DESTROYING THE ENVIRONMENT: GOVERNMENT MISMANAGEMENT OF OUR NATURAL RESOURCES

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NCPA Policy Report #124
October, 1986

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EXECUTIVE SUMMARY

The United States is generally thought of as a country devoted to the principle of private property. Yet about 42 percent of all U.S. land is owned by government--33 percent by the federal government and nine percent by state and local governments.

Among the lands owned by the federal government are some of the nation's most treasured resources--rare and beautiful tracts of land that are home for countless species of foliage and wildlife and contain some of the most ecologically interesting wonders found anywhere on earth. Yet mounting evidence suggests that the federal government has been a poor manager of our natural resources, often engaging in policies that lead to environmental destruction. For example,

- Because of Park Service policies, the white-tailed deer, mountain lion, lynx, bobcat, wolverine and fisher all have vanished from Yellowstone National Park, and the Rocky Mountain gray wolf is now extinct.

- The Park Service also is responsible for a serious decline in the numbers of black bears, grizzlies, bighorn sheep, mule deer and beaver in Yellowstone.

The record of the U.S. Forest Service is probably worse than the record of the National Park Service.

- About 342,000 miles of roads have been built in our national forests--more than eight times the total mileage of the U.S. Interstate Highway System.

- These roads, primarily designed to facilitate logging, extend into the ecologically fragile backcountry of the Rocky Mountains and Alaska, where they are causing massive soil erosion, damaging trout and salmon fisheries and causing other environmental harm.

- Because the costs of these logging activities far exceed any commercial benefit from the timber acquired, this environmental destruction would never have occurred in the absence of government subsidies.

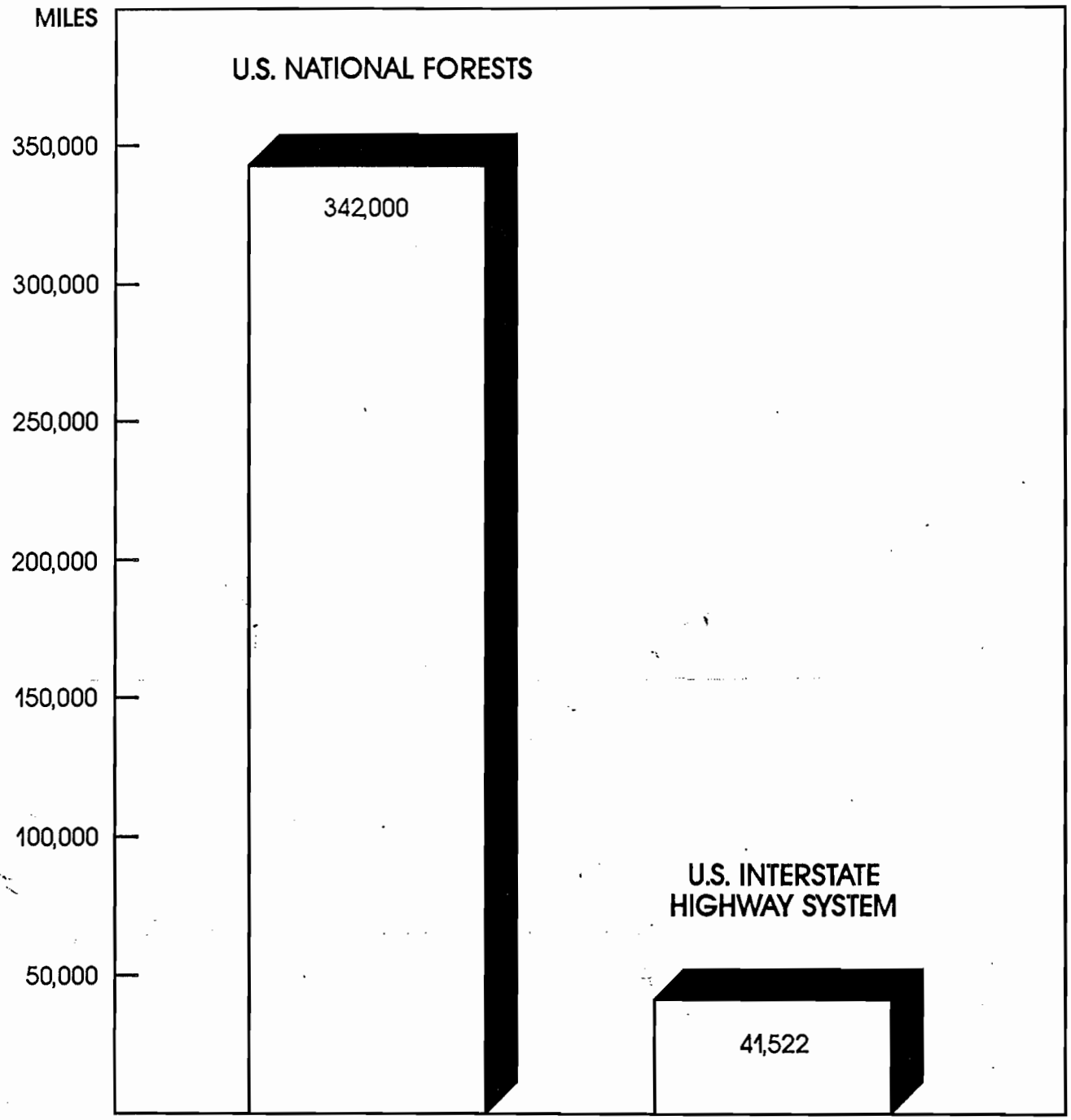
Taxpayers also have been subsidizing environmental destruction by other federal agencies.

- Bureau of Reclamation projects have eliminated one national wildlife refuge and others are threatened by water shortage and contamination.

- Because of the Bureau of Land Management, more than three million acres of wildlife habitat have been cleared with huge chains and replaced with fields of crested wheatgrass for domestic livestock.

This study chronicles some of the most serious environmental damage caused by government policies, explains why such destruction generally does not occur on privately owned land, and makes proposals for systematic privatization through which our natural resources might be better protected.

MILES OF HIGHWAY



SOURCE: NATIONAL CENTER FOR POLICY ANALYSIS

DESTROYING THE ENVIRONMENT[1]

THE NATIONAL PARK SERVICE

The National Park Service was created in 1916 for the stated purpose of preserving the national parks for the "benefit and enjoyment of the people." It soon became obvious, however, that the goal of "preservation" and the goal of providing for the "enjoyment of the people" were in natural conflict. For one thing, large numbers of people can destroy a park, particularly one that is ecologically fragile. More importantly, efforts to provide for the enjoyment of people in the short run may have disastrous consequences in the long run. Nowhere are these truths more evident than in the history of the management of the nation's oldest and most prestigious national park: Yellowstone.

The Tragedy of Yellowstone

> (Yellowstone) is a natural breeding ground and nursery for those stately and beautiful haunters of the wilds which have now vanished from so many of the great forests, the vast lonely plains, and the high mountain ranges where they once abounded . . . . Our people should see to it that they are preserved for their children and their children's children forever, with their majestic beauty all unmarred.[2]
>
> Theodore Roosevelt, 1903

> Over the last seventy years nearly every conceivable mistake that could be made in wildlife management has been made by the Park Service in Yellowstone. Not a year has gone by since it assumed responsibility there when the National Park Service . . . did not kill an animal in the name of an environmental ideal. Today its management policies threaten the very capacity of the park to sustain life.[3]
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> Alston Chase, 1986

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[1]This paper is a compilation of previous work by myself and others over a ten-year period of time, much of it sponsored by the Political Economy Research Center in Bozeman, Montana, while the author was president and chairman. Portions of this study will appear in a forthcoming issue of Policy Review, published by the Heritage Foundation in Washington, D.C.

[2]Theodore Roosevelt, "Wilderness Reserves," reprinted in Paul Schullery, ed., Old Yellowstone Days (Boulder, Colorado: Associated University Press, 1979), p. 189.

[3]Alston Chase, Playing God in Yellowstone: The Destruction of America's First National Park (New York City: The Atlantic Monthly Press, 1986), p. 233.

When it first appeared in the summer of 1986, Playing God in Yellowstone: The Destruction of America's First National Park sent shock waves throughout the environmental movement. Its author, Alston Chase, has impeccable academic credentials, with degrees from Harvard, Oxford and Princeton. As former chairman of the Yellowstone Library and Museum Association (the official publisher of books on the natural history of the park), as a licensed Montana outfitter, and as director of an educational program that regularly took natural history classes into the Yellowstone backcountry, he has intimate and detailed knowledge of Yellowstone and its history.

Yet what Alston Chase says about Yellowstone and how it has been managed by the Park Service cannot fail to disturb even the most environmentally insensitive among us. According to Chase, the wolf, cougar, lynx, bobcat, wolverine, fox, marten, fisher, pelican, coyote, elk, bison, antelope, beaver, ground squirrel, mole, rat, mouse, and even the black bear and the grizzly bear--all at one time or another have fallen victim to programs of "removal" conducted by the Park Service.[4] The result is that Yellowstone Park today bears little resemblance to the rich and varied wildlife habitat that Teddy Roosevelt described more than 80 years ago.

Drawing on internal Park Service records (many of which were obtained through the Freedom of Information Act), scores of interviews with current and past Park Service employees, and hundreds of other public records, Chase documented in painstaking, scholarly detail what others had only suspected--that the blame for the obvious deterioration of Yellowstone lays squarely at the feet of those whose official duty was to protect and preserve it.

What follows in this section is based largely on Chase's findings, and is taken from his book.

Wolves, Cougars, Coyotes and Other Predators. Students of wildlife management have long known that there are important ecological relationships among predators and their prey. Each depends upon the other for survival. Take deer, for example. In the absence of natural enemies, deer will quickly multiply and destroy a forest by eating its vegetation. Yet once the food is gone, the deer are threatened with a population crash caused by starvation. Natural predators moderate the cycles (the ups and downs) of the deer population and prevent the extremes of over-population, the destruction of the habitat and the resultant mass starvation.

A classic case of the failure to realize this principle occurred when Congress established the Grand Canyon National Game Preserve in 1906. As part of an effort to protect the deer in the Kaibab North Plateau (the north rim of the Grand Canyon), federal officials banned deer hunting and encouraged the systematic extermination of deer predators:[5]

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[4] Ibid., p. 193.

[5] Ibid., p. 24.

- In the first 25 years, government managers killed 4,889 coyotes, 781 mountain lions, 554 bobcats and 20 wolves.

- Even more were killed by professional hunters hired by ranchers, with the encouragement of government policy.

The results were disastrous. As the deer population expanded, browse (willow and aspen) and shrubs began disappearing, as did young trees, particularly aspen and Douglas fir. Eventually there was insufficient food left to support the population.[6]

- In 1918 the deer population was estimated to be 15,000.

- By 1923, estimates of the deer population ranged from 30,000 to 100,000.

- The following year, in 1924, 60 percent of the deer died of starvation.

A similar tragedy was repeated in Yellowstone, with even more dramatic results, although the facts were concealed from the public until very recently.[7]

- By 1926 the Park Service had killed 122 wolves, 1,300 coyotes, and large numbers of mountain lions in Yellowstone.

- Nearly every Park Service employee was encouraged to shoot or trap animals and was allowed to keep or sell the hides.

- In following years the list of predators scheduled for extermination was broadened to include foxes, lynx, fisher, marten and others.

The results were predictable. The ungulate (hoofed mammal) population began expanding and soon more and more antelope and varieties of deer found themselves competing for smaller and smaller amounts of available food.

Elk, Bison and Antelope. Absent the role of the white man, it is unlikely that larger animals, such as elk, bison and antelope, would remain year round in Yellowstone National Park. In early years, these animals migrated through the park, but did not remain there. The settlement of the West and policies of the federal government changed that. Since these animals were hunted relentlessly outside of the park, the park became their sanctuary. In addition, the Park Service planted exotic grasses to attract and keep them there. Once in the park, they were kept there by the hunting that went on outside of the park, and by the fences of farmers.[8]

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[6]Ibid., pp. 24-25. For a more extensive analysis of the damage caused by this policy, see D. I. Rasmussen, "Biotic Communities of Kaibab Plateau, Arizona," Ecological Monographs, Vol. II, No. 3.

[7]Chase, Playing God in Yellowstone, pp. 123-124.

[8]Ibid., pp. 28-29.

As a result of these policies, the population of bison, elk and antelope began to grow and flourish in an environment that was not their natural year-round home. The consequences for other wildlife were disastrous.

White-tailed Deer, Mule Deer, Bighorn Sheep and Pronghorns. In the competition for food, larger animals frequently have an advantage over smaller ones. This is particularly true of the competition for food between elk and other forms of ungulates. Having eliminated the natural predators of the elk, having sent their traditional human predator (the Indians) to reservations, and having essentially trapped them in a sanctuary, park officials soon discovered that the elk were threatening other species. For example,[9]

- The elk drove out the white-tailed deer by consuming willow thickets on which the deer depended on for food and cover.

- The elk took over the territory of the mule deer, the bighorn sheep, and the pronghorn, pushing these animals into poorer habitat where they fell prey to disease.

- And, as we shall see, the elk also destroyed the natural habitat of the beaver.

When Park Service officials discovered their mistake, the elk were added to the list of animals scheduled for removal.[10]

- Between 1935 and 1961 more than 58,000 elk were killed, driven or taken from the park.

- Unfortunately, for many other wildlife species, these actions came much too late.

Beaver. Of all of the animals in Yellowstone, perhaps none was more important to the ecology of the area than the beaver. By building dams, the beaver slows the spring runoff of melting snow into streams. This helps slow erosion and siltation (the buildup of mud in the water), and is vitally important to spawning trout.[11] Since trout lay their eggs in gravel or sand, clear water is essential to their survival. As mud flows into a stream and settles to the bottom, it makes it increasingly difficult for the trout to lay their eggs, and diminishes the chance that newborn trout will survive.

By building ponds, the beaver raises the level of the water table. This adds moisture which promotes the growth of vegetation such as willow, aspen, forbs (broad-leaved plants such as aster, yarrow, and clover) and berries and lush grass.

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[9] Ibid., p. 29.

[10] Ibid., p. 28.

[11] Ibid., p. 12.

Each of these provides essential food for other animals. For example, forbs and berries are a significant food source for bears. Willow and aspen are essential for elk and deer. The ponds themselves also provide a habitat for water fowl, mink and otter.[12]

In their normal migratory cycle, the beaver will move into a stream lined with willow and aspen. They eat the bark and use the trees to build their houses and dams. After they have eaten all of the available food, they move on to another area. Meanwhile their dams raise the water table and encourage a new generation of willow and aspen. When the new vegetation has matured, the beaver return, completing a cycle that takes from 20 to 30 years.[13]

In Yellowstone, however, this cycle was irrevocably destroyed by the large population of elk. When the elk moved into an area in large numbers, they ate the young shoots of willow and aspen, preventing their regeneration. The elk also trampled the soil around the banks of the ponds, reducing their ability to absorb water. This caused greater erosion, and a drying out of the banks--discouraging the further growth of willow and aspen. As a result, "after the elk took an area over, they left nothing for the beaver to come back to."[14]

Black Bears and Grizzlies. Of all the animals in Yellowstone, none has captured the fascination of human visitors more than the bear. Roosevelt remarked that even the grizzlies were "boldly hanging out around crowded hotels."[15] Yet a visitor to Yellowstone today will be lucky if he ever sees a bear of any kind. The vanishing bear is a consequence of conscious Park Service policy.

Perhaps no other animal in Yellowstone is more dependent upon an ecological relationship with man than the bear. In earlier centuries, the Indians periodically killed large numbers of bison by herding them over cliffs. The bears scavenged what remains the Indians left behind.[16] Since the late 1800s, as Roosevelt reported, the bears frequently fed on human garbage left outside of hotels or deposited in garbage dumps.[17] Beginning in the 1960s, however, Park Service officials began closing the garbage dumps to the bears, believing that the animals should subsist on purely "natural" sources of food. That's when the "problem" of the bears began to emerge. Other Park Service policies also contributed to the declining sources of food for the bears:[18]

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[12] Ibid.

[13] Ibid., p. 13.

[14] Ibid., p. 28.

[15] Roosevelt, "Wilderness Reserves."

[16] Chase, Playing God in Yellowstone, pp. 99ff. and p. 175.

[17] Ibid., p. 150.

[18] Ibid., p. 173.

- Overgrazing by an unnaturally large elk population greatly reduced the availability of berries and shrubs (prime sources of food for bears), and the destruction of the aspen and willows removed much of the natural habitat for the grizzlies.

- Major construction projects in Yellowstone effectively destroyed five prime fishing streams for the grizzly.

- Finally, a misguided policy of fire suppression also has contributed to the destruction of both food and habitat for the bears.

Since its inception the Park Service has spent millions of dollars fighting forest fires. The policy has had disastrous consequences. Left undisturbed, an area such as Yellowstone evolves through various stages--from grasslands to shrub to aspen to lodgepole pine and finally to spruce and fir. The process takes about 300 years. Yet as the evolution occurs, the volume and variety of plant life diminishes, as does the capacity of the area to support wildlife. One way to interrupt this cycle is by fires, many of which are started by natural causes such as lightening. Fire, therefore, is an integral and necessary part of an ecosystem that has evolved with recurrent fires. In general,[19]

- Fires stimulate the growth of browse, forbs, grasses and berries--allowing a greater diversity of wildlife.

- On the average, the number of animals in an ecosystem peaks about 25 years after a fire.

The "unnatural" policy of suppressing all fires has had terrible adverse consequences, not only for the bears in Yellowstone, but for many other forms of wildlife as well.

As the bears faced shortages of food from other sources, it was only natural that there would be increasing confrontations with hikers, backpackers and other human visitors to the park who frequently brought food with them. This, then, is the principal source of "problem" bears--bears that maul and even kill human beings. The Park Service's answer to the problem was to kill the bears, or remove them by tranquilizing them (often with angel dust) and transporting them out of the park.[20]

- In 1970 and 1971 alone, 101 bears were removed from Yellowstone.

- Between 1968 and 1973, 189 grizzlies are reported to have been killed, and there are reasons to believe the actual number of killings may have been much higher.

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[19] Ibid., pp. 93-94. See also, Stephen J. Pyne, Fire in America (Princeton, New Jersey: Princeton University Press, 1982), pp: 20-45; and Dale L. Taylor, "Some Ecological Implications of Forest Fire Control in Yellowstone National Park, Wyoming," Ecology, Vol. 54, No. 6, Autumn, 1973.

[20] Chase, Playing God in Yellowstone, p. 155.

The Politics of the Park Service

Throughout its 70 year history, the National Park Service has had an abiding public mandate: to preserve our national parks. Yet this mission frequently has taken a back seat to two overriding Park Service objectives: (1) to expand its budget, and (2) to protect its public image.[21] These objectives, of course, are political. This is not surprising. For in the last analysis, the Park Service is a political organization, answerable to Congress.

Attracting Political Allies. In the political arena, in order for a bureaucracy to protect its turf and expand its budget, it must seek political allies with whom it shares interests. In its early years, the Park Service found an invaluable ally in the nation's railroad companies, which provided the principal mode of transportation to the parks. The alliance was highly successful. Railroad lobbyists pushed the original National Park Service Act through Congress, and the first hotels and concessionaires in Yellowstone were financed with railroad money.[22]

With the decline of the railroad, the Park Service found it needed a new constituency, one which could make up in numbers of people what it lacked in money and in the political influence once furnished by the railroads. The new constituency was the environmental groups and the millions of park visitors whom the environmental groups claimed to represent.

In all its forms, however, these political coalitions required that the Park Service pursue the goal of promoting visitation. In the early years, the more people who rode trains to see the national parks, the greater the financial interest of the railroads in the existence and maintenance of the parks. In more recent years, the greater the number of visitors to the park, the larger the constituency which derives personal benefit from the parks.

It is unquestionably the political goal of promoting visitation that underlies many of the bizarre wildlife policies adopted at Yellowstone and in other parks. Indeed, what other reason could there possibly be for declaring some animals more "desirable" than others? If the elk and the antelope proved to be popular with the visitors, then the less popular predators of these animals had to be removed. If confrontations with bears scared potential visitors away from the park, then the "problem" bears had to be removed. Yet it was not the visitors who were killing animals. It was the Park Service itself. Indeed, the visitors had no idea that any animals were being killed. And that was no accident.

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[21]For a general analysis of why bureaucrats attempt to expand the size of their domain and increase their budgets, see William A. Niskanen, Bureaucracy and Representative Government, (Chicago: Aldine, 1971).

[22]Chase, Playing God in Yellowstone, pp. 200-201.

Protecting a Public Image. If a bureaucracy is to be successful in a political environment, it is essential that its managers convey the image that they are competent to carry out their mission. This imperative invariably persuades all bureaucracies to seek to suppress facts that are embarrassing and to publicize facts that are self-promoting. Nowhere have such policies been carried out more thoroughly, more systematically and more successfully than in the National Park Service.

For example, a visitor to Yellowstone today would get no inkling from the park's official brochures that conditions in Yellowstone are any different than when Teddy Roosevelt visited the area more than 80 years ago. And, the Park Service has gone to great lengths to insure that information embarrassing to Park Service management is not conveyed. It has done so by suppressing the one source of information that could prove most devastating to the image of management--the research of qualified natural scientists.

The Park Service has accomplished this objective in two ways: (1) by severely limiting the amount of Park Service funds spent on research of any kind in the national parks, and (2) by carefully controlling the areas that researchers are allowed to investigate. For example,[23]

- In the entire National Park Service, there are only 25 natural scientists with Ph.D. degrees--a number smaller than the faculty of any good, small liberal arts college.

- Out of a billion-dollar plus budget, less than 1.5 percent is spent on research of any kind, and not one cent is spent on basic research.

When research is allowed, whether by its own scientists or by independent scientists on the staffs of universities, Park Service officials very carefully control the areas of inquiry. Studies that pose no threat to management are generally approved. Studies that might prove embarrassing to management are either discouraged or prohibited. As Chase notes:[24]

- Yellowstone officials have allowed numerous studies on non-sensitive topics such as butterflies, dragonflies and mushrooms.

- Yet research on bears, moose, beaver, the water table, soil erosion, elk trampling--and any other study that might tell whether the policies of the park's management have been successful--have been disallowed or discouraged.

Yellowstone is not unique. Similar policies are followed throughout the National Park Service. For example,[25]

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[23] Ibid., p. 258.

[24] Ibid., p. 255.

[25] Ibid., p. 252.

- In Florida's Everglades National Park, the conventional wisdom of Park Service managers is that the alligators are suffering from insufficient water.

- Yet a 1983 report by one of its own scientists showed that the reverse was true--the water levels were too high, causing flooding of the alligator's nesting sites.

- The Park Service not only suppressed the report, but issued an order prohibiting all of the scientists at the South Florida Research Center from publishing their work.

THE U.S. FOREST SERVICE

The U.S. Forest Service, initiated by the Withdrawal Act of 1891, has custody over 190 million acres of federal forest and rangeland--an area larger than Texas. Like the National Park Service, the Forest Service is commonly viewed as a stellar example of Progressive Era legislation. Unfortunately, the Forest Service clearly and recurrently has violated its custodial responsibilities by serving special interests whose goals conflict with environmental protection.

The Forest Service is perhaps best understood as the world's largest road building company.

- About 342,000 miles of roads have been constructed under the auspices of the Forest Service.[26]

- This is more than eight times the total mileage of the U.S. Interstate Highway System.[27]

More is yet to come. According to recent Congressional testimony,[28]

- Over the next 50 years the Forest Service is planning the construction of 262,000 miles of new roads and the reconstruction of 319,000 miles of existing roads.

- The total miles of new and reconstructed roads is enough to go to the moon and back and then circle the earth four times.

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[26]Peter Kirby and William Arthur, Our National Forests: Lands in Peril (Washington, D.C.: The Wilderness Society and the Sierra Club, 1985) p. 4.

[27]Ibid., p. 4.

[28]Statement of Peter Kirby and Robert Turnage on the 1985 RPA Program for the Forest Service before the Subcommittee on Forests, Family Farms and Energy, House Agriculture Committee, August 13, 1986. (Note: "Reconstruction" of a road often means building a new road.)

In general, this massive road building is primarily designed to accommodate logging activities. Yet much of the logging that occurs in our national forests is uneconomical and would not occur in the absence of substantial subsidy from the federal government. The environmental damage caused by these practices is severe.

Harm to the Environment

The Harm from Road Building. While building roads may seem to be a productive and harmless activity, the environmental consequences of road building in mountainous forests are far from benign. The problems are especially acute when the Forest Service designs and pushes roads into the high, steep, and fragile backcountry of the Rockies and Alaska.

To build roads in mountainous terrain, it is necessary to strip a road right-of-way of its vegetation and then remove vast quantities of earth in order to make the cuts, fills, and switchbacks,[29] and to install the pipes and culverts necessary for road construction. Disturbing soil, sand, and rock destroys the network of vegetation that held it in place, making it prone to erosion. Massive erosion and siltation from Forest Service roads adversely effects trout and salmon fisheries, farmers' and ranchers' irrigation systems, and the general quality of the water.

- In the northern Rockies, some of America's finest trout and salmon rivers have been severely damaged by more than ten feet of siltation (mud) caused by Forest Service road building and logging.[30]

- Although some of Idaho's waters are finally recovering from road building and logging activities of the 1950s, the Forest Service is planning new developments on fragile soils that are destined to repeat the injury.

As the timber at the lower elevations and in the easily accessible valleys is harvested, the Forest Service builds its roads ever further into the backcountry and on ever higher and steeper slopes. As a general rule, the steeper the slope, the greater the danger of land slides, slumps, sloughs, and earth flows from logging and road building activities.

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[29]In general, a Forest Service road in a mountainous area may not have more than a six percent grade. To achieve this grade, large quantities of earth are "cut" from a higher elevation and used to "fill" a lower elevation. "Switchbacking" is building a road that weaves back and forth as it climbs up a mountain.

[30]As noted earlier, trout need clear water in order to reproduce, because they deposit their eggs in gravel or sand on the river bottom. The presence of silt (or mud) makes it more difficult for the trout to deposit their eggs and decreases the likelihood that newborn trout will survive. The same is true for salmon.

This increased road access to the backcountry effectively displaces wildlife. Although the Forest Service claims to close roads except when used for management or logging, they do so by placing a green gate across the road. This is largely a symbolic action that offers a challenge to four-wheel drive enthusiasts and often provides no significant impediment to motorcycles, snowmobiles, and all-terrain vehicles. Thus, areas of backcountry solitude originally intended for hikers, photographers, and hunters are converted into mechanized recreational areas. The wildlife dependent upon solitude are effectively chased out of these areas.

The roads and logging activities also have displaced trails.[31]

- In the 1940s, the U.S. national forests had 144,000 miles of trails.
- By 1984, there were only 98,500 miles of trails.
- This occurred despite the fact that the number of backpackers and other recreationists using the forests had increased more than 10 times.

The Harm from Logging. The practice of removing all trees from an area is a form of logging called "clearcutting." It affects the environment in several ways. In the first place, it removes the natural habitat of the species of animals and plants in the area. In the second place, it reduces the ability of the area to absorb water, thus increasing the spring runoff of melting snow. The high slopes of the Rockies collect snow in the fall, winter, and early spring and release it in the form of water during the warm weather months of May, June, July and August. As a result of clearcutting, extra flooding erodes river banks, decreases the survival of young trout and threatens irrigation systems.

Finally, the small clearcuts increasingly favored by the Forest Service require more roads per unit of timber removed. The increased road construction to these evermore remote and fragile sites fosters disease, such as black stain root rot, and undesirable weeds, such as spotted knap weed--a species that is taking over millions of acres in the Rockies.

The Forest Service's two greatest vices, excessive road building and subsidized timber sales, already have had a highly destructive effect on fragile areas of the Rockies and Alaska. The following are some examples.

Case Study: Bitterroot National Forest (Montana). The National Wildlife Federation recently completed a study revealing serious problems with reforestation in the Sula Ranger District of the Bitterroot in southwest Montana.[32] Evidently, only about 35 percent of all harvested and surveyed stands of trees are in compliance with restocking standards. Yet, the Forest Service has

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[31]Katherine Barton and Whit Fosburgh, Audubon Wildlife Report 1986 (The National Audubon Society, New York, New York, 1986) p. 129.

[32]Andy Stahl, "Is There Life after Clearcutting?" Forest Watch magazine, Vol. 6, No. 10, 1986, p. 13.

no plans to reduce future timber cuts. If this trend continues, the consequences of lost cover for elk and bear, two prominent species in the area, will be severe.

Case Study: Big Hole River Valley (Montana). Most of the 2,925 miles of road targeted for the Beaverhead National Forest are in the Big Hole River Valley of southwestern Montana. The extensive clearcutting associated with the roads undoubtedly will cause rapid early-season runoff from the mountain watersheds,[33] straining irrigation systems, and ultimately leading to lower instream flows during the critical dry months of summer. If this plan by the Forest Service continues, a marvelous fishery will be substantially damaged.

Case Study: Tongass National Forest (Alaska). Tongass National Forest, a 16.4 million acre tract in southwest Alaska, is the country's largest national forest--bigger than the state of West Virginia. It holds the last significant stands of northern hemisphere virgin rain forest found anywhere on earth. Giant Sitka spruce up to 800 years old, with diameters up to 10 feet, tower 250 feet in the air. It is home of the greatest concentration of bald eagles and grizzly bears left in America. Its waters provide important spawning grounds for salmon. Its moss and lichens on the old growth timber are critical to the survival of Sitka black-tailed deer.

Despite the ecological importance of this area, the Forest Service is managing logging at an horrific rate--450 million board feet per year. Under the Forest Service's long-range plan, 75 percent of the area will be logged outright or disturbed by environmentally destructive logging roads. If current plans are followed, only 161,000 acres of the ancient groves of Sitka spruce will remain. In addition, the logging and road building is resulting in siltation that is jeopardizing the region's most important industry--fishing. Another tragic consequence is the devastation of old-growth timber, essential to the grizzly and the Sitka black-tailed deer.

In fact, the Alaska Department of Fish and Game reports that planned harvests of old growth forest habitat will cause more than 50 percent decline in the Sitka black-tailed deer population.[34]

Economic Costs

If the road building and logging activities described above served some national economic interest, they would be more defensible. After all, it is not unusual to face the difficult choice of balancing environmental goals against economic goals. Yet in each of the cases described above, the economic costs of securing the timber far exceeded any commercial value the timber had. In each case, roads funded at taxpayer expense allowed access to timber that was too sparse, too marginal, or too slow-growing to justify the high price of the roads

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[33] A watershed drains into a body of water.

[34] The Wilderness Society, America's Vanishing Rain Forest (Washington, D.C.: The Wilderness Society, 1986), p. 161.

and other development costs. In essence, taxpayers are subsidizing environmentally destructive behavior that no private timber company or private landowner would ever consider.

The proposed sale of timber in Tolan Creek, Montana, typifies, the economics of timber sales in Bitterroot National Forest.

- Even after the Forest Service spent $304,000 to build new roads in the area, the agency estimates it will lose $257,000 on the timber sale.[35]

- Although the agency maintains that future sales into the area will pay for the roads, an analysis by a Forest Service economist indicates that even after receipts from future sales are considered the agency will lose more than $24,000.[36]

Things are even worse in the Tongass National Forest in Alaska.[37]

- In Tongass, taxpayers are subsidizing logging and road building to the tune of more than $50 million per year.

- Viewed as a subsidy to the logging industry, we are spending more than $30,000 to create each timber job.

- In terms of its own budget, the Forest Service returns seven cents to the U.S. Treasury for every dollar it spends.

These cases are not unique. In general, sound environmental policy and economically sensible timber production are not in conflict. In the Rockies, environmentally destructive timber production occurs, more often than not, when the federal government subsidizes it.

Trees like to grow where it is warm, wet and low. As a consequence, there is very little commercially viable timber in Utah and other Rocky Mountain states where it is high, dry and cold. Commercial forestry activities in these areas would not occur unless subsidized. And, when it is subsidized, the losses to the Forest Service are massive. For example,[38]

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[35]USDA Forest Service, Environmental Assessment for Tolan Creek Timber Sale (Missoula, Montana: Region 1, USDA Forest Service, 1984), p. D-11.

[36]Fred Stewart, "Assumptions for Tolan Creek Economic Analysis" (Missoula, Montana: USDA Forest Service, 1985), p. 5.

[37]The Wilderness Society, America's Vanishing Rain Forest, pp. 108, 112.

[38]Thomas Barlow, Gloria E. Helfand, Trent W. Orr and Thomas B. Stoel, Jr., Giving Away the National Forests (New York: Natural Resources Defense Council, 1980), Appendix One.

- In the Rocky Mountain states (Colorado, Wyoming, Utah, Montana, Idaho and New Mexico) the Forest Service typically gets back less than 20 cents for every dollar it spends on road building, logging and timber management.

- In Colorado, the return is only 15 cents for each dollar invested on timber activities, and that amount continues to drop yearly.

In general, logging and road building activities in ecologically fragile areas generate far more costs than they do revenue.

The Politics of the Forest Service

Like the National Park Service, the goals of the Forest Service are shaped far more by political considerations than by environmental goals or sound economics.

- National forests are located in 40 states and in most congressional districts.

- Of all commercial outputs, logging and road building provide the most directly visible jobs and income to the local communities where logging occurs.

These communities provide a voting base in many congressional districts. To enhance its budget, the Forest Service provides a timber program in virtually every national forest, no matter how submarginal. As a consequence, the vast majority of senators and a majority of representatives find it in their interest to vote for expanding Forest Service timber budgets. The result has been that the timber program traditionally is fully funded, while recreation, wildlife, and watershed budget items get slashed.

Timber provides the Forest Service's "pork barrel" gift to Congress. In return, Congress has provided the Forest Service with funding mechanisms to enhance its budget. One of these mechanisms is the Knutson-Vanderberg (K-V) Act of 1930. The act requires purchasers of timber sales to pay for reforestation. This means that the minimum bid price for trees must include the projected cost of reforestation.

In 1976, Congress authorized the Forest Service to make discretionary use of K-V funds for a host of activities. In general, about 50 K-V cents are spent on overhead for every one K-V dollar collected on reforestation. A share of the overhead take is distributed to the Washington office, regional offices, and forest supervisor and ranger district offices. This leads to pressures from throughout the Forest Service bureaucracy to collect and spend this money.

As a consequence, the Forest Service has strong incentives to sell as much timber as it can without regard to the quality of timber or the cost of access. A commonly used technique that enables the Forest Service to maximize timber sale volume is to tie good (economical) and bad (uneconomical) timber into one sale.

For example, in the illustration in Table I, the Forest Service has one million board feet of "good" timber with a market value of $100,000.[39] If this timber were sold in open market bidding, the price would be $100,000--of which $91,000 goes to the U.S. Treasury, and $9,000 goes to the Forest Service in the form of a K-V payment.

The Forest Service also has one million board feet of timber with a negative value. In this case, a timber company would have to be paid $80,000 in order to cut and dispose of it. As a consequence, in open market bidding, this timber could not be sold.

TABLE I

An Illustration of Tie-In Timber Sales
(One Million Board Feet)

	Separate Sales		Combined Sales
	"Good" Timber	"Bad" Timber	("Tie-In" Sale)
Commercial Value*	$100,000	-$80,000	$20,000
Sale Price of Timber	$100,000	0	$20,000
Forest Service Income**	$9,000	0	$18,000
Income to U.S. Treasury	$91,000	0	$2,000

(Note: What is "bad" timber from a commercial point of view may provide very valuable timber habitat from an environmental point of view.)

* Includes market value of timber minus the cost of reforestation.
** K-V income.

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[39] A "board foot" is a unit of measure used for timber. One board foot is a volume equal to a board one inch thick, one foot wide and one foot long. An acre of productive ponderosa pine forest would produce about 50,000 board feet when harvested at maturity.

The Forest Service, however, can tie the sale of good timber to the sale of bad timber by insisting that potential buyers bid on both types of timber in a single sale--even if the two stands of timber are miles apart. In this case, the value of the combined timber is only $20,000. But by creating such a tie-in sale, the Forest Service doubles its K-V income from $9,000 to $18,000. Unfortunately, this procedure reduces the income to the U.S. Treasury from $91,000 to $2,000 leaving a net cost to taxpayers of $89,000. The economic waste created in this example is $80,000 in terms of cutting trees that never should have been logged. The cost to the environment is unmeasured.

As an example of this practice, consider the Dun timber sale in Oregon's Malhuer National Forest.[40]

- If only ponderosa pine (a high quality timber) were sold, the K-V payment would have been $17,640 and taxpayers would have netted about $60,000 in timber sale revenues.

- However, by tying the sale of this ponderosa pine to less valuable timber, the Forest Service was able to increase its K-V payment from $17,640 to $26,990.

- The loss to the taxpayers as a result of this tie-in sale was $55,000.

THE BUREAU OF LAND MANAGEMENT

The Bureau of Land Management (BLM) was created in 1946 as an outgrowth of the General Land Office and the Grazing Service. Often derisively called the "Bureau of Livestock and Mining," the BLM is responsible for the management of 340 million acres of land in 12 western states.

- Altogether, the BLM controls an area that approaches twice the size of Texas.

- It controls nearly all of Alaska and Nevada and vast sections of Utah, California, New Mexico, Wyoming and Idaho.

In general, these are the lands that no one wanted under any of the various homestead acts. They were rejected because of their dry, rocky, arid, harsh and remote conditions.

The limiting factor on nearly all of these lands is water. As Bernard DeVoto said in 1934, the year the Taylor Grazing Act was passed,[41]

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[40]Randal O'Toole, "Cross-subsidies: The Hidden Subsidy," Forest Planning magazine, Vol. 5, No. 2, 1984, p. 16.

[41]Bernard DeVoto, The Course of Empire, (Lincoln, Nebraska: University of Nebraska Press, 1952).

> It was a strange land, and all its strangeness came from the simple arithmetic of its rainfall . . . . A treacherous land--its thin rain may fall without reason or warning . . . and the pioneer who had been ignorant of droughts promptly starved.

Clearly, the limited supply of water is a relentless constraint on land use possibilities; and traditionally, the predominate use of the land surface has been for grazing. Indeed, until 1964, the BLM's primary legal objective was to administer grazing privileges. Current law, however, requires recreation, wildlife, environmental buffering, watershed, and the maintenance of diverse wildlife and vegetation to be legally equal to livestock and mining when BLM decisions are made. The political environment of that agency, however, dictates otherwise.

Fortunately for the bureaucrats, the 100,000 energy and mineral leases on public lands seldom conflict with the politically strong ranching interests. But wildlife management, wilderness, recreation and preservation interests on BLM land increasingly compete with the interests of ranchers and with each other. Even the recreationists, for example, are often at each other's throats. The tens of thousands of dirt biker and dune buggy afficionados in California share neither culture nor values with bird watchers and tortoise lovers.

The Management of Grazing Lands

Of the land under BLMs control, about 150 million acres are managed for grazing. Despite the fact that vast quantities of federal land are used for grazing by private ranchers, the number of ranchers who have grazing rights is quite small. And, the price they pay for grazing privileges is well below its fair market value.[42]

- Only 20,000 ranchers currently have permits to use BLM lands for grazing, and access to grazing on all federal lands is restricted to about 30,000 ranchers.

- The price ranchers pay for these rights ranges from one-fifth to one-tenth the price paid for grazing rights on adjacent or proximate private land.

As in the case of timber sales by the Forest Service, grazing fees go to the U.S. Treasury, not to the Bureau of Land Management. As a consequence, the BLM has no particular interest in raising grazing fees to their fair market value. The BLM does have an interest in expanding its budget, however, and in pursuit of this goal it counts on the support of the politically powerful ranchers.

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[42]Carol Risher Brouha, "The Case of the Battered Trout Stream: A Westwide Crisis," Trout, Autumn 1985, p. 6.

In view of these facts, small wonder that the BLM is especially committed to "rangeland development." The bureaucrats in the BLM face strong incentives to increase the amount of grazing land available. By doing so, they accumulate more power because they increase the number of favors they can dispense.[43]

"Chaining"

Chaining is one technique designed to generate more grazing rights. It is a spectacular and especially ugly way of ridding the land of trees. Under the practice, two 100,000 lb. D-8 class crawler tractors are connected with a 600-foot long anchor chain, weighing 100 lbs. to the link. As the tractors move forward the chain uproots trees and shrubs in its path. In a short period of time, large numbers of pinion and juniper trees can be removed from vast acres of land. The uprooted trees may then be burned, or simply left to the side of the clearing. The chained area is then seeded with a monoculture of crested wheatgrass, an exotic grass from eastern Russia.

The rationale behind the practice of chaining is that trees compete with grass for water and nutrients in the soil. By removing trees, more grass can be produced. More grassland means more grazing. More grazing means more political favors to be dispensed by the BLM. The practice has disastrous consequences for the land and is quite extensive.[44]

- BLM and Forest Service lands in Arizona, New Mexico, Utah and Nevada have experienced the brunt of chaining.

- By 1964, approximately three million acres had been chained with millions more planned.

Since the emergence of the environmental movement, it has been rather difficult to obtain data on chaining. Neither the BLM nor the Forest Service publicly announced their chaining programs until 1970, when the National Environmental Policy Act mandated the preparation of Environmental Impact Statements. For good reasons, the BLM is not eager to publicize such activities.

Unfortunately, the practice of chaining has serious environmental consequences. Moreover, it is a practice that is very rare on private lands. Chaining, in other words, is a way of harming the environment that would rarely be used were it not for the role of the federal government.

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[43]The quantity of grazing is measured not in pounds, kilos or bales, but in animal unit months (AUMs)--the amount of forage that one animal consumes in a month. Under the BLM formula, one cow = one horse = five sheep = five goats = four reindeer.

[44]Ronald M. Latimer, "Chained to the Bottom," in Bureaucracy vs. Environment, ed. John Baden and Richard L. Stroup (Ann Arbor, Michigan: University of Michigan Press, 1981), p. 156.

Harm to the Environment. Precisely because the BLM is not eager to invite public scrutiny of chaining, we have little exact knowledge of its consequences.[45]

- There are approximately 50 species of fish, 66 species of reptiles and amphibians, 75 species of mammals, and 140 species of birds in or around the pinion and juniper trees that are destroyed by chaining.

- The BLM conveniently has neglected to study adequately the impact of chaining on the species that inhabit pinion/juniper woodlands, however.

It is likely that various populations of deer are among the most adversely affected.[46]

- Wild ungulates, such as mule deer, tend to avoid the chained areas due to their natural hesitancy to expose themselves in the middle of large clearings.

- Since many chained areas are hundreds or even thousands of acres in size, the effect on many deer winter ranges is especially pronounced.

In addition, it is clear that loss of ecological diversity also is a consequence of chaining.[47]

- In their natural state, the pinion/juniper woodlands contain more than 20 common shrub species, 14 grasses and 17 forbs.

- After chaining, however, the treated area is seeded only with crested wheatgrass.

Harm to Archeological Sites. Many of the Great Basin archeological sites scattered throughout Utah, Nevada, New Mexico and Arizona are found in the pinion/juniper woodlands. Some of these sites are several thousand years old. Bulldozers and chains have enormous potential to destroy them. A federal archeologist has stated that chaining "may totally eliminate any possibility for conducting studies of surface, cultural patterns" of the Indians who lived there centuries ago.[48] As a consequence, the chaining program may be producing a number of official lawbreakers. The Antiquities Act of 1906, states that: "Any person who shall appropriate, excavate, injure, or destroy . . . any object of antiquity, situated on lands owned or controlled by the Government of the United

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[45] Ibid., p. 161.

[46] Ibid.

[47] Ibid., p. 163.

[48] Ibid., p. 162.

States without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which such antiquities are situated, shall, upon conviction, . . ."[49]

Harm to Indian Culture. Another adverse impact of chaining is upon Native Americans. The traditional Shoshone and Paiute Indians of Nevada remain substantially dependent upon the pine nut, a traditional winter food. The gathering, preparation and trade of this nutritious food also are important in the folkways of these Indians. Many who follow this traditional activity are old people who resent all chaining. Yet the BLM in Nevada chained some of the best and most accessible pinion stands, an act that seemed a calculated affront to the Indians who live there. Their food supply is being destroyed to accommodate the white men's livestock and the bureaucratic goals of the BLM.

Economic Waste. Although it is generally agreed that chaining increases the grazing area for livestock, very little private land is chained in the absence of government subsidies. Why do BLM managers engage in chaining while private ranchers practice so little of it on their own land? The answer is simple. Chaining seldom pays. Chaining is a net loser, even when the cost to the environment is ignored. Before they chain, private ranchers face strong incentives to determine the specific areas where chaining will generate benefits greater than the costs. By contrast, the BLM bureaucrats' calculations are made in terms of budget maximization and political payoffs.

Chaining is an expensive activity that provides an excellent rationale for increasing the BLM budget. For many years, chaining provided more than one-half of the budget in some BLM districts. Yet, rarely does chaining make sense economically. It is a political decision by which American taxpayers subsidize the destruction of their environment.

Overgrazing

Despite the fact that the BLM and western ranching interests share many common political goals, their historical relationship also has been characterized by conflict and turmoil. Since its creation in 1946, the BLM and the ranchers have engaged in ongoing battles over the control of grazing on public rangelands. The BLM has emerged as victor, having successfully lobbied for policy changes that have strengthened its hold over the range. The results have been tragic for many ranchers, for environmentalists and for taxpayers.

Overgrazing Under the Homestead Act. When Thomas Jefferson was planning the Northwest Ordinance in 1785, he wrote that the federal government should sell its vast domain to private owners and that it should "never after in any case, revert to the United States."[50] The policy of restricting land sales to small

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[49] Ibid.

[50] Quoted by Jonathan Hughes in the foreword to Gary D. Libecap, Locking Up the Range (San Francisco: Pacific Institute for Public Policy Research, 1981), p. xv.

family farms in parcels of 160 acres was viewed as a great exercise in Jeffersonian democracy, insuring that the newly acquired land would be owned by large numbers of people rather than concentrated in the hands of a few. The policy worked well in the Ohio Valley. But it was totally inappropriate for the West.

In the western U.S., where land was suitable only for ranching, not farming, stock owners frequently needed in excess of 10,000 acres to run a viable ranching business. As a consequence of the overly restricted homestead laws, vast quantities of land were left permanently in government hands, and the ranchers that settled the area grazed their livestock on these unclaimed, public lands.

The fact that the grazing lands were common property, rather than private property, however, had a major effect on the incentives ranchers faced. Each rancher soon discovered that he had an incentive to overgraze the public land he was using. Any act of forbearance (e.g., allowing grass to grow in order to preserve the quality of the rangeland) was an open invitation to other ranchers to enter the area and graze the land with their livestock. As a consequence, overgrazing was rampant, leading to severe wind and water erosion, low livestock quality, high animal mortality rates and to what became the "Dust Bowl."

Overgrazing in the late 19th and early 20th centuries often was attributed to the greediness of ranchers and to their shortsightedness. This explanation, however, is surely wrong. There is no reason to believe that ranchers using public lands were any more or less greedy than ranchers using private land. Moreover, far from being shortsighted, the historical record clearly shows that ranchers were acutely aware of the "common-property problem" and resorted to a number of extra-legal measures in an attempt to maintain the quality and value of the rangeland they were using. These included quasi-legal livestock associations[51] and illegal fencing.[52] Quite apart from the fairness of these activities, they clearly were designed to create private property rights for the use of public lands. Had they succeeded, these rights would have produced economic and environmental benefits.

They did not succeed. These measures were actively and successfully opposed by government officials. As a result, ranchers using public lands behaved very differently than ranchers using only private rangelands. A study of ranchers in the Southwest in 1925 revealed that:[53]

- On private ranches, the calf crop was 47 percent greater, the death rate was 54 percent lower and the average value per cow was 43 percent higher than on similar ranches using public grazing lands.

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[51]Libecap, Locking Up the Range, pp. 18-20.

[52]Ibid., pp. 20-23. A diagram in Figure 3-2, p. 22, shows the ingenious methods used by ranchers to fence in large parcels of public land by strategically placing a small amount of fence on adjoining private land.

[53]Libecap, Locking Up the Range, p. 27.

- These differences were due to the lack of incentives for ranchers to invest in range management and to maintain the value of the forage on the open range.

The Taylor Grazing Act: A Step Forward. In 1934, Congress attempted to deal with the problem of public lands grazing by creating quasi-private-property rights. Under the Taylor Grazing Act, ranchers could invest in the maintenance and improvement of the public lands they grazed and feel reasonably secure that they (rather than some rival rancher) would enjoy the benefits of their investment. The reform led to dramatic improvements:[54]

- In 1936, 58 percent of BLM land was classified as being in poor or very poor condition. By 1972, this figure had dropped to 32 percent.

- In 1936, only 42 percent of BLM land was classified in fair, good or excellent condition. By 1972, this figure reached 68 percent.

Recent Policies: A Step Backward. A series of acts passed in the 1960s and 1970s, culminating in the Land Policy and Management Act of 1976, have given the BLM increased control over grazing rights, including increased powers to revoke grazing privileges. As a result, the quasi-property rights created under the Taylor Grazing Act have become less and less secure, and private ranchers have proved less and less willing to make investments to maintain and improve the quality of public land.

For example, in arid regions it is important to spread cattle to avoid overgrazing and trampling in some areas while other areas go untouched. Yet spreading requires an investment in wells and fences. As BLM authority has expanded, the willingness of the private sector to make such investments has diminished:[55]

- In the 1960s, private investment accounted for 44 percent of the wells dug annually and 30 percent of the fences built.

- Yet from 1971 to 1976, private investment accounted for only 11 percent of new wells and eight percent of new fences.

Environmental Consequences of Current Policies. Despite the BLM's avowed desire to deal with the problem, overgrazing is having a severe impact on the land and waterways. In large part it is because of, not in spite of, BLM policies.

Because overgrazing leads to soil erosion that muddies the streams inhabited by trout, we are losing millions of trout each year. World-renowned trout taxonomist Robert J. Behnke of Colorado State University has written, "Livestock overgrazing is the greatest threat to the integrity of trout stream habitat in the

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[54] Ibid., p. 46.

[55] Ibid., p. 74.

Western United States."[56] Studies done on Otto Creek in Nebraska, the Deschutes in Oregon, and on Big Creek in Utah further confirm that livestock grazing, as currently permitted on public lands, decreases both the quantity and quality of fish populations.[57]

The BLM's own economic data raises serious questions about the agency's emphasis on grazing development. There is a growing demand for recreation and wildlife habitat in many of the areas under review. Nevertheless, the Shivwits District in Arizona has a plan that would spend $1.3 million on range improvements in order to increase income from grazing by only $300,000.[58] The agency is losing money by managing for grazing. At the same time, the BLM is short-changing wildlife and recreationists as well as taxpayers and future generations.

THE BUREAU OF RECLAMATION

The Bureau of Reclamation, also a creature of the Progressive Era, was established in 1902 with the mission of making "the desert bloom as the rose."

Under the act that created it, the proceeds from the sale of public lands were to be placed in a "reclamation" fund. The fund was to support projects to irrigate new lands. The costs were to be repaid by the beneficiaries within ten years at a zero rate of interest. Expenditures among the various states were to be proportional to the revenues generated by public lands within their borders.

By establishing a project in every western state during its first five years, the Bureau of Reclamation established a strong political base. In the process, however, very little attention was paid to environmental consequences or economic efficiency. The projects all were based on political rather than ecological or economic considerations.

Economic Waste

When the Reclamation Act was passed, congressmen from the East and Midwest predicted "the plan would ultimately cost the country billions of dollars," and that "it would unlock the doors of the treasury, ...(in) a thinly veneered and thinly disguised attempt to make the government, from its general fund, pay for

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[56]Brouha, "The Case of the Battered Trout Stream: A Westwide Crisis," Trout, p. 60.

[57]Ibid., p. 60.

[58]Bernard Shanks, "Federal Land Planning in the Southwest: Products and Problems," paper presented at 51st North American Wildlife and Natural Resources Conference, 1986, p. 4.

this great work--great in extent, great in expenditure, but not great in results."[59] This prediction turned out to be remarkably accurate.

The political entrepreneurs in the Bureau of Reclamation along with the congressmen from the West found these projects excellent mechanisms to create millionaires among their constituents and thus generate political support. By providing extremely low-priced water to irrigators, cheap desert land was converted into highly productive and therefore valuable irrigated land.

Yet the cost of bringing Western desert land into agricultural production was five to 14 times greater than the cost of bringing lands in the Southeast into production. From an economic point of view, federal efforts to make the desert lands "bloom like the rose" made no sense.

Over the years, the burden of paying the billions of dollars used for federal water projects bore lightly on the backs of the beneficiaries. The original plan was to finance the projects through the sale of public lands and through repayments--at zero interest--by irrigators. The subsidy to irrigators, however, has grown larger and larger.[60]

- The repayment schedules have been extended and extended--from 10 to 20 to 40 years and more.

- Every time a facility has been added to the Central Valley Project of California, for example, the loan payment has been extended 50 years from the date on which the most recent facility went into service.

Just how much of the financial burden do irrigators bear? One study of ten federal water projects found that:[61]

- The percentage of irrigation costs subsidized by the taxpayers ranged from 11 percent for the Central Valley Project in California to 82 percent for the Coolbran Project in Colorado.

- The average subsidy for the ten projects was slightly more than 54 percent of the cost of irrigation.

- If we factor in the additional subsidy created by a "typical" loan (e.g., a 40-year, zero interest payment schedule and a 10-year development grace period), the real subsidy is more than 90 percent of the total cost.

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[59]Benjamin H. Hibbard, A History of the Public Land Policies, (Madison, Wisconsin: University of Wisconsin Press, 1965), p. 442.

[60]Richard W. Wahl, "Cleaning Up Kesterson," Resources, Spring 1986, p. 12.

[61]Randal R. Rucker and Price V. Fishback," The Federal Reclamation Program: An Analysis of Rent-Seeking Behavior," in Water Rights, Terry L. Anderson, ed. (Pacific Institute for Public Policy Research, 1983), pp. 62-63.

In dam building, as in mining, the most productive sites are selected first. While it may be possible that early in the 20th century there were public irrigation projects that made economic sense, such sites have long since been developed. Few, if any, such possibilities remain today.

Despite the fact that (1) the Bureau of Reclamation has been in business for more than 80 years, (2) all of the best dam sites have been developed, and (3) there are few free-flowing rivers left in America, the Bureau of Reclamation has an inventory of more than 20 years worth of projects on its shelves. Such is the predictable consequence of the perverse incentives faced by the Bureau of Reclamation. Just as beaver will attempt to build dams in aqueducts, canals, and other places where they don't belong, decision makers in the Bureau of Reclamation exercise genius, determination, and extraordinarily creative accounting to justify dams and diversions that are economically irrational and exceedingly destructive from an environmental perspective.

Environmental Destruction

Much of subsidized irrigation water is used to produce agricultural products. Yet due to a vast array of federal subsidies and other policies, America produces too much food, not too little. Our greatest problem in agriculture is how to dispose of the surpluses federal agricultural policies have created. At the same time, in the process of providing this water the Bureau of Reclamation has interrupted the flow of wild, free-flowing rivers and has damaged the natural habitat of fish and wildlife. Meanwhile, the value to the American people of undisturbed, natural rivers and wildlife sanctuaries has increased dramatically.

It follows that the Bureau of Reclamation has been sacrificing highly-valued environmental resources in order to produce unnecessary agricultural crops. As a result of this policy, one national wildlife refuge is gone and other critical wildlife areas suffer water shortages--all courtesy of the U.S. taxpayer.

Case Study: Lahonton Valley (Nevada). Before the turn of the century, Nevada's Lahontan Valley did not have enough water to grow crops. Today, the Lahontan Valley is one of many American "food baskets." Federally subsidized irrigation was the key to transforming this one-time desert into farmland in 1905. It was one of many projects hastily put together and given congressional approval.

Once prime waterfowl habitat, the 25 mile-long Winnemucca Lake dried up in 1938--not because of drought, but because of irrigated alfalfa.[62] But the story doesn't end with Winnemucca Lake. When the Bureau of Reclamation brought irrigated water to Lahontan Valley, it created a system of dams and canals on the Carson and Truckee rivers. This project now forces two other prime wildlife areas that are downstream from Lahontan Valley--Pyramid Lake and Stillwater National Wildlife Refuge--to fail in the competition for desperately needed water.

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[62] Alfalfa requires enormous quantities of water in order to flourish.

Case Study: Pyramid Lake (Nevada). Pyramid Lake is home to the cui-ui, an endangered fish, and the threatened Lahontan cutthroat trout. These fish are rarely able to spawn upstream in the Truckee River, because the water levels in the lake have dropped by more than 60 feet since diversion of the Truckee began. With Pyramid's present water allocations, the lake will continue to drop by an average of one foot each year.

Case Study: Stillwater National Wildlife Refuge (Nevada). The Stillwater National Wildlife Refuge encompasses a critical wetland within the Pacific Flyway. In good water years, it used to harbor 200,000 ducks, 6,000 geese and 8,000 tundra swans. Times of good water, however, are long gone. Between 1929 and 1980, the refuge lost almost 68 percent of its productive marsh habitat. To make matters worse, Stillwater has no legal water rights to ensure an even flow of water even during drought years. The water shortage will get even worse as a result of rising water demands from the nearby cities of Reno, Carson City and Sparks.

Case Study: San Joaquin Valley (California). Farther west we find another environmental travesty caused by misguided federal water policy. In the spring of 1983, waterbirds were born with severe deformities at Kesterson Reservoir, some with beaks grotesquely shaped, wings missing, legs twisted, and skulls deformed. Many of these birds died soon after hatching. The culprit was too much selenium in the water.[63] The reservoir, part of the Kesterson National Wildlife Refuge, is no longer a winter haven for thousands of migrating waterfowl.

Leached from the soil by agricultural irrigation water, selenium was carried to the reservoir through drainage systems. Once in Kesterson, the mineral became concentrated in vegetation and small animal life, which the birds consume. The tainted water is a by-product of the Bureau of Reclamation's effort to provide water to irrigators, at only a fraction of the actual costs.

OTHER GOVERNMENT POLICIES

This report focuses primarily on the major agencies of the federal government that are charged with the responsibility of protecting our natural resources, the major programs these agencies administer, and the environmental harm they cause. There are, however, a host of other rules, regulations and policies buried within the labyrinth of the huge federal bureaucracy that also encourage environmental destruction in sometimes subtle, and sometimes not so subtle, ways. For example,

- Special provisions in the tax code in addition to low-interest Small Business Administration (SBA) loans have subsidized uneconomic development on the periphery of ecologically fragile areas, including Yellowstone National Park.

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[63]Selenium is a trace mineral that exists naturally in the soil of nearby land.

- Conservation measures that are intended to reduce soil erosion very often have fostered farming practices that cause increased erosion.

- Price supports for agricultural products have encouraged uneconomical farm development, and have led to the draining of marshes that formerly provided important habitat for water fowl.

- Federal subsidies for flood and hurricane insurance, grants from public utility and highway funds, and projects sponsored by the Army Corps of Engineers all have contributed to destruction in the Barrier Islands along the Atlantic and Gulf Coast regions.

- The federal government's Animal Damage Control Program still employs 700 trappers whose job it is to kill bears, mountain lions, bobcats, lynxs, coyotes and wolves in order to protect domestic livestock.

This section briefly addresses two areas that have been especially affected by unwise government policies and that are of special concern to environmentalists--the Barrier Islands and the Wetlands.

Barrier Islands

One of the clearest examples of private gain from the public trough occurred not long ago on the Barrier Islands--a string of beautiful but fragile and ecologically important islands that stretch along the Atlantic and Gulf Coasts of the United States. These island areas constitute crucial ecosystems that provide nesting grounds for marine birds and breeding areas for the microorganisms that form the bottom of the food chain for about 80 percent of coastal fish.

The ecosystems of the islands in many cases have been threatened by private development along the coastline. Far less development would have taken place were it not for the policies of the federal government. For example,[64]

- Before 1982, private development of the Barrier Islands was subsidized by 29 programs administered by 18 federal agencies.

- The Army Corps of Engineeers built sea walls and jetties.

- The Farmers Home Administration gave developers subsidized, low-interest loans.

- The Federal Highway Administration financed roads.

- The Environmental Protection Agency built water and sewage plants.

- And, federal hurricane insurance gave developers subsidized protection against hurricane and flood damage.

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[64]William J. Siffin, "Bureaucracy, Entrepreneurship, and Natural Resources: Witless Policy and the Barrier Islands," The Cato Journal, Vol. 1, No. 1, Spring, 1981, pp. 293-311.

Ironically, it was Secretary of Interior James Watt, the bete noire of the environmentalists, who helped put an end to many of these practices by championing the Coast Barrier Resources Act of 1982. The act bars subsidies for flood and hurricane insurance, prohibits Army Corps of Engineers breakwater projects, bars public utility and highway subsidies, and eliminates other incentives to development. In addition to the positive ecological consequences of ending federal subsidies for environmental destruction, the act also will save taxpayers money. It is estimated that the passage of this one act will save taxpayers from $5 billion to $11 billion over the next 20 years.[65]

The Wetlands

Wetlands are shallow-water basins that support distinctive communities of aquatic or semi-aquatic plants and various forms of wildlife. Although they are frequently referred to as "swamp" or "bog" in official announcements that accompany plans to drain them, wetlands provide important ecological benefits. For example,

- Wetlands protect against flooding by holding and then slowly releasing flood waters.
- They recharge underground aquifers and supply spawning and nursery grounds for many commercial and non-commercial species of fish.
- They also provide habitat and breeding grounds for ducks, geese, hawks, herons and many species of wildlife that flourish in a healthy wetland environment.

In most cases, wetlands have far more value from an environmental point of view than they do for any commercial purpose. For example, many landowners are lucky if they can sell wetland property for as much as $100 an acre. Yet environmental economists often estimate that the social value of some wetland areas is many times that amount. Despite this fact, wetlands are being systematically destroyed by conversion to various commercial uses:[66]

- Since the turn of the century, more than 60 percent of the nation's wetlands have been destroyed.
- Wetlands are continuing to be destroyed at a rate approaching one-half million acres per year.

Federal Government Policies. The federal government's policy toward wetlands has been schizophrenic. While some agencies of government are attempting to acquire and protect wetland areas, other agencies of government are subsidizing

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[65]See John Baden, "Clark's Opening to a New Environmentalism," Wall Street Journal, January 5, 1984.

[66]See John Baden and Tom Blood, "Troubled Wetlands and the Land Trust Movement," Orvis News, June, 1985.

their destruction. On balance, destruction is winning out over conservation. For example,[67]

- The U.S. Fish and Wildlife Service announced plans to purchase and preserve nearly two million acres of wetland areas between 1977 and 1986.

- However, between 1977 and 1982, the agency purchased only 336,000 acres.

- Over the same period, more than two million acres of wetlands were paved, drained, plowed or otherwise disturbed.

While the Fish and Wildlife Service has been attempting to conserve wetlands, various provisions of the Internal Revenue Code encourage their commercial development:[68]

- Accelerated depreciation and annual tax deductions of up to 25 percent of gross farm income are allowed for the construction of diversion canals, drainage and irrigation ditches, and water outlets.

- Accelerated depreciation is allowed for land-clearing expenditures, including the diversion of streams and other water courses.

- Investment tax credits may be applied against 10 percent of the cost of installing drain tiles for agricultural purposes.

The U.S. Department of Agriculture encourages wetland conversion in yet another way. Artificially high prices for agricultural products encourage farmers to clear and drain additional wetlands in order to add to the nation's already existing agricultural surpluses, which must be stored or disposed of at taxpayer expense.

Finally, there are specific projects subsidized by the federal government and by state governments designed to destroy even more wetlands so that we may produce even more agricultural surpluses. One of the most wasteful of these projects is the Garrison Diversion project in North Dakota.

Case Study: The Garrison Diversion Project (North Dakota). The basic idea behind the Garrison project is simple: To "move" Missouri River water eastward through a tangle of 3,000 miles of canals, pipelines and reservoirs in order to irrigate less than one percent of North Dakota's farmland--land currently owned by farmers who are in the unfortunate position of being thousands of miles away from the place where nature decided to locate the Missouri River. According to the original plan:

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[67] Ibid.

[68] Some of these provisions may be changed as a result of recent tax reform legislation.

- Water from Lake Sakakawea (behind the Garrison Dam) was to be pumped into Audubon Lake, diverted from there through McClusky Canal to Lonetree Reservoir, and then dispersed through a maze of canals into the Sheyenne, Wild Rice, Souris, James, and Devil's Lake drainage basins.

- To accomplish this task, the project's managers would have to regulate two reservoirs, 14 pumping plants, 193 miles of canals, 358 miles of open drains, 444 miles of buried pipeland, and 1,662 miles of buried drain.

Needless to say, the project is not an inexpensive one. The cost will be borne by U.S. taxpayers, and the value of the additional crops produced will come to only a tiny fraction of the total cost of getting the water there. Specifically,[69]

- Although the project has now been under way for more than 20 years and has consumed about $207 million, it is only 15 percent complete and not one drop of Missouri River water has reached a North Dakota farm.

- When and if the project is completed, the total cost easily will exceed $1 billion, providing each North Dakota farm with a subsidy of about $700,000.

Unfortunately, this generous subsidy to North Dakota farmers carries with it a heavy environmental cost, in addition to its monetary price tag. As it turns out, North Dakota is one of America's great "duck factories," producing more ducks per year than any other state except Alaska. North Dakota wetlands, marshes, and lakes offer prime habitat not only for ducks, but also for geese and snowbirds--offering a supremely valuable and essential stopover point on the Central Flyway migratory route. Yet it is precisely these areas that would be the most adversely affected by the Garrison project:[70]

- According to the U.S. Fish and Wildlife Service, the Garrison project will harm nine national wildlife refuges and five North Dakota game management areas.

- According to an Audubon Society study, 70,000 acres of prairie wetlands and water fowl habitat will be destroyed if the project is completed.

Fortunately, recent alterations in the plan will at least temporarily mitigate some of these environmental costs.

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[69]Renee Wyman and John Baden, "The Garrison File: Profile of a Pork Barrel," Reason, January, 1985, pp. 33-38.

[70]See John Baden and Tom Blood, "Conservation + Fiscal Conservatism = Free Market Environmentalism" Orvis News, October, 1984.

BALANCING ECONOMIC GOALS AGAINST ENVIRONMENTAL GOALS

The federal government owns about 770 million acres of land in the United States. One of the valuable uses of this land is that portions of it may be preserved for the benefit of people who backpack, hike, camp, hunt, fish, canoe and enjoy other forms of outdoor sport and recreation. The major focus of this paper has been on the failure of the federal government to properly manage our natural resources for this purpose.

Outdoor recreation, sports and general appreciation of nature are not the only things people value, however. Nor are they the only things of value that the public lands potentially can produce. As we have seen, public lands contain timber for producing houses, paper and hundreds of other valuable products. They contain valuable water and grazing land that help produce many of the agricultural and livestock products we consume. In addition, they contain oil and gas and a great many minerals, which are not only important to our economy but also to our national defense.

There is considerable evidence that in managing our natural resources, government policies also have failed to achieve the sensible goals of increasing the national wealth without causing serious and undesirable environmental side effects.

Oil and Gas. According to the General Accounting Office (GAO), as many as 261 million acres of federal land outside Alaska may contain commercially viable oil and gas deposits.[71] Yet much of this land has been completely withdrawn from mineral leasing for various reasons.

- Of 410 million acres of federal land in the lower 48 states, 50 to 65 percent have been closed to oil and gas exploration.
- It is estimated that 55 percent of the withdrawn lands may contain commercially viable oil and gas.

About three-quarters of the withdrawn land is the result of congressional actions, and the remaining one-quarter is the result of administrative decisions of the Forest Service and the BLM. Among lands that have not been withdrawn, producers frequently confront long delays in processing leases and applications to drill. They also often face unduly restrictive regulations governing the development of the lease.

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[71]Gary D. Libecap, "Regulatory Constraints on Oil and Gas Production on Forest Service and BLM Lands," in Robert T. Deacon and M. Bruce Johnson, eds., Forestlands: Public and Private (San Francisco: Pacific Institute for Public Policy Research, 1985), p. 136.

There have been at least five GAO reports, one Office of Technology Assessment study and three reports by the American Petroleum Institute criticizing these policies.[72]

Minerals. America is almost totally dependent on foreign sources for at least half a dozen essential minerals. In addition, we import more than 50 percent of another half-dozen essential minerals.[73] Our high technology society is extremely dependent on these strategic minerals. Yet, in many cases, the major suppliers of these mineral imports are either politically hostile to the U.S. or are politically unstable. For example,[74]

- More than 90 percent of the columbite, strontium, titanium, manganese, chromite and cobalt used in this country are imported from foreign countries.
- Manganese comes mainly from the Soviet Union and South Africa.
- Cobalt is imported primarily from Zaire, which contains 65 percent of the reserves of the non-communist world.
- The major chromium deposits are in South Africa, Zimbabwe and the Soviet Union.

Given our heavy reliance on these minerals and the fact that the sources of supply are far from secure, it would make sense to thoroughly investigate whether these same minerals exist and can be mined in the U.S. We have not done this.[75]

- A relatively high percentage of land in mineral-rich states is owned by the government: 95 percent of Alaska, 86 percent of Nevada, 66 percent of Utah and 64 percent of Idaho.
- Yet 42 percent of all public lands are completely closed to mineral mining, 16 percent are severely restricted and 10 percent are moderately restricted.

In the overwhelming majority of this territory, the restrictions were put in place without careful evaluation of their mineral potential.

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[72] Ibid., p. 135.

[73] Richard L. Stroup and John A. Baden, Natural Resources: Bureaucratic Myths and Environmental Management (San Francisco: Pacific Institute for Public Policy Research, 1983), p. 105.

[74] Ibid., pp. 105-106.

[75] Ibid., p. 106.

Timber, Grazing Lands, Water and Other Resources. Space does not permit a full discussion of all the ways the federal government imposes economic inefficiency and lowers our national wealth through its management of public lands. Suffice it to say that many of its policies cause significant waste with no corresponding environmental benefits. Chief among the candidates for the most serious waste would be government policies governing the disposition of timber,[76] grazing lands,[77] and water.[78]

PRIVATE SECTOR SUCCESS

Are there ways of preserving ecologically important natural resources without imposing huge economic costs on the economy? Yes, but to identify them we must turn to the private sector.

Although the federal government owns a lot of land in the west, in other parts of the country land is largely in private hands. For example,

- Although the federal government owns 404 million acres of land outside of Alaska, about 421 million acres of farmland are in private hands.[79]
- In the South, about 73 percent of forestland (132 million acres) is owned by private individuals and another 33 million acres are owned by corporations. By contrast, public agencies own only 18 million acres.[80]
- In Maine, which contains numerous ecologically sensitive areas, less than seven percent of the land is owned by the federal government.[81]

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[76] See Deacon and Johnson, Forestlands: Public and Private.

[77] See Libecap, Locking Up the Range.

[78] See Terry L. Anderson, ed., Water Rights: Scarce Resource Allocation, Bureaucracy and the Environment. (San Francisco: Pacific Institute for Public Policy Research, 1983).

[79] "Special Report: The Public Benefits of Private Conservation," in Environmental Quality: The Fifteenth Annual Report of the Council on Environmental Quality (Washington, D.C.: CEQ), p. 408. (Note: This section of the CEQ report is based on a report by Robert J. Smith entitled Inventory of Private Sector Natural Resource Conservation Activities, prepared under contract for the President's Council on Environmental Quality and the U.S. Department of Interior.)

[80] Ibid., pp. 408-409.

[81] Ibid., p. 387.

Moreover, even in areas where large tracts of land are federally owned, the wildlife that resides there frequently depend on private lands for sources of food. By one estimate, 80 percent of the food supply for wild birds in the form of insects, weed seeds or crop residues is on private land.[82]

The private sector, therefore, has played (and continues to play) a crucially important role in determining environmental quality throughout the U.S. And as it turns out, the private sector frequently has outperformed government in achieving sensible economic and environmental goals.

The Audubon Society. Ten miles south of Intercoastal City, Louisiana, lies the Rainey Wildlife Sanctuary, a 26,800 acre marshland owned by the Audubon Society.[83]

- The sanctuary is a home for deer, armadillo, muskrat, otter, mink and more than 50,000 snow geese.

- It also is the site of a number of oil and gas wells and provides grazing land for private cattle herds.

What are oil and gas wells and grazing cattle doing in a wildlife sanctuary? Interestingly, the Audubon Society is one of the groups that has been vocal and critical of oil exploration and cattle grazing on lands owned by the federal government. Nonetheless, in making decisions about how to manage its own property, Audubon's perspective is quite different. The managers of Rainey found that the timing, placement, operation and structure of oil exploration could be carefully planned in conjunction with the seasonal requirements of wildlife, and adverse environmental effects could be avoided. They also found that carefully controlled cattle grazing actually improves wildlife habitat.

Under the Audubon plan everybody wins. The birds and wildlife have their habitat preserved, the public gets its oil and beef, and the Audubon Society receives desperately needed funds to buy additional wildlife preserves.

This example is not unique. The Bernard N. Baker Sanctuary (run by the Michigan Audubon Society) was the nation's first sandhill crane sanctuary--created at a time when the cranes were in serious decline. Yet today, the Society receives substantial royalty checks from oil and gas leases--which were carefully negotiated in order to insure that the crane's nesting grounds were not disturbed.[84]

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[82] Ibid., p. 420.

[83] Richard Stroup and John Baden Natural Resources, pp. 49-50 and pp. 107-108. See also, Stroup and Baden, "Saving the Wilderness," Reason, 13, July, 1981, pp. 28-36.

[84] "Special Report: The Public Benefits of Private Conservation," pp. 371-372.

The Nature Conservancy. Like the Audubon Society, the Nature Conservancy is another private, non-profit organization that purchases and manages ecologically important wildlife and wilderness preserves. Currently the Conservancy owns and manages a national system of nearly 800 sanctuaries, and since 1951 it has preserved about 2.4 million acres of land.[85] Like the Audubon Society, the Nature Conservancy also must balance economic and environmental goals--for it too seeks additional income to purchase additional land. The Conservancy apparently sees no problem in pursuing this goal. For example, at its Mile Hi-Ramsey Canyon Preserve in Arizona, the Nature Conservancy promotes visitation (for a price) by providing lodging and tours for visitors. It obtains additional revenue from these services without causing damage to ecologically sensitive land.[86]

For-Profit Organizations. Although for-profit interests are often portrayed as the greatest enemy of the environment, with increasing frequency in the U.S. and around the world individuals and corporations are discovering that sound conservation is in their financial self-interest. Take the case of Africa, where neither government nor non-profit organizations seem to be able to prevent poaching. For-profit game preserves may be the only way to save certain wildlife species on the continent.[87]

- As late as 1970, there were 65,000 black rhino scattered throughout eastern, central and southern Africa.
- Today there are only 4,500 rhino left on the continent, and there is imminent danger the species will become extinct.

A similar fate threatens the elephant in its natural habitat.[88]

- Ninety percent of Sudan's elephant population and 60 percent of Zaire's elephant population are now gone.
- In some parts of Kenya, 80 percent of the elephants have been killed; there are virtually none left in Somalia.
- At the current rate of killing, 95 percent of the elephant population across Africa is in danger.

In response to these developments about 1,000 ranchers and farmers, scattered throughout southern Africa, are abandoning conventional ranching and farming and turning their lands into for-profit game preserves. They have discovered that

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[85] Ibid., p. 368.

[86] Stroup and Baden, Natural Resources, p. 50.

[87] "Africa: The Last Safari?," Newsweek, August 18, 1986, p. 40.

[88] Ibid., p. 41.

their land is more valuable as a game preserve for hunting and photographic safaris than it is under traditional uses.[89]

Similar developments have occurred within the U.S., where people have discovered that maintaining environmental quality is not only profitable, but in some cases more profitable than any other use to which land may be put:

- There are numerous examples of ranchers and farmers in the U.S. who have discovered that maintaining wildlife preserves for hunting or bird-watching is more profitable than cattle ranching or farming.[90]

- In the Southeast (especially in Georgia, Florida and Alabama) private forest companies have a history of managing hunting preserves--often employing staffs of biologists and wildlife managers to improve the habitat.[91]

- A for-profit company (Sea Lion Caves) in Oregon owns the nation's only mainland breeding area for the once-endangered Steller sea lion and operates it as a tourist facility.[92]

- Several ranchers in Texas have converted their property into game preserves for rare mammals gathered from around the world.[93]

- Edison Electric Institute has worked diligently to create artificial nesting platforms for ospreys, peregrins and eagles--partly out of a financial interest in preventing power outages that can occur as a result of electrocutions of these birds along their distribution lines in western states.[94]

- For decades, Hilton Head Island (one of the largest barrier islands between New Jersey and Florida) served as a model for balancing economic development goals with environmental goals. The private developers discovered that preserving the environment raised property values and was good for business.[95]

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[89] Ibid., p. 42.

[90] See, for example, "Special Report: The Public Benefits of Private Conservation," pp. 398-401.

[91] Ibid., p. 426. Similar efforts have been less successful in those parts of the country where the property owners have insecure property rights, making it difficult to control public access to their land.

[92] Ibid., pp. 394-398.

[93] Ibid., p. 367.

[94] Ibid., p. 393.

[95] Ibid., pp. 402-408.

Many more examples could be given.

Land Trusts and Voluntary Associations. One of the problems of private land management and conservation is that a small landowner is typically only a small part of a much larger ecosystem. Wildlife typically does not remain year round on any single landowner's property. As a result, landowners interested in maintaining and managing wildlife preserves frequently discover they cannot do so without cooperation from many other landowners in neighboring areas.

In addition, the small landowner frequently finds that the costs of protecting land against human destructiveness is prohibitively expensive. The more ecologically interesting the land, the more likely that the general public will be drawn there. Yet without control over access, large numbers of people will destroy the very ecological values they come to enjoy. Uninvited visitors frequently leave gates open, vandalize expensive machinery, trample crops, start fires and even sue landowners for injuries they incur.[96]

In many parts of the country, landowners have been able to deal with these problems by forming collective agreements that allow a single management association to manage all of the properties. An example of such an organization is North Maine Woods, Inc., which manages 2,783,170 acres for a group of private landowners in the northwest corner of Maine. Although the principal economic interest is commercial timber production, North Maine Woods, Inc. manages the wilderness area for environmental and recreational purposes as well.[97]

- The area contains about 170 lakes and ponds and is heavily populated with fish and wildlife, including snowshoe hare, red squirrel, beaver, muskrat, porcupine, coyote, black bear, racoon, weasel, mink, river otter, marten, fisher, bobcat, moose, lynx, white-tailed deer and numerous species of birds.

- The company controls access to the area through 17 checkpoints and 16 access roads and strictly enforces the rules fostering sportsmanship by governing hunter and camper behavior.

An organization that performs similar functions for its members is Operation Stronghold, a nationwide, non-profit corporation which consists of a coalition of private landowners dedicated to wildlife preservation. There are now more than 400 landowners who belong to the association, representing about three million acres of land.[98]

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[96] Ibid., p. 88.

[97] Ibid., pp. 380-387.

[98] Ibid., pp. 418-422.

PRIVATIZING OUR NATURAL RESOURCES

Currently the federal government owns about one-third of the land in the United States, and state and local governments own another nine percent. The rest is privately owned. On privately owned land, however, people are not free to do whatever they feel like doing. We cannot dump hazardous waste in our neighbor's backyard. We cannot burn large quantities of sulphur-producing coal in our own backyard. These and other restrictions on the use of private property are there, in part, because of a national desire to have clean air, clean water and other environmental amenities. In imposing these restrictions, government is serving as a rule-making body, while the resources themselves remain in private hands.

The rules that government imposes in order to promote environmental amenities are never perfect. In fact, it is almost certain that such rules always will be imperfect. Once government begins to legislate, there always will be scores of special interests pulling and tugging in various directions in the hopes that the new legislation will confer on them an advantage. Because of these special interests, the rules we have often cause considerable economic waste. For example, by passing sensible automobile emissions controls, rather than the ones we have now, we could save the country at least $9 billion a year.[99] By passing more sensible laws governing sulphur emissions we could save the country $3.4 billion a year.[100] The current rules are in place, not because they are the best rules, but because special interest pressures always distort the legislative process.

We would not get better rules, however, if we extended government's role beyond rule-maker to that of owner, manager and producer. If government were producing automobiles (rather than imposing restrictions on private automobile manufacturers), or if government were running and managing all of the nation's power plants, the distortions, the waste and the economic inefficiency would be far worse.

When government begins to own, manage and produce, a new set of distortions is introduced, in addition to the external special interest pressures. Managers and employers of public enterprises invariably discover that what is in the public interest is not necessarily in their own private interest, and it is their private interest that they tend to pursue. The desire to expand the size of their budget, the need to develop political allies and constituencies, the desire to conceal their mistakes from public view--all of these are motivations that spring from the private interests of bureaucracies even though they are often at odds with the general public interest.

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[99] Yale Brozen, "The Cost of Bad Government," NCPA Policy Report #122, August, 1986, pp.19-20.

[100] Ibid., pp. 20-21.

These considerations, which apply to the economy in general, also apply to the public lands. There is no more reason to suppose that the federal government can manage the national parks any better than it manages the Postal Service. Indeed, it is almost certain that the government will do a better job of delivering the mail than managing the parks. This is because the general public is in a much better position to monitor the Postal Service than the Park Service. Most of us know how much postage stamps cost and whether our mail is being delivered on time. But few of us know what portion of our taxes goes to the Park Service and fewer still are in a position to evaluate the Park Service management.

It should not be surprising, therefore, that agencies ostensibly created to protect and to preserve our natural resources engage in environmentally destructive behavior that no private landowner would ever engage in. To summarize some of the findings of this report,

- Successful ranchers on private ranges do not engage in overgrazing and other environmentally destructive behavior that we have observed on public ranges for the last 100 years.

- Farmers using their own money do not dam rivers and build irrigation systems when the cost of the project far exceeds the economic benefit.

- Timber companies logging their own private forestlands do not build uneconomical roads into ecologically fragile areas to cut down uneconomical trees.

- And, private, non-profit organizations (such as the Audubon Society and the Nature Conservancy) do not manage their own wilderness reserves the way the federal government does.

Government ownership and management of resources introduces a new set of imperfections that compound and magnify the problems inherent in public decision-making. People tend to make decisions based on a comparison of <u>personal</u> costs and <u>personal</u> benefits of alternative courses of action. When land is "owned" by <u>everyone</u>, the misuse of that land imposes a cost on <u>everyone</u>--a cost that is not borne by the decision-maker. By contrast, when land is privately owned, the misuse of that land imposes a cost on the owner. As a consequence, owners of private land face incentives to maximize the value of their property; whereas managers of public land do not.

Finally, when vast quantities of land are owned and managed by a single entity (the U.S. government) the wisdom, judgement and foresight of that one entity govern the future disposition of all the land. Bad decisions by government impose huge costs on the nation as a whole. By contrast, when land is owned and managed by hundreds of thousands of disparate individuals and organizations, the nation benefits from the wisdom, judgement and foresight of hundreds of thousands of people. The harmful consequences of a bad decision by a single individual or organization are relatively confined. Everyone else is left free to make different and better decisions.

In this respect it is interesting to note how frequently in our environmental history, private individuals have been right, while government has been wrong.

- At a time when state governments awarded bounties for killing birds of prey (and when many people regarded the sport as patriotic because it gave young boys practice shooting live targets, thus preparing them for war) it was a concerned citizen who helped found the private Hawk Mountain Sanctuary in Eastern Pennsylvania to prevent the slaughter of thousands of hawks, falcons, ospreys, eagles, owls and other endangered birds.[101]

- At a time when state governments awarded bounties for killing seals and sea lions, it was a for-profit corporation which protected the only mainland breeding area for the endangered Steller sea lion.[102]

- While the federal government owns only 4.7 million acres of wetlands and has encouraged the destruction of private wetlands, about 11,000 private duck clubs have managed to protect from 5.2 to 7 million acres of wetlands from destruction.[103]

- At a time when the federal government was encouraging environmental destruction among the Barrier Islands, it was the commercial interests at Hilton Head Island who discovered that conservation was good business.[104]

- While the federal government has been subsidizing environmental destruction in our National Forests, companies such as International Paper have discovered that good conservation pays on private forestland.[105]

It is for these reasons that we recommend a policy of transferring (by gift, trade or sale) public land to the private sector. The role of government would be confined to rule-making and rule-enforcing functions with respect to the use of that land.

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[101]"Special Report: The Public Benefits of Private Conservation," pp. 387-394.

[102]Ibid, pp. 394-398.

[103]Ibid., p. 399.

[104]Ibid., pp. 402-408.

[105]Ibid., pp. 425-427.

Privatizing National Parks and Wilderness and Wildlife Preserves

The national parks, wilderness and wildlife preserves are thought to be the most ecologically fragile (and therefore the most environmentally interesting) of all public lands. In some cases, they also contain valuable timber, oil, gas and minerals. The record of government management of these lands has little to commend it--from either an economic or environmental point of view. By contrast, the record of the Audubon Society and the Nature Conservancy in managing similar lands has been laudable and commendable. The role of the Environmental Defense Fund in fostering the privatization of water in the West is also exemplary.

We recommend a gradual transfer of these federal lands to non-profit, private organizations whose resource management consistently outperforms the management of government agencies. We do not expect that the management of these organizations will be perfect. Had the Audubon Society, rather than the Park Service, managed Yellowstone during the last 70 years, it is possible that Audubon managers would have made many of the mistakes that the Park Service has made. Yet it is virtually inconceivable that the Audubon Society (with its need to so solicit voluntary contributions from the public and lacking the vast powers of the Park Service to cover up its misdeeds) would have had anywhere near the record of mismanagement that Alston Chase discovered at Yellowstone.

In order to facilitate public scrutiny of the management of these resources by private organizations, we may want special freedom of information rules that give ordinary citizens access to the records of the Audubon Society and other organizations that receive public land. In addition, we may want to make special provisions allowing independent scientists the right to conduct studies and publish their results. But even without these special provisions, there is every reason to believe that private organizations can do a better job than the federal government has for more than 100 years.

Privatizing the National Forests

A major portion of the land owned by the federal government is considered commercial forest, i.e., it contains commercially viable timber with significant value.[106]

- About 107 million acres of federal land is commercial forestland.
- The market value of this land is many billions of dollars.

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[106] Stroup and Baden, Natural Resources, pp. 113.

As we have seen, private timber companies, such as Weyerhauser and Boise Cascade, are far better caretakers of timber reserves than the Forest Service. For these reasons we recommend the gradual sale of large parts of this land to commercial timber interests.[107]

In some cases, we may want to tie restrictive covenants to the sale in order to achieve environmental objectives. Maintenance of hiking and backpacking trails, maintenance of water quality in streams, access to the area by campers and recreationists--these and other provisions could be made part of the contract.

In a small percentage of cases, commercially viable timber may be located in ecologically fragile and valuable areas. In these cases we recommend transferring the land to non-profit conservation groups. These groups then would be free to bargain with timber companies and balance economic goals against environmental goals in the manner described above.

Privatizing Grazing Rights

The system of providing grazing rights on public lands at prices well below fair market value, while at the same time making these rights insecure and tenuous, will continue to have bad side effects on the environment. No set of rules or regulations is going to maximize the social value of the lands when their users find it consistently in their self-interest to act otherwise. Rational land use will be possible only when the grazing rights that are now granted to ranchers become secure property rights.

As a step in that direction we recommend separating grazing rights from other land use rights and allowing ranchers who currently have these grazing rights to "buy out" the federal government's interest.[108] That is, we would calculate the present value of future expected grazing fees and allow ranchers to make one lump-sum payment to the federal government today in return for a permanent private property right in grazing. Since the price paid would be well below fair market value, and since ranchers would obtain a secure property right that could be bought and sold in the marketplace, ranchers would surely gain from such a transaction, as would the U.S. Treasury.[109] In addition, once the transfer was made, ranchers would have the same incentives to engage in sound land use policies as ranchers on private ranges.

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[107]For a more extensive discussion of this proposal and an analysis of some of its problems see Stroup and Baden, Natural Resources, pp 123-126.

[108]For a more complete discussion of this proposal, see John Baden, ed., Earth Day Reconsidered (Washington, D.C.: Heritage Foundation, 1980) pp. 79-82.

[109]If the rancher declined to purchase the grazing rights under this arrangement, they could then be auctioned off on the open market for a much higher price.

Ranchers who currently graze on public lands do not have the right to subsurface oil and minerals in the lands. Yet it would seem desirable to transfer these rights to the private sector as well. A reasonably fair way of doing so would be to auction the oil and mineral rights on the open market and give ranchers who have the grazing rights the right of first refusal. That is, they would have the right to match the best offer in the market and secure these rights for themselves, in order to negotiate a resale of the rights to other buyers under terms they find acceptable.

As in the case of the disposal of federal forestlands, the sale of grazing rights on public lands might contain restrictive covenants to ensure that certain environmental objectives are met. For example, the land might be sold without the right to exclude properly behaving hikers. The right to kill certain endangered and ecologically important predators might be withheld from the sale.

CONCLUSION

The speed at which privatization should occur depends upon both economic and environmental considerations. For example, there are large tracts of land which primarily are of commercial value either for forestry or for grazing and which have no special environmental properties that distinguish them from similar land in private hands.

Such land (or the right to use such land) should be transferred to the private sector as soon as possible.[110] The sale would bring money into the coffers of the Treasury and help ease the current financial problems of the federal government. In addition, the sale of such land would promote greater economic efficiency in the timber and livestock industries and in all probability would lead to significant environmental improvements.

A second category of land not only has economic value, but also has some special ecological interest. The transfer of this land should be accompanied by restrictive covenants designed to protect or promote certain environmental amenities which are important to the nation as a whole, over and above the interests of private property owners. The sale of these lands should probably proceed more gradually in order to give us time to monitor and to evaluate the effects of these restrictive covenants on the behavior of property owners.

A final category of land is that land which is the most ecologically fragile and which has the greatest value to us in terms of its environmental properties. This includes the national parks, national wilderness and wildlife preserves. We have recommended that these lands be transferred to non-profit groups committed to the clearly defined goals of preserving their ecological and scientific values. It would seem desirable, however, to have many, competing non-profit groups, so that all of these areas are not placed in the hands of a single organization. In

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[110] In the case of commercial forestland, care must be taken not to dump too much land on the market at once--an act which would unduly depress prices. Orderly sales planned over a period of time would produce more revenue.

addition, it would also seem desirable to proceed slowly with such transfers in order to give us time to monitor and evaluate the effects of the terms under which transfers are made.

In all cases, however, private management of these lands promises to be more satisfactory than continued government management.

NOTE: Nothing herein should be construed as necessarily reflecting the views of the National Center for Policy Analysis, or as an attempt to aid or hinder the passage of any legislation before Congress.

ABOUT THE AUTHOR

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In addition to his scholarly and entrepreneurial work, Baden has been a timber buyer and contract logger. He is a member of the National Petroleum Council and numerous professional organizations.

Baden is an active outdoorsman and sportsman. His Montana ranch serves as a "base camp" for many of his friends who are skiers, fly fishermen, hunters and climbers. He is an active conservationist with an applied interest in resource policy. He is generally recognized as a primary architect of the "New Resource Economics," which proposes policy reforms consistent with the traditional American values of individual freedom and responsibility.

His publications include five books and dozens of articles in both the scholarly and popular press.

To obtain additional information about private sector conservation, government mismanagement of our natural resources and the potential for reform contact:

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