

CHAPTER TWO

Sustaining the Land, Economies, and Human Communities

Today, sustainability is widely recognized as the overarching objective of land and resource stewardship. In its simplest terms, sustainability means to maintain or prolong. The 1987 Brundtland Commission Report (The World Commission on Environment and Development, *Our Common Future*) elaborated upon the shorthand definition by articulating both the need for current productivity and the physical imperative of intergenerational equity: the goal of sustainability is to “meet the needs of the present without compromising the ability of future generations to meet their own needs.” Further, sustainability in this modern sense has three aspects: ecological, economic, and social. These different aspects of sustainability are interrelated: the sustainability of ecological systems is a necessary prerequisite for strong, productive economies; enduring human communities; and the values people seek from wildlands. Most basically, we compromise human welfare if we fail to sustain vital, functioning ecological systems. It is also true that strong economies and communities are often a prerequisite to societies possessing the will and patience needed to sustain ecological systems.

Sustainability is sometimes criticized as being so vague that it eludes definition. To be sure, it is impossible to define sustainability in a generic fashion that applies across the board to all natural systems. That is not, however, how we approach the term in this report.

We view sustainability as operating on two levels. First, sustainability has great appeal as a broad societal objective, as a

symbol of the fundamental values we hold as a people. The concept has this acceptability because it possesses at once the philosophical force of fairness to future generations as well as the practical edge of being necessary for our economic and social well-being. Thus, sustainability embodies a shared national goal, as do democracy, freedom, and equality. Such formulations, idealistic and never fully attainable, yet undeniable in their essential truths, are critical to setting an agreed-upon context for making public policy on difficult and complex issues.

Sustainability also operates on a much more concrete level. While it may be a futile exercise to try to define sustainability in a way that would apply to all lands, it is entirely realistic to apply the principle to the specific circumstances of a particular geographic area. Thus, we view sustainability, in addition to its

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value as a broad societal aspiration, as applying in varying and particular ways to real places, to actual communities, economies, forests, watersheds, and rangelands. Different areas will have different ecological, economic, and social touchstones and different attributes to sustain. The key is to develop land-stewardship policies

and practices, applying the principles of sustainability, to fit the needs of each place.

Significantly, the application of sustainability to a specific place will change with time. Policy will evolve according to natural dynamics (fires, floods, landslides, or other natural phenomena) and societal events (economic upturns or downturns, technological innovations, population patterns, or changing values). Thus, a working policy of sustainability must be adaptable to change depending upon actual changes in the land and in human communities.

Seen in this light, sustainability (which will vary according to the place and time) becomes tangible, definable, and measurable.

We have seen recent examples of the concrete application of sustainability. In the Greater Yellowstone Ecosystem, plans have been put into place that seek to sustain, among other things, grizzly bears, wolves, and bison; the lodgepole pine forests; magnificent geothermal resources; and the economies of local tourist communities. In the Pacific Northwest, where citizens and their governments have engaged in perhaps the most ambitious natural-resources program ever undertaken, the application of sustainability is different because the place is different. The goals in the Northwest Forest Plan and other programs have included sustaining the Northern spotted owl, the Pacific salmon, the hydropower generated by dams on the Columbia and other rivers, the splendor of the region's ancient forests, and the economies of timber and fishing communities by trying to assure a lower, but reasonably reliable, level of timber production and salmon harvests important to the well-being of those communities. This report will allude to other examples of sustainability as a working, real-world policy goal.

The term sustainability has come into widespread use in relatively recent times, but the core value of intergenerational equity, providing for current economic use while assuring the productivity of the land for future

generations, has long played an important role in natural-resource law and policy. This statement is especially true with respect to the National Forest System.

From the beginning, the laws and policies governing the national forests and grasslands have evidenced deep-running currents of the policy of sustainability. When Congress first authorized presidents to set aside forest reserves, it acted in response to petitions from local farmers and townspeople that wanted to be assured of reliable water flows. Thus, watershed protection was the dominant purpose behind the Creative Act of 1891. In the Organic Act of 1897, Congress decided to permit logging in the forest reserves and provided that a purpose of the reserves was to "furnish a continuous supply of timber" (16 U.S.C. § 475). The first-listed purpose in the 1897 Act remained watershed protection, or "securing favorable conditions of water flows." (Id.)

Those early, formative years of the national forests were idealistic, forward-looking times. The creation of a system of natural lands, removed from homesteading and permanently dedicated to the national interest, was itself a dramatic act. Legislators and administrators looked for guidance to the work of the rising scientific community, especially George Perkins Marsh's *Man and Nature*, published in 1864, where Marsh expounded at length on the dangers of soil erosion and the importance of forest lands as watersheds. Senator Algernon Paddock, one of the most influential legislators during the passage of the 1891 and 1897 acts, emphasized that "the laying waste of the forests of a country rudely disturbs that harmony between nature's forces which must be maintained if the earth is to be kept habitable for its teeming millions" (Senate Report No. 1002, 1892). President Theodore Roosevelt championed the conservation cause, which emphasized the needs of tomorrow, and directed his attention to the national forests. His executive orders reserved nearly three-fourths of all land

in the National Forest System today. In discussing the timber reserves, Roosevelt wrote:

[O]ur entire purpose in this forest reserve policy is to keep the land for the benefit of the actual settler and home-maker, to further his interests in every way, and, while using the natural resources of the country for the benefit of the present generation, also to use them in such manner as to keep them unimpaired for the benefit of the children now growing up to inherit the land. (Quoted in Harbaugh, *Power and Responsibility*, 1961)

The idealism that so characterized the conservation movement burned hottest in the Forest Service itself. In 1905, Congress transferred the forest reserves to the Department of Agriculture, establishing the national forests and placing them under the supervision of Gifford Pinchot, one of the most influential figures of the 20th century in natural-resources policy. Pinchot was utilitarian and believed that the forests should be used for the benefit of the American people, especially local communities. Yet the level of development under his watch paled in comparison to the magnitude of extraction, especially in timber harvesting, that the National Forest System would see in the post-World War II era.

Pinchot was adamant that the national forests, while they should be used, must be managed conservatively (sustainably in today's terms) for the future. He declared that every federal land manager was "a trustee of the public property" (*The Fight for Conservation*, 1910). In words that presaged the notion of intergenerational equity embedded in the Brundtland Commission Report, Pinchot wrote that conservation "recognizes fully the right of the present generation to use what it needs and all it needs of the natural resources now available, but it recognizes equally our obligation so to use what we need that our descendents shall not be deprived of what they need." (Id.)

The theme of obligations to the future was woven through the influential Pinchot Letter of

1905, still considered one of the Forest Service's organic documents. Pinchot exhorted all Forest Service employees that "the permanence of the resources is therefore indispensable to continued prosperity, and the policy of this Department for their protection and use will invariably be guided by this fact, always bearing in mind that the *conservative use* of these resources in no way conflicts with their permanent value." (*The Principal Laws Relating to the Forest Service*, 1964). The Pinchot Letter concluded with his admonition that "where conflicting interests must be reconciled the question will always be decided from the standpoint of the greatest good of the greatest number in the long run." (Id.)

The official commitment to sustaining lands in the National Forest Systems continued. The Weeks Act of 1911 authorized the acquisition of national forest lands in the east for watershed protection. The purposes of the 1944 Sustained Yield Act speak directly to sustainability when they promote sustained-yield forest management to (1) stabilize communities, forest industries, employment, and taxable forest wealth; (2) assure a continuous and ample supply of forest products; and (3) secure the benefits of forests in regulation of water supply and stream flow, prevention of soil erosion, amelioration of climate, and preservation of wildlife (P.L. 78-273).

A series of acts in the 1930s started the federal requisition and rehabilitation of tax-delinquent land, most of it 160-acre parcels of unsuccessfully homesteaded land. Under a series of statutes enacted between 1935 and 1953, a program was established for permanent federal management of the rehabilitated lands.

The Multiple-Use, Sustained-Yield Act of 1960 also emphasized conservation for the future by providing for the "achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land" (16 U.S.C. § 531(b)).

The National Forest Management Act of 1976 included several requirements protecting watersheds and wildlife and provided for the protection of the diversity of plant and animal communities. In the NFMA, Congress found that the Forest Service has “both a responsibility and an opportunity to be a leader in assuring that the Nation maintains a natural resource conservation posture that will meet the requirements of our people in perpetuity” (16 U.S.C. § 1600(6)).

In addition to these statutes, which apply specifically to the National Forest System, there are many general laws that also bear upon the Forest Service’s stewardship. They, too, regularly evoke the theme of sustainability. Thus, the National Environmental Policy Act declares it the policy of Congress to “fulfill the social, economic, and other requirements of present and future generations of Americans” (42 U.S.C. § 4331(a)) and to “fulfill the responsibilities of each generation as trustee of the environment for succeeding generations” (42 U.S.C. § 4331(b)). The Clean Water Act provides that “the objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (33 U.S.C. § 1251(a)). The National Wild and Scenic Rivers Act protects rivers “for the benefit and enjoyment of present and future generations” (16 U.S.C. § 1271), and the Wilderness Act announces “the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness” (16 U.S.C. § 1131(a)). The Endangered Species Act, which has become a central part of the day-to-day work of the national forests and grasslands, evidences a profound national commitment to the sustainability of animal and plant species. In recent years, federal sustainability policy has evolved in concert with the policies of other nations. The 1992 Earth Summit (The United Nations Conference on Environment and Development), which took place in Rio de Janeiro, recognized the importance of sustain-

able management of natural resources. In 1995, the Santiago Declaration, of which the United States is a party, outlined criteria and indicators for sustainable forest management. One goal of the present report is to recommend procedures that are consistent with the criteria and indicators that may be integrated into the stewardship of the national forests.

Our country then, has been committed to sustainable management of our public lands for more than a century. In a 1995 message to Forest Service employees, Jack Ward Thomas, one of the nation’s conservation leaders and Forest Service Chief, encapsulated this long development and demonstrated the leadership role that the Forest Service has played and should continue to play in achieving sustainability:

Our land ethic is to: Promote the sustainability of ecosystems by ensuring their health, diversity and productivity.

This ethic provides the constancy of purpose and direction that permeates all we dream, do and say. Our land ethic has evolved through the thinking and experience of Forest Service pioneers such as Gifford Pinchot, Arthur Carhart, Bob Marshall, Aldo Leopold, and others. Growing understanding of the complexity of ecosystems has expanded thinking on sustainability — from emphasis on sustained yields of products to sustaining the ecosystems that provide a variety of benefits. Increased understanding of ecosystem function will demand rigorous research and continuing evolution on management concepts and actions.

Through ecosystem sustainability, present and future generations will reap the benefits that healthy, diverse, and productive ecosystems provide. Our ethic includes the active use of ecosystems, through both preservation and manipulation to gain these benefits — so long as this use does not unduly impact ecosys-

tem sustainability. ("Message from Jack Ward Thomas," 1995).

The complex framework of statutes that governs the Forest Service has many strands that speak directly to ecological, economic, and social sustainability. Yet the Forest Service retains broad authority to articulate its mission and set priorities, as Pinchot and later chiefs did. Even now, more than a century after the passage of the Organic Act, perhaps the fundamental charge to the agency is the expansive grant in the 1897 Act to regulate "occupancy and use" on the national forests and grasslands (16 U.S.C. § 551). The courts have always given the agency latitude, under that statute and the Multiple-Use, Sustained-Yield Act of 1960, to chart the course that policy should take to achieve the goals in the multitude of laws governing the national forests. With respect to the critical idea of sustainability, we must ask, what actions has the agency taken in the past? What has been the role of science? How can a Committee of Scientists best offer advice and encouragement on the courses to be taken in the future?

Originally, the Forest Service administered the national forests conservatively. The timber harvest remained low, averaging about one billion board feet annually. In his first year as administrator of the national forests, Pinchot adopted a grazing code to reduce overgrazing and soil loss. Considerable research was done on silviculture and watershed protection. In 1924, the Forest Service, spearheaded by Aldo Leopold, created the first government-established wilderness area in the world. In the 1930s, under Robert Marshall's leadership, the agency expanded its wilderness system and recreation policies.

After World War II, administration of the national forests changed radically. By the mid-1960s, the allowable harvest reached 11 billion board feet, 11 times the historical level, as the Forest Service responded to the huge increase in demand for softwood products. It is important to appreciate that the Forest Service

viewed its policies during this era as achieving sustainability. The annual harvest, high-yield though it may have been, was premised on "even flow." In spite of the intensive logging, the reasoning went, the forests could grow more board feet than were being harvested. This high-yield timber production endured well into the 1980s and dominated policy in the National Forest System.

Almost unnoticed, beginning in the 1960s, scientists had begun digging deeper. What are the ecological effects, they began to ask, of the level of commodity production that the Forest Service had committed itself to?

Various scientific disciplines examined the ways in which fundamental ecosystem processes were being changed. Hydrologists studied streamflow patterns and the effects of increased silt loads. Range scientists re-searched the impacts of grazing, logging, and water diversions on riparian zones. Foresters increasingly looked at the whole forest, not just timber harvest volumes. The research of fire ecologists showed how fire-suppression policies had altered the natural disturbance cycle. Spotted owl research began in the early 1970s, and wildlife biologists conducted many other studies on species extinction and viability. In this respect, the original Committee of Scientists in 1979 made a historic contribution through its regulation protecting species viability, which implemented the NFMA's provision on diversity of plant and animal communities.

A new and deeper way of looking at natural systems emerged. No longer would the productivity of natural systems be defined solely by their commodity outputs: board feet of timber, animal-unit months of grazing forage, acre-feet of water diverted, and kilowatts of electricity. Today, in addition to those measures, productivity is measured in terms of ecosystem services, including clean water and air, fertile soils, and diversity of plant and animal species. Further, a new respect for the natural dynamics of ecological systems developed: land management should

account for uncertainty by acknowledging that planning and implementation will be influenced by natural but unpredictable events, such as wildfires, droughts, floods, hurricanes, widespread occurrences of insects and disease, and the introduction and spread of nonnative species. The focus of the scientific community (and, increasingly, of on-the-ground land management) has become maintenance of overall ecosystem processes.

In a complementary set of developments beginning in the 1970s, the public became involved in forest and rangeland policy as never before. Citizens insisted upon greater recognition of recreation, wildlife, and the beauty and spirituality that are also a part of whole forests and rangeland systems. The public concerns and scientific advances became embodied in such statutes as the National Forest Management Act, the National Environmental Policy Act, the Clean Water Act, and the Endangered Species Act and in many agency regulations.

These changes were fundamental. They amounted to a redefinition of watersheds, forests, and rangelands, a new conception of what we as a society are trying to sustain. By digging deep, scientists of the past two generations had helped to redefine the approach to land stewardship. Importantly, in the process, they brought an understanding of the fundamental ecological processes that make possible the multiple-use benefits and community values that the public now expects from its public lands.

Based on the above considerations, the Committee would propose that the two guiding stars of stewardship in the national forests and grasslands are sustainability and the recognition that these are the people's lands. The remainder of this report is dedicated to a discussion of what sustainability means in the context of stewardship of the National Forest System and how the Forest Service might, in practical ways, organize planning and management to achieve it.