Policy Analysis

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## Executive Summary

Since World War II, the demand for outdoor recreation has increased tremendously. While the population has increased by 65 percent and real per capita income has approximately doubled,[l] overall participation in outdoor recreation has nearly quadrupled in the past 40 years.[2]

An increase in demand for outdoor recreation means that its value has risen; that is, people are willing to pay more for recreation. Comparing 1985 to 1960, average expenditures per individual increased, in real terms, 200 percent for fishing and 400 percent for hunting.[3] Total visits to Yellowstone National Park increased 8 percent from 1986 to 1987, even though entrance fees rose from $2 to $5 per vehicle.[4] There were 60 private shooting preserves in South Dakota in 1987, where only 3 or 4 operated in 1982. Other states, including Washington, Wyoming, and Colorado, also report an increase in these operations.[5]

Private spending for the protection of wildlife habitat and environmentally fragile areas is also dramatically up. This trend is shown in Table 1 by the tremendous increases in annual membership and funding exhibited by the Nature Conservancy and Ducks Unlimited, two conservation organizations that spend most of their funding on acquiring critical habitat.[6]

Given the burgeoning demand for outdoor recreation, we would expect the private sector to respond, since increased demand means increased profit opportunities. Total spending on outdoor recreation reached $100 billion in 1984.[7] A host of recreational product innovations have appeared in recent years in everything from electronic fishfinders to weather-resistant, featherweight clothing. Indeed, most private spending on recreation has been for equipment and travel.

Until very recently, a relatively small amount of private sector spending had been for inputs such as land, water, and other natural resources necessary for recreation. Exceptions to this trend include Kampgrounds of America, which was founded in 1962 as a response to a growing demand for camping facilities along major highways; hunting and fishing clubs in the East, which have leased lands for many years; hiking clubs, which have built trails and huts through private initiatives; youth camps, which have provided facilities for a variety of outdoor activities; and ski slopes and lifts, which have been built on both private and public lands with private funds.

**Table 1**
**Increases in Membership and Funding**

| | The Nature Conservancy | | Ducks Unlimited | |
|---|---|---|---|---|
| Year | Membership | Funding | Membership | Funding |
| | | | | |

| | | | | |
|---|---|---|---|---|
| 1960 | 6,000 | $1,000,000 | 25,000 | $719,098 |
| 1986 | 309,643 | $73,400,000 | 580,000 | $54,000,000 |

The major reason there has not been more of a private supply response in the provision of natural resources has been competition from the public sector. With over 30 percent of the land owned by the federal government and the vast majority of this providing recreational opportunities, the private sector has found it difficult to compete. Much of the private response has occurred in the East, where federal land is less pervasive, or in the provision of facilities, such as ski runs and campgrounds, where additional capital investment is necessary. Recently, the private sector has responded in the West as overcrowding of free public resources has created more opportunities for entrepreneurs. Unfortunately, the large extent of public land ownership, combined with a long history of federal provision of recreational opportunities, creates an inertia that is difficult to overcome.

The recent President's Commission on Americans Outdoors report provides an example of this public sector inertia. Charged with reviewing "outdoor recreation policies, programs and opportunities" for both the public and private sectors, the PCAO focused mostly on a single component of recreation: the federal "outdoor estate. H The dramatic proposals in the report could well set the stage for a vast expansion of public land ownership and federal controls on land use in the next two decades. They include a $15 billion trust fund, which would generate "an absolute minimum" of $1 billion to acquire, develop, and protect open space; a nationwide network of public greenways connecting existing and new parks, forests, and other open spaces; and finally, a scenic byways project that would require an expenditure of $200 million per year to protect scenic viewsheds along roadways through restrictive zoning. In the words of Conservation Foundation president William K. Reilly, the commission has "affirmed a crucial federal role in funding, leadership, and resource husbandry."[8]

The recommendation that government take an even larger role in supplying recreation suggests that the private sector is unable to provide the optimal level of recreational services and resource husbandry for meeting the growing demand for outdoor recreation. PCAO recommendations imply that government is the best-qualified producer. A dismayed Jacqueline Schafer, a member of the President's Council on Environmental Quality, points out that the commission does not emphasize people and the ways they create opportunities. She says the commission believes that "you can't have [recreational] opportunity unless you have land guaranteed by the government."[9]

Six important questions are raised regarding the provision of recreational opportunities: (1) What is the economics of outdoor recreation? (2) Is there market failure? (3) Why is there momentum for governmental provision? (4) Can the private sector respond? (5) What are the impediments to a private sector response? (6) Where do we go from here?

Answering these questions is critical to realizing the full potential of our outdoor resources. Private lands provide an important indication of this potential. These lands, after all, "constitute 60 percent of the 1.35 billion acres of America's forests and rangelands."[l0] Private lands contribute to our food, building, and energy supplies and provide a critical habitat for fish and wildlife as well as aesthetic and other environmental amenities.

Another reason for a critical economic analysis of recreation policy is that government often has proved negligent in caring for the land and water resources it controls. A growing list of travesties on public rangelands, forestlands, and waterways raises questions about whether government is the correct choice for resource stewardship.[ll] Equally impor- tant, a mounting federal debt is forcing us to seek ways to reduce the size of government and thus lessen the burden on the taxpayer. If the private sector can assume more of the responsibility for providing outdoor recreation, this burden can be reduced.

**What Is the Economics of Outdoor Recreation?**

Economic thinking provides a useful analytical framework for studying the production and consumption of outdoor activities and environmental amenities. This way of thinking focuses our attention on the incentives and information faced by producers and consumers in the environmental arena. The individual is the unit of interest, and his or her decision to produce or consume depends on the personal benefits and costs associated with the action taken. Therefore, we must continually ask: Are all the costs and benefits taken into account in the choices made by producers and consumers?

The first law of economics is that individuals respond to prices; that is, demand curves slope downward and supply curves slope upward. This law is based on the economic proposition that there are substitutes everywhere. On the consumption side, consumers move away from consuming relatively high-priced goods by finding alternatives that are the best consumption substitutes. If recreational opportunities are made available at low or zero prices, consumers can be expected to take advantage of those opportunities and use them to the point where the additional value in consumption is equal to the additional cost. On the production side, if higher prices are offered for recreational opportunities, producers will shift resources away from alternative productive uses and into recreation. For example, some land used solely for agriculture will be shifted to wildlife habitat if the price offered for hunting leases is high enough.

Unfortunately, the idea of substitution is often ignored in the formulation of natural resource policy in general and recreation policy in particular, because prices faced by decisionmakers are often zero. With governmental provision of recreational opportunities, often the only cost to consumers is that of traveling to the location. From city parks to national parks, entry fees are zero in many cases and minimal in others. For example, the entry fee for one standard automobile for seven days in Yellowstone and Grand Teton national parks is $5, regardless of the number of passengers. In the winter, this fee is seldom charged for those entering Yellowstone National Park for cross-country skiing. At these low prices, there is no signal to either consumers or producers that the resource is scarce and little incentive for them to consider substitutes.

If private providers of recreational opportunities do not receive positive net returns, there is little reason for them to give up traditional commodity production even if the change could be made at a low cost. For example, the rancher who owns land along a trout stream could significantly improve fishing by keeping cattle away from the stream, thus reducing bank erosion and increasing bank vegetation. The capital cost of fencing out the cattle may be quite low, but if free public access is ensured by legislation (as it recently was in Montana), the incentive to do so is removed. Indeed, improving fishing opportunities would only encourage fishermen to enter ranch property, reducing the rancher's privacy and exposing him or her to liability.

Unfortunately, much of the environmental rhetoric argues that there is no (or at least very little) substitution between traditional commodities produced from land and water and other amenities. As an illustration, consider the recent position taken by environmentalists in the debate over whether to allow oil exploration in the Alaska National Wildlife Refuge's 1.5- million-acre coastal plain. This area represents about 8 percent of the nation's largest refuge. In 1986, the Department of the Interior recommended that the coastal plain be opened to exploration and development. In response to this recommendation, however, environmentalists have fought to keep the coastal plain closed, for they see little room for compromise on the issue. In the words of a spokesperson for the Wilderness Society,

> Where's the compromise? It's the type of an issue where you don't think compromise. You drive a stake in the sand and say, "You don't cross the Canning River [marking the western edge of the refuge's coastal plain]."[12]

In most cases, the decision is not recreation with no commodity production or vice versa. Under many circumstances, recreational opportunities and traditional outputs can be jointly produced from the same inputs, and in some cases, a rise (fall) in the supply of traditional commodities will result in a corresponding rise (fall) in the supply of amenities. Agriculture and open space are examples of jointly produced outputs. About 1.5 billion acres are in crop, forest, and pasture/range production but also provide much of the total open space in this country.[13]

Agriculture also complements the production of wildlife habitat. One study found that agricultural land supports over 3,000 species of birds, mammals, fishes, reptiles, and amphibians.[14] Many wildlife conservationists feel, however, that wildlife has lost ground in the last two decades. Prior to 1960, for example, Midwest farms provided the necessary crops and natural habitat diversity to support enormous populations of upland birds. Similarly, California's Sacramento and San Joaquin valleys wintered tens of millions ofducks and geese.

Unfortunately, the last two decades have seen wildlife habitat and agriculture conflict with one another because of a much more intensive approach to farming. The results have been devastating for wildlife, with millions of acres of lost wetlands and nesting cover. Such a situation can be turned around if the incentives that foster intensive agriculture--

many of which are related to federal farm policy--are changed.

Recreation and timber can also be jointly supported. Forests help provide natural water storage for streams and rivers and ensure stable flows throughout the warmer months. This in turn supports the burgeoning demand for water-related activities, such as fishing and white-water rafting, as well as pleasing settings for camping and hiking. In addition, these areas provide a valuable habitat for big-game species, such as elk, deer, and bighorn sheep, and an important habitat for endangered and threatened species, including the grizzly bear and the peregrine falcon. Timber removal, on the other hand, can impose costs on recreation if it is not managed in a way that minimizes the impact on watersheds, riparian zones, and the available cover for wildlife. This often has been the case with public management of forestlands, where recreational values are not accounted for in Forest Service budgets, and with private management, where recreation is not seen as a viable economic output.

Consider the factors that affect a private landowner's decision to produce a recreational or environmental amenity such as wildlife habitat. A cattle rancher may have a trout stream on his or her property, but if its cost exceeds its benefits, the stream will not be preserved. The costs include gates left open and garbage strewn about as well as a loss of privacy. Under these conditions, the trout stream poses a nuisance. Facing only disincentives, the rancher is likely to turn the stream into nothing more than a watering trough for cattle, thus destroying its recreational Potential.

Liability is another potential cost of providing recreation.[l5] Liability protection is considered a normal cost of many activities. Businesses elect to buy liability insurance because the expected costs of a lawsuit exceed the insurance costs. These insurance premiums become a cost of doing business and are reflected in prices. If consumers are not willing to pay the price, including insurance costs, the product will not be supplied. Since the private provision of recreation often commands a low or zero price, the landowner is not adequately compensated for the increased liability and therefore supplies less recreation.

Another deterrent occurs if landowners are penalized by the government for improving habitat. Dayton Hyde experienced such a problem after putting 25 percent of his ranch into marshes for wildlife, initiating research on the sandhill crane, and building a lake with three and a half miles of shoreline for wildlife.

My lands have been zoned. I am being regulated for wetlands that weren't there before I created them. Like most of my neighbors I can save myself from financial disaster only by some creative land management, but the state legislature has cut out most of my options.[16]

Hyde is very serious about wildlife conservation. His book Sandy was read into the Congressional Record and is considered by some to be one of the most important aids in the endangered species recovery program.[17] In addition, he has turned his ideas on private conservation into a national effort by starting a nonprofit foundation, Operation Stronghold, dedicated to the creation of wildlife habitat on private lands. To date, Operation Stronghold has created over four million acres of wildlife habitat on private lands. Such an effort, however, rests on the cooperation of thousands of private landowners and could go a lot further if government would refrain from imposing costly zoning restrictions. As Hyde has found, some ranchers are reluctant to join. As one landowner put it,

> Look, you don't understand. We would like to do our share for wildlife but we are afraid if we create something worthwhile the public will want what we have. It's just plain easier and a lot safer to sterilize the land.[18]

Since the willingness of the private sector to improve habitat or create recreational opportunities depends on the incentives landowners face, we cannot expect a positive response from the private sector if landowners are penalized for improving habitat.

**Is There Market Failure?**

Does the fact that private producers of outdoor recreation often face costs that exceed benefits demonstrate that the market system has failed? The private calculus for providing recreation is expressed by a familiar saying among farmers and ranchers: "If it pays, it stays." In short, private producers must face the reality check of profits and losses. Thus, the important public policy question becomes: Do markets for privately provided recreational cervices and

environmental amenities accurately reflect the values to consumers and the costs to producers? The answer to this question will depend on the nature of property rights to inputs and outputs.

If recreation is simply a by-product of other production and there is no market for the by-product, there will be little incentive to focus on production of recreational opportunities. A market for any good, including recreation, requires two elements: (1) a demand for the good, meaning that consumers are willing to pay; and (2) a way for producers to capture the benefits from producing the good. Cattle ranching provides an example. Meat consumers are willing to pay the price that makes it profitable to devote resources to ranching. With well-defined and enforced rights to the attendant resources, producers can run their enterprises with some degree of certainty that they have a legitimate claim to the rewards. Fencing defines the ownership of land and water resources, and a brand identifies the ownership of the cattle. The force of the law also protects and defends the producer's claim to these resources.

A market for recreation such as elk hunting is no different. For hunting to be a profitable venture, enough hunters must be willing to pay for it. Therefore, property rights to resources must be clearly specified. Understandably, if there is uncertainty in controlling the resources and claiming the returns, very few producers will take the actions and incur the costs to produce the good.

A frequent argument against private sector provision of wildlife-related recreation or other environmental amenities focuses on the exploitation theme. It is argued, for example, that without government ownership, "commercialism" of the buffalo almost led to its extinction. Under Garrett Hardin's "tragedy of the commons" characterization, however, the problem is more accurately depicted as one in which there were no private property rights to the buffalo herd.[l9] If the herd was left up for grabs, every individual could kill buffalo without facing the full costs of herd depletion. Historically, wildlife exploitation can be linked to an inability to es- tablish private property rights rather than to alleged market failure.[20] This crucial point has not been addressed in traditional arguments for governmental provision of outdoor recreation.

In some cases, there may be technological barriers to establishing property rights. In the early settlement of the United States, for example, prairie grass was widely available as an open-access resource. The low value of grazing land (due to its initial abundance) did not offset the high costs of restricting entry. Eventually, however, as grazing values rose, cattlemen formed associations to restrict entry into the commons and developed human fences known as line camps, which were manned by cowboys. Even then the human labor costs of enforcement were still quite high, thus providing the incentive for the invention of barbed wire. This technology, which we now take for granted, substantially lowered the cost of enforcement and further reduced the transition time from the commons to private property rights in land.

In addition to technological barriers, institutional barriers can make the cost of establishing private property rights to wildlife and environmental amenities very high. For example, in the United States, the public trust philosophy governs the ownership of wildlife. The courts have ruled that wildlife belongs to the people and that the state is empowered to act as guardian or trustee of the people's wildlife. In other words, the right to regulate the hunting of many forms of wildlife is controlled by the state.

With rising wildlife values, however, landowners have tried to capture some returns by selling access or trespass rights to individuals who wish to hunt or fish on their land, while the state has regulated the taking of wildlife. Such a bifurcation of control may interfere with efficient wildlife management. For example, suppose an extended hunting season on a rancher's property would be possible if the rancher made habitat improvements. The extra days of hunting would allow the rancher to collect additional revenue and capitalize on improvements. The current regulatory rigidity, however, prevents such compensation because states are unwilling to allow landowners to control hunting seasons.

Another example of institutional (legal) rigidities constituting a barrier to private ownership is water left in rivers and streams. Like wildlife, ownership of instream flows is considered the domain of the states and, occasionally, the federal government. If an organization representing environmentalists or fishermen wants to improve fish habitat, it has one and only one option: to push for greater governmental control. Unfortunately, where water is scarce, such an option inevitably leads to conflict with private users who divert water for agriculture and other commercial purposes. They are understandably resistant to more governmental control, because they fear they will lose their water rights.[21]

When landowners are compensated for the wildlife on their property, views of wildlife can change dramatically.

Montana rancher Franklin Grosfield was tired of being awakened in the middle of the night by hunters wanting permission to hunt on his land and also of losing hay to wildlife. But his attitude regarding these costs changed when he decided to lease his land to a hunting club. The club manages the hunters and provides Grosfield with added revenue to supplement his cattle operation. Says Grosfield, "I've taken one of our worst liabilities [wildlife] and turned it into an asset. n [22]

If ranchers cannot capture benefits from producing environmental amenities, such amenities may become liabilities. The production of elk and elk habitat provides an illustration. If "welfare" elk do not pay their way, resource allocation will not reflect their value. Rancher Michael Curran's situation points to some of the factors that influence decisions to produce wildlife and habitat.

> We feed 250 elk for six months, and 500 deer and about 300 antelope for an entire year. . . . We've figured that if the Montana Fish and Game Department paid us for the forage consumed, they'd owe us $6,500 every year.[23]

In the absence of compensation, the presence of elk on private land is often viewed as a liability rather than an asset. Some western landowners still consider deer, antelope, and elk a costly nuisance because they consume forage, destroy fences, and attract trespassers. One rancher in Wyoming went as far as to construct a "six-foot-high, 27-mile, antelopeproof fence" to protect his range for livestock.[24] The fencing had tragic consequences for antelope during the 1984 winter:

> Many antelope, stymied by the tightly woven wire, bunched up against the fence, becoming vulnerable to slow death by starvation and freezing. A few of the weak ones made it into the town of Rawlins, only to be chased and killed by dogs.[25]

Even in the public sector, the lack of a positive return can discourage provision of wildlife habitat. Of course, in this case, the revenue-generating mechanism is not market demand but congressional appropriation. For example, elk in national forests are treated as a liability because the Forest Service receives most of its funding from timber production and the accompanying road construction. In FY 1985, the Forest Service spent $800 million on its timber and timber support programs and an additional $418 million on road construction, or approximately 75 percent of the total appropriated funds. In contrast, approximately $37 million, or 2.3 percent of the total appropriated funds, was spent on wildlife and fish management.[26] This large disparity exists because the budgeting system rewards timber, not wildlife, production.[27]

Not surprisingly, this budgeting process affects resource management. Damage to habitat from excessive logging and road construction is widespread in the seven national forests surrounding Yellowstone National Park. These forests provide some of the best opportunities for elk hunting on public land in the contiguous United States. They also bring millions of dollars into state economies. In Montana, the outfitting business for big-game hunting, which generated $37.4 million for the state's economy in 1986, extensively uses many of the remote, unlogged, unroaded areas in Gallatin National Forest, located just north of Yellowstone National Park.[28] Because elk values are not reflected in the Forest Service's budget, however, the Forest Service continues to choose logging and road-building activities over preserving elk habitat in the forest. According to state wildlife biologists, the huge swaths of deforested land created by clear-cutting and by constructing roads in roadless areas have reduced security and increased access. The result is that mature (six-point) bull elk harvested in these areas are on the decline. "Today, the elk harvest is approximately 65 percent spikes [yearlings]; ten years ago, 10 percent of the harvest were spikes; in the mid- 50s only 35 percent of the harvest were spikes."[29]

Ironically, all the forests surrounding Yellowstone National Park are marginal timber producers, meaning that the costs of administration, reforestation, and road construction exceed the revenues from timber sales. The Wilderness Society, for example, conducted an economic study of timber sales and found that all these forests lost money on their timber programs. Six-year average losses ranged from $241,000 per year for Caribou National Forest to $2.2 million per year for Beaverhead National Forest.[30] Unfortunately, such problems are widespread throughout the 190-million-acre national forest system. Seventy-four national forests covering all regions of the country except the Pacific Northwest "consistently experience below-cost timber sales."[31]

If the demand for recreational amenities is high, there are uncaptured returns that should provide the incentive for private resource owners to attempt to define and enforce property rights. This point was made by economist Harold Demsetz, who argued that property rights develop to internalize externalities when the gains from internalization become larger than the costs of externalization.[32] Demsetz went on to describe the establishment of beaver trapping territories by the Montagnais Indians (who lived on the Labrador peninsula) when French fur trade routes were established in the early 1600s. Prior to the arrival of the fur traders, the Montagnais hunted beaver communally. The added demand from new markets increased the value of the beaver, however, and hence pressure on the resource. To avoid complete depletion, the Montagnais established private hunting grounds and successfully managed the beaver on a sustained-yield basis. The costs of defining and enforcing private property rights were the time and resources used for identifying territories for individual hunters and excluding others from a hunter's territory. However, the increased value of the beaver justified incurring these costs.

In general, private property rights will be established when the anticipated benefits outweigh the costs of establishment. On the cost side, technology is one of the main determinants of when or if property rights will be established. Barbed wire provides an example. Settlers on the Great Plains found few materials useful for building fences to keep their cattle in and their neighbors' cattle out, so they were forced to graze cattle in common areas, with rules established by cattlemen's associations. In the 1870s, the introduction of cheap and easily erected barbed wire dramatically ushered in exclusive private ownership in the region.[33]

There are many ways that technology can influence the cost of establishing property rights in wildlife and environmental amenities, too. Obviously, fences can be used to keep animals in and people out. Recently, for example, one wildlife organization tried to use fences to stop bison from migrating from Yellowstone National Park to places where they could be hunted. Radio transmitters also provide a way of monitoring wildlife movement. When the U.S. Fish and Wildlife Service reintroduced the red wolf in the Southeast, the animals were equipped with radio transmitters and electronically controlled injection devices that could immobilize them. The movement of wolves can now be monitored and controlled, and similar proposals have been considered for whales. In suburban neighborhoods, boundaries can be defined with a buried cable that emits a signal to trigger shock collars on dogs, replacing fences as a mechanism for defining and enforcing property rights. Though it has not been tried, this technology could have potential for controlling wildlife. Satellites are a modern technology used to count wildlife and track pollutants so that liability can be established. Each of these approaches offers a way to reduce the costs of establishing and enforcing property rights.

On the benefit side of the property rights calculus is the value of the resources in question. In the case of recreational and environmental amenities, competition from the public sector (which provides these goods at a zero or token price) tends to reduce the value of private alternatives. For example, in the West, where there are extensive federal land holdings, the prices of hunting, fishing, backpacking, and camping are quite low. However, the costs of these activities are subsidized by the federal treasury rather than being paid for in full by recreational user fees. Timber companies with large land holdings in the West could provide significant recreational opportunities, but they cannot compete with the unrealistically low or zero government prices. As a result, timber companies spend little or nothing to enforce their property rights in amenities and tend to ignore these values in management decisions.

The story is much different in the East and the South, where most of the land is privately owned. In these regions, timber companies carry out many programs to improve wildlife populations and habitat and enhance recreational opportunities. In the absence of subsidized public recreation, these companies can charge user fees that make it worth defining and enforcing property rights. In other words, they are able to internalize the benefits of their wildlife programs and recreational projects.

Let us recap the argument. Decisions to provide and enhance recreational opportunities depend on benefits and costs. If consumers of recreational and environmental goods can enjoy the benefits without paying, there is little incentive to incur costs to provide them. Even in the public sector, if returns from recreational amenities are overshadowed by returns from the production of traditional commodities, amenities will suffer. Furthermore, if public alternatives are available at zero or low prices, it is difficult for private producers to compete.

What must be emphasized is that neither the existence of subsidized public alternatives nor the inability to establish

private property rights constitutes a market failure. The former is simply a kind of competition that drives out private production, and the latter is a cost of doing business that may be too high to allow profitable production. Establishing property rights to recreational opportunities and amenities is not costless, but things have a way of changing. If the demand for a facet of recreation rises and the net returns become positive, entrepreneurs have an incentive to internalize the benefits of amenity provision.

**Why Is There Momentun for Governmental Provision?**

On the 18th-century American frontier, institutions were evolving to cope with the new resource endowments. Since supply initially exceeded demand, there was little need to formalize claims to resources. Early settlers simply took what they wanted. But as this "Garden of Eden" supply declined relative to demand, new institutions, such as the prior appropriation water and land claims clubs, evolved to restrict entry into the commons. In some cases, federal laws, such as the homestead acts, established private land claims. In fact, during the first half of the 19th century, the major emphasis of the federal government was privatization.

Near the turn of the century, there were allegations that private ownership was leading to reckless exploitation of land resources. Gifford Pinchot and other public forest advocates argued that an impending timber famine was not being taken into account by the private sector. These concerns persisted even though the allegations do not stand the test of careful economic scrutiny. Lumber and stumpage prices at the time signify that the timber market adjusted smoothly to changing resource values and inventories and that no major price shocks existed to indicate a sudden realization that we were running out of timber.[34]

In addition to the alleged problem of timber famine, certain species of wildlife were threatened with extinction because of hunting. As a resource held in common, the rule of capture proved to be a destructive force against species such as the bison, passenger pigeon, and trumpeter swan. Wildlife conservationists were urging that game laws be established to stop unregulated hunting and that special areas be set up to protect the wildlife habitat.[35]

These concerns led to a wholesale change in national policy; the federal estate was formed through the massive reservation of public lands. Instead of land disposition, which had been the policy for nearly a century, the federal government switched to land reservation and even acquisition. This switch included the designation of Yellowstone National Park in 1872, the first in the national park system; the Forest Act in 1891, a forerunner of the national forest system; and the designation of the first federal wildlife refuge, on Pelican Island, Florida, by Theodore Roosevelt in 1903. In addition, federal regulation of wildlife began with the Lacey Act in 1900, which prohibited the transfer across state lines of game taken illegally.[36]

In the early stages, national forests, parks, and wildlife refuges formed the bulk of the federal estate. Later, federal grazing districts under the direction of the Bureau of Land Management were added. Ultimately, these policies resulted in the federal land system, which now comprises over 700 million acres, or one-third of all the land in the United States.

The idea that the government should provide outdoor recreational opportunities was first voiced during the Hoover administration, but it was not until after World War II that this role was significantly implemented. Fueled by the environmental movement in the early 1960s, the concern that the existing supply of outdoor resources would be outstripped by the rising demand for outdoor recreation was formally expressed in the 1962 findings and recommendations of the first outdoor commission, the Outdoor Recreation Resources Review Commission. The principal recommendations of ORRRC emphasized a dominant role for the federal government and led to the creation of federal programs including the Wilderness Preservation System, with some 89 million acres of wilderness lands; the Wild and Scenic Rivers System, which has designated 72 rivers totaling 7,365 miles; and the National Trails System, which has produced some 23,500 miles of scenic and historic trails.[37] Moreover, ORRRC recommendations led to the establishment of the Land and Water Conservation Fund, which was used to purchase some 2.8 million acres for federal agencies between 1965 and 1982.[38]

A second presidential commission, the President's Commission on Americans Outdoors, recently reemphasized the federal role in outdoor policy, including the importance of public land ownership. One of the more dramatic and controversial PCAO proposals is the establishment of a $1 billion trust to replace the Land and Water Conservation

Fund, which now finances land acquisition and is scheduled to expire in 1989. The trust would have the same purpose, acquiring public lands, but it would be virtually guaranteed, since it would not be subject to annual congressional approval or oversight.[39]

Another controversial proposal includes the creation of a network of greenways that would connect existing and new parks, preserves, forests, and other public and private open spaces. This system would require a massive expansion of the existing Wild and Scenic Rivers, National Trails, and Scenic Highways systems through the acquisition of easements on private property. At least 2,000 new river segments would be added to the Wild and Scenic Rivers System.[40]

The Scenic Byways Program would require an annual expenditure of $200 million from the Highway Trust Fund in FY 1988 and 1989 alone. Through this program, a half-mile scenic viewshed in either direction would be established along designated roadways. Within this corridor, there could be no "visual blight" such as nonapproved billboards and junkyards. The commission (aware that federal land acquisition is sometimes unpopular) stated that the program will "emphasize non-acquisition techniques" such as zoning.[41]

The premise behind U.S. recreation policy is that governmental involvement is necessary to protect land, water, and wildlife adequately because the market overlooks the values of environmental and recreational amenities. As Roderick Nash, a wilderness historian, asserts, "Without formal [government] preservation the remaining American wilderness would vanish."[42] The culprit is perceived to be the free enterprise system, and only the public land system can compensate for its shortcomings. "On the evidence of several generations of exploitative freedom no one could guarantee the future its share of American earth except the American government," wrote Wallace Stegner in Beyond the Hundredth Meridian.[43]

These interpretations, however, fail to recognize that growing scarcity changes the incentives. As recreational and environmental goods become increasingly scarce and values increase, individuals have an incentive to try to capture these values by establishing private property rights. Indeed, the driving force of the market system is the efforts of entrepreneurs to capture potential profits. If recreational values remain up for grabs, that is, subject to the rule of capture like commonly owned bison, they will not be "conserved" by markets. But these values also represent opportunities for entrepreneurs who can establish ownership claims to them.

The ability of the entrepreneur to capture returns from various attributes of land resources will be a function of resource values and the costs of defining and enforcing property rights.[44] Just as cattlemen responded to rising values of the western range by forming associations and fencing in the range, entrepreneurs can and will respond to rising amenity values.

An early 19th-century example of a private response is Ravenna Park in Seattle, Washington. In 1887, Mr. and Mrs. W. W. Beck created Ravenna Park by buying several parcels of land with giant Douglas firs on the outskirts of Seattle. The Becks made a host of improvements, including building a pavilion for concerts and nature lectures and adding paths, benches, and totem poles depicting Indian culture. The park soon became immensely popular. Visitors paid 25 cents a day or $5 a year to enter, which correspond to approximately $3 and $60 in 1987 dollars. Even with these fees, 8,000 to 10,000 people visited the park on a busy day.[45]

As the area grew and developed, however, many Seattle residents began to lobby for more public parklands, and in 1911 the city bought Ravenna from the Becks for $135,663 following condemnation proceedings. Under public stewardship, the park fell victim to an environmental travesty. According to newspaper accounts, the giant fir trees began to disappear soon after the city's purchase. The Seattle Federation of Women's Clubs confronted Park Superintendent J. W. Thompson with reports of tree cutting. He acknowledged that, yes, the large "Roosevelt Tree" had been cut down, because it had posed a "threat to public safety. n Yes, it had been cut into cordwood, Superintendent Thompson conceded--so it could be more easily removed. True, the wood had been sold--but only to defray the costs of removal. The federation asked that a local forestry professor investigate. The professor found that a number of trees had been cut. When the women brought this to the attention of the Park Board, the board expressed regret and promised that the cutting would stop. But by 1925 all the giant fir trees in Ravenna had disappeared.[46]

Some people still blame the trees' destruction on a 1925 windstorm and others blame automobile and chimney smoke, but these explanations do not hold up under scrutiny. Most likely, park system employees took advantage of their access to the park and cut down trees to sell for firewood. Superintendent Thompson could have been one of the culprits. Park Department records charge him with the abuse of public funds, equipment, and personnel plus the unauthorized sale of park property. Even if he and his subordinates were not the direct culprits, they certainly allowed the cutting to go on.

What lessons can be learned from Ravenna? First, the possibility of private provision of environmental amenities must not be dismissed quickly. As early as the late l9th century, private entrepreneurs were motivated to try to capture the benefits from rising environmental values. Indeed, much of the pressure to establish national parks such as Yellowstone came from private enterprises, such as railroads, that wanted to capitalize on the amenity values. To the Becks, Ravenna represented a source of income. They protected Ravenna because they were financially accountable. If they had destroyed the big trees, they would not have received the annual income, and they would not have received the $135,663 the city paid for the park.

Second, public ownership does not always preserve environmental values. In contrast to the incentives of the Becks, city employees, who did not own Ravenna Park, did not benefit directly from preservation. They may have had a formal obligation as public employees to protect park resources, but they had no personal stake; their wealth was not diminished when trees were destroyed. In fact, they made short-term gains by cutting and selling the trees. Even an outcry from civic watchdogs was unable to prevent the Ravenna travesty. Today, similar results are observed in Yellowstone National Park, where elk are overgrazing the range and grizzly bears are endangered, and in national forests, where clear cutting persists because of subsidized timber sales. In describing the incentives that Forest Service planners face, forest economist Randal O'Toole writes,

> Underpricing of resources has insulated the Forest Service from the true demand for various forest resources. Prices and costs should act as signals, telling managers when they are producing too much or too little of a resource. But Congressional appropriations allow Forest Service managers to ignore costs, while underpricing allows them to believe that demand is ever increasing.[47]

**Can the Private Sector Respond?**

Despite high definition and enforcement costs, modern examples also suggest that increasing recreational and environmental values are attracting entrepreneurial attention. Ranchers, corporate executives, and environmental leaders are finding innovative ways to encourage natural resource owners to consider alternative outputs. By getting those who benefit from recreation and the natural environment to pay, entre- preneurs are eliminating what has been perceived as a market failure. The results are part of an evolving process through which recreational and environmental amenities are being marketed.

This process is particularly evident in the South, where public lands are less prevalent and where the timber industry is dominated by private holdings. Under these circumstances, companies have begun to manage for land values other than timber. These forests were previously viewed as pulp producers, with little attention paid to wildlife habitat. It simply was not worth the costs of managing for the latter. As wildlife values have risen, however, companies have begun to change.

The International Paper Company's wildlife program is a prime example of establishing new property rights and hence new incentives. IP employs wildlife specialists to oversee wildlife and recreation on its lands, including the 16,000-acre Southlands Experiment Forest located near Bainbridge, Georgia, where research is carried out to develop forest management practices that enhance wildlife populations as well as profits.[48] White-tailed deer, turkeys, rabbits, bobwhite quail, mourning doves, and other species are beginning to reap the benefits of new management techniques, as are IP and hunters. Habitat is improved by controlled burning, buffer zones along streams, and tree-cutting practices that leave wildlife cover and plenty of forage.[49]

According to company officials, investing in wildlife research and habitat production makes sound business sense. On its 1.65 million acres in the Southeast, IP charges 83 cents per acre for hunting clubs and 62 cents per acre for individual hunters. Company officials see a good possibility that the return could go as high as $10 per acre as more

hunters seek the better hunting conditions available on IP lands. IP's 3,500-acre Cherokee Game Management Area in east Texas already earns $6 per acre annually. For the nation's largest private landowner, $10 per acre is a considerable incentive.[50]

In terms of responding to recreational demands, North Maine Woods, Inc., offers another interesting contrast to public land management. A nonprofit association formed by 20 landowners, North Maine Woods manages recreation on 2.8 million acres (about twice the size of Delaware) of mostly private commercial forests. Since the organization was formed in 1974 in response to the growing demand for outdoor recreation, visitor days have grown from 121,000 in 1974 to 189,000 in 1984.[51]

The growing attraction to the area is based on the recreational and environmental values. The area includes two of the most wild rivers in New England, the Upper St. John and the Allagash, both of which have numerous white-water stretches for rafting enthusiasts. The area also has abundant wildlife, including huntable populations of moose, white-tailed deer, black bear, and partridge. With 252 lakes and ponds and miles of brooks and streams, the area is particularly noted for its excellent fishing for brook trout, lake trout, landlocked salmon, and whitefish. In general, the area is not a wilderness in the strict legal sense, because it is managed for timber production and is interlaced with logging roads. Nevertheless, the land provides the recreationist with a highquality outdoor experience.[52]

North Maine Woods, Inc., was initiated by the landowners when they began to experience problems resulting from recreational use of the area. These problems included soil erosion and safety hazards on private roads, overcrowding and overuse of camping areas, littering, and the ever-present problem of forest fires. The association's primary task was to develop a program to manage public use and to find ways to fund it.[53]

North Maine Woods controls access to the area through 17 checkpoints and access roads, where visitors are required to register, pay fees for different types of uses, and obtain permits for campsites. The fees range from $2 per day to $17 for an all-season permit and are used by the association to construct and improve campsites, run a trash collection system, and run public education programs on use of the woods. Though the initial efforts were resisted by those who were accustomed to free, unrestricted access, the less-crowded, clean, well-organized system of recreation management is promoting cooperation between landowners and recreationists.[54]

Even smaller individual landowners are seeking ways to capture returns from nontraditional land attributes. In the past, recreational amenities often have been viewed as liabilities or nuisances because of gates left open, roads torn up, and litter. The fee hunting alternative, however, opens up new opportunities.

> In these days of posted farmland, shrinking public access, and growing hordes of hunters, a hunting preserve membership is an absolute guarantee that you will have a place to hunt and a place to take junior, and you won't have to spend half of the day looking for a landowner whose permission to hunt may not come readily. . . . The bottom line is better hunting, more shooting, and a happier end to each excursion. What more can the sportsman ask for? r 551

This alternative is very evident in Texas, where over 85 percent of the land is privately owned. Deer hunters purchase leases ranging from $100 to $2,000 per individual, depending on the quality and quantity of the game and the facilities and services offered by the landowner. Leases vary; 71 percent are deer season leases, 19 percent are year-round leases, 5 percent are day leases, and 5 percent are short-term leases. The net returns "from deer leases equal or exceed the annual net returns from livestock operations in many areas of the state."[56] Thus, the returns are a powerful incentive for landowners to provide the public with good hunting opportunities.

Private Ranches of Montana, Inc., also provides sportsmen with an attractive alternative to public hunting and fishing. By securing hunting and fishing access to several large ranches that are adjacent to one another, PRMI offers over 60,000 contiguous acres of wildlife habitat. This amount of land greatly minimizes third-party effects created by wildlife migrating across geographic boundaries. Hunting is excellent for deer, antelope, black bear, and partridge. Deer hunting success, for example, has averaged 90 to 95 percent over the last several years.[57] In addition, numerous ponds and several streams offer excellent trout fishing. "Even though public areas are free, I got tired of the crowds and lousy hunting," explains a veteran PRMI member. PRMI is very innovative in offering sportsmen a wide

variety of options. For example, there is a reduced fee for bow hunters, and a 25,000-acre primitive area is available only to those who hunt by foot. Such quality and service probably explain why PRMI is attracting more and more sportsmen despite the abundance of national forestland nearby.

PRMI works hard to make the arrangement attractive for the landowner in a number of ways. Recreational members must follow strict rules of conduct, such as closing all gates and observing closed areas. Landowners are compensated out of revenues from membership fees ranging from $150 to $500. Impressed with PRMI's reputation for attracting well-behaved sportsmen and with the potential for additional revenues, other ranch operators in the region are joining PRMI.

Operation Stronghold is an example of a "simple, workable program led by the private sector--ranchers, farmers, timber producers--to create vital reservoirs of wildlife or plants on their own lands."[58] The program was set up as a voluntary coalition of rural landowners who wanted to conserve resources for wildlife. It is privately financed by membership dues and grants and directed by the landowners themselves. Initially, the idea was to create and improve habitat and protect wildlife in return for a package of services, including providing liability insurance to members and providing technical assistance and ideas to landowners to show that areas of wildlife habitat can exist without adversely affecting agricultural production. Stronghold founder Dayton Hyde, a rancher, conservationist, and author of wildlife books, has proved the effectiveness of various techniques for jointly producing commodities and wildlife on his own ranch in Oregon. He has created habitat for over 5,000 waterfowl, a pair of bald eagles, ospreys, two pairs of sandhill cranes, a family of trumpeter swans, and many other species. Hyde has also devised a way to mitigate the public's negative reaction to trespass restriction; he erected corrugated Styrofoam signs that read, "Member, Private Land, WILDLIFE STRONGHOLD, a Nationwide Project. This landowner cares: He has committed his property to a significant conservation and wildlife program benefitting YOU. Wildlife needs privacy. Please cooperate. It is unlawful to enter these premises without written, dated permission of the landowner. n [ 59] The public seems to respect the property rights established by the signs, and the result is less vandalism and trespassing. Operation Stronghold is catching on by providing a valued service to landowners who wish to conserve wildlife resources. There are as many as "400 around the country who have pledged some three million acres to the program. Members are located in all states and have even joined from England and South Africa. [60]

Consumers are also trying to develop recreational and environmental amenities and to discover innovative ways to market them. A number of emerging sportsmen's organizations bring hunters and private landowners together by offering benefits to both. The National Outdoors Association, for example, registers private land in Nebraska, Iowa, South Dakota, Washington, Ohio, Florida, and New York that is available for use by NOA members. For an annual fee of $20, each member receives a list of cooperating landowners and a $500,000 excess liability insurance policy. The organization also monitors its members and backs their conduct.[61]

Sandhills Outfitters, Inc., got started by offering a new line of business to ranchers in the Sandhills country of Nebraska who were in danger of losing their ranches. Sandhills Outfitters offered to lease hunting rights, and ranchers reeling from plummeting cattle prices were more than willing to listen.[62] The new business is a profit maker, and the organization currently leases more than 100,000 acres of prime waterfowl, pheasant, sharp-tailed grouse, and prairie chicken habitat and offers guided hunts on private land, complete with room and board. In the interest of helping as many area ranchers as possible, Sandhills Outfitters also lists individual ranchers who want to accommodate hunters and open their own land to guests.[63]

Land conservation efforts provide yet another example of establishing private rights to the environment. Using primarily volunteer initiative and private funds, land conservation organizations have grown rapidly during the past three decades. In 1950 only 36 conservation organizations existed in the United States, but by 1975 there were 173, and by 1982 there were 404 groups representing over 250,000 members. Local conservation organizations in 1982 controlled over 675,000 acres of valuable resource lands, of which more than 60 percent was in the New England and Middle Atlantic states (where private land ownership dominates). Land conservation trusts are generally established with tax-exempt status to preserve land for its amenity values and to keep land for agricultural use. Funds are raised by soliciting members, who pay a small fee per year, and by soliciting grants sometimes amounting to thousands of dollars from foundations and corporations. With these funds, land trusts can purchase land in fee simple title or purchase conservation easements.

Since land trusts cannot tap public funds, they are continually looking for innovative ways to finance their efforts. Speaking for the Trustees of Reservations in Massachusetts, Gordon Abbott, Jr., stated,

> We're also fortunate that user demand enables us to raise 35 percent of our operating income from admission fees and that these can be adjusted within reason to catch up with inflation. We're great believers in the fairness of users paying their way.[64]

As the amenity values rise, organizations are finding it worthwhile to try new ways of raising revenue. Organizations have an incentive to charge fees, because the revenue can be used to further their conservation efforts. This practice is in sharp contrast to the policies of the National Park Service, which has kept fees in real terms below pre-1920 levels.

At the national level, the Nature Conservancy leads the way in private land preservation. "To date the Conservancy and its members have been responsible for the protection of 2,916,819 acres in 50 states, in Canada, Latin America, and the Caribbean."[65] The Nature Conservancy is also a pacesetter in innovating ways to raise money to cover the operating expenses of each preserve it runs. On the 13,000- acre Pine Butte Preserve in northwestern Montana, for example, Conservancy comanagers Dave and Cindi McCallister offer nature tours through the last lowland grizzly bear stronghold in the lower 48 states. In addition, Dave McCallister oversees cattle grazing in select areas of the preserve. The grazing fees alone netted $10,000 in 1986. Besides these methods, a guest ranch business offers guided nature tours and access to hiking, fishing, and horseback riding. The McCallisters plan to use the revenue from the ranch to purchase easements on some of the surrounding ranches.[66]

**What Are the Impediments to a Private Sector Response?**

It is not a lack of entrepreneurship that is preventing the private sector from providing more outdoor recreation and protection of environmental amenities. The examples above provide evidence that as the values; of these goods rise, entrepreneurs will make efforts; to capitalize on profit opportunities by establishing property rights. When attempts to establish private property rights are not made, however, we need to ask why. In certain cases, the reason will be that a lack of knowledge or technology makes the costs of establishing private ownership prohibitive.

Unfortunately, governmental hurdles can prevent the private sector from producing recreation and protecting environmental amenities. These obstacles take two main forms. The first is subsidized distortion of values, and the second is institutions making it prohibitively costly to establish private property rights to resources.

Since most services provided by the government are not fully paid for by the user, governmental (political) prices generally are lower than private sector prices for the same good or service. With respect to recreation, the most obvious cases include token fees for admission to national parks and public campgrounds and free hiking and hunting in public areas. The entrance fee for Yellowstone National Park's approximately 2.5 million visitors annually, for example, was raised from $2 (the rate since the National Park Service assumed management responsibility in 1912) to $5 per vehicle. Adjusting the 1912 price for inflation results in a 1987 price of nearly $90! Not only is the $5 entrance fee far below the real price in 1912, it is also far below the cost of alternative recreation not as unique as a visit to the crown jewel of the national park system. Compare the $5 per vehicle entrance fee with an individual daily ski lift ticket at $25 or a day at a private waterpark at $10. Furthermore, the $5 entrance fee comes nowhere near paying the costs of operating the park.[67]

Similarly, the fee for camping at a public campground is much lower than the fee charged at a private campground. In Yellowstone National Park, for example, an overnight stay costs $6 per vehicle, versus $15 to $21, depending on the size of the party, at nearby private campgrounds.[68] Of course, the private operations do not have the luxury of having taxpayers pick up the tab for such items as land, roads, toilets, water outlets, labor, trash removal, and maintenance. To counter the price disparity, however, private campgrounds often provide additional facilities, including shower units and electrical and water hookups for recreational vehicles.

Free public hunting provides another example in which governmental provision at low prices interferes with production by the private sector. A comparison of two regions of the country illustrates this principle. In Texas and the South- east, most of the wildlife habitat is privately owned, so landowners do not have to compete with zero-priced

hunting from the public sector. As a result, fee hunting has been well established since the early 1970s. On the other hand, private fee hunting operations in the Rocky Mountain states of Montana, Idaho, and Wyoming have to compete with the large amount of federal forestland and rangeland where the hunting is free to the user. Not only has the zero price for hunting on public lands delayed the evolution of fee hunting in the West, it has also contributed to a deterioration of quality due to crowding.

Why is there a reluctance to raise fees to realistic levels? The main problem is that an increase in entrance fees does not benefit either visitors or National Park Service bureaucrats. Visitors might be willing to pay a higher price if it meant better facilities, but there is no guarantee that fees will go toward producing a better product. For the same reason, National Park Service managers cannot keep increased revenues in their budgets; revenues go to the general treasury, reducing or eliminating the incentive to increase fees. Indeed, since National Park Service budgets depend in part on the number of visitors, keeping the price low should increase those budgets. (The fact that the National Park Service includes traffic counts from the Rock Creek Parkway in Washington, D.C., an area under its management, in its visitor count to national parks underscores the importance of visitor numbers.) Given these incentives, it is not surprising that some fees have not gone up since 1912.[69]

In other cases, subsidies for the production of nonrecreational outputs decrease the production of recreational amenities. As discussed previously, the Forest Service's timber sale program is a tragic example of subsidized destruction of wildlife habitat. The loss of wetland habitat is an equally depressing example. Less than 46 percent of the original 215 million acres of wetlands in the lower 48 states remains, and despite legislation designed to protect wetlands, annual wetland loss continues at an average of 300,000 acres a year. Ironically, the development pressures created by the federal government are primarily responsible. For example, the bottom-hardwood wetlands of the Lower Mississippi Alluvial Plain, a major concentration area for wintering ducks in the central flyway, have been reduced by 80 percent.[70] A recent Environmental Defense Fund study found that "at least 25 percent of total forested wetland depletion in the Lower Mississippi Alluvial Plain was due to the construction and operation of federal flood-control and drainage projects" and that "the role played by these federal projects in wetland conversion was more important than the role played by any other single factor. [71]

In the West, irrigation water delivered by the Bureau of Reclamation provides yet another example. Through interest-free repayments and extended schedules, irrigators have received subsidies for water as high as 90 percent of the actual costs of storage and delivery.[72] If irrigators pay only a small fraction of the costs, it should not be surprising that more water will be demanded. Unfortunately, this pattern has spelled environmental disaster at Nevada's Pyramid Lake and Stillwater National Wildlife Refuge. Because of subsidized irrigation, the water level at Pyramid Lake, home of the endangered cui-ui fish and the threatened Lahontan cutthroat trout, has dropped by 60 feet. Stillwater National Wildlife Refuge, which in good years harbored 200,000 ducks, 6,000 geese, and 8,000 tundra swans, has lost almost 68 percent of its productive marsh habitat.[73]

Institutional restrictions on private property rights are another significant impediment to private provision of recreation and environmental amenities. The costs of defining and enforcing property rights can thwart private efforts to produce recreation. These costs may be associated with technology, or they may result from the legal structure. Consider the provision of stream habitat for fishing. If a riparian landowner tried to fence off a large section of a navigable river, the technological costs of enforcing rights likely would be quite high. On the other hand, it is feasible to fence off, and charge a trespass fee on, small streams such as spring creeks, as described above. The institutional costs, however, will be prohibitive in either case if the law allows free and open trespass for recreational purposes.

Such an institutional cost is found in the public trust doctrine. Having evolved from English common law, which prevented the crown from excluding citizens from the use of navigable waterways, tidal areas, and beaches, the doctrine was expanded recently to extend public access to all streams in Montana. The public trust doctrine contends that rights to water and riparian land are held subject to the state's trust responsibility to protect the resources. Prior to 1984, the doctrine applied mainly to larger, navigable rivers, but that year the Montana Supreme Court extended the doctrine to all streams; in 1985, the state legislature codified free access between the "high water marks."[74] Since they can no longer control access, landowners have very little incentive to care for the streams that run through their property. They know that without the right to control access, they can never capture benefits from improving streams and adjacent habitat for fishing and hunting. Furthermore, any improvements would only attract more visitors, thus

reducing privacy and inviting liability. This legal impediment to private control of access thwarts incentive for private stewardship of stream resources.

A similar barrier results from the legal and moral opposition to fee hunting and fishing. Wildlife is the property of the state and therefore cannot be sold or regulated for hunting by anyone other than the state. This legal formality is circumvented by charging trespass or access fees (where free access is not guaranteed by the public trust doctrine), but some feel that access-to a publicly owned resource such as wildlife should be free. "Special-interest commercial groups are trying to capitalize on Montana's abundant big-game populations, n says one spokesperson for the Gallatin Wildlife Association in Montana.[75] The pressure is mounting to extend the concept of free access as codified in Montana's stream access legislation. Sportsmen's organizations are lobbying in Montana and Wyoming to open access across private land to reach public lands, and some feel that public access should be extended to the wildlife itself, whether on public or private land. This action would raise the cost of enforcing property rights to wildlife habitat, thus removing incentives for landowners to improve the habitat.

In contrast, Colorado, California, and Utah have developed "ranching for wildlife" programs that encourage landowners to invest in improving wildlife habitat on their property in return for certain benefits. Basically, landowners (in conjunction with state fish and wildlife agencies) work out wildlife improvement projects. For example, a rancher might improve brush cover for upland game birds or plant willows to provide habitat for white-tailed deer. In return, the state allows modification of hunting regulations on the ranches so that the landowners can raise additional revenues from wildlife production. Such modifications typically consist of extending the hunting season, raising the limit on game taken, or selling permits directly to hunters without going through the state lottery system.[76]

Another legal barrier prevents private production of instream and riparian amenities: As a way of validating water rights, states apply the concept of beneficial use, which requires that water must be withdrawn from the stream for uses such as irrigation or the private water rights are lost. Unfortunately, in all states beneficial private use only includes diverting water for agricultural, mining, industrial, and domestic uses. Excluding instream flows from potential private uses has produced perverse results.

An example of these perverse results was found on Montana's Ruby River in May 1987. Minimal snowpack, little spring rain, and a heavy demand for irrigation had reduced the flow in a 1.5-mile section of the Ruby to a trickle. Hundreds of trout had become stranded in overheated pools and eventually died.[77] Sadly, the additional water needed to keep the river flowing was of low value in other uses. Indeed, as fish were dying in the Ruby, there were six inches of water in nearby fields. It was obvious that the problem could have been avoided easily if only small amounts of water had been trans- ferred from irrigation to instream flows. Montana's Department of Natural Resources and Conservation eventually persuaded local irrigators to leave approximately 100 cubic feet per second flowing in the stream. Unfortunately, the effort proved to be too little, too late for the dead trout. The agency had to depend on the good graces of the irrigators. There was little else that could be done, and any legal action by the agency would have undoubtedly resulted in litigation.

With the low snowpack, it was easy to anticipate the dewatering problem, so a private conservation group such as Trout Unlimited could have readily leased water from the irrigators. This arrangement would have been possible only if there were no restrictions on private instream flow rights. Given that the value of the water standing in fields is quite low, the amount of water necessary to have prevented the kill could have been rented for less than $4,000. With 50,000 members and an annual budget of several million dollars, Trout Unlimited had access to the necessary resources if it could have purchased the water.

**Where Do We Go from Here?**

Since the first presidential commission on outdoor recreation made its recommendations in 1962, the approach has been to turn provision of outdoor recreation over to the public sector. As a direct result, thousands of acres were added to the public domain, and countless regulations have been imposed on private landowners. The second presidential commission, which made its report in 1987, carried on with this approach, calling for more acquisitions for the federal estate" and more restrictions on private landowners.

But the private sector can make important strides in creating new opportunities in outdoor recreation. If proponents of

current policy realized this, they would not persist in making naive and shortsighted recommendations that clearly hamper responses from the private sector.

Six policy initiatives would encourage even greater participation by the private sector as well as greater fiscal responsibility on the part of the government. These may be thought of as the "path of least resistance" to the provision of outdoor recreation. For reasons of political feasibility, they do not include other beneficial initiatives, such as selling off or leasing public lands to the private sector. opinions about such a move may well change in the future if the following proposals are implemented beforehand:

1. For the production of amenities, state agencies and courts should remove legal restrictions on the private Provision of instream flows. This would include the removal of legalities that restrict private-water use to water diversions for "beneficial" purposes, require users to divert all the water allocated to them, and prevent them from freely selling or leasing a portion of their allocation to interested parties. Such a move would enable private parties to protect stream habitat and would encourage greater cooperation with other water users.

2. The courts should stop expanding the public trust doctrine in ways that erode private ownership and discourage private protection of amenity values. The use of this doctrine to prevent landowners from restricting public access to their property provides a free lunch to special interests, but it sends a clear message to landowners that fish and wildlife are a liability instead of an asset. In the end, landowners will act to reduce the production of fish and wildlife on their property to discourage the public's interest in their land.

3. In the same vein, state and local governments should cease applying so-called environmental zoning laws and other land-use restrictions to private owners who of their own volition improve fish and wildlife habitat. The experience of rancher and conservationist Dayton Hyde is a lesson in how intrusive zoning laws can squash private initiative. As noted above, the Nature Conservancy's use of the marketplace provides an excellent example of how it is possible to achieve environmental protection and work with landowners.

4. State and federal wildlife officials should institute flexible fish and game laws. Typically, game laws are set by state and federal agencies on a statewide or regional basis. By working with landowners in setting seasons and bag limits on an individual basis, the agencies could create economic incentives that would achieve greater productivity in fish and wildlife habitat. Landowners who sell recreational access to the public and produce gains in fish and game production through habitat improvements should be rewarded with extended seasons and greater bag limits. Such a move would encourage improvements that would benefit wildlife populations on the part of the private sector and greater recreational access to Private lands.

5. Federal land agencies should implement a realistic user fee program in national forests, Bureau of Land Management rangelands, wildlife refuges, and national parks. Currently, zero or token fees are charged for recreation on public lands. This practice has resulted in crowding in many areas, abuses of resources, and reduced incentives for the private sector to provide similar activities. Private forestry economist and ecologist Randal O'Toole has proposed a recreational user fee program for the national forests, along with other recommendations to create greater sensitivity on the part of forest-management officials to the value of recreational amenities. He suggests a $3 daily permit for dispersed recreation in all national forests as well as higher fees for high-demand activities unique to individual forests. He also proposes decentralizing the national forest system, an approach that includes having each national forest retain recreational user fees and income from production of commodities, such as timber and minerals, and ending appropriations from Congress. Under this arrangement, each unit would have to emphasize production of goods that produce a positive net return. According to O'Toole's study of national forest budgets, this policy would result in an overall shift in emphasis from timber production to recreation production. This approach is appropriate for application in the other recreational federal-land systems as well. Finally, the move to higher recreational user fees would have the important feature of giving the private sector a chance to compete on an equal footing when it attempts to provide similar forms of recreation.

6. Congress should cancel government programs that subsidize the destruction of recreational and environmental amenities. As far as public awareness and political clout are concerned, this area has shown marked improvement in recent years. Environmentalists and fiscal conservatives have much to gain by working together in putting an end to,

for example, timber sales in our national forests and federal water projects that net large negative returns on investment and wreak havoc on the environment.

Encouraging greater participation by the private sector will have desirable results. Such participation can reduce pressure on public resources and create greater diversity. The importance of substitutes should not be underestimated. Many consumers of outdoor recreation who are tired of the growing crowds on public lands are looking for options that the private sector can provide. There is evidence of this in the West, where fee hunting is growing in popularity despite the availability of massive amounts of public land.

The recently completed report of the President's Commission on Americans Outdoors was supposed to help bring about a happy, healthy, and prosperous recreational future. By clinging to an outdated agenda that promotes bigger government, however, it failed to do so. The alternative paradigm is free market environmentalism, which suggests that there is untapped potential in the private sector. Rising values of recreation and environmental amenities will provide the incentive for entrepreneurs to develop new technologies and institutions for producing and marketing them. We must ensure that the legal environment is not inimical to private ownership and provision of these goods.

**FOOTNOTES**

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[1] Real per capita income increase is based on the following: for 1946-70, The Statistical History of the United States: From Colonial Times to the Present, with an introduction by Ben J. Wattenberg (New York: Basic Books, 1976), p. 225; for 1970- 85, Bureau of the Census, Statistical Abstract of the United States, 1987 (Washington: Government Printing Office, 1986), pp. 219, 425.

[2] The increase in outdoor recreation is based on an estimated annual growth rate of 10 percent from the end of World War II into the 1970s and 3 to 4 percent thereafter. See President's Commission on Americans Outdoors, Americans Outdoors: The Legacy. the Challenae, with a foreword by William K. Reilly (Washington: Island Press, 1987), p. 38.

[3] Figures for 1960 are from Table 380 in Statistical Abstract of the United States, 1987, p. 219. Figures for 1985 are from Ducks Unlimited, July/August 1987, p. 17. Increases are adjusted for CPI increase from 1960 through 1985.

[4] This increase is based on preliminary figures reported by Mike Pflaum, National Park Service ranger in charge of visitation information at Yellowstone National Park.

[5] Jim Robbins, "Ranchers Finding Profit in the Wildlife," New York Times, December 13, 1987.

[6] The sources for the Nature Conservancy data are George B. Fell, "The Natural Area Movement in the United States, Its Past and Its Future," Natural Areas Journal 3, no. 4 (October 1983): 47-55; and The Nature Conservancy: Annual Report. 1986. The source for the Ducks Unlimited data is an interview with its headquarters in Long Grove, Illinois.

[7] Americans Outdoors, p. 24.

[8] Ibid., p. xi.

[9] Terry L. Anderson, "Camped Out in Another Era," Wall Street Journal, January 14, 1987.

[10] Task Force on Recreation on Private Lands, Recreation on Private Lands: Issues and Opportunities proceedings from a workshop held in Washington, March 10, 1986, p. 1.

[11] Descriptions of such problems are presented in the following: Deanne Kloepfer and H. Michael Anderson, Forests of the Future? A Report by the Wilderness Society on National Forest Planning (Washington: Wilderness Society, 1987); and Marc Reisner, Cadillac Desert: The American West and Its Disappearing Water (New York: Viking Penguin, 1986).

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