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## The Meaning of Nature: Wilderness, Wildlife, and Ecological Values in the National Parks

**A**uthor Judith Meyer (1996) suggests that tourists writing postcards home from Yellowstone added layers of cultural meaning to the park. In a similar way, Americans layered wilderness, wildlife, and ecological values on top of the original meanings assigned to national parks. Of considerable interest is how these values became tied together in a cultural bundle, with wildlife taking the starring role. Yellowstone provides an example of how scientists and the public came to see wilderness, wildlife, and ecological significance linked together in the national parks.

As historians Aubrey Haines (1977) and Alfred Runte (1979) point out, Congress established Yellowstone National Park for protecting scenic wonders and wilderness landscapes of unique beauty against tawdry exploitation and industrial incursion. Yet animals did not receive effective protection for some time, and various animals were valued very differently. Two useful milestones indicating the addition of wildlife values to park purposes occurred in 1886, when the U.S. Army protected the park, and in 1894, when the Yellowstone Park Protection Act made poaching in the park a federal offense. While this ended the local slaughter of wildlife for market, federal assumption of authority over wildlife in the parks also ended traditional hunting practices by Native Americans and transformed hunting by rural folk into an illicit activity (Spence 1996; Jacoby 2001). Motivated by the near-extinction of the plains bison, conservationists looked to Yellowstone as a refuge for big game ani-

mals. In 1919, Yellowstone's first National Park Service (NPS) superintendent, Horace Albright, worried that elk might become extinct if they were not protected in Yellowstone.

Wilderness, as environmental historians remind us, is partly a place and partly human conceptions of a place (Worster 1997). Around 1900, a nature study movement helped alter views of the wilderness from an intimidating force toward a landscape that challenged people (Nash 1967). When Theodore Roosevelt visited Yellowstone with nature writer John Burroughs and Yosemite with John Muir, he brought along his conceptions of the virtues of a strenuous life. Although he shared cultural prejudices against wolves and coyotes, Roosevelt moderated his view, partly because of his experiences in Yellowstone (Johnston 1998).

The founders of animal ecology first added ecological values to the meanings of wilderness and wildlife in the national parks. From 1908 into the



Figure 1. Ranger Sam Woodring nurturing “good” animals in Yellowstone National Park. Common wisdom of the 1910s vilified the “bad” predators. Woodring wrote the rationale for predator control in the park. Courtesy National Park Service, Yellowstone National Park.

1920s, scientists came to believe that places where naturalists might study nature at work were disappearing quickly. Despite the warnings of botanist Ada Hayden from 1919 to 1947, Midwestern prairies continued to disappear under the plow. Plant ecologists became concerned that no prairie larger than a few acres would remain. On the Mississippi River, scientists propagating mussels for the U.S. Bureau of Fisheries (ca. 1914-30) witnessed pollution and power dam construction that profoundly altered riverine habitats and species composition. Observing the profound changes in prairies and rivers in Midwestern

landscapes, as much as watching the development of tourism, agriculture, and timber and mining industries in western states, drove botanists, zoologists, and ecologists to argue for landscape preservation throughout North America. The words “landscape preservation” are used here because scientists from 1908 to 1920 didn’t start with the term “wilderness”; rather, they began by arguing for the preservation of “natural,” “primeval,” or “primitive” conditions in particular places.

From 1916 well into the 1920s, Joseph Grinnell, director of the Museum of Vertebrate Zoology at the Uni-

versity of California at Berkeley, provided leadership in countering intense development pressures in Yosemite (Runte 1990). Charles C. Adams, who wrote *Guide to the Study of Animal Ecology* in 1913, and Victor Shelford, like Adams an organizer of the Ecological Society of America (ESA), provided enduring enthusiasm for landscape preservation. They formed a Committee on the Preservation of Natural Conditions under the auspices of the ESA. The national parks were prominent in the committee's 1926 wish-list of places worthy of preservation, *The Naturalist's Guide to the Americas* (Shelford 1926; Shelford 1943). Beginning in 1919, Adams had sent scientific teams from the Roosevelt Wild Life Experiment Station (at New York State University's School of Forestry) to Yellowstone, where Milton P. Skinner, the park's first naturalist and associate of the station, examined the life history of grizzly bears in ecological detail not replicated until the 1970s. Animal ecologists' first concern—vanishing animals such as the mountain lion and wolf—contributed to their worry over transformations of natural landscapes.

Landscape preservation did not come without a cost. In the 1920s, when Congress considered establishing Glacier Bay National Monument, scientists lobbied for its creation. This group, including plant ecologist William S. Cooper, made efforts to exclude native hunters from the new monument. Conservationists' views of the landscape as "pristine" led them to see humans as apart from nature and shaped their conclusions regarding policy (Catton 1997; Cronon 1996;

Turner 2000). Yet a substantial part of their thinking also was shaped by practical concerns. The hunting methods employed by native peoples, for example, worried scientists. Seal populations historically had done well in Glacier Bay, they reasoned in 1920, but now that native peoples used high-powered rifles, and would surely begin to use motorized boats, in hunting, what would prevent the decimation of the seals?

Some conservationists may have conceived of a "pristine" wilderness untouched by human hand, but most scientists thought of landscape modification and preservation as conditions on a relative scale. For example, while the metaphor of "the balance of nature" was used frequently, ecologists of the early twentieth century knew this was a relative balance, not an ideal condition. The term "natural conditions" signified that scientists thought humans had not substantially altered a landscape. Informed by the contemporary context of modern landscape-scale development, Victor Shelford believed that indigenous people had a relatively limited effect on the environment. In terms of preservation, Shelford discussed first-, second-, and third-class nature sanctuaries, research reserves, natural and buffer areas, and experimental, primitive, and wilderness areas. All these designations depended on relative degrees of disturbance and differing agency purposes (Shelford 1933; Sloan 2002). Similarly, around 1926 Charles Adams wrote on "the varying degrees of the wilderness," making distinctions among human influences on a landscape. Areas to preserve "natural"



Figure 2. Horace Albright shows tourists how to feed the bears, ca. 1923. Property damage and many injuries, as well as views on a more natural presentation of wildlife, prompted NPS to discourage this activity in the early 1940s. Courtesy National Park Service, Yellowstone National Park.

or “wilderness” conditions would be places where “nature is allowed to take her course with the minimum of human interference.” Adams felt that even the “excellent and necessary

work” of civilization had “reasonable bounds” (Adams 1929).

Placing those reasonable bounds on remaining undeveloped landscapes became an obsession for Shelford and

## Once Again, Why Public Parks?

Adams. By 1932, the ESA's Committee on the Preservation of Natural Conditions had written a detailed plan for nature sanctuaries and the ESA had unanimously adopted it. By this time, their language emphasized "the preservation of natural biotic communities." The National Parks Association helped publicize the plan for nature sanctuaries and pushed the Park Service to help carry it out. By 1933, NPS established twenty-eight research reserves in ten parks.

Development of the NPS educational division, beginning in 1920 when Harold C. Bryant organized the NPS Yosemite Free Nature Guide Service, provided an institutional home for college-trained naturalists. While the ranger division provided the personnel for managing wildlife, the naturalist division housed most wildlife research until 1964. Referred to as "posie pickers," the naturalists provided leadership in adopting ecological values. During the 1940s, for example,

Yellowstone Park Naturalist C. Max Bauer defended the coyote when ranchers on the Absaroka Conservation Committee desired deadly baits placed close to the park's northern border.

Author Jennifer Price (1999) identified public protest over women's feathered hat fashions (ca. 1890s) as a turning point in valuing wildlife. Birds were also central to Yellowstone's new valuation of wildlife, at the same moment that ecologists were urging the NPS to protect coyotes and wolves, as parks had traditionally protected big game animals. Partly in response to mammalogists' protests against the Bureau of Biological Survey's predator control program, the National Park Service declared in 1931 that all animals would find refuge in the national parks (Dunlap 1985). Yet for some time pelicans feeding on native trout stocks had been surreptitiously killed on Yellowstone Lake, in theory to enhance fish-



Figure 3. Scientists banding pelicans on Molly Island on Yellowstone Lake, ca. 1932. With a nudge from Rosalie Edge and ecological knowledge from the NPS wildlife division, all predators in the park received protection. Photo by Chief Ranger George Baggeley, courtesy National Park Service, Yellowstone National Park.

## Once Again, Why Public Parks?

ing and reduce losses from the Bureau of Fisheries' trout propagation program. Ardent conservationist Rosalie Edge called public attention to the slaughter of pelicans and bird lovers objected, causing embarrassment for NPS Director Horace Albright. The final crux over the role of predators in the parks had been reached over nature's feathered friends. In 1932, Yellowstone Superintendent Roger Toll declared that pelicans also would be protected. In doing so, he redefined the park's valuation of wildlife and put nature's purposes ahead of human designs.

During the 1930s, ecological and wildlife values became firmly intertwined in the national parks, represented by the establishment of the NPS wildlife division, led by George Melendez Wright. The division instituted the *Fauna* series of publications on national park wildlife, recommended extensive biological research in the national parks, and proposed guidelines for wildlife management that departed from single-species management to emphasize an ecosystem-oriented approach and the restoration of wildlife to natural conditions. At the same time that the division contributed ecological knowledge, it brought a confidence that human intervention could restore natural balances disturbed by humans, for example by controlling "abnormally large" ungulate populations (Wright 1992; Sellars 1997).

During the early 1940s, ecological values pushed park management away from overly artificial wildlife management. NPS Director Newton Drury proposed discontinuing bison rearing

activities (e.g., artificial feeding), reducing the herd size, and ending the bison stampede for visiting dignitaries. Similarly, Drury advocated ending the roadside feeding of bears and the popular "bear shows" at amphitheaters. Horace Albright protested ending the bear shows, claiming visitors should have every chance to see wildlife. Reflecting the goals of the NPS wildlife division, Drury argued that "our aim ... should be to place each wild species ... on its own, without dependence upon man, and occupying its natural niche in the biota of the park." Drury received strong support from ecologists nationwide, such as S. Charles Kendeigh, chairman of the ESA Committee for the Study of Plant and Animal Communities, who suggested that the bear shows were "not in harmony with the purpose of the national parks as representing natural communities of plants and animals in an undisturbed condition, where each species is leading its normal existence" (Pritchard 1999). Although Drury solicited scientific opinion, from the 1940s into the 1960s scientific research within the NPS took a backseat to its traditional emphasis on tourism (Sellars 1997, Wright 1992).

The National Park Service did not embrace the wilderness preservation movement that culminated in the Wilderness Act of 1964. The roots of that reluctance dated from the early days of the NPS. At a fundamental level, NPS founding fathers Stephen Mather and Horace Albright did not see a serious conflict between preservation and development. As Ethan Carr (1998) points out, they believed



Figure 4. The Bison Ranch, where Yellowstone's herd was nurtured back from the brink of extirpation, was closed in the early 1940s as part of an effort towards a more naturalistic presentation of wildlife to the public. Courtesy National Park Service, Yellowstone National Park.

that preservation of scenic landscapes would be effected best through development creating a wide base of support for the national parks. Road building in the parks, however, elicited resistance. The modern wilderness movement, argues Paul Sutter (2002), began with opposition to road building projects such as the Skyline Drive in Shenandoah National Park. During the early 1930s, Benton MacKaye, Harvey Broome, Bob Marshall, Howard Zahniser, Olaus Murie, Aldo Leopold and others created The Wilderness Society. During the 1950s, conservationists successfully opposed a Bureau of Reclamation plan for a dam at Echo Park, inside Dinosaur National Monument (Harvey 1994).

Like writer Freeman Tilden (1951), wildlife biologists Olaus and Adolph Murie looked to large natural parks as they considered wilderness.

Undoubtedly aware of the 1946 resolution by the American Society of Mammalogists endorsing the preservation of natural areas “against which the practices in game production on lands under management can be measured,” their use of the term “wilderness” incorporated both new meanings and implications previously attached to “primeval conditions.” Both brothers had studied coyotes in Yellowstone, and Adolph scrutinized wolves in Mount McKinley National Park. They lobbied against coyote control along Yellowstone’s northern border, and Adolph tried to moderate wolf control in Mount McKinley during the 1940s (Rawson 2001). To Olaus Murie, wilderness advocate, Yellowstone and Grand Teton national parks appeared largely unaffected by the managing human hand when compared with the industrial forestry

just to the west on the Targhee National Forest, an example of the maximum-yield approach to forest management. Concerned about the press of tourists, Murie wanted the NPS to protect the feeling of wilderness by limiting facility development. The Muries remained uncomfortable with needless manipulation of park landscapes, appreciating a friend's comment to a tourist, "This ain't no zoo, lady."

The wilderness movement did not attract enthusiastic commitment from the NPS. Park Service Directors Newton Drury (1940-1951) and Conrad Wirth (1951-1964), a landscape architect by training, supported the view that large parks such as Yellowstone, Glacier, and Grand Canyon, as entire units, possessed the essential qualities of wilderness. Declaring any particular part of the park as wilderness was simply redundant, and so the NPS advanced conservative proposals for park wilderness areas. In Yellowstone, only remote parts of Yellowstone Lake were zoned as wilderness in 1958. In 1980, however, Congress designated 32.4 million acres of Alaskan parks as wilderness, and thus the Park Service came to manage more wilderness than any other agency (Sellars 1997). Beginning in the 1960s, controversies over the construction of visitor facilities in Yellowstone got as hot as the wilderness debate in surrounding states.

The 1963 Leopold Report accentuated wilderness and ecological values for the park system (Rydell 1998). Originally convened in response to the controversy over direct reductions of elk in Yellowstone, the special advisory committee chaired by A. Starker

Leopold agreed with the common wisdom that the elk herd should be reduced to the carrying capacity of the range. Today, the Leopold Report is remembered for suggesting that the parks should represent a "vignette of primitive America." This vision made the Leopold Report an enduring icon for park management. The committee did not advocate any particular landscape condition, but rather spoke to the purposes of the parks as a management guide. The Robbins Report, released shortly thereafter by the National Academy of Science, called for more biological research in the Park Service. Science was briefly elevated to a high priority, yet a reassignment of biologists to regional offices again reduced the profile of park science (Sellars 1997).

During the 1960s and 1970s, wildlife and ecological values found new focus in Yellowstone with the work of John and Frank Craighead. The Craigheads' work on elk and bear movements provided proof positive that wildlife were not just park denizens, but animals of a significantly larger ecosystem (Craighead et al. 1995). Conservationists began to see problems that transcended boundary lines, and, beginning in 1983, the Greater Yellowstone Coalition advocated conservationists' viewpoints on regional issues and conveyed to the public the conception of a larger ecosystem centering on Yellowstone National Park.

During the 1960s and especially the 1970s, scientists began to incorporate new concepts into ecological values for the parks. By the time of the 1976 Tall Timbers Fire Ecology Con-



Figure 5. Frank and John Craighead with radiotelemetry gear, 1966. Their work on elk migration and bear movements shaped modern perceptions of a Greater Yellowstone Ecosystem. Courtesy National Park Service, Yellowstone National Park.

ference, for example, Yellowstone staff, including plant ecologist Don Despain, created a plan allocating natural fire zones encompassing thousands of hectares. Scientists' arguments for restoring this natural process to Yellowstone's landscape were related to wider interests of the scientific and land management community, including restoration ecologists. Landscape ecology contributed notions of patches, mosaic patterns, flux, and disturbance. Indeed, the entire classical equilibrium paradigm (known as "the balance of nature")

was replaced during the early 1970s by a new paradigm of flux, characterized by change and unpredictability (Pickett 1995). Instead of "natural conditions" or "wilderness," scientists began to refer to "natural processes." Since 1967, the Park Service view that direct manipulation of elk herd numbers was not *necessarily* warranted within large parks was facilitated by new understandings of ecosystems in dynamic flux, disturbance as the rule, and multiple states of equilibrium. The subject of "natural regulation" remains a matter of vigorous debate

(Boyce 1998; Wagner et al. 1995). Significantly, 1988 NPS management guidelines calling for working with natural processes leave room for interpretation. This flexibility is desirable, because no policy could cover all contingencies. In Isle Royale National Park, for example, there is a recent concern that wolves could be extirpated. Preserving the wolf in the park might require highly manipulative techniques (Wright 1992). Judging how much to intervene to re-establish natural processes, or when to watch nature at work, has been a complex judgment call since the NPS wildlife division came to Yellowstone in 1930.

It is hard to overstate the enduring significance of ecological, wildlife, and wilderness values associated with the national parks, even while we conceive of new models for national parks or wildlife refuges to be established in places where existing land uses make any traditional archetype unworkable. Aboriginal land use and hunting, for example, remain central issues for species preservation efforts in third-world countries (Rettie 1995). Today, we wonder how to establish wildlife corridors to link existing refuges within a larger matrix of developed landscapes, and worry over external threats to existing parks (e.g., at Ever-

glades National Park). Scientists echo the call of Victor Shelford and Charles C. Adams when they suggest that protected areas where managers use a light hand “have become baselines for measuring ecological change” elsewhere (Sinclair 1998). Ultimately, understanding the parks as continually evolving landscapes, rather than as places where managers select for desired conditions, has proven a significant transition in valuing wilderness and ecological qualities of the parks.

Since the parks were established, each generation has assigned its own significance to the national parks, adding meaning and cultural depth. As author Paul Schullery (1997) suggests, “the search for Yellowstone is as much a search for ourselves as it is a search for biological understanding.” Successive understandings of nature have redefined the meanings of wilderness, wildlife, and ecological relationships. While parks of the late nineteenth century originally provided scenic landscapes envisioned as wilderness, these landscapes also provided physical habitats and resident wildlife, a grand focal point for adding layers of ecological meaning to the significance of our national parks.

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## Once Again, Why Public Parks?

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