

## Conserve Special Forest Values (Indicator 52)<sup>1</sup>

*Extent to which the legal framework . . . Provides for the Management of Forests to Conserve Special Environmental, Cultural, Social, and/or Scientific Values*

### **Rationale and Interpretation**

Forests may often possess unique or otherwise special social, cultural, scientific, and environmental values. Formal legal mechanisms are often needed to protect these values from certain uses and activities. Since the values to be protected are often large in number and wide in scope, the resulting legal framework is frequently complicated and many times broadly dispersed among Federal, State, and local governments. Within anyone level of these government levels, the legal tools used to protect special forest values are numerous in type and number, often depending on whether the values to be protected occur on public or private forest land. The intensity of protection afforded to these values is often politically contentious, leading to delicate efforts to balance different values of varied constituencies (Roundtable on Sustainable Forestry 1999).

Useful information for assessing the legal capacity suggested by this indicator includes Federal, State, and local laws which provide for the protection and effective management of specially protected areas. These laws can take many forms. Some protect special forest values by prohibiting or severely restricting all or certain activities (for example, parks, natural areas, historic sites, scenic reserves). Other laws create incentives for citizens to conserve important values on both public and private lands (for example, conservation easements, purchase of development rights, public-private management partnerships). In addition to compilations of laws focused on special forest values, assessment of the programs used to implement these laws can also be of value as a measure of this indicator. In both cases — laws or programs —, assessment of capacity to protect special forest areas must acknowledge the extensive variation in the directness and degree of protection afforded to specific forest values that are viewed as special and in need of special conservation measures.

The wide array of values suggested by the indicator, and the often sweeping nature of each value, makes for difficulty in defining and measuring legal capacity associated with the indicator. For example, wilderness an area which “. . . generally appears to be affected primarily by the forces of nature . . .” (Wilderness Act of 1964), wild and scenic rivers “. . . possesses outstanding remarkable scenic, recreational; , geologic, fish and wildlife, historic, cultural and similar values . . . (Wild and Scenic Rivers Act of 1968), endangered or threatened species “. . . of fish, wildlife, and plants are of aesthetic, ecological, educational, historical, recreational and scientific value . . .

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(Endangered Species Act of 1973), and archeological resource “. . . Any material remains of part human life or activities which are of archeological interests . . . (Archaeological Resources Protection Act of 1979). As the values of environmental, cultural, social, and scientific significance are continually evolving, and often vary widely between individuals, organizations, and governments, the appropriate type and amount of protection or conservation of these various values are often elusive and very much in a state of change. These conditions pose special problems when assessing legal capacity.

### **Conceptual Background**

Protecting special values associated with forests is a social and political phenomena deeply rooted in human and organizational perceptions of the meanings to be assigned certain forest conditions (Nash 1982). Based on beliefs inferred from observed human behavior, values are generally “. . . conceptions of the desirable that help guide decisionmaking, and they usually involve criteria for preferences by providing codes or standards for conduct.” (Potter and Norville 1981, pg 179). They are generally thought to be enduring, stable and learned and when aggregated become society’s values that have relevance to forest sustainability generally. In recent years, conserving special environmental and social values has often predicated on the need to preserve relevant examples of the natural diversity that exists within the Nation’s major terrestrial ecosystems. The National Wilderness Preservation System is an example of the programmatic expression of how these values have become institutionalized (Davis 1996).

Societal values assigned to forests can be classified in a number of ways. Some suggest preservation values, scientific values, educational values, social values, and commercial values (Freilich 1989). While others suggest commodity values (timber, range, forage, water, minerals), amenity values (nature, scenery, life style), environmental quality values (air, water), ecological values (biological diversity, endangered species), public use values (recreation, tourism), and spiritual values (reverence for forests) (Stankey and Clark 1991). All of these suggested categories are quite varied within and between individuals, groups, geographic areas, and similar divisions. An individual’s or group’s understanding of the natural world and their relationship with the natural world creates a varied and often powerful set of values. Human differences over these values have often led to volatile conflicts regarding the use, management and protection of forests, especially over the last forty years (LeMaster and others 1996).

Legally protecting various values considered important to forest sustainability has a storied history in the United States (Snow 1996). The progressive conservation movement of the late 19<sup>th</sup> and early 20<sup>th</sup> centuries sought to set in place, a variety of new and important social values, including defending Federal forest lands from destructive exploitation, protecting forests from disastrous events (fires, insects and diseases), putting forests in productive conditions for future generations (investment in forest management), preserving natural heritage (especially wildlife), and managing forests

with predictable results (research, information). These values often became the critical ingredient of early Federal forest resource laws. For example, the Organic Administration Act of 1897 established the national forests, declaring “all public lands set aside and reserved as national forests shall be administered to improve and protect the forest for the purpose of securing favorable conditions of water flows . . . ” Other Federal statutes of significance to the era are the Creative Act of 1891, Lacey Act of 1900, Weeks Act of 1911, Migratory Bird Treaty Act of 1918, Clarke-McNary Act of 1924, and McSweeney-McNary Act of 1928 (Cubbage and Siegel 1990, LeMaster and others 1996). These laws set forth a generally generic framework that provided for the protection of certain values viewed as especially important during the early part of the 20<sup>th</sup> century.

The national desire for protecting the environment also posed a set of forest and environmental values thought so important that they required specification in Federal statutes. Beginning in the 1960s, these values embodied the importance of recreating in pleasing natural environments, preserving natural heritage, maintaining healthy and sustainable environments, and reducing social conflict over the use, management and protection of forests. As in the earlier Progressive Conservation Era, these values became the cornerstone of many Federal laws focused on special forest and related natural resource conditions (for example, Wilderness Act of 1964, Wild and Scenic Rivers Act of 1968, National Trails System Act of 1968, Endangered Species Act of 1973, Eastern Wilderness Act of 1975, National Forest Management Act of 1976, Archeological Resources Protection Act of 1979, Alaska National Interests Lands Conservation Act of 1980). Closely associated are many Federal laws that address special resource values generally, yet have implications for the use, management and protection of forests (for example, National Environmental Policy Act of 1969, Clean Air Act of 1970, Federal Land Policy and Management Act of 1976, Federal Water Pollution Control Act Amendments of 1972, Federal Insecticide, Fungicide, and Rodenticide Act Amendments of 1972, Coastal Zone Management Act of 1972). These laws reflect strong political support for addressing important water and air quality values, dealing with a multitude of environmental health hazards, integrating new scientific understandings, and providing greater opportunity for the citizenry to use ever-growing amounts of leisure time and wages (Schmithusen and Siegel 1977).

## **Current Legal Capacity**

### **Private Sector Capacity**

Private sector capacity to conserve forests with special values is important in that nearly 58 percent (430.5 million acres) of the Nation’s forest land is privately owned. Innumerable State and Federal laws provide the legal capacity by which private landowners can pursue an interest in conserving special values associated with forests. These legal options, expressed as program types, include conservation easements (voluntary permanent agreement), land retirement programs (limited use in response to payments), fiscal incentive programs (tax relief, cost-share), registry programs (nonbinding recognition), deed restrictions (limits on allowable use), mutual covenants

(protection of shared landscapes), leases (rental for conservation use), and general management agreements (adopt specified management practices) (Allmann 1996, Boyd 2000, Hollinghead 1997, Land Trust Alliance 2002a, Morrisette 2001). Although some of these arrangements are completely private in nature, most depend on publicly established legal conditions for implementation and enforcement. A national comprehensive (local to national) assessment of private sector initiatives to conserve special values associated with forests has not been carried out. As such, examples of private organizations engaged in conserving special values are presented as follows. Unfortunately, information concerning only forest land protected by these organizations is not available.

*The Trust for Public Lands (TPL)*: Founded in 1972, TPL works with landowners, government agencies, and community groups to create urban parks, gardens, greenways, and riverways; set aside open space in the path of growth; conserve land for watershed protection, scenic beauty, and close-to-home recreation; and safeguard the character of communities by preserving historic landmarks and landscapes. Working with legal staff and real estate specialists, TPL has helped protect (by easement and transfer to government agencies) more than 1.4 million acres in 45 States. TPL maintains 45 regional, field, and project offices nationwide. Its 2001 assets totaled \$326,000.

*The Conservation Fund (TCF)*: TCF seeks to demonstrate (by land acquisition and leadership training) effective conservation solutions by emphasizing the integration of economic and environmental goals. TCF operates three major programs namely, conservation program – help local, State and Federal agencies, and nonprofit organizations acquire property from willing sellers to protect open space, wildlife habitat, public recreation areas, river corridors, and historic places; sustainable program – works with communities and industry (including developers, forest industry, ranchers) to demonstrate sustainable practices that balance economic and environmental goals; and leadership training – provides financial resources, technical assistance, and formal training to landowners and conservation professionals from all sectors. Since 1985, TCF has protected more than 3.2 million acres valued in excess of \$1.6 billion. These lands were acquired by the Fund and its partners at a cost of \$980 million.

*The Nature Conservancy (TNC)*: TNC seeks to preserve plants, animals, and natural communities that represent the diversity of life on Earth, doing so via various land purchase-transfer arrangements, management of preserves, and educational and technical assistance initiatives. Since 1951, the organization has protected more than 92 million acres around the world, of which more than 12.6 million acres are located in the United States (1,400 preserves). In 2001, the Conservancy spent \$334 million on program expenses and acquired lands valued at \$322 million.

*Land Trust Alliance (LTA)*: The LTA (founded in 1982) is an alliance of more than 1,200 local and regional land trusts. A land trust is defined as a nonprofit organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting direct land transactions — primarily the purchase or acceptance

of donations of land or conservation easements. As of 2000, 1,263 local and regional land trusts were in operation (42 percent increase more than 1990) and were responsible for more than 6.2 million acres of protected land (1.9 million acres protected in 1990) (Table 1). Of this total, 2.6 million was in conservation easements, 1.2 million acres owned directly by land trusts, and 2.4 million acres transferred to government or other agencies. California, New York, and Montana lead in the amount of land protected by land trusts. In descending order, the following are major purposes for which a specific land trust site may exist (more than one type of protection objective may be involved on any one tract of land): wetlands, river corridors, watersheds, farm-ranch land, nature preserves, open space, endangered species habitat, scenic views, recreational trails, historic sites, coastal resources, and timber land. The LTA budget in 2000 was about \$3.7 million (Land Trust Alliance 2002b).

Table 1. State and Regional Private Conservation and Preservation Land Trusts, by State, Land Area and Number of Trusts. 2000.

State	Number of Land Trusts	Land Area (acres)			
		Area Owned by Trust	Area Under Easement	Area Transferred to Other Ownership	Total Area
Alabama	4	6,661	855	26,000	33,516
Alaska	5	538	1,250	27,151	28,939
Arizona	10	1,958	1,606	34,611	38,175
Arkansas	1	780	173	543	1,496
California	132	199,789	160,671	891,322	1,251,782
Colorado	35	5,996	293,864	39,262	339,122
Connecticut	112	46,584	19,821	3,956	70,361
Delaware	3	21,678	1,274	79,089	102,041
District of Columbia	1	0	3	31	34
Florida	23	13,137	19,550	31,769	64,456
Georgia	17	4,844	27,996	4,024	36,864
Hawaii	5	3	4	1	8
Idaho	8	5,635	16,277	14,620	36,532
Illinois	28	6,896	5,013	33,774	45,683
Indiana	14	6,366	1,376	2,012	9,754
Iowa	4	11,375	6,541	47,296	65,212
Kansas	2	155	2,296	0	2,451
Kentucky	8	741	1,545	1,726	4,012
Louisiana	1	260	13,385	0	13,645
Maine	76	50,238	61,452	29,550	141,240
Maryland	42	7,825	125,334	13,617	146,776
Massachusetts	143	103,045	50,061	56,861	209,967
Michigan	38	33,654	20,877	24,925	79,456
Minnesota	3	5	16,703	80	16,788
Mississippi	4	180	4,225	0	4,405
Missouri	10	6,939	1,452	956	9,347
Montana	9	5,244	449,445	50,970	505,659
Nebraska	3	14,577	2,150	45	16,772
Nevada	2	6,930	0	5,295	12,225
New Hampshire	35	57,616	96,468	134,113	288,197
New Jersey	29	30,488	6,383	101,378	138,249
New Mexico	8	230,555	41,039	29	271,623
New York	72	135,695	280,499	136,026	552,220
North Carolina	26	12,342	40,573	59,226	112,141
North Dakota	-	4,232	0	680	4,912
Ohio	36	11,975	9,390	2,573	23,938
Oklahoma	1	5,151	0	0	5,151
Oregon	15	1,177	13,597	9,793	24,567
Pennsylvania	75	35,230	88,316	217,242	340,788
Puerto Rico	1	7,000	0	415	7,415
Rhode Island	34	18,636	9,292	2,022	29,950
South Carolina	18	5,608	71,209	20,756	97,573
South Dakota	2	280	7,760	1,585	9,625
Tennessee	15	8,016	4,198	31,520	43,734
Texas	22	11,986	40,621	33,068	85,675
Utah	4	1,151	28,404	26,928	56,483
Vermont	25	38,076	319,580	86,380	444,036
Virginia	17	41,801	180,255	14,104	236,160
Washington	29	9,742	21,285	10,701	41,728
West Virginia	7	4,472	4,004	49,845	58,321
Wisconsin	46	12,690	10,883	1,689	25,262
Wyoming	3	1,390	10,664	28,705	40,759
TOTAL	1,263	1,247,342	2,589,619	2,388,264	6,225,225

Source; Land Trust Alliance 2002b.

## **Federal Government Capacity**

Federal laws that protect or conserve special environmental, cultural, social, and scientific values of relevance to forest sustainability are many in number. Likewise, the information sources available for identifying such laws are also numerous in number (for example, Coggins and Glicksman 2002, Government Institutes 1998, Grad 2002, Malone 2002, Strand 1997, Want 2002). Acknowledging the difficulty inherent in identifying and sorting such laws (what to include, what to exclude), more than 250 “value protecting or conserving” Federal laws existed in 2002 (Table 2). Their diversity is amazing. Some are very explicit geographically about the values to be protected (for example, Sawtooth National Recreation Area Act of 1972), whereas others protect values in a more general or convoluted manner (for example, Tongass Timber Reform Act of 1990). Many Federal protection laws are specific to one type of value (for example, cultural value protection afforded by the Preservation of American Antiquities Act of 1906), yet others are specific to protecting one type of medium or resource (for example, forests, water, or wildlife). And yet others are of a more general functional nature, frequently mandating regulatory or planning processes across various categories of values (Federal Water Pollution Control Act Amendments of 1972). In some cases the management of special values associated with forests is not determined by law, but by extensive interpretation of law by agency rules and regulations. An example is the protection of paleontological resources (Lundgren 1998).

Table 2. Federal Laws Focused on Conserving Special Values Associated with Forests and Related Resources, by Major Category. 2002.

<u>Restricted Use or Set-Aside Laws</u>	
<ul style="list-style-type: none"> <li>-Acadia National Park Act of 1929</li> <li>-Alaska National Interest Lands Conservation Act of 1980</li> <li>-Archers National Park Act of 1929 (1971)</li> <li>-Arizona-Idaho Conservation Act of 1988</li> <li>-Arizona Wilderness Act of 1984</li> <li>-Arizona Wilderness Land Title Resolution Act of 1994</li> <li>-Arkansas Wild and Scenic Rivers Act of 1992</li> <li>-Arkansas Wilderness Act of 1984</li> <li>-Assateague Island National Seashore Act of 1965</li> <li>-Big Cypress National Preserve Addition Act</li> <li>-Big South Fork National River and Recreation Act of 1974</li> <li>-Big Fork National River and Recreation Act of 1974</li> <li>-Big Thicket National Preserve Addition Act of 1993</li> <li>-Bighorn Canyon National Recreation Area Act of 1966</li> <li>-Biscayne National Park Act of 1980</li> <li>-Blackstone River Valley National Heritage Corridor Act of 1986</li> <li>-California Wilderness Act of 1984</li> <li>-Cane River Creole National Historical Park and National Heritage Area Act of 1994</li> <li>-Canyonlands National Park Act of 1964</li> <li>-Cape Cod National Seashore Act of 1961</li> <li>-Central Idaho Wilderness Act of 1980</li> <li>-Chatahoochee National Forest Protection Act of 1991</li> <li>-Cheaha Wilderness Act of 1964</li> <li>-Clarks Fork Wild and Scenic River Designation Act of 1990</li> <li>-Colorado Wilderness Act of 1993</li> <li>-Columbia River Gorge National Scenic Area Act of 1986</li> <li>-Congaree Swamp National Monument Expansion and Wilderness Act</li> <li>-Connecticut Coastal Protection Act of 1990</li> <li>-Delaware Water Gap National Recreation Area of 1965</li> <li>-Florida Keys National Marine Sanctuary and Protection Act of 1990</li> <li>-Florida Wilderness Act of 1983</li> <li>-Forest Reserve Act (General and California)</li> <li>-Gallatin Range Consolidation and Protection Act of 1993</li> <li>-Gateway National Recreation Area Act of 1972</li> <li>-Genesee River Protection Act of 1989</li> <li>-George Washington National Forest Mount Pleasant Scenic Area Act</li> <li>-Georgia Wilderness Act of 1986</li> <li>-Glacier National Park Act of 1910</li> <li>-Glen Canyon National Recreation Area Act of 1972</li> <li>-Golden Gate National Recreation Area Act of 1972</li> <li>-Grand Canyon Protection Act of 1992</li> <li>-Great Basin National Park Act of 1986</li> </ul>	<ul style="list-style-type: none"> <li>-Haleakala National Park Act</li> <li>-Hells Canyon National Recreation Area Act of 1975</li> <li>-Illinois Wilderness Act of 1990</li> <li>-Indian Peaks Wilderness Area, the Arapaho National Recreation Area and the Oregon Islands Wilderness Area Act</li> <li>-Indiana Dunes National Lakeshore Act</li> <li>-Irish Wilderness Act of 1984</li> <li>-Joshua Tree National Monument Act of 1936 (1994)</li> <li>-Kentucky Wilderness Act of 1985</li> <li>-Lee Metcalf Wilderness and Management Act of 1983</li> <li>-Little River Canyon National Preserve Act of 1992</li> <li>-Los Padres Condor Range and River Protection Act</li> <li>-Maine Wilderness Act of 1990</li> <li>-Mesa Verde National Park Acts of 1906</li> <li>-Michigan Scenic Rivers Act of 1991</li> <li>-Michigan Wilderness Act of 1987</li> <li>-Minnesota Valley National Wildlife Refuge Act</li> <li>-Mississippi National Forest Wilderness Act of 1984</li> <li>-Mount Rogers National Recreation Area Act</li> <li>-National Parks and Recreation Act of 1978</li> <li>-National Trails System Act of 1968</li> <li>-National Trails System Improvements Act of 1988</li> <li>-Nebraska Wilderness Act of 1985</li> <li>-Nevada Wilderness Protection Act of 1989</li> <li>-New Hampshire Wilderness Act of 1984</li> <li>-Niobrara Scenic River Designation Act of 1991</li> <li>-North Carolina Wilderness Act of 1984</li> <li>-Outer Banks Protection Act</li> <li>-Ozark National Scenic Riverways Act</li> <li>-Paddy Creek Wilderness Act of 1981</li> <li>-Pennsylvania Wilderness Act of 1984</li> <li>-Piscataway Park Expansion Act of 1994</li> <li>-Point Reyes National Seashore Act</li> <li>-Protection Island National Wildlife Refuge Act</li> <li>-Rattlesnake National Recreation Area and Wilderness Act of 1980</li> <li>-Recreation and Public Purposes Act of 1954</li> <li>-Red Rock Canyon National Conservation Area Establishment Act of 1980</li> <li>-Rocky Mountain Arsenal National Wildlife Refuge Act of 1992</li> <li>-Rocky Mountain National Park Act</li> <li>-Saguaro National Monument (1991, 1994)</li> <li>-San Juan Basin Wilderness Protection Act of 1984</li> <li>-Sawtooth National Recreation Area Act of 1972</li> <li>-Shenandoah National Park Acts of 1926</li> <li>-Silvio O. Conte National Fish and Wildlife Refuge Act</li> <li>-Sipsey Wild and Scenic River and Alabama Addition Act of 1988</li> <li>-Spring Mountains National Recreation Area Act</li> <li>-Stewart B. McKinney National Wildlife Refuge Designation Act of 1987</li> <li>-Tennessee Wilderness Act (1984, 1986)</li> </ul>

Table 2 (continued).

<p>-Upper Mississippi River Wildlife and Fish Refuge Act of 1924          -Utah Wilderness Act of 1984          -Vermont Wilderness Act of 1984          -Virginia Wilderness Act of 1984          -Wallkill River National Wildlife Refuge Act          -Washington Park Wilderness Act of 1988          -Washington State Wilderness Act of 1984          -Wild and Scenic Rivers Act of 1968          -Wilderness Act of 1964          -Wildlife Refuge Revenue Sharing Act of 1935          -Winding Stair Mountain National Recreation and Wilderness Area Act of 1988          -Wisconsin Wilderness Act of 1984          -Wyoming Wilderness Act of 1984          -Yellowstone National Park Protection Act          -Zuni Land Conservation Act of 1990</p> <p><b><u>Procedural, Financial and Administrative Laws</u></b></p> <p>-America the Beautiful Act of 1990          -American Indian Agricultural Resource Management Act          -Coastal Wetlands Planning, Protection and Restoration Act of 1990          -Coastal Zone Management Act (1972, 1980, 1985)          -Connecticut Coastal Protection Act of 1990          -Endangered Species Act (1973, 1978, 1982)          -Endangered Species Conservation Act of 1969          -Federal Aid in Sport Fish Restoration Act of 1950          -Federal Aid in Wildlife Restoration Act of 1937          -Federal Land Policy and Management Act of 1976          -Fish and Wildlife Coordination Act of 1934          -Forest and Rangeland Renewable Resources Planning Act of 1974          -Forest Resources Conservation and Shortage Relief Act (1990, 1993)          -Forest Stewardship Act of 1990          -Great Lakes Coastal Barrier Act of 1988          -Hawaii Tropical Forest Recovery Act of 1992          -Land and Water Conservation Fund Act of 1965          -Marine Protection, Research, and Sanctuaries Act of 1972          -Mining and Minerals Policy Act of 1970          -Mining in the Parks Act of 1976          -Multiple-Use Sustained-Yield Act of 1960          -National Environmental Policy Act of 1969          -National Forest Management Act of 1976          -National Indian Forest Resources Management Act of 1990          -National Park Service Organic Act of 1916          National Wildlife Refuge System Administration Act of 1966          -North American Wetlands Conservation Act of 1989, 1994          -Public Lands Administration Act          -Public Lands and National Parks Act of 1983</p>	<p>-Public Rangelands Improvement Act of 1978          -Renewable Resources Extension Act (1978, 1987)          -Shoreline Erosion Control Demonstration Act of 1974          -Shore Protection Act of 1988          -Soil and Water Resources Conservation Act of 1977          -Soil Erosion Act of 1976          -State Forest Aid Act          -Surface Mining Control and Reclamation Act of 1977          -Water Resources Planning Act of 1965          -Watershed Protection and Flood Prevention Act of 1954          -Wetlands Act of 1961          -Wild and Scenic Rivers Act of 1968          -Wildlife Refuge Revenue Sharing Act of 1935          -Wildfire Suppression Assistance Act of 1989</p> <p><b><u>Fish and Wildlife Conservation Laws</u></b></p> <p>-Anadromous Fish Conservation Act of 1965          -Bald Eagle Protection Act of 1940          -Chehalis River Basin Fishery Resources Study and Restoration Act of 1990          -Elwha River Ecosystem and Fisheries Restoration Act          -Endangered Species Act (1973, 1978, 1982)          -Endangered Species Conservation Act of 1969          -Federal Aid in Sport Fish Restoration Act of 1950          -Federal Aid in Wildlife Restoration Act of 1937          -Fish and Game Sanctuary Act          -Fish and Wildlife Act of 1956          -Fish and Wildlife Conservation Act of 1980          -Fish and Wildlife Coordination Act of 1934          -Fish and Wildlife Improvement Act of 1978          -Fish Restoration and Management Projects Act          -Fisheries Act of 1995          -Fisheries Amendments of 1982          -Fishery Conservation Amendments of 1990          -Fishery Conservation and Management Act of 1976          -Fishery Conservation Zone Transition Act          -Great Lakes Fish and Wildlife Restoration Act of 1990          -Klamath River Fishery Restoration Act of 1986          -Los Padres Condor Range and River Protection Act of 1992          -Migratory Bird Conservation Act of 1929          -National Fishery Enhancement Act of 1984          National Wildlife Refuge System Administration Act of 1966          -New England Fishery Resources Restoration Act of 1990          -North Pacific Fisheries Act of 1954          -Northwest Atlantic Fisheries Act of 1950          -Partnerships for Wildlife Act of 1992          -Pittman-Robertson Wildlife Restoration Act of 1937          -Salmon Fisheries Act of 1992          -Striped Bass Act of 1991          -Wild Bird Conservation Act of 1992          -Wild Free-Roaming Horses and Burros Act of 1971          -Wildlife Conservation Act of 1977</p>
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Table 2 (continued).

<p><b><u>Cultural and Historic Preservation Laws</u></b></p> <ul style="list-style-type: none"> <li>-American Indian Religious Freedom Act of 1778</li> <li>-Anthropological Research Act</li> <li>-Antiquities Act of 1906</li> <li>-Archaeological Resources Protection Act of 1979</li> <li>-Blackstone River Valley National Heritage Corridor Act of 1986</li> <li>-Cane River Creole National Historic park and National Heritage Area Act</li> <li>-Convention on Cultural Property Implementation Act</li> <li>-Delaware and Lehigh Navigational Canal National Heritage Corridor Act of 1988</li> <li>-Department of Transportation Act of 1966</li> <li>-Historic Sites, Buildings, and Antiquities Act of 1935</li> <li>-National Historic Preservation Act (1966, 1980, 1992)</li> <li>-Preservation of American Antiques Act of 1906</li> <li>-Reservoir Salvage Act of 1960</li> </ul> <p><b><u>Forestry and Forest Resources Laws</u></b></p> <ul style="list-style-type: none"> <li>-Clarke-McNary Act of 1924</li> <li>-Cooperative Forest Management Act</li> <li>-Cooperative Forestry Assistance Act of 1978</li> <li>-Forest and Rangeland Renewable Resources Planning Act of 1974</li> <li>-Forest Exchange Act of 1996</li> <li>-Forest Pest Control Act</li> <li>-Forest Reserve Homestead Act of 1891</li> </ul>	<ul style="list-style-type: none"> <li>-Forest Resources Conservation and Shortage Relief Act (1990, 1993)</li> <li>-Forest Stewardship Act of 1990</li> <li>-Multiple-Use Sustained-Yield Act of 1960</li> <li>-National Forest Management Act of 1976</li> <li>-National Indian Forest Resources Management Act of 1990</li> <li>-New Hampshire Forest Management Initiatives Act of 1988</li> <li>-Renewable Resources Extension Act (1978, 1987)</li> <li>-State Forest Aid Act</li> <li>-Tongass Timber Reform Act of 1990</li> </ul> <p><b><u>Environmental and Pollution Control Laws</u></b></p> <ul style="list-style-type: none"> <li>-Acid Precipitation Act of 1980</li> <li>-Air Pollution Control Act (as amended)</li> <li>-Clean Water Restoration Act of 1966</li> <li>-Environmental Programs Assistance Act of 1984</li> <li>-Environmental Quality Improvement Act of 1970</li> <li>-Federal Insecticide, Fungicide, and Rodenticide Act (1972, 1978)</li> <li>-Federal Water Pollution Control Act Amendments (1956, 1961, 1965, 1972, 1977, 1987)</li> <li>-Global Climate Change Prevention Act (1987,1990)</li> <li>-Great Lakes Critical Programs Act of 1990</li> <li>-Indian Environmental Regulatory Enhancement Act of 1990</li> <li>-National Environmental Policy Act of 1969</li> </ul>
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The dispersed placement of Federal protection laws in the United States Code attests to the wide assortment of statutory authority that exists for protecting special values associated with forests. Titles represented include conservation, Indians, mineral lands and mining, the public health and welfare, public lands, and railroads. This breadth of reach hints at the importance and pervasiveness of Federal protection afforded certain values associated with forests. Examples of United States Code provisions focused on conserving (protecting) special values associated with forests are (Table 3):

- “... to protect the air, land, water, and natural and cultural values . . . ” (management of National Park System land)
- “... to ensure the protection of resource values . . . ” (management of reclamation land)
- “... protection of the scenic, wildlife, and recreation values . . . ” (deeds involving National Forest System land)
- “... scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved . . . protecting its aesthetic, scenic, historic, archaeological and scientific features . . . ”(management of Wild and Scenic River System land)
- “... giving full consideration to ecological, cultural, historic, and aesthetic values . . . ” (management of coastal zone land)
- “... the protection of other multiple-use values . . . ”(planning for forest and rangeland renewable resources)
- “ . . . promote public understanding of the energy conservation, economic, social, environmental and psychological value of trees . . . ” (Extension Service programs)
- “... identify the environmental values to be protected . . . ” (cooperative forestry assistance programs)
- “... increase public understanding of energy conservation, economic, social, environmental, and psychological values of trees and open space . . . ” (urban and community forestry assistance programs)
- “... preserve unrivaled scenic and geological values . . . to protect and preserve historic and archaeological sites . . . to preserve wilderness resource values and related recreational opportunities . . . maintain opportunities for scientific research and undisturbed ecosystems . . . ” (conservation of Alaska national interest lands)
- “... ecological, cultural, and aesthetic values . . . recreational, cultural, aesthetic, or traditional values of the Indian forest land . . . ” (management of Indian forest resources)
- “... important historic, cultural, scientific, and esthetic values and natural systems . . . ”(control and reclamation of surface mining)
- “... protecting resource values . . . ” (national environmental policy)
- “... protect the air quality related values (including visibility) . . . ” (management of air pollution)
- “... protection and enhancement of environmental and social values . . . ” (water resources research)
- “... protection, maintenance, and enhancement of any special values . . . ” (Alaska Native claims settlement program)
- “... protection of fish and wildlife habitat and aesthetic values . . . ” (Federal land policy and management)

### **Set-Asides and Restricted Use Authorities**

Federal requirements to set aside forest land for a certain use or to restrict the use of forest land are embodied in some fashion in laws that authorize the establishment of national parks, wilderness areas, national seashores, national heritage areas, national forests, scenic areas, recreation areas, wild and scenic rivers, wildlife refuges (preserves

and sanctuaries), and forest reserves. In 2002, these laws totaled more than 110 in number (Table 2). Generally focused on a specific value assigned to forests, the laws tend to severely limit the uses and type of management activities permitted, doing so in the name of protecting important environmental, cultural, and social values. Although many of the laws focus on a specific geographic area, others provide a more general framework for limiting use and management activities. For example, the National Park Service Organic Act of 1916 provides the USDI National Park Service with a legal mandate to “conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in a manner and by such means as will leave them unimpaired for future generations.” Other examples of general administrative authority to set-aside land or restrict uses are contained in the National Wildlife Refuge System Administration Act of 1966, Wild and Scenic Rivers Act of 1968, and the National Trails System Act of 1968.

Information about Federal forest land area that has been placed in a restricted use or a set-aside category is available for some values and some agencies. However, most such information focuses on areas that are highly visible in a political sense (for example, area of land in National Wilderness Preservation System). Information about other less widely known actions to conserve special forest values has yet to be compiled in a comprehensive and systematic fashion (for example, special scenic easements, recreation trail designations). Furthermore, information about set-asides to protect special values seldom focuses only on forest land; statutes tend to protect ecosystems which may, or may not, include forest cover (for example, natural areas may include forested wetlands as well as nonforested wetlands). Again, elusiveness of the definition of “values to be protected” and the complicated legal structure of laws that are designed to do so pose difficulties for assessment of information quality and quantity. Consider three examples of information describing Federal legal capacity to conserve special values associated with forests.

*Conservation Restrictions.* A 1993 assessment of land managed by the USDA Forest Service, USDI Bureau of Land Management, USDI Fish and Wildlife Service, and the USDI National Park Service concluded that such land had significant statutory or administrative conservation restrictions placed on its use and management. Forty-three percent of the land area managed by these four agencies was limited by some form of conservation restriction on use or management (Table 4 and 5) (U.S. General Accounting Accounting Office 1995). The protective measures took the form of wilderness and wilderness study areas, wild and scenic river areas, research natural areas, national monuments, primitive areas, recreation areas, game refuges, among others.

Table 3. Provisions of the U.S. Code o Federal Regulations Focused on Conserving Special Values Associated with Forests and Related Resources. 2002.

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## **TITLE 16 – CONSERVATION**

### **Chapter 1 – National Parks, Military Parks, Monuments, and Seashores**

#### Subchapter LXIX- Outdoor Recreation Programs

##### Part D – Land Transfers

*Sec. 4601-22. Conveyance of property and interests in property in national park system and miscellaneous areas.* “In order **to protect the air, land, water, and natural and cultural values** of the National Park System and the property of the United States therein, no solid waste disposal site (including any site for the disposal of domestic or industrial solid wastes) may be operated within the boundary of any unit of the National Park System.”

##### Part E – Reclamation recreation management

*Sec. 4601-33. Management of reclamation lands.* “The Secretary, acting through the Commissioner of Reclamation, shall promulgate such regulations as the Secretary determines to be necessary ... (C) **to ensure the protection of resource values.**”

### **Chapter 2 – National Forests**

#### Subchapter I – Establishment and Administration

*Sec. 521d. Sale, exchange, or interchange of National Forest System land.* “The Secretary shall insert in any such quitclaim deed such terms, covenants, conditions, and reservations as the Secretary deems necessary to ensure protection of the public interest, including **protection of the scenic, wildlife, and recreation values** of the National Forest System and provision for appropriate public access to and use of lands within the System.”

### **Chapter 28 – Wild and Scenic Rivers**

*Sec. 1271. Congressional declaration of policy.* “It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable **scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved** in a free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.”

*Sec. 1281. Administration.* “Each component of the national wild and scenic river system shall be administered in such a manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to **protecting its aesthetic, scenic, historic, archaeological and scientific features.**”

### **Chapter 33 – Coastal Zone Management**

*Sec. 1452. Congressional declaration of policy.* “The Congress finds and declares it is the national policy ... (2) to encourage and assist the States to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone, **giving full consideration to ecological, cultural, historic, and aesthetic values** as well as the needs for compatible economic development...”

Table 3 (continued).

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## Chapter 36 – Forest and Rangeland Renewable Resources Planning

### Subchapter I – Planning

*Sec. 1604. National Forest System land and resource management plans.* “In developing land management plans pursuant to this subchapter, the Secretary shall identify lands within the management area which are not suitable for timber production, considering physical, economic, and other pertinent factors to the extent feasible, as determined by the Secretary, and shall assure that, except for salvage sales or sales necessitated to protect other multiple-use values, the timber harvesting shall occur on such lands for a period of 10 years. Lands once identified as unsuitable for timber production shall continued to be treated for reforestation purposes, particularly with regard to **the protection of other multiple-use values.**”

### Subchapter III – Extension Programs

*Sec. 1672. General program authorization.* “The Secretary of Agriculture, under conditions the Secretary may prescribe and in cooperation with the State directors of cooperative extension service programs and eligible colleges and universities shall ... (9) in cooperation with State foresters or equivalent State officials, **promote public understanding of the energy conservation, economic, social, environmental and psychological value of trees** and open space in urban and community area environments and expand knowledge of the ecological relationships and benefits of trees and related resources in urban and community environments;”

## Chapter 41 – Cooperative Forestry Assistance

*Sec. 2103c. Forest Legacy Program.* “In administering lands and interests therein under the program, the Secretary shall **identify the environmental values to be protected** by entry of the lands into the program, management activities which are planned and the manner in which they may affect the values identified, and obtain from the landowner other information determined appropriate for administration and management purposes.”

“To be eligible, such areas shall have significant environmental values or shall be threatened by present or future conversion to nonforest uses.”

*Sec. 2105. Urban and community forestry assistance.* “The Secretary, in cooperation with State Foresters and State extension directors or equivalent State officials and interested members of the public, involving nonprofit private organizations, shall implement a program of education and technical assistance for urban and community forest resources. The program shall be designed to ... (5) **increase public understanding of energy conservation, economic, social, environmental, and psychological values of trees and open space** in urban and community environments and expand knowledge of ecological relationships and benefits of trees and related resources in these environments.”

## Chapter 51 – Alaska National Interest Lands Conservation

### Subchapter I – General Provisions

*Sec. 3101. Congressional statement of purpose.* “In order to preserve for the benefit, use, education, and inspiration of present and future generations certain lands and waters in the State of Alaska that contain nationally **significant natural, scenic, historic, archaeological, geological, scientific, wilderness, cultural, recreational, and wildlife values**, the units described in the following titles are hereby established.” “It is the intent of Congress in this Act **to preserve unrivaled scenic and geological values** associated with natural landscapes; to provide for the maintenance of sound populations of, and habitat for, wildlife species of inestimable value to the citizens of Alaska and the Nation, including those species dependent on vast relatively undeveloped areas; to preserve in their natural state extensive unaltered arctic tundra, boreal forest, and coastal rainforest ecosystems; to protect the resources related to subsistence needs; **to protect and preserve historic and archaeological sites**, rivers, and lands, and **to preserve wilderness resource values and related recreational opportunities** including but not limited to hiking, canoeing, fishing, and sport hunting, within large arctic and subarctic wildlands and on freeflowing rivers; and to **maintain opportunities for scientific research and undisturbed ecosystems.**” “This act provides sufficient **protection for the national interest in the scenic, natural, cultural and environmental values** on the public lands in Alaska, and at the same time provides adequate opportunity for the satisfaction of the economic and social needs of the State of Alaska and its people;”

Table 3 (continued).

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**TITLE 25 – INDIANS**

**Chapter 33 – National Indian Forest Resources Management**

*Sec. 3101. Findings* “The Congress finds and declares the forest lands of Indians are among their most valuable resources and Indian forest lands ... (D) provide natural benefits, including **ecological, cultural, and aesthetic values;**” an Indian tribe determines that **the recreational, cultural, aesthetic, or traditional values of the Indian forest land** represents the highest and best use of the lands;... (6) the management and protection of forest resources to retain the beneficial effects to Indian forest lands of regulating water-runoff and minimizing soil erosion; and (7) **the maintenance and improvement of timber productivity, grazing, wildlife, fisheries, recreation, aesthetic, cultural and other traditional values.**”

*Sec. 3105. Forest management deduction.* “Pursuant to the authority of section 413 of this title, the Secretary shall withhold a reasonable deduction from the gross proceeds of sales of forest products harvested from Indian forest land under a timber sale contract, permit, or other harvest sale document, which has been approved by the Secretary, to cover in whole or part the cost of **managing and protecting such Indian forest land.**”

**TITLE 30 – MINERAL LANDS AND MINING**

**Chapter 25 – Surface Mining Control and Reclamation**

Subchapter V – Control of the Environmental Impacts of Surface Coal

*Sec. 1272. Designating areas unsuitable for surface coal mining.* “Upon petition pursuant to subsection (c) of this section, a surface area may be designated unsuitable for certain types of surface coal mining operations if such operations will ... (B) affect fragile or historic lands in such operations could result in significant damage to **important historic, cultural, scientific, and esthetic values and natural systems;**”

**TITLE 42 – THE PUBLIC HEALTH AND WELFARE**

**Chapter 55 – National Environmental Policy**

*Sec. 4321. Congressional declaration of purpose.* Executive Order No. 11644 Use of off-road vehicles on public lands – “Each respective agency head shall develop and publish, within one year of the date of this order, regulations prescribing operating conditions for off-road vehicles on the public lands. These regulations should be directed at **protecting resource values,** preserving public health, safety, and welfare, and minimizing use conflicts.”

Subchapter I –Policies and Goals

*Sec. 4332. Cooperation of agencies; reports; availability of information; recommendations; international and national coordination of efforts.* “The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this chapter, and (2) all agencies of the Federal government shall ... (B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by subchapter II of this chapter, which will ensure that presently **unquantified environmental amenities and values** may be given appropriate consideration in decisionmaking along with economic and technical considerations;”

**Chapter 78 – National Petroleum Reserve in Alaska**

*Sec. 6503. Transfer of jurisdiction, duties, property, etc., to Secretary of Interior from Secretary of Navy.* “With respect to any activities related to **the protection of environmental, fish and wildlife, and historical or scenic values,** the Secretary of the Interior shall all responsibilities as of April 5, 1976. As soon as possible, but not later than the effective date of transfer, the Secretary of Interior may promulgate such rules and regulations as he deems necessary and appropriate for the protection of such values within the reserve.”

*Sec. 6504. Administration of Reserve.* “Any exploration within the Utokok River, the Teshekpuk Lake areas, and other areas designated by the Secretary of the Interior containing any **significant subsistence, recreational, fish and wildlife, or historical or scenic value,** shall be conducted in a manner which will assure the maximum protection of such surface values to the extent consistent with the requirements of the Act for the exploration of the reserve.”

Table 3 (continued).

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## **Chapter 85 – Air Pollution Prevention and Control**

Subchapter I – Programs and Activities

Part C – Prevention of Significant Deterioration of Air Quality

Subpart i – Clean Air

*Sec. 7475. Preconstruction requirements.* “The Federal Land Manager and the Federal official charged with direct responsibility for management of such lands shall have an affirmative responsibility **to protect the air quality related values (including visibility)** of any such lands within a class I area and to consider, in consultation with the Administrator, whether a proposed major emitting facility will have an adverse impact on such values.”

## **Chapter 109 – Water Resources Research**

*Sec. 10302. Congressional declaration of purpose.* “It is the purpose of this chapter to assist the Nation and the States in augmenting their water resources science and technology as a way to ... (3) assure the **protection and enhancement of environmental and social values** in connection with water resources management and utilization.”

### **TITLE 43 - PUBLIC LANDS**

## **Chapter 33A – Implementation of Alaska Native Claims Settlement and Alaska Statehood**

*Sec. 1636. Alaska land bank* “In addition to any requirement of applicable law, the appropriate Secretary is authorized to provide technical and other assistance with respect to fire control, trespass control, resource and land use planning, and **the protection, maintenance, and enhancement of any special values** of the land subject to the agreement, ...”

## **Chapter 35 – Federal Land Policy and Management**

Subchapter II – Land Use Planning and Land Acquisition and Disposition

*Sec. 1716. Exchanges of public lands or interests therein within the National Forest System.* “The Congress finds and declares that land exchanges are a very important tool for Federal and State land managers and private landowners to consolidate Federal, State, and private holdings of land or interests in land for purposes of more efficient management and to secure important objectives including **the protection of fish and wildlife habitat and aesthetic values;**”

### **TITLE 45 – RAILROADS**

Chapter 21 – Alaska Railroad Transfer

*Sec. 1207. State operation.* “After the date of transfer to the State pursuant to section 1203 of this title, the portion of rail properties within the boundaries of the Chugach National Forest and the exclusive-use easement within the boundaries of the Denali National Park and Preserve shall be subject to laws and regulation for **the protection of forest and park values.**”

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Source: Legal Information Institute 2002.

*Acquired Land Restrictions.* Restrictions needed to conserve special values can also result from land purchases made by Federal agencies. Federal law (and appropriations) empowers the latter to acquire from nonprofit organizations real estate that complements the statutory responsibility of the administering agency. The land is often bought with the precondition that certain conservation restrictions will continue to apply. For example, between 1988 and 1992, the Forest Service acquired 288,056 acres from nonprofit organizations at a cost of more than \$149 million. The nonprofit

organizations most commonly engaged in such land transfers were the Trust for Public Land, the Nature Conservancy, the Conservation Fund, the Rocky Mountain Elk Foundation, and the River Network (U.S. General Accounting Office 1994).

*National Wilderness Preservation System.* The Wilderness Act of 1964 (and 103 subsequent laws affecting wilderness designation) established the National Wilderness Preservation System (NWPS). The latter is the programmatic framework whereby Federal land is designated for values including ecological, scientific, scenic, historical, educational, and primitive recreation experiences. To be qualified for designation, the Federal land must have primeval character, be without permanent improvements, lack human habitation, and be managed to preserve its natural conditions. The system prohibits certain activities (such as motorized equipment), yet permits access to private lands and certain grazing and mineral exploration activities as “grand-fathered uses.” In 1999, the NWPS was composed of 628 units encompassing nearly 105 million acres (Table 6) (Gorte 1994, Landres and Meyer 2000, Loomis and others 1999).

Land area in the NWPS is heavily concentrated in the West, a condition that is consistent with the heavy regional concentration of Federal land. Of the 48 conterminous States, 6 States lack designated wilderness units while 11 Western States accounted for 91 percent of the land area in the NWPS (Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Montana, Utah, Washington, Wyoming) (Table 7). Alaska has the greatest area of designated wilderness (58.1 million acres; 15.4 percent of total in NWPS). Although the Wilderness Act defined wilderness to be at least 5,000 acres (or of sufficient size for practical preservation), there are 73 wilderness units in the NWPS smaller than 5,000 acres; of these, 21 are less than 1,000 acres. The largest wilderness unit in the NWPS is the USDI National Park Service’s Wrangel-St. Elias Wilderness (Alaska) with 9.7 million acres. The USDI National Park Service and the Forest Service are responsible for the bulk of the area designated as part of the NWPS (65.3 percent), namely 42.1 percent and 33.2 percent respectively. Twenty-one wilderness units are managed by more than one Federal agency (Landres and Meyer 2000).

*Research Natural Areas.* Research natural areas are part of a national network of ecological areas designated for research and education. Using authority set forth in the Organic Administration Act of 1897 (and subsequent authorities: 7 CFR 2.42, 36 CFR 251.23, 36 CFR 219.25 and FSH 4063), the Forest Service establishes research natural areas that preserve a wide spectrum of pristine areas typifying important forest, shrubland, grassland, alpine, aquatic, geological, or similar natural situations that have special or unique characteristics of scientific interest. The areas are located primarily in the National Forest System where they include unique ecosystems or ecological features, rare or sensitive species of plants and animals and their habitat, and high-quality examples of widespread ecosystems. As of April 1999, the natural areas system was composed of 433 areas cumulatively totaling more than 531,000 acres. They were distributed among Forest Service regions as follows: Region One (Northern) – 112,235 acres, 96 areas; Region Two (Rocky Mountain) – 32,519 acres, 21 areas; Region Three (Southwestern) – 17,619 acres, 18 areas; Region Four (Intermountain) – 111,424 acres,

96 areas; Region Five (Pacific Southwest) – 70,671 acres, 51 areas; Region Six (Pacific Northwest) – 73,069 acres, 66 areas, Region Eight (Southern) – 18,598 acres, 30 areas; Region Nine (Eastern) – 23,602 acres, 42 areas; and Region 10 (Alaska) – 71,300 acres – 13 areas. The largest areas in the system are located in Idaho (12,707 acres) and Alaska (11,550), while the smallest are located in South Dakota (14 acres) and Illinois (17 acres) (Forest Service 2002).

Table 4. Federal Land Managed with Conservation Restrictions, by Agency. 1964, 1979 and 1993.

Year and Area (acres)	Forest Service	USDI Bureau of Land Management	USDI Fish and Wildlife Service	USDI National Park Service	Total
<u>1964</u>					
Total Area Managed	186,274,576	464,346,607	22,396,317	27,500,745	700,518,245
Conservation Restriction Area	1,435,909	628	22,396,317	27,500,745	51,333,599
<u>1979</u>					
Total Area Managed	187,422,847	397,505,869	43,045,987	64,961,020	692,935,723
Conservation Restriction Area	22,911,081	74,513	43,045,987	64,961,020	130,992,601
<u>1993</u>					
Total Area Managed	191,525,377	267,640,286	87,375,963	76,571,878	623,113,504
Conservation Restriction Area	49,410,180	57,738,928	87,375,963	76,571,878	271,096,949

Source: U.S. General Accounting Office 1995.

Table 5. Conservation Restrictions on Land Managed by the Forest Service and the USDI Bureau of Land Management Land, by Type of Restriction. 1964, 1979 and 1993.

Agency and Type of Restriction	1964 (acres)	1979 (acres)	1993 (acres)
<u>USDA Forest Service</u>			
Designated Wilderness	0	15,083,975	34,583,833
Wilderness Study Area	0	1,689,871	6,619,770
Wild and Scenic River	0	204,955	487,205
Area of Critical Environmental Concern	0	0	0
Research Natural Area	79,205	136,321	288,888
National Conservation Area	0	0	0
National Monument	0	0	3,404,244
National Primitive Area	0	2,810,242	173,762
National Recreation Area	0	1,779,701	2,362,208
National Game Refuge	1,356,704	1,202,084	1,218,953
National Scenic Research Area	0	3,932	6,630
Other Types	0	0	264,687
Total	1,435,909	22,911,081	49,410,180
<u>USDI Bureau of Land Management</u>			
Designated Wilderness	0	1,738	1,653,529
Wilderness Study Area	0	0	26,554,685
Wild and Scenic River	0	14,267	829,448
Area of Critical Environmental Concern	0	0	9,534,450
Research Natural Area	28	38,068	326,449
National Conservation Area	0	0	14,323,431
National Natural or Historic Landmark	600	600	599,042
National Primitive Area	0	0	0
Scientific Research Area	0	0	0
National Recreation Area	0	0	1,000,000
National Game Refuge	0	0	0
National Scenic Research Area	0	0	1,365,280
Other Types	0	19,840	1,552,614
Total	628	74,513	57,738,928

Source: U.S. General Accounting Office 1995.

Table 6. National Wilderness Preservation System (NWPS), by Area, Number of Units, and Responsible Agency. 1999.

Agency	Number of Units	Area (acres)	Portion of NWPS (percent)
USDI Bureau of Land Management	133	5,237,800	5.0
USDA Forest Service	400	34,766,995	33.2
USDI Fish and Wildlife Service	71	20,686,134	19.8
USDI National Park Service	44	44,048,239	42.1
TOTAL	628	104,739,168	100.0

Source: Landres and Meyer 2000.

Table 7. National Wilderness Preservation System (NWPS), by State and Area in State. 1999.

Alabama – 41,367	Massachusetts – 2,420	Oklahoma – 23,113
Alaska – 58,182,216	Michigan – 247,325	Oregon – 2,102,606
Arizona – 4,529,061	Minnesota – 815,154	Pennsylvania – 9,031
Arkansas – 153,654	Mississippi – 10,683	South Carolina – 60,681
California – 13,977,315	Missouri – 71,089	South Dakota – 73,970
Colorado – 3,276,064	Montana – 3,442,416	Tennessee – 66,349
Florida – 1,422,325	Nebraska – 12,429	Texas – 85,333
Georgia – 485,484	Nevada – 917,623	Utah – 796,418
Hawaii – 142,370	New Hampshire – 102,932	Vermont – 59,421
Idaho – 4,005,621	New Jersey – 10,341	Virginia – 166,641
Illinois – 29,688	New Mexico – 1,631,525	Washington – 4,333,622
Indiana – 12,945	New York – 1,363	West Virginia – 80,852
Kentucky – 16,779	North Carolina – 111,342	Wisconsin – 42,323
Louisiana – 17,024	North Dakota – 39,652	Wyoming – 3,111,132
Maine – 19,392	Ohio – 77	

Note: Numbers following States are acres of land area.

Source: Landres and Meyer 2000.

### **Administrative and Planning Authorities**

Federal laws that set forth various procedural (planning) and administrative (supporting) requirements also have implications for the conservation of special forest values. Examples are the National Environmental Policy Act of 1969, Coastal Zone Management Act of 1985, Federal Land Policy and Management Act of 1976, National Forest Management Act of 1976, and the Forest Stewardship Act of 1990. Of the more than 250 laws previously identified, more than 40 are considered to be of this type (Table 2). These laws protect special values by encouraging or requiring planning processes, facilitating certain conservation practices (for example, technical advice, financial support), encouraging recovery of destroyed forest ecosystems, or providing for the protection of forests from wildfire, insects, and diseases. The breadth of the legal charge set forth in some laws is characterized by the Federal Land Policy and Management Act of 1976 requires that “public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, archaeological values.”

### **Resource Protection and Preservation Authorities**

*Fish and Wildlife Conservation.* A variety of Federal laws have been established to conserve special values associated with fish and wildlife. These laws often have a direct impact on the conservation of other special values as well on forest and other types of land and their management. Examples include the Endangered Species Act of 1973 (as amended), the Fish and Wildlife Conservation Act of 1980, and the Migratory Bird Conservation Act of 1929. Many of these laws are limited to specific geographies. Examples are the Great Lakes Fish and Wildlife Restoration Act of 1990, Klamath River Basin Fishery Resources Restoration Act of 1986, and the Los Padres Condor Range and River Protection Act of 1992. Approximately 30 Federal laws directly govern aspects regarding the conservation of fish and wildlife (Table 2). Many of these laws have implications for conserving special forest values.

*Cultural and Recreational Resources.* Federal laws also provide for the protection of important cultural, historic values associated with forests. Examples of important laws authorizing the conserving of culturally and historically important resources are the Antiquities Act of 1906 (Presidential power to declare national monuments), Historic Sites Act of 1935 (supportive administrative structure for Antiquities Act), National Historic Preservation Act of 1966 (encouraged preservation through financial aid and cooperative agreements), Reservoir Salvage Act (protection of cultural values from Federal dam building), Department of Transportation Act of 1966 (protection of cultural sites threatened by transportation construction), Archaeological Resources Protection Act of 1979 (established permitting system for controlling access to special sites), and the American Indian Religious Freedom Act of 1978 (provides for Indian group participation in decisions involving Indian cultural items or places). At least 13 Federal laws are directed to the protection of cultural and historic values (Table 2).

*Forestry and Forest Resource.* Federal laws specific to conserving values associated with forests total nearly 20 (Table 2). Examples are the Forest Stewardship Act of 1990, Cooperative Forestry Assistance Act of 1978, National Indian Forest Resources Management Act of 1990, National Forest Management Act of 1976, and the Renewable Resources Extension Act of 1978. Because forests typically provide for a variety of benefits (for example, timber, water, recreation, scenic beauty), the legal provisions of these laws are often focused on forests in a generic sense (supportive of various values associated with forests).

*Pollution Control and Prevention.* A variety of Federal laws focus on conserving values such as water, air, and land resources, doing so from a pollution control or prevention perspective. Many (more than 10 ) have major implications for conserving important values associated with forests (Table 2). Examples are the Acid Precipitation Act of 1980, Federal Water Pollution Control Amendments of 1972, Environmental Quality Improvement Act of 1970, and the Federal Insecticide and Rodenticide Act of 1972. Most of these laws are administered by Federal agencies whose primary responsibilities do not focus on forests.

Federal legal capacity to provide for the conservation of special forest values is directly expressed by the existence of Federal statutes. The administrative expression of this capacity is represented by the design and implementation of Federal programs. Specification of the programs provides an even richer understanding of the Federal capacity to conserve special values associated with forests (U.S. Environmental Protection Agency 1997). Examples of programs are the Coastal Wetlands, Planning, Protection, and Restoration Program Administered by the USDI Fish and Wildlife Service, Conservation Reserve Program administered by the USDA Farm Services Agency, and the Environmental Quality Incentives Program administered by the USDA Natural Resources Conservation Service. The programs include regulatory elements, voluntary elements, educational efforts, and cost-share/loan/grant opportunities. Many of these elements are geared toward the protection of special values associated with forests.

Federal agencies also promulgate rules which may serve to afford protection for special environmental, cultural, social, and scientific values. Rules regarding timber sales, archaeological sites, cooperation with States, and providing for sustainability all provide for the protection and conservation of these values.

### **State Government Capacity**

State governments have also initiated programs to conserve special forest values. As with Federal legal capacity to do so, few comprehensive and systematic assessments have been made of this State capacity. Most assessments focus on a specific special value (for example, wildlife, riparian zones, cultural values) and often are narrow in their geographic focus (a single State or ownership category within a State). Some of these efforts at surveying the landscape are reviewed herein.

Focusing on special values involving water and related water resources, the USDA Natural Resource Conservation Service assessed conservation laws in 17 States in 1996 (Tran and others 1999) (conditions were assessed in the following States: Alabama, Arkansas, California, Delaware, Georgia, Idaho, Iowa, Nebraska, Maryland, Mississippi, New Mexico, Oregon, Pennsylvania, Tennessee, Texas, Utah, and Wisconsin). The agency reviewed State-level legal capacity to address erosion and sediment, ground water pollution, water quality management, flood plain management, wetlands conservation, forest (and farm) land preservation, surfacing mining reclamation, pesticide management, and wildlife habitat protection laws. Fifteen of the 17 States had laws focused on flood plan management, 10 on wetlands conservation, 6 on farm and forest land preservation, and 14 on surface mining. All States had laws focused on the remaining five categories assessed. The assessment also conducted an intense review of the State soil and water conservation districts in all 50 States (purpose, administration, advisory board roles). Usefulness of the information provided by the assessment is limited since only 17 States were assessed. Furthermore, it is not known to what extent the laws identified focus on forest resource conditions and values.

Most States in 1995 had some type of forestry-based program to promote and conserve special forest values; all such programs had some legal foundations in State law (Ellefson and others 1995). For example, States engaged the following types of programs to conserve special values involving wildlife and rare and endangered special: educational programs – 46 States, technical assistance programs – 45 States, fiscal incentive programs – 26 States, regulatory programs – 20 States, voluntary guideline programs – 16 States, and tax incentive programs – six States (any one State may have more than one operating program within a major program category). State governments are also sensitive to the need for conserving special values associated with forested riparian areas. In 2000, States required special treatment (either voluntarily or by regulation) of riparian areas associated with the following types of water bodies: rivers (4 States), perennial streams (49 States), intermittent streams (40 States), lakes (27 States),

domestic water supplies (17 States), wetlands (11 States), ponds (11 States), and seeps or springs (9 States) (Blinn and Kilgore 2001).

State governments also have expansive regulatory authority to conserve special values associated with forests. For example, the Oregon Forest Practices Act authorizes the development of rules to guide the application of forest practices in areas adjacent to scenic highways and visually sensitive road corridors (within 150 feet of roadway leave certain size trees, remove logging debris, minimum reforestation requirements). Similarly, most States with forest practice regulatory programs require modification of forest practices (or exclusion from) occurring in riparian areas. For example, Idaho rules regarding streamside protection zones (usually 75 feet both sides) limit the type of forest practices that can occur therein (for example, leave 75 percent of existing shade adjacent over streams). In addition, nearly all States have some type of voluntary guideline program directing timber harvesting practices in riparian areas.

State programs have also been initiated to address the conservation of biodiversity (Zumeta and Ellefson 1998, 2000). In 1993, 136 State programs focused on natural areas (13 programs), nongame wildlife (44 programs), natural heritage resources (27 programs), combined programs (52 programs), of which all States had at least one program type. Seventy-one percent of the 136 programs were guided by enabling legislation, with such laws focusing on the following topics (in descending order): endangered species, forested wetlands, exotic species, old growth forests, and forest fragmentation. One-third of the State biodiversity programs involved direct responsibility for the management of State-owned land. The 1993 assessment determined information about biodiversity program budgets and staff, advisory and governance structures, program coordination and effectiveness, and biodiversity incentives for private forest landowners.

The status of State strategies for biodiversity conservation in general was assessed by the Environmental Law Institute in 2000 (Environmental Law Institute 2001). Although all were not specific to forests, 22 programs, initiatives, and councils were found in a host of different geographic regions. Among the organizations and programs identified are:

California Biodiversity Council	Missouri Biodiversity Council
Delaware Biodiversity Initiative	New Hampshire Biodiversity Conservation Project
Florida Closing the Gap Project	New Jersey Landscape Project
Florida Ecological Network Project	New Mexico Biodiversity Project
Hawaii Conservation Biological Initiative	New York State Biodiversity Project
Illinois Conservation 2000 Ecosystem Partnership	Ohio Biodiversity Plan and Program
Indiana Biodiversity Initiative	Oklahoma Biodiversity Council
Kentucky Biodiversity Council	Oregon Biodiversity Project
Maine Forest Biodiversity Project	Pennsylvania Biodiversity Project
Maryland Green Infrastructure Assessment	Wisconsin Biodiversity Plan and Program.
Massachusetts EOEA Biodiversity Project	

These organizations and programs are often initiated and coordinated by State agencies such as departments of natural resources, departments of conservation, and departments of fish and wildlife. Presumed is that such agency actions are based on some legal capacity to do so. The extent to which the programs identified have direct relevance to protection special forest values is unknown.

States also implement legal authority to designate and management wilderness and related areas. Although the information resulting from the assessment is quite dated, non-Federal wilderness, wildland, and natural areas were assessed nationwide in 1987 (Cook and English 1988). In the latter year, a total of nearly 3.7 million acres of State land was designated as wilderness, wildland, or a natural area. This area was owned and managed by State governments in nearly 1,140 separate administrative units (Table 8). The 3.7 million acres were approximately 74 percent of the total nonfederal public and private area in such categories. Most of the State administered land (84 percent) was in tracts exceeding 5,000 acres each.

State-designated wilderness was also assessed in 1983 (Stankey 1984) and again in 1994 (Peterson 1996). In the former year, 9 States were found to have statutorily authorized wilderness preservation programs that established 48 areas involving 1.7 million acres. In 1994, 8 States had such programs that collectively included 58 areas totaling more than 3.1 million acres (Table 9). Five of the nine State programs were statutorily authorized; the remaining existed because of some form of administrative directive. One State (Florida) repealed (in 1989) State law authorizing wilderness designation, wherein the State's 10 wilderness areas so designated were transferred to other State programs.

Table 8. Wilderness, Wildland, and Natural Areas Designated on Non-Federal Land, by Ownership Category and Area. 1987.

Area (acres)	Ownership Category (acres and number of units)					Total
	State Government	Local Government	Private Nonprofit Organization	Private Individual	Other	
99 or less	16,248(395)	7,885(238)	29,251(876)	9,771(388)	4,621(148)	667,776(2,045)
100-999	172,357(474)	48,182(156)	163,629(518)	26,056(90)	18,499(62)	428,723(1,300)
1,000-4,999	384,860 (163)	60,429(29)	167,908(80)	55,109(23)	34,033(15)	702,339(310)
5,000-24,999	881,484 (74)	50,240(5)	200,481(18)	32,757(3)	50,710(3)	1,215,672(103)
25,000-999,999	1,014,121(24)	26,380(1)	283,986(6)	48,519(1)	-	1,373,006(32)
100,000 or more	1,225,637(7)	-	-	-	-	1,225,637(7)
Total	3,694,707(1,137)	193,116(429)	845,255(1,498)	172,212(505)	107,863(228)	5,013,153(3,797)

Notes: Number in parentheses are number of units; local government includes counties, cities, school districts, and regional authorities; private individual includes only private persons; other includes industry, banks, universities, colleges.

Source: Cook and English 1988.

Table 9. State-Designated Wilderness Area Programs, by Area, Authority and Year Established. 1994.

State	Number of Areas Designated	Total Area Designated	Year Program Established	Program Authority
Alaska	5	1,359,000	1970	administrative
California	7	431,700	1974	administrative & statutory
Maryland	11	14,000	1971	statutory
Michigan	3	50,600	1972	statutory
Minnesota	1	97,300	1975	statutory
Missouri	10	17,300	1977	administrative
New York	20	1,131,200	1972	administrative
Wisconsin	1	6,200	1973	administrative
Total	58	3,107,300	-	-

Note: Florida wilderness designation program was statutorily rescinded in 1989.

Source: Peterson 1996.

### **Local Government Capacity**

Local units of government also have exercised legal authority to conserve special values associated with forests. For example, in 1987 local units of government formally designated nearly 430 areas (more than 193,000 acres collectively) considered especially valuable because of their wilderness, wildland or natural characteristics (Cook and English 1988). Unfortunately, comprehensive national assessments of this nature have not been carried out in recent years. The closest to doing so have been recent national assessments of legal regulatory capacity (ordinances protecting special resources, limiting timber harvesting, preserving individual trees) as focused on protecting agricultural resources (Tran and others 1999) or forest conditions generally (Siegel and Martus 1996). In 1991, Hickman and Martus (1991) identified nearly 400 local ordinances regulating forestry practices, with more than 70 percent established since 1980 and half established since 1985. In 1993, Martus and others (1993) identified 522 local ordinances in 24 States regulating forestry activities, with 68 percent of them in Northeastern States and 27 percent in Southern States. In 1996, more than 100 local ordinances directing the application of forest practices existed in New York alone. As of 2000, county and municipal governments in 10 of the 13 Southern States had enacted a total of 346 forest-related ordinances (increase from 7 States and 141 ordinances in 1992), most of which were enacted in States experiencing rapid urban expansion (Forest Service 2001).

The magnitude of local enforcement potential can be better judged in the context of the total number of local political jurisdictions within a State that could possibly adopt laws, rules, and guidelines addressing forest sustainability. In 1991, an estimated 8 percent of all local jurisdictions nationwide probably had forest practice enforcement potential. Such is based on the known frequency of forest practice regulatory programs at the local level in the following States: Colorado: 3 of 63 counties, Delaware: 1 of 3 counties, Florida: various of 57 counties, Georgia: 11 of 159 counties, Illinois: 100 of 1,200 municipalities, and 1 of 102 counties, Louisiana: 1 of 64 parishes, Maryland: 20 of 23 counties, Michigan: 10-15 of 1,200 townships, Minnesota: 1 of 87 counties, New

Jersey: 300 of 567 municipalities and 15 of 21 counties, New York: 70 of 900 municipalities, North Dakota: 7 of 53 counties, Pennsylvania: 13 of 420 municipalities, Vermont: 2 of 251 municipalities, and Wisconsin: 3-4 of 1,500 municipalities and 2 of 72 counties (Ellefson and others 1995).

### **Summary of Conditions**

Conserving special values associated with forests is often an important ingredient to accomplishing societal interests in the sustainability of forests. This review of Federal, State, and local levels of government suggests the following:

- Legal frameworks for conserving special forest values are driven by societal interest in various values, most often involving amenity values (nature, scenery, life style), environmental quality values (air, water), ecological values (biological diversity, endangered species), public use values (recreation, tourism), commodity values (timber, range, forage, water, minerals), and spiritual values (reverence for forests). In the last 3 decades, political and program emphasis appears to have given priority to ecological and environmental quality values, with other values being given far less consideration (especially commodity values).

- Legal frameworks for conserving special forest values are large in number and incredibly broad in type and in the geography of their concern. Such would be expected given the number and scope of the values to be conserved (protected) and the many different constituencies that seek to promote their interest in a specific forest value. Such a dispersed legal framework does harbor opportunity for overlap in purpose and potential for conflict among program objectives, administration, and level of required investment.

- Private sector organizations and programs conserving special forest values are many in number, ranging from local civic trusts to large national land trusts. In recent years private land trusts have become especially active as a means of conserving values important to forest sustainability and conservation. More than 1,200 regional and local land trusts existed in 2000. They were responsible for direct ownership, or transfer of ownership to government agencies, of more than 2.6 million acres of land (much of which is forested).

- Federal legal capacity to conserve special forest values is incredibly broad in terms of the values considered and the geography of interest (local – forest legacy programs, regional – wild and scenic rivers programs, national – wilderness preservation programs). At a minimum, more than 250 individual Federal laws currently focus on the conservation of special values. For purposes of discussion, these laws can be grouped as restricted use or set-aside laws (for example, wilderness designation), procedural and administrative laws (for example, environmental impact statement review), fish and wildlife conservation laws (for example, fisheries' restoration), cultural and recreational laws (for example, archeological site protection), forestry and forest resource laws (for

example, management of Federal forests), and environmental and pollution control laws (for example, water quality and pesticide management).

- Federal legal capacity to exclusively (only) conserve forests as ecological systems (regardless of special values associated with forests) is modest. Most Federal laws and rules addressing special environmental or conservation values focus on a specific resource (for example, wildlife, water, wetlands) which may (or may not) be located in forested areas or on a particular patch of geography which may (or may not) be forested (for example, national recreational trails, scenic highway corridors).

- Federal legal capacity to conserve special forest values ranges from that which is politically and publicly very visible to that which receives modest or limited public attention, yet is very important in the context of forest sustainability and conservation. Examples of the former are the National Wilderness Preservation System and the Wild and Scenic Rivers System, while the latter are administrative restrictions on forest management practices so as to protect scenic values or carryout research (research natural areas).

- State governments also have extensive legal capacity to conserve special forest values. This capacity is expressed in various programmatic ways, including via education programs, technical assistance initiatives, fiscal and tax incentives, regulatory programs, and State government ownership of forests. Nearly all States have at least one of these program types, but most implement all types.

- As with Federal legal capacity, State legal capacity to conserve special forest values has in recent years focused on conserving ecological and environmental values associated with forests and less so on the commodity values. For example, State governments in 1987 owned and managed (under authority of State law) nearly 3.7 million acres of land designed as wilderness, wildland, or natural area. In 1994, eight States had a formal program devoted exclusively to wilderness preservation (1.7 million acres).

- State legal capacity to conserve special forest values has also been assigned to a variety of agencies in State government. Such offers potential for overlap in purpose and opportunity for conflict among program objectives, administration, and level of required investments. As with Federal legal capacity, such is to be expected given the diversity of forest values to be conserved and the many constituencies that seek to advance attention to their interest in a specific forest value.

- Local units of government have legal capacity to conserve special values associated with forests, although such capacity (for example, local ordinances) is neither uniform in substance nor in application across local units of government. In 1993, 522 local ordinances in 24 States regulated the application of forest practices, often doing so as a means of conserving (protecting) a special forest value.

## Issues and Trends

The literature identifies a number of major issues and trends involving the conserving of special environmental, cultural, historic, social, and scientific values associated with forests. Consider the following (Boyd 2000, Davis 1989, Debinski and Humphrey 1997, DellaSala and others 2001, Landres and Meyer 2000, Siegel and Martus 1996, Stankey and Clark 1991, Stoms and others 1998, U.S. Department of Interior 2000, U.S. General Accounting Office 1995, U.S. Geological Service 2002, Woodward and others 1999, Zumeta and Ellefson 1998 and 2000).

- Societal interest in special values associated with forests will continue in the future, although additional forests being designated for such purposes are likely to slow, either because representative values are already being conserved (protected) or the special values of interest have been drastically or permanently altered (for example, ecosystem destruction, archeological destruction). The ambiguity of many special values (and often their contradictory nature) makes predictions of “sufficiency” and “completeness” very difficult.

- Systematic processes for prioritizing forest areas to be conserved for special values are becoming more sophisticated and are increasingly being relied upon to make better-informed decisions about conserving special forest values (for example, Gap Analysis Project [GAP], Managed Area Database [MAD], Protected Areas Database [PAD]), Conservation Biology Institute database ([CAB]). However, such processes are in continuing need of standardization so as to meet local, regional, and national objectives for conserving special areas.

- Appropriateness of various legal and administrative mechanisms for conserving special forest values is increasingly a concern as the number and quality of areas with special forest values diminishes. Cause of uneasiness is the adequacy (permanence) of protection afforded by various legal approaches for conserving special values (for example, conservation easements, administrative directive, executive order, legislative law, constitutional provision). Compounding the problem is the repeal of legal authorities to protect special values associated with forests (for example, the State of Florida rescinding wilderness designation authorities).

- Legal authorities for conserving special forest values are likely to come into greater conflict, as are the agencies responsible for exercising such legal authorities. The legal authorities, and often the administrative agencies, typically take a reductionist approach to special value conservation when in fact a more comprehensive systemwide approach is in order (U.S. Department of Interior 2000). The dilemma intensifies when legal capacities for conserving special forest values are delegated across local, State, national and international jurisdictions of government.

- Private organizations are likely to increase as a focus for conserving special values associated with forests. Their effectiveness often stems from a willingness to partner with many government and private sector organizations and to use a variety of strategies and tools (in addition to the fee simple ownership of land) to accomplish conservation objectives.

- Long-term ecological monitoring of forests conserved for special values will increase in sophistication and application. Such will become increasingly important since protected areas are subject to subtle (yet important) stresses, composed of complex systems about which little is often known, and are often the closest remaining approximations of natural systems. Unfortunately, being assigned protected status can give some areas less attention for their welfare, including priority for monitoring.

- Management of special values associated with forest ecosystems will increasingly be acknowledged as a legitimate yet challenging endeavor. Management will be challenged by divergent objectives for special areas (research versus recreational use), avoiding or embracing management risks (changing ecosystem structure to favor other values), reductionism versus holism (small or large scale management actions), and prior study versus adaptive management (advance or continuing assessment of conditions).

- Placement of conservation restrictions on both public and private land will likely increase as a strategy to conserve special values associated with forests. Such will afford the conserving of special values associated with large portions of forest involving multiple owners and ownership categories.

### **Information Adequacy**

#### **Specification**

The variables or combination of variables that can be used to describe the legal framework for conserving special values associated with forests are numerous and often in conflict. To some, the task is probably perceived of as no more difficult than systematically assembling statutes, administrative rules, and legal opinions. Such is certainly important. However, the troubling factor is determining exactly what information to gather, analyze, and present when making such an assemblage. In part this difficulty arises because of the foggy nature of the many concepts associated with Indicator 52 (for example, “management,” “conserve,” “special,” “values”). Even if definition issues are addressed, a plethora of information adequacy concerns continues to arise, as suggested by the Roundtable on Sustainable Forestry (1999):

- To what extent are lands with special values (for example, high biodiversity) in protected status? Are there times and places when this goal is inconsistent with forest ecosystem sustainability?
- To what extent are there legal mechanisms to protect and manage areas with spiritual values or traditional cultural values?

- To what extent are the existing legal mechanisms able to incorporate uses and claims on the (forest) land and resources that are based on indigenous knowledge, including cultural claims stemming from traditional belief/legal systems? Number of States and Federal statutes that address these issues?
- Is there flexibility within the legal framework to allow innovative instruments like conservation easements, transfer of development rights, habitat conservation planning, or trades of land for development and protection to be effectively utilized to protect special values?
- Are there adequate mechanisms for resolving conflicts when protecting special values is inconsistent with sustainability?
- Are there mechanisms for resolving conflicts when the management of one or more special values conflicts with the management of other special values in the same place (for example, the scientific and educational use of traditional religious sites when intrusion is viewed as inconsistent with religious significance and when use leads to further degradation)?
- To what extent is the legal framework consistent with international agreements? To what extent are those international agreements consistent with sustainable management of forests?
- To what extent does the legal framework enable governments, NGOs, firms, communities and individuals to participate in agreements to conserve (protect and manage for) special values?
- Are there legal mechanisms to ensure that the management of protected areas and values in fact protect special values?
- Does the legal framework provide mechanisms for adequate funding, staffing and budgeting, and enforcement for the management and protection of lands with special values?
- To what extent does the legal framework prohibit or constrain uses in conflict with the conservation of special values (for example, mining claims in wilderness areas)?
- What is the range of legal mechanisms available for the protection of special values (for example, conservation easements, administrative directive, executive order, legislative law, constitutional provision) and under what conditions can these legal protections be changed?
- Are historic values protected? How are conflicts resolved when “old” uses are viewed not as historic (worth preserving) but remnants of economic development require reclamation?
- Are there legal mechanisms for ensuring adequate resources for management of protected areas in order to conserve special values on protected areas?

Information regarding designation of special values associated with forests has been the focus of attention by many public and private organizations. An example is the National Association of State Foresters (1999) which in 1999 sought a better understanding of State forestry agency information concerning the management of forests for special values. The association reported two States with an abundant amount of information concerning special forest values, seven each with sufficient information or little information, and the remainder having very little or no information to describe such values. Of the States acknowledging at least minimal data regarding this indicator, seven stated that the data was of adequate quality, six of excellent quality, and three of poor quality.

Although certainly not exhaustive, the following are more specific directions which might prove useful in the search to better understand the legal framework for conserving special values associated with forests.

- *Measurement Information* — Information about which variables and how they should be measured so as to accurately portray conditions involving special values associated with forests has not been assembled (What evidence should be measured and subsequently compiled [for example, number and extent of protected areas, number of enforcement officials, number of laws at national and sub-national levels]? How are cultural norms [not codified] to be measured [for example, tribal norms]? How often are these indicators to be measured? Are there special indicators and measurement needs associated with different type of public and private programs that have responsibility for special forest values? Are there different types of legal structures which provide varying levels of protection? How should adequacy of various protections be measured?).

- *Extent of Activity Information* — Information about conserving special forest values is often scattered and uneven among public and private collecting organizations, the result of which is information that lacks local, regional, and national consistency (What are the legal requirements for conserving special values at various geographic levels and by various organizations [how secure]? How are these requirements changing over time [if at all], namely additions, deletions, modifications? Are there differences in requirements at different levels of government? Is there consistency across these requirements? What is the status of local efforts to encourage investment in conserving special values associated with forests? What is the condition of private programs and the extent of private investment therein? Are current compilations describing these programs useful for guiding policy and program direction? How often does reversal or repeal of special value protecting laws occur and does this condition differ across different levels of government?).

- *Responsible Organization Information* — Information about what private and public organizations are actively engaged in conserving special values associated with forests has not been assembled except in a very modest way (What government agencies, and at what levels, are responsible and engaged in programs involving special values [for

example, Forest Service, USDI Park Service, USDI Fish and Wildlife Service, U.S. Environmental Protection Agency, State and local governments, private forest land owners]? What legal authority assigns them responsibility and is such authority being accurately interpreted? Should certain government levels be responsible for providing certain types of programs for certain forest landowners? Is there a standard for efforts to conserve special values undertaken by various organizations, or are organizations working at cross-purposes, diminishing public confidence in the actions being taken? Do public and private organizations engage in the conservation of special values have similar or differing goals and objectives that foster or hinder needed investment in conservation of special values important to forest sustainability? Are there organizational patterns in the public and private sector that, if known and publicized, would enhance overall investment in efforts to conserve such values]?).

- *Coordination Information* — Information about requirements to coordinate development and implementation of special value conserving programs among and between various levels of government and various private concerns has not been assembled (What conflicts exist between the legal authorities [and responsible agencies] for developing and carrying out special-value type programs? How might they be productively resolved? What are requirements for coordination? Do they allow for cross-sectoral, coordinated planning and review? Do they ensure that the cumulative results of local, State, and regionally implemented programs will lead to outcomes consistent with national requirements and vice versa? Do they allow incorporation of ad hoc code activities occurring at various times and undertaken by various levels of government?).

- *Investment and Incentive Information* — Information about resources devoted to conserving special values has not been comprehensively assembled except in some very limited cases (What is the magnitude of investment in public and private programs involving special forest values? Is there an appropriate level of investment in these programs and, if so, what standards should determine this level [total area protected, size of parcels protected, ecosystems represented]? Are there legal and administrative processes for allocating resources to programs involving special values [are they sufficient, by what measure]? Are there provisions [legally or fiscally] for encouraging development of special value conserving programs, especially encouraging the multiresource aspects of forest resources? Could protection become effective with increased or improved coordination?).

- *Effectiveness Information* — Information about the effectiveness of various types and levels of programs alleging to conserve special values has not been compiled (Are there legal or administrative requirements to determine efficiency and effectiveness of special value protecting programs? What are appropriate measures of success? How would they be measured and would such measures vary depending on type of special value being considered (wilderness area versus research natural area)? What is the efficiency of these programs relative to other policy tools available for accomplishing the conservation of special values [technical assistance, fiscal incentives, tax incentives,

regulatory actions]? Are there more effective approaches to organizing and administering programs conserving special values [alternatives to Federal agency leadership, alternatives to State forestry agency leadership]? Are some private organizations more effective in protecting special forest values [why?]? What legal provisions are necessary to establish private sector organizations that might more effectively preserve special values?).

- *Procedure and Specification information* -- Information about how standards and procedures for the development and implementation of special value programs has not been assembled (Do current statutory requirements prescribe procedures and standards for developing programs involving special values]? Is such in a detailed format or in a broad framework giving deference to administrators and land managers? Is the full intent of the existing laws that require special forest value programs expressed in current rules and administrative procedures? Do national requirements for these programs allow for regional and subregional development of programs consistent with regional interests? Do requirements specify the need for leadership in their development? Do they give guidance to such leadership? Is there any coordination among organizations in the development of programs focused on special values involving forests?).

## **Recommendations**

The ability to conserve or protect special values associated with forests implies the existence of appropriate laws, rules, and legal interpretations as suggested by Indicator 52. In order to improve understanding of the legal setting within which protection of special values will occur, a variety of information voids that need to be addressed (many described directly above). In such a respect, the following actions would seem appropriate.

- *Comprehensive Periodic Reviews*. Conduct periodic and comprehensive reviews of current legal authorities that give direction and resources to program devoted to the conserving of special values associated with forests. Guided by the above suggested information deficiencies, the reviews should give special attention to the collection of information about the type and extent of relevant legal authorities, organizations responsible for interpreting and implementing these authorities, and the long-term appropriateness and effectiveness of the programs resulting from such legal directives. This information should be gathered to the extent it occurs at Federal, State, and local levels of government. In addition, a systematic review of private sector capability to undertake programs relevant to the protection of special values should also be initiated.

- *Responsibility for Conducting Reviews*. Assign responsibility for conducting reviews (on a continuous basis) of the legal framework for protecting special values associated with forests to a specific (current or new) administrative unit located within a Federal agency (for example, units of the Forest Service such as the Recreation, Heritage and Wilderness Unit of the National Forest System or the Resource Valuation and Use

Unit of the Research and Development program), a college or university, or other nonprofit organization (for example, The Nature Conservancy, National Association of State Foresters). This responsibility should be assigned to an organization that has a proven track record in addressing the complexities of protecting special values associated with forests.

- *Devote Resources to Reviews.* Invest in the review sufficient resources as are necessary to provide the type and quantity of information necessary to dramatically improve understanding of current abilities to plan, construct, and maintain programs considered important to protecting special values associated with forests.

## **Indicator Appropriateness**

### **Indicator Definition**

The vagueness of the meaning of the various values attendant to Indicator 52 makes for an extremely difficult task of identifying, measuring, and interpreting information relevant to the indicator's legal parameters. Especially vexing is the elusiveness of the Indicator's major descriptive words and phrases, namely "Management of forests to . . . ," "conserve special . . . ," and ". . . values . . ." associated with the environment, culture, social and scientific conditions. These words and phrases supposedly are clear in definition and grounded in an agreed to set of concepts and principles that serve as a useful guide to information gathering efforts. For this indicator, such is not always the case as is highlighted by the need to set forth definitions earlier in the information review for this indicator.

Also unsettling to information gathering activities involving Indicator 52 is the avoidance of any reference (direct or indirect) to any special economic or commodity values flowing from the use, management, and protection of forests. Certainly there is much virtue in establishing a legal framework that protects the ability of forests to provide income, employment, and self-sufficiency of the many individuals and communities that dependent on forests for their economic and social well-being. To ignore such conditions, which searching for information about the legal frameworks required, to protect special values associate with forests is to ignore reality.

The usefulness of the indicator could be improved if it were better defined and more appropriately focused. As has been alluded to elsewhere (Stankey and Clark 1991), the wording of Indicator 53 could be constructively changed to a form such as "*provides for conserving and managing special values afforded by forests, including amenity, commodity, ecological and spiritual values.*"

### **Cross-Cutting Conditions**

The breadth of subject material suggested by Indicator 52 poses a number of crossing-cutting problems. Indicators 3 (forest type in protected categories), 7 (status of forest dependent species), 19 (area of land managed for protective functions), 42 (area protecting subcultural, social and spiritual needs), and 35 (area of land managed for recreation and tourism) offer often direct duplication with Indicator 52. Other potential crosscutting problems involve land tenure (52), public participation (52), planning (49), and investments (58) (Roundtable on Sustainable Forestry 1999).

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