



The importance of forests to people

Many people value and appreciate the forest environment itself; the importance of forests extends beyond what can be extracted from them to what they are, whether they are used or not. The directly experienced features and qualities of the forest environment are one aspect of their importance to society. Aesthetic experiences in outdoor settings are often among the most important experiences in people's lives. Sometimes the experiences that people have in natural environments are strongly felt, but hard to put into words. Emotional experiences of this kind may carry a sense of awe, wonder, joy, and deep meaning; and may directly influence quality of life. Positive experiences in natural environments serve as significant sources of meaning and happiness, often leading people to form strong emotional attachments that can in turn influence second-home development and vacation choices. This can become a source of controversy in natural resource management if management actions threaten to change the character of places where people have formed strong attachments. It is critical for resource managers and planners to recognize the importance of sense of place, to understand why people consider certain places to be special, and to consider how such places may be affected by land management and development policies.

Criterion 7:

LEGAL, INSTITUTIONAL, AND ECONOMIC FRAMEWORK FOR FOREST CONSERVATION AND SUSTAINABLE MANAGEMENT

Montréal Process Criterion 7 (Montréal Process Working Group 2010); Northern Area Forest Sustainability Indicators 15.3–15.5, 17.1, 17.2, 18.1–18.6 (USDA FS 2010d)

The importance of legal, institutional, and economic frameworks for forest conservation and sustainable management

This criterion focuses on the social context of forests—the laws, policies, administrative rules, and social and economic institutions—that governs forest resource management and use. What society permits or restricts, encourages or discourages all influence the sustainability of forest resources. Criterion 7 captures this by turning attention to all the different social institutions that create and enforce rules about resource management and use.

Many of the criteria included in this assessment provide baseline measures, analyzing current conditions and providing a starting point for projecting future conditions (among others, how much land is forested and how many species are at risk). This criterion is different in that it addresses the likely characteristics of change. Forest sustainability is less likely where there are no rules or guidelines protecting resources or where laws and regulations are not enforced; more likely where society has developed social institutions to guide forest management.

Indicators of the legal, institutional, and economic frameworks for forest conservation and sustainable management in northern forests

From the broad range of institutions and practices that can be considered under Criterion 7, we focus on three: (1) forest-related planning and implementation, (2) best practice codes (or best management practices) for forest management, and (3) management of forests to conserve special values.

Forest planning and policy review; and opportunities for public participation in decisionmaking

Planning, assessment, and policy review provide regular opportunities to view forest management from a long-term perspective. Because

these activities involve significant efforts to communicate with and involve the public, they also constitute opportunities for public participation in public policy and decisionmaking.

Under the Montréal Process, broad participation in resource management is encouraged, so that people interested in, but without an official role in decisionmaking (often referred to as “stakeholders”) have opportunities to voice their opinions about forest policies and management activities. Stakeholders can include local residents, recreational forest users, business people whose livelihood is directly or indirectly tied to forests, technical experts (whether they

Key Findings for Criterion 7

- Each Northern State recently completed a forest resource assessment and strategy.
- State and Federal agencies support forest planning on private forest lands.
- Just over half (11 of 20) of the Northern States require forest-related planning, and nearly all States require periodic planning or assessment for other natural resources or activities.
- Best practice codes, sometimes referred to as best management practices, represent society’s collective wisdom about protecting the environment during land management operations like harvesting and road building. These have been adopted across the Northern States, but enforcement and monitoring varies widely.
- Unlike water and soils and wildlife/biodiversity standards, silvicultural best practice codes are seldom mandatory.
- Conserving special forest values in the North, where private and non-Federal ownership account for 92 percent of forested land, requires coordination between many owners. Agreements that transfer, trade or sell some of these property rights (for example, development rights) are key to conservation schemes in landscapes with mixed ownerships.
- Continuing parcelization and turnover in ownership is a concern, because they jeopardize previous arrangements and coordination of resource management.



are affiliated with a management agency or not), or none of the above. What they all have in common is an interest in the fate of a particular forest or forest resource.

Unlike top-down, expert-based management, a participatory process emphasizes joint discovery, where managers learn from, as well as educate, their stakeholders. In many situations, this inclusive style of decisionmaking is more conducive to positive change and innovation than the closed model that was pervasive in the middle of the last century. Collaboration also recognizes the significance of forest management decisions for local communities. Because their economic prospects and quality of life are often directly affected by decisions made in the forest planning process, communities need to be involved in forest planning (Steelman 2001).

Public involvement is a part of virtually all major forest plans, forest plan revisions, and assessments for public lands; and some policy reviews. Public hearings or meetings bring together people who are not regularly involved in forest management, brief them about future issues and options, and hear their views about the strategic direction of forest management. Sustainability efforts can benefit from activities that broaden discussion and debate because sustainability often requires innovation and changes in management practices and priorities. Whether the innovative ideas come from the forestry professionals or the public participants, the process benefits from broad discussion.

Forest-related planning, assessment, and policy review processes take place at all levels of government. Many are required by law and are revisited on a cyclical basis. Others, including the Northern Forest Futures Assessment, are special efforts that are not on a schedule for recurring. Regional assessments often focus on the issues and resources common across ownerships and across States. Variations in resources (human, natural, and fiscal) have less influence at this regional scale, allowing for a more informed perspective on society's progress toward achieving sustainability.

The 2008 Farm Bill modified the Cooperative Forestry Assistance Act requiring that State agencies develop forest resource assessments and strategic plans to be eligible for Federal funding (<http://www.northeasternforests.org/FRPC/>). In 2010, all State forestry agencies nationwide completed statewide forest resource assessment and strategy documents. Individual State assessments and strategies tier off the national plan and can be accessed through the National Association of State Foresters Web site (http://www.stateforesters.org/issues_and_policy/forest_in_the_farm_bill). Each State assessment includes a description of conditions and trends across all trees and forests; key forest-related threats, benefits, and opportunities; and priority landscape areas. Each State resource strategy addresses the issues and priority landscape areas highlighted in the assessment and identifies the resources needed to address the strategies. State forestry agencies engaged stakeholders and partners in the development of their assessments and strategies.

Table 20—Forest-related planning and assessment laws by Northern State.

State	Forest-related Planning (P) or Assessment (A)	Law	Year enacted
Massachusetts	A	Massachusetts Environmental Policy Act (MEPA) MGL Ch. 30 Sec. 61-62H; Regulations 301 CMR 11.00	1973
Maryland	A	Maryland Forest Conservation Act. Annotated Code of MD Section 5-1601 -- 5-1613	1991
	P	Renewable Forest Resource Plans. Annotated Code of MD Section 5-214	1979
Maine	P	Biennial report on the state of the State's forests 1997 12 MRSA 8879	1997
	A	An Act to Implement the Recommendations of the Majority of the Joint Standing Committee on Agriculture Conservation and Forestry Regarding Enhancing Forest Resource Assessment Public Law 97 Chapter 720	1997
	P, A	Forest Resource Assessment Program 1997 12 MRSA 8876	1997
	P	Forest Sustainability 1997 12 MRSA 8876-A	1997
	A	Determination of supply and demand for timber resources 1997 12 MRSA 8877-A	1997
Michigan	P, A	Part 525 Statewide Forest Resources Plan of the Natural Resources and Environmental Protection Act 1994 Public Act 451	1994
Minnesota	P, A	MN Forest Resource Management Act	1982
	P, A	Sustainable Forest Resources Act	1995
New Hampshire	P, A	RSA 227-I: 8 (originally RSA 220 effective 1981)	1995
New Jersey	P	NJ Stat. Ann 13:1L - 5 (WEST 1983)	1983
New York	P, A	Environmental Conservation Law Section 9 Title 8 Forest Resources Planning (9-0805)	1983
Rhode island	P	Chapter 42-11 of the General Laws of Rhode Island	
Wisconsin	P, A	Wisconsin Statute 28.04 State Forests	1949

State laws that facilitate or require forest-related planning or assessment are shown in Table 20. Planning involves the development of a future-oriented strategic document

that outlines what kinds of management activities will be carried out in coming years. Assessment involves research that generates a comprehensive description of the current



status of resources, programs, events, and concerns. Ideally, any statewide plan would outline objectives based on information from a statewide assessment and would link to a set of broad goals developed in a previous plan, with new specific objectives arising from current concerns and events. Not surprisingly, planning and assessment activities are required by law in all States that have extensive forest resources.

As Table 21 shows, however, State forestry agencies are not the only organizations engaged in planning, nor are timber resources the only focus of planning; wildlife, recreation, and land use may also be considered part of natural resource planning. Table 21 illustrates the different purposes and targets of planning and assessment activity in the Northern States.

Unlike governments that manage their forests with specialized staffs and resources, private citizens with small parcels may be ill-equipped to develop their own plans for resource management. Forest landowners are offered planning and management assistance through State forestry programs, with funding, technical assistance, and support from U.S. Forest Service State and Private Forestry (Figs. 52 and 53). Forest stewardship plans are of particular value for forest sustainability. Consulting foresters or State forestry staffs work with landowners to determine management goals, assess resources, and develop plans for operations and activities, including harvesting, timber stand improvement work, and wildlife habitat protection and maintenance.

Table 21—Forest planning (2000 to 2005) and advisory (2006) activity for Northern States (National Association of State Foresters 2009).

Type	State																			
	CT	DE	IA	IL	IN	MA	MD	ME	MI	MN	MO	NH	NJ	NY	OH	PA	RI	VT	WI	WV
Strategic agency/department plan		x	x		x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
Comprehensive statewide forest plan			x	x			x	x	x	x				x	x	x			x	x
State-owned forest land plan		x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Municipal-owned forest land plan			x			x		x		x							x	x		
County-owned forest land plan			x				x												x	
Statewide land-use plan					x		x	x		x		x	x				x	x	x	
Comprehensive wildlife plan		x	x	x	x		x	x	x	x	x							x	x	
Statewide recreation plan		x	x		x		x	x	x	x		x		x		x	x	x	x	
Watershed-based plan		x	x	x	x	x	x				x		x	x	x		x	x	x	x
Multi-state plan		x	x	x			x	x	x	x			x					x	x	x
Active forest advisory board in 2006	x	x			x	x			x	x	x	x	x		x	x		x	x	x

Ideally, the consulting forester is both a sounding board to help owners clarify their goals and intentions, and a source of expert information and experience about the potential for ensuring sustainability and other likely outcomes.

Variations in the number of plans among States are largely the result of differences in amount of forest acreage and the number of owners, but States also differ in the degree of emphasis they place on stewardship planning in relation to other activities. Because technical assistance from professional foresters is central to plan development, the number of plans and acres covered under stewardship plans is sensitive to changes in the Federal and State funding that support their availability. Approximately 10 percent of the northern nonindustrial private forest land acreage is managed under stewardship plans, but the covered area for individual States ranges from less than 5 percent to more than 30 percent (Table 22).

By 2006, all the National Forests in the 20 Northern States had completed forest plan revisions. National Forest plan revisions are intended to address broad issues that recur often across different forest projects and provide guidance for all major forestwide changes over a 10- to 15-year horizon. For example, because conducting silvicultural treatments and remodeling recreation facilities both can affect the visual character of a National Forest, visual character is an issue that might be addressed

in the forest plan. Ongoing litigation since enactment of the National Forest Management Act in 1976 has slowed forest planning and forest plan revision on National Forests, and current efforts focus on issues that are widely acknowledged to need attention.

Across all levels of government, “sunshine” laws that require transparency and access to official government activities have been enacted to support public participation. Laws requiring open meetings, which date back to the 1970s and are present in various forms in all States, ensure that the public and the press have the right to know about upcoming meetings in which government employees will address land management, planning, and other activities that may be of interest to stakeholders. Through these laws, public access to documents and public involvement in decisionmaking have become a more formal and intentional part of government operations in the United States.

Formal advisory boards can also be established to seek outside input (shown in Table 21).

Fourteen of the 20 Northern States have active forest advisory boards that regularly meet with the State forester and her/his staff. They are typically made up of key stakeholders, natural resource specialists, government natural resource agencies, nonprofit organizations, and resource interest groups.

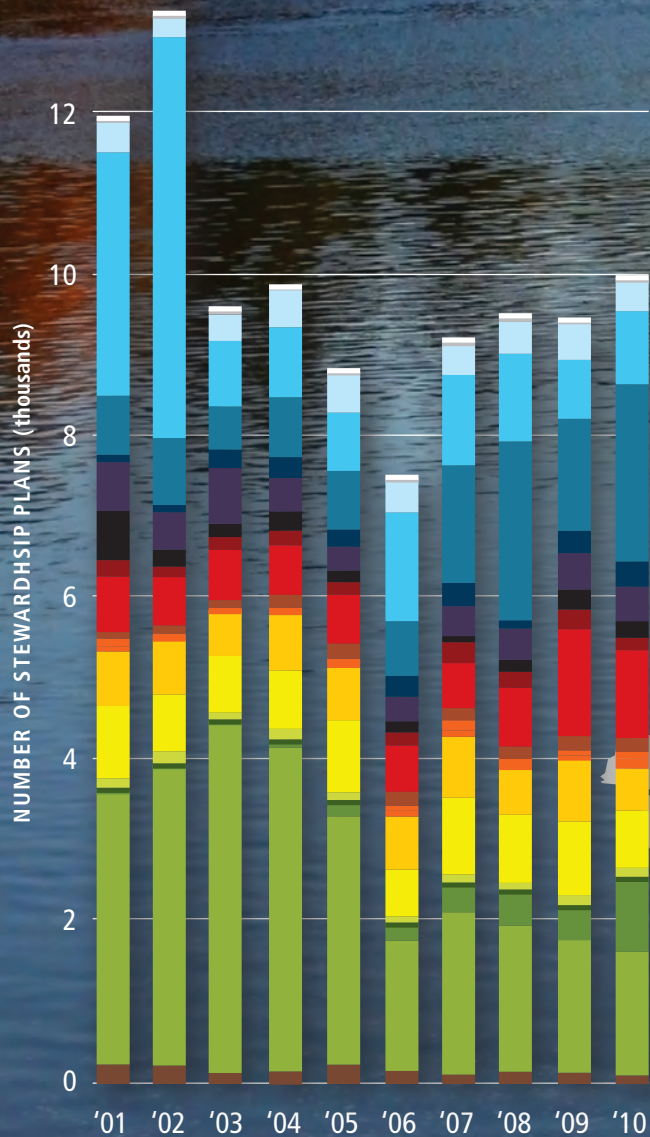


FIGURE 52
Number of new or revised stewardship plans by Northern State, 2001 to 2010.

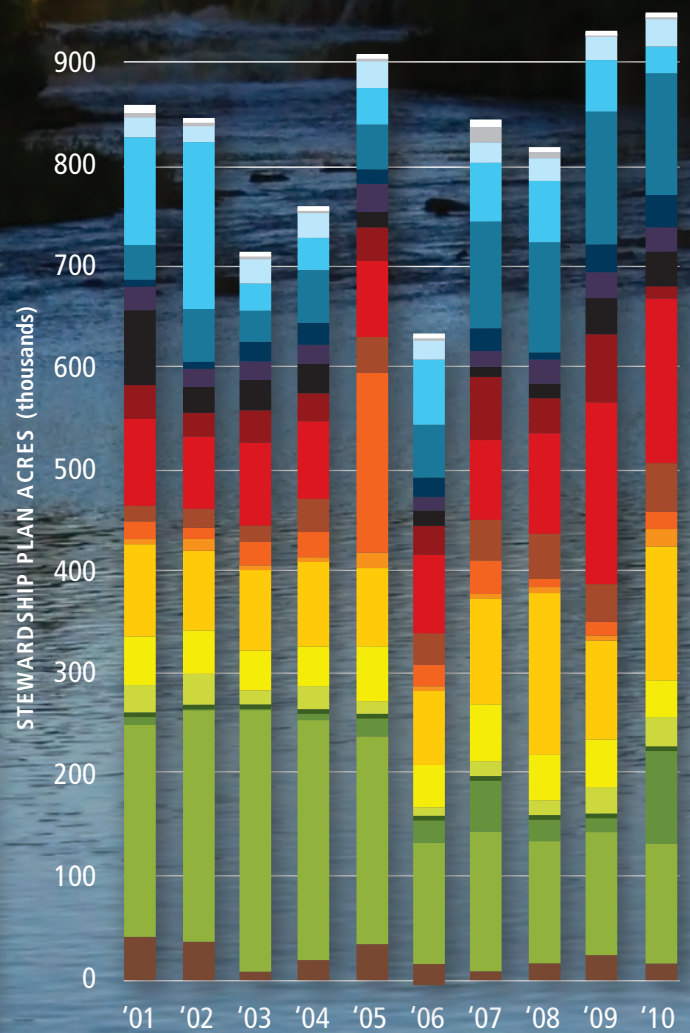


FIGURE 53
Area covered by new or revised stewardship plans by Northern State, 2001 to 2010.



Table 22—Cumulative area of private, noncorporate forest land covered by active forest stewardship plans, 2010. States are ordered from highest to lowest proportion of stewardship plan coverage.

State	Private noncorporate forest area ^a	Cumulative area under forest stewardship plans ^b	Proportion of area under stewardship plans
	(1,000 acres)		(percent)
Wisconsin	9,674	2,985	31
New Hampshire	2,844	634	22
Maryland	1,462	324	22
Illinois	3,509	628	18
Delaware	244	39	16
Minnesota	5,921	860	15
New Jersey	805	115	14
Massachusetts	1,998	276	14
Indiana	3,588	463	13
Iowa	2,511	295	12
Ohio	6,064	520	9
New York	12,190	975	8
Pennsylvania	9,603	531	6
West Virginia	7,174	270	4
Vermont	3,109	110	4
Connecticut	1,148	39	3
Maine	6,261	210	3
Missouri	11,755	343	3
Rhode Island	251	7	3
Michigan	9,458	203	2
North total	99,569	9,828	10

^aFrom Smith et al. (2009).

^bFrom State data in the Performance Measurement Accountability System, via Michael Huneke, U.S. Forest Service. (8 February 2011).

Best practice codes for forest management

Best practice codes (or best management practices) are recommendations for working on the land. They capture and maintain the collective wisdom society has about how to protect the environment during operations

such as harvesting and road building. Unlike the strategic plans and assessments discussed above that operate at a large scale and a long time horizon, these standards and guidelines are meant to regulate daily, routine activities undertaken in the course of (often) small projects.



Almost all Northern States have some standards and guidelines across three general areas of management: silviculture, water and soils, and wildlife or biodiversity (Table 23). Best practice codes can be voluntary or mandatory recommendations, guidelines, or standards. Once established, their effectiveness depends on whether they are maintained and whether their use is promoted. The need to monitor the implementation and effectiveness of standards and guidelines is generally recognized, but not always supported. Without monitoring, the potential exists for discrepancies between intentions and actual behavior. The voluntary nature of many guidelines means that implementation is not certain, and effectiveness is largely unknown, although some States have adopted a regional-level protocol for monitoring effectiveness.

Mandatory standards and guidelines are commonly the result of legal requirements, often those associated with environmental regulations such as the National Environmental Policy Act and the Clean Water Act. Monitoring the implementation and effectiveness of standards and guidelines may also be carried out in response to Federal requirements. Federal environmental legislation also accounts for the differences among the three sets of standards

and guidelines: silvicultural guidelines (seldom mandatory), water and soils (often mandatory), and wildlife/biodiversity standards (often mandatory). Federal regulation to implement legislation and the mandatory nature of many State standards and guidelines for water quality and biodiversity also reflect the sensitivity of these systems to poor management.

On private land, few standards and guidelines are mandatory and monitoring is uncommon, primarily because of hesitancy to be perceived as violating private property rights and the practical difficulties of accessing private lands.

Management of forests to conserve special values

The terms of sustainability as set forth in the Montréal Process require that society consider both basic needs, such as fiber and energy production, and conservation. Conserving special forest values—environmental, cultural, social, or scientific—through management is one of the primary motivations for many in the forestry profession, and its significance is reflected here. Forests are not sustainable by the Montréal Process definition unless these special values are preserved.

Table 23—Management standards and guidelines and their monitoring across ownership types, by Northern State, whether mandatory (M) or voluntary (V) and whether measuring compliance (C) or effectiveness (E).

State	Silviculture				Water, soils				Wildlife, biodiversity			
	State forest		Private forest		State forest		Private forest		State forest		Private forest	
	Standard or guide	Monitoring	Standard or guide	Monitoring	Standard or guide	Monitoring	Standard or guide	Monitoring	Standard or guide	Monitoring	Standard or guide	Monitoring
CT												
DE	M	C			M	C	M	C				
IA	M	C,E	V		M	C,E	V		M	C,E	V	
IL		E	V			E	V					
IN	M		V		M	C,E	V		M		V	
MA	M	C,E			M	C,E			M	C,E		
MD	V	C,E			M	C,E	M					
ME	V	C,E			V	C,E	V	C,E	V	C,E		
MI		C			M	C	V		M	C		
MN	V	C	V	C	V	C	V	C	V	C	V	C
MO		C,E	V		M	C,E	V		M	C,E	V	
NH	V		V		M	C	M	C				
NJ		C,E	V	C	M	C	M	C		C	V	C
NY		C	V			C	V			C	V	
OH	M	C	M		M	C	M		M	C	M	
PA	M	C	V		M	C	M	C	M	C,E	V	
RI	M	C,E	V	C	M	C,E	V	C	M	C	V	
VT	V		V		M	C	M	C,E	V		V	
WI	V	C	V,M	C	V,M	C,E	V,M	C,E	V,M	C	V,M	C
WV			V		M	C	M	C			V	

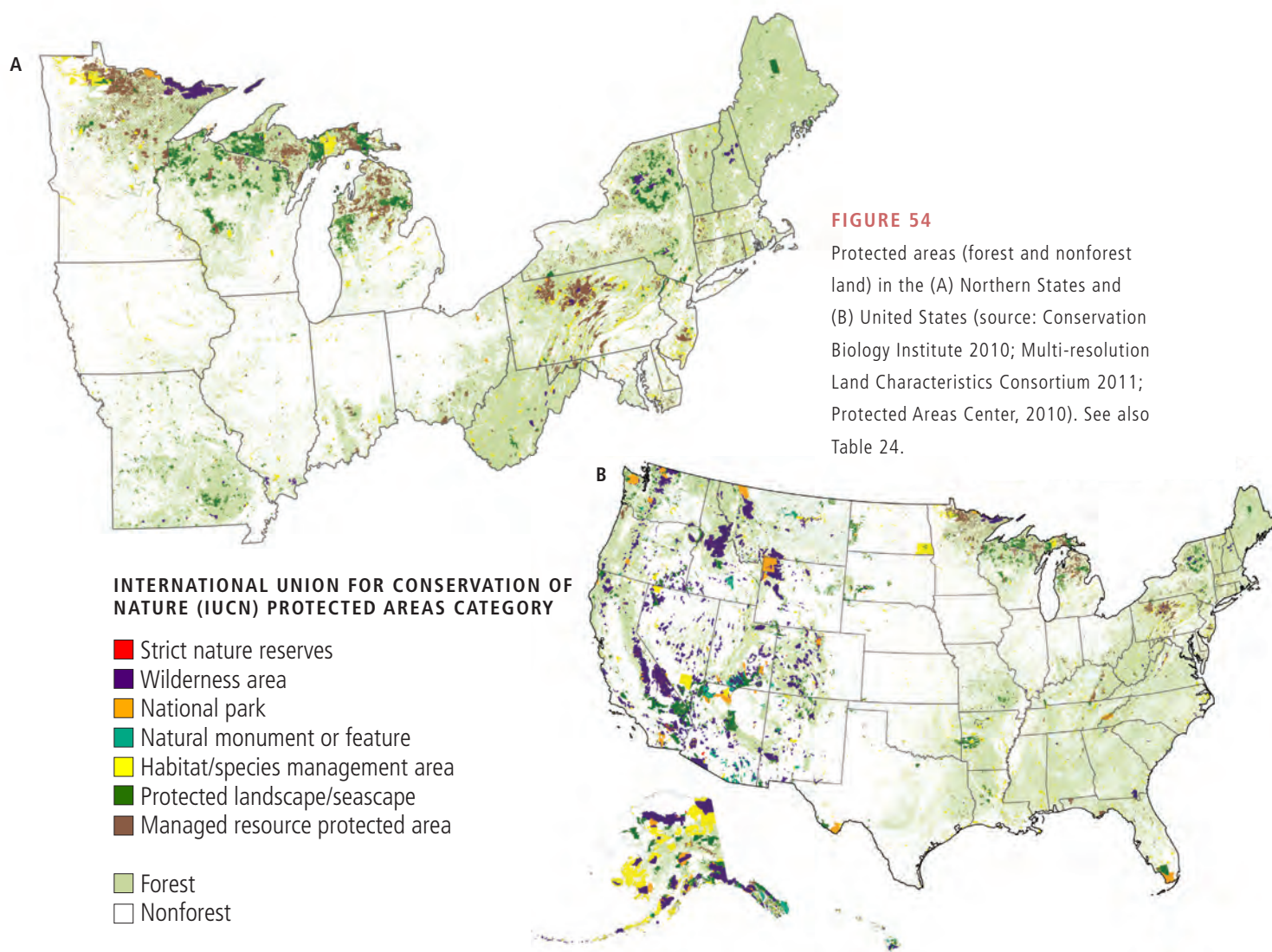


In the North, where private and other non-Federal ownerships account for 92 percent of forested land, conservation of habitats must be coordinated among owners, each perhaps controlling only a small portion of a critical landscape. For this reason, clear, enforced property rights are also important, because agreements that transfer, trade, or sell some of these rights (for example, development rights) are key to the success of conservation schemes in mixed landscapes.

The United States has a long history of forest conservation that continues today. Yellowstone,

one of the World's first national parks, was established in 1872. Also established in the late 1800s, the forest reserves (now the national forests) protect water and provide timber. The passage of the Wilderness Act in 1964 provides additional protections for millions of acres of forest throughout the Nation.

Protected areas set aside land and water resources (including forests) in perpetuity to preserve natural ecosystems and provide refuges for species of concern. The maps in Figure 54, which distinguish protected forest



land from other protected land, are based on the latest version of the Conservation Biology Institute Protected Areas Database, a comprehensive geospatial data set (including detailed information on land ownership, management, and conservation status) of all protected areas in the United States. (Conservation Biology Institute 2010, Protected Areas Center 2010).

In addition to major Federal and State-owned protected areas such as national parks, State parks, and wildlife refuges, this database also focuses on lands managed by local governments (such as county forests) and nongovernmental organizations (such as The Nature Conservancy's reserves). Protected areas are classified into six categories ranging from (I) strict nature reserves and wilderness areas to (VI) managed resource protected areas (International Union for Conservation of Nature 1994, 2010; DellaSalla 2001).

Total U.S. protected area acreage, both forested and nonforested, is concentrated in the West and Alaska, predominantly on Federal lands. To determine whether the spatial distribution of protected forest land is more balanced, we estimated the area of forest land by protected category at a 0.22 acre (0.09 ha) spatial scale by intersecting a digital map of forest/nonforest cover with the protected area map boundaries. That analysis showed that 16 percent of northern forest land (27 of 172 million forested acres) falls in a protected category (Table 24), nearly identical to the entire United States, and larger

than the conterminous States (13 percent). Compared to the United States as a whole, the North has relatively little forest area in the three most restrictive protected categories and relatively abundant forest area in the least restrictive category.

The protected forest area is concentrated in the Lake States, where the Boundary Waters Canoe Wilderness Area in northern Minnesota encompasses 1.1 million acres of the Superior National Forest; and New York, where the nearly 3-million acre Adirondack and Catskills Reserves were set aside nearly 100 years ago to be managed by the State as "wild forever."

If protected areas are not large enough or widespread enough to support the full range of habitat attributes needed to sustain all ecosystem components, areas outside protected status may be enlisted to contribute to biodiversity goals. The ability to manage both public and private unprotected forest lands for these broader goals depends on the objectives of the owners and their willingness to consider management options that can be integrated with those established for protected areas. One working example is the North Maine Woods, within whose boundaries are over 3.5 million acres of commercial forest land (North Maine Woods 2010), two wild northeastern rivers (the St. John and the Allagash), and the Allagash Wilderness Waterway. This organization of landowners—corporations, individuals, and families—have joined with Maine's natural resource agencies in a partnership to address landscape-scale management issues.



Table 24—Protected forest area and percent by International Union for Conservation of Nature (IUCN) protected status category.

Protected status	Total U.S. protected forest land		Conterminous U.S. protected forest land		Northern States protected forest land	
	Area	Proportion	Area	Proportion	Area	Proportion
	(1,000 acres)	(percent)	(1,000 acres)	(percent)	(1,000 acres)	(percent)
Strict nature reserve ^a	560	0.1	521	0.1	7	<0.01
Wilderness area ^a	30,439	4.1	24,847	4.0	1,796	1.0
National park ^b	8,056	1.1	6,548	1.1	820	0.5
Natural monument or feature ^c	4,195	0.6	1,595	0.3	25	<0.01
Habitat /species management area ^d	33,771	4.5	12,857	2.1	4,355	2.5
Protected landscape ^e	30,046	4.0	19,676	3.2	8,951	5.2
Managed resource protected area ^f	14,416	1.9	12,667	2.0	11,415	6.6
Total protected forest land	121,485	16.2	78,711	12.6	27,370	15.9
Total area of all forest land	751,228	--	622,611	--	172,039	--

^aCategory I: an area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring or a large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition. Strict nature reserves (Ia) are distinguished from wilderness areas (Ib).

^bCategory II: a natural area of land and/or sea, designated to (1) protect the ecological integrity of one or more ecosystems for present and future generations, (2) exclude exploitation or occupation inimical to the purposes of designation of the area, and (3) provide a foundation for spiritual, educational, recreational, and visitor opportunities, all of which must be environmentally and culturally comparable.

^cCategory III: an area of land and/or sea containing one or more specific natural or natural/cultural features which are of outstanding or unique value because of their inherent rarity, representative or esthetic qualities, or cultural significance

^dCategory IV: an area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

^eCategory V: an area of land with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant esthetic, ecological, and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance, and evolution of such an area.

^fCategory VI: an area of land and/or sea containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs protected forest.

Another example of integrating protected areas with areas managed for multiple and sustainable uses is the Wisconsin County Forests Association—more than 2.3 million acres of county forests established by the Wisconsin legislature for open access to a range of users, from hunters to hikers to birdwatchers. This is the only association of its kind in the United States.

The conservation of special forest values in northern forests depends on programs that enable foresters and other natural resource professionals to work with individual forest landowners as well as governments and nongovernmental organizations. Continuing parcelization and turnover in ownership is a source of concern because these changes can jeopardize previous resource-management arrangements and agreements. Conserving the land and its wide array of values is not simple. For example, setting aside protected areas does not prevent housing growth from fragmenting surrounding landscapes, and protected areas are typically too small to exist as islands cut off from other biological resources (Radeloff et al. 2010). However, forest land preservation agreements and forest stewardship plans that keep land in private ownership and preserve traditional land-use values (such as those that support working family farms and ranches)

can offer viable options for maintaining natural forest areas and preserving water quality in the face of land development pressure. This requires planning and management groups to work across larger landscapes, regardless of ownership patterns, in an effort to understand, manage, and protect their resources in common.

Sustainability relies heavily on the many organizations that teach, communicate, and support resource management. These include professional associations for resource managers (such as regional, State, and local chapters of the Society of American Foresters), student associations (such as Future Farmers of America, 4-H, and the Student Conservation Association), educational institutions at all levels, nongovernmental organizations, and ad-hoc groups that organize around specific issues or events. All contribute significantly to sustainability, and most are locally controlled.

The university-based Cooperative Extension Service is another significant resource for achieving sustainability. Through education, research, and communication, it reaches a wide range of people—professionals and amateurs alike—who support the goals of the Montréal Process.