opportunities.
- The number and location of campsites along the entire Machias River canoe trip should be evaluated relative to public use needs. Any changes made would need to consider salmon and trout habitat, important archeological sites and the quality of the recreational experience.
- There may be future interest in re-locating snowmobile trails into the Unit.
- The area from Route 9 to the Studmill Road on the east side of the river has potential for a non-motorized trail to include hiking, mountain biking and/or horse-back riding. Allowance for existing motorized access/crossings would need to be considered.
- The narrow corridor nature of the Unit presents challenges for maintenance of both new and existing recreational sites, allowing for few relocation options or areas for additional facilities. In addition, prevention of erosion and other Atlantic salmon considerations must be incorporated in all recreational infrastructure planning.
- The main access road (52-00-0 Road) from Route 9 to the Studmill Road is not part of the current ATV trail system, yet campsites used by riders are located along this stretch. Due to the heavy truck and car traffic along this road, its use by ATVs is not appropriate; however, providing connecting trails from campsite areas west to the current ATV system is still desirable. Options need to be discussed with the surrounding landowner of use of one of their spur roads for this purpose.

Timber and Renewable Resources

The Bureau presently has no usable inventory or timber typing for these lands. The forest is mainly softwood type, with a large proportion of white pine in some places. There are some acres of mixedwood and little hardwood. There are several hundred acres of red and white pine plantations, established 25-40 years ago, on the west side of the river between the West Branch and Rt 9. Natural origin stands hold considerable pine, nearly all white, along with spruce and hemlock, with lesser amounts of red maple, white birch, aspen, and fir. Most have moderate to high stocking.

All timber management must be done with sensitivity to Atlantic salmon habitat, thus best management practices for water quality must be carefully followed. Management of the plantations should usually work to produce high value timber products while encouraging natural regeneration, especially pine, that will allow these acres to revert to a more natural forest over time. Other stands far enough from the river to allow timber harvesting should be managed for late-successional species where feasible, favoring pine, hemlock and spruce. Management of lands outside the 250 foot corridor will be done to maintain/enhance wildlife habitat while producing high value timber products, and retaining a pleasing visual character along roads open to public use.

Timber Management Issues

- The southwestern portion of the Unit from the West Branch to the Airline has some limited opportunities for forest management. The fee ownership is considerably wider and distant from the river in this area. Lands close to the river tend to be lowland softwood and any management should be oriented to wildlife.
- Some stands along the western margins of the Unit were heavily harvested. This area also contains a significant area of pine plantations which would benefit from timber management to restore the natural character and enhance wildlife habitat. These acres could enter into the regulated land base.
- The BSRFH owns the timber within 250 feet of the river and any timber management in this area can only be done at their request, with the goal of enhancing salmon habitat.

Transportation and Administrative Considerations

Public Use and Management Roads, Gates and Road Control

Public access to and within the Unit is accomplished in a variety of ways:

The Unit's primary access point is from Maine Route 9 in T 30 MD BPP via the 52-00-0 Road going to the north along the west side of the Machias River. This public use road connects with the Studmill Road (1-00-0 Road) in T 37 MD BPP. The Studmill Road from the 52-00-0 Road across the Machias River to the 43-00-0 Road is also a public use road where state owned, but then privately owned on either side. The 43-00-0 Road continues northward along the east side of the Machias River and is a public use road to the point where it leaves Bureau ownership near the outlet of Third Machias Lake. A short portion of the 42-00-0 Road from the 43-00-0 Road to the outlet of Third Machias Lake is owned by the Bureau and is a public use road providing access to boat launches and campsites on Third Lake. Both ends of the state owned road are privately owned. The rest of the roads on the Unit are management roads. All roads on this Unit are also used by the previous owner for timber management, including harvesting. They still have the right and regularly use the roads for transporting forest products. Therefore, extreme caution is urged when using these roads.

Road maintenance and repairs within the corridor are very sensitive due to the endangered Atlantic salmon habitat. The Bureau is a cooperator with Project SHARE, which handles many of the road stream crossings on behalf of owners along the Machias River. Among other things, Project SHARE has inventoried stream crossings along the watershed and identified ones

considered high risk of introducing sediment into the water and/or those that don't allow aquatic passage. These require replacement with larger, more expensive culverts or crossing devices. Several of these replacements have already been completed. Cooperation with Project SHARE will continue with the goal of minimizing adverse effects of the road system on salmon habitat. This effort will include public education as well. All roads within the Unit should be evaluated as to their benefits to Bureau's management objectives versus their potential threat to habitat degradation. Unnecessary or particularly poorly designed roads may be discontinued or relocated.

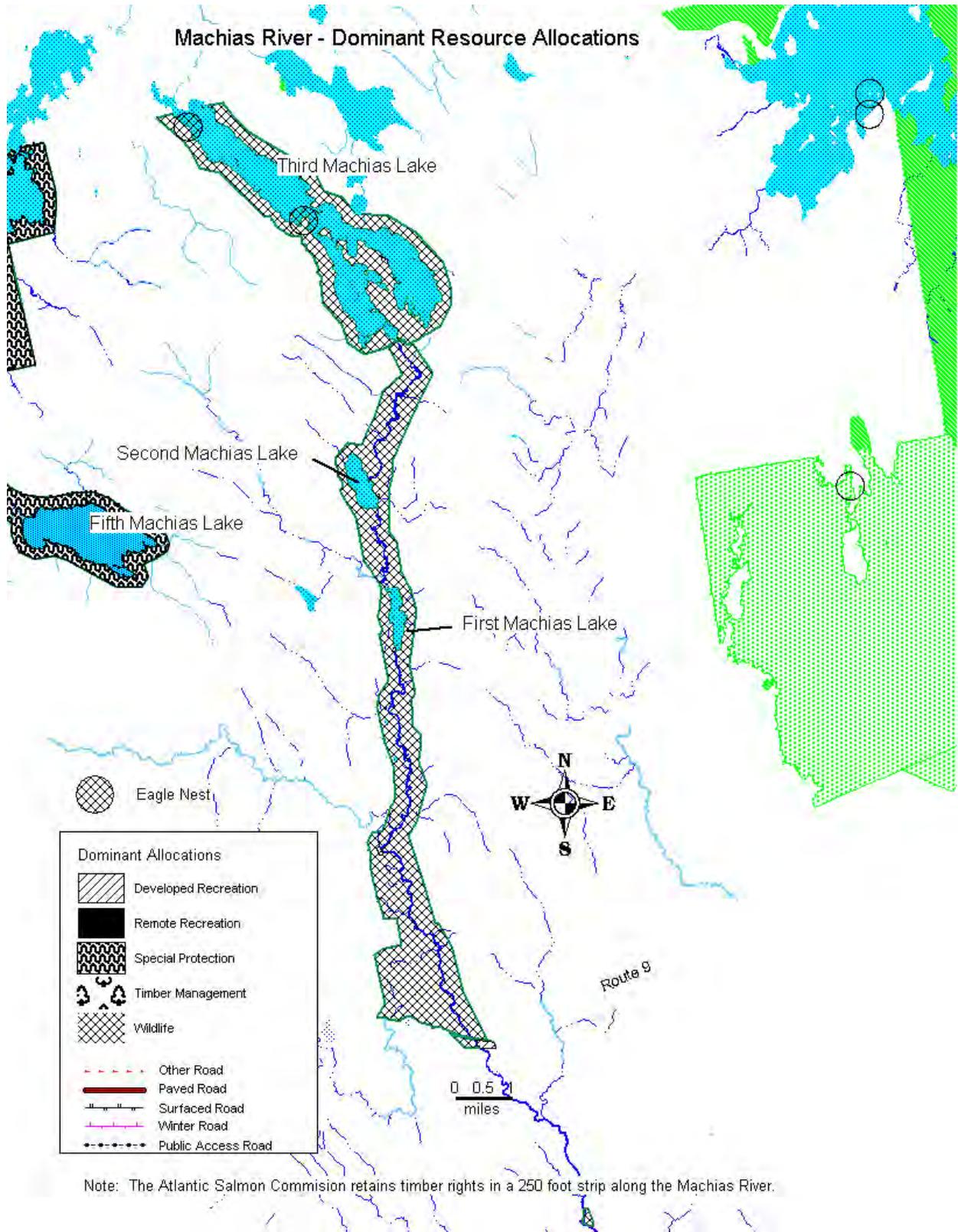
American Forest Management (AFM) manages large areas of forestland abutting this Unit. They were the former owners of the Bureau land, and several of their roads tie into the Unit road system, especially the 52-00-0 Road. They have expressed interest in installing gates to limit traffic from March 15-May 15 each year to protect their roads. Discussions will need to be held regarding the effects and desirability of seasonal blocking. Certainly the Bureau has a responsibility to protect Salmon habitat under the Federal Endangered Species Act, and seasonal gating of the 52-00-0 Road may reduce erosion into the river and degradation of salmon habitat.

AFM has indicated their plans to cut off through vehicular traffic on their 42-00-0 and 51-00-0 roads. Such an action would put increased traffic on the 43-00-0 Road, which is in poor repair and very susceptible to beaver flooding. The Bureau will have to consider major road improvements on that road to handle the extra traffic safely. The Bureau will need to continue to communicate with AFM regarding road issues.

Camplot Leases

There are 27 private residential camplot leases located along or near the waterbodies throughout the Unit, all established by previous landowners. Fourteen leases are located along the river itself, with eleven on Third Machias Lake, five on Second Machias Lake, two on First Machias Lake, three on the Crooked River, and three on Salmon Pond. Administratively, these leases will continue on a five-year renewable basis as directed by statute, provided the terms and conditions of the lease agreements are met. By policy, no new camp lot leases will be developed.

Machias River - Dominant Resource Allocations



Machias River Unit Resource Allocations and Management Recommendations

The following resource allocation categories are listed in the order they appear in the allocation summary on page 10 of the Integrated Resource Policy:

Special Protection as a Dominant Use The special protection allocation as a dominant use will be applied to:

- Important archeological sites as they become known.

Special Protection Management Recommendations

- Archeological sites will be left undisturbed according to guidance given in the IRP.

Wildlife Management as a Dominant Use The wildlife management allocation as a dominant use will apply to the following areas:

- The entire Unit (except developed recreation areas) will be managed as a wildlife dominant area.
- The wildlife dominant area includes the Thompson Brook Deeryard, two bald eagle nests, the rare brook floater, pygmy snaketail dragonfly, and the wood turtle.

Wildlife Management Recommendations

- All wildlife management will be in cooperation with the BSRFH in order to address Atlantic salmon habitat needs.
- Monitoring and protection of loons is a priority.
- Management near known locations of bald eagle nests, the rare brook floater, pygmy snaketail dragonfly, and the wood turtle will be planned in consultation with IF&W species management guidelines.
- Protect some areas for winter deer use, in cooperation with other landowners when feasible.

Recreation and Visual Management Areas Recreation management and visual allocations will apply as a secondary use to the following areas:

- Drive-to camp sites and boat launches and public use road will be allocated as developed recreation class I.
- Remote recreation will be allocated as a secondary use through the Unit from the high water mark to 300 feet on both sides of the river.
- Visual class I management standards (foreground views) will be applied along the entire Unit.

Recreation and Visual Management Recommendations

- Manage the recreation along the river and lakes consistent with the general remote character and quality of the river itself.
- Work closely with Project SHARE and BSRFH in planning and implementing any facility improvements in the Unit.

- Improvements to boat launching sites will be further evaluated, particularly sites on Third Machias Lake, Salmon Pond, and the “wonderland” campsite.
- Work with area guides and other recreational interests towards a coordinated effort in providing information, general management needs, and facility improvements along the water course.
- Consider developing a non-motorized trail along the east side of the river, if there is sufficient interest and support for trail development, maintenance and stewardship.
- Work with area ATV interests and surrounding landowner toward establishing a trail connection from the river lands to the nearby regional ATV system.
- Consider any future proposals from the snowmobile community to re-locate snowmobile trails into the Unit. In evaluating potential trails, consider the resource allocations on the Unit, the IRP, and other management objectives on the Unit.

Timber Management Areas Timber management will be a *secondary* use:

- Timber management will be a secondary use on the entire Unit. The Bureau of Sea Run Fisheries and Habitat owns an easement on a 250 foot buffer along the river, and any timber management in this area will be at their request.

Timber Management Recommendations

- Manage the pine plantations with the goals of restoring the stands to a more natural condition and enhancing wildlife habitat.
- Work with MNAP and BSRFH before implementing any timber management.
- In general, manage for late-successional species.

Transportation and Administrative Recommendations

- Continue to work with Project SHARE on improvements to stream crossings.
- Evaluate all roads in the Unit comparing their benefits to Bureau management with their potential threat to salmon habitat. Discontinue or relocate unnecessary or particularly poorly designed roads.
- Continue to discuss the possibility of seasonal closure of 52-00-0 Road and other issues involving interactions between private and public roads with AFM. If seasonal closure of 52-00-0 Road is implemented, monitor the road to re-open as soon as feasible and encourage guides and the public to call the Bureau’s Old Town office to find out the status of the gates.
- Upgrade 43-00-0 Road to handle increased traffic due to surrounding landowner’s road closures.
- Maintain the Third Machias bridge for its current use for public access and timber transport.

Machias River Unit Dominant Allocation Acreages

Dominant Allocation	Acres
Wildlife	8,759
Developed Recreation Class I	41

Cary Plantation Lots

Character of the Landbase

There are two lots in Cary Plantation located in southern Aroostook County; the 225-acre East Lot along Maine's border with Canada, and the 105-acre West Lot. Both properties are original public lots, with no deeded access to either parcel. Both parcels are located on tributaries of Sheean Brook within the Eel River watershed which drains into the St. John River.

Resources

Natural and Geological Resources

The East Lot contains a significant wetland component. The forested acres (only 37% of the Lot) are currently dominated by young mixedwood (59%). There are also softwood stands of cedar/black spruce/fir (22%) in wet depressions and riparian zones, and retention stands of mature early-successional hardwood (19%). There are 28 acres of open wetlands on the parcel, associated with Tracy Brook. There are also 81 acres of forested wetlands. The bedrock on both Cary Lots consists mostly of acidic sedimentary/metasedimentary rock, overlain by poorly drained glacial till soils of the Telos-Monarda-Monson Association. Extensive marsh and bog deposits are located in the wetlands.

The West Lot is primarily forested, with 60% of the parcel being forested wetland, and eleven acres of open wetlands associated with Sheean Brook. The Lot contains a Spruce Larch Wooded Bog, Northern White Cedar Woodland Fen, and a Northern White Cedar Swamp. The forest types consist of 34% young mixedwood in the uplands and 66% softwood dominated by black spruce, cedar and larch, largely in the forested wetlands.

Historic and Cultural Resources

Cellar holes, wells, and rock walls located on both lots gives evidence that most of the uplands were settled and cleared in the past.

Fisheries and Wildlife Resources

Tracy Brook and Sheean Brook are locally important brook trout fisheries. There are 62 acres of wading bird and waterfowl habitat overlapping with the 28 acres of open wetlands.

Recreation Resources

Recreation has consisted primarily of dispersed fishing, hunting, and trapping.

Timber and Renewable Resources

Timber comprises most of the management activity on these lots. Prior to 1998 forest stands were dominated by aspen and birch which originated from old fields, pastures, and burns circa 1930. Most of the white spruce and fir were killed by spruce budworm in the 1980s. Bureau harvests conducted in the winters of 1998-99 removed much of the declining aspen to release a well-established sapling stand of spruce, fir, and maple.

Transportation and Administrative Considerations

Access to Tracy Brook on the East Lot is prohibited through a gate on a DEP-licensed septage spreading site on adjacent land.

Management Issues

- There is no deeded access to the public lots.
- Access to Tracy Brook on the East Lot is prohibited through a gate on a DEP-licensed septage spreading site on adjacent land.
- Future operations will have to be coordinated with Federal Border Patrol agencies.

Cary Plantation Lots Resource Allocations and Management Recommendations

The following resource allocations will apply:

Wildlife Management as a Dominant Use All P-WL1 and P-WL2 (LURC zoned) wetlands and a corresponding major riparian zone will be allocated as wildlife dominant areas.

Timber Management as a Dominant Use The remainder of the Cary Public Lots will be allocated as timber dominant.

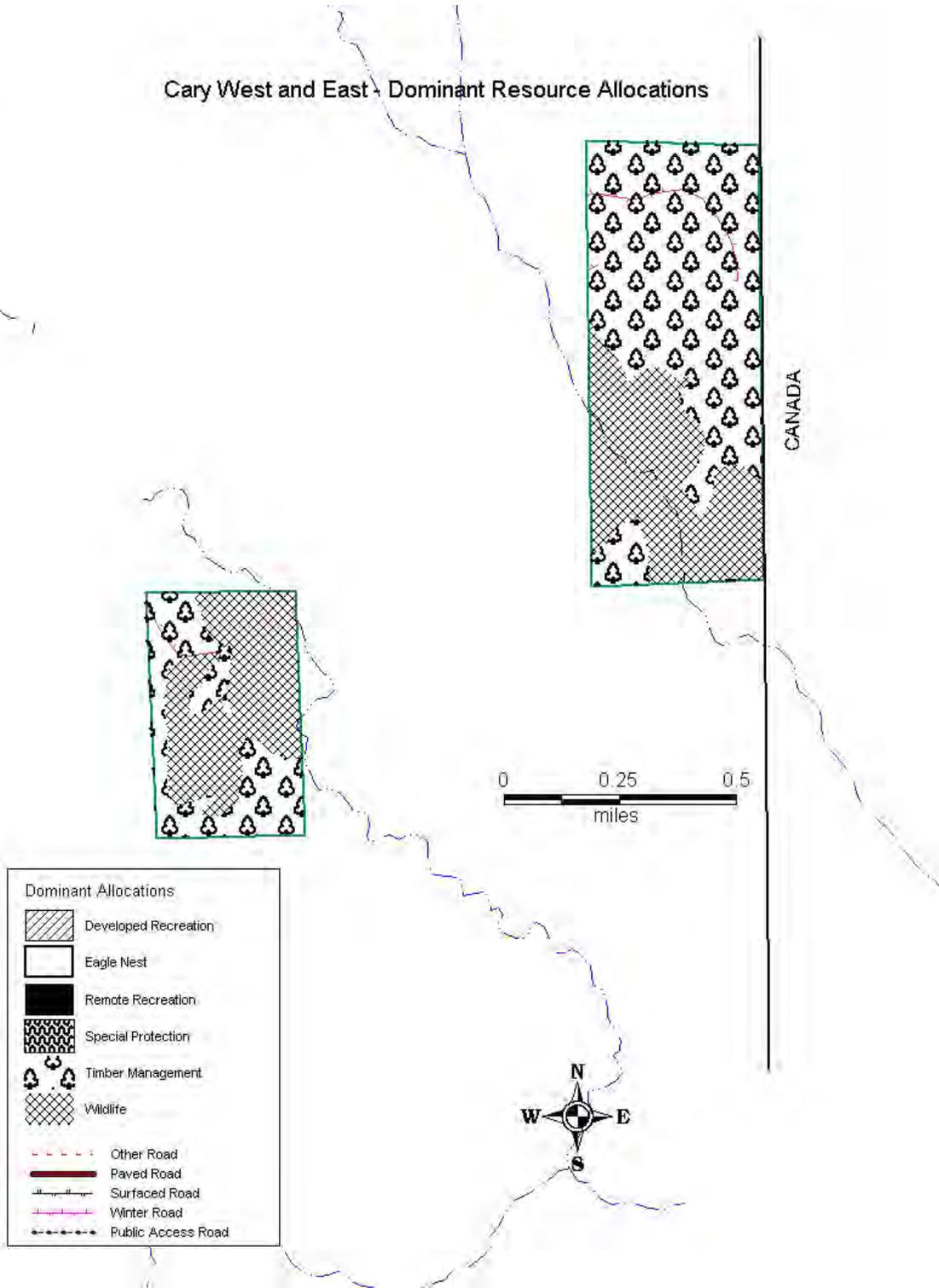
Management Recommendations

- Communicate with the Federal Border Patrol on management plans for these lots.
- Pursue acquiring legal access to the Lot.

Cary Lot Dominant Allocation Acreages

Dominant Allocation	Acres
Wildlife	142
Timber Management	189

Cary West and East - Dominant Resource Allocations



Codyville Plantation Lots

Character of the Landbase

There are three public lots located on Codyville Plantation in Washington County east of Topsfield: the 938-acre West (Tomah Mountain) Lot, the 137-acre Northeast Lot, and the 176-acre Southeast Lot. All three lots are original public lots. The West Lot is bisected by Route 6 while the other two lots are located south of Route 6. The West Lot is located on the easterly ridgeline and southeasterly and northerly slopes of Tomah Mt. and is primarily an upland forest, with portions of abandoned fields along Route 6. The Northeast and Southeast Lots are located on the southerly side of Route 6 and are dominated by wetlands associated with the westerly branch of Tomah Stream which flows through both parcels.

Resources

Natural and Geological Resources

The geology of these public lots has a variety of bedrock and surficial geological features. The prominent feature of the West Lot is Tomah Mt. which is acidic granite bedrock, with lower north and south slopes of moderately calcareous sedimentary/metasedimentary bedrock. Surface geology of the Lot includes bare bedrock, gravelly ice-contact glaciofluvial sediments as well as the dominant glacial till. The very stony silt loams of the Monson-Elliotsville and Monarda Monson soils dominate till sites. There are also 18 acres of open wetland and 56 acres of forested wetland on the southerly side of Route 6. The Northeast and Southeast Lots are 82% wetland. These two parcels include 256 acres of wetland associated with Tomah Stream which runs through both parcels, and 95 acres of open wetland. Several types of sedge meadows are found on the mucky soils bordering the stream. Forested areas around the meadows are characterized by red maple, gray birch, aspen, and red spruce. Several rare and endangered species are associated with these wetlands. The Tomah mayfly has been documented on the Southeast Lot, which is also within the critical habitat of a bald eagle nest. The yellow rail was also found, also considered a rare species.

Fisheries and Wildlife Resources

Tomah Stream is a locally important brook trout stream. In addition, several rare and endangered species are associated with the stream and associated wetlands. The Tomah mayfly is present within the Southeast Lot, which is also within the critical habitat of a bald eagle nest. In addition, the rare yellow rail was found. There is a small aspen dominated stand on the south side of Route 6 which has been prescribed for grouse management. The first series of blocks has been cut and is currently due for the next entry. A small abandoned agricultural field with apple trees presents another opportunity for wildlife enhancement.

Recreation Resources

The lots are used primarily for dispersed hunting and fishing.

Timber and Renewable Resources

Timber is the primary management activity on the larger West Lot. Forest types are 50% hardwood, 20% mixedwood, and 20% softwood. The southerly slopes of Tomah Mt are a somewhat enriched Beech-Birch-Maple stand characterized by mature sugar maple and beech

with scattered white ash, and yellow birch. Many areas are characterized by an over-story of large veteran maple and birch with an understory of small diameter dead and dying beech. Lower in the slope, mixedwood stands tend to be hardwood seepage forests with a hemlock component. These stands were examined by the Maine Natural Areas Program and found not to be exemplary. The Bureau last harvested a portion of the North Lot in 1998-99.

Transportation and Administrative Considerations

Tomah Mountain has been the subject of recent inquiries as to its suitability for a windpower project. No formal application has been made, although efforts to determine the viability of the site are ongoing.

Eastern Maine Electric Co-op once held a powerline right-of-way on the south portion of the West Lot, which was relocated in 2002 along Route 6. There is also a camplot lease located on the south side of the West Lot Route 6, and is managed as part of the Bureau's Camplot leasing program.

A portion of the abandoned fields on the West Lot was once used as a Town ball field, and an old gravel pit has been used as the Town landfill. The landfill was closed out and the access road gated. A camp and associated abandoned fields located on the north side (north of Route 6) has been the site of an on-going "adverse claim" by the camp owner. In 2002 the legislature gave approval for the Bureau to convey a 5.5-acre parcel as a means to settle the claim which was not accepted by the claimant.

There is no deeded vehicular access to Northeast Lot. A Bureau held public access easement on the 312,000-acre "Sunrise Tree Farm" conservation easement held by the New England Forestry Foundation (Wagner Forest Management lands owned by Typhoon, LLC) surrounds the Northeast and Southeast Lots, and abuts the West Lot to the east and south. The Bureau easement guarantees pedestrian access to the lots.

Management Issues

- An abandoned powerline right-of-way crosses the southern portion of the West Lot, once used by Eastern Maine Electric Co-op but since abandoned as poles were relocated along Route 6.
- Rare and endangered species have been found on the two southern lots.
- There have been recent inquiries regarding the possibility of wind power on Tomah Mt.
- An adverse claim on the north side of the West Lot has not been finalized.
- There is no deeded vehicular access to the Northeast Lot.

Codyville Plantation Lots Resource Allocations

The following resource allocations will apply:

Special Protection as Dominant Use The entire Southeast Lot, and P-WL 1 and P-WL2 (LURC zoned) areas of the Northeast Lot will be allocated as special protection areas.

Wildlife as a Dominant Use A riparian buffer on the West Lot will be allocated as wildlife dominant.

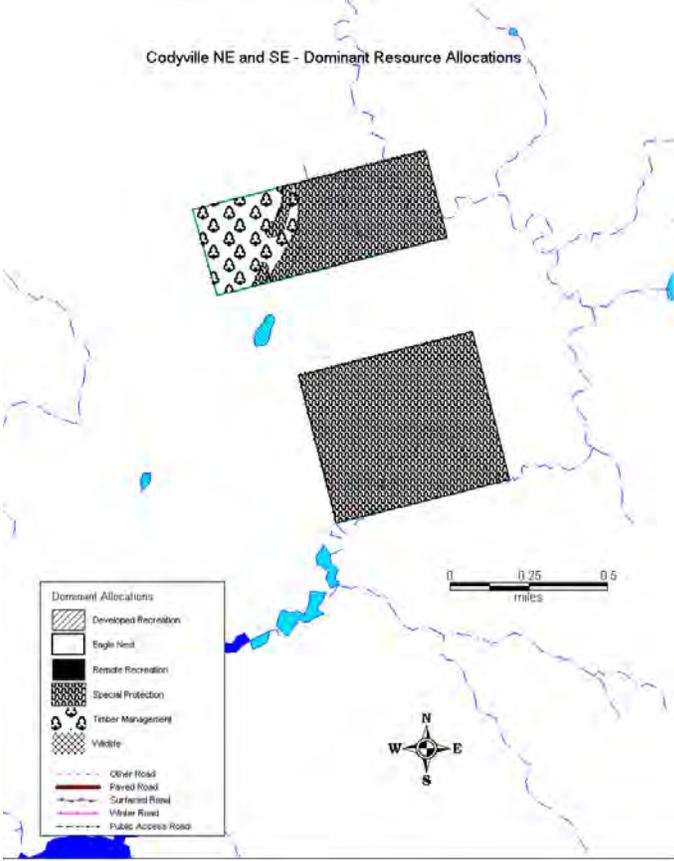
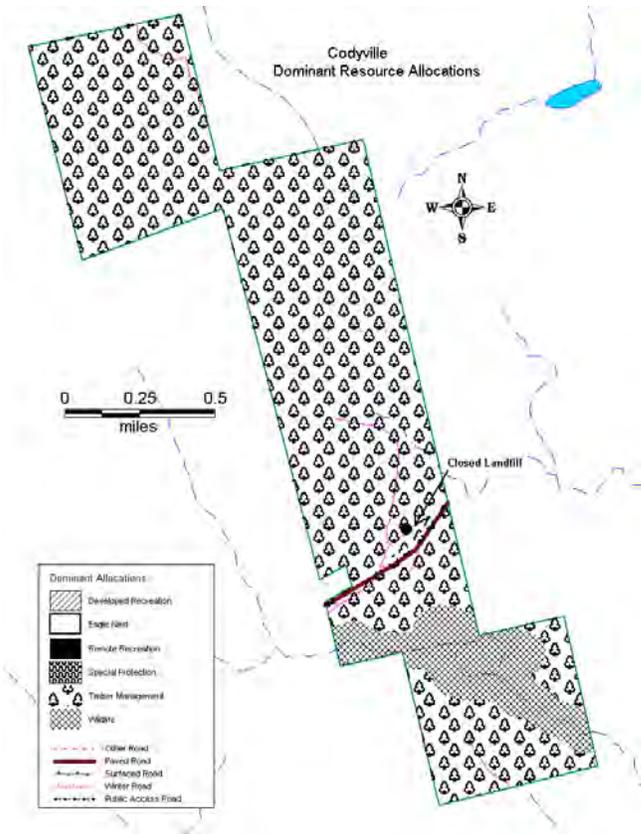
Timber Management as a Dominant Use The northern side of the West Lot, with the exception of the landfill site, will be allocated as timber dominant. A portion of the West Lot south of Route 6 will be timber dominant (except for the area along the stream in wildlife allocation). The Northeast Lot contains a portion on the west side of the Lot that will be timber allocation.

Management Recommendations

- Continue to work toward a solution to the adverse claim on the West Lot.
- Pursue acquiring legal vehicular access to the Northeast Lot.

Codyville Plantation Lots Dominant Allocation Acreages

Dominant Allocation	Acres
Special Protection	268
Wildlife	106
Timber Management	865



Grand Falls School House Lot

The Grand Falls School House Lot is a formal municipal property that came to the state after de-organization of the Plantation of Grand Falls in 1981. The ½-acre property and historic school house, located approximately five miles from the Town of Burlington, have been under lease with the Grand Falls Historical Society; discussions with the Historical Society are ongoing regarding the future use and care of the building and contents.

Grand Lake Stream Lot

Character of the Landbase

The 917-acre Grand Lake Stream Lot is an original public lot located between the East and West Branches of Musquash Stream, in the “Waite” area of Grand Lake Stream Plantation.

Resources

Natural and Geological Resources

The height of land is approximately 120 feet in elevation at the midpoint of the Lot, where it then drains to both East and West Branches of Musquash Stream. The parcel is nearly all forested with only one acre of open wetland. There are no perennial watercourses; however, the shoreland protection zone for the East Branch of Musquash Stream crosses along the east boundary. The parcel is situated on moderately calcareous sedimentary/metasedimentary bedrock. Soils above bedrock are the very stony silt loam till soils of the Telos-Monarda-Monson Association.

Fisheries and Wildlife Resources

The parcel supports a variety of wildlife due to its close proximity to wetland and riparian areas associated with nearby major streams, along with the diversity of stand types and age classes present on the parcel. There are no deeryards, but there is documentation of deer winter use in the 1980s on the eastern end of the lot. Musquash Stream is an important local fishery.

Recreation Resources

Recreation has consisted primarily of dispersed hunting and trapping.

Timber and Renewable Resources

Forest composition is 45% softwood, 43% mixedwood, and 12% hardwood. Stands are typically multi-aged, a result of frequent historical harvests dating back to tanbark harvests for the Grand Lake Tannery. The better-drained hardwood and mixedwood sites are dominated by beech with a sugar maple and hemlock component. The more poorly-drained softwood stands are cedar, hemlock, and spruce. The Bureau conducted harvests in 1985-87, primarily in the budworm damaged softwood stands, and 1997-98 in hardwood stands. Firewood theft has been a problem for many years, with significant timber trespasses documented in 1993 and 1997.

Administration and Transportation Considerations

There is no deeded access to the public lot.

Historic and Cultural Resources

There are no known historic or cultural resources on the Lot.

Grand Lake Stream Lot Resource Allocations

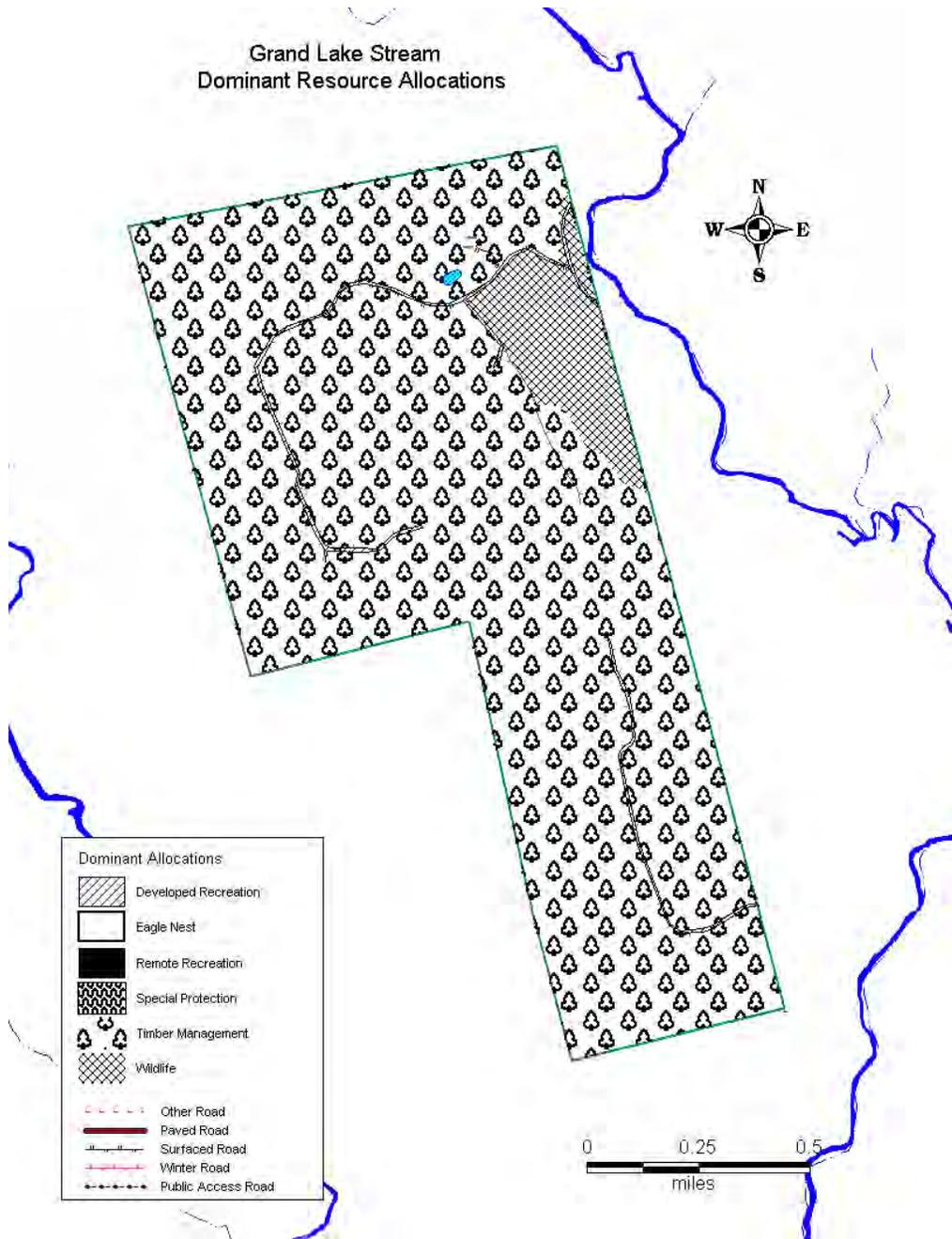
The following resource allocations will apply:

Wildlife Management as Dominant Use A major riparian zone will follow along the east boundary in conjunction with the East Branch of Mushquash Stream. Softwood stands immediately adjacent to this zone will also be wildlife dominant.

Timber Management as a Dominant Use The remainder of the Lot will be allocated as timber dominant.

Dominant Allocation	Acres
Wildlife	27
Timber Management	860

Grand Lake Stream
Dominant Resource Allocations



Great Pond Lots

Character of the Landbase

The Great Pond North and South Lots are original public lots in the Town of Great Pond. The layout of the 451-acre North Lot consists of two separate parcels on opposite sides of Great Pond, located on the northerly or inlet side of the lake. The 39-acre South Lot is a remnant of an original 320-acre parcel on the west side of the lake at the southerly outlet. The North Lot has approximately 1.3 miles of lake frontage, while the South lot has approximately 0.5 mile of lake frontage along with 0.25 mile on the outlet stream.

Resources

Natural and Geological Resources

The easterly portion of the North Lot is characterized by two boulder strewn hills rising 250 feet above the lake. The soils are very stony with fine sandy loam, and are moderately well-drained, belonging to the Dixfield-Marlow-Colonel association. The bedrock consists of mafic-intermediate granite and acidic granite. The western portion of the lot is largely swamp, with muck and bog deposits over various types of sedimentary bedrock. The parcel contains 52 acres of open wetland, six acres of forested wetland and 47 acres of inland wading bird and waterfowl habitat. Wetland types include Sweet Gale Mixed Shrub Fen and an exemplary Mixed Tall Sedge Fen.

The South Lot is underlain by acidic granite bedrock and has the same moderately well drained soils as the North Lot. There are eight acres of wetland associated with the outlet stream.

Historic and Cultural Resources

There are no known historical or cultural resources on the parcels.

Fisheries and Wildlife Resources

Great Pond is a 647-acre mesotrophic pond drained by the Union River which The Nature Conservancy has selected as a portfolio lake - a high value water body that best represents the ecosystems, natural communities, and species characteristic of the region. In addition to the warm water and brook trout fishery, the pond has been stocked with Atlantic salmon, brown trout, and landlocked salmon. The Union River is also a historic Atlantic salmon river. There are no zoned deer yards on the property, however there is some documented deer wintering use from the 1970s and 80s on the parcel associated with the inlet to Great Pond. Additionally, there is anecdotal information regarding several "pocket yards" throughout the North Lot. The presence of large mature red oak in hardwood stands provides an important source of hard mast.

Recreation Resources

Recreation consists primarily of hunting and fishing, and the enjoyment of the shoreline in conjunction with boating. A commercial sporting camp located on an abutting out lot has contributed to the hunting use, as there is no other public access to the parcel.

Timber and Renewable Resources

Forest stands on the property are moderately diverse in type and age classes. Current forest types are 50% hardwood, 34% mixedwood, and 16% softwood. It appears that some current stocking originated from documented harvests that took place from 1917-21, 1953-54, and 1960-1961. These early harvests targeted softwood and hardwood logs. Much of the young hardwood is classified as low quality, dominated by diseased beech and low vigor birch. There are also multi-aged stands of fair to good quality hardwood, with locally enriched areas with a white ash-basswood-red oak component and a scattered legacy component of sugar maple. The softwood was moderately to heavily impacted by the spruce budworm epidemic in the early 1980s.

Transportation and Administrative Considerations

There is no deeded access to the public lots, with the only vehicular road access being through a gated road on private land off the Stud Mill Road. This old road crosses the north boundary line to a sporting camp located on an out lot that was once part of the original state-owned parcel. In 1994 the Bureau leased a 22 foot right-of-way to the sporting camp over this road. The lease has not been paid in some time, and it is unclear if the right-of-way is still in force. There has been foot access for hunting purposes along old trails along abutting private land. There is also one camp lease on the east shore of the pond near the south line, and is managed as part of the Bureau's Camplot Leasing Program.

There is a long history with the Town that has impacted the Bureau's management of the property. At various times the Town has shown significant support for maintaining the state lots as "no cut preserves," and have expressed interest in assuming management of the properties through a lease agreement, although one was never developed. Consequently, the Bureau has not undertaken any management of the timber to date. The lots are also within the conservation initiative known as the "Lower Penobscot Forest Project," with the project area abutting the North Lot to the north and west, and the South Lot to the west. It is uncertain at this time as to how this project will impact the future management of these lots.

Management Issues

- There is no deeded access to the public lots.
- The Bureau will need to determine from the Town its future interest in the public lots.
- The Bureau will need to determine how the Lower Penobscot Forest Project conservation area will interact with the future management of these lots.
- Forest management commitments on the North Lot will be heavily influenced by management conducted by the abutting private landowner.

Great Pond Lots Resource Allocations and Management Recommendations

The following resource allocations will apply:

Wildlife Management as a Dominant Use On the North Lot, the portion of the Lot west of Great Pond and the portion between the pond and the Main Stream are wildlife dominant. On the South Lot, a 330 foot buffer along Great Pond is wildlife dominant.

Recreation as Dominant Use The entire South lot is allocated as remote recreation, except where the wildlife dominant allocation applies along the shoreline of the pond.

Timber Management as Dominant Use The North Lot is allocated as timber dominant, except where allocations apply for wildlife.

Management Recommendations

- Communicate with the Town regarding its future interest in the Lot.
- Communicate with partners in the Lower Penobscot Forest Project regarding future planning for Project lands, and how these might interact with management of the Lot.
- Pursue acquiring legal access to the Lot.

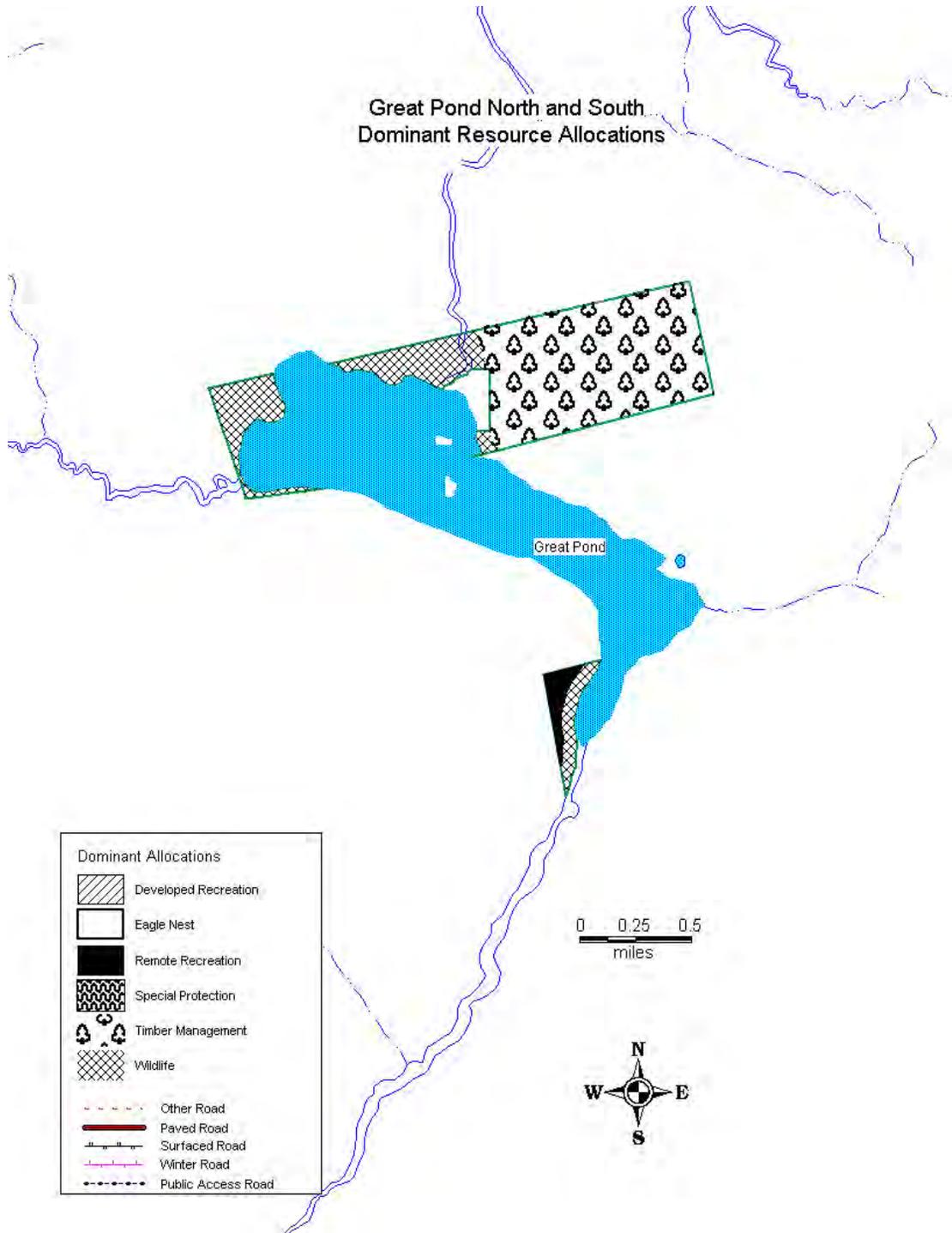


A small portion of the extensive fen complex at Great Pond.

Great Pond Lots Dominant Allocations Acreages

Dominant Allocation	Acres
Wildlife	140
Remote Recreation	16.5
Timber Management	333

Great Pond North and South Dominant Resource Allocations



Hardwood Island Lot (West Grand Lake)

Character of the Land Base

This 49-acre island in West Grand Lake was transferred to the state in 1949 by the state tax assessor as a result of a tax delinquency. The island is located approximately five miles north of Grand Lake Stream Village. West Grand Lake drains to the St Croix River system and has been selected as a portfolio lake by TNC.

Resources

Fisheries and Wildlife Resources

The island includes two acres of wetlands. The fishery on West Grand Lake includes brook trout, pickerel, white perch, cusk, togue, lake whitefish, landlocked salmon, and smallmouth bass.

Recreation Resources

The principal recreational use of the island is in conjunction with recreational boating on the lake. There are two fire permit campsites on the island which the Bureau does no maintenance on due to lack of staffing and distance from the regional office. Sporadic maintenance has been provided by the Grand Lake Stream guides.

Management Issues

- The Bureau has been unable to maintain campsites due to the lack of staffing and distance from the regional office.

Hardwood Island Lot Resource Allocations and Management Recommendations

Wildlife as a Dominant Use The shoreline will be wildlife dominant.

Recreation as Dominant Use The interior of the island will be allocated as remote recreation.

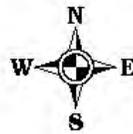
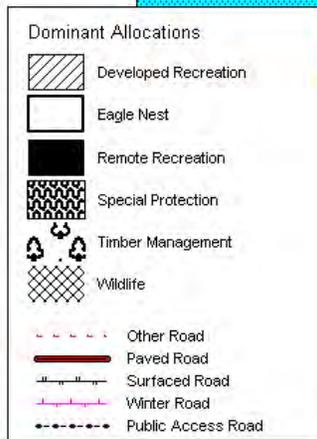
Management Recommendations

Work with area sportsmen and recreational interests to address campsite maintenance needs on the island.

Hardwood Island Lot Dominant Allocations Acreages

Dominant Allocation	Acres
Wildlife	41
Remote Recreation	8

Hardwood Island Dominant Resource Allocations



Lakeville Lots

Character of the Landbase

There are three original public lots located in the Town of Lakeville. The 890-acre Keg Lake Lot is in the northeastern part of the town at the eastern foot of Almanac Mountain, located off the paved Bottle Lake Road with frontage on Keg Lake and Duck Lake. The 612-acre Upper Dobsis Lot is located in the center of the town just south of Upper Sysladobsis Lake. It is at the height of land between the Passadumkeag and the St.Croix watersheds. The 267-acre Magoon Pond Lot is an un-roaded parcel located at the northwest corner of the town on Connecticut Ridge between Weir Pond and Oak Mountain. All three lots are largely rolling to hilly upland sites.

Resources

Natural and Geological Resources

All three public lots are covered with boulder filled till soils underlain by the acidic granite bedrock characteristic of the Lakeville area. Areas with southeast facing slopes often have exposed bedrock with small ledge drops.

Soils on the Keg Lake Lot are dominated by the extremely stony fine sandy loam soils of the Brayton–Dixfield-Peacham Association. The Lot includes 116 acres of forested wetland and 11 acres of open wetland. Wetlands are associated with Keg Lake and several brooks draining to it. Weymouth Brook is the largest of these brooks.

Soils on the Magoon Pond Lot are dominated by the very stony fine sandy loam Colonel-Dixfield-Lyman Association. The tops of most knolls in this rolling topography have exposed bedrock. Magoon Pond is a classic, spring-fed, three acre kettlehole located entirely on the public lot. There are two small seasonal brooks and a vernal pool on the property. Much of the Lot has a late-successional character. The entire Lot, including younger areas, is considered “mature” according to the the Manomet Hardwood Late-Successional Index. Many stands have late-successional characteristics, with sugar maple, red maple, and hemlock the dominant species within the over-story. Increment cores taken by Bureau staff indicate many older trees originating around 1800-1840. The oldest tree was found to be over 250 years old. The Maine Natural Areas Program found the hemlock forest in the western part of the Lot to be “exemplary” in nature, meaning an excellent example of this type of ecological community. Other types on the property include a cedar–black spruce seepage forest near Magoon Pond. As early as 1994 the Bureau, on a provisional basis, allocated this Lot as special protection in recognition of its unique natural characteristics.

Soils on the east side Upper Dobsis Lot are very similar to those on the Magoon Pond Lot. The westerly side of the Lot also has the boulder filled sandy loam soils of the Hermon Association. There are 11 acres of forested wetland, with only one acre of open wetland, along with two seasonal brooks.

Historic and Cultural Resources

The Keg Lake Lot has a history of settlement and agriculture. The Keg Lake Lot has at least two cellar holes, wells, and stone walls still in evidence. An 1850 state report mentions the so-called Weymouth Farm that existed during that time. Much of the frontage on Duck Lake was sold by the Forest Commissioner in 1929. There is also an old historic canoe portage between Duck and Keg Lakes on the Keg Lake Lot.

The Upper Dobsis Lot also has a history of development. An 1849 state report mentions the “Carry Farm” once located on the Lot as an “ancient possession.” It was known as the Carry Farm because of its location along a canoe “carry” or portage from the Passadumkeag to the St. Croix and Machias River systems. Local legend tells that a grave of an “old Canadian smuggler” exists along the portage trail somewhere on the Lot.

The West end of the Magoon Pond Lot was sold as a claim settlement and became known as the “Budge Farm.” The Lot was separated by a wire fence still in evidence today.

Fisheries and Wildlife Resources

Keg Lake and Duck Lake provide warm water fisheries, with Duck Lake supporting a small brook trout population. There are no zoned deer wintering areas on any of the lots, although small yarding areas are found in the softwood stands on the southern end of the Lot. Apple trees can be found near old field sites, and old field aspen provide wildlife management options. Scattered red oak on ledge sites on the Upper Dobsis and Keg Lake Lots provide a supply of mast in the absence of healthy beech.

Recreation Resources

Recreational use of these lots has consisted primarily of dispersed hunting and fishing. There are no campsites or public boat launches on Duck or Keg Lakes, although there is potential for their development. There is interest in the construction of a trailered boat launch on Duck Lake and a hand-carry boat launch on Keg Lake. A small sand beach on Keg Lake could provide a water access day use or campsites. An important ATV and snowmobile club trail crosses the Keg Lake Lot. There is heavy ATV use of the Upper Dobsis Lot, probably from campowners on nearby Upper Dobsis Lake, though there are no authorized shared use roads or trails on this parcel.

Timber and Renewable Resources

Current forest types on Keg Lake Lot are 54% mixedwood, 26% hardwood, and 20% softwood. Forest stands are a mix of late-successional stands particularly in riparian areas, and early-successional stands on abandoned fields. Much of the hardwood is dominated by red maple and beech of low quality. Old field growth consists of aspen, red maple, gray birch, and alder. Much of the riparian area around Weymouth Brook is late-successional especially downstream toward Keg Lake. Hemlock dominated softwood stands are associated with the flats along the lakes and drains and provide important diversity and cover. Much of the hemlock is late-successional, with late-successional white pine and yellow birch also in significant numbers. The Bureau harvested the Lot in 1986-87, targeting spruce budworm-damaged fir and white spruce. In the early 1990s the hemlock looper heavily attacked the hemlock and was sprayed with Bt to combat the infestation.

The Upper Dobsis Lot is 41% mixedwood, 40% softwood, and 19% hardwood. This Lot has been heavily cut through the years. The Bureau conducted a harvest in 1994-96, targeting the rapidly declining diseased beech. Multi-aged hemlock dominant softwood and mixedwood stands on the flats provide important diversity and cover in the area.

The Magoon Pond Lot is an un-roaded parcel which has had very limited cutting in the last 100 years. The forest composition is 54% mixedwood, 26% hardwood, and 20% softwood. The surrounding private land has been heavily cut to the boundary line. Some areas near the boundary were apparently harvested around 1950, probably removing the spruce.

Transportation and Administrative Considerations

The Bureau has deeded access to the Keg Lake Lot on a road and land owned by the Town, although access has been discontinued to Weymouth Brook. The public accesses the Lot on a gravel road known as the Town Hall Road, then passes through private land to the Long Point Road. Other roads on the Lot are winter roads developed for timber harvesting purposes.

There is no deeded access to the Upper Dobsis Lot. All internal roads are winter roads. There is also no deeded access to the Magoon Pond Lot which has no internal road system.

There are two camp leases on Duck Lake within the Keg Lake Lot, and one camp lease at the site of the old Carry Farm on the Upper Dobsis Lot.

At various times the Town of Lakeville has expressed an interest in acquiring a timber lease from the Bureau, and in fact held a lease for a short time. They have had no interest in pursuing this in recent years, although discussions have continued with the Town.

Management Issues

- There is no deeded access to the Magoon Pond or Upper Dobsis Lots.
- The Magoon Pond Lot has late-successional forest types of ecological importance that should be preserved.
- There is interest from the town of Lakeville in participating in recreation management of the Keg Lake Lot on an ongoing basis.
- There is no public boat access to either Keg Lake or Duck Lake and some interest in the Bureau adding a hand carry launch to Keg Lake and a trailered launch to Duck Lake.
- There is unauthorized use by ATVs on the Upper Dobsis Lot.

Lakeville Lots Resource Allocation and Management Recommendations

The following resource allocations will apply:

Special Protection as a Dominant Use The entire Magoon Pond Lot will be allocated as special protection.

Wildlife Management as a Dominant Use The main branch of Weymouth Brook and the shorelines of Duck Lake and Keg Lake on the Keg Lake Lot will be allocated as wildlife dominant. Minor streams where they exist will be allocated as wildlife dominant. A no-cut zone

within the wildlife dominant allocation along Weymouth Brook will be maintained along the floodplain.

Wildlife Management Recommendations

- Areas of late-successional character will be maintained as such and deer cover will be enhanced where feasible. No timber harvesting will be performed along the Weymouth Brook floodplain.

Recreation as a Dominant Use The portage trail on Keg Lake and trailered boat launch on Duck Lake if built, will be allocated as developed class I recreation areas. The ATV/Snowmobile Club trail on the Keg Lake Lot will be allocated as developed class I recreation.

Recreation Management Recommendations

- Coordinate with the town of Lakeville in planning and management of trails and recreational facilities on the Keg Lake Lot, and send Lakeville town officials a copy of the 5-year reports issued to the Advisory Committee on the status of plan recommendations.
- Determine the suitability for a hand carry site on Keg Lake and a trailered boat launching facility on Duck Lake.
- Work with the area ATV club to deter illegal use of the Upper Dobsis Lot, or to establish trails as appropriate.

Timber Management as Dominant Use The remainder of the Keg Lake Lot and the entire Upper Dobsis Lot will be allocated as timber dominant.

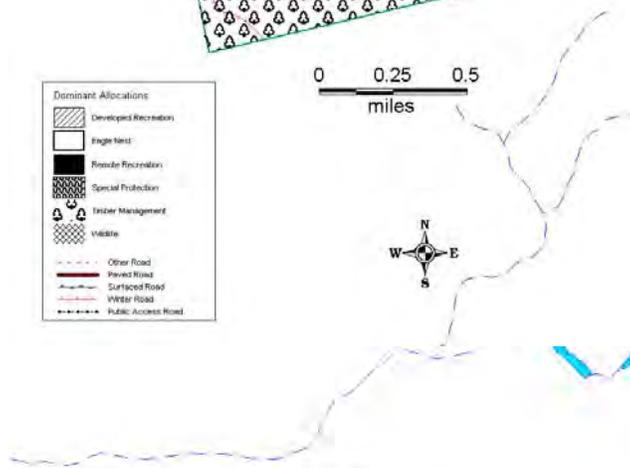
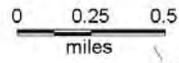
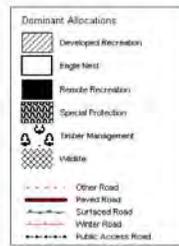
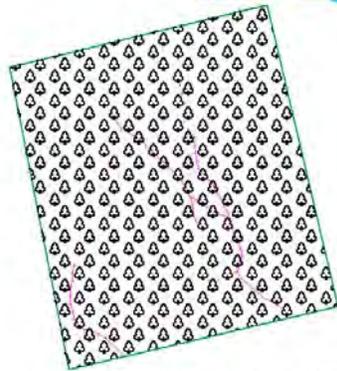
Transportation and Administrative Recommendations

- Pursue acquiring legal access to the Magoon Pond and Upper Dobsis Lots.

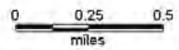
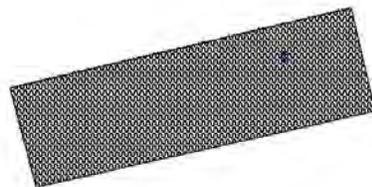
Lakeville Lots Dominant Allocations Acreages

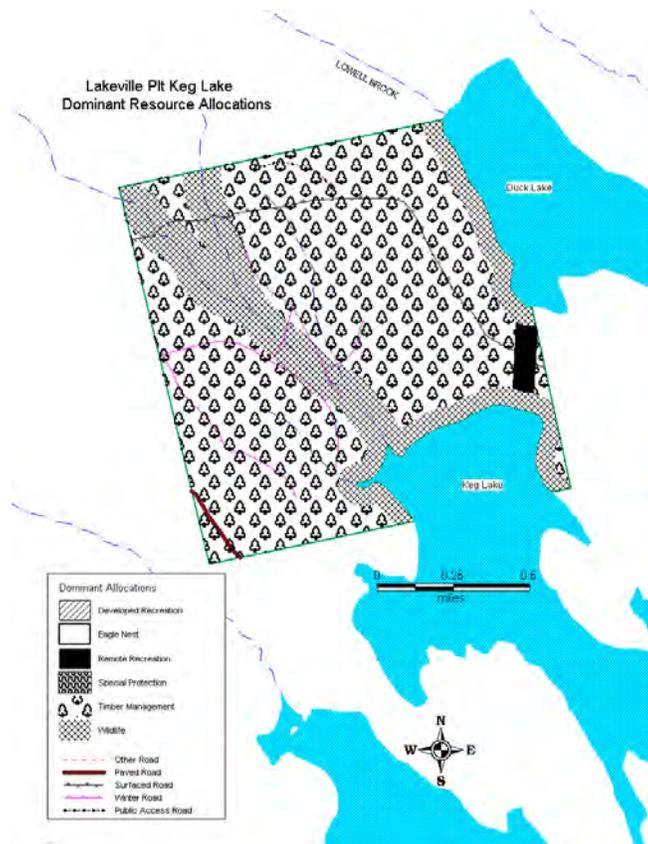
Dominant Allocation	Acres
Special Protection	267
Wildlife	209
Remote Recreation	10
Timber Management	1,267

Lakeville Pit Upper Dobsis
Dominant Resource Allocations



Lakeville Pit Magoon Pond
Dominant Resource Allocations





Macwahoc Lot

Character of the Landbase

The 558-acre Macwahoc Lot is an original public lot located along U.S. Route 2A in Macwahoc Plantation. The property is within the Mattawamkeag River watershed and has been managed primarily for its timber and wildlife resources.

Resources

Natural and Geological Resources

The Lot is underlain by calcareous sedimentary/metasedimentary bedrock which outcrops in numerous places. Much of the Lot is covered by the extremely stony till soils of the Danforth-Masardis-Shirley Association. Bog, marsh, and swamp soils are associated with Crossuntic Stream in the eastern portion of the Lot. There are three acres of open wetland and 59 acres of forested wetlands.

Historic and Cultural Resources

There is one old cellar hole on the property near Route 2A giving evidence to past settlements, probably in conjunction with development and use of the old Military Road. The U.S. Congress had authorized the construction of the road from Bangor to Houlton, which was completed in 1830. The quality of the road was important in opening the region to pioneers.

Fisheries and Wildlife Resources

There are 69 acres of zoned deer wintering area on the Lot associated with the headwaters of Crossuntic Stream. Winter surveys have found little or no deer use of the zoned yard on the state land, which is part of a much larger wintering complex on private land. There has been more use of adjacent softwood stands to the west on the state parcel. Upland areas along Route 2A contain early-successional forest types of benefit to many species of wildlife, along with a few apple trees. Several vernal pools have also been found on the property.

Recreation Resources

Recreation on the Lot has consisted primarily of dispersed hunting and trapping.

Timber and Renewable Resources

Current forest types on the Lot are 66% softwood, 29% mixedwood, and 5% hardwood. Softwood stands west of the Crossuntic Stream are largely spruce-hemlock, with stands in the northeast corner being primarily cedar-black spruce. The Lot has been harvested many times as it is easily accessible, including a 1950s entry by the US Forest Service as part of a spruce budworm suppression study. In 1982 and 1983 the Bureau harvested within the softwood stands in response to budworm, which was followed by several salvage harvests. The next harvest took place during 2003 and 2004, where high risk trees were targeted. Much of the Lot today has mature softwood and has a diversity of age classes not common to this area. A softwood stand on the easterly side of Crossuntic Stream has an old growth component of hemlock.

Administration and Transportation Considerations

The central access road on the Lot is a summer timber management road. There is an old winter road that accesses the easterly side of the brook. An old winter road to the south has been discontinued. Although the Lot was gated for several years, the gate has been removed.

Management Issues

- The Route 2 location may attract disposal of trash, white goods, etc. since the gate has been removed (trash disposal occurred prior to gate installation).
- The softwood resource provides an opportunity to better provide for deer cover in the Crossuntic Stream watershed.

Macwahoc Lot Resource Allocations

Wildlife Management as Dominant Use The eastern two thirds of the Lot will be wildlife dominant.

Timber Management as a Dominant Use The western third of the Lot will be timber dominant.

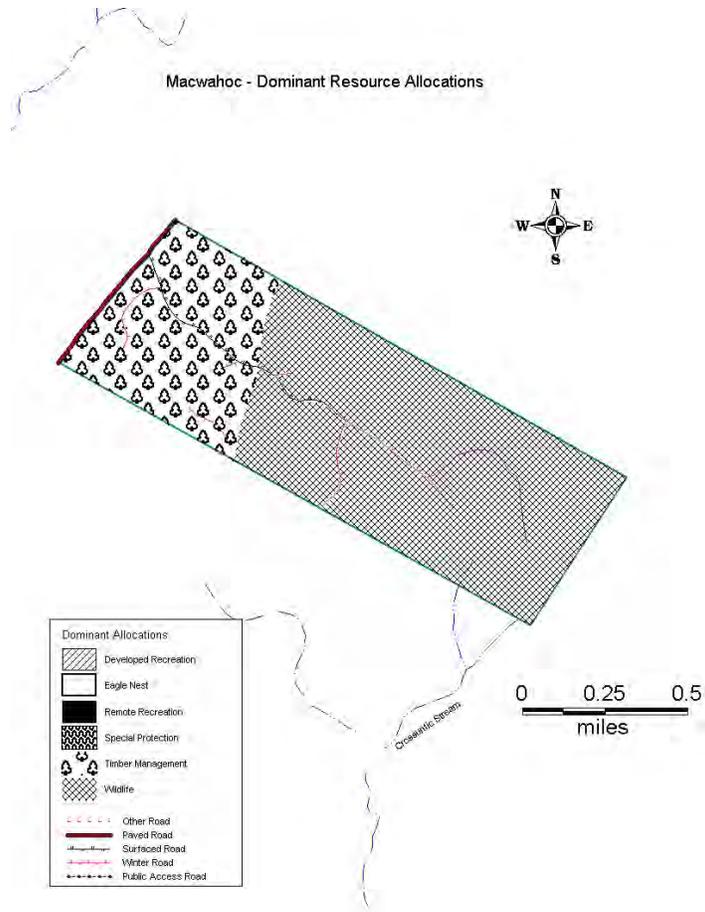
Management Recommendations

- Manage for deer winter cover in the Crossuntic Stream watershed.

Macwahoc Lot Dominant Allocations Acreages

Dominant Allocation	Acres
Wildlife	385
Timber Management	165

Macwahoc - Dominant Resource Allocations



Mattawamkeag Lands (Fee and Easement)

Character of the Landbase

The Mattawamkeag lands located in T4 R3 WELS and T3 R3 WELS in southern Aroostook County were acquired in 2003. They included the purchase of two parcels (Big Island and Long Point) totaling 190 acres, and a conservation easement of 3,073 acres sold to the Bureau by Wayne and Maxine Farrar. The easement lands include mostly forestland and seven miles of shore land on the southern end of Mattawamkeag Lake, along with three miles of frontage on the West Branch of the Mattawamkeag River. The easement protects the property from future development, while allowing sustainable forest management and traditional non-intensive public access to continue. The easement also controls harvesting in the riparian and visual zones of Mattawamkeag Lake, Mud Lake, First Stream, and the West Branch. The Bureau has responsibility for monitoring the forest management activities on the property. The fee lands include two parcels: 126-acre Big Island in Mattawamkeag Lake and 64-acre Long Point. Primary access to the property is via the Lower Pond Road off of U.S. Route 2.

Bible Point State Historic Site

The 27-acre Bible Point property located just south of the Mattawamkeag project lands on the West Branch of the Mattawamkeag River was acquired in 1971, and is managed as an undeveloped state historic site. The site was made famous by Teddy Roosevelt, one of the nation's foremost conservationists. Roosevelt visited the area beginning in 1878, camping at the southern end of the lake while hunting and fishing throughout the area. It was reported that, each day, Roosevelt would take his bible and hike to a "beautiful point of land" at the confluence of the river and First Brook, where he would read his bible. A plaque at the site commemorates his love of the area with the following inscription:

"This place to which a great man in his youth liked to come to commune with God and with the wonder and beauty of the visible world is dedicated to the happy memory of Theodore Roosevelt."

Resources

Natural and Geological Resources

Mattawamkeag Lake and the West Branch of the Mattawamkeag are considered to be of outstanding statewide significance. Big Island and Long Point (Bureau fee owned properties) are in the southerly portion of the lake near its outlet into the West Branch. Soils on both parcels are largely moderately well drained till soils derived from sedimentary and meta-sedimentary bedrock. Big Island is largely high and well drained except for several small wetlands. Much of the forest on Big Island and Long Point is a mature hemlock forest and was considered an exemplary community by the Maine Natural Areas Program. Bald eagle nests are located nearby on the lake. Rare and endangered mussels are found in the West Branch, including at the outlet of the lake.

Historic and Cultural Resources

Maine Historic Preservation Commission did an archaeological survey of the fee lands on Big Island and Long Point, and found no evidence of use of the area by pre-European Native Americans.

Fisheries and Wildlife Resources

Mattawamkeag Lake is primarily a warm water fishery with smallmouth bass, white perch, and pickerel being the primary species. Small areas of deep cold water provide habitat for lake whitefish, smelt, and landlocked salmon. The river has a brook trout fishery and has been stocked with Atlantic salmon in the past.

Recreation Resources

The Mattawamkeag Lake area is popular with anglers, campers, boaters, snowmobilers, and hunters. The lake has received a high rating from the Land Use Regulation Commission for its significant scenic, wildlife, fishery, and cultural values. The lake also provides the beginning point for an extended backcountry canoe route down the West Branch of the Mattawamkeag River. There are traditional campsites on both Long Point and Big Island. The Bureau is planning for construction of one campsite on Long Point and one on Big Island.

The conservation easement allows the Bureau to manage recreation on the property, for traditional uses such as hunting, fishing, hiking, snowmobiling, camping, and boating. Snowmobile, mountain bike, and vehicular access is allowed on the Sly Brook Road, which ends at a boat access site on the outlet of the lake. Snowmobile, mountain bike, and pedestrian access extend south along a trail to Bible Point. ATV use of this trail and other portions of the easement are by permission of the Grantor of the easement. The recreational management objective in the easement is to provide a diversity of traditional non-intensive recreational opportunities, including areas for vehicle access, snowmobiles, and developed facilities, as well as areas designated for remote, backcountry recreation where motorized vehicles and facilities are prohibited.

Mattawamkeag Lands Resource Allocations and Management Recommendations

Wildlife Management as a Dominant Use The shoreline of Big Island and the entirety of Long Point will be allocated as wildlife dominant.

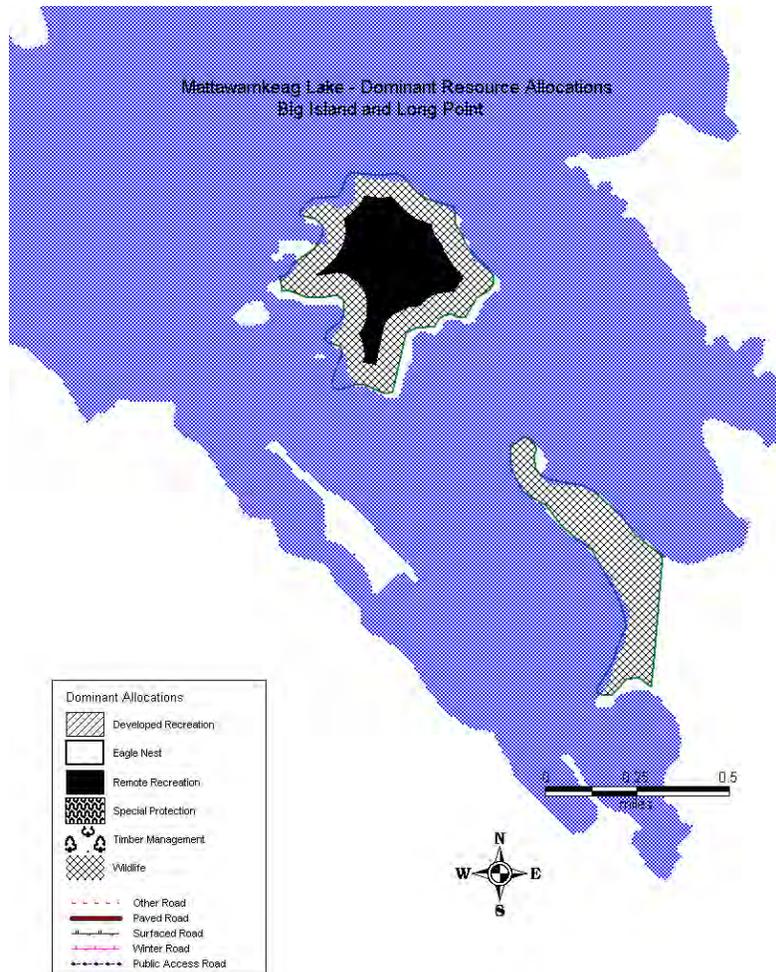
Recreation Management as a Dominant Use The interior of Big Island will be allocated as remote recreation.

Recreation Management Recommendations

- Monitor the recreational use on these parcels and manage for their remote character.
- Campsites will be built on Long Point and Big Island.
- Discuss with the landowner of the easement area possible locations for backcountry, non-motorized areas, as stipulated in the easement.

Mattawamkeag Lands Dominant Allocations Acreages

Dominant Allocation	Acres
Wildlife	129
Remote Recreation	50



Molunkus Lot

Character of the Landbase

This 487-acre original public lot is located on the Aroostook Road approximately two miles from U.S. Route 2. It is comprised of three lots laid out in 1884. Much of the land was settled before the layout of these lots, with roadside forest types dominated by old field succession stands. The Lot has approximately 1000 feet of frontage on Molunkus Lake comprising a portion of the northern boundary. There are twelve camplot leases and a boat landing within a seven-acre area zoned by the Land Use Regulation Commission for residential recreational uses.

Resources

Natural and Geological Resources

The Molunkus Lot is characterized by calcareous metasedimentary bedrock. There are numerous outcroppings and small ledge drops throughout the parcel. Soils belong to the very stony silty loam tills of the Telos–Monarda–Monson Association. The Lot contains six acres of forested wetland and six acres of open wetland associated with Baker Brook. Baker Brook and one seasonal brook drain into the lake through the Lot. Numerous seeps emerge from fractures in the shale on steep slopes to the lake. Molunkus Lake drains to the Mattawamkeag River.

Fisheries and Wildlife Resources

Molunkus Lake is an 1,108-acre dammed lake. The fishery includes brook trout, landlocked salmon, brown trout, smallmouth bass, white perch, and pickerel. Baker Brook (an inlet stream) has brook trout. There is a bald eagle nest on the lake two miles to the north. There are no zoned wintering areas on the Lot, however, IF&W biologists consider softwood stands near the lake to be important connective cover between yards to the northeast and west. Abandoned fields, with numerous old apple and thornapple trees, and a variety of early-successional vegetation provide opportunities for wildlife management. Numerous mature basswood and red oak, rare in this region, provide hard mast. At least five raptor nests have been located on the property.

Historic and Cultural Resources

There are at least four known historic building sites with accompanying stone wall, wells, etc. One building still exists on an “adverse claim”. A one room schoolhouse stood at the intersection of the boat landing road and the Aroostook Rd. It has been moved intact to an abutting parcel.

Recreation Resources

In 1932 the Forest Commissioner laid out thirteen camplots and a public boat landing on the lake, occupying most of the usable shoreline on the property. The launch is somewhat primitive and shallow but suitable for small motorized craft. The remainder of the Lot is used mostly for dispersed hunting and trapping.

Timber and Renewable Resources

Current forest types on the Lot are 60% hardwood, 34% mixedwood, and 6% softwood. Hardwood stands are of two types: old burn origin /old field early-successional stands dominated by aspen and birch, and northern hardwood stands characterized by white ash, maples, basswood, and beech. Most of these areas are of low quality. The softwood and mixedwood

stands are mature to late-successional stands characterized by hemlock, red spruce, white ash, basswood, maples, red oak, and hophornbeam. The large trees in this 130 acre area were 140 to 180 years old. The dominant age class probably originated from a documented harvest that took place around 1880. The Bureau harvested on the Lot in 2004-2005. Patch cuts were done in some aspen areas and apple trees released. A very light cut was done in mature areas to maintain late-successional attributes.

Transportation and Administrative Considerations

The Boat Landing Road was upgraded in 2002. An internal summer road system was built in conjunction with the 2004 harvest. In 2002, a powerline transmission lease was granted to run electric power down the main road and its extension onto an abutting lot. The powerline services the Bureau’s camplot leases and nearby private campowners.

There is a long history of conflicting and overlapping adverse claims against the Molunkus Lot. This matter was extensively reviewed by the Attorney Generals Office who determined there was no legal basis for the claims. There are two unresolved “claims” located on the Aroostook Rd. “All Maine Adventures,” a sporting camp, occupies about five acres of the claim area, while another camp occupies about ½ an acre. Field operations have avoided management of any lands associated with these claims.

Molunkus Lot Resource Allocations

The following resource allocations will apply:

Wildlife Management as Dominant Use All land north of Baker Brook will allocated as wildlife dominant, along with an open field area south of the Boat Landing Road.

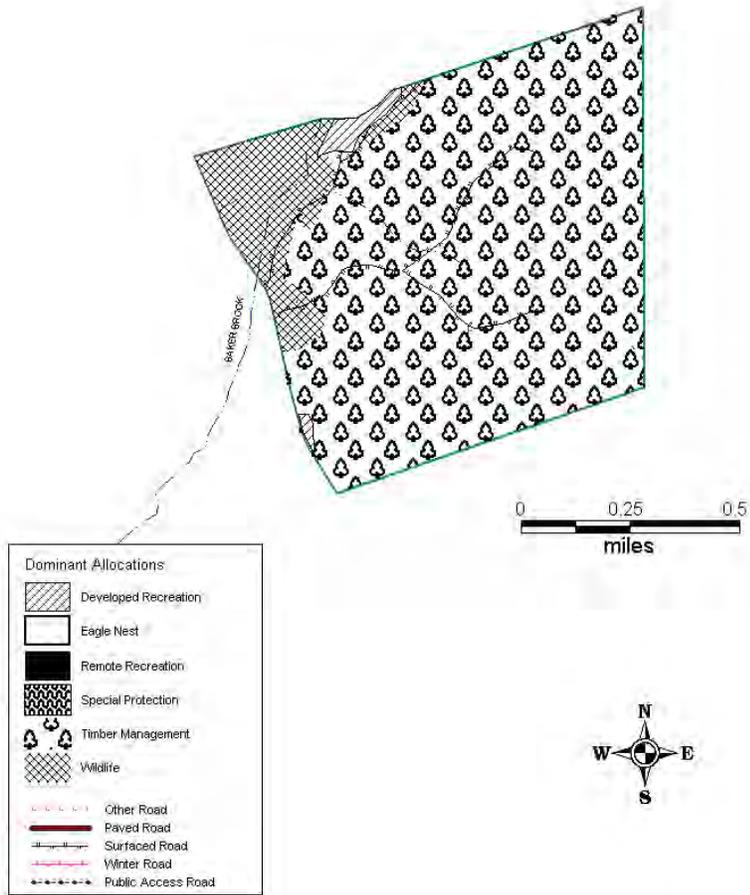
Developed Recreation as Dominant Use All land between the Boat Landing Road and extension and Baker Brook will be allocated as developed recreation.

Timber Management as Dominant Use The remainder of the Lot will be allocated as timber dominant.

Molunkus Lot Dominant Allocations Acreages

Dominant Allocation	Acres
Wildlife	59
Developed Recreation Class I	7
Timber Management	419

Molunkus - Dominant Resource Allocations



Reed Lots

Character of the Landbase

There are two original public lots in Reed Plantation: the 996-acre Northwest Lot and the 539-acre Central Lot. The Northwest Lot is located approximately two miles west of U.S. Route 2 on the Thompson Deadwater section of Wytopotlock Stream. The Central Lot is located approximately two miles northeast of Wytopotlock Village on the easterly side of Finn Brook. Both lots are located within the Mattawamkeag River watershed.

Resources

Natural and Geological Resources

The Northwest Lot contains a significant wetland component associated with the approximately $\frac{3}{4}$ mile of Wytopotlock Stream traversing the property. There are 29 acres of open water and 132 total acres of inland wading bird and waterfowl habitat. The wetland consists of an extensive peatland bordering the stream. Other wetland community types associated with Thompson Deadwater include Sedge-Leatherleaf Fen Lawn, Cedar Woodland Fen, Mixed Tall Sedge Fen and Sheep Laurel Dwarf Shrub Bog. There are five intermittent brooks and one small perennial brook draining to the main stream. Both lots have calcareous sedimentary–metasedimentary bedrock overlain with till soils of the Telos-Chesuncook-Daigle series in the upland areas. A relatively small area of Perham soils has two gravel pits.

Historic and Cultural Resources

Thompson Deadwater is the site of a historic river driving dam and log landing. There are at least three cellar holes and corresponding wells and stone walls on the Central Lot. Both lots have northern hardwood stands with sugar maple that show signs of historic tapping.

Fisheries and Wildlife Resources

In 1987 the Bureau petitioned the Land Use Regulation Commission to designate a deer wintering area associated with softwood and mixedwood cover adjacent to Thompson Deadwater. Approximately 354 acres are currently zoned. This acreage is just a portion of a much larger traditional wintering complex that extends to the east. Surveys indicate that actual use is light and sporadic. Much of the traditional complex off of the property has been heavily harvested. The Center Lot has no zoned yards but there is historic use of cover along Finn Brook on the westerly side of the Lot and other parts of the Lot. Wytopotlock Stream and Finn Brook support brook trout fisheries.

The Wytopotlock Stream-Thompson Deadwater area also has recorded incidence of rare and endangered species such as Tomah mayfly, fresh water mussels, and wood turtle.

There is one old field on the Central Lot that is relatively open, which has been bush hogged by the Bureau. There are several apple trees in the field.

Recreation Resources

Both lots are used primarily used for dispersed hunting and fishing. Wytopotlock Stream provides a traditional but lightly traveled canoe trip. The “old dam site” is used as a primitive hand carry launch site for anglers and canoeists.

Timber and Renewable Resources

Current forest types on the Northwest (Thompson Deadwater) Lot are softwood (61%), mixedwood (34%), and hardwood (5%). Stands are typically multi-aged as a result of frequent historical harvests. Proximity to the historic Military Road and the river driving dam located on the Lot has contributed to the harvest history. Harvests have been conducted in 1976-1978, 1983-1984, 1989-1990, and 2001-2002.

Most upland sites support fair to good quality spruce–hemlock stands and spruce-hemlock mixedwood stands. Poorly drained soils have softwood stands with a high cedar component both in and outside of the deeryard. There are scattered small patches of late-successional growth on both lots. Hemlock is a common old tree on both Reed lots as this area was too distant from the tanning industry. The 2001-2002 harvest was outside of the deeryard and targeted poor quality hardwood, converting some mixedwood stands to softwood in the process. Some brown ash was harvested and given to Micmac tribal members. Five acres of the 1978 clearcut area was pre-commercially thinned to improve deer access within the deeryard, with the next harvest planned for 2014.

Current forest types in the Central (Wytopitlock) Lot are 60% softwood, 25% mixedwood and 15% hardwood. There are 55 acres of forested wetlands. Over 105 acres of poorly drained sites are cedar dominant. The parcel was close to Wytopitlock Village so it was frequently harvested. The Lot was also used as the Town Farm or “Poor Farm” A variety of forest stands contains old field successional types. Firewood was also cut for the nearby school house. Because the Lot has been highgraded many times, most stands are of poor to fair quality. The Bureau conducted harvests of its own in 1985-1986 and 2002-2003. The 1985 harvest targeted budworm-damaged stands with approximately 41 acres clearcut in that entry. The frequent entries over the years have produced a variety of age classes.

Administration and Transportation Concerns

There is no deeded access to the public lots. In 2001-2003, portions of the road systems on both lots were upgraded for timber harvesting purposes.

Reed Lots Resource Allocations

The following resource allocations will apply:

Wildlife Management as Dominant Use. Central Lot - The old field area will be allocated as wildlife dominant; **Northwest Lot** - The entire Northwest Thompson Deadwater Lot will be allocated as wildlife dominant.

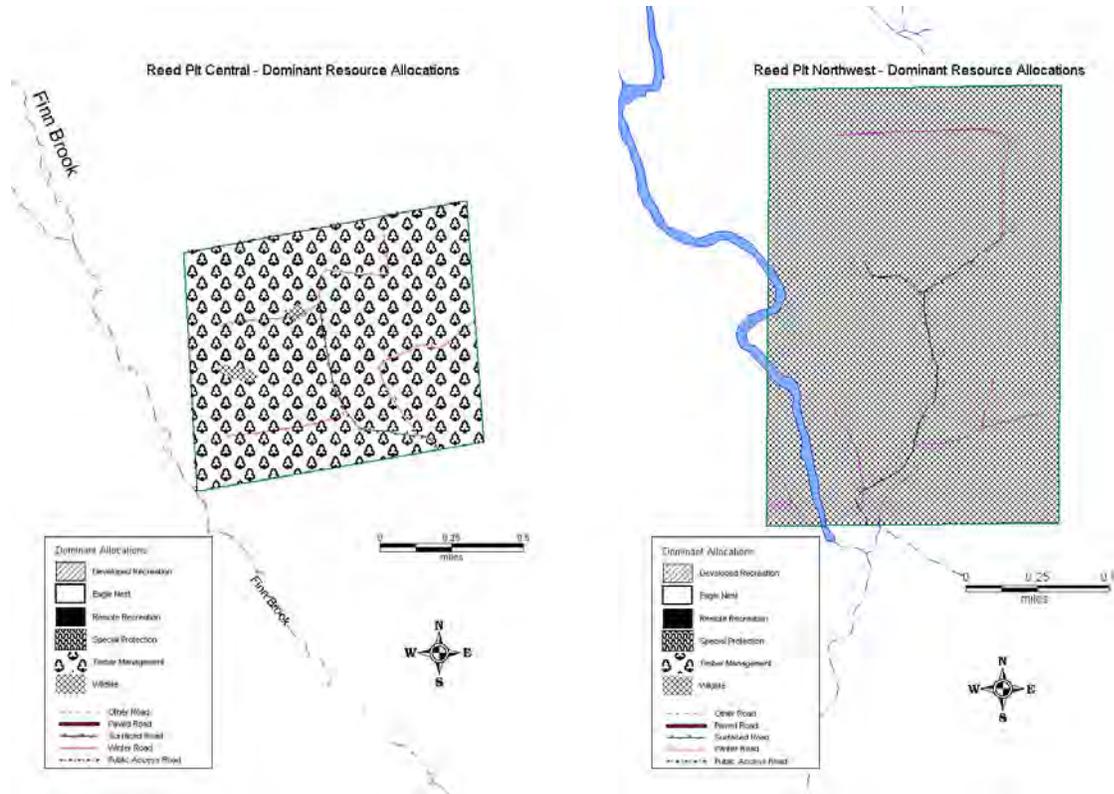
Timber Management as a Dominant Use The majority of the Central Lot will be allocated timber dominant.

Management Recommendations

- Consult with MNAP and/or IF&W if performing any harvesting near habitat of the rare or endangered species on the Northwest Lot.
- Pursue acquiring legal access to the lots.

Reed Lots Dominant Allocations Acreages

Dominant Allocation	Acres
Wildlife	972
Timber Management	522



Webster Lot

Character of the Landbase

This 794-acre Webster Lot is an original public lot located on the southeast corner of Webster Plantation. The parcel, bisected by a town road, the Pickle Ridge Road, was once comprised of three contiguous 320-acre lots. As a result of early settlements and resulting possession and private land claims the Lot was reduced to its current size. Legislation and conveyances to resolve these claims took place as early as 1935, with more recent conveyances occurring in 1981 and 1997. Much of the original road frontage was sold off as a result of these claims.

The Pickle Ridge Road runs north/south and is located on the height of land. The land slopes gradually to wetlands on the east and west. There is small triangle of land at the southeast corner of the Lot located at the intersection of Routes 170 and 169 which contains a gravel pit/esker, and is often used by abutting owners to access their portion of the esker.

Resources

Natural and Geological Resources

This property is located in the headwaters of Mattagoudas Stream and is within the Mattawamkeag River watershed. There are several ephemeral streams draining to one small perennial stream (Dead Brook) that drains to the Mattagoudas. Pickle Ridge is composed of till soils of the Monson-Winnecook- Monarda Association. The ridge top is excessively drained with numerous ledge outcrops. Extensive bog and marsh deposits are found in the wetlands on the easterly side of the Lot. Route 170 follows an esker crossing the southeast corner of the Lot.

The Lot includes 168 acres of forested wetlands and 20 acres of open wetlands. Current forest types are 41% hardwood, 41% mixedwood, and 18% softwood. Although the wetlands are not considered exemplary, they are close to properties along the Mattagoudas Stream owned and managed by IF&W where rare species exist.

Historic and Cultural Resources

As most of the higher ground was historically cleared for pasture, there are minor remnants of stone walls within the Lot giving evidence to early settlement. There are no other historic resources known on the Lot.

Fisheries and Wildlife Resources

There are 45 acres of wading bird and waterfowl habitat in junction with the streams and wetlands. There are also several abandoned fields that support scattered apple trees, many of which have been released and pruned by Bureau staff.

There are no zoned deeryards on the parcel, however, over flights in the winter of 1999-2000 revealed a number of deer wintering along the upland softwood edge of the wetlands to the east. Spring examination revealed one major trail. Regional biologists from IF&W expressed interest in developing more softwood cover in this area.

Bureau harvests in 1983 and 2001 regenerated aspen while retaining an over-mature remnant, with a goal to enhancing habitat diversity on the parcel.

Recreation Resources

Recreation has consisted primarily of dispersed hunting.

Timber and Renewable Resources

The uplands of this property have been dominated by intolerant hardwood originating from old fields and burns. Many mixedwood and softwood stands were heavily cut in the 1950s. The Bureau conducted extensive harvests in 1982-83 to salvage budworm-damaged fir in mixedwood and softwood stands. The 2001 harvest targeted over-mature aspen and ice storm-damaged birch. Most current stands are two aged with the younger age class dominated by fir. There are small stands of improved composition of pine, hemlock, and hardwood.

Transportation and Administrative Concerns

The two roads on the easterly side of Pickle Ridge Road were constructed as winter roads for timber harvesting. Both roads have been blocked to prohibit vehicle use. A short road on the westerly side of Pickle Ridge has been constructed as a summer road for timber harvesting, and is open for vehicle use.

Webster Lot Resource Allocations

The following resource allocations will apply:

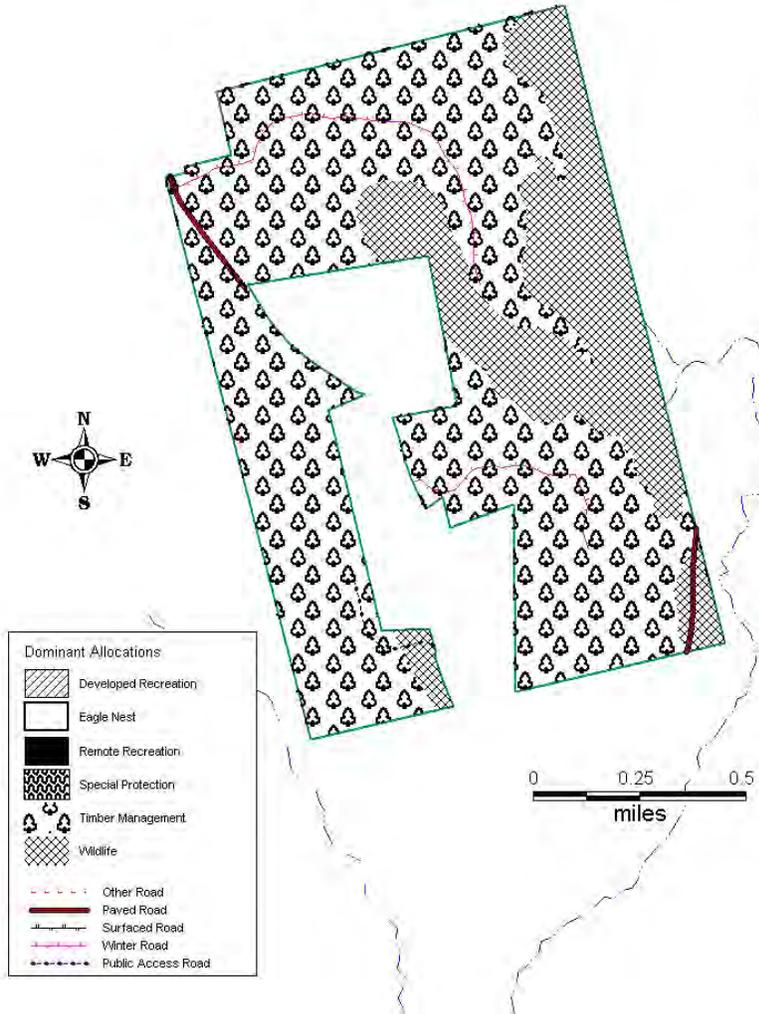
Wildlife Management as Dominant Use Lowland softwood stands and adjacent wetlands on the eastern and western sides of the property and a major riparian zone along Dead Brook are allocated as wildlife dominant. The small area containing the apple trees on the western side of the road is also designated as wildlife dominant.

Timber Management as Dominant Use The remainder of the Lot is allocated as timber dominant.

Webster Lot Dominant Allocations Acreages

Dominant Allocation	Acres
Wildlife	210
Timber Management	583

Webster Plantation- Dominant Resource Allocations



V. Monitoring and Evaluation

Monitoring and evaluation are needed to track progress in achieving the management goals and objectives for the units and the effectiveness of particular approaches to resource management. Monitoring and evaluation will be conducted on wildlife, ecological, timber, and recreational management efforts throughout the Eastern Interior Plan area.

Implementation of Plan Recommendations

The Bureau will develop, within two years of Plan adoption, an action plan for implementing and monitoring the management recommendations in this Plan. This will include an assignment of priorities and timeframes for accomplishment that will be utilized to determine work priorities and budgets on an annual basis. The Bureau will document annually its progress in implementing the recommendations, plans for the coming year, and adjustments to the priorities and timeframes as needed.

Recreation

Information on recreational use is helpful in allocating staff and monetary resources for management of the properties throughout the Plan area, and in determining the public's response to the opportunities being provided.

The Bureau will monitor public use to determine:

- (1) if improvements to existing facilities or additional facilities are needed and compatible with general objectives
- (2) if additional measures are needed to ensure that recreational users have a high quality experience (which could be affected by the numbers of users, and interactions among users with conflicting interests)
- (3) if use is adversely affecting sensitive natural resources or the ecology of the area
- (4) if measures are needed to address unforeseen safety issues
- (5) if changing recreational uses and demands present the need or opportunity for adjustments to existing facilities and management
- (6) if any changes are needed in the management of recreation in relation to other management objectives, including protection or enhancement of wildlife habitat and forest management.

Wildlife

The Bureau, through its Wildlife Biologist and Technician, routinely conduct a variety of species monitoring activities statewide. The following are monitoring activities that are ongoing or anticipated for the Eastern Interior Region:

- (1) The Bureau will cooperate with the Bureau of Sea Run Fisheries and Habitat and IF&W toward the preservation and enhancement of important fish species

- (2) The Bureau will conduct common loon counts as required by deed as part of the Machias River Phase II acquisition project
- (3) The Bureau will cooperate with IF&W in the monitoring of game species, including deer, moose, grouse, and black bear
- (4) The Bureau will identify and map significant wildlife habitat such as vernal pools and den trees in the process of developing its detailed forest management prescriptions. The boundaries of any sensitive natural communities will also be delineated on the ground at this time. Any significant natural areas or wildlife habitat will then be subject to appropriate protections.

Ecological Reserves

There are currently seventeen Ecological Reserves on Bureau lands throughout the state. Ecological Reserves are established “*for the purpose of maintaining one or more natural community types or native ecosystem types in a natural condition . . . and managed: A) as a benchmark against which biological and environmental change can be measured, B) to protect sufficient habitat for those species whose habitat needs are unlikely to be met on lands managed for other purposes; or, C) as a site for ongoing scientific research, long-term environmental monitoring, and education.*” (Title 12, Section 1801). The Maine Natural Areas Program (MNAP) is conducting long-term ecological monitoring within these Reserves.

There are three ecological reserves within the Plan area, all of which are located on the Duck Lake Unit forming one contiguous area. MNAP conducted natural resource inventories on these lands in 2005 as part of the management planning process. MNAP is also undertaking long term monitoring of ecological reserves to track changes within the reserves and to compare these areas to other areas under different management regimes. Baseline data for this purpose has been collected. These areas will be re-inventoried periodically to update this information.

Timber Management

The local work plans, called prescriptions, are prepared by professional foresters in accordance with Bureau policies specified in its *Integrated Resource Policy*, with input from other staff. These documents are then peer-reviewed prior to approval. Preparation and layout of all timber sales involve field staff looking at every acre to be treated. Trees to be harvested are often hand marked. Regional field staff provide regular on-site supervision of harvest activities, with senior staff visiting these sites on a less frequent basis. After the harvest is completed, roads, trails, and water crossings are discontinued as appropriate, although some management roads may remain open to vehicle travel. Changes in stand type resulting from the harvest are then recorded so that the Bureau’s GIS system can be updated.

The Bureau is currently developing a post-harvest monitoring plan to assist forest managers in assessing harvest outcomes on all managed lands. The monitoring plan will also address water quality and Best Management Practices (BMP’s) utilized during harvest activities.

Third party monitoring is done mainly through the forest certification programs of the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI). Each program

conducts rigorous investigations of both planning and on-ground practices. An initial audit by both programs was completed in 2000, with certification awarded in 2002. A full re-audit of both programs was conducted in the fall of 2006 with certification granted in 2007. The Bureau is also subject to compliance audits during the 5-year certification period.

VI. Appendices

- A. Advisory Committee Members
- B. Summary of Management Recommendations
- C. Summary of Public Process and Response to Written Public Comments
- D. Glossary
- E. Memorandum of Understanding – Atlantic Salmon Commission
- F. Survey Findings of Upper Unknown Pond (Department of Inland Fisheries and Wildlife)
- G. References
- H. MNAP Natural Resources Inventory (a separate report available from the Bureau on request)
- I. Timber and Renewable Resource Documents (available from the Bureau on request)
 - *Compartment Examination Manual*
 - *Prescription Manual and prescriptions for the Eastern Interior Region lands*
 - *Timber Sale Manual*
 - *Forest Inventory data*
 - *Forest Certification Reports from Sustainable Forestry Initiative, Forest Stewardship Council (March 2002 and 2007).*
 - *Maine Bureau of Parks and Lands Forest Certification Manual*
 - *Soil surveys*
 - *Forest Laws of Maine*
 - *Best Management Practices Manual*

Appendix A. Advisory Committee Members

Rich Bard, *Department of Inland Fisheries and Wildlife*
Mark Berry, *Downeast Lakes Land Trust*
Scott Cates, *Old Town*
Bill Cherry, *Machias and East Machias River Watershed Councils*
Diano Circo, *Natural Resources Council of Maine*
Richard Dill, *Department of Inland Fisheries and Wildlife*
Melissa Doane, *Bradley*
Norm Dube, *Department of Marine Resources*
Chip Grover, *Airline ATV Riders*
Kristen Hoffman, *Forest Society of Maine*
Eileen Lafland, *Maine Snowmobile Association*
Lorin LeCleire, *Alligator Outdoors*
Representative Benjamin Mariner Pratt, *House District #20*
Representative Everett McLeod, Sr. *House District #11*
Warren Miller, *Old Town*
Gordon Mott, *Sysladobsis Landowners*
Robert Murphy, *American Forest Management*
Bonnie Newsom, *Penobscot Indian Nation*
Nicatous Lodge and Camps
Bill Patterson, *The Nature Conservancy*
Jerry Poulin, *Wagner Forest Management*
Senator Kevin Raye, *Senate District #29*
Mike Ricci, *Maine Forest Service*
Pat Strauch, *Maine Forest Products Council*
Dave Tobey, *Grand Lakes Stream Guides Association*
Christopher Wilson, *Sweet Water Trust*

Appendix B. Summary of Management Recommendations

Duck Lake Unit Management Recommendations

Special Protection Management Recommendations

- Field staff will continue to identify and protect areas of ecological significance outside the Ecological Reserve. One such area is the seven acre mature sugar maple stand designated for protection by the Bureau in 1993.
- Primitive, non-groomed snowmobiling will be allowed on the existing Gassabias Portage Trail.
- Snowmobiling on the “Horseback Trail” in the Ecological Reserve will be discontinued. Signage explaining the non-motorized policy will be placed in appropriate places as determined by Bureau staff.

Wildlife Management Recommendations

- Loon counts on Third and Fourth Machias Lakes will be prioritized, per deeded requirements that were made part of the Machias Phase II acquisition.
- Maintain a component of early-successional softwood forest within the Unit to enhance habitat for Canada lynx and other species.
- Look for/expand opportunities to enhance mature softwood habitats for softwood dependent species, especially deer. When feasible, coordinate with surrounding landowners in the provision of deer habitat on a regional basis. Continue the Bureau semi permanent seeding program to compliment adjacent landowner’s wildlife food plots.
- The management goal for the 5,985-acre area between Gassabias Lake and Upper Unknown Lake portion allocated for wildlife is to increase the softwood stocking to maintain and expand use as deer wintering habitat, and to maintain a significant wildlife travel corridor between Fourth Machias Lake and the ownership boundary north of Upper Unknown Lake. Existing roads will be used in accomplishing wildlife management goals whenever possible.
- Continue implementation of the grouse habitat where sites conditions are favorable.
- Cooperate with IF&W in implementing an experimental brook trout fishery in Upper Unknown Pond for a three-year trial period. Stocking of yearling brook trout will occur in the fall.
- Continue to manage wetlands primarily through protective measures, but also include careful multi-age management of adjacent timber to encourage species diversity. Wood duck boxes will continue to be placed and maintained in appropriate areas.

Recreation and Visual Management Recommendations

- Primitive (non-groomed) snowmobiling from Fourth Machias Lake onto the “Horseback Trail” will be prohibited. Bureau staff will place signage explaining the non-motorized policy in appropriate locations and reserves the right to place barriers as necessary.
- Primitive, non-groomed snowmobiling across the historic portage trail between Gassabias and Fourth Machias Lakes (Gassabias Portage Trail) will be allowed to continue. Sledders are encouraged to connect to the Gassabias Portage Trail via the management roads to the north of Gassabias Lake rather than crossing the lake (though crossing Gassabias Lake is not prohibited).

- If an alternative to ITS 81 due to road plowing is needed in the future, the Bureau will seek to find an alternate route that avoids the ecological reserve and that utilizes trails or roads more suited to groomers. Staff will assess a new alternative to ITS 81 to be located in the Drag Brook Area, connecting into the existing Gassabias Road system. Any alternate trail will avoid the deer wintering area.
- The trail to Upper Unknown Pond will be managed for foot or snowmobile use.
- Safety, environmental, and ADA improvements will be made to the various primitive boat launching areas around the Unit as time and resources allow. The rustic nature of the facilities in the area will be considered when making improvements.
- Work with area residents and other interests in determining the suitability of providing a trailered boat access site on Nicatous Lake, to be located on the “fee connector” portion of the Unit. As an alternative, also evaluate improving the existing launch.
- Continue to monitor and develop strategies for managing popular public use areas on Duck Lake and the Unknowns.
- Because of the importance of motorized trail use in this area, continue to work with local ATV and snowmobile clubs and the Off-road Vehicle Division on an ongoing basis to address future connectivity or safety concerns.
- Develop a more formal trailhead off the Duck Lake Road near the Ecological Reserve on the northeast corner of Gassabias Lake for visitors to the Gassabias-Fourth Machias Lake Portage Trail old growth area.
- Explore the feasibility of managing the Ecological Reserve as a non-mechanized backcountry area and developing a hiking trail along the “Horseback Trail” at Fifth Lake Stream in conjunction with the trailhead to the Gassabias Portage Trail mentioned above.

Timber Management Recommendations

- Manage most of the well-stocked softwood acres to retain high spruce, hemlock, and pine components and a late-successional character, while producing high quality timber products and respecting viewsheds.
- Work to improve quality in the abundant acres of burn origin stands where quality is currently modest but the site allows for good growth.
- Encourage growth of pines, especially white pine, in both pine type stands and as significant components of softwood and mixedwood stands.
- Target mistletoe-infected spruce to the extent feasible given the above items.

Transportation and Administrative Management Recommendations

- The location of the evacuation sites will be put on Bureau maps and brochures.
- Continued communication between the Bureau and local snowmobile and ATV clubs is necessary to minimize conflicts on road use and for safety purposes.
- The Bureau will continue to communicate with its neighbor south of Gassabias Stream regarding the possible reinstatement of vehicular access from the south.
- The Bureau will decide which, if either, of the two Bureau camps on the Unit will be saved, and if so, how they will be maintained in an acceptable condition.
- Minimize road improvements and additions in the relatively un-roaded portion of the Unit to those deemed necessary to accomplish wildlife management goals. Use existing roads to accomplish management whenever possible.

- Place a barrier on the 42-08-0 Road where it crosses the ecological reserve boundary on the east side of Fifth Lake Stream to restrict motorized use.
- To enhance appearance and improve safety, no new log landings will be constructed on public access roads on the Nicatous portion of the Phase II Machias project.

Bradley Unit Management Recommendations

Special Protection Management Recommendations

- The Bureau will apply the standard 330 foot major riparian zone buffer around special protection areas (at the suggestion of MNAP).

Wildlife Management Recommendations

- Manage the timber in a way to retain all red oak as a hard mast food source.
- There will be very light cutting in cedar dominant areas.
- Retain shelter values of softwood stands that may support wintering deer.
- Apply IF&W management guidelines for areas containing Northern Leopard Frogs.

Recreation and Visual Management Recommendations

- Coordinate activities and development at the boat launch with IF&W and the Town of Bradley.
- Coordinate with local ATV and snowmobile clubs to provide interconnecting trails in appropriate places as needed.

Timber Management Recommendations

- Continue to manage for pine where feasible. Pre-commercial treatment may be necessary to keep some regeneration from being dominated by fir and hardwoods.
- Regenerate/salvage high risk black spruce stands in upland areas.
- Reduce fir component in young stands as they become operable.
- Work with abutting landowners (current and future) toward securing access for timber management.

Transportation and Administrative Management Recommendations

- Continue to work with the abutting landowners towards obtaining access rights for administrative, camplot lease, and general public use purposes.
- Work with Webber Heirs to resolve title issues on land and camplot lease north of Great Works Stream.
- As Bangor Hydro works toward purchase of their powerline corridor, look to secure the right to cross with new roads in any place legally permissible.

Machias River Unit Management Recommendations

Special Protection Management Recommendations

- Archeological sites will be left undisturbed according to guidance given in the IRP.

Wildlife Management Recommendations

- All wildlife management will be in cooperation with the BSRFH in order to address Atlantic salmon habitat needs.
- Monitoring and protection of loons is a priority.
- Management near known locations of bald eagle nests, the rare brook floater, pygmy snaketail dragonfly, and the wood turtle will be planned in consultation with IF&W species management guidelines.
- Protect some areas for winter deer use, in cooperation with other landowners when feasible.

Recreation and Visual Management Recommendations

- Manage the recreation along the river and lakes consistent with the general remote character and quality of the river itself.
- Work closely with Project SHARE and BSRFH in planning and implementing any facility improvements in the Unit.
- Improvements to boat launching sites will be further evaluated, particularly sites on Third Machias Lake, Salmon Pond, and the “wonderland” campsite.
- Work with area guides and other recreational interests towards a coordinated effort in providing information, general management needs, and facility improvements along the water course.
- Consider developing a non-motorized trail along the east side of the river, if there is sufficient interest and support for trail development, maintenance and stewardship.
- Work with area ATV interests and surrounding landowner toward establishing a trail connection from the river lands to the nearby regional ATV system.
- Consider any future proposals from the snowmobile community to re-locate snowmobile trails into the Unit. In evaluating potential trails, consider the resource allocations on the Unit, the IRP, and other management objectives on the Unit.

Timber Management Recommendations

- Manage the pine plantations with the goals of restoring the stands to a more natural condition and enhancing wildlife habitat.
- Work with MNAP and BSRFH before implementing any timber management.
- In general, manage for late-successional species.

Transportation and Administrative Recommendations

- Continue to work with Project SHARE on improvements to stream crossings.
- Evaluate all roads in the Unit comparing their benefits to Bureau management with their potential threat to salmon habitat. Discontinue or relocate unnecessary or particularly poorly designed roads.
- Continue to discuss the possibility of seasonal closure of 52-00-0 Road and other issues involving interactions between private and public roads with AFM. If seasonal closure of 52-00-0 Road is implemented, monitor the road to re-open as soon as feasible and encourage guides and the public to call the Bureau’s Old Town office to find out the status of the gates.
- Upgrade 43-00-0 Road to handle increased traffic due to surrounding landowner’s road closures.
- Maintain the Third Machias bridge for its current use for public access and timber transport.

Cary Plantation Lots

Management Recommendations

- Communicate with the Federal Border Patrol on management plans for these lots.
- Pursue acquiring legal access to the Lot.

Codyville Plantation Lots

Management Recommendations

- Continue to work toward a solution to the adverse claim on the West Lot.
- Pursue acquiring legal vehicular access to the Northeast Lot.

Great Pond Lots

Management Recommendations

- Communicate with the Town regarding its future interest in the Lot.
- Communicate with partners in the Lower Penobscot Forest Project regarding future planning for Project lands, and how these might interact with management of the Lot.
- Pursue acquiring legal access to the Lot.

Hardwood Island Lot

Management Recommendations

- Work with area sportsmen and recreational interests to address campsite maintenance needs on the island.

Lakeville Public Lots

Wildlife Management Recommendations

- Areas of late-successional character will be maintained as such and deer cover will be enhanced where feasible. No timber harvesting will be performed along the Weymouth Brook floodplain.

Recreation Management Recommendations

- Coordinate with the town of Lakeville in planning and management of trails and recreational facilities on the Keg Lake Lot, and send Lakeville town officials a copy of the 5-year reports issued to the Advisory Committee on the status of plan recommendations.
- Determine the suitability for a hand carry site on Keg Lake and a trailered boat launch on Duck Lake.
- Work with the area ATV club to deter illegal use of the Upper Dobsis Lot, or to establish trails as appropriate.

Transportation and Administrative Recommendations

- Pursue acquiring legal access to the Magoon Pond and Upper Dobsis Lots.

Macwahoc Lot

Management Recommendations

- Manage for deer winter cover in the Crossuntic Stream watershed.

Mattawamkeag Lands

Recreation Management Recommendations

- Monitor the recreational use on these parcels and manage for their remote character.
- Campsites will be built on Long Point and Big Island.
- Discuss with the landowner of the easement area possible locations for backcountry, non-motorized areas, as stipulated in the easement.

Reed Lots

Management Recommendations

- Consult with MNAP and/or IF&W if performing any harvesting near habitat of the rare or endangered species on the Northwest Lot.
- Pursue acquiring legal access to the lots.

Appendix C. Summary of Public Process and Response to Written Public Comments

**Summary of Public Process
Eastern Interior Management Plan**

Date	Action	Notification	Attendance
March 4, 2008	Public Scoping Session, Bangor	Legal Notices in Bangor Daily News and Kennebec Journal, Letter sent to interested parties	26 members of the public 9 DOC staff
May 8, 2008	Landowner Focus Group Meeting, Brewer	Letters sent to interested parties and landowners	14 landowners 6 DOC staff
October 15, 2008	Advisory Committee Meeting, Bangor	E-mail sent to Advisory Committee with link to first draft of Plan	14 Advisory Committee members and members of the public 10 DOC staff
November 14, 2008	Deadline for written public comments on first draft		7 written comments received
March 24, 2009	Public Meeting on Final Draft, Brewer	Legal notices in Kennebec Journal and Bangor Daily News and letters sent to interested parties and advisory committee members	Approximately 20 members of the public and 12 Bureau staff in attendance
April 21, 2009	Deadline for written public comments on final draft		5 written comments received

Written Public Comments “Comment and Response”

Summaries of and Responses to Written Comments on the First Draft and Final Draft of the Eastern Interior Management Plan (Does not include typographical, grammatical, or formatting comments that have been corrected where appropriate.)	
Comment	Response
Comments on Duck Lake Unit	
From: Christopher Wilson, Sweet Water Trust*	
• Plan should include discussion of enforcement	• The Bureau will discontinue snowmobile use

<p>of “no motorized” policy in deeded ecological reserve portion as well as other ecological reserve portions of Duck Lake Unit.</p>	<p>on the “horseback” trail, and place signage and barriers as staff deem appropriate. This will significantly deter snowmobile entry into the deeded ecological reserve. On the issue of potential unauthorized use, the Bureau has no enforcement authority, but will report violations as discovered to the Maine Warden Service or Maine Forest Service. See Duck Lake Unit portion of the Plan for a more complete discussion.</p>
<p>From: Christopher Wilson, Sweet Water Trust*</p>	
<ul style="list-style-type: none"> • A barrier should be placed on the 42-08-0 road where it crosses the eastern boundary of the deeded ecological reserve portion of the Duck Lake Unit to prevent unauthorized motorized use. 	<ul style="list-style-type: none"> • The Bureau will place boulder barriers here to discourage vehicular traffic.
<p>From: Christopher Wilson, Sweet Water Trust*</p>	
<ul style="list-style-type: none"> • Ecological inventories should be conducted on the deeded ecological reserve portion of the Duck Lake Unit prior to the development of any non-motorized trail along the “Horseback”. 	<ul style="list-style-type: none"> • Ecological inventories of the deeded ecological reserve will be conducted by MNAP in 2009 and no trail construction will occur prior to inventories.
<p>From: Diano Circo, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> • Expansion of the ecological reserve in the Duck Lake Unit should be considered when all management plans for public reserved lands are complete. 	<ul style="list-style-type: none"> • The Bureau, along with the Maine Natural Areas Program with the assistance of the Ecological Reserves Scientific Advisory Committee will consider new areas for ecological reserve designation after the completion of all the public reserved lands management plans. At that time, MNAP will have completed new or updated natural resource inventories on all lands, and expansion of the Duck Lake Unit Ecological Reserve will be considered along with all other areas determined to be of ecological significance.
<p>From: Diano Circo, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> • The Bureau should commit to build no additional roads in the area of the Duck Lake Unit that is relatively un-roaded. The Bureau should also commit to putting unnecessary roads to bed. 	<ul style="list-style-type: none"> • The majority of the relatively un-roaded area is proposed for wildlife allocation. This allocation was recommended due to documented historical wildlife use, two designated deer wintering areas, the predominant softwood type and its potential as a travel corridor and habitat for a broad suite of native species. The management goal for this area is to increase the softwood stocking

	<p>and to maintain a significant wildlife travel corridor between Fourth Machias Lake and the ownership boundary north of Upper Unknown Lake. Existing roads will be used in accomplishing wildlife management goals whenever possible. Operational necessity requires the Bureau to rebuild part of an existing road and realign an approximately 2,600 foot existing road segment to avoid erosion and sedimentation north and east of Lower Unknown Lake. There may be additional needs for road improvements or expansions, however, these are likely to be relatively minor and will not constitute a significant alteration to this relatively road-less area.</p>
<p>From: Diano Circo, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> The section of the Fifth Machias Lake to Fourth Machias Lake canoe route should be designated non-mechanized backcountry due to the legendary Machias River canoe trip. This area should be off-limits to motorized uses, including eliminating the primitive snowmobile use on the Gassabias Portage Trail and the “Horseback” Trail due to the Ecological Reserve status. The Bureau should do an analysis of the IRP to determine if these trails should be able to remain in the Ecological Reserve. An “alternate” ITS trail should not be put in ER. 	<ul style="list-style-type: none"> The Bureau performed an analysis of these trails and their conformance to the IRP. This included an additional site visit. A detailed discussion of this analysis can be found in the “Recreation Issues: Discussion” portion in the Duck Lake Unit section. The management recommendation resulting from this analysis is to allow primitive, un-groomed snowmobiling along the Gassabias Portage Trail, and to discontinue all other snowmobile use in the Ecological Reserve. Any alternate to the ITS trail will not be in the Ecological Reserve.
<p>From: Sally Stockwell, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> The area around Upper Unknown Lake and from Unknown Stream to Fifth Machias should be maintained as unroaded due to challenges roads present to wildlife and the rarity of relatively unroaded areas in Maine. 	<ul style="list-style-type: none"> See response to Diano Circo’s comment on unroaded area above.
<p>From: Karen Sprague, Grand Lake Snowmobile Club**</p>	
<ul style="list-style-type: none"> The GLSC supports continued snowmobile use of the Gassabias Portage Trail. 	<ul style="list-style-type: none"> Primitive, un-groomed snowmobiling will be allowed on the Gassabias Portage Trail.
<p>From: Mark Berry, Downeast Lakes Land Trust**</p>	
<ul style="list-style-type: none"> DLLT supports continuing historical snowmobile access on the Duck Lake Unit. 	<ul style="list-style-type: none"> The only change to snowmobile access on the Unit will be in limiting use in the Ecological Reserve to the Gassabias Portage Trail. Bureau staff performed many site visits, listened to input from all parties and performed an analysis based on Bureau guiding statutes and policies

	in arriving at this decision. See “Recreation Issues: Discussion” in the Duck Lake Unit section of the plan for more information.
Comments on Machias River Lands Unit	
From: Diano Circo, Northern Forest Alliance*	
<ul style="list-style-type: none"> • The Machias River Unit should be designated “non-mechanized backcountry” due to the Machias River’s importance for whitewater boating in a remote setting and because the “non-mechanized backcountry” allocation most closely fits this area compared to other recreation allocations in the IRP. 	<ul style="list-style-type: none"> • The Machias River Unit came into the Bureau’s ownership as part of a large scale conservation project involving many private and public agencies. The central goal of the Machias River project, which is still underway, is to protect the watershed of the country’s largest, self-sustaining wild Atlantic salmon run. This over-arching goal led the Bureau to the decision to allocate the entire Machias River Unit as wildlife dominant, as protection of the endangered Atlantic salmon is central to management of this Unit. In addition, a 250 foot buffer on both sides of the river is governed by a conservation easement held by the Bureau of Sea Run Fisheries and Habitat (BSRFH). The purpose of the easement includes Atlantic salmon habitat protection, and the Bureau must consult with BSRFH when performing management activity in this area. The Bureau has also entered into a Memorandum of Understanding with BSRFH (included as Appendix E in this plan) which provides that the Bureau manage recreation in consultation with them and put Atlantic salmon protection at the forefront of recreational decisions. The Bureau must have the option of wildlife management, which involves forest management to maintain a multi-age structure with at least 80% canopy closure while retaining features such as den trees, snags, coarse woody debris and legacy trees. Any forest management will be in consultation with BSRF and in compliance with easement terms and the over-arching goal of salmon protection.
From: Diano Circo, Northern Forest Alliance*	
<ul style="list-style-type: none"> • Existing roads should be allowed to remain, but there should be no expansion to motorized access. Roads should be evaluated and where possible, should be moved further from the River and traffic kept to a minimum to protect 	<ul style="list-style-type: none"> • All roads within the Unit will be evaluated, and their benefits to the Bureau’s management objectives will be compared to their potential threat to Atlantic salmon and loon habitat. Unnecessary or particularly poorly designed

<p>the quiet recreational experience and water quality.</p>	<p>roads may be discontinued or relocated. Decisions to relocate portions of roads will consider water quality impact of the road relocation effort. Motorized access will be required to accomplish stream habitat restoration goals.</p>
<p>From: Sally Stockwell, Northern Forest Alliance*</p>	
<ul style="list-style-type: none"> • Designate the Machias River Unit “non-mechanized backcountry”, which is most compatible with meeting BSRF goals for salmon recovery. Move roads back from the river where they are too close. 	<ul style="list-style-type: none"> • See above two responses to Diano Circo, Northern Forest Alliance.
<p>From: Diana McKenzie, Land Use Regulation Commission*</p>	
<ul style="list-style-type: none"> • If the Third Machias Lake boat launch is to be moved, it must be shown to LURC no alternative site is reasonably available, and the Bureau must include reasons why the current location of the boat launch is inappropriate, and why the proposed location is better. The prospective site must be researched for archeological resources prior to approval. 	<ul style="list-style-type: none"> • If the Bureau decides to move the boat launch on Third Machias Lake, it will provide evidence to LURC that the proposed location is more suitable, that no alternative site is reasonably available, and that archeological resources will not be harmed.
<p>From: Colin Beeson, American Forest Management*</p>	
<ul style="list-style-type: none"> • Bureau should install a gate at the south end of 52 00 0 road to be closed during mud season to keep vehicles from entering AFM roads which are closed during mud season. Maintain 52 00 0 road so it is safe for all vehicles, and upgrade 43 00 0 road to reduce use of AFM roads. Narrow the bridge at Third Machias Lake so only ATV traffic could cross. 	<ul style="list-style-type: none"> • The Bureau will consider installing gates to be closed during “mud season”, especially if it finds the traffic during this time to be causing water quality degradation and affecting Atlantic salmon. The Bureau will work to improve the 52 00 0 and 43 00 0 roads. Bureau staff will further these issues with AFM staff before decisions are made.
<p>From: Karl Stevens and Ryan Maker, Camp Owners within the Machias River Unit**</p>	
<ul style="list-style-type: none"> • If the 52 00 0 Road is closed seasonally, arrangements should be made for campowners to gain access to their camps. Campowners do not degrade the roads like the public does. Access for canoeing during the spring is also important. 	<ul style="list-style-type: none"> • The Bureau will reserve the option to close the road seasonally to protect Atlantic salmon habitat, cooperate with AFM to prevent use on their roads during mud season, and protect Bureau roads. Bureau staff cannot make the determination that campowners make less of an impact on the road than the public, as all travel during this season has the potential to degrade the road. Canoeists and other recreationists who want to plan trips and events for this time of year are encouraged to contact the Bureau’s Old Town office to find the most up-to-date information on access in the Unit. The Bureau will make an effort to close the road for as short

	<p>a time as possible, and will also be working to upgrade the roads so that seasonal closure may eventually become unnecessary.</p>
<p>Comments on Lakeville Lots (Keg Lake Lot)</p>	
<p>From: D. Gordon Mott, Forester*</p>	
<ul style="list-style-type: none"> • It should be recognized and stated that this lot is located centrally in the community next to municipally-owned land and that inevitably it will be an important multiple-use green space as the future community grows and develops. It will be very important to maintain management on behalf of all the citizens in the state on this parcel and, at the same time if possible, maintain some appropriate mechanisms to integrate closely on a continuing basis with the multiple-use interests of the local community. The history of local attempts to establish joint management mechanisms by BPL and Lakeville, including two separate initiatives through the years on the part of the Lakeville community to take responsibility for management, and a recent attempt to establish a viable local entity, have been less than successful. It is recommended that an important objective of management in this, and perhaps other similar communities and parcels, be an effort on the part of the Bureau of Public Lands to develop and establish a balanced, working, joint entity of some kind, to both enhance local involvement and to increase potential support for the Bureau program. 	<ul style="list-style-type: none"> • The Bureau appreciates that the community of Lakeville has a special interest in the management of the Keg Lake Lot due to its recreational values and adjacency to municipally owned lands. In general the Bureau works closely with adjacent landowners and interested municipalities in the management of its lands, for example coordinating its recreational trails systems with those on adjacent lands. The plan has been revised to include a recommendation that the Bureau coordinate with the town of Lakeville in planning and management of trails and recreational facilities on the Keg Lake Lot. • As explained in this Plan, in addition to this ongoing coordination, public input is sought on the overall management objectives for Bureau lands during the development of the 15-year management plans. An advisory committee is established as part of that planning process to review and comment on the draft plans. Following adoption of a final plan. Every five years, the Bureau will report to the advisory committee on the status of plan goals and recommendations. Because of the potential interest in Bureau activities on the Keg Lake Lot, the Bureau will also send this report to Lakeville town officials.
<p>From: D. Gordon Mott, Forester*</p>	
<ul style="list-style-type: none"> • Bureau should consider looking at Weymouth Brook and East Branch riparian areas for “old growth” designation. These riparian buffers should be extended to 300 feet and silvicultural prescriptions should encourage softwoods so beavers will be discouraged from damming Weymouth Brook. Along with the increased riparian buffers, a wider area should be protected for its rich wildlife values, especially the areas known by locals to contain a significant deer population. Only foot traffic should be allowed 	<ul style="list-style-type: none"> • The land along Weymouth Brook has a late-successional character in places especially where hemlock is most abundant, but does not meet the Bureau’s criteria for old-growth stands. However, the Bureau’s management under riparian guidelines and legacy/reserve tree policy will maintain or enhance the current late-successional character. The Bureau will designate a “no-cut” area on the distinct floodplain along the brook. This will be within the larger wildlife allocation.

in this area.	
From: D. Gordon Mott, Forester*	
<ul style="list-style-type: none"> • A trailered boat launch should be added to Duck Lake (though limiting boat/motor size recommended). A hand-carry boat launch should be added to Keg Lake, with the path doubling as access to the small sand beach. 	<ul style="list-style-type: none"> • Bureau staff visited the Keg Lake Lot to evaluate the potential for these boat launches. They determined that there is potential for both launches but a more detailed assessment of appropriate siting is needed. Bureau will continue to evaluate as funding allows.
Comments on Mattawamkeag Lands	
From: Debra O’Roak**	
<ul style="list-style-type: none"> • The Bible Point Trail should be kept open for all uses, especially snowmobiling. 	<ul style="list-style-type: none"> • Bible Point is owned in fee by the Bureau and managed as a State Historic Site. The lands surrounding Bible Point are owned privately, but subject to a conservation easement held by the Bureau. The conservation easement identifies vehicular, mountain bike and snowmobile access into a boat access site at the outlet of Mattawamkeag Lake, and a trail open to pedestrians, mountain bikes and snowmobiles continuing south to Bible Point. Snowmobile access to Bible Point is therefore secure in the easement terms. ATV access is left up to the Grantor’s discretion, therefore, ATV riders must seek permission from the Grantor before accessing Bible Point.
General Plan Area Comments	
From: D. Gordon Mott, Forester*	
<ul style="list-style-type: none"> • Advanced planning and management should be conducted to prepare for the on-coming spruce budworm epidemic. This should include information collection, economic preparations, advanced selection of pesticides, reducing fir composition and increasing mixedwood composition of the forest, and producing revenues to be used for pest protection. 	<ul style="list-style-type: none"> • The Bureau has been preparing for the spruce budworm’s return since the last outbreak. Most preparations have been silvicultural in nature, such as diversifying age structure of softwood stands, favoring spruce instead of fir where feasible, and harvesting fir at a relatively early age. This method follows the University of Maine’s Cooperative Forestry Research Unit’s findings for budworm planning on the southern portion of susceptible forest. The IRP directs the Bureau to use silvicultural strategies first, but if these fail and a major budworm outbreak occurs, use of biological methods will be second, followed by chemical methods if biological methods fail. If chemical means are deemed necessary, the choice of chemical will be made at that time.

From: Richard Bard, Department of Inland Fisheries and Wildlife*	
<ul style="list-style-type: none"> • Black Terns (state listed endangered species) have been documented southeast of Fourth Machias Lake and should be mentioned along with deer wintering areas southeast and west of Fourth Machias Lake. Consult with IF&W on timber management in DWA (either through regional offices or wildlife biologist assigned to Bureau). 	<ul style="list-style-type: none"> • The Black Terns and deer wintering areas will be noted in the plan. IF&W is consulted on timber and other types of management within deer wintering areas currently either through the wildlife biologist assigned to the Bureau or the regional offices (or both).

* indicates written comments made on First Draft of the Plan
 ** indicates written comments made on Final Draft of the Plan

Appendix D. Glossary

“Age Class”: the biological age of a stand of timber; in single-aged stands, age classes are generally separated by 10-year intervals.

“ATV Trails”: designated trails of varying length with a variety of trail surfaces and grades, designed primarily for the use of all-terrain vehicles.

“All-Terrain Vehicles”: motor driven, off-road recreational vehicles capable of cross-country travel on land, snow, ice, marsh, swampland, or other natural terrain. For the purposes of this document an all-terrain vehicle includes a multi-track, multi-wheel or low pressure tire vehicle; a motorcycle or related 2-wheel vehicle; and 3- or 4-wheel or belt-driven vehicles. It does not include an automobile or motor truck; a snowmobile; an airmobile; a construction or logging vehicle used in performance of its common functions; a farm vehicle used for farming purposes; or a vehicle used exclusively for emergency, military, law enforcement, or fire control purposes (Title 12, Chapter 715, Section 7851.2).

“Bicycling/ Recreation Biking Trails”: designated trails of short to moderate length located on hard-packed or paved trail surfaces with slight to moderate grades, designed primarily for the use of groups or individuals seeking a more leisurely experience.

“Boat Access - Improved”: vehicle-accessible hard-surfaced launch sites with gravel or hard-surface parking areas. May also contain one or more picnic tables, an outhouse, and floats or docks.

“Boat Access - Unimproved”: vehicle-accessible launch sites with dirt or gravel ramps to the water and parking areas, and where no other facilities are normally provided.

“Campgrounds”: areas designed for transient occupancy by camping in tents, camp trailers, travel trailers, motor homes, or similar facilities or vehicles designed for temporary shelter. Developed campgrounds usually provide toilet buildings, drinking water, picnic tables, and fireplaces, and may provide disposal areas for RVs, showers, boat access to water, walking trails, and swimming opportunities.

“Carry-In Boat Access”: dirt or gravel launch sites accessible by foot over a short to moderate length trail, that generally accommodates the use of only small watercraft. Includes a trailhead with parking and a designated trail to the access site.

“Class I Rapid”: Easy. Fast moving water with riffles and small waves. Few obstructions, all obvious and easily missed with little training. Risk to swimmers is slight and self rescue is easy.

“Class II Rapid”: Novice. Straightforward rapids with wide, clear channels that are evident without scouting. Occasional maneuvering may be required, but rocks and medium-sized waves are easily missed by trained paddlers. Swimmers are seldom injured and group assistance, while helpful, is seldom needed.

“Class III Rapid”: Intermediate. Rapids with moderate, irregular waves that may be difficult to avoid and that can swamp an open canoe. Complex maneuvers in fast current and good boat control are often required; large waves or strainers may be present but are easily avoided. Strong eddies and powerful current effects can be found, particularly on large-volume rivers. Scouting is advisable for inexperienced parties. Injuries while swimming are rare; self-rescue is usually easy, but group assistance may be required to avoid long swims.

“Clear-cut”: an single-age harvesting method in which all trees or all merchantable trees are removed from a site in a single operation.

“Commercial Forest Land”: the portion of the landbase that is both available and capable of producing at least 20 cubic feet of wood or fiber per acre per year.

“Commercial Harvest”: any harvest from which forest products are sold. By contrast, in a pre-commercial harvest, no products are sold, and it is designed principally to improve stand quality and conditions.

“Community”: an assemblage of interacting plants and animals and their common environment, recurring across the landscape, in which the effects of recent human intervention are minimal (“Natural Landscapes Of Maine: A Classification Of Ecosystems and Natural Communities” Maine Natural Heritage Program. April, 1991).

“Cross-Country Ski Trails”: designated winter-use trails primarily available for the activity of cross-country skiing. Trails may be short to long for day or overnight use.

“Ecosystem Type”: a group of communities and their environment, occurring together over a particular portion of the landscape, and held together by some common physical or biotic feature. (“Natural Landscapes Of Maine: A Classification Of Ecosystems and Natural Communities.” Maine Natural Heritage Program, April, 1991).

“Folist Site”: areas where thick mats of organic matter overlay bedrock, commonly found at high elevations.

“Forest Certification”: A process in which a third party “independent” entity audits the policies and practices of a forest management organization against a set of standards or principles related to sustainable management. It may be limited to either land/forest management or product chain-of-custody, or may include both.

“Forest Condition (or condition of the forest)”: the state of the forest, including the age, size, height, species, and spatial arrangement of plants, and the functioning as an ecosystem of the combined plant and animal life of the forest.

“Forest Stewardship Council (FSC) Certification”: A third-party sustainable forestry certification program that was developed by the Forest Stewardship Council, an independent, non-profit, non-governmental organization founded in 1993. The FSC is comprised of representatives from environmental and conservation groups, the timber industry, the forestry

profession, indigenous peoples' organizations, community forestry groups, and forest product certification organizations from 25 countries. For information about FSC standards see http://www.fscus.org/standards_criteria/ and www.fsc.org.

“Forest Type”: a descriptive title for an area of forest growth based on similarities of species and size characteristics.

“Group Camping Areas”: vehicle or foot-accessible areas designated for overnight camping by large groups. These may include one or more outhouses, several fire rings or fire grills, a minimum of one water source, and several picnic tables.

“Horseback Ride/Pack Stock Trails”: generally moderate to long-distance trails designated for use by horses, other ride, or pack stock.

“Invasive Species”: generally nonnative species which invade native ecosystems and successfully compete with and displace native species due to the absence of natural controls. Examples are purple loosestrife and the zebra mussel.

“Late successional”: The condition in the natural progression of forest ecosystems where long-lived tree species dominate, large stems or trunks are common, and the rate of ecosystem change becomes much more gradual. Late successional forest are also mature forests that, because of their age and stand characteristics, harbor certain habitat not found elsewhere in the landscape.

“Log Landings”: areas, generally close to haul roads, where forest products may be hauled to and stored prior to being trucked to markets.

“Management Roads”: roads designed for timber management and/or administrative use that may be used by the public as long as they remain in service. Management roads may be closed in areas containing special resources, where there are issues of public safety or environmental protection.

“Mature Tree”: a tree which has reached the age at which its height growth has significantly slowed or ceased, though its diameter growth may still be substantial. When its annual growth no longer exceeds its internal decay and/or crown loss (net growth is negative), the tree is over-mature.

“Motorized”: a mode of travel across the landbase which utilizes internal combustion or electric powered conveyances; which in itself constitutes a recreational activity, or facilitates participation in a recreational activity.

“Mountain Bike Trails”: designated trails generally located on rough trail surfaces with moderate to steep grades, designed primarily for the use of mountain bicycles with all-terrain tires by individuals seeking a challenging experience.

“Multi-aged Management”: management which is designed to retain two or more age classes and canopy layers at all times. Its harvest methods imitate natural disturbance regimes which

cause partial stand replacement (shelterwood with reserves) or small gap disturbances (selection).

“Natural Resource Values”: described in Maine’s Natural Resource Protection Act to include coastal sand dunes, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, great ponds and rivers, streams, and brooks. For the purposes of this plan they also include unique or unusual plant communities.

“Non-motorized”: a mode of travel across the landbase which does not utilize internal combustion, or electric powered conveyances; which in itself constitutes a recreational activity, or facilitates participation in a recreational activity.

“Non-native (Exotic)”: a species that enters or is deliberately introduced into an ecosystem beyond its historic range, except through natural expansion, including organisms transferred from other countries into the state, unnaturally occurring hybrids, cultivars, genetically altered or engineered species or strains, or species or subspecies with nonnative genetic lineage.

“Old Growth Stand”: a stand in which the majority of the main crown canopy consists of long-lived or late successional species usually 150 to 200 years old or older, often with characteristics such as large snags, large downed woody material, and multiple age classes, and in which evidence of human-caused disturbance is absent or old and faint.

“Old Growth Tree”: for the purposes of this document, a tree which is in the latter stages of maturity or is over-mature.

“Pesticide”: a chemical agent or substance employed to kill or suppress pests (such as insects, weeds, fungi, rodents, nematodes, or other organism) or intended for use as a plant regulator, defoliant, or desiccant. (from LURC Regulations, Ch. 10)

“Primitive Campsites”: campsites that are rustic in nature, have one outhouse, and may include tent pads, Adirondack-type shelters, and rustic picnic tables. Campsites may be accessed by vehicle, foot, or water.

“Public Road or Roadway”: any roadway which is owned, leased, or otherwise operated by a government body or public entity. (from LURC Regulations, Ch. 10)

“Public Use Roads”: all-weather gravel or paved roads designed for two-way travel to facilitate both public and administrative access to recreation facilities. Includes parking facilities provided for the public. Management will include roadside aesthetic values normally associated with travel influenced zones.

“Recreation Values”: the values associated with participation in outdoor recreation activities.

“Regeneration”: both the process of establishing new growth and the new growth itself, occurring naturally through seeding or sprouting, and artificially by planting seeds or seedlings.

“Regulated Acres”: On Bureau lands, regulated acreage is the portion of the commercial forest landbase on which the sustainable harvest will be calculated at or near maximum sustainable levels.

“Remote Ponds”: As defined by the Maine Land Use Regulation Commission: ponds having no existing road access by two-wheel drive motor vehicles during summer months within ½ mile of the normal high water mark of the body of water with no more than one noncommercial remote camp and its accessory structures within ½ mile of the normal high water mark of the body of water, that support cold water game fisheries.

“Riparian”: an area of land or water that includes stream channels, lakes, floodplains and wetlands, and their adjacent upland ecosystems.

“Salvage”: a harvest operation designed to remove dead and dying timber in order to remove whatever value the stand may have before it becomes unmerchantable.

“Selection”: related to multi-aged management, the cutting of individual or small groups of trees; generally limited in area to patches of one acre or less.

“Service Roads”: summer or winter roads located to provide access to Bureau-owned lodging, maintenance structures, and utilities. Some service roads will be gated or plugged to prevent public access for safety, security, and other management objectives.

“Silviculture”: the branch of forestry which deals with the application of forest management principles to achieve specific objectives with respect to the production of forest products and services.

“Single-aged Management”: management which is designed to manage single age, single canopy layer stands. Its harvest methods imitate natural disturbance regimes which result in full stand replacement. A simple two-step (seed cut/removal cut) shelterwood is an example of a single-aged system.

“Snowmobile Trails”: designated winter-use trails of varying length located on a groomed trail surfaces with flat to moderate grades, designed primarily for the use of snowmobiles.

“Stand”: a group of trees, the characteristics of which are sufficiently alike to allow uniform classification.

“Succession/ successional”: progressive changes in species composition and forest community structure caused by natural processes over time.

“Sustainable Forestry/ Harvest”: that level of timber harvesting, expressed as treated acres and/or volume removals, which can be conducted on a perpetual basis while providing for non-forest values. Ideally this harvest level would be “even-flow,” that is, the same quantity each year. In practice, the current condition of the different properties under Bureau timber

management, and the ever-changing situation in markets, will dictate a somewhat cyclical harvest which will approach even-flow only over time periods of a decade or more.

“Sustainable Forestry Initiative (SFI)”: A third party sustainable forestry certification program that was developed in 1994 by the American Forest and Paper Association, which defines its program as “a comprehensive system of principles, objectives and performance measures that integrates the perpetual growing and harvesting of trees with the protection of wildlife, plants, soil and water quality.” To review SFI standards see http://www.afandpa.org/Content/NavigationMenu/Environment_and_Recycling/SFI/The_SFI_Standard/The_SFI_Standard.htm.

Appendix E. Memorandum of Understanding between Bureau of Parks and Lands and Atlantic Salmon Commission

MEMORANDUM OF UNDERSTANDING BETWEEN THE MAINE ATLANTIC SALMON COMMISSION AND THE MAINE BUREAU OF PARKS AND LAND

This Memorandum of Understanding (hereinafter referred to as the "MOU") is made and entered into by and between the Maine Atlantic Salmon Commission (herein referred to as the "ASC") and the Maine Bureau of Parks and Lands (hereinafter referred to as "BPL") for the purpose of establishing the arrangement whereby the ASC monitors the conservation easement that it holds and the BPL monitors the fee property it owns. The BPL and the ASC will keep the Maine Chapter of the Nature Conservancy (hereinafter referred to as "TNC") informed as to changes with this MOU and use of the endowment fund. The total property is 24,846 acres of land (18,443 acre easement and 6,403 acre fee land) in the Machias River Corridor.

WHEREAS, a Conservation Easement Deed has been made and entered into on approximately 18,443 acres, including the Machias River corridor and key tributaries;

WHEREAS, the State of Maine through the ASC has the responsibility of monitoring and enforcing the terms of that easement, and for managing salmon habitat in the Machias River and its tributaries;

WHEREAS, the State of Maine through the BPL has purchased approximately 6,403 acres of land in the Machias River Corridor.

WHEREAS, the State of Maine through the BPL has responsibility for monitoring and enforcing the laws and regulations of the State on said land, and managing recreational use on both the fee and easement lands;

WHEREAS, the State of Maine through the BPL has management responsibilities regarding pedestrian and water recreation on the fee and easement lands;

NOW, THEREFORE the ASC and the BPL in consideration of the above agree to the following:

A. Maine Atlantic Salmon Commission Agrees to:

1. Develop and maintain an easement-monitoring plan for the property utilizing the easement baseline documentation report developed by the BPL.
2. Hire a reputable firm to monitor the easement according to state protocol, including maps, aerial photos, establishment of permanent photo points, documentation of conservation values to be protected, as outlined in the easement, and location of existing roads, buildings and recreational facilities. This will involve maintaining six or more copies of the baseline documentation report at the following locations: one copy with ASC, one copy with BPL, one copy with landowner(s), one copy with the firm to be hired, and one copy with the Maine State Planning Office which will reside in a fireproof file.
3. Monitor the terms of the conservation easement on the property according to the monitoring plan.
4. Coordinate and facilitate annual meetings with the landowner and the monitoring firm/agent to ensure that activities on the property are consistent with the terms of the easement.
5. Maintain a file at ASC's office of all correspondence, reports, and meeting notes regarding the monitoring of the Machias River easement.

6. Maintain regular communications with the landowner and the BPL aimed at achieving the goals of the easement and keeping parties informed regarding issues, concerns, and potential problems.
7. Respond to reports of potential easement violations and communicate findings to landowner(s) as appropriate to ensure compliance and enforcement of the easement.

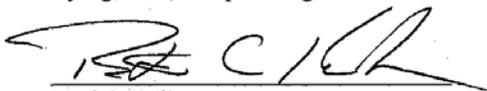
B. The Bureau of Parks and Lands Agrees to:

1. In recognition of the BPL's recreational management responsibilities, develop a recreational management plan to provide for low impact, traditional-use recreation within the corridor.
2. Contact the ASC prior to the construction or reconstruction of campsites to ensure that these activities will not adversely affect salmon habitat.
3. Maintain all campsites to ensure that erosion is minimized
4. Consult with ASC prior to any timber harvesting on fee lands. Harvesting objectives shall meet or exceed harvest plans set forth in the easement.
5. Consult with the ASC prior to building or reconstructing roads and bridges within fee area to ensure said roads and/or bridges do not impact salmon habitat and natural springs.

C. BPL and ASC Mutually Agree-That:

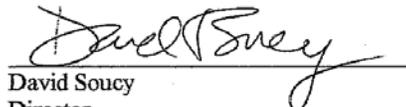
1. This MOU is intended to be in perpetuity and shall begin on the date of signing.
2. Both parties can amend this MOU upon written agreement after consultation with TNC.
3. The Maine Community Foundation will manage the endowment fund in compliance with the Designated Endowment Fund Agreement between The Nature Conservancy and Maine Community Foundation (attached).
4. Annual distributions from the endowment fund will be shared on an equal basis unless the BPL and the ASC mutually agree to a different distribution within a given year. In all cases, ASC will receive funds sufficient to monitor and enforce the easement terms as a first priority for distributions from the fund.
5. Endowment distributions that are not used within a given year shall be re-invested in the endowment.
6. Endowment fund principle shall only be used if unforeseen circumstances dictate said use, the ASC and BPL are in agreement to its use, and TNC has been informed of the reasons and concurs with said use.

By signature, both parties agree to the terms of this Memorandum of Understanding:



Patrick Keliher
Executive Director
Maine Atlantic Salmon Commission

Date 4/28/04



David Soucy
Director
Bureau of Parks and Land

Date 5/06/04

Appendix F. IF&W Survey Findings of Upper Unknown Lake

Upper Unknown Lake Fishery Management

By

Richard Dill

**Maine Department of Inland Fisheries and Wildlife – Division of Fisheries
and Hatcheries**

September 3, 2008

Upper Unknown Lake Fishery Management

Introduction

Upper Unknown Lake is a shallow, humic, eutrophic lake located in T4 ND in Hancock County, Maine. The lake supports principal fisheries for warm water fish species including chain pickerel (*Esox niger*) and yellow perch (*Perca flavescens*). Upper Unknown Lake was noted in the 1988 Department of Conservation Bureau of Public Lands: Duck Lake Unit Management Plan as a candidate for chemical reclamation to provide a marginal brook trout fishery to be sustained by hatchery stocked fish. However, the Maine Inland Fisheries and Wildlife (MIFW) management recommendation put forth following the initial lake survey in 1980 was that the pond should be managed for warm water fish species. In 2008, the Bureau of Public Lands (BPL) will be updating the Management Plan for the Duck Lake Unit, and at the request of the Grand Lake Stream Guides Association is revisiting the reclamation proposal for the pond included in the 1988 Plan. At the request of BPL, MIFW fisheries staff from Region F in Enfield resurveyed the pond in July of 2008 to reassess the current species composition and relative abundance of fish inhabiting the lake, as well as to conduct a water quality profile of the lake.

Study Area

Upper Unknown Lake has a surface area of 58 acres and a mean and maximum depth of 7.75 and 14 feet, respectively. The lake is surrounded with a mixed growth forest, except for the inlet area, which flows through a bog. The shoreline varies from sandy to rocky coves on the south side, mainly marsh on the west side, and mud and rock bottom over the rest of the lake including the outlet cove. In addition to chain pickerel and yellow perch, other fish species inhabiting the lake include brown bullhead (*Ictalurus nebulosus*), white sucker (*Catostomus commersoni*), pumpkinseed (*Lepomis gibbosus*) and golden shiner (*Notemigonus crysoleucas*).

The lake can be accessed from three different directions: from the west over dirt roads originating near the town of Burlington and traversing around the north side of Nicaous Lake; from the north off Route 6 in Springfield on the Bottle Lake Road and then the Depot Road; and from the east from the town of Grand Lake Stream along the Fourth Lake Machias Road. BPL provides a small parking area approximately 100 feet south of the camping area between Middle and Lower Unknown Lakes. The foot trail into Upper Unknown Lake is approximately ½ mile in length, with a footbridge crossing over the outlet of the Pond. The outlet from Upper Unknown Lake flows about 1/3 of a mile directly into Middle Unknown Lake. Other than ephemeral beaver dams at the outlet of Upper Unknown and just before the stream confluence to Middle Unknown, there are no other natural barriers in the stream that would prevent upstream passage of fish from Middle to Upper Unknown.

Methods

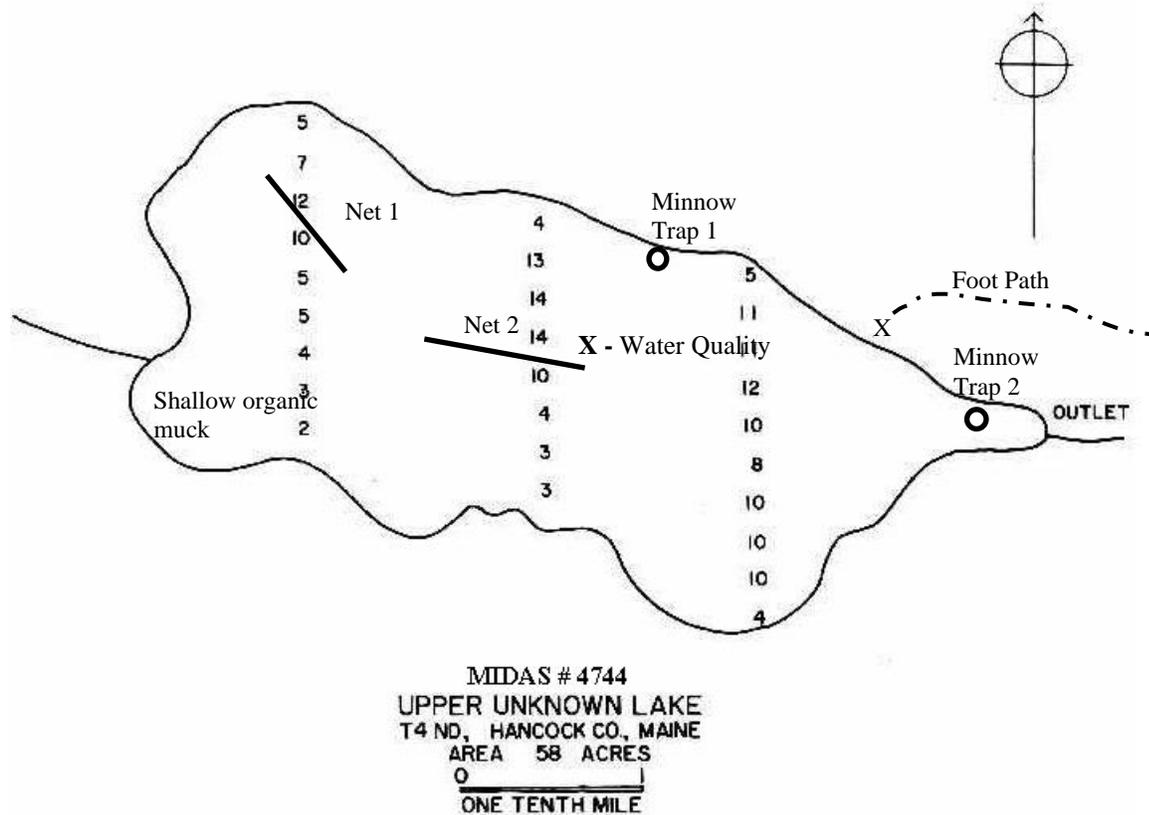
Water Quality

Water temperature (°C) and dissolved oxygen (ppm) data were collected at the surface of the lake and then at one foot intervals to the bottom at the deepest area of the lake using a Yellow Springs Instrument (YSI) Model 55 dissolved oxygen meter. Total alkalinity, pH, and specific conductivity measurements were taken at the surface and from a depth of 12 feet using a standard Kemmerer sampling bottle. Water color, relative turbidity level, and Secchi disk depths were recorded as well.

Fish Sampling

Two 200-foot green, multi-size mesh gill nets were set for approximately 22 hours each to collect a sample of fish across all size classes from the lake. Net 1 was set in the North West cove of the lake from 6 to 10 feet deep. Net 2 was set in the middle of the lake from west to east running from 10 to 12.5 feet deep. Two minnow traps, one near the outlet and one several hundred yards to the west of the camp site were baited with bread and fished approximately 21 hours each (Figure 1).

Figure 1: A map of Upper Unknown Lake showing depths, and locations for gill net and minnow trap set locations and water quality sampling for the 2008 survey conducted by MIFW.



Summary of Findings

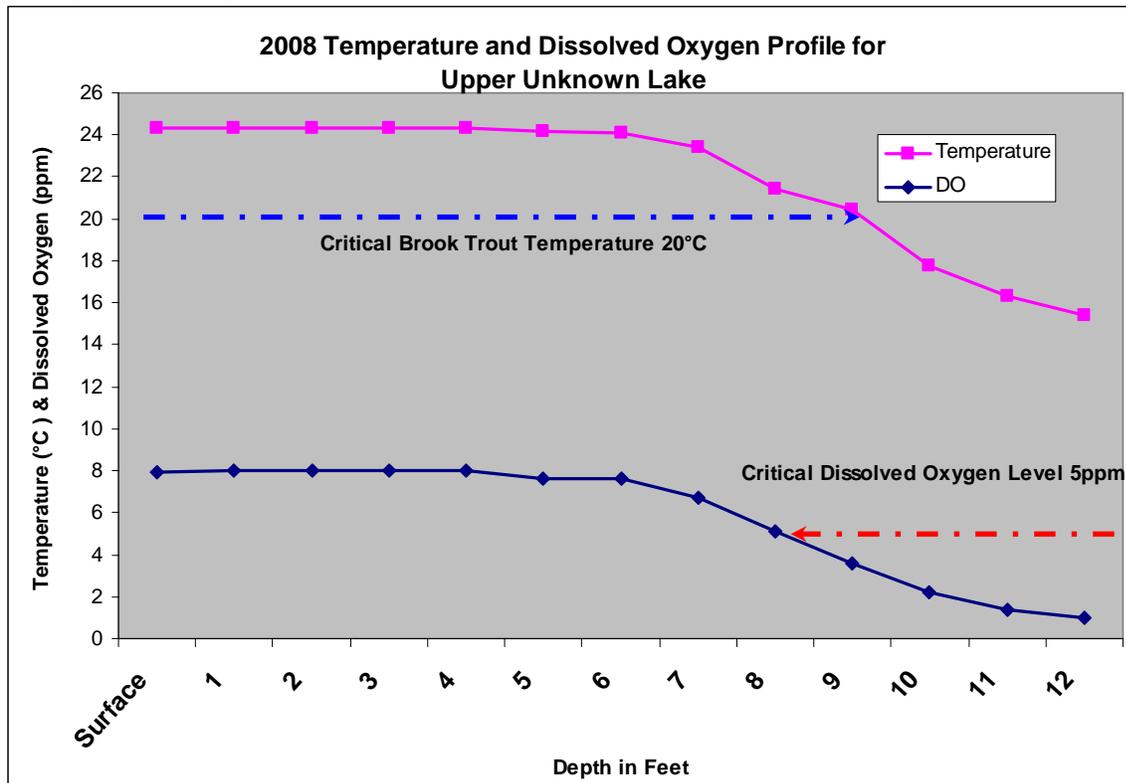
Water quality

Critical water temperature for summer holdover of brook trout is approximately 20°C (68°F) (Bonney 2001). While trout are tolerant of short term exposures (hours to days) to warmer

temperatures, cold water refugia is necessary for long term growth and survival. The water temperature of Upper Unknown Lake ranged from 24.3°C (76°F) at the surface to 15.4°C (60°C) near bottom, similar to what was observed in 1980 (26°C and 14°C, respectively). Water temperature began to stratify at 8 feet, and by 10 feet was 6.5°C cooler than the surface (Figure 2).

The critical dissolved oxygen threshold for brook trout is approximately 5.0 parts per million (ppm) (Bonney 2001). Trout occasionally occupy areas with lower oxygen levels, but usually for only short periods of time, for example while feeding. Dissolved oxygen was 7.9 ppm at the surface, but began to drop steadily at a depth of 6 feet. By 8 feet deep the oxygen level was 5.1 ppm; it then dropped to 3.6 ppm at 9 feet, and was 1.0 ppm at a depth of 12 feet (Figure 2).

Figure 2: Temperature and dissolved oxygen profile for Upper Unknown Lake located in Hancock County, Maine, July 28, 2008.



The surface pH of the pond was 6.1, while the pH at 12 feet was 5.3. Total alkalinity was 1 or less at both the surface and at 12 feet, and specific conductance was 21µS at the surface and 24µS near bottom. Watercolor was light brown, turbidity was moderate, and the Secchi disk reading was 8.3 feet and not on bottom.

Fish Sample

A total of 41 fish were collected in the two overnight gill net sets, thirty-four in Net 1 and seven in Net 2. The catch was predominately yellow perch (34), followed by chain pickerel (6), and one white sucker. Brown bullheads were captured in the 1980 survey; however we did not capture any in our netting efforts this year.

Yellow perch ranged in length from 110mm to 290mm (4 to 11.5 inches) and pickerel from 420mm to 510mm (16.5 to 20 inches), however a larger pickerel estimated to be at least two feet long was observed escaping from Net 1. The lone sucker was 590mm long. In addition to fish, a large snapping turtle with an estimated carapace diameter of over 2 feet was entangled in one of the nets. The turtle was not fully entangled, and we were able to release the turtle alive and uninjured.

The two minnow trap sets captured only three fish, one golden shiner and two pumpkinseed sunfish.

Conclusion / Recommendations

Reclamation

Chemical reclamation can be an effective tool for fisheries managers when trying to reestablish or create a principal fishery. However, reclaiming a pond is costly and labor intensive, therefore its' preferred use in Maine is in waters with a high likelihood success of producing a good quality fishery that is somehow degraded or threatened because of introductions of undesirable, non-native, or invasive species of fish. Chemical reclamation is also used at times to protect unique fish populations or ecosystems.

The July 2008 temperature and dissolved oxygen profile for Upper Unknown Lake is similar to that observed in 1980, with very low dissolved oxygen levels across the entire zone of cold water (below 8 feet) important for summer hold over of brook trout. The lack of dissolved oxygen during the summer months below 8 feet will likely result in low brook trout survival and at best, marginal growth for those few that may persist in the lake. We might assume that if the warm water species of fish were removed from the lake that the overall biological oxygen demand on the lake would be decreased, however it's the disproportionately high rates of community respiration (primarily microbial activity breaking down organic matter) that is affecting the dissolved oxygen levels, not the fish.

The low surface and bottom pH of Upper Unknown is likely due to natural organic acids, as evidenced by the brown color of the water. Organic acids are produced from the breakdown of organic matter in the pond. Brook trout are known to be very tolerant of low pH, with adults able to survive in chronic pH conditions as low as 5.0. It is unlikely that low pH would have an adverse affect on a brook trout population in Upper Unknown, wild or stocked.

An inspection of the outlet stream from Upper Unknown Lake discovered no natural barriers that would prevent undesirable fish species from moving back up into the lake post reclamation (i.e. upstream dispersal from Middle Unknown Lake). The recommendation in the 1998 Duck Lake Unit Management Plan was for the construction of a barrier dam at the outlet of the lake to keep undesirable species out, and in order to do this a road will have to be built to dam site location. The cost of the chemical (rotenone) used to reclaim the pond, road construction, and dam construction would be significant, and likely not justified given the low probability of success of creating a year around cold water fishery for brook trout.

Other Coldwater Fishery Options

Another option for Upper Unknown Lake is a seasonal coldwater fishery, in which fish are stocked at a catchable size with a goal of the majority being harvested each year by the time summer quality becomes an issue. Hatchery fall yearling brook trout, which range in size from 10 to 16 inches, would provide opportunities for late season fall open water fishing, ice fishing, and spring open water fishing. The pond would not need to be reclaimed to produce a seasonal fishery, in fact the pickerel and yellow perch would likely provide for some fast action, especially during the winter ice fishing season with the bonus of an occasional brook trout mixed in. Because it is small, Upper Unknown Lake likely freezes earlier in the year than some of the larger surrounding water bodies (e.g. Duck Lake, Nictous Lake, West Lake, Sysladobsis, and West Grand) and would provide an early season alternative. It's likely that as winter progresses, use will be low, especially in years with a lot of snow but the hold over trout will be still available for early spring fishing. Finally, yet another option for the pond would be to stock fall yearling splake. Splake are known to be a bit hardier than brook trout, and a less discriminate forager, more likely to take advantage of young of year yellow perch.

Recommendations

- 1.) The proposal to reclaim Upper Unknown Lake in order to create a put-grow-and take brook trout fishery should not be included in the Bureau of Public Lands - 2008 Management Plan for the Duck Lake Unit for the reasons explained above.
- 2.) Continue to manage the lake as a warm water lake, with principal fisheries for chain pickerel and yellow perch.
- 3.) Explore stocking fall yearling brook trout or splake to create a seasonal fishery for brook trout or splake.
- 4.) Stock fall yearlings at a rate 5 per acre or higher to produce high catch rates, thus generating angler interest.
- 5.) Solicit public input to gauge the support for a seasonal coldwater fishery at Upper Unknown Lake.
- 6.) Consult with BPL concerning a seasonal cold water fishery at Upper Unknown Lake, does it fit with BPL management objectives for the Duck Lake Unit, specifically Upper Unknown Lake.

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