

Cold Stream Forest Deer Wintering Area HMA

**A Strategy for Long-term Habitat
Management**

Cold Stream Forest Deer Wintering Area

Pursuant to P.L. 2011, c. 696 LMF Bond

**“An act to Authorize a General Fund Bond Issue
to Support Maine’s Natural Resource-based
Economy”**

An Agreement between

The Maine Department of Agriculture, Conservation and Forestry

&

The Maine Department of
Inland Fisheries and Wildlife

Date: November 30, 2016

*Note: Please disregard all mentions of a
“Land for Maine’s Future Project Agreement”
in this document; the statements were made
in error, no such agreement was required or
developed.*

Long-term Habitat Management Agreement between the Maine Department of Agriculture, Conservation and Forestry and the Maine Department of Inland Fisheries and Wildlife

1. Introduction

This Habitat Management Agreement, hereinafter called "Agreement," is intended to meet the requirements of P.L. 2011, C. 696. The creation of and future amendments of this Agreement will not conflict with the Land for Maine's Future Project Agreement recorded in the Somerset County Registry of Deeds as Book: 5011 Page: 1 and Book: 5012 Page: 292. In instances of conflict with these documents, the LMF Project Agreement takes precedence.

P.L. 2011, Chapter 696 of the State of Maine Laws as approved in May 2012, is "An act to Authorize a General Fund Bond Issue to Support Maine's Natural Resource-based Economy". Funds from this bond are to be used by State agencies, municipalities and qualifying non-governmental organizations for "acquisitions of land and interests in land for conservation, water access, outdoor recreation, wildlife or fish habitat, farmland preservation", all in accordance with State laws.

Provision 1. D. of this law states: Because portions of the State have deer populations that are struggling and deer wintering habitat protection is vital to the survival and enhancement of these populations, projects that conserve and protect deer wintering areas are to have special value and must receive preferential consideration during scoring of new applications for support."

Provision 2 of the law directs MDIFW to "include in conservation negotiations under this section provisions for the appropriate management of priority deer wintering areas". Provision 2 also specifies that land and interest in land purchased by the State that contains wildlife or fish habitat must be managed by the Department of Conservation (now DDACF) using protocol provided by the Department of Inland Fisheries and Wildlife, and land and interest in land that is subject to a conservation easement that contains wildlife or fish habitat must be managed using protocol provided by the Department of Inland Fisheries and Wildlife."

In an effort to conform to the law as approved by the voters, the Maine Department of Inland Fisheries and Wildlife and Maine Department of Agriculture, Conservation and Forestry have developed this Agreement, which serves as the mechanism to ensure land and interest in land acquired with funds authorized from this bond are appropriately managed using protocol developed by the Maine Department of Inland Fisheries and Wildlife.

The Maine Department of Agriculture, Conservation and Forestry (DACF) and the Maine Department of Inland Fisheries and Wildlife (MDIFW) have entered into the following Agreement for the designation and management of Habitat Management Areas on DACF managed parcels acquired with funding under this LMF bond. Habitat Management Agreements may be developed for those areas that possess the following:

- winter habitat for white-tailed deer and for other species requiring mature coniferous forest;
- habitat for wildlife and fish species included on State and/or Federal threatened or endangered species lists;
- any freshwater river, stream, brook, lake, or pond that is identified as supporting a native and wild self-sustaining brook trout population or containing a stocked brook trout fishery
- habitats defined and designated as significant habitat that is mapped by MDIFW under 38 MRSA, §480-B(8) and 38 MRSA, §480-B(10) or areas zoned as a P-FW, P-MA, P-GP, P-WL, P-RT or P-SL by the Land Use Planning Commission

See **Appendix B** for species associated with mature coniferous forest and **Appendix C** for available Best Management Practices

No timber harvesting, vegetation management or habitat management activities shall be conducted on the property until HMAs have been identified and plans developed and agreed to by MDIFW.

The development of management and operational plans within each designated HMA is intended to be a collaborative process with MDIFW and should begin with a consultation with the Regional Wildlife and Fisheries Biologists who will provide maps of the wildlife and fisheries resources identified on the property. The designation of the HMAs on the property will be done collaboratively between MDIFW and DACF, with the understanding that the designation and management of the resources within the HMA will take priority over other management objectives on the property. The Agreement is to be provided by MDIFW to LMF if funds from P.L. 2011, c. 696 are used to acquire any interest in land with a DWA.

List of Acronyms

The following acronyms are used extensively in this document.

BDWA	Biological Deer Wintering Area
BPL	Bureau of Parks and Lands
CC	Clearcut harvest as defined by the Maine Forest Practices Act (MFPA)
DACF	Department of Agriculture, Conservation and Forestry
DBH	Diameter at Breast Height (4.5 feet)
DWA	Deer Wintering Area
HABITAT	Suitable Winter Habitat
HMA	Habitat Management Area
LMF	Land for Maine's Future program
MDIFW	Maine Department of Inland Fisheries and Wildlife
OSR	Overstory removal harvest as defined by MFPA
PWS	Primary Winter Shelter
SWS	Secondary Winter Shelter

1.2 Roles and Responsibilities

- A. MDIFW will provide a stand level shelter management plan indicating where current PWS and SWS exist and desired future PWS and SWS should be managed for. Non-shelter forest stands will be reviewed for browse conditions and incorporated into the planning process to periodically provide browse within and adjacent to areas of adequate winter shelter.
- B. DACF will provide forest management recommendations to reach desired stand conditions and recommendations on silvicultural prescriptions to achieve DWA management objectives. Operations should strive to balance cost and revenue where possible. DACF will also provide for the budgeting and operational planning to implement management activities agreed to by both DACF and MDIFW.
- C. DACF may opt to place the Cold Stream Forest into the Outcome Based Forestry program to allow for the flexibility in management associated with the program.
- D. MDIFW and DACF will work collaboratively to achieve the objectives for management within the BDWA as described below.

1.3 Habitat Management Area Goals & Objectives for Biological Deer Wintering Areas

This HMA applies only to the Cold Stream Forest Biological Deer Wintering Area on the 3,036 acres identified in the proposal to the LMF Board dated March 28, 2014, as well as an additional 185 acres east of the BDWA to ensure operational and management planning efficiency. A separate HMA has been developed to protect and manage the fisheries resources associated with the Cold Stream Forest. The HMA developed for fisheries applies to the entire Cold Stream Forest acquired by DACF. Where there is overlap between the fisheries HMA and this HMA, the former will take precedence.

The primary goal for identifying and designating HMAs is to develop a mutually agreed upon list of areas containing important fish and wildlife habitat on the protected property, and any Best Management Practices or special management considerations for those areas. HMAs identified on the property are listed in **Appendix A. Sample Best Management Practices are included in Appendix C.**

Through this co-operative management strategy, MDIFW and the DACF will achieve, in part, one of the Department's deer management goals:

1. Habitat Management: To conserve deer wintering habitat throughout Maine to achieve deer population objectives; and to improve the structural diversity of existing deer wintering habitat by fostering sound silvicultural practices within deer wintering areas.

DACF and MDIFW agree that the objectives for BDWA management on the property are to:

- ◆ Provide an optimal level of quality winter shelter at any point in time.

- ◆ Plan for effective replacement of quality shelter over the rotation and distributed throughout the DWA as older stands are replaced through harvesting or by natural influences.
- ◆ Maintain connectivity between quality shelter stands.
- ◆ Maintain or increase the spruce, fir, cedar, or hemlock component on softwood growing sites through appropriate silviculture and harvesting methods.
- ◆ Manage for a sustained flow of forest product through the rotation and based on a written management plan balancing growth vs. removals.
- ◆ Include management considerations for the other species of wildlife that utilize mature coniferous forest habitat (Appendix C) and associated forest habitats;
- ◆ Improve forest stand health and quality;
- ◆ Ensure that these areas continue to provide a broad range of public values, consistent with maintaining and managing the BDWA;
- ◆ Produce a broad range of forest age-class structure, both within HMAs and outside them that will provide stable habitat levels to support a diversity of flora and fauna.
- ◆ Meet the requirements of P.L. 2011, c. 696, including all existing DWA and any lands intended to qualify as DWA within 20 years of the effective date of c. 696.

2. Biological Deer Wintering Area Management Guidelines/Principles

White-tailed deer living at the northern edge of their range require specific forested habitats called deer wintering areas (DWA) to survive Maine winters. In northern, eastern, and western Maine during an average winter, deer will be restricted to DWAs for 90-110 days. DWAs offer shelter from deep snow and cold winds. By congregating in large numbers within winter shelter, a complex network of trails is created further reducing calorie consumption and risk of predation. Deer in this region do not gain or maintain pre-winter body weights. Under the best wintering conditions deer lose 10-20% of their body weight, losing over 40% is directly lethal and/ or adversely effects fawn recruitment. *Survival depends upon calorie conservation and having sufficient minimal reserves at the end of the wintering period.*

This Agreement is based on a management system that prioritizes

1. Habitat that is suitable for deer during critical winter conditions (PWS)
2. Habitat that is suitable for deer during less severe portions of the wintering period (SWS)
3. Habitat that will provide PWS or SWS if managed appropriately (future winter shelter, or FWS)
4. Habitat that provides forage (browse) adjacent to and interspersed with PWS and SWS

At least 66% of the composite area of forest stands with the potential to do so will be comprised of PWS and SWS as described below. It is understood that this cannot be a static target and slight fluctuations either above or below this target could occur during the rotation.

2.1 Primary Winter Shelter Criteria

Forest stands meeting primary winter shelter criteria (PWS) are essential as they provide shelter for deer during the most severe winter conditions. In commonly used forest typing systems, softwood dominated stands typed as S2A, S2B, S3A, S3B, S4A and S4B meet the criteria of PWS. However, some mixed wood stands or softwood stands on poor sites may not have the potential to meet PWS. DACF will manage this HMA so that a minimum of 50% of the composite area of forest stands with the potential to do so will meet PWS criteria as follows:

- ◆ Softwood crown closure is $\geq 70\%$ and;
- ◆ $\geq 75\%$ of the stand is comprised of spruce, fir, cedar or hemlock and;
- ◆ Stand height ≥ 35 feet

2.2 Secondary Winter Shelter Criteria

Stands that meet or have the potential to meet secondary winter shelter (SWS) are moderate value and are used by deer during the less severe portions of the wintering period. In commonly used forest typing systems, mixed but softwood dominated stands typed as SH2A, SH2B, SH3A, SH3B, SH4A and SH4B meet the criteria of SWS. DACF will manage this HMA so that 10-25% of the composite area of forest stands with the potential to do so will meet or exceed SWS criteria as follows:

- ◆ Softwood crown closure of 50-70% and;
- ◆ 50-75% of the stand is comprised of spruce, fir, cedar or hemlock and;
- ◆ Stand height ≥ 35 feet

2.3 Future Winter Shelter

Stands that have the potential to, but do not currently, meet PWS or SWS definitions provide forage (woody browse) between and adjacent to stands that provide shelter. These stands enhance the value of a DWA, especially when managed to attain PWS or SWS criteria. These stands will be managed for future winter shelter.

The objective is to maintain or increase the proportion of softwood dominated stands within a BDWA.

2.4 Non-shelter Forest Stands

Non-shelter forest stands are hardwood or mixedwood stands found on typical hardwood growing sites, forest stands occurring on very poor growing sites such as bogs or wooded swamps and stands dominated by Eastern large, red pine, black spruce and most plantations

These stands may be included in the BDWA, but will not be considered when determining areas of PWS, SWS or future winter shelter since they inherently will not provide adequate cover. These areas do provide a critical browse component within and adjacent to areas of adequate cover. Non-shelter forest stands will be managed to provide browse at periodic intervals.

Special Considerations

In certain situations, pre-existing conditions may preclude achieving desired habitat levels in HMAs. These include but are not limited to the following:

- ◆ a skewed forest age class structure in an HMA that requires extensive forest intervention to develop a more balanced age class distribution; and/or
- ◆ natural influences such as insects, disease, fire, or storms.

Note: The above factors will be addressed, if relevant, in management and operational plans for the HMA.

3. General Management Guidelines

Deviations from these guidelines may be considered where conditions warrant provided that they do not impede achieving the goals and objectives of the overall Agreement. Any changes must be approved by DACF and MDIFW on a case-by-case basis, in writing. Changes that affect the purpose of the HMA must be sent to the LMF Director for review.

3.1 Habitat Modeling

Computer habitat modeling may be used to assist in harvest planning in HMAs. Initially, levels of primary and secondary deer winter habitat will be forecast. Models for other indicator and keystone species (which other species depend on for survival) may also be used as they become available. Until computer modeling is developed by DACF the current method of reviewing and approving timber harvest prescriptions within the HMA will continue with the understanding that the levels of PWS and SWS in the entire HMA will be considered, not just within the area being prescribed for harvest.

3.2 Harvest Timing

Although harvesting within agreement areas may be allowed throughout the year, harvesting will be encouraged during late fall and winter to avoid disturbance to nesting birds, protect regeneration, provide food and mobility for deer, and to minimize soil disturbance.

3.3 Road Construction and Re-construction

When considering road construction, the first priority is to avoid putting roads within the HMA, if no practical alternative exists, the following guidelines will be utilized to minimize habitat fragmentation and other potential negative effects, while allowing access to the HMA for active forest management:

1. Permanent roads will be allowed to enable access for active forest management of the entire area;
2. Road right-of-way width will not exceed 50 feet from standing timber to standing timber;
3. Right-of-way width will be reduced to 30 feet on permanent roads within 330' of a permanent water course;
4. Road systems will be developed as part of a harvest plan with road construction kept at the minimum needed to effectively access the HMA area for forestry operations;

5. When road construction is complete, disturbed areas such as road shoulders and ditches, winter roads, and landings, will be seeded with a non-invasive "wildlife mix" of grasses and/or herbaceous plants to stabilize soils and provide forage for wildlife; and
6. Winter roads within HMAs will be closed to vehicle access at the completion of active harvesting operations except where the road is part of a designated winter recreational trail.
7. Winter haul roads are defined as a route or travel way that is utilized for forest management activities conducted exclusively during frozen ground conditions. Winter haul roads must have the following characteristics:
 1. They are substantially re-vegetated by the end of the following growing season and are maintained in a vegetated condition
 2. The cleared right of way width shall not exceed 40' in width.

3.4 Pesticide Application

When needed, and where there is no feasible alternative to pesticide treatment, DACF will use agents and application procedures with the greatest target specificity and lowest toxicity.

3.5 Adjacency Standards

Adjacency standards apply to stands within and abutting HMAs to promote a diversity of distinct age classes in forest stands of moderate size in HMAs.

- ◆ In order to promote a diverse age class distribution, a 660-foot special management area surrounding clearcut (CC) or overstory removal (OSR) harvest blocks will be maintained as SWS for 10 years except under certain conditions. Notwithstanding the standards in Section 4.1, when CC harvest is 20 acres or less or, OSR harvest is 50 acres or less, a buffer is not required.
- ◆ Partial cut harvest will be allowed in these buffers; however, post-harvest stand conditions must meet SWS criteria.

3.6 Travel Corridors

Travel corridors allow deer and other wildlife to move across the landscape. Generally, wildlife travel corridors are located in softwood and mixed wood stands within riparian areas along streams. The travel corridors are critically important in letting deer access softwood shelter and food resources throughout the BDWA. To avoid isolation of portions of the HMA it is important that the travel corridors be managed sustainably over the long-term. Travel corridors between softwood shelter areas and along selected waterways in the HMA will be designated jointly by ACF and IFW.

- ◆ Travel corridors must be at least 660 feet (10 chains) wide on each side of streams zoned P-SL1 and 330 feet wide on each side of streams zoned P-SL2;
- ◆ Travel corridors adjacent to stands meeting SWS criteria must also meet or exceed SWS criteria;

- ◆ Travel corridors adjacent to areas that do not meet SWS criteria due to harvesting operations must meet PWS criteria if stands within the corridor have the potential to meet these criteria;
- ◆ Travel corridors will be located adjacent to the shore of selected lakes, ponds, or wetlands and along each bank of selected rivers, streams, and large brooks that are located within the HMA; and
- ◆ On occasion as necessary, a wider corridor of up to 990 feet (15 chains) may be established through individual agreements between ACF and MDIFW staff to provide deer with sheltered access when the travel corridor abuts open, wind-swept areas such as large lakes or flowages, wide rivers, or large harvests.

3.7 Gravel Excavation

No commercial gravel sales will be permitted from pits within the HMA. Excavation of new gravel/ledge areas involves the potential removal of shelter stands to access the gravel. Area and cumulative percentage of PWS and SWS will decrease when excavation requires the reduction of deer winter habitat. When excavation is completed for a particular area, areas disturbed from excavation will be seeded with a non-invasive "wildlife mix" of grasses and herbaceous plants or planted to native tree seedlings suitable for the site. Existing gravel/ledge pits may exceed one acre in size; however, expansion of these larger gravel/ledge pits can only be made if an equivalent area of the pit is reclaimed and stabilized. Existing open gravel/ledge areas at the time of this agreement are not considered potential habitat, and thus will not be used in calculating the % area meeting PWS and SWS as described in Section 2. The excavation guidelines are as follows:

- ◆ Each new gravel/ledge pit will be limited to 1 acre of working pit area;
- ◆ Expansion of gravel/ledge pit excavation beyond 1 acre will be allowed after an equivalent area in the gravel/ledge pit has been reclaimed, stabilized, and re-vegetated; and
- ◆ Development of gravel/ledge pits in travel corridors will be avoided in PWS and SWS stands.

3.8 Property Leasing/Recreational Use

There are no leased lots within the HMA. DACF will not lease areas within the HMA to minimize impacts from disturbances associated with leased areas.

Compatible uses will be allowed within the HMA, primarily during the non-winter seasons such as primitive recreational activities including fishing, hiking, hunting, wildlife study, photography, and trapping. Proposals for the construction and maintenance of trails will be reviewed and approved by MDIFW only if there are no impacts to deer or any Rare, Threatened or Endangered Species. Development of any new trails for recreation will generally be discouraged.

3.9 Other Structures, Uses, or Services

No additional structures, uses, or services will be constructed or implemented that do not help meet the objectives of this HMA. If structures, uses or services are proposed within the HMA, MDIFW will review and approve the proposal if consistent with the objectives of the HMA.

4. Forestry Guidelines

Objectives for overall levels of habitat as stated in individual HMA plans will be met when implementing the following forestry guidelines for coniferous and deciduous stands. Any exceptions, as endorsed by MDIFW and DACF, will be duly documented and adjustments made as necessary. The timber harvesting guidelines that follow are contingent on meeting the habitat objectives outlined in Sections 1.3 and 2.

4.1 Forestry Guidelines for Predominantly Coniferous Stands (SW, SW/HW) in HMAs

MDIFW will provide forest management objectives to be achieved by BPL considering the following guidelines. These guidelines can be adjusted by MDIFW based on current conditions and/or desired outcomes or objectives.

The objective of management within softwood-dominated stands is to maximize the area occupied by spruce, hemlock, cedar and fir.

4.1.1 Priority Order

Considering shelter and food value to deer and relative longevity of tree species, the following priority tree removal guidelines will be employed on a stand-by-stand basis during forestry operations.

1. Any hardwood
2. White Pine
3. Tamarack, Black Spruce, Red Pine
4. Fir
5. Other Spruce
6. Hemlock
7. Cedar

Where warranted, this order of tree removal and silvicultural treatments may be modified for within this HMA as agreed to by DACF and MDIFW.

4.1.2 Thinning

Thinning is an effective way to improve growth rates and influence species composition and allows for the opportunity to utilize trees that are poorly formed, diseased, overmature or dying. Follow priority removal order guidelines listed above.

- ◆ Where possible, volume removals should be between 20-30%, including trails.
- ◆ Trails for harvesting equipment will be 8 - 15 feet wide and average no closer than 100 feet from edge to edge, unless restricted by terrain.

4.1.3 Selection Harvesting

Selection harvesting is a light harvesting method in which trees are indicated for removal individually, in small groups of several trees, or in groups up to ½ acre in size. This is a regeneration harvest method that is best suited to windfirm species and sites, and is also well suited to riparian area management. The priority removal order guidelines described in 4.1.1 should be followed where possible.

4.1.4 Overstory Removal

An overstory removal of up to 125 acres will be allowed if both of the following conditions are met:

- ◆ Crown closure is less than 50% and softwood regeneration is well established.
- ◆ No clearcut or overstory removal has been performed in adjacent stands in the last 10 years unless the combined area of both harvests does not exceed harvest block size restriction.

4.1.4 Clearcut Harvesting

A clearcut harvest of up to 35 acres may be allowed providing no CC or OSR has been conducted adjacent to the block in the last 10 years, unless harvest block size restrictions are not exceeded as described below:

- ◆ The combined area of both harvests does not exceed 35 acres; or
- ◆ Regeneration in the adjacent harvest block is adequately stocked (60% SW) and \geq 5 feet in height and the combined area of harvest blocks does not exceed 125 acres.
- ◆ MDIFW and DACF may agree to additional clearcutting as deemed beneficial to supporting habitat needs within the BDWA.

4.2 Forestry Guidelines for Predominantly Deciduous Stands (HW, HW/SW) in HMAs

Hardwood management will be a management objective on hardwood growing sites. Stands that are hardwood dominated due to past management activities, and not as a result of the growing site will be managed for mixedwood (SWS) or future PWS.

4.2.1 Intolerant Hardwood Management

- ◆ Harvesting that will provide browse for deer and moose and perpetuate these areas will be allowed; however, at least 10% of the residual basal area should be left in stems \geq 16 inches dbh, where present, to provide habitat diversity. Of particular importance to pileated woodpeckers, ruffed grouse and other wildlife is aspen (poplar); and
- ◆ Planting of softwoods will be allowed on softwood sites that may be presently occupied by hardwood to maintain habitat diversity and shorten the natural succession process.

4.2.2 Tolerant Hardwood Management

Within Softwood Typed Stands

Tolerant hardwoods may be harvested; however, no more than 80% of these trees should be removed to provide habitat diversity and long lasting cavity trees. Beech trees provide a very important food source to bear, deer, and other species. Hardwood management will maintain beech as a viable landscape component using MDIFW's *Beech Management Guidelines*.

Within Tolerant Hardwood Typed Stands

All silvicultural treatments, based on stand conditions are permitted as agreed to by both DACF and MDIFW.

5. Terms of Agreement

5.1 It is the intent of both parties to enter into a fifteen-year agreement. The parties will meet annually, to review the Agreement, planned management activities for the upcoming year and to review management activities undertaken in the previous year. The annual meeting is intended to be an opportunity to provide notice of planned timber harvests in the upcoming year. The Agreement will be reviewed again at the end of the fifteen-year period and renewed for an additional fifteen years. Renewal of the Agreement will continue every fifteen years in perpetuity. The Agreement may not be discontinued without prior approval from the LMF Board or its successors or assigns.

5.2 MDIFW will develop a written BDWA management plan for the HMA documenting management objectives prior to any management activities being undertaken.

DACF will provide Operational Forest Management Plans based on desired outcomes identified by MDIFW in the BDWA management plan referenced above.

5.3 While this Agreement remains in effect, it will serve as the basis for all management activities within the HMA and the following conditions will apply.

1. MDIFW may continue to conduct aerial and/or ground surveys to monitor deer use. DACF will be provided the survey results.
2. DACF will consult with MDIFW in the development of any Operational Forest Management Plans (FMP) within the HMA and will submit the FMP to MDIFW for their review and approval, MDIFW shall have 60 days to provide its review and approval.

3. Management activities within the HMA will be agreed to by MDIFW and DACF. Zoned P-FWs within the HMA will be treated as an HMA for the duration of the Agreement. The Management Agreement will serve as the basis for the LUPC Plan Agreement for P-FWs located within the HMA BDWA.
4. At least 60 days prior to initiating any activity not listed in a management plan, DACF will provide written notice to MDIFW of these new activities, to include but not limited to, timber harvesting, road and bridge building, vegetation management and gravel extraction.

6. Resolution of Disagreements – Review & Update

DACF and MDIFW agree to employ the following protocol in an attempt to resolve any disagreements that may arise from the implementation of this Agreement.

An attempt will be made to resolve disagreements at the level of the DACF BPL Regional Manager and Regional Wildlife Biologist. In resolving disagreements, the parties will be guided by the specific language contained in the plan that outlines the principal management concerns, goals, and specifications. In the event that the area of disagreement is not specifically addressed, parties should be guided by the Agreement's objectives.

In the event that the disagreement cannot be resolved at the regional level, representatives of the DACF will meet with the MDIFW Wildlife Management Section Supervisor, Wildlife Division Director, and Director of the Bureau of Resource Management to present an explanation of how their proposed actions are consistent with the objectives of the HMA. A decision to approve or deny approval of the plan will be provided within 30 days of the meeting date.

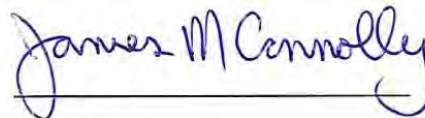
7. Amendments

The DACF and the Maine Department of Inland Fisheries and Wildlife shall make amendments to this Agreement jointly in writing with notice to LMF prior to adopting any amendment that conflicts with the purposes of the Agreement or LMF Project Agreement.

Adopted 11/30/2016 by:



Doug Denico
Director, Maine Forest Service
Dept. of Agriculture, Conservation and Forestry



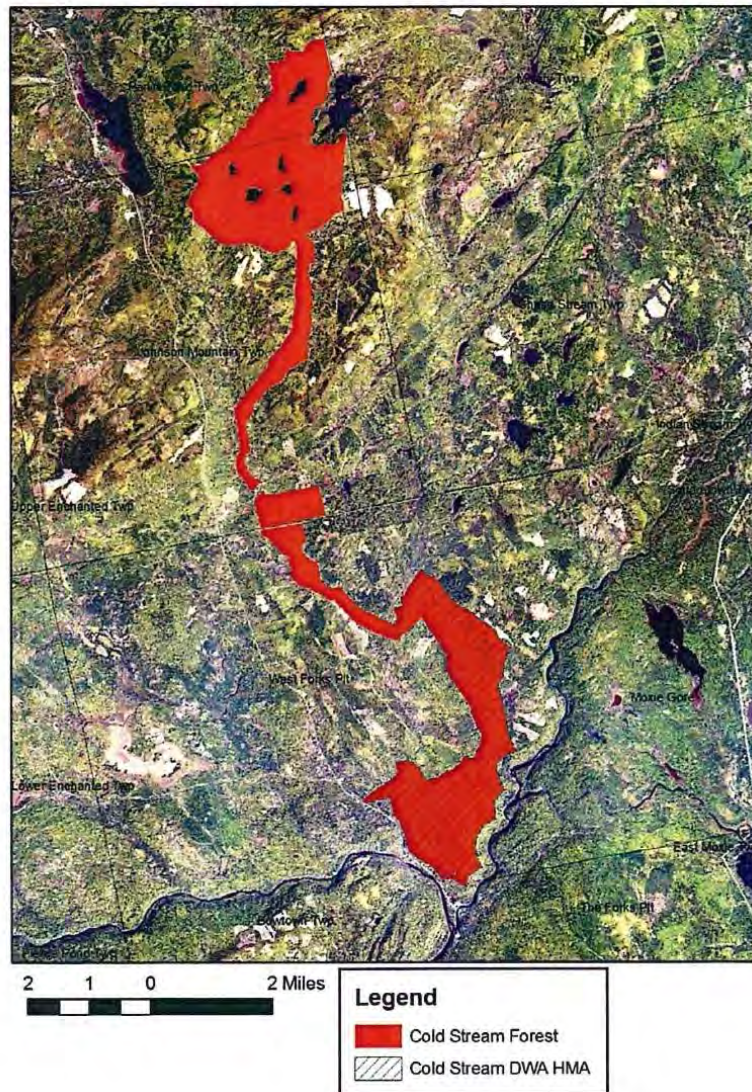
James M. Connolly
Director, Bureau of Resource Management
Dept. of Inland Fisheries and Wildlife

Appendix A

DACF Habitat Management Area Summary

The areas indicated on the map below are to be managed under the terms of this long-term habitat management agreement

Cold Stream Forest Deer Wintering Area HMA



Date of agreement: 11/30/2016

Renewal Date: 11/30/2031

Township(s): West Forks Plantation
County of Somerset, State of Maine

HMA Name: Cold Stream Forest Biological Deer Wintering Area

BDWA/Resource Acres: 3,194

HMA Acres: 3,194

Total Acres: 3,194

Forested Acres: 3,194

Operable (Regulated) Acres: TBD

Inoperable (Unregulated) Acres: TBD

Appendix B
Wildlife Expected to Utilize Conifer Stands Required by Wintering Deer

(Cedar, Spruce, Fir, and Hemlock) Cedar has excellent cavity-providing value

Amphibians

Red-backed salamander *mixed deciduous or conifers*

Wood frog *vernal pools, moist forest floors*

Birds

Spruce grouse *tamarack swamps, cedar bogs, dense stands*

Broad-winged hawk *forest habitat generalist, continuous stands*

Northern goshawk *interior of heavily stocked stands, conifer and mixed*

Sharp-shinned hawk *mixed and coniferous, clearings and edges*

Great horned owl *habitat generalist, deep swamps, cavities*

Long-eared owl *wooded swamps, conifers preferred*

Northern saw-whet owl *generalist, swampy deep conifer forest*

Hairy woodpecker *coniferous, deciduous, mixed, bottomland, swampy, large trees*

Downy woodpecker *interior and edges, mixed, bottomland, large trees*

Three-toed woodpecker *swamps, logged areas, dead trees*

Black-backed woodpecker *many dead trees, swampy/logged, loose bark*

Pileated woodpecker *conifer and mixed, large dying trees to nest and feed*

Yellow-bellied flycatcher *low, wet, swampy, spruce and alders*

Gray jay *conifers and mixed, swampy and slopes*

Black-capped chickadee *all forest types, heavily forested*

Boreal chickadee *conifers, wooded swamps*

Red-breasted nuthatch *conifers, mixed wood*

White-breasted nuthatch *mixed wood with large trees*

Brown creeper	<i>all forest types, dense stocking, swamps</i>
Winter wren	<i>dense, damp undergrowth, bogs, near streams</i>
Golden-crown kinglet	<i>dense stands near bogs</i>
Ruby-crowned kinglet	<i>conifer and mixed stands, edges, near bogs</i>
Swainson's thrush	<i>low, damp areas near water, both young and mature stands</i>
Northern parula	<i>wooded bogs, trees with bearded lichens</i>
Cape May warbler	<i>dense stocking with scattered super-dominants</i>
Yellow-rumped warbler	<i>young growth near edges</i>
Black-throated green warbler	<i>usually hemlock</i>
Blackburnian warbler	<i>forest interior, swampy, trees with bearded lichen</i>
Bay-breasted warbler	<i>conifer and mixed, young stands near ponds</i>
Canada warbler	<i>conifer and deciduous, cool, moist, mature stands</i>
Red crossbill	<i>conifers</i>
White-winged crossbill	<i>conifers</i>
Pine siskin	<i>natural stands and plantations, alder thickets</i>
Evening grosbeak	<i>conifers</i>

Mammals

Long-tailed shrew	<i>damp conifer stands, moss covered coarse woody debris</i>
Silver-haired bat	<i>higher elevation conifers, near lakes and streams</i>
Red squirrel	<i>conifers and mixed deciduous</i>
Snowshoe hare	<i>conifer and mixed young stands with high stocking levels</i>
Northern flying squirrel	<i>mixed mature conifers and deciduous, cavities</i>
Northern bog lemming	<i>sphagnum bogs, mossy woods, weedy meadows</i>

Coyote	<i>edges of second growth, generalist</i>
Black bear	<i>den sites, like cedar bark for bedding, mixed deciduous</i>
Pine marten	<i>conifers, dense mixed types, cedar swamps</i>
Fisher	<i>conifers and mixed wood, forested wetlands, alders</i>
Ermine (short-tailed weasel)	<i>wooded and thickets, near watercourses, rocks, heavy cover</i>
Bobcat	<i>conifers and mixed, brushy, needs cover in winter</i>
White-tailed deer	<i>critical winter shelter at northern end of their range</i>

Source: New England Wildlife: Habitat, Natural History, and Distribution. DeGraaf and Rudis. USDA Northeastern Forest Experiment Station General Technical Report NE-108

Compiled by Chuck Hulse, Regional Wildlife Biologist, Maine Dept. of Inland Fisheries & Wildlife.

Bird list reviewed and edited by Thomas Hodgman

Appendix C
Best Management Practices

Contact MDIFW for BMPs for avoiding impacts to the following habitats and species:

- Inland Waterfowl and Wadingbird Habitats (IWWHs)
- Tidal Waterfowl and Wadingbird Habitats (TWWH)
- State and federally listed species

Contact DACF for BMPs for minimizing impacts to water resources associated with stream crossings and road construction.

**CONSERVATION EASEMENT on MOOSE RIVER/#5 BOG
Township 5, Range 7 BKP WKR and Township 4, Range 7 BKP WKR,
Somerset County, Maine**

THIS INDENTURE is made this 25th day of September, 2009, by and between:

THE STATE OF MAINE, acting by and through the DEPARTMENT OF CONSERVATION, Bureau of Parks and Lands, with an address of 22 State House Station, Augusta Maine 04333-0022, (the "Grantor"), and

THE NATURE CONSERVANCY, a Washington, D.C. non-profit corporation, with an address of 4245 North Fairfax Drive, Arlington, Virginia 22203, and a Maine Office at 14 Maine Street, Suite 401, Brunswick, Maine 04011 ("Holder")

RECITALS

WHEREAS, the Grantor is the sole owner of approximately 4,790 acres of land encompassing a significant portion of Number 5 Bog, and the Moose River, located in Township 5, Range 7, BKP WKR and Township 4, Range 7 BKP WKR, Somerset County, Maine (the "Protected Property");

WHEREAS, Number 5 Bog, has been identified as a Critical Area by the Maine State Planning Office, and named a National Natural Landmark by the Department of Interior due to its undisturbed character, complex of large pools and ribbed fen, scenic vistas, diversity of vegetation, glacial topography and association with an unusual forest of jack pine (*Pinus banksiana*);

WHEREAS, the Moose River Bow Canoe Trip, one of the most popular youth and family canoe paddling and camping trips in Maine, runs for half its miles through the Protected Property;

WHEREAS, the Protected Property includes a diversity of intact natural habitats, including numerous exemplary natural communities ranked by the Maine Natural Areas Program, including Dwarf Shrub Bog, Leatherleaf Bog, Jack Pine Forest, Open Cedar Fen, Patterned Fen Ecosystem, Red and White Pine Forest, Rock Outcrop Ecosystem, and Spruce-Fir-Northern Hardwood forest;

WHEREAS, the Number 5 Bog was identified as meeting criteria established for designation of ecological reserves in the July 1998 report of the Maine Forest Biodiversity Project, "An Ecological Reserves System: Potential Ecological Reserves on Maine's Existing Public and Private Conservation Lands";

WHEREAS, in 2000, the Maine Legislature passed legislation providing for the designation of Ecological Reserves to maintain representative examples of natural communities and native ecosystems in a natural condition to protect Maine's biological diversity, to serve as benchmarks against which environmental change can be measured, to protect sufficient habitat for species whose habitat needs are unlikely to be met on lands managed for other purposes, and to provide sites for scientific research, long-term environmental monitoring and education;

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WHEREAS, the Maine Bureau of Parks and Lands, in its Integrated Resource Policy (adopted December 18, 2000), established policies to implement the legislative mandate for Ecological Reserves on public lands managed by the Bureau;

WHEREAS, the Protected Property is to be conveyed as, and accepted as, an Ecological Reserve by the State of Maine through its Director of the Bureau of Parks and Lands, Department of Conservation and pursuant to Title 12 Maine Revised Statutes Annotated Section 1805;

WHEREAS, preservation of the Number 5 Bog/Moose River property as an Ecological Reserve will ensure that its ecological, scenic and recreation values are protected for future generations;

NOW, THEREFORE, the Grantor, in consideration of the foregoing and of the agreement of the Holder to accept the rights herein granted and enforce in perpetuity the restrictions contained herein, and in consideration of the payment of one dollar and other valuable consideration paid by the Holder, the receipt and sufficiency of which are hereby acknowledged, does hereby **RELEASE**, in perpetuity, a perpetual easement over the Protected Property, being the same premises described in **Exhibit A** and depicted in **Exhibit B**, to be recorded herewith, **Exhibit A** being attached hereto and made a part hereof by reference, as follows:

1. **PURPOSE.** This Conservation Easement on the Protected Property is granted exclusively for the following conservation purposes:

It is the purpose of this conservation easement to assure that the Protected Property will be retained forever predominantly in its unroaded, unfragmented, natural condition to protect the native flora and fauna and to allow natural ecological processes to proceed with minimal interference or manipulation from human activity except where active management is necessary to maintain specific natural communities or rare species populations, or where uncontrolled disturbance or lack of management poses a significant risk to the Protected Property, public safety or forest resources outside of the reserve area. It is intended that the Protected Property be managed as an Ecological Reserve to maintain the Protected Property in its natural condition to serve as a benchmark against which biological and environmental change can be measured, to protect habitat for those species whose habitat needs are unlikely to be met on lands managed for other purposes, to serve as a site for ongoing scientific research, long-term environmental monitoring, and education, and to allow for non-motorized recreation opportunities that do not adversely impact the ecological values of the Protected Property.

2. **GRANTOR'S RIGHT, TITLE AND INTEREST IN THE PROPERTY.** Except for the rights specifically conveyed to the Holder, and except for the restrictions expressly created by this Conservation Easement, the Grantor reserves and retains all ownership rights in the Protected Property and may use the Protected Property for any lawful purpose not expressly prohibited by the terms hereof.

3. **PERMITTED ACTIVITIES.**

The following activities are permitted uses of the Protected Property:

3.1 **Non-motorized Recreation.** The Protected Property may be used for non-motorized recreation by the public including hiking, cross-country skiing, hunting, fishing, trapping, and primitive camping, insofar as such activities are consistent with the purposes of this easement.

3.2 Construction and maintenance of trails, minor recreational structures and campsites. Construction and maintenance of pedestrian trails is permitted as prescribed in the Management Plan in accordance with Section 5 herein and provided that the impact on protected natural resource values is minimal and that such trails are consistent with the purpose of this Conservation Easement. Minor structures associated with permitted recreational uses including, but not limited to, trail improvements such as markers, signs, steps, rails, bog bridges, and water bars, gates and other barriers to prevent unauthorized access by motor vehicles are permitted. Construction and maintenance of primitive campsites is permitted as prescribed in the Management Plan in accordance with Section 5 herein, provided that structures associated with primitive campsites shall be limited to a privy, fire ring, tent pad, 3-sided shelter and picnic table and shall be limited to locations where the impact on protected natural resource values is minimal. Construction, maintenance and proper management of privies and similar low-impact facilities to ensure the safe disposal of human waste are permitted.

3.3 Motorized Use of Existing Road Segment and Trail. Operation of motorized vehicles on the existing Spencer Rips Road segment south of the Moose River, as identified on said Exhibit B is permitted subject to restrictions by the State of Maine Department of Conservation. Use of all-terrain vehicles on existing trails is permitted solely for administrative purposes.

3.4 Boundary Markings. The boundary of the property may be marked with boundary markers and signs may be placed to provide the public with information about the Protected Property and its permitted uses.

3.5 Scientific Research. Non-manipulative scientific research may be conducted on the Protected Property including the construction of temporary non-residential structures associated with such research provided that such structures do not have an adverse impact on the natural resources of the Protected Property.

3.6 Environmental Education. The Protected Property may be utilized for environmental education activities by both public and private institutions insofar as such activities are not inconsistent with the purposes of this Conservation Easement.

3.7 Tree Removal. The limited removal of trees and vegetation associated with permitted uses such as the construction of trails and campsites is permitted.

3.8 Natural Community and Rare Species Conservation. Management of the Property should allow for natural ecological processes to proceed with minimal interference or manipulation, except where active management is necessary to replicate natural processes that maintain the natural communities protected by this Conservation Easement and the rare species associated with them. In the event that unanticipated ecological threats, including but not limited to newly detected invasive non-native plants and animals, are detected on the property, Grantor, after consultation with the Holder, may take measures to address these threats, provided such measures are as minimally disruptive to natural processes and to the natural communities and rare plants as practicable.

3.9 Control of Wildfires. Control of active wildfires shall be permitted where necessary to protect public safety or protect forest resources outside of the Protected Property, provided that fire control activities shall seek to minimize long term impacts on the vegetation and topography of the Protected Property.

4. **PROHIBITED ACTIVITIES.** The following activities are prohibited as follows:

4.0 **Structures.** There shall be no construction or placing of any building, mobile home, tower, antenna, utility poles, asphalt or concrete pavement, or any other temporary or permanent structure or facility on or above the Protected Property, except as specifically provided for herein.

4.1 **Timber Harvesting.** Timber harvesting and salvage harvesting (also known as removal of dead or damaged trees to recover economic value that would be otherwise lost) are prohibited except as provided in Section 3.8 and 4.4.

4.2 **Surface Alterations.** Mining or removal of minerals, sand, gravel or topsoil, filling, dumping excavating, alteration of water bodies, or other surface alterations are prohibited, except that minor surface alterations associated with permitted uses such as the construction of trails and campsites are permitted as minimally required to carry out those specific uses. All surface alterations shall be conducted and completed in a manner to prevent soil erosion and prevent damage to wetlands, fragile plant communities and wildlife habitat and so that the disturbed surrounding areas are stabilized and restored as soon as reasonably possible to a state consistent with the conservation values to be protected by this Conservation Easement.

4.3 **Storage and Dumping.** Storage or dumping of ashes, trash, garbage or other unsightly or offensive material, hazardous substance, or toxic waste is prohibited. Minor campfire ashes contained in fire pits shall not be considered a violation of this prohibition.

4.4 **Use of Pesticides and Sanitation Harvests.** The use of pesticides and sanitation harvests (the removal of trees that have been attacked or are in imminent danger of attack by insects or disease in order to prevent these insects or diseases spreading to other trees) to control insect and disease outbreaks is prohibited, except as provided in Section 3.8, or as prescribed in the Management Plan in accordance with Section 5 herein, which shall only prescribe such use after consultation with the Holder, when necessary to respond to a specific threat to the function of a native ecosystem, a specific threat to human health or safety, or a condition likely to result in significant damage to adjacent lands if control is not exercised. In such instances, the control method with the least environmental impact shall be utilized.

4.5 **Subdivision.** The Protected Property may not be divided, subdivided, partitioned or otherwise conveyed in parcels or lots, except that Grantor may enter into boundary line agreements with abutting parcel owners to establish, document, or confirm existing boundaries and other pre-existing rights and resolve boundary line disputes. In addition to the foregoing, any portion of the Protected Property may be conveyed to a non-profit or governmental entity that satisfies the requirements of Internal Revenue Code Section 170(h)(3), as amended (or successor provisions thereof) and the requirements of Section 476(2) of Title 33 of the Maine Revised Statutes Annotated, as amended (or successor provisions thereof), to be retained for conservation ownership, subject to the terms of this Conservation Easement.

4.6 **Motorized vehicles.** Motorized vehicle use on the Protected Property is prohibited, except on the existing road segment and existing trails as provided for in Section 3.3., or roads and trails approved under Section 4.7 as provided herein and subject to additional restrictions by the State of Maine Department of Conservation.

4.7 **New Roads and Motorized Trails.** New roads or motorized trails are prohibited. Exceptions are discouraged and will only be made as prescribed in the Management Plan in accordance with Section 5 herein, which shall only permit such use when all of the following

criteria have been met: the Protected Property will continue in a predominantly unroaded and unfragmented condition and the impact on protected natural resource values and the value of the property as an ecological reserve is minimal, the proposed road or motorized trail will provide a crucial link in a significant road or trail system, and there are no safe, cost effective alternatives. Any new roads or trails approved as a result of this section are to be located near the periphery of the property to protect the interior of the Property's unroaded and unfragmented condition.

5. MANAGEMENT PLAN. A Management Plan with the objective of maintaining the Protected Property as an Ecological Reserve and meeting the purpose and terms of this Conservation Easement will be prepared by Grantor, with public involvement, and updated consistent with Department practices, currently every 15 years, or as necessary to address naturally occurring changes in the Protected Property, public use of the Protected Property, ongoing monitoring and research, and advancements in scientific understanding. Preparation of the Management Plan by Grantor shall involve a professional forest ecologist or conservation biologist. The Plan shall include proposed activities associated with preserving the Protected Property as an Ecological Reserve, permitted recreational, scientific research, natural community and rare species conservation, and environmental education uses of the Protected Property as provided for in Section 3 herein. Furthermore, the Plan shall include any proposed uses associated with Sections 4.4 and 4.7 herein, along with information demonstrating that the necessary criteria for such uses have been met and that such activities are consistent with purpose of this Conservation Easement. The parties acknowledge that the Holder may review the Management Plan for consistency with the purpose and terms of this Easement, but is not entitled or required to approve the Management Plan. Notwithstanding the preceding sentence, in the event of the failure of the Grantor to provide a Management Plan consistent with the terms of this Easement or to manage the Protected Property in accordance with the adopted Management Plan, the Holder may seek a remedy in accordance with Section 6. If the Holder finds that any portion of the Management Plan is inconsistent with the terms of this Easement or that resulting activities could result in a violation of this Easement, the Holder may provide written comments to the Grantor identifying and explaining those portions of the Plan that are inconsistent and notifying the Grantor that such inconsistencies may result in a violation of the Easement. Holder may also recommend what actions are necessary to bring the Plan in compliance with the Conservation Easement. If the Holder determines that inconsistencies have resulted or are threatening to result in a violation of the Easement, the Holder may seek a remedy for such violation under Section 6.

6. RIGHTS OF HOLDER. To accomplish the purposes of this Conservation Easement, the following affirmative rights are conveyed by the Grantor to the Holder:

6.1 Compliance. The Holder shall have the right to assure compliance with all of the covenants and restrictions herein. In connection with such efforts, Holder shall have the right to enter the Protected Property at any reasonable time and in any reasonable manner, for the purposes of inspection, and enforcement, each in any manner that will not disturb Grantor's permitted use of the Protected Property. Holder agrees to keep on file and make available to the Grantor at Grantor's request, any notes or reports made in connection with its inspections or activities on the Protected Property.

6.2 Notice of Violation. In the event the Holder determines that a violation of the terms and conditions herein set forth has occurred, is in existence, or is threatened to occur, Holder shall give notice to Grantor of such violation via certified mail, return receipt requested.

6.3 Remedies. If Grantor fails within thirty (30) days after receipt of notice to cure such violation, or under circumstances where the violation cannot reasonably be cured within said period, does not

begin curing such violation within said period and continues such remedial action to completion, then Holder may, after seven (7) days written notice to Grantor, bring an action at law or in equity in a court of competent jurisdiction to enforce the terms of this Easement, to enjoin the violation or threatened violation by temporary or permanent injunction, and/or to require the restoration of the Protected Property to the condition substantially similar to that which existed prior to injury to the extent such restoration is practicable, and/or to otherwise recover monetary damages for a violation of this Easement.

6.4 Natural events. Nothing contained in this Conservation Easement shall be construed to entitle Holder to bring action against Grantor for any injury or change to the Protected Property resulting from natural events beyond Grantor's control, including but not limited to fire, flood, storm, changes in climatic conditions, soil or water contaminants introduced onto the Protected Property by third parties, acid rain or other airborne pollutants introduced into the atmosphere by third parties, and earth movement or from any prudent action taken by the Grantor under emergency conditions to prevent, abate or mitigate significant injury to the Protected Property resulting from such causes.

6.5 Assignment. Holder is granted the right to assign this Conservation Easement after prior consultation with Grantor. Any assignment is to be to an assignee 1) that commits, as a condition of the transfer, to carry out the conservation purposes of this grant, 2) that satisfies the requirements of Section 476(2)(A) of Title 33 of the Maine Revised Statutes Annotated, as amended (or successor provisions thereof), and 3) that is a qualified donee under Section 170(h) of the Internal Revenue Code and relevant treasury regulations promulgated in furtherance thereof.

7. NOTIFICATION OF TRANSFER, TAXES, MAINTENANCE.

7.1 Transfer of title. Grantor agrees, after prior consultation with Holder, to notify the Holder in writing at least thirty (30) days before transfer of title of the Protected Property by sale, lease or any other means.

7.2 Notices. Until modified by notice in writing, any required notices to be given by either party shall be made by certified mail, return receipt requested, addressed to:

Holder:
THE NATURE CONSERVANCY, 14 Maine Street, Suite 401, Brunswick,
Maine 04011

Grantor:
MAINE DEPARTMENT OF CONSERVATION, Bureau of Parks and Lands,
Attn: Director, State House Station 22, Augusta, Maine 04333-0022

7.3 Maintenance. Except as expressly provided to the contrary herein, Grantor retains responsibility for use and control over the Protected Property and shall bear all costs and liabilities of every kind related to the ownership, operation, control, maintenance, taxation or otherwise with respect to the Protected Property.

8. MISCELLANEOUS PROVISIONS.

8.1 Applicable Law. It is hereby agreed that any activity permitted under this Conservation Easement shall be in accordance with all applicable state, federal and local laws and regulations, and the Conservation Easement shall be construed under the Laws of the State of Maine.

8.2 Interpretation. If uncertainty should arise in the interpretation of this Conservation Easement, judgment shall be made in favor of accomplishing the conservation purposes of this grant.

8.3 Severability. If any provisions of this Conservation Easement or the application thereof to any person or circumstance are found to be invalid, the remainder of the provisions of this Conservation Easement and the application of such provisions to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.

8.4 Recordation. This Conservation Easement and any amendment or assignment hereof shall be recorded at the Piscataquis County Registry of Deeds. A copy of this Conservation Easement shall be delivered and incorporated by reference in any subsequent deed, probate decree, or legal instrument that conveys any interest, (including a leasehold) in the Protected Property.

8.5 Baseline Documentation. The condition of the Protected Property at the time of this grant is evidenced by reports, photographs, and maps possessed by the Holder, in a compilation known as the "Baseline Data," which the Holder and Grantor shall certify, on or before September 30, 2009, as an accurate representation of the condition of the Protected Property at the time of this grant, and which Holder shall make available on any reasonable request to Grantor.

8.6 Amendment. Any legally permissible amendment hereto, may be granted only if the Holder has determined in its reasonable discretion, that the proposed use furthers or is not inconsistent with the purposes of this Conservation Easement, substantially conforms to the intent of this grant, meets any applicable conditions expressly stated herein, and does not materially increase the adverse impact of expressly permitted actions under this Conservation Easement, provided that Holder has no right or power to consent to any use that would result in substantial alteration to the natural resources of the Protected Property, would permit building development of the Protected Property, that would affect its perpetual duration, or that would impair the qualification of this Conservation Easement under any applicable laws, including Title 33 M.R.S.A. Section 476 et seq., or Section 170(h) of the Internal Revenue Code. Any such amendment shall be recorded at the Somerset County Registry of Deeds.

8.7 Condemnation. If the Protected Property, or any portion thereof, shall be taken by condemnation or right of eminent domain, as to abrogate in whole or in part the Conservation Easement conveyed hereby, the Grantor and Holder shall be each entitled to receive a portion of the proceeds of the award, if any, in proportion to their respective interests in the Protected Property at the time of the condemnation. Holder agrees to cooperate with Grantor in any eminent domain proceeding or threat thereof, brought by an entity other than Holder, in order to maximize the value of all interests in the Protected Property subject to said proceeding.

8.8 Extinguishment. In the event this Conservation Easement is extinguished, which may be accomplished only by court proceedings, or with the express consent of the Legislature, the Holder shall be entitled to receive any proceeds of a subsequent sale that pertain to the extinguishment of Holder's rights and interests herein. The inability to carry on any or all of the uses permitted on the Protected Property shall not impair the validity of this Conservation Easement or be considered grounds to terminate it or alter its terms.

8.9 Counterparts. This Conservation Easement may be executed in any number of counterparts, each of which shall be deemed an original and which together shall constitute one and the same instrument.

THE HOLDER by accepting and recording this Conservation Easement Deed agrees for itself, its successors and assigns, to be bound by and to observe and enforce the provisions hereof and assumes the rights and responsibilities herein provided for and incumbent upon the Holder all in the furtherance of the conservation values to be protected hereby.

IN WITNESS WHEREOF, the said Grantor by and through its duly authorized representative, has caused these presents to be signed and sealed in its corporate name on the day first written above.

Witness: **DEPARTMENT OF CONSERVATION
Bureau of Parks and Lands**

By: _____
Willard R. Harris, Jr., Director
Date: _____, 2009

STATE OF MAINE
COUNTY OF KENNEBEC, ss.

Personally appeared Willard R. Harris, Jr., Director, Bureau of Parks and Lands, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said STATE OF MAINE.

Before me,

Notary Public/Attorney at Law
Print Name: _____
My Commission Expires: _____
Seal:

IN WITNESS WHEREOF, the said Grantor by and through its duly authorized representative, has caused these presents to be signed and sealed in its corporate name on the day first written above.

Witness:

**DEPARTMENT OF CONSERVATION
Bureau of Parks and Lands**

Thomas Mavin

By:

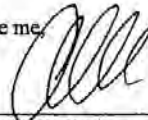
Will Harris
Will Harris, Director

STATE OF MAINE
COUNTY OF KENNEBEC, ss.

Date: 9/22, 2009

Personally appeared Will Harris, Director, Bureau of Parks and Lands, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said STATE OF MAINE.

Before me,



Notary Public/Attorney at Law

Print Name: ALAN R. STEARNS, ESQ.

My Commission Expires:

Seal: N/A

Continued next page

HOLDER ACCEPTANCE.

The above and foregoing Conservation Easement was authorized to be accepted by THE NATURE CONSERVANCY, and Michael Tetreault, its Maine State Director, does hereby accept on behalf of THE NATURE CONSERVANCY, the above and foregoing Conservation Easement, this 22nd day of September, 2009.

THE NATURE CONSERVANCY

Michael Tetreault

By: Michael Tetreault, Maine State Director

Date: Sept. 22nd, 2009

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

Personally appeared the above-named Michael Tetreault, hereunto duly authorized, and acknowledged the foregoing to be his free act and deed in his capacity as Maine State Director of THE NATURE CONSERVANCY, and the free act and deed of the said THE NATURE CONSERVANCY.

Before me,

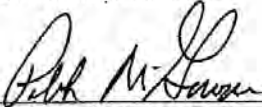
Joanne T. Hollenbeck
Notary Public/Attorney at Law
Print Name: Joanne T. Hollenbeck
My Commission Expires:
Seal:

Joanne T. Hollenbeck, Notary Public
State of Maine
My Commission Expires 10/13/2012

CONSENT OF COMMISSIONER

Pursuant to Title 12 M.R.S.A. Section 1850, the Commissioner of the Department of Conservation hereby gives his consent to the above and foregoing Quitclaim Deed with Covenant. Executed this 22nd day of September, 2009.

STATE OF MAINE
Department of Conservation

By: 
Patrick K. McGowan, Its Commissioner

STATE OF MAINE
County of Kennebec, ss.

Date: 9/22/09

Then personally appeared the above-named Patrick K. McGowan, Commissioner of the Maine Department of Conservation and acknowledged the execution of the within Consent of Commissioner as his free act and deed in his said capacity and the free act and deed of the State of Maine.

Before me,



Notary Public/Attorney at Law
Print Name: ALAN R. STEARNS, ESQ
My commission expires:
Seal: N/A

EXHIBIT "A"

Moose River / #5 Bog Conservation Easement Description

PARCEL ONE:

A certain lot or parcel of land situated in the Unorganized Territories of Raytown (aka T5 R7 BKP WKR) and Bradstreet Township (aka T4 R7 BKP WKR), County of Somerset and State of Maine, generally depicted on the attached Exhibit "A-1" labeled Bog I LMF Parcel, attached hereto and further described as follows:

Beginning at a point on the southerly line of the Ministry Lot now owned by the State of Maine, at a point being two hundred fifty (250') feet easterly of the high water mark of the easterly side of Moose River;

Thence along an extension westerly of the southerly line of said Ministry Lot, to the thread of Moose River;

Thence in northerly and northwesterly direction along said thread of Moose River to the northerly town line of Bradstreet Township;

Thence in a westerly direction along the said northerly town line of Bradstreet Township to the northwesterly corner of said Bradstreet Township and the Northeasterly corner of T5 R7 BKP WKR;

Thence continuing in a westerly direction along the northerly town line of said T5 R7 BKP WKR to a point being westerly a distance of two hundred fifty (250') feet, from the high water mark of the westerly side of Moose River;

Thence, in southerly and then southeasterly direction along a line that is two hundred fifty (250') feet westerly of and southwesterly of, and parallel to the said high water mark of the westerly side of Moose River to a point opposite of where said river angles northerly;

Thence, continuing on the same side of Moose River in a northerly direction along said line that is now two hundred fifty (250') feet easterly of and parallel to the high water mark of what is now the easterly side of said Moose River, to the point of beginning;

EXCEPTING from the parcel of land described above the following described parcels of land and rights of access thereto:

That certain lot or parcel of land situated in the southerly shore of Moose River in T5 R7 BKP WKR, Raytown, in the approximate location shown on Exhibit D attached hereto, described in a deed to Angela Procaccini, recorded in the Somerset County Registry of Deeds in Book 2946, Page 288 (reference is made to the Procaccini Realty Trust property shown on unrecorded plan entitled "Land of

North Anson Reel Company Located in Township No. 5, Range 7, T5 R7 BKP, Raytown, Somerset County, Maine" dated November 30, 1989 and prepared by Sackett & Brake Survey, Inc.). Said lot is located approximately as shown as E-1 on **Exhibit "D"** attached hereto;

That certain lot or parcel of land situated in the southerly shore of Moose River in T5 R7 BKP WKR, Raytown, in the approximate location shown on Exhibit D attached hereto, described in a deed to William C. DeHart, Sr., et al, recorded in said Registry in Book 3433, Page 162 (reference is made to the Adelard De Blois property shown on unrecorded plan entitled "Land of North Anson Reel Company Located in Township No. 5 Range 7, T5 R7 BKP, Raytown, Somerset County, Maine" dated November 30, 1989 and prepared by Sackett & Brake Survey, Inc.). Said lot is located approximately as shown as E-2 on **Exhibit "D"** attached hereto;

That certain lot or parcel of land situated in the southerly shore of Moose River in T5 R7 BKP WKR, Raytown, in the approximate location shown on Exhibit D attached hereto, described in a deed to the University of Maine recorded in said Registry in Book 1070, Page 334 (reference is made to the University of Maine property shown on unrecorded plan entitled "Land of North Anson Reel Company Located in Township No. 5 Range 7, T5 R7 BKP, Raytown, Somerset County, Maine" dated November 30, 1989 and prepared by Sackett & Brake Survey, Inc.). Said lot is located approximately as shown as E-3 on **Exhibit "D"** attached hereto;

That certain lot or parcel of land situated in the southerly shore of Moose River in T5 R7 BKP WKR, Raytown, in the approximate location shown on Exhibit D attached hereto, described in a deed to the Riverview Foundation recorded in said Registry in Book 2724, Page 335 (reference is made to the Duane & Shana Hanson property shown on unrecorded plan entitled "Land of North Anson Reel Company Located in Township No. 5 Range 7, T5 R7 BKP, Raytown, Somerset County, Maine" dated November 30, 1989 and prepared by Sackett & Brake Survey, Inc.). Said lot is located approximately as shown as E-4 on **Exhibit "D"** attached hereto.

TOGETHER with the rights and easements, if any, located over the excepted parcels E-1 through E-4 described above which rights and easements were reserved by the Grantor, or its predecessors in title, and benefit the Premises; and

Also hereby quitclaiming (without covenant) an easement, in common with Grantor, its successors and assigns, and others, for ingress and egress to the foregoing described premises across those roadways shown and described on Exhibit A-1. With regard to any portions of such roadways as cross the Public Lot shown thereon or Upper Enchanted Township, Grantor conveys only its right, title and interest in and to such access rights, if any, in common with Grantor, its successors and assigns and others, therein.

PARCEL TWO:

A certain lot or parcel of land situated in the Unorganized Territory of Raytown (aka T5 R7 BKP WKR) in the County of Somerset and State of Maine, generally depicted on Exhibit "A-1" attached hereto and described as follows:

Beginning at a point on the northerly town line of T5 R7 BKP WKR and the southerly town line of Attean Township (T5 R1 NBKP) at a point which is 250 feet westerly of the high water mark of the west side of Moose River where it crosses the northerly town line of T5 R7 BKP WKR;

Thence westerly along the northerly town line of T5 R7 BKP WKR to a point which is 250 feet southwesterly from high water mark of the southerly side of Moose River in Attean Township;

Thence in a general southerly direction through T5 R7 BKP WKR following a line, which at all times maintains a distance of 250 feet from the high water mark of the westerly side of the Moose River, to a point located 250 feet from the high water mark of the flowage bog at the southerly dip of the Moose River;

Thence following a line, westerly, southerly, easterly and northerly around the flowage bog, and maintaining a distance of 250 feet from the high water mark thereof, to a point located 250 feet easterly of the high water mark on the easterly side of the Moose River;

Thence northerly and easterly, following a line, which at all times maintains a distance of 250 feet from the high water mark of the easterly and southerly side of the Moose River as it flows through T5 R7 BKP WKR and into Attean Township, to a point on the northerly town line of T5 R7 BKP WKR and the southerly town line of Attean Township, which point is 250 southeasterly from the high water mark of the Moose River located in Attean Township;

Thence in a westerly direction along the northerly town line of T5 R7 BKP WKR and the southerly town line of Attean Township to the point of beginning.

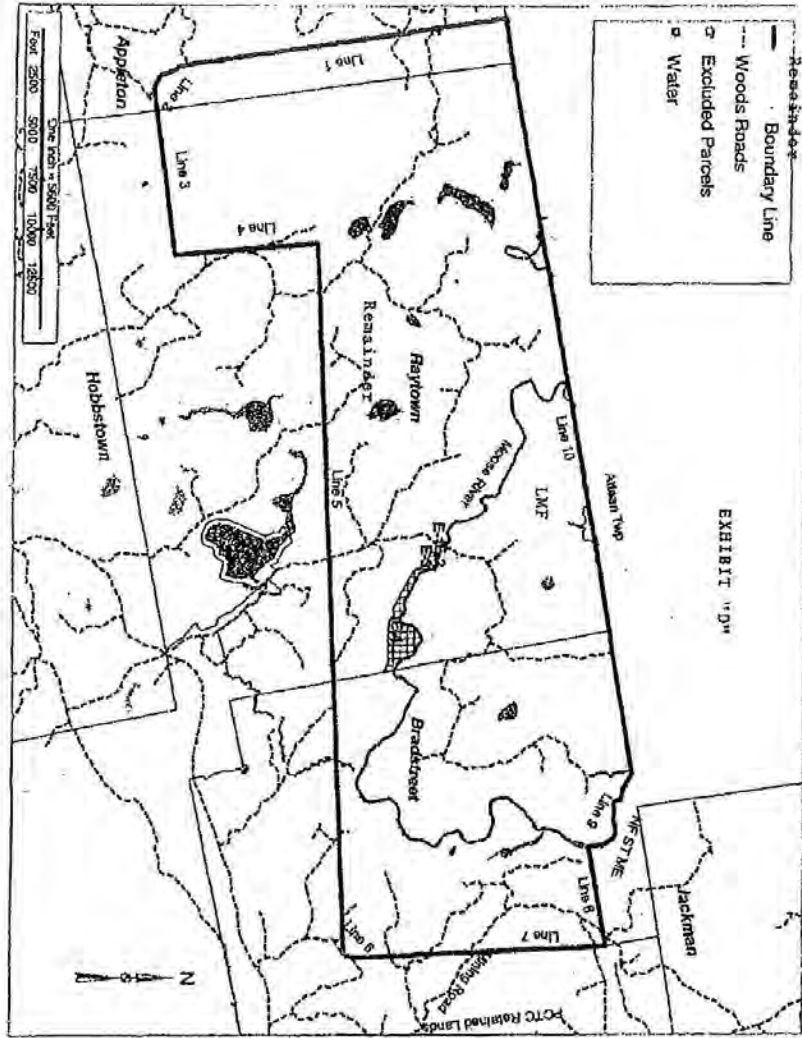
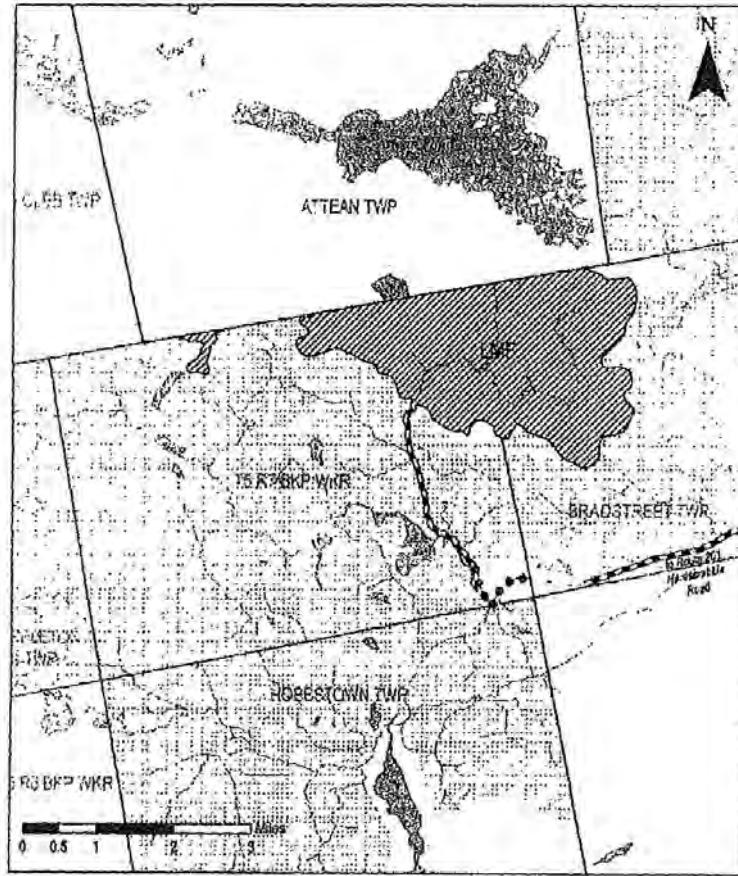





EXHIBIT B

Moose River / #5 Bog Conservation Easement Map



Somerset County, Maine

-  Plum Creek Land
-  Partial Easement Assignment to State of Maine
-  Easement Grant to State of Maine



Plum Creek

Growing Value from Conserving. Established 1979.

Received
Recorded Register of Deeds
Sep 25, 2009 10:48A
Somerset County
Diane M Godin

Appendix C: A Summary of BPL Resource Allocation System

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 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 Moosehead Region 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.

Appendix D: Upper Kennebec Plan Area Forest Stocking and Sustainable Harvest Levels

The following forest stocking and sustainable harvest level information applies to the 25,170 regulated acres within the Plan Area (as reported on page 18 of the Plan, with additional breakdowns by management unit and forest type, excepting the Cold Stream Forest Unit).

Forest Stocking (2011 inventory)

Total Plan Area inventory in 2011 was 23.30 cords per acre. This was very close to a 50-50 split between hardwood species and softwoods, with more details in the table below. This does not include Cold Stream Forest, nor do the SHL numbers farther below. Based on timber types, an estimated volume per acre on Cold Stream Forest should be about half that of the rest of the Plan area.

Softwoods	Cords/Acre	% of Vol.		Hardwoods	Cords/Acre	% of Vol.
All spruces	7.03	30.1%		White ash	0.10	0.4%
Red spruce	6.61	28.4%		Brown ash	0.07	0.3%
White spruce	0.40	1.7%		Beech	0.56	2.4%
Black spruce	0.02	<0.05%		Paper birch	0.80	3.5%
Balsam fir	1.87	8.0%		Yellow birch	2.05	8.8%
Cedar	0.83	3.5%		Sugar maple	2.73	11.7%
Hemlock	0.12	0.5%		Red maple	3.66	15.7%
Tamarack	0.06	0.3%		Aspens	1.45	6.2%
White pine	1.33	5.7%		Balsam poplar	0.09	0.4%
Red pine	0.46	2.0%		Other hardwoods	0.14	0.4%
<i>All softwoods</i>	<i>11.70</i>	<i>50.2%</i>		<i>All hardwoods</i>	<i>11.60</i>	<i>49.8%</i>

“Other hardwoods” are mainly hophornbeam, black cherry, pin cherry, and striped maple. Several other species are also present in small numbers but not tallied in 2011: jack pine, Norway spruce, red oak.

Plan Area Sustainable Harvest Level (SHL) Volumes

- Cords per acre are as measured in the 2011 inventory.
- Net growth and SHL targets were calculated from the 2011 inventory and subsequent forest modeling.
- Spruces include red, black, and white spruce. The Plan area has some Norway spruce, but none was tallied in 2011.
- Other softwood is tamarack
- Pines are about 85% white and the rest red. The Plan area has some jack pine, but none was tallied in 2011.
- Intolerant hardwoods include paper birch, aspens (quaking, bigtooth), and balsam poplar.
- Tolerant hardwoods are the remainder of hardwood species.

Species/Group	Cords per Acre	Net Growth (Cords)	SHL Target (Cords)	SHL as % growth
Spruces	7.03	3,130	2,300	73%
Balsam Fir	1.87	1,218	1,700	140%
Cedar	0.83	140	50	36%
Hemlock/other SW	0.12	257	200	78%
Pines	1.79	1,066	150	14%
<i>All Softwoods</i>	<i>11.70</i>	<i>5,811</i>	<i>4,400</i>	<i>76%</i>
Intolerant HW	2.34	938	650	69%
Tolerant HW	9.26	2,994	3,450	115%
<i>All Hardwoods</i>	<i>11.60</i>	<i>3,932</i>	<i>4,100</i>	<i>104%</i>
All Species	23.30	9,743	8,500	87%

Rationale for selected target values:

- Total, all species: It is not feasible to capture 100% of net growth, some of which occurs in stands with volume too low for economic harvesting, or in areas too far from current access.
- Red spruce: At 94% of spruce volume on the Plan area, this is perhaps the key species in the Acadian Forest and maintaining or increasing its current volume is important both ecologically and economically. *(The Acadian Forest is a matrix of forest types extending from the Adirondacks through northern VT/NH, probably 90% of Maine and essentially all of the Maritimes except Newfoundland, plus Quebec south of the St. Lawrence.)*
- Balsam fir: This rapidly growing species is also short lived, and is the preferred food for the spruce budworm, which periodically becomes epidemic in Maine and is currently doing considerable damage to our north.
- Cedar: Poor quality stems and poor local markets keep harvesting low on this slow growing species.
- Pines: One objective in BPL management is to increase the proportion of pine, especially white pine, which is fast growing, long lived, and valuable both for timber and wildlife.
- Tolerant hardwood: For many years this group was under-harvested due to limited markets. The target overcut is intended both to compensate for past practices and to move some hardwood and mixedwood stands toward heavier softwood component, especially where past records indicate that the earlier forest had included a greater softwood component.

Over the six years since the 2011 inventory, harvesting in the Plan area totaled 35,325 cords, 13,640 cords of softwoods and 21,685 of hardwoods. The harvest was 50% of softwood SHL and 84% of hardwoods. It is anticipated that little if any harvesting will occur on these tracts through the end of 2018. Assuming the estimates of net growth are reasonable, softwood volume would be about 21,000 cords higher now than in 2011, and hardwood volume about 2,000 cords higher, for a per-acre total of 24.2, with 12.5 cords softwoods and 11.7 hardwoods.

Appendix E: 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 accommodate the use of only small watercraft. Includes a trailhead with parking and a designated trail to the access site.

“Clear-cut”: a 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).

“Multi-use Trail”: a trail in which two or more activities occur on the same trail at different times of the year.

“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.

“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.

“Shared-use Trail”: a trail in which two or more activities are using the same trail at the same time.

“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.

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