

Aroostook Hills Region Management Plan



Squapan Unit from Haystack Mountain

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



August 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 **Aroostook Hills Region** is hereby adopted.

RECOMMENDED: Willard R. Harris DATE: 8/11/09

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ADOPTED DATE: 8/11/09 REVISION DATE: 8/11/24

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Acknowledgments

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

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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 Don Cameron, which is quoted from directly and paraphrased throughout the Plan.

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

The Bureau also acknowledges the helpful participation of the Aroostook Hills Region Management Plan Advisory Committee (Appendix A), and the many 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 for 36,717 acres of public land in the Aroostook Hills region of Maine managed by the Maine Bureau of Parks and Lands (the Bureau). The Plan summarizes the character of the region and the planning process, 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 allocations and recommendations to be implemented over the next fifteen-year period.

One objective of the Plan is to provide a balanced spectrum of opportunities across the Bureau's Lands, keeping in mind the available opportunities in the Aroostook Hills Region as a whole. In developing the management recommendations for each parcel, the Bureau has considered this broader perspective.

The Aroostook Hills Management 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 fifteen-year duration for this Plan is a departure from previous plans prepared for these lands. In 2007, the Bureau amended its policy to increase the Plan interval from 10 to 15 years. This change brings the Plan interval into closer alignment with Bureau forest management plan prescriptions, and most other resource management concerns other than recreation. The Bureau recognizes that some resources and management issues, most notably recreation, may undergo more rapid or unanticipated change over time. Thus, in addition to the fifteen year scheduled Plan revision, a review of current issues and progress on implementing the Plan's recommendations will be undertaken every five years, with a status report issued at that time to the advisory committee. If amendments to the Plan are then proposed, there will be an opportunity for public review and comment prior to their adoption. At the fifteen year interval, the Bureau will undertake a full review and revision of the Plan. The Bureau recognizes that several of the stated objectives will require longer than the fifteen year Plan period to achieve.

What Lands are included in the Aroostook Hills Region?

The Aroostook Hills Plan area is comprised of lands in the North Central region of Maine, from the northeast corner of Baxter State park, east to Houlton and the New Brunswick border, and north to Caribou. This region is almost entirely forested with the exception of agricultural lands around Ashland, and population centers of Houlton and Presque Isle. The Bureau owns two large units and several small lots in this region:

Public Reserved Lands of the Aroostook Hills Region

	Acreage
Squapan Unit	19,936
Scraggly Lake Unit	9,092
Garfield Plantation Lot	1,040
Hammond Lot	960
Moro Plantation East Lot	160
Moro Plantation West Lot	134
Nashville Plantation North Lot	657
Nashville Plantation South Lot	319
Oxbow Plantation Lot	1,031
Sheridan Lot	1,053
T 9 R 5 Lot	375
T 12 R 8 Lot	1,000
T 13 R 5 Lot	960
Total	36,717

**Acre estimates based on original land surveys and deeds from new acquisitions.

These lands contain a variety of natural and recreational resources, including exemplary natural communities, abundant deer wintering areas, opportunities for hunting, fishing, boating, camping, ATV riding, snowmobiling, and other recreational activities, and abundant timber resources.

The key focus of this Plan will be management allocations and recommendations for the Bureau fee lands mentioned above. However, other private and public conservation projects and lands are important to the context of planning in this region and will be described in the Planning Context section.

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.

Public Participation and the Planning Process

Overall, the development of management plans includes a series of steps, each involving interdisciplinary review, as well as extensive efforts to solicit and consider public comment, in order to achieve a Plan that integrates the various perspectives and needs while protecting and conserving the resources of the public reserved lands in the Aroostook Hills Region.

Resource Assessments: The first phase of the planning process includes a thorough study of the resources and opportunities available on the Aroostook Hills Plan lands. Beginning in the winter of 2008, Bureau staff undertook an intensive review of the natural and geological, historic and cultural, fisheries and wildlife, recreation, and timber and renewable resources. Much of this information was obtained by conducting formal inventories of specific resource areas (Natural Resource Inventory, Cultural Resource Inventory, etc.). Resource professionals from within the agency provided information on wildlife, recreation, and timber resources. Mapping and GIS-related information was also obtained as part of this phase.

Staff also participated in two reconnaissance field trips to the Plan Area to inventory and characterize the land-based resources and recreational features. The first trip was a winter snowmobile trip in March 2008, followed by a June 2008 tour on foot and by ATV.

Issue Identification/Public Scoping Session: Another component of the planning process involved conducting a public meeting to determine and discuss management issues needing to be addressed by the Plan. This meeting was held in Ashland on June 4, 2008.

Advisory Committee Formation and Review of Preliminary Inventory and Assessment: A Public Advisory Committee was formed in the summer of 2008. Members of this Committee were selected on the basis of their resource expertise, and for their regional

and local knowledge in areas important to the management of the Aroostook Hills Region properties. On July 30, 2008 this committee met in Ashland to identify issues in the Aroostook Hills Region Lands, and to propose options to address these issues. Ideas from this meeting were incorporated into a First Draft Plan.

Advisory Committee Meeting on the First Draft Plan: This draft included proposed resource allocations and proposed management recommendations, and initiated the next step in the public review process – a meeting with the Advisory Committee and solicitation of public comments. The Advisory Committee met in Ashland on May 11, 2009 to review the draft. Comments from the Advisory Committee on this First Draft Plan, along with any comments from other members of the public and various resource professionals, were considered in developing the Final Draft of the Plan.

Public Meeting on the Final Draft Plan: The Final Draft Plan was presented and discussed at a public meeting on July 9, 2009. A final written comment period followed.

Commissioner's Review of the Proposed Plan, and Plan Adoption: Comments received on the Final Draft Plan were considered in preparing a Plan for review by the Director of the Bureau of Parks and Lands. Upon the Director's recommendation, the Plan was then subject to the review and approval of the Commissioner of the Department of Conservation before it was officially adopted by the Department.

Statutory and Policy Guidance

Multiple use management plans are statutorily required for Public Reserved Lands pursuant to Title 12 MRSA § 1847 (2), and must be prepared in accordance with the guidelines set forth in the Integrated Resource Policy revised and adopted in December 2000 by the Bureau. These laws and policies direct the Bureau to identify and protect important natural, ecological, and historic attributes; enhance important fisheries and wildlife habitat; provide opportunities for a variety of quality outdoor recreation experiences; and provide a sustained yield of forest products by utilizing forest management techniques and silvicultural practices that enhance the forest environment.

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 depending on the particular resource attributes present, 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 and the management direction defined for each category. Not all of these allocations are applied in this Plan.

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 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 are 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 (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 and exemplary 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; and
- (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.

Visual Class I Areas where the foreground views of natural features may directly affect enjoyment of the viewer. Applied throughout the system to shorelines of great ponds and other major watercourses, 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 trail or 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. There are no developed class II areas in the Aroostook Hills public reserved lands (they are more typical of State Parks).

Class I Developed Recreation Areas

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 access facilities and parking areas; shared use roads and/or trails designated for motorized activities; and trailhead parking areas. These areas 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 seeks to minimize the number of roads that are 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 considerable deference to recreational opportunities. It may, through its decisions related to roads, provide varying recreational experiences. Opportunities for hiking, snowshoeing, back-country 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.

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. 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 needed 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. Currently

there are no designated ecological reserves in the Aroostook Hills region. However, there may be designation in the future.

III. Executive Summary of the Plan

Vision for Management of Aroostook Hills Public Reserved Lands

Vision for the Squapan Unit

The Vision for the Squapan Unit is to manage for recreational use in appropriate places, perform exemplary timber harvesting that maintains forest health and diversity, and protect important ecological features and wildlife habitat. Consistent with this overall Vision, the Bureau will seek to improve the extensive multi-use trail system to achieve an exemplary standard; and to add value to that system with associated camping and picnicking areas; while expanding boat access to Squapan Lake and exploring opportunities for compatible new uses such as hiking trails.

Vision for the Scraggly Lake Unit

The vision for the Scraggly Lake Unit is to provide a quiet and remote recreational setting supporting a variety of recreational activities, especially quality boating, fishing, hunting, camping, and hiking, to protect exemplary ecological features and wildlife habitat, and to perform timber management that enhances wildlife habitat and visual integrity and produces high quality timber products.

Vision for the Public Lots

The vision for the small public lots is to demonstrate exemplary forest management, sustaining a forest rich in late successional character and wildlife habitat diversity, and producing high value products that contribute to the local economy.

Overview of Allocations in the Aroostook Hills Region

Dominant Allocations (in Acres) in the Aroostook Hills Region

	Squapan Unit	Scraggly Lake Unit	Small Lots	Total	% of total plan acres in each allocation
Special Protection—Natural Area	318	292	0	610	1.7%
Wildlife Management	3,468	2,584	829	6,881	19%
Remote Recreation	0	8	0	8	<1%
Visual Consideration	290	128	0	418	1%
Developed Recreation Class I	Unknown—roads/trails	23 plus roads/motorized trails	0	23 plus roads/motorized trails	<1%
Timber Management	14,274	6,941	6,867	28,082	78%
Total	18,350	9,976	7,696	36,022	

**Dominant acreages are representations based on GIS metrics and do not sum to total plan area acres due to measuring error and limits of GIS precision.*

***The following allocations from the IRP were not used in the Aroostook Hills Region Public Reserved Lands: Special Protection—Ecological Reserve, Special Protection—Historic/cultural, Backcountry Non-mechanized, Backcountry Motorized, Developed Recreation Class II.*

Summary of Issues and Management Recommendations

Squapan Unit Issues and Management Recommendations

Issue	Recommendations
<i>Natural Resource Management Issues</i>	
1. Potential Future Ecological Reserve on Squapan Mountain	1. The Bureau will not perform any timber management in this area, which will be temporarily designated as wildlife dominant until future decisions about ecological reserve additions are made. The current snowmobile Ridge Trail will be a “developed recreation class I” segment through the wildlife dominant area. Any future ecological

	reserve designation should exclude the motorized Ridge Trail from the ecological reserve boundary.
<i>Recreation Management Issues</i>	
2. Unauthorized ATV use of the snowmobile trail over Squapan Mountain causing erosion and drainage problems, as well as safety concerns for users.	2. Continue to work with ATV interests to curb the current unauthorized use of the Ridge Trail over Squapan Mountain.
3. Request by ATV community for authorization to use/upgrade the snowmobile trail over Squapan Mountain for ATV use; and potential impacts to the adjacent natural communities and their potential ecological reserve designation.	3. Designate the trail for ATV use when (a) ongoing cooperation from the ATV community has effectively curbed illegal use of existing trail; (b) an assessment of the trail and a detailed engineered plan for needed improvements is completed; (c) funding sources to accomplish needed improvements have been secured and (d) an improved, well-designed trail is in place.
4. Lack of non-motorized trails on the Squapan Unit; potential to build a system of trails to connect Haystack Mountain, the Squapan Unit, and Aroostook State Park to be used by hikers, cross-country skiers, and possibly mountain bikers.	4. Determine, as resources allow, if there would be sufficient demand for this trail, and if cooperation could be obtained from private landowners between the Unit and the State Park. Work with Aroostook State Park Manager, the Town of Castle Hill, and private landowners in this endeavor.
5. Potential to provided short, non-motorized trails that connect to the snowmobile “Ridge Trail” and provide access to the fire tower on the mountain.	5. Determine if there would be sufficient demand for non-motorized trails that connect to the snowmobile Ridge Trail, and continue to the fire tower. Before building a trail to the fire tower, determine the expense of improving the tower to make safe for public use, and improve the tower if funding can be obtained and demand can be demonstrated.
6. A second public boating launching facility is desired on Squapan Lake, since the Walker Siding facility has been closed to the public.	6. Continue communications with the owners of the Walker siding facility about the possibility of re-opening their facility to the public. If not possible, assess the feasibility of various sites in the Unit for providing boating access. A site will be chosen if it is: cost-effective, able to accommodate an ADA accessible facility, and can accommodate a full service motor boat facility without violating water quality or other environmental standards. If a suitable site can be located, and funding can be obtained, build a second public boat launching facility on Squapan Lake.
7. ATV/Vehicle Accessible Camping	7. Assess the possibility of providing one or more trails from the public use roads to existing lakeshore

<p>There is interest in making some of the Unit campsites accessible by vehicle and ATV. There is also interest in a day use area at the “old camp yard” site along an existing ATV trail.</p>	<p>campsites, with parking areas near the road. Maintain the primitive nature of the lakeshore campsites. Work with the ATV community to consider a camping area near the ATV trails around Squapan Mountain that could be connected to a regional series of ATV camping shelters spaced about a day’s drive apart. Provide a day use site at the “old camp yard” site, including a picnic table with a shelter and a privy.</p>
<p>Issue</p>	<p>Recommendations</p>
<p><i>Timber Management Recommendations</i></p>	
<p>8. Future Timber Management</p>	<p>8. Maintain the high proportion of large, high quality trees and size and species diversity. More specifically</p> <ul style="list-style-type: none"> • Increase the spruce component in softwood stands and maintain fir at present levels. White pine, which currently makes up one percent of the softwood type volume, should be increased. • Maintain mixedwood stands in current species assemblages with the exception of beech which will be decreased when stems are diseased and have poor crowns. • Encourage high quality sugar maple, yellow birch and spruce on hardwood stands and retain red maple and beech of acceptable quality. • Beech should be retained for wildlife when crowns are good (even if bark is diseased) and when bark is smooth. • Designate areas as HCVF areas, which will in some cases correspond with special protection areas and other MNAP designated exemplary communities.
<p><i>Transportation and Administrative Issues</i></p>	
<p>9. Road Access</p>	<p>9. Work with abutting landowners to facilitate Bureau staff access to portions of the Unit not easily accessed by public use roads. Seek deeded access over abutting lands.</p>
<p>10. Minority Ownership</p>	<p>10. Work cooperatively with minority owners to pursue full Bureau ownership of lands within the</p>

	Unit.
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Scraggly Lake Unit Issues and Management Recommendations

Issue	Recommendations
<i>Natural Resource Management Issues</i>	
1. Management of exemplary communities.	1. Manage exemplary communities in consultation with MNAP. The Hemlock Forest is allocated as a special protection area, and will not be subject to timber harvesting. The Leatherleaf Boggy Fen and Spruce Larch Wooded Bog are within wildlife dominant areas where harvesting will be minimal.
2. Protection for loons during nesting.	2. Monitor loon nests and place signage at boat launching facility to warn boaters about using caution during nesting season. Continue to work with guides that land float planes on Scraggly Lake and encourage them to continue to avoid landing on the lake near nests during nesting and fledging stages.
<i>Recreation Management Issues</i>	
3. Snowmobile trail grooming and deer use of the trail.	3. Continue to communicate with the local snowmobile club, the Maine Warden Service, and IF&W regarding any future grooming of the club trail through the Unit. Consider sledder safety and the trail's impact on wintering deer when making the decision to groom the trail from year to year.
4. ATV use of the Unit.	4. Maintain public use road open to ATV use, but do not connect it with a larger ATV trail system, in respect to the surrounding landowner's policy, and to maintain a quiet and remote recreational experience on the Unit.
5. Interest in more non-motorized trails on the Unit.	5. Assess the interest and feasibility of building three new trails on the Unit—one connecting the campground to the Owl's Head Peninsula, one from the Green Pond campsite to the Hemlock Forest, and one from Scraggly Lake to Ireland Pond. Seek funding for these trails if they are found to be feasible and have sufficient interest from the public.
6. The need for ADA accessible boating and camping.	6. When funding is obtained, make ADA improvements to the Scraggly Lake boating facility

	and a campsite near the facility.
<u>Timber Management Recommendations</u>	
7. Future Timber Management	<p>7. Grow high value timber products while (chiefly sawlogs and veneer) while maintaining visual integrity and enhancing a diversity of wildlife habitat. More specifically</p> <ul style="list-style-type: none"> • Favor high value and longer lived species such as white pine, spruce, hemlock, sugar maple, and yellow birch. • Maintain softwood stands in that type, with spruce the preferred species. Favor white pine where it grows and maintain hemlock on some sites, and retain fir as an important component of regeneration. Encourage a late successional character and continue to provide valuable deer wintering areas. • Maintain mixedwood type on current mixedwoods stands that are well stocked. Work toward a late successional character, and favor high quality spruce, maple, birch and hemlock. On less well stocked mixedwood sites, retain overstory if windfirm, and favor younger spruce, pine and hemlock (possibly returning some sites back to softwood). • Encourage high quality and diverse hardwood stands to remain in that condition. Rehabilitate low quality hardwood stands by reducing diseased beech with poor crowns and favoring higher quality sugar maple, yellow birch and spruce. • Retain beech for wildlife when crowns are good (even if bark is diseased) and when bark is smooth. • Designate some areas as High Conservation Value Forests (HCVF), a designation recognized by the certification programs the Bureau is enrolled in. Manage these areas to maintain key characteristics such as large, old trees.
<u>Transportation and Administrative Issues</u>	
8. Ireland Pond motorized barricade.	8. Continue to block motorized access to the pond 700 feet from the pond at the location where a spur

	trail leaves the public use road. (This is the location of the current barricade).
9. Boat storage at Ireland Pond.	9. Implement special use permits for boats stored on the property.

Garfield Plantation Lot Issues and Management Recommendations

Forest conditions are sparse in the overstory with a single-age understory. It will take time for the Bureau to achieve the desired multi-age conditions on this Lot.

Focus forest management on producing multiple age classes over time. Grow quality spruce, fir, hemlock and hardwoods and retain some large old hemlock for wildlife. The age diversity in the overstory will help in improving overall diversity and achieving these goals. Perform timber stand improvements if commercially feasible, and retain some old hemlock as wildlife legacy trees. Specifically, a harvest is scheduled for 2009 and 2010, which will improve stand health, quality, growth, and structure.

Hammond Lot Issues and Management Recommendations

Future timber management will only be feasible after sufficient time has elapsed since the heavy spruce budworm cuts of the 1980s.

Manage for quality sawtimber as species mix and fertility allows for this.

Moro Plantation East and West Lots Management Recommendations

Apply standard Bureau silviculture to produce high quality timber products and maintain and enhance conditions for a wide range of wildlife species. Younger aspen rich stands may warrant patchcut management for ruffed grouse.

Nashville Plantation North Lot Management Recommendations

Manage timber using exemplary silviculture, maintain and enhance deer wintering areas, take advantage of the site quality, and focus on visual concerns. Due to the Lot’s easy access, it can serve as a showcase for good forest management.

Nashville Plantation South Lot Management Recommendations

Conduct silviculture to produce fine spruce, fir and hardwood sawtimber. A 1996 prescription called for possible harvests in 2015 on much of the Lot.

Oxbow Plantation Lot Management Recommendations

Consult with MHPC or the Bureau Historic Sites Specialist before conducting any recreational or road improvements along the shore of the Aroostook River.

Manage the forest to retain and enhance the multi-age character of most stands. The horizontal and vertical diversity which makes habitat for a variety of species should be maintained. Encourage sugar maple and spruce, maintain hemlock, and retain vigorous beech.

Sheridan Lot Management Recommendations

Manage the forest for decent hardwoods on the acres suitable for growing them, and quality softwood sawtimber on all other areas.

T 9 R 5 Wels Lot Management Recommendations

Manage forest resources to grow quality softwood on about half the acres, while the rest will grow cedar, spruce and pines at slow rates.

T 12 R 8 Wels Lot Issues and Management Recommendations

There are mining rights which may be exercised on the Lot for locating spoil from mining on Bald Mountain.

Manage forest resources to maintain or increase the high spruce component on softwood and mixedwood stands. Quality hardwoods, especially sugar maple, will also be encouraged on these sites. Hardwood stands will be encouraged to grow maple and birch sawlogs. Good beech will be maintained to produce mast for wildlife. Harvest to release young trees of desirable species.

Work to minimize the impact of mining spoil on the Lot, if rights are exercised.

T 13 R 5 Wels Lot Management Recommendations

Manage the forest to encourage deer wintering areas extensively where they have historically existed by increasing softwood type. Manage for quality softwood sawtimber on all other areas, except fertile upland areas now dominated by sugar maple and beech will be retained as such.

IV. The Planning Context

The major focus of the Aroostook Hills Region Management Plan is to plan for the Bureau’s public reserve lands in the region. However, an overview of the region’s culture and history, natural and wildlife resources, other public and private conservation lands, and other topics, gives important context to public lands management.

Culture and History of the Aroostook Hills Region

Culture

Aroostook County is Maine’s largest county, and at 4.3 million acres is the largest county east of the Mississippi River - larger than the states of Connecticut and Rhode Island combined. Located at the northeastern corner of the state, Aroostook County borders the Canadian Provinces of Quebec and New Brunswick, with more than 2,000 lakes, streams, rivers, and ponds covering nearly 80,000 acres of water. Its vast natural resource base and strong agrarian heritage have fostered a regional economy reliant upon these resources.

The Aroostook Hills region is contained mostly within central Aroostook County. Presque Isle, a city of approximately 10,000 residents, is a commercial center and the largest city in Aroostook County. The Aroostook Center Mall attracts shoppers from the greater area. It is home to the University of Maine at Presque Isle, a small university affiliated with the University of Maine System, and Northern Maine Community College. Houlton is the county seat, and with a population of approximately 7,000, is also a population center of the County. A customs station/border crossing into Canada and the northern terminus of Interstate 95 are just east of Houlton.

Many of Aroostook County’s residents are of French Acadian decent, and many of these Maine Acadians are bilingual in French and English and hold a strong cultural identity. Residents of Swedish decent are also common in this region, and festivals are held throughout the year to celebrate this culture. The Native American tribes of the Micmac and Maliseet have their tribal governments in Presque Isle and Houlton, respectively.

The economy of the Aroostook Hills area (as well as Aroostook County as a whole) is heavily reliant on forestry, agriculture, and tourism. Approximately 8% of Aroostook County’s land area is used for agriculture. Potatoes are the major crop, with hay, barley, oats, peas and broccoli and some fuel crops also being important. Approximately 3,000 Aroostook County residents are employed in the agricultural sector. The majority of the landscape in the Aroostook Hills is owned by timber interests. Forestry is very important to the economy, with approximately 3,500 county residents employed in some aspect of the forest products industry. The industry faces challenges such as international competition and low demand for some products, and is working to produce more specialized products, among other things, to cope with these challenges. Tourism is also an important component to the economy, with winter snowmobiling as well as other

outdoor activities contributing greatly to the retail, lodging, dining and other businesses that rely heavily on tourism. Other important aspects of the economy include (but are not limited to): education, health care, social services, manufacturing, and transportation. (Planning Decisions, 2003). Important employers in the region include (but are not limited to): Fraser sawmills, Columbia Forest Products, JM Huber Corp., Louisiana Pacific, Maine Woods, Northeast Pellets, Boralex, McCain Foods, Cary Medical Center, The Aroostook Medical Center, and Houlton Regional Hospital.

History (Mcgrath, 1989 and Judd et al., 1995)

The earliest known period of human habitation in the region was from 11,500 to 10,000 years ago after the last glacier retreated. Fluted points have been found around Munsungan Lake, and points made from Munsungan chert have been discovered at other sites, indicating Native Americans traveled to this lake to collect the material. Archaic Period artifacts (9,000 to 2,500 years ago) have been discovered on waterways throughout Aroostook County. However, Ceramic Period (beginning 2,500 years ago) artifacts are the most ubiquitous and have been found throughout the County. The Maliseets were the primary occupants of the territory now known as Aroostook County before European arrival. They were somewhat nomadic, moving from winter hunting territories to summer villages where they planted corn and fished. Contact between Europeans and Native Americans in the area now known as Aroostook County was likely in the early 1500s with French and other European fisherman and merchants. Furs were traded extensively by Micmacs and Maliseets for metal goods and other items. Native American populations in the Aroostook Hills region, as throughout Maine and the Americas, were severely reduced as a result of European contact and subsequent disease, war and starvation. Today, the Houlton Band of Maliseets has land and a tribal office and is working to ensure the survival of their culture and language. The Aroostook Band of Micmacs maintains a presence and cultural identity in Aroostook County, however, no land has been reserved for them in Maine. Many French settled in Aroostook County, arriving first to interact and trade with the Maliseets and other tribes, and later arriving as Acadians displaced by the British from their established homelands in current New Brunswick, Nova Scotia, and other areas. Many of the descendants of the Acadians in the St. John Valley today maintain their French culture and language. “Loyalists” or supporters of England during the American Revolution also settled in the region, given land as a reward for their loyalty before the border dispute between Canada and the United States had been settled in Aroostook County.

Following the establishment of Aroostook as a county in 1839 and its borders being settled in the Webster-Ashburton Treaty of 1842, settlement in the region began increasing. Land was very inexpensive, and could be paid for by labor on the roads. Settlers came from southern and central Maine, and parts of Canada. Many were attracted by opportunities in the lumbering economy being formed. Agriculture also flourished in the region, not only potatoes, but also maple sugar, fruits, and other products. Lumber and agriculture led to a period of prosperity in Aroostook County in the middle 1800s. The arrival of the railroads to various parts of Aroostook in the late

1800s greatly increased the County's connection to other areas and markets, a boon to the agricultural and general economy.

Natural and Geologic Resources in the Region (MNAP, 2008)

The landscape of the Aroostook Hills region is almost entirely forested. The only exception is the greater Ashland area with its concentration of agricultural lands on some of the low lying hills and bottomlands. Calcareous bedrock, uncommon in Maine, is relatively common in the eastern portion of the region. This bedrock, rich in calcium carbonate, provides habitat for uncommon plant species and natural communities that require mineral rich soil or ground water to persist. The Bureau's ownership encompasses much of the range of the existing habitat types known from this region including a variety of upland and wetland forest types as well as marshes, bogs, shores, aquatic beds and others. While there is a good diversity of habitat types on these units, overall, the Bureau-managed lands in this region include a limited number of the important ecological features that are documented in this region. The majority of the acreage of documented exemplary habitats is upland forest.

The Aroostook Hills region is contained within the greater "Aroostook Hills Ecological region" extending from the Saint John River near Madawaska south to the Patten area. The western boundary is delineated by the 1,000' contour line and the eastern boundary is defined by the calcareous bedrock and tills that underlie the Aroostook Lowlands. The region is characterized by gently rolling terrain with elevations averaging between 800 and 1,000 feet. Scattered mountains occur in the



Squapan Mountain: Spruce - Fir - Northern Hardwoods Ecosystem

Winterville area and north of Shin Pond. Topographic highs include Squapan Mountain (1470'), Pennington Mountain (1578'), Green Mountain (1687') and Mount Chase (2440'). Unlike the Saint John Uplands and the Aroostook Lowlands, lakes and peatlands are abundant in the Aroostook Hills region.

Except for maximum July temperature, which averages 78° F throughout the region, the climate of the Aroostook Hills region varies considerably from north to south. Average annual precipitation in the Aroostook Hills region varies from 35 inches in Squapan Lake to 43 inches in Patten. Snowfall is fairly high for the state, between 100 and 120 inches

per year. The average minimum January temperature ranges from 4° F near Patten to -5° F near Squapan Lake.

The Physical Landscape: Geology, Soils, and Hydrology

Bedrock Geology

Bedrock of the region is almost entirely composed of layers of pelites (sedimentary rock composed of clay or mud), sandstones, and some limestone. Calcareous bedrock, uncommon in Maine, is found in the southwest (Scraggly Lake) and in the northeast (Squapan Lake) of the region. The bedrock geology of the Aroostook Hills and Lowlands region is more varied than the Boundary Plateau and Saint John Uplands to the west, though the Central Mountains regions to the southwest also have varied bedrock geology. Deposits left by glaciers include till containing some amount of calcium carbonate, and sediments deposited in lakes.

Surficial Geology & Soils

The geology on the surface of the majority of the Aroostook Hills region is characterized by glacial till consisting of a mixture of sand, silt, clay, and stone that may contain boulders and that was deposited directly by glacial ice. Thin glacial tills of less than 10 feet thick are scattered throughout the region. Deposits of swamps, marshes, and bogs composed of peat, muck, clay, silt, and sand are also scattered throughout the area.

Hydrology and Wetlands

According to National Wetlands Inventory (NWI) maps, forested, shrub, and emergent wetlands cover approximately 11% of the northeast part of the state. Roughly three-quarters of this total wetland area is forested. Northern white cedar, cedar – black spruce, and black spruce swamps are the most common types. Scrub – shrub wetlands cover about one fifth of the wetland area, and emergent wetlands cover about 1/20th of the wetland area. Large peatlands, primarily unpatterned fens and eccentric bogs, are occasional throughout most of the Aroostook Hills section. There are several Nature Conservancy priority waterbodies in the region: Ireland Pond, Scraggly Lake, the Aroostook River, and the West Branch of Beaver Brook. The Nature Conservancy rates waterbodies as “high priority” if they are high value waters that best represent the ecosystems, natural communities, and species characteristics of the region.

The Biological Landscape: Forest Types, Plants, and Animals

Vegetation and Flora

In general, plant species richness in the Aroostook Hills region increases from west to east. The eastern portion of the region tends to have slightly more moderate climate and richer bedrock which leads to increased plant diversity. The calcareous bedrock in this region has only a limited influence on the habitats and species that occur on the Bureau managed lands. While other localities in this region include enriched features such as fens, cedar swamps, and forests, the majority of Bureau lands in the region are not enriched. Exceptions include some scattered areas on the Squapan Unit including two

examples of Maple - Basswood - Ash forest, and a small area of wetland adjacent to Sawtelle Stream on the eastern edge of the Scraggly Lake Unit.

The Forested Landscape within the Region

In the northern and western portion of the Aroostook Hills region, the vegetation is transitional between temperate northern hardwoods and boreal spruce-fir forests. Because of this transition and in part because of the region's geologic variability, forested habitats are more diverse in the Aroostook Hills region than in the western parts of Aroostook County.

Upland forests in this region are best described as a mosaic of spruce-fir and northern hardwoods. Northern hardwood forests are widespread on low to moderate size hills throughout the region. Red spruce is often mixed in with the northern hardwoods though it has been historically high graded out of some areas. On taller hills, generally 1000' or greater, and on some lower slopes, northern hardwoods transition to spruce – northern hardwoods and to spruce montane forests as elevation increases. Red spruce is dominant on the upper elevations (generally above 1600' - 1800') of the higher mountains. Red oak is occasional on some lower hill tops but is not abundant enough to characterize any forest type.

Lowland Spruce – Fir forests (spruce flats) are found along drainages and in flatter areas where there are poorly drained, low pH mineral soils. In areas with organic soils, northern white cedar is common in broad stream drainages and poorly drained basins that have relatively higher pH ground water. Cedar is mixed with black spruce and larch along some of the streams and in many swamps associated with large peatland ecosystems. Species richness is relatively higher in the forests with higher pH soils, both in uplands and wetlands.

Common natural communities on the Bureau units include matrix-forming uplands such as Spruce – Fir Broom-moss Forests, Spruce – Fir – Wood Sorrel – Feathermoss Forests, Beech – Birch – Maple Forests, and Spruce - Northern Hardwood Forests. Northern White Cedar Swamp is the only common forested wetland community type. Other wetland communities found less commonly include Sheep Laurel - Dwarf Shrub Bog, Spruce - Larch Wooded Bog, Leatherleaf - Boggy Fen, Sweet Gale - Mixed Shrub Fen, and Bluejoint Meadow (a result of beaver activity). Most examples of these wetland types found on the units were not large enough to be considered exemplary.



Sheep Laurel - Dwarf Shrub Bog - T9 R5 Lot

Within the Bureau's forested lands in the region, 26% of the acres are hardwood, 34% of the acres are softwood, and 40% of the acres are mixed wood. Acres managed for timber in the region have been harvested at 63% of the

sustainable harvest level since 1985. The managed acres contain an average of 20.92 cords/acre.

Summary Acreage Information

Unit	Total Acreage	Forested Wetland Acreage	Open Wetland Acreage	Total Wetland Acreage	Open Water Acreage	Wading Bird Habitat	Deer Winter Areas
Garfield Plt	1024	4	0.3	4.3	0	0	0
Hammond	981	53	10	63	0	35	0
Moro Plt E	158	7	0	7	0	0	0
Moro Plt W	126	13	1	14	0	0	0
Nashville Plt N	660	23	0	23	0	0	54
Nashville Plt S	320	0	0	0	0	0	0
Oxbow Plt	1002	9.5	27	36.5	0	0	0
Scraggly Lake	9981	1052	363	1415	952	694	1680
Sheridan	1065	65	65	130	0	139	108
Squapan Lake	18340	1109	352	1461	5331	467	0
T9 R5 WELS	373	163	35	198	0	61	0
T12 R8 WELS	1024	12	10	22	0	28	0
T13 R5 WELS	967	78	0.4	78.4	0	0	76
TOTAL	36021	2588.5	863.7	3452.2	6283	1424	1918

***Acreages based on GIS metrics and may differ from unit/lot acres from deeds and old ground surveys*

Natural Disturbance Patterns

Fire has played a significant role in the Lowland Spruce – Fir forests. Fires typically produce even-aged, single storied stands; two-storied stands develop later. Although natural fires are generally perceived to be small in scale, with the spruce component of the forest being retained, a fire in 1934 spread over 60,000 acres in northern Maine following an accumulation of dead wood from spruce-budworm damage.

The naturally occurring spruce budworm has had a major impact on lowland spruce – fir forests. Large budworm outbreaks lasting up to a decade have occurred two to three times per century – most recently in the 1970s and early 1980s. While the scale of budworm damage covers millions of acres, the intensity varies considerably depending on the balsam fir component of each stand (balsam fir is the preferred food of the budworm). Consequently, budworm damage is often most severe in transitional areas

next to large openings of burned stands, and along wetland transitional zones. In mixed forests, budworm can produce a residual stand of scattered spruce survivors over dead and wind-topped fir. Large openings from budworm damage are uncommon, although timber salvage may increase the size of natural openings. Past high grading of white pine and red spruce is thought to have increased the severity of budworm outbreaks by promoting fir growth.

In northern hardwood stands, the dominant natural disturbance occurs from small gaps (ranging from 1/10 to 1/2 acre) resulting from ice, wind throw, or natural tree mortality. Such gaps are more common in mature stands, reflecting the large canopy size and susceptibility of these canopies to damage. The scale and frequency of gaps in these hardwood and mixed wood stands results in a multi-aged and multi-storied forest structure.

Beavers are a common influence in wetlands in the region. Beavers build dams to give them safe access to the hardwoods they prefer to eat. When active, beaver ponds flood adjoining uplands, enlarging wetlands and creating new areas for wetland species to colonize. Once the hardwoods within a safe distance of the pond are gone, beavers often abandon their dam and build a new dam in a different location. These abandoned ponds typically slowly fill with sediment and transition from marshy wetlands back to uplands. By creating and abandoning impoundments along the stream course, beavers create a mosaic of habitats for other plant and wildlife species, including the rusty blackbird, a bird in steep decline throughout much of its range.

Fisheries and Wildlife Resources

The location of the Aroostook Hills region in the transitional zone between mixed deciduous forest to the south and boreal forest to the north leads to a variety of mammal and other wildlife species. Similarly, the Aroostook Hills region provides habitat for boreal bird species such as spruce grouse and gray jay in addition to species more broadly associated with conifer forests such as northern parula, yellow-bellied fly catcher, and black-throated green warbler (MNAP, 2008).

The natural communities of the Aroostook Hills region provide habitat for a number of common wildlife species. In addition to mammals found in many areas of the state such as black bear, moose, and beaver, the region provides habitat for species with more boreal affinities such as American marten and lynx. The Aroostook Hills region provides habitat for the federally threatened Canada lynx, with forestry contributing to lynx success by providing early-successional conifer forest.

A significant number of wildlife species exist in northern Maine and the Aroostook Hills region that are considered a high priority for conservation action. Upland sandpiper, short-eared owl, and bicknell's thrush are a few examples of bird species of high conservation concern that occur in the region.

The common loon is an important wildlife species in the Aroostook Hills region as well as the rest of Maine and elsewhere. Maine Audubon and IF&W (among others) perform population counts and other studies on Maine loons. The population and productivity of loons in the northern portion of Maine is found to be lower than the southern portion of the state, particularly on larger lakes. Loons are vulnerable to human-induced stressors such as shoreline development and recreational boating and fishing, which can cause adult mortality and lower reproductive success (Evers, 2007).

Lake trout, eastern brook trout, landlocked salmon, rainbow smelt, and lake whitefish are important coldwater fish species found within some of the lakes and ponds of the Aroostook Hills region. The eastern brook trout has been designated by the state of Maine as a “heritage fish.” With this designation comes recognition of the intrinsic value of those waters that contain native and wild brook trout populations supporting a principal sport fishery. The Aroostook Hills region contains many lakes, ponds, rivers, brooks and streams supporting native and wild brook trout populations.

Department of Inland Fisheries and Wildlife (IF&W) Wildlife Management Areas

There are two Wildlife Management Areas (WMA) managed by IF&W located within the Aroostook Hills plan area.

The 197 acre Francis Dunn WMA (Sawtelle Deadwater) is located south of Scraggly Lake adjacent to the west side of the American Thread Road (County Road) which is the public access to Scraggly Lake Unit. IF&W’s management goal is to maximize waterfowl production and other aquatic wildlife species. An old mill dam was replaced with a low head dam that controls water levels in the freshwater marsh to maximize waterfowl production. The deadwater is about 2.7 miles long, and IF&W maintains dozens of nesting boxes on the flowage. This WMA was also a release site for Canada geese and a resident population is established here. There is a limited spring fishery for brook trout and yellow perch which are taken during the open water season.

The Gordon Manuel WMA is located in Hodgdon, Cary and Linneus and contains 6,488 acres. The centerpiece is the dam on the South Branch Meduxnekeag River in Hodgdon Mills. The dam provides stable water levels in a linear impoundment 2.5 miles long. This WMA is 85% uplands, 13% wetlands and 2% active and abandoned fields. It is managed primarily for waterfowl production and general wildlife diversity. The Meduxnekeag River and other smaller brooks on this WMA support brook trout populations. Yearling brown trout are stocked in the Hodgdon Mill Pond, a 156 acre impoundment on the South Branch Meduxnekeag River, to provide a sport fishery in the presence of chain pickerel, white sucker, and numerous minnow species. This impoundment is open to both ice and open water fishing. Brown trout and brook trout are occasionally stocked in the South Branch Meduxnekeag River and its tributaries.

Recreational Resources

The lands within the Aroostook Hills region represent a diverse spectrum of northern Maine. This diversity, ranging from large agricultural fields to small town settings to expansive timberlands, facilitates a number of recreational opportunities. A few of those opportunities are discussed below.

Hunting, Fishing, and Wildlife Watching

Wildlife-based recreational opportunities have long been a key element of the Aroostook Hills region. Hunting opportunities include large game, such as deer, bear and moose, small game like snowshoe hare, and bird hunting (including migratory and non-migratory species). Hunting is a permitted use on all but a few portions of the public lands within the region. Hiking trails, boat launching facility sites, and designated campsites are all examples of small areas on public lands off limits to hunting (though not off limits to hunting access).

Many private landowners in the region have historically allowed public access for hunters. Statewide, only 8% of hunters hunt *exclusively* on public lands (USFWS, 2008). Correspondingly, access to hunt on private lands is a critical issue to hunters in Maine, and such access is currently in somewhat stable condition in the plan area. The North Maine Woods system covers about a third of the Plan area. This is a system of private lands that allow public recreation, managed through fees collected at a series of checkpoints. Checkpoints within the plan area are located in Oxbow Plantation (Oxbow Checkpoint), Garfield Plantation (Six Mile Checkpoint), and in T13 R7 west of Portage Lake (Fish Checkpoint).

As with hunting, fishing retains an important role in the recreational lives of regional residents and visitors alike. Both the Squapan Unit and the Scraggly Lake Unit are symbolic of the region in that they serve as cold-water fisheries destinations. In Squapan Lake (4986 acres) anglers can seek brook trout, landlocked salmon, and splake (a hatchery-raised lake-trout x brook trout hybrid). Scraggly Lake (836 acres) contains non-game fish species, brook trout, lake trout, and landlocked salmon. These two water bodies wholly or partially within public lands units are but two of numerous coldwater fishing opportunities in the region. Public boat launching facilities provide access to lakes and rivers for fishing throughout the region, as do some boat launching facilities on private lands available to the public.

Wildlife interactions in the region are not confined to consumptive activities. According to Cordell (2008), “viewing or photographing other wildlife” and “viewing or photographing birds” are the 4th and 5th fastest growing outdoor recreation activities in the U.S. Birders can find several boreal forest species in the Aroostook Hills region that are rare in the United States, such as spruce grouse, black-backed woodpecker, and boreal chickadee. Other species found in the boreal forest that birders may enjoy include: gray jay, white-winged and red crossbills, mourning warbler, and bay-breasted warbler. Aroostook Hills also contains a diverse and abundant mix of waterfowl (Maine Birding

Trail, 2009). Robust populations of charismatic mammals such as moose (a popular species for wildlife watchers) provide rewarding wildlife watching experiences.

Motorized Recreation

Snowmobiling

Ample snow and a well-established network of ITS and local club snowmobile trails enable riding ranging from short outings to long-distance touring. The snowmobile network connects with and is part of a system of state-wide and regional significance. In fact, the system can be thought of as international, as it links with trails in New Brunswick, Canada. A vast majority of this system is on private lands. There are 35 snowmobile clubs and 32 municipalities that manage and maintain the 2,085-mile trail system (about 16% of the statewide total) throughout Aroostook County, many of which are located within the Aroostook Hills Plan area. In 2008 the Bureau Off-road vehicle (ORV) Division provided approximately \$650,000 in grants to these organizations in support of this system.

ATV Riding

ATV riders find the region to be one of the more ATV friendly regions in the state, with an extended network of interconnected trails enabling significant touring opportunities. A mix of trails on public and private lands makes the region a destination for ATV enthusiasts.

Twenty-eight ATV clubs and eight municipalities manage and maintain approximately 1,200 miles of trails throughout Aroostook County (approximately 20% of the statewide total), many of which are located in the Aroostook Hills Plan area. In 2008 the Bureau's Off-road Vehicle Division (ORV) provided over \$200,000 in grants to these organizations in support of this system.



Multi-use Trails

Approximately 152 miles of abandoned railroad corridor in Aroostook County have been acquired by the Bureau with assistance from the Lands for Maine's Future program, the Land and Water Conservation Fund, and the Recreational Trails Program, and converted the corridor to multi-use trails. These trails are generally gravel and open to ATV riders, snowmobilers, bicyclists, walkers, cross-country skiers, mushers, and horseback riders, among

others. This trail system provides important connections and enhancements to other managed trail systems throughout the region. With assistance and funding from the Bureau's Off-road Vehicle Program, many area trail clubs and municipalities have helped to develop and manage this system. Trail clubs and municipalities also participate in grooming and maintaining the trail system. See description of individual trails below.

Bangor and Aroostook Trail

The Bangor and Aroostook Trail (BAT) is a 59-mile trail corridor located in the towns of Washburn, Perham, Mapleton, Woodland, Caribou, Westmanland, New Sweden, Stockholm, T17 R3, and Van Buren. The trail connects smaller communities to larger cities like Presque Isle and Caribou and to the Bureau's Squapan Unit. It provides several water access points to smaller streams as well as the Aroostook River.

Aroostook Valley Trail

The Aroostook Valley Trail (AVT) is a 28-mile recreational trail corridor located in the towns of Caribou, New Sweden, Washburn, and Presque Isle. This trail is located in proximity to the Bangor and Aroostook Trail, and is used in conjunction with it, often providing a narrower and more primitive alternative route. It also provides access to and views of the Aroostook River for several miles.

Southern Bangor and Aroostook Trail

The Southern Bangor and Aroostook Trail (SBAT) is a 44-mile trail corridor located in the towns of Houlton, Littleton, Monticello, Bridgewater, Blaine, Mars Hill, Westfield, and Presque Isle. The trail is a main artery north/south connection between Houlton and Presque Isle. Connections to other recreation facilities like the Big Rock Ski Area and Aroostook State Park can be made from the SBAT. It provides water access points to the Meduxnekeag River and Prestile Stream as well as several other smaller streams. A portion of the International Appalachian Trail runs along the SBAT and a shelter and ADA accessible privy are available in this section.

Patten and Sherman Trail

The Patten and Sherman Trail is a six mile corridor located in the towns of Sherman, Crystal, and Patten. It provides a direct north/south link between the towns of Patten and Sherman.



Snowmobiling in the Aroostook Hills Region

Paddling

Maine Department of Environmental Protection states that, “*the Aroostook River basin is the largest tributary of the St. John River and covers 2,301 square miles....It follows a winding path to the northeast mostly through undeveloped areas prior to reaching the Presque Isle region in Aroostook County. It passes through the municipalities of Masardis, Ashland, Presque Isle, Caribou, and Fort Fairfield before emptying into the St. John River in New Brunswick. The total length of the mainstem, ending at the Maine/New Brunswick border is approximately 104 miles.*” This river and associated tributaries, such as Munsungan Stream, Millinocket Stream (centered in T8 R8 WELS), Mooseleuk Stream, Squapan Stream, Machias Stream, and the Little Machias River provide paddling opportunities ranging from flatwater to limited class V highly technical paddling (across the border in New Brunswick, but accessed in Fort Fairfield). Throughout the watershed, there are numerous mid-range sections of class I-III paddling opportunities, including opportunities for extended canoe touring/camping. North Maine Woods maintains over 20 campsites within the Aroostook Hills region that are along the water course of the Aroostook River watershed.

It should also be noted that a portion of the East Branch of the Penobscot, flowing out of Grand Lake Matagamon, is within the planning region and is part of a significant paddling resource. Furthermore, the region as a whole has many ponds and lakes providing opportunities for flatwater canoeing and kayaking.

Hiking

There are several short to moderate day hikes in the region. Examples include: Number Nine Mountain (elev. 1638’), Round Mountain (elev. 2174’), and Mount Chase (elev. 2440’). Additionally, Quaggy Jo Mountain (elev. 1213’) is part of Aroostook State Park, and offers campers and day visitors three miles of hiking trails. Haystack Mountain lies just north of the Bureau’s Squapan Unit and offers a short hike. Hikers in the region can still visit Mars Hill, though the mountain is now home to Maine’s first large wind farm, operated by Mars Hill Wind. Hiking is also available on the multi-use trails mentioned above.

International Appalachian Trail

Running through the Aroostook Hills region is the International Appalachian Trail (IAT), a trail system envisioned to connect Mt. Katahdin (Maine’s highest peak) with Mt. Carleton and Mt. Jacques Cartier (the highest peaks in New Brunswick and southern Quebec, respectively). This trail is still in development, and currently travels east from Mt. Katahdin toward Mt. Chase, to continue north across Mars Hill Mountain. The trail leaves Maine at the Customs Border Crossing in Fort Fairfield, Maine, and runs through New Brunswick and the Gaspé Peninsula in Quebec, ending at the northeast edge of the peninsula along the St. Lawrence River at a rock face called “La Vieille.” If hikers want to continue their experience, they can take a ferry to Newfoundland and Labrador, where

a newly developed trail continues (International Appalachian Trail, 2009). The Maine portion of the trail uses many existing scenic roads, however, new foot paths are being developed on an on-going basis, and current and future expansions to footpaths have the potential to add significantly to hiking opportunities in the Aroostook Hills region.

Opportunities Close to the Aroostook Hills Region

In the broader northern Maine region, outside the boundary of this Plan are two destinations of note. First, the northern entry point to Baxter State Park is just south of the Plan boundary. Baxter State Park is a preeminent Maine hiking and backpacking destination. Additionally, the Deboullie Public Reserved Land Unit, north of the plan area, is an attractive destination for hikers.

Downhill and Cross-country Skiing

The Aroostook Hills region is rich in cross-country ski destinations. Aroostook State Park provides groomed ski trails throughout the winter season. The Nordic Heritage Center (Maine Winter Sports Center) in Presque Isle is a world-class venue for cross-country skiing and biathlons. Big Rock Skiway in Mars Hill also provides cross-country skiing (as well as downhill). Quoggy Jo Ski Club in Presque Isle is also a downhill ski provider. The Town of Portage Lake maintains 2.7 miles of cross-country ski trails.

Maine Winter Sports Center (MWSC, 2009)

The Maine Winter Sports Center (MWSC), since 1999, has worked around the state to re-establish skiing as a lifestyle in Maine. It operates by a model of community-run, non-profit ski areas that provide programs for all ages and serve as economic engines for communities. MWSC has established new ski centers and revived old ones, two of which are located in the Aroostook Hills region. It also works with schools in integrating skiing into their curriculum, and provides world class coaching in cross country and biathlon. MWSC ski areas host biathlon competitions and numerous other events.

Nordic Heritage Center

Owned and operated by MWSC, the Nordic Heritage Center, located in Presque Isle, is a community recreation center open to the public. It is a world class venue for cross-country skiing, biathlon and mountain biking. Facilities include a lodge, extensive ski trails and mountain bike trails, a biathlon range, visitor's center with ski rentals, and a terrain park. Use of trails is free to the public, and the Center hosts competitive events, including the 2006 Biathlon Junior World Championships.

Quoggy Jo Ski Club

Also under the MWSC umbrella, the Quoggy Jo Ski Club in Presque Isle caters to youth and families, offering alpine skiing for beginners.

Big Rock Ski Area

Located in Mars Hill, this alpine ski area was purchased by MWSC in 2000. The main focus is downhill skiing, however, a snow tube park and cross-country ski and snowshoe trails have been recently added.

Mountain Biking

Mountain biking is an opportunity on a variety of lands in the region, though not on lands within the North Maine Woods. The Nordic Heritage Center specifically provides mountain biking and it is an approved use on the multi-use trails mentioned in the “Motorized Recreation” section above, as well as on shared use roads within the Bureau’s Squapan and Scraggly Lake Units.

Boating

In the Aroostook Hills region, there are 16 state owned or assisted boat ramps that can accommodate all types of boats, including boats on trailers, and two that can only accommodate hand carried boats. Many of the ramps that can accommodate trailers are described as “primitive”, meaning that they do not meet all of the design standards for a full service trailer ramp. These sites may only be suitable for small motor boats due to shallowness of the ramp, or limited water depths of the water body at times. This is particularly true of many of the boat ramps serving rivers and streams. There are a number of other water bodies that have what are known as “traditional” boat access sites. Many of these are privately owned by large land owners who allow public use. The Bureau does not maintain a database of these sites as it is difficult to identify the owners and track the public’s ability to use them.

State Owned or Assisted Boat Launching Facilities in the Aroostook Hills Region

Water Body	Location	Type	Owner
SquaPan Lake	Masardis	Trailer	WPS
Scraggly Lake	T7 R8 WELS	Primitive Trailer	DOC
Sawtelle Deadwater	T6 R7 WELS	Trailer	DIFW
Mooseleuk Lake	T10 R9 WELS	Primitive Trailer	DIFW
Millinocket Lake	T7 R9 WELS	Hand Carry	WPS
Rockabema Lake	Moro Pltn	Primitive Trailer	DIFW
No. Nine Lake	T9 R3 WELS	Primitive Trailer	DIFW
Echo Lake	Presque Isle	Trailer	DOC
Aroostook River	Oxbow Pltn	Primitive Trailer	Oxbow Pltn
Aroostook River	Masardis	Primitive Trailer	Masardis
Aroostook River	Ashland	Primitive Trailer	Ashland Rod & Gun
Aroostook River	Fort Fairfield	Trailer	DIFW
Arnold Brook Lake	Presque Isle	Trailer	Presque Isle
Presque Isle Stream	Presque Isle	Trailer	Presque Isle
Aroostook River	Presque Isle	Trailer	DIFW
Hanson Brook Lake	Presque Isle	Trailer	Presque Isle
Aroostook River	Washburn	Trailer	Washburn
Portage Lake	Portage	Trailer	Portage
Grand Lake Mattagaman	T6 R8 WELS	Hand Carry	Baxter State Park Auth.

Other Bureau of Parks and Lands Properties in the Plan Area

Aroostook State Park, established in 1939 as Maine's first state park, is located five miles south of Presque Isle and west of U.S. Route 1. The park encompasses Quaggy Jo Mountain and provides access to Echo Lake. Drive-to campsites, group camping areas, a showerhouse and a kitchen shelter are available. Hiking up Quaggy Jo's North and South Peaks, picnicking, and fishing and canoeing on Echo Lake are popular summer activities. In the winter, the Park offers 15 miles of groomed cross-country ski trails, snowshoeing and winter camping.

A portion of the *Penobscot River Corridor* is found in the Aroostook Hills Region, (the East Branch of the Penobscot River, just south of Scraggly Lake Unit). The Corridor, established through an easement, is managed by the Bureau in cooperation with several landowners, and provides water access recreation along more than 67 miles of river and 70 miles of lake frontage. Canoe trips are popular along the Corridor. Primitive campsites (including group sites) are provided along the Corridor as well as boat ramps and portages. A diversity of conditions from flat water to severe rapids is found along the Corridor (with portages available around many rapids).

Other Large Landowners in the Region

Much of the landscape in the Aroostook Hills region is owned in large tracts by industrial and timber management landowners. J.M. Huber, Seven Islands Land Co., Irving Woodlands, Dunn Timberlands, and Prentiss and Carlisle are some of the major landowners in the Aroostook Hills region. The Bureau interacts with large landowners and considers their various management styles in making decisions on Bureau lands. Access to many Bureau lands is by permission of these large landowners. The Bureau considers the condition of the surrounding landscape in determining the type of management appropriate on each unit and lot, especially in relation to wildlife habitat management.

The Seven Islands Land Co. has conservation easements on large tracts of their land within the plan area (as well as other parts of Maine). These easements restrict development and maintain the land in sustainable forestry use. Seven Islands also provides public access on these lands.

Planning Implications

Recreation facilities and opportunities in the Aroostook Hills Region serve a predominantly local population – those residing in Aroostook County and northern Penobscot County, and portions of neighboring New Brunswick. Exceptions include the draw of winter sports enthusiasts to the region who come from more distant points to snowmobile on the extensive system of snowmobile trails where snow conditions are more predictable than many other parts of the state; and to the variety of winter sports facilities operated by the Maine Winter Sports Center in this region, including the Nordic

Heritage Center in Presque Isle. The extensive network of multi-use trails and ATV trails in the region also draws recreationists from a broader area.

Use and opportunities at the Bureau's two major Public Reserved Lands Units – the Squapan and Scraggly Lake Units, have been influenced by their proximity to other major recreation opportunities. The Squapan Unit has become an integral part of the larger network of snowmobile and ATV trails in the region, and is used predominantly by those recreationists. In contrast, the Scraggly Lake Unit, which is not connected to these trail networks but is in close proximity to the northern entrance to Baxter State Park, and is within a cluster of natural lakes north and east of Baxter State Park, is primarily a destination for those looking for a quiet and remote recreation experience, including fishing, paddling, camping, and hunting. In this respect, the two major Reserved Lands Units in this Plan area are bookends for the range of recreation opportunities available in the Aroostook Hills Plan area.

Planning for recreation opportunities on the Bureau's Public Reserved Lands should recognize and enhance the defining experiences that are represented on these lands, and that add value and diversity to the recreation experiences in the broader region.