MAINE AUDUBON

FOREST CONSERVATION EASEMENTS AND WILDLIFE

A Review of Working Forest Conservation Easements, Their Potential for Conserving Wildlife and Habitat, and Recommendations for Improvements

TABLE OF CONTENTS

Preamble	**Working Forest Conservation Easements:** Protections for Wildlife and Fish Habitat and Overall Biodiversity *By Sally Stockwell*	4
Report I	**A Critical Analysis of Maine's Working Forest Conservation Easements and Ideas for the Future to Better Protect Habitat and Related Conservation Values**	10
	Appendix A: Wildlife-related objectives excerpted from each easement *By Jeff Pidot*	34
Report II	**Forest Conservation Easements in Maine:** Recommendations to Improve their Effectiveness for Conserving Biodiversity in Managed Forests	38
	Appendix 1: Glossary and Abbreviations	60
	Appendix 2: Management Plans	61
	Appendix 3: Other Sustainability Criteria *By Rob Bryan*	64
Acknowledgements		65

PREAMBLE

WORKING FOREST CONSERVATION EASEMENTS

Protections for Wildlife and Fish Habitat and Overall Biodiversity

By **Sally Stockwell**

Maine is the most heavily forested state in the nation, with approximately 90% of the state covered in forestland. As a result, Maine fish and wildlife are heavily dependent upon our forests. Over the last quarter of a century, millions of acres of Maine forests have been included in a complex grid of small and large working forest conservation easements that provide at least some degree of protection to fish and wildlife habitat and related natural values of the lands they encumber.

Because Maine Audubon's mission is to conserve Maine wildlife and wildlife habitat through conservation, education, and action, a few years ago we started wondering how well Maine's many small and large working forest conservation easements are protecting wildlife and habitat, and if there might be useful ways to strengthen those protections in future easements.

With this question in mind, we undertook a detailed assessment of the terms of working forest conservation easements to determine the degree to which they assure protection to wildlife and fish habitat and overall biodiversity in perpetuity (which is the timeframe of conservation easements). Along with this assessment, we also conducted an analysis of how well specific habitat features and values representative of overall biodiversity are addressed and treated. We recognize that existing working forest easements provide many benefits, including keeping forestland intact, limiting development, and promoting sustainable forestry activities, but based on our reviews, we also found there is room for improvement in the terms governing how wildlife and habitat are protected and managed. Based on our analyses, we have developed recommendations for how to better ensure conservation of habitats and biodiversity in future conservation easements, and we encourage land trusts, landowners, and state and federal agencies to consider adopting them.

Working Forest Conservation Easement Study

Jeff Pidot, the author of the Conservation Easement Study (Report I), is a retired attorney who for many years led the Natural Resources Division of the Maine Attorney General's Office. In both his professional capacity and as an avid participant in the land trust community, he has studied conservation easements in Maine and around the nation and written extensively on the subject. His 2005 report, prepared as a visiting fellow at the Lincoln Institute of Land Policy, led to Maine's legal reforms in its conservation easement laws. Maine Audubon enlisted him to conduct the survey and assessment of working forest conservation easements, from which he prepared the attached report, entitled *A Critical Analysis of Maine's Working Forest Conservation Easements and Ideas for the Future to Better Protect Habitat and Related Conservation Values: A Report for Maine Audubon* (May 2023).

For each easement in the survey, Pidot's assessment included an analysis of: the stated purposes of the easement and the habitat and related conservation values it seeks to protect; the restrictions it imposes to this end; and the process by which the landowner and the easement holder decide how to manage and conserve the forestlands to achieve conservation objectives.

It is important to recognize that Pidot's analysis of each easement in the survey focused on assessing how well its terms assure legal protection of habitat and related conservation values and objectives in the face of an indefinite future. We recognize that landowners and easement holders will change over time and may not have been involved in negotiating, drafting, or stewardship of the original easement, thus leaving the easement language itself as the only enforceable standard in the future.

Pidot comprehensively analyzed 24 working forest conservation easements ranging in size from 13 to 762,000 acres and created between 2000 and 2022. The report describes in detail the diversity of easements in the survey, including their locations, sizes, dates, holders, landowners, recital and purpose clauses, types of development permitted, allowances for subdivision and public access, and particularly their limitations on forestry uses. Special attention is paid to whether forestry activities are handled through restrictions in the easement itself or through a separate forest management plan. Where a management plan is envisioned by the easement, Pidot describes each plan's requirements and processes, including who has responsibility for drafting, reviewing, and approving the plan.

Pidot's report proceeds to evaluate what's missing from the easements surveyed that might limit the efficacy of securing habitat and related conservation benefits in the future. The report concludes with a number of recommendations to improve easements in the future to maximize these protections within the context of a working forest landscape. The report particularly focuses on providing the easement holder a more meaningful role in reviewing and approving the landowner's forest management, ecological management, or similar plan, to the extent it is relied upon to provide specific forestry standards and restrictions to protect habitat and related conservation values.

Please read Pidot's detailed report to learn more about its findings and recommendations. Recommendations in the report include the following: giving the easement holder a role in reviewing and approving standards and restrictions on forestry activities in the landowner's management plans as needed to protect wildlife and fish habitats and resources; including strong, conservation-oriented easement purpose clauses and restrictions oriented to protecting these habitats and resources; establishing special management areas tailored to habitats of high significance; layering conservation easements to provide extra protection to areas containing especially sensitive or significant wildlife or fish habitats; protecting late successional forests; discerning the proper role of third party certification; providing for future changes to management and conservation measures as forest, wildlife, and fisheries needs change; requiring regular meetings, reports, and other communications between the landowner and holder; establishing appropriate monitoring protocols; and avoiding backsliding and impediments to enforcement.

Study on Improved Effectiveness for Conserving Biodiversity in Managed Forests

Building on Pidot's review of existing working forest easements and his own extensive experience as a licensed consulting forester and former Forest Stewardship Council auditor, Robert Bryan prepared a report entitled *Forest Conservation Easements in Maine: Recommendations to Improve their Effectiveness for Conserving Biodiversity in Managed Forests* (2024). Bryan's report scrutinizes the extent to which working forest easements address 11 core fish, wildlife, and habitat evaluation criteria—such as rare species, riparian habitat, and age class diversity. The report considers how well habitats are protected, metrics that allow an auditor to evaluate whether the landowner is meeting the stated goals for these habitats, and how to strengthen easements to ensure there are measurable, verifiable standards for determining compliance.

Bryan's report provides an analysis of how well each criterion is currently being addressed by most easements and a detailed description of the strengths and weaknesses of existing conservation easements in addressing the core evaluation criteria. The report proceeds to make important recommendations for how easements could be strengthened to address the criteria, offering separate suggestions for large and small ownerships. Bryan then describes how the recommendations could be integrated into a comprehensive approach to improving biodiversity, including easement requirements for assessment of important plant communities and wildlife and fish habitats, development of an ecological management plan to protect those habitats, and important elements to include in forest management and operations plans. References and appendices at the end of the report provide supporting documentation.

Maine Audubon Findings and Recommendations

Maine's conservation organizations, landowners, and state agencies have been national leaders in protecting managed forest lands through working forest easements. While there is considerable variation in the terms of these easements, they all have the goal of keeping forest lands intact and prohibiting or significantly limiting non-forestry development, and most provide some level of environmental protection. These are all laudable goals and achievements.

Maine Audubon commissioned these two reports in order to study how well easements protect wildlife and fish habitat and overall biodiversity, for common species as well as those that are more specialized and rare. With that lens, we found many of the easements studied lack sufficient, specific restrictions and protections related to fish and wildlife habitat that can be readily monitored and enforced by the holder. Some of the easements go beyond the basics to include provisions

to safeguard certain wetlands, and streams, lakes and ponds, while others offer a degree of protection to rare and exemplary natural communities, rare plants and animals, and/or important fish and wildlife habitat. A few include provisions to maintain a certain level of standing wood and/or protect remnant older forests in discrete areas. Most of the easements studied require the landowner to develop a forest management plan that may offer additional protection beyond that provided by the easement itself, but often lacks effective oversight or control by the holder. The details and enforceability of these easements vary greatly, and the main objective of both Bryan's and Pidot's reports is to provide a set of recommendations for conservation easements that will result in more consistent protection of the full suite of ecological values well into the future.

Although coming at these issues from different backgrounds and perspectives, both Bryan and Pidot agree that improvements to working forest easements will be necessary in the future if they are to fully realize their goals of providing protection in perpetuity to wildlife and fish habitat and related conservation values. Drawing from these two reports, Maine Audubon finds the following recommendations to be especially important for enhanced conservation of wildlife and fish habitat and overall biodiversity, and encourages their inclusion in future managed forest easements wherever possible:

- **Recital and Purpose Clauses** should include strong language to protect habitat and biodiversity within the context of the landowner's continued forestry activities as restricted by the conservation easement.

- An independent **Ecological Assessment** prepared by a qualified ecologist should be completed before the easement is signed, and the assessment with management recommendations should be attached to the easement and used to inform and prepare the Ecological Management Plan and Forest Management Plan.

- An **Ecological Management Plan** (**EMP**) or similar plan should be required by the easement that includes descriptions and maps of the most important and sensitive species, habitats, and other ecological values identified during the ecological assessment, and include standards and restrictions that are readily monitored and enforced. The plan should be prepared by experts in forest ecology or related disciplines and mutually agreed to by both the landowner and holder prior to execution of the easement. The EMP should include clear and verifiable management standards and protections for rare, threatened, and endangered species; other important wildlife habitats; natural communities; aquatic habitats; and riparian habitats around lakes and ponds, rivers, streams, wetlands, and vernal pools. There should also be standards for timber harvesting, forest management trails and roads, watershed management, recreation trails, and invasive plants. Other standards may include late-successional forest management areas, forest habitat age class targets, designated ecological reserves, and protections of other specified ecological features.

- A **Forest Management Plan** (**FMP**) should be prepared by a licensed forester, preferably someone with expertise in wildlife and forest ecology, and the plan should be reviewed by the easement holder before any forestry activities take place. Preferably, the plan should be subject to the holder's approval to ensure the plan meets the goals and terms set forth in the easement and the ecological management plan. At a minimum, the easement should allow the easement holder sufficient time to provide recommended changes if the holder finds that the plan is inconsistent with the goals, purposes, and requirements of the easement and ecological management plan. However, if holder approval of the FMP is not required, it is all the more important that the easement include requirements for an ecological management plan that is mutually agreed to by both parties as described above. In cases where the size of the property or other factors make it impractical to prepare a separate ecological management plan, it is especially important that the holder should have approval oversight regarding at least the portions of the FMP that would otherwise go into an ecological management plan. In all cases, the FMP should include clearly specified performance measures for protection of important plant and animal habitats, as well as requirements for forest sustainability.

- A **Forest Operations Plan** should be developed and shared with the easement holder before operations begin, with time for the holder to review the plan, raise any concerns, and recommend changes to sections of the plan that are not consistent with the easement's terms and associated Ecological Management Plan and/or Forest Management Plan.

- **Specific, measurable standards and restrictions** to protect wildlife and fish habitat and biodiversity should be included in the easement itself when they are unlikely to change over time. Otherwise, such standards and restrictions should be included in the Ecological Management Plan and/or the Forest Management Plan, both of which should allow for periodic updates as needed.

- **Compliance**. Easements should allow the holder to seek unimpaired enforcement if the landowner fails to adopt and follow the requirements and restrictions of the easement or the Forest Management Plan, Ecological Management Plan, or other plan as called for by the easement. The holder should have explicit enforcement rights if the landowner fails to prepare or adhere to management plans required by the easement or otherwise violates or threatens to violate any of the terms of the easement.

- **Regular meetings and communications** between landowner and easement holder should be required in the easement, since these are vital to successfully achieve the conservation purposes of the easement, its standards and processes, as well as those of the management plans. This is especially important whenever there is a change in ownership or holder staffing.

- **Updates**. Newly discovered information concerning species, habitats, and related ecological conditions and needs should be incorporated into mutually agreed upon updates of the Ecological Management Plan at least every 10 years. Similarly, because forest conditions may change as a result of management or other factors, the Forest Management Plan should be updated at least every 10 years.

Please note these are merely summary recommendations. Please carefully review Bryan's and Pidot's reports, as they contain many more details in their findings and recommendations. Then consider how each recommendation could be helpful in negotiating, drafting, and monitoring conservation easements on managed forestlands in the future. We recognize it will not be practical to implement all of these recommendations in every future working forest easement, given different landowner and easement holder goals, ownership size, and the unique nature of each property. Nonetheless, these recommendations should be applied when reasonably practical, so that future working forest easements can better fulfill the goal of protecting habitat and biodiversity in perpetuity.

Why This Matters and Why Now

Working forest conservation easements are an important tool for keeping Maine forestland forested and for conserving habitat for wildlife and fish and overall biodiversity. The conservation values that Maine forests represent are at the core of the state's identity. Habitat conservation is especially important today, given the unprecedented and accelerating loss of biodiversity around the globe. A quarter of all species on earth are at risk of extinction in the near future. Nonetheless, despite all the pressures and stresses placed upon them, Maine's habitats remain a relatively bright spot for biodiversity, with our varied geography and climate gradients stretching from the coast to the mountains, and from southern Maine to the northern border. Within a relatively small geographic area, there is great biogeographic diversity, which translates to a broad diversity of plants, plant communities, animals, habitats, and ecosystems. Maine has the highest quantity and quality of wetlands in New England; the finest brook trout streams and ponds and landlocked and Atlantic salmon waters in the United States; the largest globally significant Important Bird Area in the Lower 48; and expansive forests that can provide a resilient and connected landscape for maintaining biodiversity into the future. Of increasing importance, our forests and wetlands also play an important role in storing carbon, offsetting the impacts of a warming world.

For all these reasons and more, Maine has both an opportunity and a responsibility for maintaining and/or enhancing these remarkable natural values.



However, the future of these lands and waters and their wildlife and fish habitats is at increasing risk. Working forest conservation easements have a vital role to play in keeping forestland forested, for all its economic, recreational, and ecological benefits. However, they can do much more for habitat conservation and biodiversity. We hope our intensive study of working forest easements will inspire greater attention and effort to improve this tool to enhance protection of wildlife and fish habitats and related conservation values.

With gratitude to the authors and to all those engaged in this important work,

Sally Stockwell, Director of Conservation
Maine Audubon

REPORT I

A CRITICAL ANALYSIS OF MAINE'S WORKING FOREST CONSERVATION EASEMENTS

Ideas for the Future to Better Protect Habitat and Related Conservation Values

By **Jeff Pidot**

But while the significance of working forest easements for land protection is clear, their significance for biodiversity protection is not. *If protecting the land from development automatically protects the plants and animals on it, then the easements … represent a milestone for northeastern conservation. But if … there are dangers to animals and plants that the easements do not cover, then we have at best gotten much less conservation than we had hoped for, and at worst wasted precious time and resources that could have been used elsewhere.*[1]

When a new conservation easement is announced, there is often a media and public celebration of the number of acres "permanently protected." But less public attention is paid to the degree to which the easement will durably safeguard its stated conservation values forever, as the easement appears to promise. Based upon a survey of an array of existing conservation easements covering Maine's diverse forestlands, this study attempts to assess the extent to which the terms of these easements have been written in a manner that will reliably fulfill these promises as they relate to protecting wildlife and fish habitat and related conservation values in perpetuity.[2] The aim of this retrospective is to scrutinize these easement terms, in order to develop recommendations for the future that might offer more robust and durable protection.

There is a common understanding of the basic premise of a typical conservation easement: a deed is conveyed by a landowner to a land trust or government agency (the "holder") by which the landowner promises that the current and all future owners will restrict uses of the land in perpetuity in order to protect significant conservation values. However, few realize the virtually infinite variability of conservation easements. Because they may be written to protect property in any way that the landowner and easement holder agree, conservation easements can provide every gradation from sweeping protection of the full array of the property's natural values to little meaningful protection at all. Conservation easements, and especially those covering large working forests, are often the product of negotiated and nuanced compromises, balancing land use restrictions desired by the easement holder against economic and other uses the landowner wishes to retain. The outcome of those negotiations determines the way in which that balance is struck and the degree to which the easement will in fact conserve wildlife and other natural values.

While federal law imposes certain requirements on conservation easement donations for which a tax deduction will be taken, many conservation easements, and particularly large working forest easements, are purchased for their full appraised value, and therefore are not subject to federal tax laws. At the state level, although Maine has in many respects the most rigorous conservation easement enabling statute in the nation,[3] its requirements deal with easement processes covering registration, amendment, termination, monitoring, and enforcement, and not with substantive restrictions set forth in each easement to protect conservation values.

As a variation on traditional conservation easements, working forest easements usually have these special attributes:

1 **They often cover relatively large parcels where a principal use has been and will remain commercial forestry, although some of these easements are relatively small and may allow agriculture and other uses.**

2 **They enable most of the easement lands to continue to be utilized for commercial forestry as restricted (to a greater or lesser extent) by the easement's terms in order to protect identified conservation values.**

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1 Jenkins, Jerry. 2008. *Conservation Easements and Biodiversity in the Northern Forest*. Open Space Institute and Wildlife Conservation Society. p.4.

2 Although easements often mention the protection of a number of important conservation values as their purpose, the focus of this study is on those values related to wildlife and fish populations, including their habitats, travel corridors and connectivity, overall biodiversity, and related water quality and associated conservation values.

3 M.R.S.A. §476 et seq.

3 **Although some easements are donated by conservation-minded landowners, most working forest easements are purchased for their appraised value, in some cases using many millions of dollars of public and/or private (albeit tax-subsidized) funds.**

4 **Because of their often relatively large size, easements can offer extraordinary opportunities for landscape-scale conservation, especially in protecting important habitats, wildlife travel corridors, connectivity, and biodiversity.**

5 **Many of these easements are negotiated down to the word by experts representing the parties involved, resulting in nuanced terms that, in some instances, may prove challenging to interpret, apply, and enforce over the indefinite future.**

6 **The variability, complexity, and scale of some of these easements place significant stewardship responsibilities on the easement holder, which must have the financial, technical, and legal resources necessary to undertake record-keeping, monitoring, communication, enforcement, and other administrative duties in perpetuity.**

Because of the complex and competing economic and ecological goals inherent in working forest easements, it can be challenging to devise easement terms that yield meaningful protections of wildlife and fish habitat and related conservation values, while at the same time allowing the landowner the freedom to derive economic value from timber harvesting and other forest land utilization. Adding to this challenge is the fact that, while easement terms may be relatively straightforward when designed to protect known populations of identified species, it is far more difficult to devise and apply restrictions that will secure habitat and other protections for species whose needs may be more dispersed, less understood, or even unknown. Adding still further to the challenge is the fact that working forests and their wildlife resources are dynamic, meaning that protection targets and strategies will necessarily change over time, especially as transformations accelerate due to climate change.

Over the relatively brief period of time (less than a quarter of a century represented in our survey) during which working forest easements have been utilized in Maine, different pairings of landowners and easement holders have settled upon a variety of approaches toward resolving these challenges. Even when a conservation easement is ostensibly between two private parties, it is important to bear in mind that the public also has a reasonable expectation that its substantial investment in helping to finance conservation easements (whether in direct funding for their purchase or tax subsidization of private donations) will realize their promise of yielding worthy conservation benefits in perpetuity.

It is timely to review the record of past working forest easements, as today's landowners are different from a quarter century ago. At least some forest landowners today are reportedly more open to easement terms that provide riparian protections, minimum stocking level requirements, specific sustainability standards, and other resource conservation standards. A critical retrospective of past easements with a view to devising improvements going forward may be helpful to those involved with such easements in the future. This effort is especially worthwhile in Maine, which is the nation's most forested state and has proven to be fertile ground for conservation easements. The public investment in working forest easements underscores the need for assuring in fact what they promise in theory. We especially need to understand and improve the protection that working forest easements afford habitat and related conservation values, now more than ever given the multiple threats wildlife and habitat are facing.

In providing this critical retrospective, it is important to recognize the significant contributions of those who have participated in efforts to date to use easement tools to protect important conservation values. The extent and depth of this work has been nothing less than astonishing, and nowhere more so than in Maine. However, the purpose of an honest and critical assessment of past working forest easements (including ones for which this author bears some responsibility) is to suggest areas where future easement terms can be fortified to more dependably fulfill their conservation promises in perpetuity.

COMMONALITIES, CONTRASTS, TRENDS AND TROUBLES

Based on research over a period from 2016 to 2023, this study examines a broad sampling of different approaches that have been taken to utilizing conservation easements to protect wildlife, fish, and related conservation resources in Maine's working forests. While our survey could not cover every conservation easement that might well qualify for study, it is intended to be reasonably inclusive in analyzing a wide array of working forest and similar conservation easements in Maine: from vast in scale (762,000 acres) to diminutive (13 acres); from the St. John Valley in Maine's far north to York County in the south; from large institutional easement holders to small community land trusts; from major forest landowners to small woodlot and even residential owners; from easements created at the beginning of this century to those of recent origin; and from easements having a strongly economic orientation to those bearing a compelling conservation purpose. Importantly, our survey includes easements ranging from those with a relatively hands-off approach to forestry operations to those imposing significant restraints and hands-on holder oversight to protect conservation values. For comparison, also included in our survey is a working forest easement form utilized in Vermont as well as a Maine easement establishing an ecological reserve.[4]

Our study focuses on the specific terms of each of the conservation easements surveyed, rather than the intentions and plans of the parties to the easement or their conduct in the relatively few years since the easement was created. As explained later in this report, it is only the language of the easement itself and its enforceable requirements that have legal significance or durability in the indefinite future. The good intentions of those involved in the easement's creation, and even the conduct of the parties to date, may have little significance on the easement's application and enforceability over the indefinite future when the current parties are long gone. Since conservation easements are in perpetuity, their true measure lies in the express terms that legally bind the landowner's future conduct, and there alone.

In all, these 24 conservation easements were examined for this study and there are lessons to be learned from each, listed alphabetically by holder in **Table 1.**

Despite efforts to be reasonably inclusive in our survey, the considerable differences among conservation easements make it infeasible to do a comprehensive examination of every variation, including ones that may well merit consideration. Also, it is noted that this study, which was supplemented over time as selected new easements were created, ended in early 2023, and therefore does not consider easements created since that time. Even so, it is believed that the survey includes a sufficiently broad and representative array of easements upon which to discern commonalities, contrasts, trends and troubles, and draw some useful conclusions and ideas for the future.

What do all these easements have in common? Each of them, in its own particularized way and to a greater or lesser extent, is designed, or at least intended, to impose restraints on the landowner's future uses of the forest in order to protect identified conservation values. While all of the easements studied provide significant restraints on future development uses, as will be described in detail, they are especially varied in the degree of restrictions on forest management activities in order to protect wildlife and fish habitat and related conservation values.

4 While not covering a working forest since it does not allow meaningful, economic utilization of the resource, the 2016 Amazon-Musquash Reserve easement (held by Forest Society of Maine) is included in this study as a model for establishing an ecological reserve within a larger working forest covered by a more traditional easement.

Table 1: Details on Easements Used in This Study

EASEMENT HOLDER	CONSERVATION EASEMENT NAME	GRANTOR	YEAR	ACREAGE	LOCATION
Brunswick-Topsham Land Trust (State as Third Party)	Chase Reserve	Henshaw	2011	194	Brunswick, Cumberland County
Chebeague and Cumberland Land Trust	Rines Forest	Town of Cumberland	2005	216	Cumberland, Cumberland County
Chebeague and Cumberland Land Trust	Seekins	Seekins, McManus & Cameron	2010	45	Cumberland, Cumberland County
Forest Society of Maine[5]	Amazon-Musquash Reserve	Downeast Lakes, Land Trust	2016	7,100	Unorganized Township, Washington County
Forest Society of Maine	Chandler Hill	Shippee	2017	511	Weld & Perkins Plantation, Franklin County
Forest Society of Maine	Coburn Crosby Pond	Van Vleck Timberlands	2022	6,868	Coburn Gore Township, Franklin County
Forest Society of Maine	Fish River	Allagash Timberlands (Irving Woodlands)	2021	16,760	Various Townships, Aroostook County
Forest Society of Maine (State as Third Party)	Plum Creek	Plum Creek ME Timberlands, LLC	2009	363,000	Various Unorganized Townships, Piscataquis County
Forest Society of Maine	Timberdoodle Hill	Coulter	2013	142	Eddington, Penobscot County
Forest Society of Maine	Walters	Walters	2007	200	Eliotsville Plantation, Piscataquis County
Forest Society of Maine	West Branch	Merriweather, LLC	2003	282,000	Various Unorganized Townships, Somerset County
Great Works Regional Land Trust	Hawes	Hawes Family Revocable Trust	2013	13	Eliot, York County
Kennebec Land Trust	Vienna Woods	Floyd	2015	71	Vienna, Kennbec County
Maine Coast Heritage Trust	Turner Forest	Rutine, LLC	2015	110	Castine, Penobscot County
New England Forestry Foundation	Farm Cove Community Forest (Fourth Machias Lake)	Downeast Lakes Land Trust	2004	8,200	Various unorganized townships, Washington County
New England Forestry Foundation	Pingree	Six Rivers LP, Pingree Assocs.	2001	762,000	Various unorganized townships, multiple counties
New England Forestry Foundation	Sunrise	Typhoon, LLC	2015	312,000	Various unorganized townships, Washington & Penobscot Counties
Small Woodlot Owners Asn[6]	SWOAM model easement	Various	N/A	N/A	Various Maine municipalities
State of Maine (originally TNC)	Katahdin Forest	Katahdin Forest, LLC	2004 *(re-stated 2006)*	195,000	Various unorganized townships, Piscataquis County
State of Maine	Nicatous Lake	Robbins Lumber, Inc.	2000	22,120	Various unorganized townships, Hancock County
State of Maine	Wabassus Lake	Downeast Lakes Land Trust	2009	6,628	Various unorganized townships, Washington County
State of Maine	West Grand Lake	GLS Woodlands, LLC	2012	21,870	Various unorganized townships, Washington County
The Nature Conservancy	Stetson	Stetson Timberlands, Inc.	2010	7,300	Various unorganized townships, Somerset County
Vermont Land Trust	Atlas	Various	2017	Template	Vermont

5 See Footnote 4

6 Since this easement form was reviewed for this study, SWOAM has been reconstituted as Maine Woodland Owners. While it is not known the extent to which the organization continues to use this form, it remains a useful yardstick for purposes of this study.

OBSERVATIONS

Drawing from focused analyses of the easements included in the survey,[7] here are some broad observations about commonalities, contrasts, trends, and troubles:

1. Easement Size. One way to categorize the approaches taken in these easements is to consider whether there are patterns according to the size of the parcel subject to the easement. Smaller easements (covering a handful up to hundreds of acres) are often gifted by their landowners, while larger ones (covering thousands up to three quarters of a million acres) are nearly always purchased with public funds and/or charitable contributions donated to land trusts. Judging from our survey sample, smaller, donated easements often have relatively greater and more straightforward protections for wildlife and other conservation values (perhaps reflecting the conservation-minded intent of their individual landowners); whereas purchased, large-scale conservation easements tend to be more complex and legally nuanced, and may be less conservation-oriented (perhaps reflecting the economic orientation of their typically business landowners). As with many of the factors considered here, the Amazon-Musquash Reserve (2016) easement stands apart among those in our survey,[8] as being a large ecological reserve easement that precludes all meaningful economic utilization of the forest resource; but this covers a discrete area within the larger working forest encompassed by the much less restrictive West Grand Lake easement (2012).

2. Easement Vintage. Since the easements in our study date from 2000 (early in the deployment of working forest easements) up to the relatively recent past, it is useful to look for trends over this period. While more recent easements in our study are generally more sophisticated and nuanced, it was challenging to discern a trend for easements to become more protective of conservation values in general, and wildlife and fisheries resources in particular. Looking at the largest working forest easements, following Pingree in 2001 (a relatively unrestricted working forest easement), there emerged what appeared to be a discernible movement to amplify the degree of protection of conservation values (exemplified by the Katahdin Forest easement in 2006), followed by a gradual pulling back to a more hands-off approach (i.e., the West Grand Lake easement in 2012, among others), followed by more recent efforts to use a layered approach of setting aside protective ecological reserves within a larger, less protected working forest.

It is interesting to compare the relatively restrictive approach taken in Vermont's Atlas easement model (2017) with the nearly opposite approach taken by The Nature Conservancy in most of the forest lands encompassed by the Stetson easement (2010) (though discrete areas are subject to much greater levels of restriction). The most recent easement in our study (Coburn - 2022) is illustrative of how a leading holder of large working forest easements (the Forest Society of Maine) and its landowner partners have settled on a nuanced approach in attempting to protect various conservation values. According to this holder, its approach has increasingly included the creation of ecological reserves (such as its Amazon-Musquash easement) within larger working forest easements.
With these limited exceptions, few trends could be discerned by vintage among the easements studied, with the different approaches taken seeming to be more dependent on the philosophy of the holder, the economic and conservation interests of the landowner, funding sources, evolving IRS requirements (applicable to donated easements resulting in tax deductions), as well as sometimes other extraneous factors such as the forms, skills, and perspectives of the lawyers preparing and negotiating each easement. See the discussion of these points later in this report.

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7 Each of the conservation easements in this study was analyzed with a particular focus on impacts on wildlife and habitat among other related conservation values, and covering the following elements: easement recitals and purpose clauses; allowed and prohibited development and related land uses; subdivision; public access; and, particularly, restrictions on forest management activities.

8 While the Amazon-Musquash easement is the leading one in our study illustrating this approach, its holder (Forest Society of Maine) reports that it holds other easements following the same approach of an ecological reserve within a larger working forest easement.

3. The Easement Holder. Holders of working forest conservation easements are divisible into two groups: government entities (in the case of this study, the State of Maine); and private land trusts. The latter category is roughly divisible again into two: major land trusts operating on a statewide or other broad geographic basis (i.e., The Nature Conservancy, New England Forestry Foundation, Forest Society of Maine, Maine Coast Heritage Trust); and smaller, community-based land trusts (i.e., Brunswick-Topsham Land Trust, Chebeague and Cumberland Land Trust, Kennebec Land Trust). Some land trusts have a particular specialty and orientation dealing with working forest landowners (i.e., Forest Society of Maine, New England Forestry Foundation, Small Woodland Owners Association[9]).

The smaller easements of community-based land trusts sometimes combine agricultural as well as working forest components (and, infrequently, even residential uses). However, the size and level of sophistication of the easement holder do not appear to correlate well to the degree to which the terms of its conservation easements assure high levels of legal protection to wildlife and other conservation values. Not infrequently, smaller community-based land trusts working with small landowners design easements with a greater degree of protection of conservation values. A representative of one large conservation-minded holder (The Nature Conservancy) reported that the organization made a decision to target its financial and stewardship resources to conserving wildlife and other conservation values only in selected areas of its easements that have extraordinarily high values, while essentially leaving forestry operations relatively unrestrained (i.e., Stetson (2010). All of these different approaches are further discussed below.

In sum, the relative size and sophistication of holders may correlate to the degree of nuance and complexity of their easements, but not to the degree to which easement terms are written to permanently and legally assure protection of habitat and related conservation values.

4. The Landowner. While all conservation easements must take into account the interests of the land trust or government holder, as well as those of the funding sources and federal tax laws (in the case of donated easements), and infrequently a regulatory agency, certainly the landowner, as easement grantor, has a controlling role in determining what rights it is willing to give up and what restrictions and other easement terms it is willing to live with. Because conservation easements are always voluntary transactions, nothing can happen without the landowner's agreement.

In the context of a working forest easement, the landowner will have at least some interest in timber harvesting and related forest management, but the depth of that interest varies considerably among landowners embracing different levels of competing economic and conservation perspectives. Some landowners and their easement holders believe that it is sufficient conservation to prohibit residential subdivision and development in the easement area, with the understanding that that measure alone will do much to prevent destructive forest fragmentation and resource conversion in the future. On the other hand, as noted above, donated easements, typically involving smaller ownerships held by conservation-minded landowners, are frequently more focused on protecting habitat and other conservation values than larger easements purchased from business owners for their full fair market value.

However, even business landowners primarily motivated by income production from forestry operations may also have an interest in conservation values at least to some degree; and even an exclusively business-oriented landowner may respond to the monetary compensation offered for an easement having relatively robust restrictions. If the easement holder wants a higher degree of protection than a business landowner may initially be willing to offer, that can sometimes translate into a higher price that has to be offered to the landowner in order to gain a higher degree of protection. Simply put, even a landowner with a single-minded interest in maximizing economic return from its property can be attracted to a highly conservation-oriented easement, for the right price.

9 See Footnote 6

5. Recitals and Purpose Clauses. While they may not be directly enforceable, these introductory provisions in a conservation easement can have great significance when later interpreting, applying, and enforcing the easement's substantive restrictions and requirements. Among other things, the easement's recitals and purpose clauses and recitals should be considered by the holder in reviewing a landowner request where the easement requires holder approval (i.e., where the easement makes the landowner's forest management plan subject to holder approval), as well as by a court in an action seeking to enforce the easement.

Recitals and purpose clauses of the easements surveyed in this study manifest a high degree of variation in emphasis of, and sensitivity to, conservation values in general and wildlife and fish resources in particular. Among these easements, there are noteworthy differences in nuance, sometimes based upon meticulous choices of words suggesting priorities among competing economic and conservation interests (compare Atlas (2017) with West Grand Lake (2012)). Some of these easements contain skeletal provisions in this regard (i.e., Stetson (2010), Plum Creek (2009)); some have as their primary focus the protection and utilization of the forest for its economic benefits while recognizing resource protection as a perhaps secondary value (i.e., Pingree (2001), West Branch (2003)); others focus on conservation and resource protection as their primary or even exclusive purpose (i.e., Chase Reserve (2011), Seekins (2010), Chandler Hill (2017), Amazon-Musquash Reserve (2016)); and some attempt to closely balance these two competing objectives (i.e., Katahdin Forest (2006), Sunrise (2005), Coburn (2022)).

Only two easements in this study lacked any recitals or purpose clauses, indicating an intention to protect wildlife values. First, the Nicatous Lake easement (2000) has no recitals and only a skeletal purpose clause, perhaps due to the fact that it is the earliest easement reviewed; yet this easement goes on to contain relatively detailed restrictions on forest management. Second, according to its large land trust holder, the Stetson easement (2010) is intentionally barebones except as to selected, extraordinarily high value lands. By contrast, easements having relatively robust recitals and/or purpose clauses include those for the Chase Reserve (2011), Walters (2007), Wabassus Lake (2009), Katahdin Forest (2006), Chandler Hill (2017), Amazon-Musquash Reserve (2016), and Atlas (2017) easements, although the last of these may suffer from a purpose clause that risks being overdrawn in length and complexity.

Amidst this diversity of approaches, it is noteworthy that several of the largest easements covering major forest ownerships (i.e., Pingree (2001), West Branch (2003), Sunrise (2005), West Grand Lake (2012)) have recitals and purpose clauses that either emphasize economic benefits of working forests or appear to recite those benefits as primary with conservation values as secondary. While virtually all conservation easements identify rights to utilize the land retained by the landowner, this focus on economic utilization as a primary or significant purpose seems anomalous and perhaps perverse in what purports to be a conservation easement. By contrast, easements covering some of the smaller ownerships, especially those granted by individuals, are far more focused on wildlife and other conservation values in their recitals and purpose clauses (i.e., Chase Reserve (2011), Seekins (2010), Timberdoodle Hill (2013), Turner Forest (2015), Walters (2007), Vienna Woods (2015)).

6. Types of Development Permitted. By contrast to their variations in purpose clauses (see discussion above) and restrictions on forestry uses (see discussion below), most of the working forest easements surveyed have much in common when it comes to restrictions on non-forestry development. With a few important exceptions noted below, all the easements examined keep faith with the most fundamental point of a working forest easement by substantially prohibiting building and other structural development except in connection with forestry operations and low-impact recreation. The substantial majority of working forest easements prohibit residential, industrial, and commercial development. Larger working forest easements often allow mineral extraction for sand and gravel to be used on the easement property and nearby lands of the grantor for forest management roads and related purposes. Likewise, with few exceptions, the easements studied generally prohibit waste disposal except for vegetative wastes generated on the property (typically, slash left over from timber harvesting). A few of the smaller easements embrace both working forest and working agricultural operations.

That said, some of the easements studied contain more than the typical allowances for forestry-related and low impact recreational development. The Plum Creek easement (2009), which was fashioned in concert with a regulatory agency as a quid pro quo for a substantial development rezoning, allows (subject to limitations) septic fields, rental cabins, backcountry huts, cell towers, wind power facilities, as well as roads, utility lines, and water extraction facilities to serve the neighboring communities. In another regulatory quid pro quo transaction, the Fish River easement (2021) provides for limited types of non-forestry development. The West Branch easement (2003) allows a discrete area to be used as the site of a future wood processing plant. The Sunrise easement (2005) allows roads and utilities to serve permitted development in the area. A few smaller easements permit driveways, utility lines, or other accessory development serving the grantor's adjacent residence (i.e., Timberdoodle Hill (2013), Walters (2007)). One easement even allows future removal of a residential site from the easement area (Vienna Woods (2015)). The smallest easement in our study (Hawes (2013)) permits two new residences, a degree of development in the context of such a modest property (13 acres) that may be viewed as jeopardizing the integrity of the easement for meaningful forestry as well as conservation purposes.

Of potentially greater impact, a few of the largest working forest easements in the study allow, with holder approval, undefined types of development otherwise generally prohibited by the easement (i.e., West Branch (2003), Pingree (2001), Sunrise (2005), Katahdin Forest (2006), SWOAM). Depending on how these terms are applied in the future, they can undermine easement integrity by allowing any kind of development upon mere holder approval, thereby potentially enabling de facto easement amendment without undergoing the rigorous amendment process established by Maine law.[10] In a few of these cases, the easement terms simultaneously impose obstacles to meaningful opportunities for the holder to fully consider the landowner's proposal and take action to disapprove. For instance, both Pingree (2001) and Sunrise (2005) easements require a response from the holder within 15 days of the landowner's request, failing which the request is deemed approved. Such provisions can have potentially serious consequences for easement integrity, simply because the holder is unable to undertake a full assessment of the request in the very limited time allowed.

7. Subdivision. As with most conservation easements, working forest easements (including all those in our survey) commonly contain limitations on the degree to which the property may be divided into separate ownerships in the future, with standard allowances for conveyances to conservation organizations, with appropriate safeguards, to resolve boundary line disputes. These restrictions are important because future divisions of the property can create ownership fragmentation that is problematical for both habitat and forest management, as well as significantly increasing the holder's stewardship workload. In order to offset these additional stewardship costs, a few easements in the study require landowner payment of compensation to the holder each time the property is divided (West Grand Lake (2012), Coburn (2022), Fish River (2021)), but such a provision is not commonplace.

Easements on smaller parcels often completely prohibit future property divisions (i.e., Chase Reserve (2011), Timberdoodle Hill (2013), Hawes (2013), Turner Forest (2015), SWOAM, Chandler Hill (2017)), while those covering larger ownerships typically allow a limited number of future divisions (i.e., Wabassus Lake (2009), West Grand Lake (2012), Plum Creek (2009), West Branch (2003), Nicatous Lake (2000), Katahdin Forest (2006), Coburn (2022), Fish River (2021)). A few easements allow removal of relatively minor portions of the property for public or specified private purposes (i.e., Plum Creek (2009), West Branch (2003), Vienna Woods (2015)).

The Pingree easement (2001) prohibits creation of lots smaller than 1000 acres, a restriction that might seem reasonable if applied to an easement of a few thousand acres but could result in significant fragmentation and overwhelming stewardship burdens for the holder if large numbers of lots are created over time on the more than 750,000

10 In order to proceed with any easement amendment that materially detracts from the conservation values of a conservation easement, court approval is required in an action in which the Maine Attorney General is a party. 33 M.R.S.A. §477-A(2)(B)

acres covered by that easement. The Atlas easement (2017) in Vermont stands out (at least by comparison to the Maine easements studied) by allowing any number of future divisions with holder approval. Over time, this also could result in a potentially large number of divisions, at the discretion of the holder. By contrast, among the larger conservation easements studied, only the Amazon-Musquash Reserve (2016) easement permits no divisions at all.

8. Public Access. Responsible public access rights can be an important (and often much promoted) component in a conservation easement to allow the public the opportunity to visit the property to enjoy its natural attributes, usually on foot. Some of the easements studied explicitly allow public access to the easement property as a right, usually for hiking and other forms of low-impact recreation and nature appreciation.

Of the 24 easements in our survey, nearly half expressly provide for various levels of public access rights (Chase Reserve (2011), Rines Forest (2005), Seekins (2010), Wabassus Lake (2009), West Grand Lake (2012), Plum Creek (2009), Vienna Woods (2015), Turner Forest (2015), Katahdin Forest (2006), Fish River (2021) and Amazon-Musquash Reserve (2016)). Three more easements appear to do so as a practical matter even while their nuanced legalese is equivocal as to whether public access is a right (Nicatous Lake (2000), Atlas (2017), Farm Cove Community Forest (2004)). Most easements that allow public access impose restrictions, and/or give the landowner the right to close off public access, in order to protect conservation values, public safety and the landowner's exercise of its forest management and other reserved rights.

The remaining easements studied do not provide any public access rights (Timberdoodle Hill (2013), Walters (2007), Pingree (2001), Hawes (2013), Sunrise (2005), SWOAM, Chandler Hill (2017), Coburn (2022), and Stetson (2010)). The West Branch easement (2003) likewise excludes public access rights, but these were sold to the State by a separate conveyance. The Pingree easement, while disclaiming public access rights, expresses the landowner's intention to continue to allow traditional public uses, but such words have no legal significance.

9. Limitations on Forestry Uses. Turning now to the main concern of this study, each easement in the survey was examined to determine whether and how it imposes restrictions on timber harvesting and other forestry-related uses in order to protect wildlife and fish habitat and related conservation values. Each easement provides its own unique characteristics, deriving from the respective interests and skills of the landowner, holder, funding source(s), and their associated lawyers and other participants, as well as the contextual settings attending each easement. Despite all these variables, some patterns can be discerned.

Working forest easements typically utilize one or both of two fundamental structures for regulating forest management activities: (a) Reliance on a Forest Management Plan (FMP), that is, a requirement that the landowner develop and adhere to a FMP (and/or a resource or similar plan) meeting certain specifications and broad objectives; and (b) Reliance on forest management restrictions stated in the easement, that is, specific, enforceable restrictions as stated in the easement itself concerning timber harvesting, road building, and other forest management activities.

As to the first structure, of the easements surveyed, all but two (Turner (2015) and Amazon Musquash Reserve (2016)) contain any provision contemplating a FMP or its equivalent.[11] As to the second structure, more than half of the easements studied, including several that require a FMP, also include at least some restrictions on forestry operations, but in most cases these are very limited in application and provide the holder with only a handful of specific restrictions to enforce in the future.

11 Because it does not allow any commercial forestry operations, the Amazon-Musquash Reserve easement does not require a forest management plan but it does require both management and activity plans for the various kinds of land uses permitted.

Table 2.a: Forest Management Plan Required

EASEMENT	FOREST MANAGMENT GOALS
Chase Reserve 2011	Protect fish, wildlife resources; maintain or enhance wildlife habitat.
Plum Creek 2009	Protect conservation values while allowing commercial forestry, including diverse and extensive wildlife habitats.
Hawes 2013	Protect vernal pools, wetlands, unique areas, and habitats of rare species.
SWOAM	Protect rare or fragile areas and conserve viable poplulations of native species.
Nicatous Lake 2000	Requires a management plan with specific forest management restrictions and a holder-approved natural resources plan.
Atlas 2017	Protect aquatic and wetland habitats and maintain organic matter and habitat complexity.
Seekins 2010	Preserve forest diversity important to wildlife (forester or holder approval required).
Walters 2007	Prioritize non-timber values in forest management decisions, protect rare species and unique natural areas, and maintain mature forest appearance (Holder must receive operational plan).
Farm Cove 2004	Enhance protection of adjacent ecological reserves and maintain biologically diverse forests (Third-party certification required).
Wabassus Lake 2009	Maintain and protect habitat for native flora and fauna and unique natural areas. (Certification agent approval required).

Table 2.b: Forest Management Plan Not Required

EASEMENT	FOREST MANAGMENT GOALS
Rines Forest 2005	Protect high-value plant and animal habitat.
Chandler Hill 2017	Minimize adverse impacts on conservation values, including conservation of diverse wildlife habitats and ecological processes, retain or create desirable wildlife habitats.
Coburn 2022	Conserve native species, minimize adverse effects on conservation values, protect site-specific habitats of rare, endangered, or threatened species, and retain or create desirable wildlife habitats.
Fish River 2021	Protect conservation values while allowing commercial forestry, conserve native species, and protect rare or fragile habitats.
Timbetrdoodle Hill 2013	Conserve native species, retain or create desirable wildlife habitats.
West Branch 2003	Protect endangered species, manage significant wildlife habitats, and conserve biological diversity.
Vienna Woods 2015	Protect significant widlife habitat, including rare and endangered species and unique natural areas.
Turner 2015	Follow habitat management guidelines and maintain the forested character of the area. Holder may require Forest Management Plan if non-compliance is detected.
Pingree 2001	Maintain wildlife habitat while supporting economical forest product yield.
Sunrise 2005	Protect site-specific habitats of endangered or threatened species and comply with management standards.
Katahdin Forest 2006	Maintain a healthy and diverse forest, protect water quality, wetlands, riparian zones, and wildlife habitats.
West Grand Lake 2012	Maintain and protect native species habitats, including deer wintering areas and brook trout streams.
Stetson 2010	Protect unique natural areas and conserve native species.
Amazon-Musquash 2016	Allow natural ecological processes to proceed with minimal interference to enhance conservation values. No commercial forestry permitted.

The utilization of each of these two approaches is considered in detail below.

A. Reliance on a Forest Management Plan

This approach requires the landowner to develop and follow a forest management (or similar) plan (FMP) that will establish measures to meet the easement's habitat and other broad conservation goals. This methodology has become the dominant paradigm for working forest easements in Maine and is utilized in the large majority of the easements studied. Its popularity is based on the flexibility given to the landowner in deciding how to pursue its forest management objectives, while at the same time recognizing that forests are dynamic and that specific forestry restrictions that make sense today may change in the future. Using this approach, many of the easements studied impose technical and procedural requirements regarding the contents of the FMP, but only generalized goals for the protection of wildlife and other conservation values (with some easements doing a more meticulous job of this than others, as detailed below).

The terms used to describe wildlife and related conservation objectives, which are to guide the landowner's development of its FMP and therefore its forestry operations, vary considerably among the easements studied but are mostly general and/or aspirational statements that require implementation in the FMP. Tables 2.a and 2.b show some of the wildlife-related objectives stated in each easement, as well as an indication of whether the easement requires holder approval of the FMP. Additional information and specific language noted in each easement can be found in Appendix A.

More detailed selected language from each of the easements is included in Appendix A, which is illustrative of wildlife-related objectives for forest management under each easement or FMP. The other conservation-related terms in most of these easements are similarly stated in largely broad and sometimes aspirational terms. In some important cases, even these general objectives are explicitly constrained "to the extent reasonably practicable." Since many of these broad objectives might well be challenging to directly enforce, implementation of them must rely to a significant degree on the specific forestry restrictions set forth in the landowner's FMP. In these cases, some degree of holder oversight of the FMP, such as a requirement of its review and approval of its conservation-related restrictions, in order to determine that the stated conservation goals are meaningfully implemented in the plan before operations occur on the ground, would seem necessary to the long term effectiveness of the scheme and to achieve verifiable compliance.

Presumably for this reason, the terms of a few of the easements studied (as indicated in the list above) call for the landowner's FMP to be subject to the holder's review and approval (i.e., Chase Reserve (2011), Hawes (2013), Plum Creek (2009), SWOAM, Atlas (2017)). In these cases, holder's review and approval would primarily focus on an assessment of whether the FMP's forestry restrictions will adequately protect the easement's stated conservation values. The Walters easement (2007) may be applied to accomplish the same end by allowing the holder to stop forestry operations from proceeding if it believes they will result in non-compliance.

A smaller easement held by a community land trust, the Chase Reserve easement (2011) is worthy of mention here. In addition to requiring holder approval of the landowner's forest management plan, this easement enables the holder to prepare, in consultation with the landowner, an Ecological Management Plan for designated, high conservation-value portions of the easement property, reversing the usual roles of the two parties to the easement. Provisions like this may be useful in working forest easements in the future, empowering the holder, as an organization focused on land conservation, to play a leading role in developing management plans to protect wildlife and fish habitat and other ecological resources within the working forest.

However, for most of the easements studied, holder approval is not required of the FMP. Indeed, with the exceptions of Plum Creek (2009) (negotiated by a regulatory agency as a quid pro quo for a development rezoning) and Atlas (2017) (for use in Vermont), none of the larger working forest easements in this study require holder approval of the landowner's FMP. Some of these large easements enable certification of the plan by an approved

third party to determine easement compliance, in a few cases presumptively and in others with finality (i.e., West Branch (2003), Sunrise (2005), Katahdin Forest (2006), Wabassus Lake (2009), West Grand Lake (2012)). The Farm Cove Community Forest (2004), Chase Reserve (2011) and Seekins (2010) easements require holder approval or certification by a third party. However, where the easement provides that the certification agent's approval is dispositive, one should question whether conservation easements should ever delegate to a third party ultimate decisions concerning easement interpretation and compliance, matters that are the most fundamental responsibilities of the holder.

Several of the easements studied, while not allowing holder approval or control of the landowner's FMP, nonetheless do enable the holder to review and comment on the plan, although in a few cases within unrealistic time constraints.

Where holder review is permitted, some of the larger easements require the holder to maintain confidentiality as to the contents of the FMP (i.e., Pingree (2001), West Branch (2003), Sunrise (2005), Katahdin Forest (2006)). Landowners may understandably desire confidentiality of their FMPs to the extent they reveal proprietary business information. However, this legitimate business concern does not extend to those portions of the plan that contain measures to be undertaken to protect the property's conservation values, particularly those related to wildlife and fish which are resources held in the public trust. Moreover, where the easement relies on the FMP for much or all of the measures that will protect such conservation values, maintaining confidentiality prevents review by outside parties and the public, which is often financing the easement's acquisition and has its own proprietary interest in wildlife and fish resources. The result of this kind of secrecy, is that it undermines landowner and holder accountability on some of the key protections that are the easement's purpose.[12]

When the holder is able to review the landowner's FMP and reports legitimate concerns with it, most of the easements studied do not obligate the landowner to make changes.[13] Some of the larger easements contain provisions that seem to actually prevent the holder from taking enforcement action until after forestry operations have commenced on the ground. Such a provision has been explained as determining easement compliance based upon the landowner's actions on the ground rather than the words of its FMP. However, in these cases, the holder's lack of ability to have meaningful control over the FMP's measures is compounded by having to await potentially destructive operations on the ground before seeking enforcement. Delaying that reckoning until after forestry operations have begun, based upon a plan that holder found to be defective, seems to unnecessarily undermine easement efficacy. One might say that dealing with problems evidenced by the FMP, including by seeking enforcement before destructive actions occur on the ground, is exactly what the easement is there to do.

The upshot of these interwoven terms can be seen as two-fold: first, under most of the easements surveyed, the landowner's FMP is the primary mechanism to set out specific measures to protect many of the easement's wildlife and related conservation values; yet, second, if the easement holder has no oversight of these measures in the FMP, it may be left with few, specific restrictions that it can reliably enforce if the landowner is not cooperative. This begs the question: what legally enforceable protections of wildlife, fish, and related conservation values do such easements assure for the perpetual future? This question is only superficially answered by examining the conduct of the original easement grantor during the relatively brief period since the easement was created.[14] The current landowner's

12 On this point, the recommendations below suggest a supervisory role for holder in preparation and compliance with a separate ecological or similar management plan used for purposes of describing protective measures without disclosing proprietary information that might be found in the landowner's FMP.

13 Representatives of a large easement holder, Forest Society of Maine, report that to date, informal communications and ongoing cooperation with conservation easement landowners have proved successful in protecting conservation values as their easements contemplate. This is much to the credit of those involved in these efforts. However, the essential purpose of a conservation easement is to effectively deal with eventualities where the landowner is not cooperative and conservation values may be jeopardized, as is likely at some point in the indefinite future of a perpetual conservation easement. That is the issue dealt with here.

14 An evaluation of landowner activities to date while operating under these easements may be of value for other purposes, but it is not within the purview of this critical examination of the requirements of the easements themselves and their potential consequences over the long-term future.

conduct to date, possibly as a matter of good will, does not determine the future should later owners decide to do only that which the easement terms legally compel.

It is reasonable to be cautious in predicting outcomes over the indefinite future of easements that rely upon the measures of the landowner's FMP to protect conservation values when coupled with a lack of effective holder control over those measures.

B. Reliance on Forest Management Restrictions Stated in the Easement

As described above, most of the easements studied rely heavily on the landowner's forest management plan to provide the guts of forestry measures that will implement the easement's broadly stated goals to protect wildlife and other conservation values. Many easements directly impose some level (albeit often a modest one) of conservation-related restrictions within the body of the easement itself. If deployed with sufficient care and scope, this method can be effective in providing clearly enforceable requirements for forestry operations to protect ecological resources. Of course, to the extent the easement is specific about how forestry operations will be undertaken to protect conservation values, it creates relative certainty for both landowner and holder in planning and undertaking operations and in resolving future disputes.

Given the relative straightforwardness of this approach, one may wonder why it is little utilized as the primary means by which conservation values are protected in many working forest easements. One answer is that providing a litany of restrictions in the easement itself doesn't allow the kind of management flexibility that landowners desire. Easement holders too may prefer a less invasive approach when it comes to monitoring the landowner's forestry operations, except in highly selected areas having extraordinary natural values. Importantly, the management plan approach described above (avoiding great specificity in the easement itself) also offers adaptability to future ecological changes, but this requires an active and continuing involvement by the holder in overseeing the conservation measures in the landowner's plan. For these and other reasons, the working forest easements studied generally do not contain comprehensive restrictions protecting wildlife habitat and other ecological values across the easement property. The result, of course, places an even greater, ongoing responsibility for carefully setting out these protections in the landowner's FMP with the participation or at least concurrence of the holder.

Let's look at some illustrations of the approach of setting out restrictions directly in the easement itself. The earliest easement in our study (Nicatous Lake (2000)) stands out as imposing such restrictions within the easement in a relatively comprehensive way. While this easement also requires the landowner to develop an FMP (not subject to holder approval), it establishes specific prescriptions for different levels of protection and management in each of four land classification areas, depending upon (among other things) the ecological and visual sensitivity of the land involved. This easement establishes specific forestry restrictions for bald eagle management areas, deer yards, rare forest communities, visually sensitive areas, and lakeshore areas, and attaches as part of the easement a Natural Resources Management Plan that the holder has approved. The easement contemplates that this plan will change over time, but only with holder's approval. The detailed Nicatous Lake approach is not seen again among any of the later easements studied, perhaps because of its perceived inflexibility and high transaction and monitoring costs.

While it doesn't have the same level of restrictions as the Nicatous Lake easement, the Atlas easement (2017) in Vermont accomplishes a relatively high degree of protection and oversight by setting specific restrictions on forestry operations around water bodies and in a number of special ecological protection zones, together with a requirement of holder approval of the landowner's management plans.

A number of the other easements studied take the direct approach of setting forestry standards but only in discrete (usually relatively small) areas identified as having extraordinary natural values. Perhaps the starkest example of this approach is the Pingree easement (2001), which contains no requirements whatsoever for forestry operations within the vast majority of its enormous land base of more than three quarters of a million acres, but

sets aside a significant, no-cut zone within a corridor along the St. John River, where The Nature Conservancy (TNC) (not the easement holder) paid separately for and can enforce those restrictions. Similarly, special protection standards are provided in the St. John corridor by TNC's otherwise mostly unrestricted Stetson easement (2010).

The surveyed easements shown in **Table 3** directly contain some level of forestry restrictions.

As noted in the list below, some of the easements studied contain references to the landowner following best management practices. This is a term that refers to a list of recommendations adopted by the Maine Forest Service primarily to protect water quality. While these recommendations may be of considerable value for forest land managers, they are framed as guidelines rather than requirements, and can be changed or even abandoned altogether over time. Consequently, in the absence of being incorporated with enforceable specificity, it is

Table 3: Easements with Forestry Restrictions

EASEMENT	RESTRICTION(S)
Amazon-Musquash 2016	Ecological reserve prohibiting commercial forestry, within a much larger area encompassed by the West Grand Lake easement (2012) that has few restrictions.
Atlas 2017	Surface Water Protection Zones; creates options for designating Special Ecological Protection Zones and Vernal Pool Ecological Protection Zones; forest management roads, bridges, and culverts must maintain aquatic connectivity; note: holder must approve forest management plan.
Chandler Hill 2017	Minimum stocking of 17.5 cords per acre; small reserve set aside where no timber harvesting is permitted.
Chase Reserve 2011	Ecological protection area (largely near waterfront), where no timber harvesting is allowed and holder will be responsible for development of a conservation management plan; elsewhere, timber harvesting must follow best management practices.
Coburn 2022	Incorporation of best management practices; some seasonal and other harvesting restrictions to protect nesting loons on two ponds; a reserve of 14% of the easement area set aside where no timber harvesting is permitted.
Farm Cove Community Forest 2004	Special management area to provide for late successional forest; forestry standards around certain lakeshores to protect loons.
Fish River 2021	Set backs and a few other forestry restrictions near water bodies.
Pingree 2001	No-cut area in corridor along St. John River (*see discussion above*).
Nicatous Lake 2000	Detailed management prescriptions in four classification areas; includes Natural Resources Management Plan as easement attachment; special restrictions for sensitive areas (*see discussion above*).
Seekins 2010	"Selective cutting but no large area clearing;" conformity to best management practices; foster an unevenly-aged, diversified, multi-species forest with a natural distribution of forest understory, mid-story and canopy.
Stetson 2010	Cutting restrictions in corridor along St. John River.
Sunrise 2005	Standards within 1000 feet of identified loon nesting sites on designated lakes.
West Branch 2003	Special (but not very specific) management considerations for designated areas around specified loon nest lakes.
West Grand Lake 2012	Some forest management restrictions around selected brook trout habitat streams.

reasonable to question whether broad references in conservation easements to best management practices should be viewed as imposing durable, legally mandatory requirements.

In sum, except for the earliest of the easements surveyed (Nicatous Lake (2000)), restrictions directly imposed on forestry operations are typically limited to cutting and other management requirements applicable to narrowly targeted sites within much larger forested properties. Rare are easements that specify forest management restrictions to protect wildlife and its habitat across the protected property.

All of this underscores the reliance that working forest easements place on the landowner's forest management (or similar) plan to protect wildlife and other conservation values, and therefore the need for the holder to be satisfied with the plan's measures to implement the easement's broadly stated conservation purposes and objectives. However, as discussed in detail in section (a) above, most of the working forest easements studied do not provide for holder approval or other control over the landowner's forest management plan.

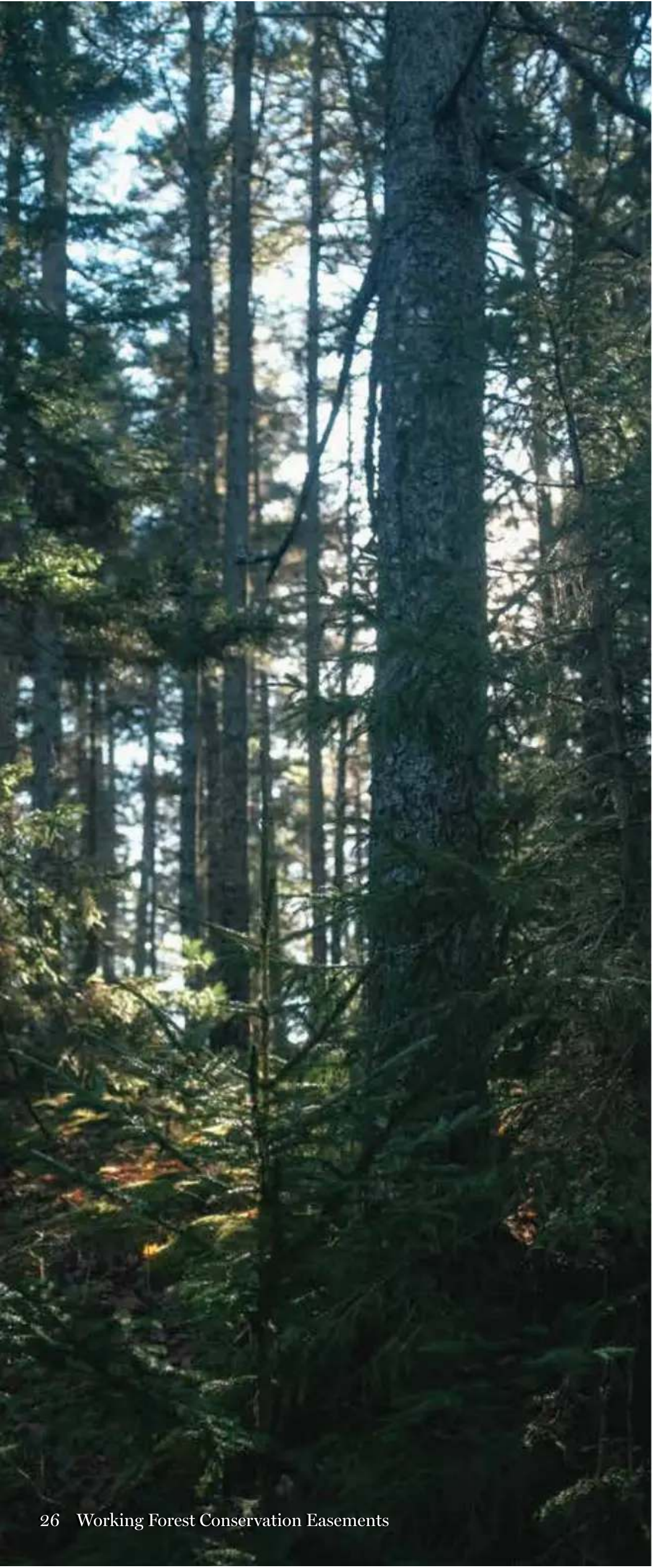
Required Landowner Reporting and Communications. Although forestry restrictions directly stated in the easement itself and/or the landowner's forest management plan are essential to permanently assure protection of wildlife and other conservation values in working forest easements, some ancillary measures in the easements studied are worthy of note. The Chase Reserve easement (2011) provides for landowner annual reporting of forest management activities for preceding and, as planned, succeeding years, including a demonstration of how these activities will comply with the forest management plan and conservation objectives of the easement. While such reporting requirements may not directly impose restrictions to protect wildlife and other conservation values, they likely serve to maintain the landowner's focus on the easement's conservation purposes, as well as to assist the holder in its monitoring and other compliance efforts.

In a less focused manner, the SWOAM easement form[15] requires landowner notice to the holder both before and following timber harvesting operations. Some other working forest easements require annual meetings between landowner and holder (i.e., Coburn (2022), Chandler Hill (2017), West Branch (2003), Sunrise (2005), Nicatous Lake (2000)). Such required meetings may serve to increase compliance by creating a forum for periodic discussions focusing on adherence to conservation measures.

What's Missing? In the case of many of the working forest easements examined for this study, this report has described a number of issues that deserve attention in seeking to fortify the protections of habitat and related conservation values in the long term future. As described in detail above, when closely examining the terms of a number of these working forest easements, it's difficult to find sufficient, clear, and enforceable standards, or enforceable processes to set such standards, for many vital but only generally stated conservation objectives, particularly those related to habitats across the easement property. This leaves questions about how the general and aspirational conservation goals set forth in many working forest easements are going to be interpreted, applied, monitored, and enforced in the indefinite future when inevitably some landowners will do only that which their easements can be enforced to compel. Since many of the easements studied contain few specific requirements for forestry operations, the landowner's forest management or similar plan is the place where one must turn to discern precisely how the easement's conservation objectives will be realized. But if the holder lacks any effective control over the conservation measures set out in the landowner's forest management plan, what then?

Some say that these are theoretical problems, that the best evidence of how well these easements protect conservation values lies in a study of landowner actions on the ground to date. A study of these operations is well beyond the scope of this critical examination of the terms of the easements themselves. Moreover, landowner actions in the relatively recent past tell only the story of what has happened during a period when working forest easements are relatively new and the parties to the easement have volunteered to work amicably

15 See footnote 6



together to achieve the easements' broadly stated goals. Without minimizing the significance of positive landowner and holder actions to date under these easements, that is not the point here.

The measure of a conservation easement is not determined by the actions of an amicable landowner in the relatively recent past, but by what the easement terms legally compel in the indefinite future, when less conservation-minded landowners will do no more than what the easement can be enforced to require. As suggested in the next section of this report and in the companion report by Robert Bryan, improvements are possible, if parties to future working forest easements are willing to consider them, to make easements more robust in securing their habitat and other conservation objectives forever.

IDEAS FOR IMPROVEMENTS IN FUTURE WORKING FOREST EASEMENTS

To protect existing biodiversity, we need to do three things. *We have to figure out what biodiversity we actually have, determine what threatens it, and then select a type of protection that matches the species and the threat*[16]

Drawing from the critical examination of working forest easements in Maine, as well as a review of the available literature, it is useful to consider ideas that can result in future easements that more securely deliver on their promises to protect wildlife and other conservation values in perpetuity. In attempting to formulate these ideas, here are four practical realities to recognize:

1. Since a working forest conservation easement by definition covers land on which at least some amount of commercial forestry will be conducted, a degree of compromise between protection and extraction of natural resources is inherent, and we cannot expect the level of protection provided by a forest preserve where no timber harvesting or other economic utilization will occur.

2. While some level of complexity is inevitable in a working forest easement, the easement's procedures and requirements should be sufficiently clear and practicable, so that both landowner and easement holder are able to mutually understand, administer, monitor, and comply with them into the indefinite future.

3. Where a conservation easement is being paid for (as is the case with virtually all major working forest easements), every significant restriction on forest management will likely come with a price tag, which will have to be raised through public and private funding. In addition, the holder must be responsible for raising the often considerable funds necessary for ongoing monitoring and enforcement not just in the near term but forever. All this money should be raised and banked before the easement is acquired.

4. Especially in this era of accelerated climate change, conservation easements should be constructed to provide for future monitoring of species and habitats as well as the discovery of new ones, and to adapt protection strategies to new information and changing circumstances.

Given these realities, and informed by the findings from this study as well as those of Robert Bryan's companion report, there follows a list of recommendations that might be considered to fashion better working forest easements in the future, in order to better secure their promises of protection of wildlife and fish habitat and related conservation values in perpetuity:

1. Robust, Conservation-Oriented Purpose Clauses. Purpose clauses and recitals in conservation easements are not window dressing but are essential to future easement integrity, and therefore must be prepared with care. Because a conservation easement is perpetual in duration, well-conceived purpose clauses can determine the outcome of (or help to avoid altogether) future disagreements in interpretation, application, and enforcement of the easement's terms.

16 Jenkins, Jerry. 2008. *Conservation Easements and Biodiversity in the Northern Forest*. Open Space Institute and Wildlife Conservation Society. p. 56. Some of the recommendations set forth in this paper are inspired by this excellent publication, as well as Rissman, Adena. 2011. Evaluating Conservation Effectiveness and Adaptation in Dynamic Landscapes. 74 *Duke Journal of Law and Contemporary Problems* 145.

Purpose clauses and recitals should be written in clear, concise ways that express the conservation intentions and priorities of the easement tailored to protecting conservation values, such as wildlife and fish habitat. A good number of the conservation easements studied for this report have solid purpose clauses, and no criticism is directed at them. However, as detailed above, some of the easements studied contain overly complex and internally contradictory purpose clauses. This is especially true for those that embrace economic utilization as a purpose of the conservation easement. Such easements may undermine the ability of future generations of holders and landowners to uphold the easement's conservation purposes, which are the essential foundation of any conservation easement. Even as applied to a working forest, the goal of a conservation easement (indeed, its raison d'être) is ecological resource conservation, not economic resource exploitation, and this should be reflected in the ways in which easement purpose clauses are written.[17] In this era of accelerated climate change, conservation easement purpose clauses and related terms should reflect the need for species and habitat protection and dynamics.

While robust, consistent purpose clauses and other general statements of conservation goals and intentions in easements are an important prerequisite, these should not be relied upon to be self-executing or directly enforceable. Even the very best statements of purpose do not replace the essential need in a conservation easement for specific and enforceable restrictions and processes to implement the easement's stated conservation purposes. This leads to the next several recommendations.

2. Forest Management Plan. Many of the working forest easements studied require the landowner to create a forest management plan (FMP) as the principal mechanism for establishing specific measures to protect wildlife, fish, and other conservation values. The FMP should be prepared and periodically updated to prescribe the manner in which future timber harvesting, road building, and related forest management activities will be undertaken in a manner that upholds the conservation purposes of the easement. In the absence of a separate Ecological Management Plan (described below), an exemplary FMP ought to be prepared with the assistance of persons having relevant expertise in wildlife and forest ecology as well as those versed in forest practices.

To the extent a working forest easement relies (as many have in the past) on the FMP to establish the specific measures that will be undertaken during forestry operations to protect the easement's wildlife, fish, and other conservation values, it seems self-evident that at least those portions of the plan should be subject to reasonable oversight by the holder before the plan is finalized and forestry operations begin. Such an involvement enables the holder to determine that the property will be managed in a manner conforming to the easement's stated conservation purposes and goals. The one simple requirement of meaningful holder review and approval of the FMP's protective measures may make a significant difference, and perhaps all the difference, in whether the property's management lives up to the easement's conservation goals over the indefinite future. In sum, the long term vitality and durability of a conservation easement depends on it requiring protective measures into the indefinite future, including most importantly when a future landowner will undertake such measures only to the extent legally compelled by the terms of the easement. When determining the worth of a conservation easement over the long term, that's what really matters.

The most common approach taken in the easements studied prevents the holder from having legal oversight of the FMP and in some cases even prevents the holder from reviewing the FMP. This approach appears to be based upon the idea that

17 As recognized by the four realities set forth in the immediately preceding section, in virtually every case, working forest easements apply to land that is now and will remain economically utilized for forestry. However, nothing is served by using the conservation easement tool to enable the landowner to continue its economic utilization, which is a right it already has and will retain subject to the restrictions of the easement that are designed to protect conservation values. Thus, the foundational purpose of a conservation easement is conservation, which is accomplished by the easement's restraints on the landowner's economic utilization in order to protect the easement's conservation values. Within these conservation-oriented restraints of the easement, the landowner's continued but limited rights to forestry and other economic utilization are retained, but these are not the purpose of the conservation easement. Accordingly, the easement's stated purposes should be written in terms of conservation and not economic utilization.

the landowner will be guided by the easement's broad statements of conservation goals, and that the holder need not concern itself with the operational details. But these details are ultimately everything in determining the easement's effectiveness in achieving its conservation purposes over the indefinite future. In the absence of having some degree of control over or involvement in the FMP, how does the holder (or the public that often is involved in financing the easement) have assurance that the landowner will plan for and execute forestry operations in a manner that protects wildlife, fish, and other conservation values in perpetuity, as the easement promises? If the landowner's FMP or its actions on the ground fail to contain and adhere to restrictions that will protect the easement's habitat and other conservation purposes, the holder may face the difficult challenge of trying to directly enforce the easement's generally stated conservation purposes and goals after forestry operations have begun on the ground.

For those in the forest landowner community who remain opposed to giving the holder approval power over the entire FMP, there may be other means to establish a legally meaningful role for the holder. For instance, while the landowner may not want to have any holder involvement in or even knowledge of the business aspects of its FMP, it is hard to argue that the holder should likewise have no approval power over the specific measures in the plan designed to protect the easement's conservation values.[18] If the landowner is concerned about the prospect of a holder opposing the FMP on an unreasonable basis, the easement could easily require that the holder's objections be based upon analyses by relevant experts in forestry and/or ecology and that its approval may not be unreasonably withheld. Likewise, instead of terms in a number of current working forest easements that seem to prevent the holder from seeking enforcement should the landowner refuse to provide a reasonably compliant FMP, the easement could instead be written to enable it to seek court review if it believes the FMP to be non-compliant. Simply enabling the holder to seek judicial intervention when neccesary at the FMP stage would allow it to challenge a deficient FMP in a timely way before any damage is done on the ground. Greater holder participation in or recourse regarding the FMP might be seen as more of a benefit than a burden even to the landowner, which would seem well served to have resolution of any disagreements before it invests in the forestry operations called for in the FMP.

Some reasonable degree of holder oversight seems critical with respect to those parts of the FMP that establish measures to protect wildlife, fish, and other conservation values. If the holder believes such an undertaking may require costs of staff and experts in the future, perhaps those costs should be considered essential monitoring expenses that are built into the transaction costs of the easement and funded at the time of its creation.

In sum, where a conservation easement relies upon the landowner's FMP as the primary determinant of the measures to be undertaken to protect the easement's conservation values, it seems only logical that the holder should have some reasonable means for either approval of these measures or at least to seek judicial review should it find the measures deficient and the landowner is unwilling to make changes the holder believes necessary. While informal cooperation between the holder and landowner may accomplish a great deal when the parties are willing to work together (as most have been at this early juncture), the foundational purpose of a conservation easement is to provide an enforceable means to protect the easement's conservation values in a future when the landowner is not cooperative.

3. Ecological Management Plan. There is another approach. As described above, under the prevailing paradigm in many working forest easements, conservation measures to protect wildlife and fish habitat and related conservation values are primarily dealt with in the landowner's FMP. However, the primary focus of that plan is inevitably on the landowner's timber harvesting, road building and related utilization plans for the property. In his report for the Open Space Institute,[19] wildlife ecologist Jerry Jenkins makes a persuasive case for a separate biological management plan for working forest easements, to include biological surveys, benchmarks, habitat-based management

18 See the next section for how this might be done in the context of a separate Ecological Management Plan.

19 See footnote 16

standards, timelines, and monitoring protocols, all focused on protecting animal and plant species, their habitats, and other biodiversity and ecological values. In his report for Maine Audubon, Robert Bryan endorses a similar concept, which he refers to as an Ecological Management Plan (EMP), while still others refer to a Multi-Resource Plan.[20] Regardless of terminology, recognizing that an FMP is primarily prepared by a forester selected by the landowner, Jenkins and Bryan suggest that the EMP be prepared by experts in forest and/or wildlife ecology and related disciplines, and be either prepared by or directly involve the participation and approval of the easement holder in addition to the landowner.

An added, valuable purpose of an EMP is to establish monitoring and other measures designed to discover and accommodate species needs as these change and/or are newly discovered in the future. An EMP may also protect more dispersed habitat needs, including travel corridors and connectivities involving large unfragmented blocks of forest. Such considerations seem particularly appropriate for easements covering sizable ownerships or adjoining other large easement lands.

A further reason for separating the EMP from the FMP is that major landowners often insist on the confidentiality of the latter to protect its proprietary business interests. However, there is no parallel justification for secrecy concerning an EMP, which addresses the protection of ecological values, including fish and wildlife resources that are held by the public in trust. These protective measures, essential to implementing the conservation goals and purposes of the easement, ought to be made available to researchers and subject to broad public scrutiny. Likewise, while landowners may be resistant to allowing legal oversight by the holder of the entire FMP, that position seems untenable as to the contents of an EMP, where the holder has an unquestionably vital role to play.

4. Operations Plan. As recommended in Robert Bryan's report, an operations plan for timber harvesting and other forest management activities should be provided to the holder prior to the onset of such activities, with enough time for the holder to review and provide comments on whether these activities accord with the terms of the easement and the holder-approved EMP or FMP.

5. Standards and Restrictions in the Easement Itself. Working forest easements typically contain broad statements of purposes and goals to protect habitats and other conservation values, but these are framed in general terms subject to varying interpretations and at best challenging for the holder to directly monitor and enforce. As discussed above, while robust statements of conservation purposes are essential in the easement, they cannot substitute for specific and enforceable restrictions and standards of performance, which are the essential ingredients of the easement to implement its conservation purposes. If the easement calls for these standards and restrictions to be included in the landowner's FMP or EMP, the holder should have a meaningful role in the development and approval of these. However, to the extent such standards and restrictions are sufficiently permanent, they should be clearly stated in the easement itself, thereby enabling the parties to clearly understand, implement, and monitor them from the outset. Whenever possible, such standards and restrictions should be written in a fashion that is measurable, monitorable, and enforceable.

Whether included in the easement itself or in the landowner's FMP or EMP approved by the holder, specific standards and restrictions may include these, among others: protections of particular features important to wildlife and fish (such as wetlands and vernal pools); redlining and buffer strips around sensitive areas; road and bridge location, construction and utilization restrictions; protections of large, unfragmented blocks of forest and wildlife travel corridors; selective cutting regimes; specifications of tree harvesting and retention size, age and size classes; and other specific habitat protection requirements. Recognizing that habitat and other ecological factors are dynamic, to the extent it is not practicable to include such restrictions in the easement, they should be required and periodically updated in the FMP and/or EMP, subject to reasonable holder review and approval.

20 While they may have minor differences, we treat all of these similar planning structures as the same for purposes of this discussion and, for simplicity, refer to them as EMPs.

It is also fundamental that there be restrictions and prohibitions in every conservation easement that protect the encumbered lands from future development and ownership division that is incompatible with the easement's conservation purposes. Conservation easements should not permit protected lands to be released in the future, nor allow types of land utilization that will damage the conservation values and purposes of the easement.

6. Special Management Areas and Similar Approaches. As is the case for some easements in this study, larger working forest easements should set aside areas for special forest management restrictions and reserves to protect rare, endangered, threatened, and other species and habitats of concern, as well as key travel corridors and other connectivity needs. In addition, consideration should be given to protecting large, unfragmented blocks of forest, as needed to achieve the easement's conservation purposes. These special management areas can be initially located as part of baseline documentation studies and periodically amended in the FMP and/or EMP to deal with species and habitat changes and newly discovered information. A related concept, illustrated in the Amazon-Musquash easement (2016) among others, is to layer conservation easements with a highly protective ecological reserve established within or abutting a more conventional working forest easement. In this way, more restrictive easement restrictions are applied to areas of special wildlife or ecological sensitivity within a larger working forest that provides a reduced level of protection.

7. Late Succession Forest Retention. Because late succession forests are important habitat for biodiversity and are rare across most of Maine, harvesting prescriptions for these areas should provide for preservation of old forests or at least longer rotations, in selected stands. Few easements in our survey do this.

8. Adaptability Over Time. Because forest ecosystems change over time (particularly during this era of accelerated climate change), perhaps the greatest challenge is to fashion conservation easements to provide for adaptation of standards and measures to the exigencies caused by future changes in forest structure, wildlife and fish populations, and habitat needs. With input from experts and an appropriate level of oversight by the holder, FMPs and/or EMPs should be periodically updated to respond to these changes or other provisions made to accommodate future ecological needs.

9. No Backsliding. Maine law provides significant protection of the integrity of conservation easements by requiring involvement of the Attorney General and court approval of any proposed termination or amendment that materially detracts from conservation values.[21] No conservation easement should be written in a manner that undercuts these legal protections, including by enabling de facto amendments that significantly relax easement restrictions, release lands subject to the easement, or otherwise undermine the integrity of the easement, with the mere approval of the parties. Likewise, provisions requiring holder review and approval of landowner FMPs, EMPs, or other significant matters should always allow the holder sufficient time to evaluate the proposal on the ground, consult with experts and render a reasoned decision, and should never be written to automatically presume such approval merely due to the passage of time.

10. Communications, Reporting, and Meetings. Regular communications between the landowner and easement holder are important to upholding the easement's terms and purposes over the long term. Land trust and landowner representatives alike report that much reliance is placed on communications to amicably work out disagreements and formulate practical measures to secure an easement's conservation objectives. Easements should require annual or other periodic reporting by landowners of harvesting and other forest management activities completed and planned, explaining how these activities are in conformity with the easement's terms and purposes as well as the terms of the holder-approved FMP and/or EMP. Easements should also require regular meetings of landowners and holders, and each should have access whenever desired to staff and consultants of the other party to ask questions, work on concerns, and keep informed of conditions and activities on the property.

21 See footnote 10

While communications are vital to keeping everyone on track, they do not replace the need for clearly stated standards, restrictions, processes, rights, and duties, which should be set forth in the easement and/or approved FMP/EMP in order to make sure they will have enforceable meaning and effect in perpetuity.

11. Monitoring. The integrity and durability of every conservation easement depends upon careful documentation, monitoring, and compliance-checking by thenholder. These activities begin before the easement is in place, with baseline documentation assembled by the holder and agreed to by the landowner, showing all structures, uses, water bodies, wetlands, land features, and habitats on the property, among other details. After the easement is in place, the holder should develop a plan to maintain the most effective and efficient monitoring methods, depending on the size, geography, and natural resources of the property, the level of activities being undertaken, and the easement's specific array of conservation purposes and restrictions. Monitoring methods may include biological surveying, satellite and aerial photography, and surveillance, and should include regular site visits on the ground, especially when forestry or other intensive activities are underway.

Sufficient funds to support future monitoring, enforcement, and other holder stewardship responsibilities should be raised and set aside as part of the original transaction costs of the easement.

12. Third Party Certification. Third party certification of the landowner's forestry operations may be a useful part of the easement's requirements. If so, the certifying agent should be an organization approved by the holder as having the needed standards, resources, and discipline. Some of the easements surveyed for this report include a certification requirement. However, a few go too far in delegating the holder's role in determining easement compliance to the independent certification agent. While independent certification and auditing may displace a degree of the necessary monitoring oversight by the holder, delegation to a third party is not appropriate given the holder's ultimate responsibilities for easement interpretation, compliance, and enforcement. The holder should have access to all certification submissions and reports and should retain the final decision-making role on easement compliance and enforcement issues.

13. Alternative Approaches. While recent decades have seen the emergence of conservation easements as the prevailing paradigm for land conservation in Maine, easements are not always the best suited, most effective, or even most efficient land protection strategy. Where wildlife or other conservation or public values require that certain forest lands be preserved from any meaningful economic utilization or devoted to public recreational use as a primary objective, outright fee acquisition may be a more effective and efficient mechanism. Indeed, when all the long term costs are considered in documenting, negotiating, drafting, financing, amending, and forever monitoring and enforcing a highly restrictive conservation easement, fee simple acquisition by a conservation-minded public or private entity may be the best and even the least costly conservation strategy.



CONCLUSION

In recent years, conservation easements have become *the* paradigm for most land conservation in Maine. Nowhere is that more apparent than with easements that cover extensive portions of Maine's working forests. These easements are popular because they are voluntary, often involve payment of fair market value to the landowner as funded by government and private grants and gifts, cost less than fee acquisition at least in the near term, and leave the land in private ownership, thereby providing continued economic utilization of the forest resource as well as property tax revenue.

This study has examined a wide array of conservation easements covering various sizes and ownerships of forest lands in different parts of Maine over a period of more than two decades. Among these easements, commonalities and contrasts as well as trends and troubles have been explored. Our critical examination of these easements points to what may be some potential issues in fully accomplishing their goals of protecting wildlife and fish habitat and related conservation values in perpetuity. Drawing upon this examination of easements as a learning experience, this report advances ideas that may be useful in designing working forest easements that can more securely deliver on their conservation promises in the future.

Even while undertaking a critical retrospective in search of ways to strengthen the protections of future working forest easements, one should not disregard the remarkable work that has been done in the past, often with great effort and at considerable expense. Moreover, as reflected in the above descriptions of the easements studied, some already incorporate a number of the ideas recommended here.

There is no doubt that several of this report's recommendations will have their costs and challenges. As well, there will likely be able critics who take issue with at least some of the ideas expressed here. While this examination has attempted to explore its subject deeply, of course it has inherent, practical limitations. The simple hope is that this study will result in renewed reflection about what has gone before, and what might be done in the future, to secure the promised benefits of conservation easements on Maine's forest lands.



Appendix A. Wildlife-related Objectives Excerpted from Each Easement

- **Chase Reserve** (2011): "*Protect fish, wildlife … resources*" "*maintenance or enhancement of wildlife habitat.*" Holder approval of FMP required.
- **Rines Forest** (2005): "*Protect… high value plant and animal habitat.*" Holder approval of FMP not required.
- **Seekins** (2010): "*Preserve forest diversity important to wildlife.*" Forester or holder approval of FMP required.
- **Amazon-Musquash Reserve** (2016) (not a working forest easement because it prohibits all commercial forestry within the context of a larger area covered by a more typical working forest easement): *"Management of the Protected Property should allow for natural ecological processes to proceed with minimal interference or manipulation in order to enhance the Conservation Values of the Protected Property."* No FMP required since no forest management activities are permitted within this reserve.
- **Chandler Hill** (2017): *"Grantor shall have the reserved right to conduct Forest Management Activities in a manner that minimizes adverse impacts on the Conservation Values."* Conservation values include *"diverse and extensive wildlife, plant, forest, and other terrestrial habitats, including habitats of rare, threatened, and endangered flora and fauna, other significant fish and wildlife habitats, natural communities, and the ecological values and processes of these areas."* Forest management goals include *"conservation of native plant and animal species and natural communities."* The FMP is to address *"prescriptions to retain or create desirable wildlife habitats, including snags, cavity trees, woody debris, mast production, vernal pools, riparian habitat, and overall biological diversity"* as well as *"protection of documented rare, threatened, or endangered species habitat, and other unique and fragile natural areas, and documented archeological sites."* Holder approval of FMP not required.
- **Coburn** (2022): *"Forest Management Activities shall be carried out in a manner that, to the extent reasonably practicable, achieves each of the following goals:… conservation of native plant and animal species and natural communities;… minimizes adverse effects on Conservation Values."* Conservation Values include *"diverse and extensive wildlife, plant, forest, and other terrestrial habitats, including habitats of rare, threatened, and endangered flora and fauna, natural communities, and the ecological values and processes of these resources."* The FMP is to address *"protection of known, site-specific occurrences and occupied habitats of animal and plant species that are listed by state or federal agencies as rare, endangered, threatened or of 'special concern' for such time period as such species are so listed and such habitats are so occupied as documented by a resource professional whose training is pertinent to the species"* as well as *"prescriptions to retain or create desirable wildlife habitats, including loon nest sites, snags, cavity trees, woody debris, mast production, vernal pools, riparian habitat, deer wintering habitat and overall biological diversity."* Holder approval of FMP not required.
- **Fish River** (2021): *"The Management Plan shall both protect the Conservation Values and allow for the Protected Property's continued operation as a Commercial Working Forest…."* *"Forest Management Activities shall be carried out in a manner that, to the extent reasonably practicable, achieves each of the following goals: … conservation of native plant and animal species and natural communities."* The FMP is to address *"protection of documented rare, threatened, or endangered species habitat, and other unique and fragile natural areas" as well as "prescriptions to retain or create desirable wildlife habitats, including snags, cavity trees, woody debris, mast production, vernal pools, riparian habitat, deer wintering habitat and overall biological diversity."* Holder approval of FMP not required.
- **Plum Creek** (2009) (a multi-resource plan): *"Protect the Conservation Values of the Protected Property and allow its continued operation as a commercial working forest, …"* Conservation Values include *"the Protected Property's diverse and extensive wildlife, plant, forest and other terrestrial habitats, including habitats of rare, threatened and endangered flora and fauna, natural communities, and the ecological values of these areas."* Holder approval of plan required.

- **Timberdoodle Hill** (2013): *"To the extent reasonably practicable… conservation of native plant and animal species and natural communities;" "retain or create desirable wildlife habitats, including snags, cavity trees, woody debris, mast production, vernal pools, riparian habitat, and overall biological diversity."* Holder approval of FMP not required.
- **Walters** (2007) (forest management plan and separate operational plan): *"Non-timber values such as riparian areas, fisheries and wildlife habitat … shall take precedence in forest management decisions and activities, and while timber production and harvesting are allowed, they must be designed and conducted to sustain or enhance the non-timber values"; "management that favors conservative, long rotations and mature stands"; "management practices to maintain the appearance of a mature forest and continuous canopy"; "protection of rare, threatened and endangered species habitats and other unique and fragile natural areas, and prescriptions to retain or create desirable wildlife habitats."* While holder approval of FMP is not required, under an unusual provision holder must receive a copy of landowner's operational plan before forestry operations begin and holder may stop any operation that it believes will be in non-compliance with the easement.
- **West Branch** (2003): *"The Grantor's actions … to protect known site-specific occurrences of animal species that are listed by federal or state agencies as endangered or threatened, … to manage appropriately (reflecting state and global rarity) the known site-specific occurrences of animal species that are listed by state or federal agencies as 'special concern'; … to manage appropriately (reflecting state and global rarity) the unique and exemplary natural communities and natural areas documented by state agencies; … to comply with the Loon Nest Lakes and Nest Site Management Standards;… to manage appropriately the designated Essential Habitat (for threatened and endangered species); … to manage appropriately the significant wildlife habitats identified and regulated by state agencies;… to manage for fish and wildlife resources; … to conserve or enhance biological diversity at the stand and landscape levels, with such actions reflecting consideration of relevant science and practice."* Holder approval of FMP not required.
- **Hawes** (2013): *"Protection of buffer zones around … identified vernal pools and wetlands, … protection of unique or fragile natural areas, … conservation of habitat for rare, threatened or endangered plant and animal species and exemplary natural communities."* Holder approval of FMP required.
- **Vienna Woods** (2015): *"Protection of significant wildlife habitat including but not limited to rare and endangered species habitat, fisheries habitat, and deer yards; … rare or exemplary natural communities; and unique natural areas."* Holder approval of FMP not required.
- **Turner** (2015): *"In accordance with then-current habitat management guidelines, such as 'Focus Species Forestry' (by Robert Bryan; Third Edition 2007, Maine Audubon) and 'Biodiversity in the Forests of Maine: Guidelines for Land Management' (by Flatebo, UMCE Bulletin 7147, 1999), or other forestry best practices or standards then current and approved by Holder; and by using silviculture methods designed to retain the natural forested character of the area."* FMP not generally required, although holder may require one if it determines non-compliance with general objectives. If FMP is required, holder approval is not.
- **Farm Cove Community Forest** (2004): *"Enhance the protection of the adjacent Ecological Reserve and enhance wildlife habitat within the Late-Successional Area;" "maintain a healthy and biologically diverse forest that supports a full range of native flora and fauna."* Holder approval of FMP not required, but certification by a third party is required.
- **Pingree** (2001): *"Generate viable yields of forest products in an economical manner while maintaining healthy wildlife habitat. Wildlife management practices are routinely incorporated into timber management activities to retain or create desirable features such as riparian habitat, wildlife cavity trees, mast availability, logs and brush for shelter, promoting vertical and horizontal diversity, vernal pools, and featured species management."* Holder approval of FMP not required.
- **Sunrise** (2005): *"Describe the Grantor's actions … to protect known site-specific occurrences of animal species that are listed by federal or Maine state agencies as endangered or threatened, … to manage appropriately (reflecting state and*

global rarity) the known site-specific occurrences of animal species that are listed by Maine state or federal agencies as 'special concern', ... to manage appropriately (reflecting state and global rarity) the unique and exemplary natural communities and natural areas documented by Maine state agencies; and ... to comply with the Loon Nest Lakes and Nest Site Management Standards set forth on Exhibit E ..." Holder approval of FMP not required.

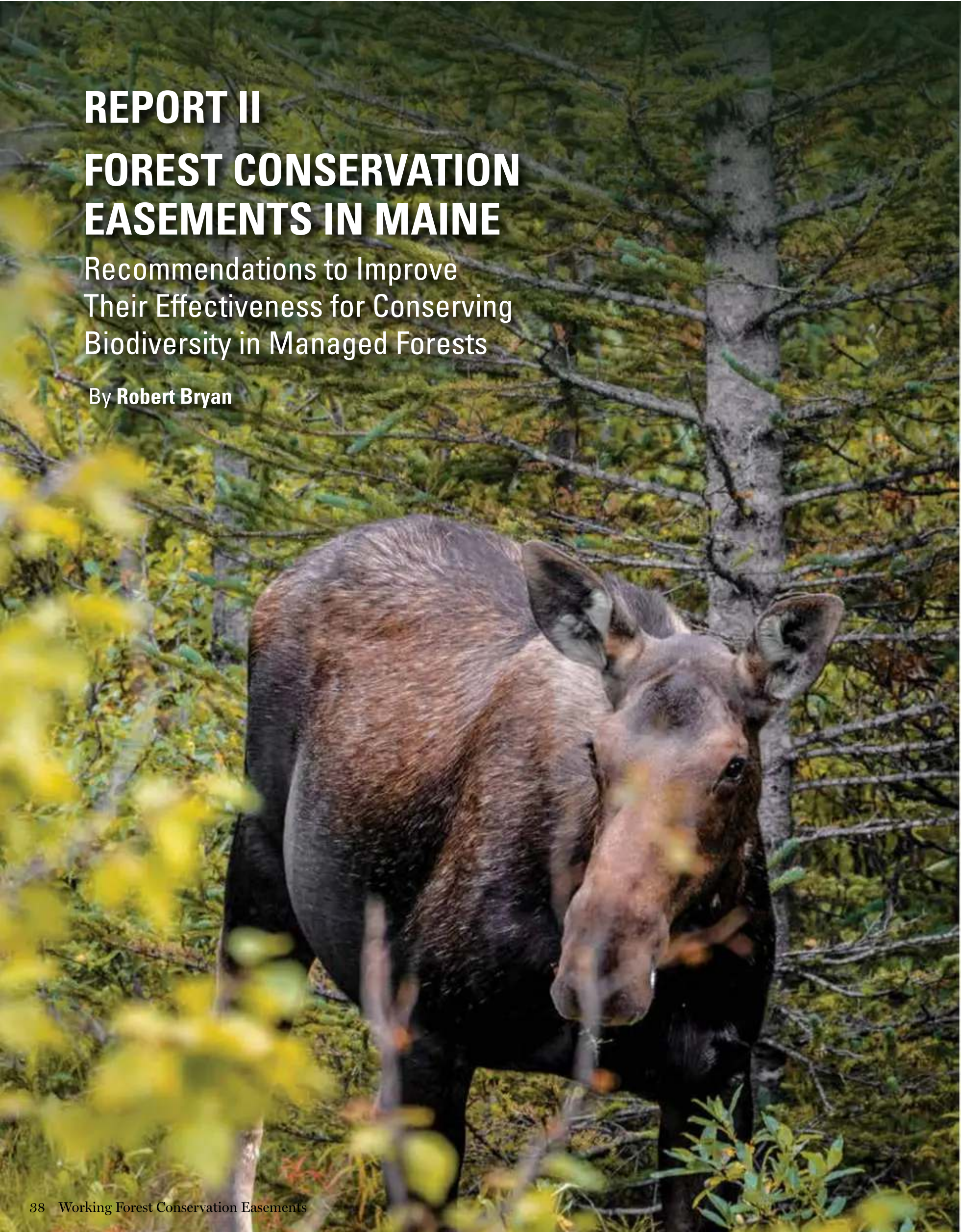
- **SWOAM**: *"Protection of rare or fragile natural areas and rare and endangered species habitat; conservation of viable populations of native plant and animal species."* Holder approval of FMP required in this form.
- **Katahdin Forest** (2006): *"Forestry activities shall be consistent with the maintenance of a healthy and biologically diverse forest,... preservation of water quality, wetlands and riparian zones, and preservation of wildlife habitat... and shall accomplish the forestry principles set forth below: ... protection of wildlife habitat and unique natural areas, including deer wintering yards, eagle nesting sites and Smith Brook Fen."* Holder approval of FMP not required.
- **Nicatous Lake** (2000): While a management plan is required, there are few stated goals for it; however, this easement stands out as directly imposing numerous specific restrictions on forest management and also incorporates a natural resources management plan that holder has approved; see discussion in next section.
- **Wabassus Lake** (2009): *"Maintenance and protection of habitat for native flora and fauna as well as unusual or fragile natural areas."* Holder approval of FMP not required; certification agent approval is determinative of compliance.
- **West Grand Lake** (2012): (multi-resource plan) *"Maintenance and protection of habitat for native flora and fauna; protection or enhancement of fisheries and wildlife habitat, including deer wintering areas and brook trout streams."* Holder approval of plan not required.
- **Stetson** (2010): *"To the extent reasonably practicable ... protection of unique or fragile natural areas; ... conservation of native plant and animal species."* Holder approval of FMP not required.
- **Atlas** (2017): "Protecting aquatic and wetland plants and animals from disturbance; providing important terrestrial a*nd aquatic plant and animal habitat; and providing organic matter, nutrients, shade, and large diameter coarse woody material for the benefit of wetland, riparian, and aquatic systems."* Holder approval of FMP required.

REPORT II

FOREST CONSERVATION EASEMENTS IN MAINE

Recommendations to Improve Their Effectiveness for Conserving Biodiversity in Managed Forests

By **Robert Bryan**



Introduction. Maine has been a national leader in securing conservation values of managed forests by placing conservation easements on land where timber may be harvested, sometimes referred to as "working forest conservation easements." These range from small easements on private woodlots managed by local land trusts to large-scale easements of tens to hundreds of thousands of acres on commercial timberlands in northern and eastern Maine. This report has been prepared to provide Maine Audubon with information on the effectiveness of existing forest conservation easements at conserving fish and wildlife habitats and other elements of biological diversity of Maine forests, and to provide recommendations for how future easements could be strengthened to improve these values.

The principal approach used in this report is to identify how well forest conservation easements compare with a group of "Core Evaluation Criteria," which are used here as surrogates for field measurements of biological diversity. Because a conservation easement is only as strong as how well conformance can be objectively measured, this report also includes the degree to which each easement can objectively measure conformance with the Core Evaluation Criteria. Finally, the report includes recommendations for how forest conservation easements can be improved to provide stronger measures for conserving biological diversity.

This report is not meant to be used as a comparison of conservation easements or landowner behavior, nor is it meant as a negative comment on the outstanding work that has been undertaken by conservation organizations and landowners to date. Rather the intent is to provide information for landowners, easement holders, conservation groups, conservation easement funders, certification systems, and policy makers who are interested in how effective these systems are at assuring that goals for biological diversity are being met and to include recommendations for how they might be improved in the future to better meet those goals.

The review and recommendations in this report draw from my experience working on many large and small properties subject to forestry conservation easements, from over 17 years of forest certification auditing throughout the United States, and from the report *A Critical Analysis of Maine's Working Forest Conservation Easements and Ideas for the Future to Better Protect Habitat and Related Conservation Values* by Jeff Pidot (2023). My experience as a forest certification auditor was particularly helpful in preparing this report. The forest certification process involves annual audits of field performance and periodic review of management plans to a set of written standards, and the process is very similar to monitoring forestry conservation easements. This experience enabled me to understand what sort of standards were sufficiently objective so that a decision of conformance or non-conformance was clear, and what standards were subjective or broadly worded so that a decision of non-conformance could be made only in the most egregious situations. There are many things this report does not address. In particular, it is not a complete review of all aspects of forest conservation easements. Rather, the focus is on identifying where easements can be strengthened with objective and verifiable standards related to biological diversity, thereby assuring that diverse and productive fish and wildlife habitats and associated biodiversity can be maintained and/or improved.

The list of Core Evaluation Criteria includes management practices most important to wildlife and biodiversity. These were adapted from regional recommendations for managing plant and wildlife habitats and other aspects of biological diversity, and from forest certification system standards (see **References**).

Where applicable, different approaches for small ownerships and large ownerships are described.

Following this introduction, **Evaluation of Forest Certification Standards and Conservation Easements** includes an initial analysis of how well each of the Core Evaluation Criteria is currently being addressed by most easements. **Conservation Easement Recommendations** includes a detailed summary of the strengths and weaknesses of conservation easements in addressing the Core Evaluation Criteria and recommendations for how easements could be strengthened to address them, for both large and small ownerships. **Other Forest Conservation Easement Considerations** describes how the recommendations in Conservation Easement Recommendations could be integrated into a comprehensive approach to improving biodiversity

protection, including easement requirements for assessment of important plant and wildlife habitats on a property, development of an ecological management plan to protect those habitats, and important elements to include in forest management and operations plans. The **References and Appendices** include other supporting information that users of this report may find helpful.

This report reflects comments from Maine Audubon's Director of Conservation Sally Stockwell and Jeff Pidot, who authored the companion paper described above. However, the final assessments and recommendations are the considered opinion of the author and do not necessarily represent the views of Maine Audubon or others who may use this report.



EVALUATION OF FOREST CERTIFICATION STANDARDS AND CONSERVATION EASEMENTS

This section includes a) the *core* evaluation criteria and the more specific *indicators* associated with each criterion; and b) an evaluation of how well conservation easements address each indicator. Recommendations for improvements to conservation easements are included in Conservation Easement Recommendations.

CORE EVALUATION CRITERIA

Forestry conservation easements typically include provisions for maintaining plant and wildlife habitat. In order to provide a consistent framework for analysis, this report has focused on a list of Core Evaluation Criteria that are considered to be most important for maintaining the natural diversity of Maine wildlife and wildlife habitats.

Core Evaluation Criteria used in this report are:

1. **Rare Species and Rare or Exemplary Natural Communities**
2. **Stream and Water Quality Protection**
3. **Riparian Habitats**
4. **Other Important Plant and Wildlife Habitats**
5. **Native Forest Plant Communities**
6. **Habitat Age Class and/or Size/ Structure Class Diversity**
7. **Habitat Patch Size, Umbrella and Focal Species, and Habitat Connectivity**
8. **Wildlife Trees and Downed Wood**
9. **Invasive Species**
10. **Forest Roads and Recreation Trails**
11. **Management Plans**

The Core Evaluation Criteria and associate Performance Measures (see below) are intended to be used as a framework to see if and how effectively easements address these topics. Other forest criteria that are very important to long-term ecosystem

health, such as practices related to soil health and productivity, are not included here.

CONSERVATION EASEMENT REVIEW METHODOLOGY

The reviews of forest conservation easements applicable to Maine and more broadly, the Northern Forest Region, including reports by Pidot (2023) and Jenkins (2008), as well as the author's applied experience, provided a basis for evaluating how well conservation easements address the Core Evaluation Criteria. Some of the projects from the author's experience that helped inform this report included writing ecological management plans for a 50,000 acre property subject to several conservation easements (Downeast Lakes Land Trust); preparing an ecological management plan for a large, privately owned conservation property in western Maine; certification auditing of commercial timberlands where conformance with the certification standards was used to verify conformance with the forestry elements of a conservation easement on the ownership, including interviewing forest certification holders on these ownerships as part of the certification process; and authoring or co-authoring guidebooks on forest management for wildlife and biodiversity in Maine (Bryan 2007, Maine Audubon 2017) and an upcoming Maine Audubon guidebook on managing riparian areas for fish and wildlife habitat. More recently, I have been helping write the forestry provisions of several pending conservation easements and have been asked by a conservation funding organization to comment on how other easements could help ensure improved outcomes for wildlife and other components of biodiversity.

EVALUATION CRITERIA, PERFORMATIVE MEASURES, AND EFFECTIVENESS OF CURRENT EASEMENTS

Each of the Core Evaluation Criteria below includes one or more Performance Measures that identify practices most important to conserving the ecological values. These were adapted from regional recommendations for managing plant and wildlife habitats and other aspects of biological diversity, and from forest certification system standards (see **References**). Following the Performance Measures is an assessment of how well the measures are currently addressed by a typical working forest conservation easement.

1. Rare Species and Rare or Exemplary Natural Communities

Performance Measures

1.1. Natural Areas Program/ Maine Department of Inland Fisheries and Wildlife and other applicable public agency data are used. Biological surveys are conducted where data are lacking, or if a species is likely to occur there, the manager assumes it is present.

1.2. Rare, threatened, and endangered (RTE) species and their habitats; and rare or exemplary Natural Communities are protected and managed in accordance with agency recommendations. Additional measures are implemented when necessary to maintain or restore the long-term viability of the species or habitats.

1.3. Old growth forests (never been cut and/or over 150 years old) are identified and protected. Late successional forests (typically > 120 years old with complex structure) are identified and late successional stands are maintained and/or restored as a significant component of the landscape.[1]

Effectiveness of Current Easements

Jenkins (2008) reviewed six conservation easements on large commercial timberlands in the Northern Forest region; of those three were in Maine (West Branch, Downeast Lakes, Katahdin Forest). All six easements referenced RTE species and special natural communities in the easement goals and/or in management plan requirements, but none include explicit standards for assessment or performance.

Pidot (2023) found that RTE and natural community protection is addressed in requirements for many forest management plans and that a small subset of these requires holder approval of the management plans.

Protection of existing old growth and late successional forests are not explicitly addressed in conservation easements reviewed by Pidot (2023). While old growth and late successional

1 Definitions of Old Growth and Late Successional Forest may vary by source.

forests might be included in easement goals such as protection of "unique or fragile natural areas" and "natural communities," the lack of explicit easement standards for identifying and protecting these areas would make enforcement impossible. Notable exceptions are the Late Successional Forest Management Area (LSMA) included in the Farm Cove (Downeast Lakes) Community Forest easement, and a LSMA associated with an easement on lands recently acquired by Rangeley Lakes Heritage Trust.

2. Stream and Water Quality Protection

Performance Measures

2.1. New stream crossings are avoided whenever possible.

2.2. Culverts and other stream crossings are evaluated and passage for aquatic organisms is maintained or restored at all road and skid trail crossings.

2.3. Appropriate measures are implemented to ensure that water quality is protected.

Note: For the purposes of this analysis, stream and water quality protection includes all Best Management Practices (BMPs) and related practices, except timber harvesting and non-aquatic wildlife habitats adjacent to water bodies, which are addressed in the Riparian Habitats section below.

Effectiveness of Current Easements

Most conservation easements require that management plans include provisions for protecting streams and water quality, but lack explicit requirements for forest management adjacent to streams and other water bodies (Jenkins 2008, Pidot 2023). State BMPs are often referenced in easements. The Maine Forest Service's BMPs include guidelines for fish passage, quantitative standards for culvert sizing, and quantitative guidelines for filter strips adjacent to water bodies. However, BMPs are very complex (the most recent edition is 95 pages long) and are written as guidelines where implementation is context-specific and based on the professional judgment of the logger or forest manager. As a result, they frequently do not provide the specificity necessary to be enforceable as easement requirements.

Maine's regulatory standards currently provide the clearest quantitative requirements for forest management near water bodies. These vary by jurisdiction, including among the Land Use Planning Commission (LUPC) standards in the unorganized towns; Maine's Statewide Standards for Timber Harvesting in Shoreland Areas, which have been adopted by many organized towns; and municipal Shoreland Zoning ordinances that apply in towns that have not adopted the Statewide Standards. Of these, the Statewide Standards typically provide the highest level of water quality protection, except where a town has adopted stronger protections for its community.

Maine's current BMPs provide clear guidance for "Stream Smart" stream crossings that will ensure passage for fish and other aquatic organisms, but these are voluntary and are not written as enforceable legal requirements. However, the BMPs do not provide any guidance on when this type of crossing should be installed vs. a regular culvert crossing. Even when aquatic organism passage is not an issue, current BMP culvert size tables for permanent stream crossings or other parts of the drainage system (e.g., road ditch systems) are based on a 25-year storm, which is inadequate due to the more frequent, intense rain events that are occurring and are expected to further increase with climate change. Culverts sized per the BMP recommendations are likely to fail at some point, which will result in erosion and downstream sedimentation. The BMPs and conservation easements do not address modifying culvert sizes to accommodate changes in storm intensity resulting from climate change or how to decide when passage for fish and other aquatic organisms is appropriate.

3. Riparian Habitats

Performance Measures

3.1. Riparian management areas (RMAs) associated with lakes, ponds, rivers, streams, and wetlands extend beyond the minimum regulatory standard and are managed to maintain aquatic habitat quality and habitat for the full suite of wildlife species associated with the riparian area.

Effectiveness of Current Easements

Protection of riparian habitats through conservation easements varies widely. At minimum, riparian habitat is included under the general goal of protecting water quality and/or use of water

quality BMPs. Pidot (2023) reports that some easements may include added protection near specific water bodies or for specific species (e.g., loon nesting or eagle nest/roost trees).

As of 2023, the most protective riparian protection requirements in Maine are those included in the Maine Natural Resource Conservation Program (MNRCP) **Riparian Habitat Management Standards**. These standards apply to land protected with funding from Maine's wetland mitigation program, including both fee ownerships and conservation easements. The MNCRP standards are significantly more protective than existing regulations or requirements of other conservation easements.

4. Other Important Plant and Wildlife Habitats

Performance Measures

4.1. Significant Wildlife Habitats and other important plant and wildlife habitats including, but not limited to, vernal pools, deer wintering areas, wading bird and waterfowl habitats, and other areas identified by the Maine Department of Inland Fisheries and Wildlife (MDIFW), Maine Natural Areas Program (MNAP), U.S. Fish and Wildlife Service (USFW), or other agencies are managed in accordance with regulatory standards where applicable and conform to voluntary habitat management guidelines developed or used by these agencies. Where MDIFW-mapped deer wintering areas (DWA) are present the land owner or manager consults with MDIFW on optimum long-term habitat goals for the landscape and develops a plan to maintain, or where appropriate restore, DWA habitat.

Note: This includes important wildlife habitats other than habitat for RTE species.

Effectiveness of Current Easements

Conservation easements vary in reference to other important habitats not associated with RTE species and rare natural communities. Some make no reference, while others may reference deer yards, significant wildlife habitat, and/or natural areas.

5. Native Forest Plant Communities

Performance Measures

5.1. Forests are primarily managed with natural regeneration of native species, or, if planting is required, the total area in planted stands is either minimal in extent or the resulting stands have natural forest analogs on similar sites.

Effectiveness of Current Easements

Most easements reviewed by Pidot (2023) include language related to native forest communities, such as "conservation of native plant and animal species," "full range of native flora and fauna," etc. However, easements do not include metrics for determining if the landowner is in compliance.

6. Habitat Age Class and/or Size/Structure Class Diversity

Performance Measures

6.1. As applicable to ownership size, management maintains, or, where lacking, restores habitat conditions that are suitable for well-distributed populations of animal species that are characteristic of the forest ecosystems on the ownership. This includes maintaining age classes that may be limiting for some species, including the amount of young forest and older forest at the landscape scale, by forest type (for the purposes of this analysis, broad forest types such as softwoods and hardwoods and mixedwoods would generally be sufficient on any given ownership). The intent of this criterion is to focus on the total area in different age and/or size/structure classes of stands at the property scale (or smaller units, say a township, for very large ownerships), not the diversity of tree sizes and ages within multi-aged stands.

Effectiveness of Current Easements

Working forest conservation easements on large ownerships typically include general goals for maintaining a diversity of wildlife habitats but do not include specific targets for habitat age class and/or size/structure class diversity (for example, target percentages in young or old forest age or size classes). A notable exception is the Farm Cove Community Forest easement, which includes a mapped "Late Successional Management Area" (LSMA) with age-class targets, a no-harvest

Ecological Reserve, and a general forest management area. The Rangeley Lakes Heritage Trust property uses size class rather than age to define "late successional" in its LSMA, and this property abuts a second tract owned by the trust to be protected as a non-harvest ecological reserve.

7. Habitat Patch Size, Umbrella and Focal Species, and Habitat Connectivity

Performance Measures

7.1. Habitat patches are sufficient in size and number to maintain well distributed populations of all native wildlife species at the landscape scale, with a focus on species that are area-dependent (i.e., associated with large blocks of a particular size class) and/or forest-interior species and other species that have particular habitat requirements.

7.2. Whenever feasible umbrella species and other focal species are used to identify the amount of habitat and distribution of suitable habitat.

7.3. Appropriate habitat connectivity is maintained.

Effectiveness of Current Easements

Conservation easements generally do not address habitat patch size, umbrella or focal species, or habitat connectivity.

8. Wildlife Trees and Downed Wood

Performance Measures

8.1. Forest stand structures important to wildlife are maintained or restored, including live decaying or cavity trees, snags, downed woody material, and legacy trees.

Effectiveness of Current Easements

A few conservation easements may mention wildlife trees and downed wood in goals for forest management but they do not include verifiable targets for these features.

9. Invasive Species

Performance Measures

9.1. Forest managers monitor invasive species, implement management practices to reduce the risk of introduction or spread, and take steps to manage and control existing populations.

Effectiveness of Current Easements

Conservation easements generally do not include requirements to control invasive species.

10. Forest Roads and Recreation Trails

Performance Measures

10.1 To reduce impacts from forest roads, new forest roads are located away from sensitive habitats (e.g. RTE species and wetlands), construction of new roads is minimized, and unneeded roads are closed on a temporary or permanent basis as applicable.

10.2 Where frequent public trail use is expected, minimize disturbance to wildlife by avoiding or minimizing trails in or near sensitive habitats (e.g., shorelines and wetlands, deer wintering areas, moose winter habitat) and by maintaining large habitat patches without trails.

Effectiveness of Current Easements

Conservation easements generally do not address the impacts of forest roads other than those addressed by BMPs, such as water quality and erosion. Some easements may limit certain recreation trail uses, such as motorized vehicles, but none in this study address issues such as wildlife disturbance from roads or trails that run parallel to water bodies or that may occur in areas with high densities of trails.

11. Management Plans

Performance Measures

11.1 Ecological Management Plan. The ownership has an ecological management plan with a focus on important ecological values, including, but not limited to rare, threatened, and endangered species; high-value plant and wildlife habitats; watersheds, stream crossings, and riparian habitats; special management areas; and best management practices for forest management trails and roads and recreation trails. The plan should incorporate known ecological values and a field review of likely high-value sites and include conservation recommendations from natural resource agencies and other experts, and should be mutually agreed to by the landowner and easement holder prior to

signing the easement. For small ownerships this would only be required for properties with exceptional ecological values.

11.2 Forest Management Plan. The forest management plan should include clear goals, measurable objectives (whenever possible), and clear requirements linked to the ecological management plan, maintaining or restoring the conservation values cited in the easement, and other forestry requirements of the easement.

11.3 Operations Plan. An operations plan describes current forest conditions and planned forest management activities including silvicultural prescription, area and volume of timber to be harvested (if applicable), and other applicable information describing the type, extent, and material to be used in planned operations, how the operation will promote progress toward forest management goals, and include a location map and a site map of the planned operations.

Effectiveness of Current Easements

Although many easements require that forest management plans include provisions for identifying and managing important ecological values, if the easement holder does not have any effective control over or involvement in approving the plan, if issues do arise, enforcement of the easement after operations have begun is a difficult challenge, as it can only be based on the general conservation purposes stated in the easement (Pidot 2023).

11.1 Ecological Management Plan

Stand-alone ecological (or "biological") management plans written by a forest ecologist in consultation with the forest owner and easement holder as recommended by Jenkins (2008) and Pidot (2023) are not generally included as requirements of conservation easements on managed forests in Maine.

Jenkins (2008) recommended a "biological management plan" prepared by an ecologist as a requirement for easements. Benefits of a stand-alone ecological management plan that is separate from a forest management plan identified by Pidot include: a) the plan is prepared by persons with ecological expertise, and with participation and approval of both the landowner and easement holder; b) management practices and enforcement of those practices for identified resources is relatively straightforward and may be modified in the future as science evolves; and c) issues of confidentiality that may be present with publicly sharing forest management plans can impede transparency and accountability associated with easement enforcement, whereas there is no need for confidentiality with an ecological management plan that focuses more narrowly on ecological values.

Recently the Forest Society of Maine (FSM) has begun incorporating requirements for an ecological management plan (referred to as a "Multi-Resource Management Plan" by FSM) into some easements. The Multi-Resource Management Plan (MRMP) includes management standards for rare, threatened, and endangered species and important wildlife habitats; watershed management, aquatic habitat protection and riparian habitat management; and best practices for forest management trails and roads. Depending on the goals of the easement, other standards may include recreation trails, invasive plant management, including a late-successional forest management area, or specified forest habitat age-class targets. As described in the easements, the MRMP must be mutually agreed to by both the landowner and the easement holder and must be followed as a condition of the easement. The easement states that the plan may be updated based on changing ecological conditions or new scientific knowledge per mutual agreement of both parties, as long as the updated plan is no less protective of the ecological values than the initial plan.

Easements with an MRMP also include requirements for a separate forest management plan. While the MRMP focuses on conserving specific ecological values and must be agreed to by both parties, forest management plans in these easements are typically more goal oriented, do not provide clear and objective conservation requirements, and are not subject to approval by the easement holder.

11.2 Forest Management Plan

The ecological management plan (MRMP as described above) is a new approach that has only been used on a few easements to date. However, the vast majority of easements for managed forest lands require a forest management plan. Some of these easements require holder approval of the forest management plan, but most do not. Holder approval of forest management plans may give additional assurance that conservation values will be protected, as that provides an opportunity for the holder to require changes to the plan to be in line with terms of the easement, or to seek an injunction for certain proposed actions that the holder believes will be in violation of the easement terms, before any damage is done (Pidot 2023). However, many landowners refuse to cede approval to holders because of concerns that lack of approval could be arbitrary and would result in additional restrictions not intended in the original easement language. In addition, some easement holders do not want the responsibility of management plan approval, because if conservation values are adversely impacted under an approved management plan the easement holder might not have any recourse to require that the problem be corrected or might be hesitant to make a noncompliance determination for field performance if the activity was described in a previously approved management plan.

In the absence of specific requirements in the easement itself (for example, objective outcomes) or any approval authority or other control by the holder over the landowner's management or related plans, it is difficult to see what specific forest management requirements can be enforced in easements that rely primarily on general statements of goals and intentions.

However, if an ecological management plan is included that focuses on important ecological values (referred to as a "Multi-Resource Management Plan" in some easements prepared by the Forest Society of Maine or a "Biological Management Plan" by Jenkins), and is agreed to by both parties, as described above, many of these concerns may be addressed.

That said, strict management plan requirements, whether or not holder approval is required, do not guarantee conservation outcomes. The best assurances for protecting conservation values are based on a combination of strong management plan requirements, annual meetings between the landowner and easement holder to review and discuss plans and reports, and objective standards of field performance.

11.3 Operations Plan

Operations plans are mentioned in some conservation easements, but are not generally required.



CONSERVATION EASEMENT RECOMMENDATIONS

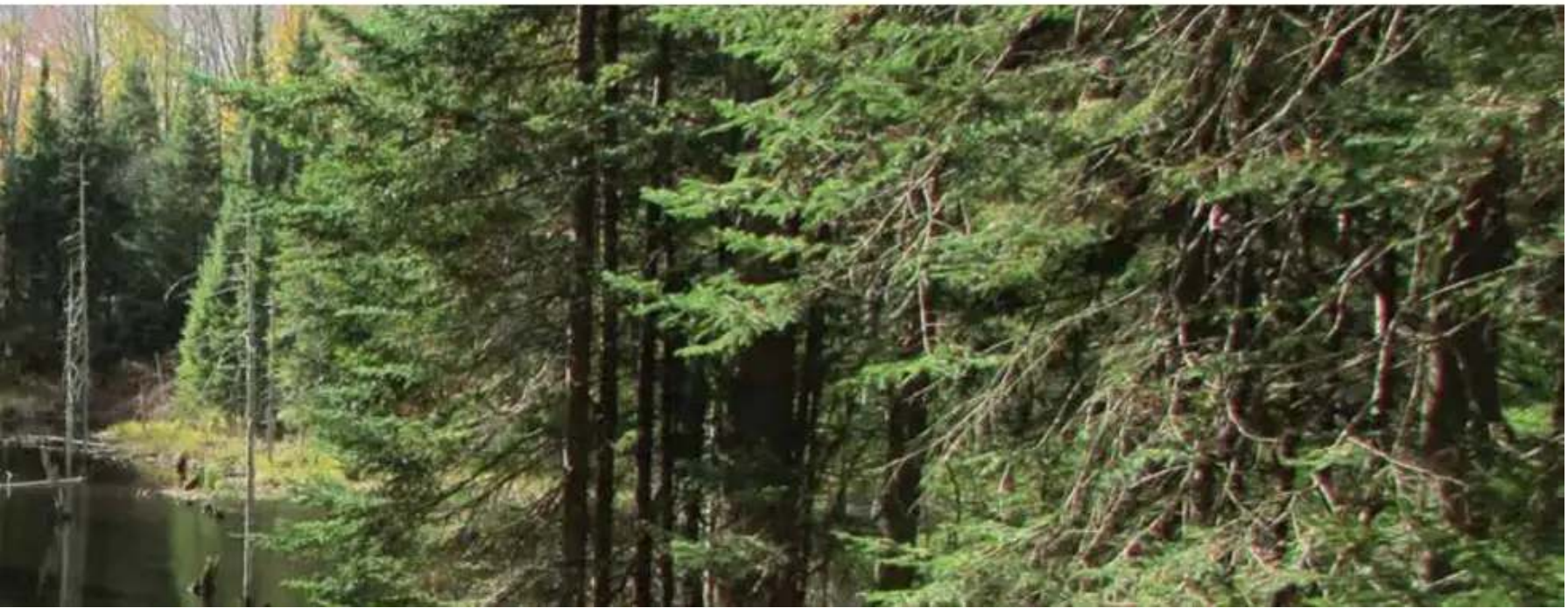
Pidot (2023) observes that many working forest conservation easements have general and aspirational conservation goals but lack a parallel degree of specific, legally enforceable requirements. Although few compliance problems have surfaced in the short time since creation of these easements, their often abstract terms undermine the ability of easement holders to enforce compliance over the indefinite future, which is the essential purpose of any conservation easement. Thus, the holder's ability to enforce these easements to protect wildlife and other conservation values is a concern.

For each of the Core Evaluation Criteria the following table includes a brief summary of the strengths and weaknesses of typical managed forest conservation easements in addressing the criteria as described earlier in the report and recommendations for how easements could be strengthened to better address the Core Evaluation Criteria.

Recommendations are focused on easement provisions and related processes that would create explicit, verifiable objectives related to the criteria while still allowing forest managers latitude in developing management plans and prescriptions to manage the forest for those objectives. The relationship between the Core Evaluation Criteria and Jenkins' (2008) "Blueprint for High-Level Biodiversity Protection" is noted where applicable.

In cases where quantitative criteria are not practical, but where an important criterion should be addressed in the easement, qualitative recommendations for monitoring are added, recognizing that these will require a somewhat more subjective review and analysis by the easement holder. Additional recommendations for developing conservation easements consistent with enhanced conservation of biodiversity are included in "Other Forest Conservation Easement Considerations" section on page 56.

Due to the various interests of conservation easement holders and landowners who agree to place a conservation easement on their lands, the author does not presume or intend that all conservation easements on managed forests should include all of the improved easement standards for biological diversity listed below. However, the following recommendations will be useful for those interested in improving conservation of biodiversity through clearer, more objective standards for key elements of the forest that will provide the most conservation benefit.



Easement Analysis and Recommendations for 11 Core Evaluation Criteria

PERFORMANCE MEASURES	EASEMENT ANALYSIS AND RECOMMENDATIONS
1.1 Ecological Assessment and Management Recommendations	**Current Easements**. Ecological assessment procedures are generally not required for conservation easements. **Recommendations for Large Ownerships** (e.g. >2,500 acres). Jenkins recommends a biological survey by independent experts prior to granting of an easement. In Maine this is sometimes undertaken by the Maine Natural Areas Program (MNAP) and incorporated into an ecological assessment and recommendations. The assessment and recommendations should identify and include management recommendations for: 1. Rare, threatened, and endangered (RTE) species (1.2) 2. Important natural communities (see 1.2) 3. Old Growth and Late Successional Forest (see 1.3) 4. Streams, ponds, wetlands, and associated riparian areas (see 3.1) 5. Other important plant, wildlife, and fish habitats (see 4.1) After the initial field assessment, conservation easements should require that forest managers consult with Maine Department of Inland Fisheries and Wildlife (MDIFW) and MNAP for any updates to the ecological assessment at minimum every 10 years. **Recommendations for Small Ownerships** (e.g. <2,500 acres). MNAP and MDIFW should provide the landowner with maps and data on any known occurrences of important plants, animals, natural communities, waters, and habitats, along with recommendations for appropriate conservation measures of these resources. The conservation measures should be incorporated into the easement and/or forest management plan. Data should be updated at least every 10 years. An optional add-on is a field survey conducted by the holder prior to the easement. The Forest Stewardship Council's (FSC) definition of RTE Species and rare ecological communities included in the current FSC-U.S. Forest Stewardship Standard should be used as it includes a clear definition that is supported by The Nature Conservancy and other conservation groups as well as many large landowners and small landowner representatives.
1.2 RTE Species & Natural Community Identification and Management	**Current Easements**. Conservation easements frequently state that forest management plans must address RTE species and natural community management, but specifics are not typically included and are up to the forest manager. The Multi-Resource (or Ecological) Management Plans being incorporated into some recent easements by Forest Society of Maine are a significant improvement in how to address these conservation values. **Recommendations for Large Ownerships**. Large ownerships should have an Ecological Assessment and Recommendations prepared as described in 1.1. The easement should require an ecological management plan for these values as described in 11.1, below. Habitat for species that are limited in extent (e.g., known rare plant locations or wetlands with rare wildlife species) should be mapped and explicit (i.e., measurable and enforceable) management requirements included in the ecological management plan. Alternatively, as Jenkins notes, "red-lining" these areas as no-cut areas can simplify long-term easement monitoring and enforcement. For RTE species that might be found throughout an ownership (e.g., Canada lynx, Northern long-eared bat), a species-specific management plan should be agreed upon and incorporated into the ecological management plan prior to granting the easement. Species-specific plans should also include a clear mechanism for modifying the plans with the approval of both parties in the future as species status and/or habitat conditions change. **Recommendations for Small Ownerships**. Conservation easements should require that the forest management plan include the MDIFW/MNAP report per Indicator 1.1 and implement recommendations based on that report, with updates to the Ecological Assessment and Recommendations report completed every 10 years, before the management plan is revised. If the prospective easement holder and grantor agree to additional biological surveys prior to granting the easement, then other recommendations for large ownerships could be used on smaller ownerships as well.

PERFORMANCE MEASURES	EASEMENT ANALYSIS AND RECOMMENDATIONS
1.3 Old Growth and Late Successional Forest	**Current Easements**. While old growth and late successional forests might be included in easement goals such as protection of "unique or fragile natural areas" and "natural communities," the lack of explicit easement standards for identifying and protecting these areas would undermine enforcement. Notable exceptions described in the previous section are Late Successional Forest Management Areas on conservation lands in the Grand Lake Stream region and in the Rangeley region. **Recommendations**. Existing old growth and late successional forests should be included in the ecological assessment undertaken prior to granting the easement and explicit standards for maintaining them included in an ecological management plan. Timber management should be excluded from old growth areas and reasonable buffers, but active management in the form of fire might be required for some types (e.g., red pine). Existing late successional areas could be lightly managed for timber providing that explicit standards for stocking by tree size or age are included in the easement. (See 6.1 for recommendations to restore late successional forest as part of an overall stand-size or age-class diversity goal).
2.1 Avoid or Minimize Stream Crossings	**Current Easements**. Many conservation easements at minimum require that landowners follow state Best Management Practices (BMPs) for water quality protection. The BMPs recommend limiting crossings to only those that are necessary. **Recommendations**. Whether or not stream crossings have been avoided or minimized is a subjective decision based on multiple physical site and economic factors—quantifiable and enforceable easement provisions may not be possible. However, clear language—i.e., limiting crossings only to those deemed absolutely necessary—and language minimizing or excluding new roads within riparian habitats should be incorporated directly into the easement.
2.2 Aquatic Organism Passage	**Current Easements**. Most conservation easements do not explicitly reference aquatic organism passage, but easements that require the use of Maine's BMPs for water quality would, by reference to the BMPs, include aquatic organism passage, at least as a guideline. The Fish Passage section of the BMPs includes a number of recommendations consistent with Maine's Stream Smart guidelines, but most of the recommendations are preceded by the words "minimize" or "consider." **Recommendations**. All conservation easements or associated ecological management plans should include an explicit requirement that new stream crossings provide passage for aquatic organisms consistent with current recommendations, with a reference to the most recent generally accepted design handbook. Basic quantitative standards for culverts (width and depth) could also be included. Prior to the granting of an easement there should be a baseline assessment of aquatic organism passage at all stream crossings in conjunction with the recommended ecological assessment (see Indicator 1.1 above). The easement should require that the landowner develop a plan for restoring aquatic organism passage at substandard crossings and include a reasonable timeline for implementation.
2.3 Protect Water Quality	**Current Easements**. Most easements reference the use of Best Management Practices for Water Quality (BMPs) or have general references to maintaining water quality. However, as noted in the previous section, BMPs are very complex, require professional judgment on the part of the logger or forest manager, and as a result do not generally provide the specificity necessary to be enforceable as easement requirements. Maine's regulatory standards vary by jurisdiction. The Statewide Standards for Timber Harvesting in Shoreland Areas, which have been adopted by many organized towns, provide a solid baseline for protection of water quality that is enforced by the Maine Forest Service. Beginning at the point where a watershed drains 300 acres, the Statewide Standards include management requirements for streamside vegetation and standards for protecting stream channels and banks. However, above the 300-acre point the Standards only require that stream banks and channels be protected. The Land Use Planning Commission (LUPC) rules offer less protection for headwater streams and for channel and bank integrity at stream crossings.

PERFORMANCE MEASURES	EASEMENT ANALYSIS AND RECOMMENDATIONS
2.3 Protect Water Quality (continued)	Implementation of many water quality BMPs will vary with site conditions. As a result, some BMP tables such as those for water bar spacing on roads and spacing for ditch turnouts are best used as guidelines and therefore should not be used as firm measures for easement enforcement. Current BMP culvert size tables for permanent stream crossings are based on a 25-year storm and are inadequate due to the more frequent, intense rain events that are occurring and are expected to further increase with climate change. **Recommendations**. All conservation easements or associated ecological management plans should include clear and measureable requirements for water quality protection that are at least as protective as that of the current Statewide Standards for Timber Harvesting in Shoreland Areas. In addition, easements should also include a streamside management area to protect water quality above the point where a stream drains 300 acres. (See Riparian Management Areas below for recommendations on timber harvesting adjacent to water bodies).
3.1 Riparian Habitats	**Current Easements**. This performance measure focuses on riparian values other than protection of water quality. While almost all forest conservation easements have a minimum stated goal of protecting water quality (see 2.3 above), many do not address other riparian habitat issues. Riparian habitat values associated with streams include shading streams, providing leaf litter and woody material inputs to support aquatic life, and providing habitat for aquatic and non-aquatic plant and wildlife species that may use habitats up to several hundred feet from water bodies. Protection of riparian habitats through conservation easements in Maine varies widely, ranging from nothing to adopting minimal water quality BMPs to added protection for specific water bodies or species (Pidot 2023). Jenkins (2008) recommends that easements include explicit rules for buffering water bodies, wetlands, and vernal pools. **Recommendations**. All conservation easements should include explicit Riparian Management Area (RMA) widths and prescribe limits on harvesting within those areas. The general approach to RMA widths and harvest limits used by Maine's Statewide Standards for Timber Harvesting in Shoreland Areas should be considered the minimum standard for conservation easements anywhere in Maine, but vegetation management requirements for streams above the 300-acre watershed point should also be included. Wider widths to ensure that RMAs are sufficient to address plant, fish, and wildlife habitat functions as well as to protect water quality are preferable and should be considered on a case-by-case basis. Easements that specify the minimum stocking based on basal area of trees >4.5" DBH are preferable to standards that are based on percent removal; the former can be more readily verified after a harvest and is targeted toward desired habitat management goals, while the latter (commonly 40% in a 10-year period) can exceed growth and result in continued habitat degradation over time. For additional protection, an inner "no cut" RMA should be included in the easement, especially along coldwater fish habitat, with widths varying by water body size. This approach would help ensure that the potential for large woody material and other benefits such as cavity-nesting habitat is maximized. Incorporating the current Maine Natural Resource Conservation Program (MNRCP) ***Riparian Habitat Management Standards*** as mandatory easement requirements would provide the most protection of riparian habitats.

PERFORMANCE MEASURES	EASEMENT ANALYSIS AND RECOMMENDATIONS
4.1 Other Important Plant and Wildlife Habitats	**Current Easements**. Conservation easements vary in reference to other important habitats not associated with RTE species and rare natural communities. Some make no reference, while others may reference deer wintering areas, significant wildlife habitat, and natural areas. Of the group of habitats listed in Performance Measure 4.1, significant wetland habitats regulated under Shoreland Zoning or the Statewide Standards in organized towns, or under Land Use Planning Commission (LUPC) regulations in unorganized townships, have relatively strong standards for protection. Deer wintering areas (DWA) and vernal pools receive relatively weak protection. In the LUPC jurisdiction, zoned DWAs are protected, but it is well understood that the zoned DWAs are not large enough to provide adequate wintering habitat, and some DWAs may not be mapped or are out of date. In organized townships many maps of DWAs are old and adequate cover may no longer exist, and/or there is little or no monitoring data to support the mapping. In addition, the need for DWAs is less critical near the coast and in southern Maine where snowfall depths and duration are less than inland and northern Maine. Jenkins (2008) recommends a system of mapped special management areas that would include important plant and wildlife habitats, and these have been incorporated into the Multi-Resource Management Plans associated with some easements held by Forest Society of Maine. **Recommendations for Large Ownerships**. The ecological management plan (see 11.1) should incorporate the Ecological Assessment and Recommendations (see 1.1), and should include mapping and management standards for important plant and wildlife habitats. For areas that may vary over time and/or require active management for maintenance (e.g., DWA), the prospective easement holder, grantor and (where applicable) public management agency should agree on a management plan that includes quantitative targets that will provide the necessary habitat conditions for the species of concern. Easement provisions should be included that allow amending the plan as ownership objectives or habitat conditions change, provided that the goal of maintaining or improving habitat conditions is maintained. For vernal pools, Maine's Forestry Habitat Management Guidelines for Vernal Pool Wildlife (Calhoun and deMaynadier 2004) should be used. Because these are "guidelines," easements should include specific requirements based on the vernal pool guidelines. Specific easement provisions should also be included for other important habitats identified during the biological survey. **Recommendations for Small Ownerships**. Maine's regulatory framework partially addresses most important habitats associated with wetlands and water bodies except vernal pools. However, these are typically minimum standards, and could be expanded in any easement looking to enhance protection of fish and wildlife habitat over the long-term. The large-ownership recommendations for vernal pools should also be used for small ownerships. For DWA and similar extensive habitats that may be mapped (e.g., on Beginning with Habitat maps), the prospective easement holder and landowner should agree on a management plan with measurable outcomes prior to the granting of the easement, with provisions for amending the plan as ownership objectives or habitat conditions change, provided that the goal of maintaining or improving habitat conditions is maintained.
5.1 Native Forest Plant Communities	**Current Easements**. Most easements reviewed by Pidot (2023) include goals related to native forest communities, such as "conservation of native plant and animal species," "full range of native flora and fauna," etc. However, easements do not include metrics for determining if the landowner is in compliance. Currently in Maine there is little risk of large-scale forest conversion to non-native tree plantations, but at least one very large ownership has an aggressive program of converting large areas of hardwood and mixed forest to spruce plantations, including site preparation, herbicide spraying, and pre-commercial thinning that includes removal of most other species. With changes in climate, market forces, and landowner goals and strategies, conversion of native forests to plantations could increase. **Recommendations**. To help ensure conservation of native plants and plant communities, easement elements such as limits on the extent of plantation establishment, restrictions on herbicide and pesticide use and requirements for habitat age class structure diversity (see 6.1) should be included. An emerging consideration that will likely play a greater role in forest conservation and easements in the future is if and how to include management strategies for "climate-friendly" species and climate-resilient natural communities.

PERFORMANCE MEASURES	EASEMENT ANALYSIS AND RECOMMENDATIONS

6.1 Habitat Age Class or Size/Structure Class Diversity

Current Easements. Conservation easements typically include general goals for maintaining a diversity of wildlife habitats, but with very limited exceptions do not include a definition of or specific targets for habitat age class (or alternatively, diversity of stand development stages as indicated by size and/or structural diversity). Jenkins (2008), whose focus was on large-forest easements, recommends that all easements include a system to protect existing old forests, and the author emphasized the need to increase the amount of mature and late-successional forest on all easements in the Northern Forest outside of the Adirondacks. Data for Maine show that the amount of older forest is significantly less than recommended by regional wildlife experts.

Recommendations for Large Ownerships. Conservation easements on large ownerships should at minimum include specific targets for mature and late successional forests, as this habitat type is most at risk. Considering the DeGraaf et al (2006) and Maine Audubon (2007) guidelines, the area in older forests should include ≥40% of the forest in maturing (small sawtimber) plus ≥10% in older/complex (large sawtimber) stands (see Appendix 1 for definitions). As of 2021, Maine's statewide forest inventory showed that only 29.1% of the northern and eastern regions where most large ownerships are found was in sawtimber-size classes, with only 11.2% over 100 years old (Lautsen 2004), significantly less than the ≥50% recommended by these guides. Because many large-forest ownerships may not currently meet specified targets for older forest habitat, long-term growth and harvest models should be used to establish a time frame and benchmarks for meeting specified age- or stand-size class targets. Due to the long-term nature of forest management and of conservation easements, setting a goal to be attained 50 years in the future would not be unreasonable. Conservation easement holders should contract with independent forest biometricians to verify the landowner's model assumptions and periodically monitor progress towards the goals.

For older or mature forests, either forest age class or forest structure class (e.g., as measured by tree diameter classes) could be used. The system recommended by DeGraaf et al. ("sawtimber" and "large sawtimber") is a reasonable surrogate for mature through early late-successional stages. A true age-based metric could be used as well, as has been done for the Downeast Lakes Land Trust's Farm Cove Community Forest Late Successional Management Area, but taking a sufficient number of tree cores to monitor forest age would be very time consuming.

Because numerous wildlife species of conservation concern, including those identified in Maine's Wildlife Action Plan and Maine Audubon's *Forestry for Maine Birds* guide, are associated with young-forest habitats or small canopy gaps within a landscape matrix of predominantly older forest, habitat targets for these species could also be included in conservation easements, as long as the targets for maturing (small sawtimber) and old/complex forests (large sawtimber) referenced above are met for all cover types on an ownership.

An alternative approach, or in combination with, to specifying size- or age-class targets, is to adopt a minimum forest-wide volume target (Minimum Stocking Level, or MSL) associated with a future date to serve as a surrogate for average forest conditions (i.e., greater volume correlated with greater average age). MSL is simpler than age- or size-class targets and could be readily verified through periodic forest inventories and directly related to timberland values tied to the cost of the easement. Typically, MSL is paired with a Sustainable Harvest Level easement requirement to verify that the forest will be managed in a way to attain and maintain MSL within a specified amount of time (for example, 20-30 years). MSL and Sustainable Harvest Level have been incorporated into several Maine conservation easements.

Another option that has been incorporated into some easements or associated ecological management plans is to include a late successional forest management area with specified size-class targets.

Recommendations for Small Ownerships. In the southern and western counties of Maine, where most of the smaller ownerships are located, only 5% of the forest is in stands ≥100 years of age (Lautsen 2004). However, small-forest owners have little to no ability to influence the age-class or stand-size class composition at the landscape scale, and the small sizes of these ownerships means that there is little flexibility to manage for a diversity of current stand-size classes across the ownership. The lack of flexibility means that explicit age- or

PERFORMANCE MEASURES	EASEMENT ANALYSIS AND RECOMMENDATIONS
	size-class targets would in many cases result in arbitrary decisions to harvest individual stands early or significantly delay harvesting in some stands well beyond generally recommended ages simply to reach ownership-wide goals. Therefore, conservation easements should not set explicit targets for age or stand-size classes on small ownerships, except as noted at 1.3, above, for Old Growth and Late Successional Forest. For this ownership class sustainability concepts related to growth, harvest, and maturity are best applied at the forest stand level through easement requirements addressing management of stands to maturity using recognized silvicultural guidelines (see Other Conservation Easement Recommendations, below). However, easements should require that management plans for small ownerships describe the ecological context of the surrounding landscape conditions and include management recommendations based on consideration of landscape condition. As an alternative to property-wide size- or age-class targets, easement holders and landowners might consider designating a late successional management area somewhere on the ownership. **Other Considerations** Areas of the forest with significant harvest restrictions, a high percentage of older forest, or high stocking level requirements may limit options for enrolling in carbon credit programs, or reduce allowable payments.
7.1 Habitat Patch Size	**Current Easements**. Conservation easements in general do not address habitat patch size. However, some easements have identified areas (i.e., large patches) with requirements to manage for specific habitat conditions. For example, the Downeast Lakes Community Forest has a Late Successional Forest Management Area (actively managed for late successional conditions) and two large ecological reserves. **Recommendations for Large Ownerships**. The science on habitat patch size is not definitive enough at this time to create explicit, enforceable standards that could be broadly applied in conservation easements. Where prospective easement holders want assurances that large blocks of unfragmented habitat for species such as American marten will be retained, the easement should establish large mapped areas within a larger conservation easement where the forest would be managed for intermediate to old-forest conditions (e.g. see Downeast Lakes example above). Options include establishing an area for active management for a multi-aged forest with generally small harvest gaps (e.g., 2 acres or less, or that otherwise meet other specified conditions such as marten or deer wintering habitat at multi-stand scale) and/or a no-harvest ecological reserve, both set within a larger area of actively managed forest. See Other Conservation Easement Recommendations (below) for examples and further discussion of this approach. For older-forest management areas, measurable criteria could include a percent of the area in a particular age or structure class, or average stocking targets. As with similar forest-wide targets (see 6.1, above), modeling and periodic measurements would be used to verify progress toward specified forest conditions within the patch. **Recommendations for Small Ownerships**. The area-management approach suggested for large ownerships might be practicable on ownerships of several hundred acres or more, but for smaller ownerships a more general approach to sustainability as described in 6.1 above would likely be more desirable.
7.2 Umbrella or Other Focal Species	**Current Easements**. Conservation easements have not historically included umbrella or focal species. **Recommendations**. Conservation easements should not generally include requirements to manage for a list of specific umbrella or focal species, as species priorities and/or knowledge about a species habitat needs are likely to change over time. This could result in significant changes in required practices needed to ensure that target species are accommodated, which could in turn significantly impact land value. Any concerns about specific species or species groups are best addressed indirectly through easement requirements for habitat age- or size-class diversity (see 6.1) and mapped special management areas (see 7.1). However, the easement could require that the landowner identify a suite of umbrella or focal species that would be used to develop on-the-ground management practices within the various habitat types.

PERFORMANCE MEASURES	EASEMENT ANALYSIS AND RECOMMENDATIONS
7.3 Habitat Connectivity	**Current Easements**. Conservation easements do not address habitat connectivity. **Recommendations**. Habitat connectivity issues may vary over time, and thus be difficult to establish verifiable easement standards. However, specific habitat corridors should be mapped when the easement is established, and associated management requirements should be included in the easement or an associated ecological management plan, especially where habitat connectivity within the property or between the property and adjacent lands is critical. Because forest conditions may change as a result of management or other factors, the ecological management plan should allow for mutually agreed upon changes as described early in this report and in section 11.1 of these recommendations below.
8.1 Wildlife Trees and Downed Wood	**Current Easements**. Conservation easements may mention wildlife trees and downed wood in goals for forest management but they do not include verifiable targets for these features. **Recommendations**. Verifiable easement standards for field performance are difficult to impose due to variability of factors influencing snags, cavity trees and other wildlife trees, and downed wood. However, management plans should be required to include goals and recommendations for wildlife trees and dead wood. Examples of goals and management practices that could be included can be found in *Forestry for Maine Birds* (Maine Audubon 2017, page 95) and other sources.
9.1 Invasive Species	**Current Easements**. Conservation easements frequently do not include requirements to control invasive species. **Recommendations**. Verifiable easement standards for invasive species control are not currently practical due to variability of factors influencing invasive species and the unknown future costs to control them. However, a long-term goal of minimizing the presence of invasive species by identifying them, limiting their spread, and controlling them as possible should be included in the ecological management plan or forest management plan.
10.1 Forest Roads	**Current Easements.** Easements generally address the impacts of forest roads on water quality by requiring Best Management Practices (BMPs), but other potential concerns of impacts from roads and trails such as habitat fragmentation and wildlife disturbance are not typically addressed. **Recommendations.** Performance measures for forest roads noted above should include requirements to avoid or minimize stream crossings (2.1), passage for fish and other aquatic organisms (2.2), effective use of BMPs (2.3), and management of riparian habitats (3.1) (see sections 2.1-2.3 and 3.1). Additional verifiable easement standards, for example, requirements to minimize habitat loss and fragmentation created outside of these sensitive areas, are not practical to address in an easement due to variability of factors influencing the extent and location of forest roads. However, one option for reducing impacts from roads would be to designate road-free areas or distance from sensitive resources prior to adoption of the easement and include them in the easement language.
10.2 Recreational Trails	**Current Easements**. Some easements may limit certain recreation trail uses, such as motorized vehicles. Most easements do not address non-motorized trails, but research has shown that human activity on non-motorized trails can disturb wildlife up to several hundred feet from the trail. Of particular concern are areas with high densities of trails and trails near habitats required by disturbance-sensitive species, such as, wading bird and waterfowl wetlands. **Recommendations**. Easements should address wildlife disturbance from recreation trails. Easements should require that recommendations from regional guidelines for trail location and density such as Naughton's *Wildlife and Recreation* (2021) and New Hampshire Fish and Game, *Trails for People and Wildlife*, be incorporated into management plans with a goal of minimizing impacts to wildlife. Easements could designate trail-free areas in advance or require that a certain amount of a property be located beyond the disturbance distance from trails.

PERFORMANCE MEASURES	EASEMENT ANALYSIS AND RECOMMENDATIONS
11.1 Ecological Management Plan	**Current Easements**. Stand-alone ecological management plans written by a forest ecologist in consultation with the forest owner and easement holder as recommended by Jenkins (2008) are not generally included as requirements of conservation easements in Maine. However, the Forest Society of Maine (FSM) has recently begun incorporating requirements for an ecological management plan (referred to as a "Multi-Resource Management Plan" by FSM) into some easements. **Recommendations**. An ecological management plan (or similar, for example, biological management plan) should be prepared that incorporates the ecological assessment and recommendations (see 1.1) and other applicable information. The ecological management plan should include enforceable management standards for rare, threatened, and endangered species and important wildlife habitats; watershed management; aquatic habitat protection and riparian habitat management for lakes and ponds, rivers, streams, wetlands, and vernal pools; forest management trails and roads; recreation trails; and invasive plant management. Depending on the goals of the easement, other standards may include a late-successional forest management area, specified forest habitat age-class targets, or other specified ecological features. The ecological management plan should be mutually agreed to by both the landowner and the easement holder and must be followed as a condition of the easement. Provisions in the easement should require that the ecological management plan be updated based on changing ecological conditions or new scientific knowledge, per mutual agreement of both parties, as long as the updated plan is at least as protective of the ecological values as the initial plan. See Appendix 2 for detailed recommendations.
11.2 Forest Management Plan	**Current Easements**. Conservation easements on managed forest land (e.g., "working forest easements") almost universally require a forest management plan, but the plan specifications typically only include an outline of minimum plan contents and broad goals for management. Some easements require holder approval of the management plan, but most do not. If the easement provides few specific requirements or measurable standards and no opportunity for the holder to have meaningful involvement in any of the holder's management plans in order to protect conservation values described in the easement, there may be little substance that the holder can enforce. However, these concerns would be addressed by requiring an ecological management plan mutually agreed to by both parties that meets the requirements described above. **Recommendations**. All conservation easements should require that a forest management plan be developed that meets clearly specified and enforceable performance measures, including incorporating information from ecological assessments and recommendations for appropriate management of important plant and animal habitats (see 1.1) as well as requirements for sustainable timber harvest. If the easement does not include requirements for an ecological management plan that is mutually agreed to by both parties as described above, then holder approval of a forest management plan would ensure that sensitive ecological resources are protected. At minimum the easement should allow the easement holder sufficient time to recommended changes to the plan if holder finds that the plan is inconsistent with the goals, purposes, and requirements of the easement and ecological management plan. See Appendix 2 for detailed recommendations for both large and small landowners.
11.3 Operations Plan	**Current Easements**. Operations plans for timber harvest or other activities, or pre-harvest notifications, are required by some easements. **Recommendations**. Easements should require that an operations plan be prepared prior to operations and submitted to the holder with sufficient time to allow the holder to review the plan and request changes to sections of the plan that are not consistent with the easement's terms and associated ecological management plan and/or the forest management plan. See Appendix 2 for detailed recommendations.

Working Forest Conservation Easements 55

OTHER FOREST CONSERVATION EASEMENT CONSIDERATIONS

The preceding section was narrowly focused on the Core Evaluation Criteria. This section describes how the preceding recommendations could be integrated into a comprehensive approach to improving biodiversity protection through the Ecological Assessment and Recommendations, ecological management plan, forest management plan, and operations plan. Other considerations such as the limits of forest certification as a tool for easement monitoring and enforcement and issues with transfer of ownership are also discussed.

Relationship of Conservation Easements to Forest Certification

It is not uncommon for some easements to allow forest certification auditing to be used to monitor and verify conformance with the forest management provisions of an easement, and some easements explicitly require forest certification. However, allowing forest certification to be used as the means to verify conformance with an easement's forest management requirements falls short in a number of situations and is not adequate for addressing all the ecological values identified and addressed in this report.

A major concern with the principal forest certification standards used in the U.S. (Forest Stewardship Council, or FSC, and Sustainable Forestry Initiative, or SFI) is that many of the standard requirements are process oriented and are not based on objective management outcomes. As an FSC forest certification auditor who reviewed management on ownerships covering millions of acres across the U.S. from 2003 to 2019, I found that the standards allow for significant gray area in what constitutes certifiable forest management. As a result, certification standards may have limited applicability in ensuring that specific conservation values contemplated in an easement are achieved. An additional concern is that forest certification standards are revised every 5-10 years, which in effect would result in changing easement standards if the easement allowed forest certification as a means to verify compliance with the easement.

While a complete forest certification report prepared by an independent third party can provide useful information to an easement holder, forest certifiers have no responsibility or authority for ensuring management activities meet the terms of the easement. Therefore, the easement holder must retain ultimate responsibility for overseeing compliance with all easement requirements, even if some of them are dealt with in the forest certification report. Forest certification report findings may be relied upon by the holder to determine compliance on specific easement provisions in cases where the certification requirements are objective and no less protective than those of the easement. However, easements should not delegate ultimate holder responsibilities to independent third parties with respect to the holder's duties regarding compliance monitoring and enforcement of the easement, which is the holder's single most important easement responsibility.

Ownership Transfers

Changes in forest ownership often result in different management objectives. Because it may take 50 or more years to achieve forest stand-size or age goals specified in an easement and forest management plan, those goals and the timeline to achieve them must be carried forward to the next owner. While this is implicit in a legally-binding conservation easement, the issue of maintaining continued progress toward measurable goals with change of ownership can be challenging to ensure and should be an ongoing focus of easement holders.

Easement Amendments

Conservation easements are "in perpetuity," but forest science, baseline conditions described at the start of the easement, and other contexts will change over time. Changes to easements are limited by state laws, but to the extent allowed, easements should contemplate the possibility of updates based on new science and/or monitoring that demonstrates that the current easement provisions are not effective at protecting the conservation values identified in the easement. The ability to

amend a Multi-Resource Management Plan (ecological management plan) linked to the easement, as described earlier in this report and in Appendix 2, is a way to allow for future changes. Changes should also be possible when existing regulatory standards relied upon in the easement or plans are substantially changed, and/or when programs referenced in the easement or plans are no longer in effect. In either case, modifications should only be allowed if they are considered by ecological experts to be the best way to achieve the goals of the easement. Consistent with Maine law, absent court approval, easements should not be amended to weaken protections of the conservation values that are intended for protection under the easement.

Other Sustainability Criteria

The scope of this project was limited to Core Evaluation Criteria that focus primarily on forest management activities that directly impact fish and wildlife habitats. Other conservation easement criteria that are very important to long-term ecosystem health, such as practices related to soil health and productivity, sustainable harvest rates, and appropriate use of herbicides and insecticides, are not included here. Landowners, conservation easement holders, and related parties should review the list under Other Sustainability Criteria in Appendix 3, and whenever possible include performance measures for these conservation values in the easement that will allow conformance to be objectively verified.

Easement Monitoring

The recommendations for objective and verifiable easement standards described above should be used as the basis for conservation easement monitoring. The monitoring approach should be systematic and whenever possible use quantifiable data and other measurable outcomes as the basis for determining conformance with the easement standards, although qualitative standards should also be reviewed for conformance. While many easement criteria should be monitored annually, it may make sense to evaluate some criteria, such as progress toward long-term targets for age- or size-class diversity, on a less frequent basis (e.g. every 5-10 years). Monitoring may also be appropriate during periods of active harvesting or roadbuilding activities. Easements should include a process for tracking progress toward specified long-term goals and a procedure to address problems in meeting those goals that may arise along the way.

Easement Reporting

Reports of easement monitoring and compliance by the holder should be made available to the public wherever public monies were used to help purchase the easement, including at least a summary of any third-party audits, if not the full report (minus any proprietary information).

Carbon Markets

Carbon credits are typically not allowed on lands where a landowner has sold or given up the right to harvest under a conservation easement, and easements that otherwise limit harvesting or require higher stocking levels than "business as usual forestry" could affect participation in and payments from carbon market programs. Program requirements vary, new programs are in development, and existing programs are evolving. Landowners considering the option of selling carbon credits should understand how conservation easement terms could affect the ability to participate in carbon programs before finalizing an easement.

EASEMENT RECOMMENDATIONS SUMMARY TABLE

The following table summarizes Core Evaluation Criteria that should be supported by verifiable easement standards. This table is intended to serve as a summary checklist only. See the preceding sections for specific recommendations.

PERFORMANCE MEASURES	VERIFIABLE EASEMENT STANDARDS RECOMMENDED *See prior sections for details*	
	Large Ownerships >2,500 acres	Small Ownerships <2,500 acres
1.1 Ecological Assessment and Recommendations	✓	✓
1.2 RTE Species & Natural Community Management	✓	✓
1.3 Existing Old Growth and Late Successional Forest	✓	✓
2.1 Avoid or Minimize Stream Crossings	No	No
2.2 Aquatic Organism Passage	✓	✓
2.3 Effective Use of Water Quality BMPs	✓	✓
3.1 Riparian Management Areas	✓	✓
4.1 Other Important Plant and Wildlife Habitats	✓	✓
5.1 Native Forest Communities	No	No
6.1 Habitat Age or Size/Structure Class Diversity	✓	No
7.1 Habitat Patch Size	Optional	Optional
7.2 Umbrella or Other Focal Species	No	No
7.3 Habitat Connectivity	No	No
8.1 Wildlife Trees and Downed Wood	No	No
9.1 Invasive Species	No	No
10.1 Forest Roads	✓	✓
10.2 Recreational Trails	✓	✓
11.1 Ecological Management Plan	✓	✓
11.2 Forest Management Plan	✓	✓
11.3 Operations Plan	✓	✓

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Appendix 1. Glossary and Abbreviations

DBH: Diameter at breast height (4.5 ft.)

FSC: Forest Stewardship Council (a forest certification system)

FIA: Forest Inventory and Analysis (U.S. Forest Service periodic forest inventory and assessment)

Habitat Age Class (from Forestry for Maine Birds, Maine Audubon 2017)

Landscape: Includes a minimum of 2,500, acres, and up to 10,000 acres around small ownerships. On larger ownerships, a typical township (roughly 23,000 acres) may be a more appropriate landscape management scale.

Large Forest Block or Patch: >250 acres

Late Successional: Forest in old-growth or mature seral stages classified as stands lacking evidence of natural or human stand-replacing disturbances, or of sufficient age since disturbance to have developed late successional characteristics including a high density of large live trees and snags, other large deadwood, pits and mounds created by falling trees rather than stumps, high biodiversity, vertical canopy differentiation, and the presences of certain lichens. It is generally assumed that late successional stands begin at about 120 years in Maine.

Old growth: (1) the oldest seral stage in which a plant community is capable of existing on a site given the frequency of natural disturbance events, or (2) a very old example of a stand dominated by long-lived early-or-mid-seral species. The onset of old growth varies by forest community and region. Depending on the frequency and intensity of disturbances and site conditions, old-growth forest will have different structures, species compositions, age distributions, and functional capacities than younger forests. In Maine, old growth stands are generally considered to be 150 years of age or older (Elliott 2008), generally with no or minimal history of harvesting, or historically harvested stands that retain significant old growth structure and function.

Ownership:

- **Large:** >2,500 acres
- **Small**: <2,500 acres

RTE: Rare, Threatened, or Endangered (species or communities), as listed by federal or state agencies.

Stand Structure Class: The predominant tree size of a given forest stand. See Habitat Age Class, above.

SFI: Sustainable Forestry Initiative (a forest certification system)

HABITAT AGE CLASS	YOUNG	
%Landscape	10-20%	
Standard Structure Class	1 – Seedling	2 – Sapling
Dominate Tree DBH*	<1″	1-4″
Age (years)*	<10	10-25

HABITAT AGE CLASS	INTERMEDIATE	
%Landscape	20-40%	
Standard Structure Class	3a – Singe-aged Poletimber	3b – Two-aged with Partial Overstory
Dominate Tree DBH*	5-10″	5-10″
Age (years)*	20-70	Variable

HABITAT AGE CLASS	OLDER	
%Landscape	40-50%	>50%
Standard Structure Class	4 – Maturing, Small Sawtimber	5 – Old-Complex, Large Sawtimber
Dominate Tree DBH*	10-16″	>16″
Age (years)*	70-100+	>100

* *Varies by site and species.*

Appendix 2. Management Plans

ECOLOGICAL MANAGEMENT PLAN

All Ownerships

The conservation easement should require that an ecological management plan[1] agreed to by both the landowner and the easement holder be completed before the conservation easement is finalized.

The ecological management plan should include all the required actions and restrictions on the property that are not set out in the easement itself, as needed to carry out its conservation purposes and protect wildlife and other conservation values.

Large Ownerships

On large ownerships, the baseline ecological information for the plan would incorporate the MNAP and MDIFW databases as well as a field survey to identify and map the resources listed below, and should include management recommendations from agency staff and other ecological experts (see Ecological Assessment and Recommendations in "Evaluation of Forest Certification Standards and Conservation Easements" and "Conservation Easement Recommendations" of this report).

The easement should specify that:

- The ecological plan must be followed, is applicable until updated after which the update takes effect, and that terms of the ecological management plan shall transfer to future owners in the case of a transfer of the Protected Property.
- Updates to the plan necessitated by new science or changing ecological conditions must be mutually agreed to by both parties and result in ecological protections no less than those of the initial plan.

The plan should include explicit, enforceable management standards to conserve and protect at a minimum:

1. Rare, threatened, or endangered species and their habitats
2. Rare or exemplary natural communities
3. Existing late successional and old growth areas
4. Deer and moose wintering areas, important wetlands, riparian areas, vernal pools, and other important habitats
5. Aquatic organism passage
6. Water quality, through the use of appropriate measures on forestry and recreation roads and trails
7. Large blocks of interior forest habitat, by planning forest management and recreation trails and roads to minimize wildlife disturbance

Other topics may include but are not limited to the following:

8. Designated late successional management areas
9. Ecological reserves
10. Future areas (up to a specified percentage or acreage) to be included as special management areas within the ecological management plan[2]
11. Other standards applicable to the property or the goals of the easement

The Ecological Management Plan should include maps showing the locations of all areas to which the plan applies (generally, items 1-4 and 8-10 in the above list), as well as current infrastructure such as forest roads and recreation trails. Small features shown on most maps such as vernal pools and small streams should be mapped prior to operations.

Additional recommendations and considerations:

- Management standards for these areas should be based on maintaining, restoring, or enhancing the identified ecological features.
- Management standards should be objective and verifiable so that they provide clear targets for management and are enforceable by the easement holder.
- For areas identified by the ecological management plan that allow timber harvesting, the plan development team should include a licensed forester familiar with forest operations so that practical management standards can be developed.
- See the applicable topics in "Conservation Easement Recommendations" for specific recommendations on how to address each plan element.
- Developing standards for Deer Wintering Areas (DWA) may take the most planning and consultation, as LUPC DWA zones are not always accurate and generally do not include enough habitat to sustain a wintering population and DWA maps in organized towns are often outdated.

1 "Biological management plan" (Jenkins 2008) and the Forest Society of Maine's "Multi-Resource Management Plan" refer to the same type of plan as an "ecological management plan" as used in this report, although their details may vary somewhat.

2 For example, see the Connecticut Lakes Headwaters Forest (New Hampshire) easement.

There are examples of conservation easements incorporating some of these elements, but a comprehensive approach utilizing most or all of these elements is rare. The Rangeley Lakes Heritage Trust is using a similar approach on some new acquisitions and easements in the Kennebago River watershed. The Connecticut Lakes Headwaters Forest in New Hampshire is a good example of a private commercial forest with conservation provisions worth noting. In particular, the most valuable ecological areas were transferred to conservation ownerships (state or nonprofit) as protected ecological areas prior to granting an easement, and the easement includes what Jenkins (2008) describes as a "pre-paid phone card" whereby the state can designate additional special management areas up to a specified acreage after the easement has been established. The Downeast Lakes Community Forest easements include a late successional management area and an ecological reserve. As of the date of this report, a few other Maine conservation easement projects for managed forests are also planning to incorporate similar requirements.

Small Ownerships

Forest management plans for small woodlands may contain items 1-4 in the preceding list, but these are typically included in a plan that is developed by the landowner or landowner's forester after the easement has been established and are not subject to holder approval. An example of an easement that provides the holder with greater flexibility and control to address other valuable resources is the Chase Reserve easement (194 acres in Brunswick), which enables the easement holder to prepare an ecological management plan for designated high conservation value portions of the property (Pidot 2023).

Recommendations:

- An ecological management plan for small ownerships completed before the easement is finalized and agreed to by both landowner and holder would clarify protection of the most important ecological resources on the property. The outline, elements, and process for developing an ecological management plan would be similar to that described for large ownerships as described above, except that a field survey (e.g., rare plant survey), while desirable, would be optional per the decision of the prospective easement holder.
- Because small woodland owners who grant conservation easements frequently have a long-term relationship with a forester, the landowner's forester or a forester agreeable to both the grantor and holder should be included in development of the ecological management plan.
- Land trusts that do not have the in-house technical expertise and experience to review ecological management plans should hire a qualified ecologist familiar with forest management to advise the trust during the process of reaching a mutual agreement on the plan's details.

FOREST MANAGEMENT PLAN

In addition to an ecological management plan, all conservation easements on managed forest land (e.g., "working forest easements") should require that a forest management plan be developed that meets clearly specified criteria. The following recommendations for management are limited to those important to maintaining conservation values and are not intended to be a complete list of forest management plan requirements that would be included in an easement.

All Ownerships

- The forest management plan should describe in detail how forest management will maintain the specific conservation values identified in the ecological assessment and ecological management plan, including ecological management elements listed above, and any other elements that are included in the plan, as well as the conservation values described in the conservation easement.
- The forest management plan should include descriptions of management activities to be undertaken in the next 10 years with quantifiable objectives by stand or other specified area (e.g., silvicultural prescription, acres to be treated, and estimated volume to be harvested.
- Easements should require that management plans be updated every 10 years; depending on changes that have occurred, a full plan revision may not be necessary.

At minimum the easement should allow the easement holder sufficient time to recommended changes if holder finds that the plan is inconsistent with the goals, purposes, and requirements of the easement and ecological management plan.

Large Ownerships

In addition to the elements applicable to all easements, forest management plans for large ownerships should:

- At minimum include ecological management plan elements 1-7 listed above, and any other elements that are included in the ecological management plan.
- Describe specific practices that will be used to address each of the remaining Core Evaluation Criteria and Performance measures.

- Describe the methodology for establishing and adhering to a sustainable harvest level that will ensure that the conservation values described in the easement and ecological values identified in the ecological management plan are not adversely impacted by harvest levels.
- Include a) a current inventory of stand-size classes showing how the current forest compares with stand-size class goals described in the ecological management plan, and b) growth and harvest modelling results showing how and when the stand-size class goals will be achieved. See Conservation Easement Assessment and Recommendations, 6.1 for details. Model output by 5-year increments should be used for easement monitoring to track progress toward those goals. For ownerships that do not use forest-wide modelling, an alternative approach that provides measurable outcomes of forest stand-size structure over time may be used.
- Include other provisions necessary to ensure that the conservation values identified in the easement and ecological management plan are maintained.

Small Ownerships

In addition to the elements applicable to all easements, small ownerships should:

- Require an approved forest management plan prepared by a licensed forester that meets at minimum a) Maine WoodsWise Forest requirements for a full forest management plan with forest inventory[3], or b) the most recent Natural Resource Conservation Service (NRCS) management plan requirements for Maine (CAP-FMP 106), or c) the FSC-U.S. management plan requirements for Family Forests. Other plan standards including the Maine Woodland Resource Analysis Plan (WRAP), Maine Tree Growth plan, Tree Farm, and the joint NRCS/Tree Farm/Forest Stewardship plan template have less specific requirements and are not suitable for conservation easements that seek to ensure a high level of biodiversity protection.
- Include verifiable targets for the applicable small-ownership recommendations. These may exceed the requirements of the aforementioned state or federal management plan requirements.

Additional Considerations

- Specific long-term goals related to forest age- and/or size-class structure considering both the current forest conditions and the surrounding landscape context would clarify the long-term vision for the diversity of habitat age classes on the forest.

Easement recommendations in this report for improved protection of biodiversity go beyond those required in most forest management plan standards. Therefore, holder approval would be necessary for those verifiable easement standards that are not required under the applicable state, federal or NGO management plan standard.

OPERATIONS PLAN

An operations plan should be prepared and submitted to the holder with sufficient time to allow the holder to review the plan and request changes to sections of the plan that are not consistent with the ecological management plan or the forest management plan as described above. The operations plan should at minimum include:

- Map of the treatment area showing sensitive sites and resources.
- As applicable, area to be treated, silvicultural prescription, volumes to be removed, targeted residual stocking and/or other applicable measures depending on the treatment type.
- For plant or insect control, any chemicals and rates to be used, species targeted, method of application, and how the treatment will minimize impacts to non-target species and resources.[4]
- Water quality protection measures and other safeguards to be implemented, including specific requirements for sensitive sites and resources identified in the Operations Plan (e.g., location and type of stream crossing structures).
- Specific standards included in the management plan (e.g., BMPs, riparian management areas, etc.) may be included by reference to that plan or other published guidelines.
- How the expected outcomes will be in conformance with the verifiable easement standards included in the easement and ecological management plan and with provisions of the forest management plan.
- Beginning and expected ending dates of operation.

3 Maine WoodsWise Forest Management Plan requirements: http://www.maine.gov/dacf/mfs/policy_management/wwi/wwi_manual/wwi_manual_section3.pdf; as of 3/21/2017).

4 For additional details on standards for chemical use, refer to the 2010 FSC-US Forest Management Standard, Criterion 6.6 and FSC 2022 draft standard, Criterion 10.7.

Appendix 3. Other Sustainability Criteria

The Core Sustainability Criteria included in this report were developed for the purposes of this effort and are not intended to address all aspects of sustainable forestry. Other important criteria that apply to well-managed forests include:

1. Minimum legal standards are always met.
2. Native plant species composition characteristic of the site is maintained.
3. When even-aged management is practiced, management includes stands with multiple canopy layers on a significant portion of the landscape and live trees and other native vegetation are retained during the regeneration phase.[5]
4. Use of local seed sources when planting is required and when available.
5. Even-aged harvest blocks are consistent with natural disturbance patterns.[6]
6. Maintaining soil productivity, including practices such as minimizing rutting and surface disturbance, maintaining well distributed fine woody material that contributes to soil fertility and structure, and limiting whole tree harvesting on nutrient-limited sites.
7. Managing recreation uses to minimize impacts to soils, water, and wildlife habitats and disturbance of wildlife.
8. Safe use of herbicides and other pesticides and only when non-chemical alternatives are not feasible.
9. Safe storage, cleanup, and disposal of hazardous materials such as diesel fuel and hydraulic fluid.
10. Appropriate use of biological control agents.
11. No use of genetically modified organisms that could result in transfer of the modified genes to native species.
12. Minimizing conversion to non-forest use.
13. Limited conversion of natural forest to plantations.
14. Implementing adaptive strategies to address predicted impacts of climate change.

Because the scope of this report is limited to conserving key elements of biodiversity in managed forests, these forest management criteria, while ecologically important, were not addressed in the report. However, landowners, easement holders, and conservation organizations that promote or fund conservation easements should consider including easement provisions that address these criteria.

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5 It is assumed that multiple canopy layers will be addressed partially or perhaps entirely by allowing stands to reach older stand structure stages (see Core Criteria/Habitat Age Class) and by management in other areas such as riparian areas.

6 The maximum area for all openings combined is constrained by goals for older forests (see Core Criteria/Habitat Age Class) and by sustainable harvest limits. Maximum size for any individual opening is not specifically seen as a core criteria as habitat values the site scale are addressed by habitat connectivity goals (see Core Criteria), within-stand retention, and landscape goals for habitat age classes. Moreover, on large ownerships hard limits on opening sizes may encourage more fragmentation of older forest at the landscape scale.

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Jeff Pidot has had a long and varied history of involvement with conservation easements in Maine and nationally: in his career (now retired) as an attorney and chief of the Natural Resources Division of Maine's Attorney General's Office, where he was involved in a number of major working forest conservation easements; in his work as a visiting fellow at the Lincoln Institute of Land Policy, where he spent a year researching, writing, and speaking on conservation easement issues; in his work on conservation easements on behalf of Maine land trusts; and most recently in his extensive research for this project. He has served on the boards of a number of conservation organizations in Maine, including (as most relevant to this project) Maine Audubon and as a former president of the Kennebec Land Trust, and currently serves on the Lands Committee of the Brunswick-Topsham Land Trust. He has published several national articles concerning conservation easements, including the following: "Reinventing Conservation Easements: a Critical Analysis and Ideas for Reform," Lincoln Institute of Land Policy (2005); "Conservation Easement Reform: As Maine Goes, Should the Nation Follow?" 74 Duke Journal of Law and Contemporary Problems 1 (Fall 2011); "Conservation Easement Enabling Statutes: Perspectives on Reform" (with Prof. Nancy A. McLaughlin), 33 Utah Law Review 811 (2013). His work with the Lincoln Institute was the catalyst leading to Maine's conservation easement reform statute enacted in 2007. Among other recognitions, he is recipient of the Natural Resources Council of Maine's Lifetime Achievement Award.

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