"The red-cockaded woodpecker is closer to extinction today than it was a quarter century ago when the protection began."

—Michael Bean
Environmental Defense Fund

more habitat for the black-capped vireo, and especially the golden-cheeked warbler, has been lost in those areas of Texas since the listing of these birds than would have been lost without the Endangered Species Act at all."

—Larry McKinney

Texas Parks and Wildlife Department

INTRODUCTION

It is increasingly clear that Congress will amend the Endangered Species Act. For one thing, property rights groups, who are important constituents of the new Republican Congress, are outraged at the power the Act gives federal agents to control landowners' use of their property. For another, the Act isn't working well to save species.

Although many improvements could be made, the

Endangered Species Act does not need massive changes; rather, it needs a few fundamental ones. "Takings" legislation that requires compensation when the federal government takes control of landowners' property, already embodied in a bill passed by the House, would go a long way toward correcting the ESA's major flaws. It would reduce the animosity of landowners, encourage cooperation, and force the government agencies that administer the Act to weigh their priorities. Such a law would probably spur Congress to make additional changes in the Act, but, even without further legislation, it would change the way the Act is administered.

To understand why change is needed, and why a few changes will have multiple benefits, we need to understand why the Endangered Species Act has aroused such hostility. That is the chief purpose of this paper.

THE PARADOX OF THE ACT

The Endangered Species Act, which was passed in 1973, poses a paradox. On the one hand, it is enormously powerful. "In other laws," writes Rocky Barker in his book *Saving All the Parts*, i "federal agencies are required to provide protection 'where practicable.'" But the Endangered Species Act "elevated protection of all species to one of the U.S. government's highest priorities." This protection is "absolute. No equivocation." Others agree with Barker's description. The Act is "widely regarded by its proponents as one of this country's most important and powerful environmental laws and an international model," wrote M. Lynne Corn in a Congressional Research Service report."

Yet evidence of its effectiveness is weak. Only 27 species have been taken off the endangered or threatened list ("threatened" species are those that are likely to become endangered; their treatment under the Act is about the same). Some of these delistings were for errors in the original listings. iii

At most, only eight species can be described as recovered: the

brown pelican, three Palau Island birds, the American alligator, the Rydberg milk-vetch, the gray whale, and the Arctic peregrine falcon, although some others that remain listed are doing well. In his 1993 book, Rocky Barker refers to five "official success stories," but discusses at length only two successes: bald eagles and peregrine falcons (not the Arctic peregrine falcon but the Eastern peregrine falcon, which is still on the list but largely recovered).

And it is difficult to give the credit for these recoveries to the ESA. Most people believe that the ban on the pesticide DDT has helped large raptors such as the bald eagles, the brown pelican, and the peregrine falcon. Furthermore, the falcon's recovery was accomplished almost singlehandedly by Tom Cade and the private organization he created, The Peregrine Fund (now called the World Center for Birds of Prey). Using techniques developed by falconers, Cade painstakingly bred peregrines in captivity. The gray whale, another apparent success, has been increasing in numbers ever since 1946, when an international treaty prohibited commercial hunting for that species of whale. It is doubtful that the Endangered Species Act had an important role. The few successes should be compared with a total of more than 1400 plant and animal species on the endangered or threatened list.^{iv}

How can such a powerful tool have such inadequate results? The answer is that the Endangered Species Act ignores the fundamental economic problem, the problem of scarcity. Resources for saving species are inevitably limited. They are scarce. For example, it is obvious that we can't set aside the entire acreage of the United States for wildlife habitat, and we can't set aside even a large part of that acreage without interfering with other uses. But the current Endangered Species Act, as it is now interpreted, represents an effort to avoid or disregard this fact. Government agents—primarily the U.S. Fish and Wildlife Service—have too often acted as though there are no limits, as though they are exempt from the problem of scarcity. Their actions have had perverse results.

The ESA, as interpreted by the Fish and Wildlife Service, calls for FWS biologists to control how land is used any time

they consider it important for listed species. They decide whether farming, or logging, or building or even walking the land will be allowed. On such land, private or public, the FWS biologists become, in effect, land managers on behalf of the listed species. (The National Marine Fisheries Service has the responsibility for ocean-going fish.)

When a northern spotted owl, red-cockaded woodpecker, or other species listed as endangered or threatened is found on private property, the owners are required to meet the demands of the Fish and Wildlife Service biologists. Yet the biologists have no economic incentive to limit their demands. Since they have no requirement to compensate the owners of the land they control, other people's land has no budgetary cost to them; it is available free of charge.

In fact, however, land *is* a scarce good. The landowner who has listed species on his or her land, or who has habitat that might attract listed species, may not willingly offer it up free simply because Fish and Wildlife Service officials think they need it. Yet according to the law, the government has no obligation to consider the wishes of the owner or compensate the owner for taking control away.

The result is not only animosity on the part of landowners, animosity that is fully justified. It is also damage to the species that the biologists want to protect. This ability to control how property is used makes an enemy out of even the most harmless of birds or other listed species. In other words, by focusing the enormous power of the federal government on the supposed protection of rare species, the Act has made rare species unwanted and has even encouraged some people to get rid of them. This explains the paradox of the Act's enormous power and minimal results.

Like other dedicated people, Fish and Wildlife officials would like to believe that their mission transcends all others. And, at least as currently interpreted, the law appears to support them. It appears to authorize the protection of endangered species as "trumping" all other missions. But until the conflict between the fact of scarcity and the apparent ability to disregard scarcity is

resolved, the ESA will not work effectively to save species.

AN ILLUSTRATION OF THE PARADOX

The case of Ben Cone illustrates what happens when the government ignores the fact of scarcity. Verification In 1982, Benjamin Cone, Jr., inherited 7200 acres of land in Pender County, North Carolina. He has managed the land primarily for wildlife. He has planted chuffa and rye for wild turkey, for example, and the wild turkey has made a comeback in Pender County partly due to his efforts. He has also frequently conducted controlled burns of the property to improve the habitat for quail and deer.

In the 1970s, Ben Cone and his caretaker noted a couple of red-cockaded woodpeckers on the property. Red-cockaded woodpeckers are listed as an endangered species. They nest in the cavities of very old trees and are apparently attracted to places that have both old trees and a clear understory. By clearing the understory to protect quail and deer and by selectively cutting small amounts of timber, Cone may have helped attract the woodpecker. In the 1970s, however, the birds posed no obvious problem, because Cone did not want to log their habitat at that time.

In 1991, when Cone did intend to sell some timber from his land, the presence of the birds was formally recorded. Cone hired a wildlife biologist to determine the number of birds, which is now believed to be 29 birds in 12 colonies. According to the Fish and Wildlife Service's guidelines then in effect for the red-cockaded woodpecker, a circle with a half-mile radius had to be drawn around each colony, within which no timber could be harvested. If Cone harvested the timber, he would be subject to a severe fine, and/or imprisonment under the Endangered Species Act.

Based on biologists' estimates of the presence of the birds and the Fish and Wildlife rules, it appears that 1560.8 acres of Cone's land are now under the control of the Fish and Wildlife

Service. But Cone is still required by law to pay taxes on the land's previous value.

Cone has made several changes in the way he manages the wildlife and timber. In the past, he clearcut a 50-acre block every five to ten years. That created edge for the wildlife and roughly simulated the effect of a small, intense fire, the kind that would start the cycle of succession again every five to ten years. The whole of his property was thus attractive to a variety of wildlife on a sustained basis.

But since the woodpeckers were found, and the logging stopped on more than 1560 acres to help them, Cone has clearcut 300-500 acres every year on the rest of his land. He told an investigator, "I cannot afford to let those woodpeckers take over the rest of the property. I'm going to start massive clear-cutting. I'm going to a 40-year rotation, instead of a 75- to 80-year rotation." Cone's new rotation will do away with old trees on the areas he can still harvest, preventing the woodpecker from nesting in the tree cavities that would have appeared there. Eventually, the acres that have been set aside for the woodpecker will rot or burn, and his land will be free of the woodpecker.

Ben Cone is a relatively wealthy man, and to many people may not be a sympathetic figure. But we don't have to have sympathy for him personally to see that he faces a genuine problem and that his experience teaches a lesson to all landowners who learn about his situation. They may be in for similar treatment unless they do something about it. Indeed, after Cone informed the owner of neighboring land about possible liabilities in connection with the red-cockaded woodpecker, he noticed that the owner, a firm, clearcut the property. Vii

THE RIVERSIDE FIRES

Many other people have been affected by the ESA, some more dramatically than others. For example, in 1992 in Riverside County, California, the Fish and Wildlife Service told

homeowners that they could not create firebreaks around their homes by discing the land (that is, plowing the land, although they were allowed to mow the grass). Why? Because the area had been designated as habitat of the Stephens' kangaroo rat. The Fish and Wildlife Service told them that discing could lead to criminal and civil penalties, including going to federal prison or being fined up to \$100,000.

Yshmael Garcia had a house in Riverside County. He followed the instructions of the Fish and Wildlife Service and mowed, rather than disced, his property. Unfortunately, when serious fires developed in Riverside in October 1993, his home was one of 29 that were destroyed.

One of those who violated the Fish and Wildlife Service's instructions was Michael Rowe. When he saw the fire approaching about 1 a.m. on October 27, he got into his tractor and made a firebreak. He disced and saved his house.

Ike Sugg wrote about Michael Rowe in *The Wall Street Journal*, viii and his story was subsequently featured in an ABC television show "20/20." And in March 1995, a CBS program, "Eye to Eye with Connie Chung," also highlighted the connection between the ESA rules against firebreaks and the California fires.

Sugg pointed out that the Riverside fires were not the only fires affected by such strictures. The fire chief of Orange County, California, said that if residents had been able to clear brush around Laguna Beach, that fire could have been stopped. But the brush was protected habitat for a bird called the California gnatcatcher. (In 1994, a federal judge took the gnatcatcher off the threatened species list on the grounds that the proper listing process hadn't been followed.)

Experiences like Ben Cone's and Michael Rowe's encourage landowners around the country to prevent their land from harboring listed species. Some landowners are managing their land now in a way that almost assures that it will not be suitable for listed species. Others may even be going to the extreme of "shoot, shovel, and shut up," a term that has become popular to describe the attitude of some. No one knows for sure that "shooting, shoveling, and shutting up" has happened, but the

takeover of land for the sake of protected species is having a perverse effect. An official of the Texas Parks and Wildlife Department wrote in 1993 that more habitat for the black-capped vireo and the golden-checked warbler has been lost in Texas since they were listed under the Endangered Species Act than would have been lost if the ESA had not applied at all to them.^{ix}

Some environmentalists argue that examples like Cone's and Rowe's are merely anecdotes or isolated instances that exaggerate the negative impact of the ESA. Or they paint these individuals as placing their wealth above their social responsibilities. The National Wildlife Federation simply calls them false. In a briefing paper called "Fairy Tales & Facts About Environmental Protection," * the Federation disputes the facts of some well-known cases, including Ben Cone's. It contends, for example, that Cone was offered "two practical alternatives" that "would permit him full use of his land," but he turned them down.

The brief report doesn't say what those alternatives were, but they probably included the creation of a habitat conservation plan or the use of a revised draft of the Fish and Wildlife Service's guidelines for management of red-cockaded woodpecker habitat. Preparing a habitat conservation plan would be quite costly, and the guidelines, which are still in draft form, establish very strict criteria for thinning around bird clusters. In either case, Cone would still have had to place his land under the control of the Fish and Wildlife Service, and it is difficult to see how he would have had "full use of his land."

The story of the Riverside fires has come under criticism as well. In fact, it has evoked a storm of controversy, as environmentalists, upset by the message, have challenged every aspect of the story. Congressmen hostile to changing the Endangered Species Act even brought in the Government Accounting Office to investigate the story. xi This report confirmed that the Fish and Wildlife Service did not allow discing, but disputed Michael Rowe's claim that by discing he saved his home. The Competitive Enterprise Institute has rebutted the major premises of the GAO report. xii

The dispute, however, is largely irrelevant. Clearly, the Fish

and Wildlife Service used the authority of the ESA to place its goals above fire protection goals. At some levels of fire and wind intensity, the prohibited discing would have protected the houses, and potentially even human lives. The message is clear to landowners: If you want freedom to use your land, avoid endangered species. Perhaps simply by managing your land differently you can avoid attracting red-cockaded woodpeckers or northern spotted owls. While Ben Cone may lose the ability to harvest some of his timber, over time he can get rid of the woodpeckers by failing to burn the understory. When the buildup of brush gets too great, the woodpeckers will go away. (In fact, however, Cone continues to conduct prescribed burns to provide quail and deer habitat.)

THE PROBLEM IN A NUTSHELL

Some environmental leaders recognize that a real problem exists. Michael Bean, an Environmental Defense Fund attorney who is often informally credited with authorship of the Endangered Species Act, told a group that included Fish and Wildlife Service officials that there is "increasing evidence that at least some private landowners are actively managing their land so as to avoid potential endangered species problems." He emphasized that these actions are "not the result of malice toward the environment" but "fairly rational decisions, motivated by a desire to avoid potentially significant economic constraints." He called them a "predictable response to the familiar perverse incentives that sometimes accompany regulatory programs, not just the endangered species program but others."xiii

It is ironic that the Constitution explicitly forbids the U.S. Army, even in the name of national defense, from requiring that a citizen quarter a soldier (that is, provide food and shelter for a soldier). Yet the government can require the same citizen to quarter a grizzly bear, a spotted owl, or any other member of a threatened or endangered species, at the landowner's expense.

If the Army had the same power to demand the billeting of soldiers as the Fish and Wildlife Service does now for endangered species we could expect to see soldiers feared, despised, and perhaps even ambushed, as listed species reportedly are today. Yet, in fact, the armed forces are nearly always welcome. The reason is that the military pays their way. The current battles over base closures are fights by communities to *keep* the soldiers, not to make others take them. Thanks to the policy of compensation, it is truly difficult for the Pentagon to close a base.

HOW TO CHANGE A SPECIES FROM AN ENEMY TO A FRIEND

To make the Endangered Species Act effective on private land, it will be necessary to change the status of endangered species from the landowner's enemy to the landowner's friend. One way in which this might happen is for the courts to recognize that when government takes control of habitat under the ESA, a property right has been taken. If such recognition occurs, the Fish and Wildlife Service will have to follow the clause in the Fifth Amendment of the Constitution that requires compensation when the government takes property. So far, no actions of the Fish and Wildlife Service under the ESA have been judged to be "takings" of property rights.

However, this may change. Recent Supreme Court decisions such as *Dolan vs. Tigard*^{xiv} suggest that the Supreme Court is concerned about regulatory takings. In that case, the government of Tigard, Oregon, had told Florence Dolan that she must donate land for a bicycle path to be allowed to expand her plumbing-supply business. The city claimed that the path was needed to relieve traffic congestion that the expansion would bring. But the Supreme Court said that the city's demand was out of proportion to the problem, and thus was an unconstitutional taking of Dolan's property. This and a few other recent cases

suggest that the Supreme Court recognizes that arbitrary control of land through regulation can require compensation. Actions under the Endangered Species Act could qualify as takings.

Change may come through the courts in an entirely different way. The Supreme Court has agreed to reconsider whether the Fish and Wildlife Service correctly interprets the Act as requiring it to tell landowners how to use their land. In the case of *Sweet Home Chapter of Communities for a Greater Oregon v. Babbitt*, xv the U.S. Appeals Court for the District of Columbia rejected this interpretation of the Act. It stated that Congress did not intend to grant authority to the FWS to prohibit habitat modification on private land except where there is a federal role in the land use. If the Supreme Court agrees with this decision, the power of the Fish and Wildlife Service will be dramatically curtailed. So will takings, and their anti-species effects.

Even if these changes do not occur, however, we can expect congressional action. The more generalized takings legislation that passed the House of Representatives in early March would apply to the Endangered Species Act. Although final legislation may take a quite different form, that bill now would require compensation if a regulation takes away 20% or more of a property's value. Regulation that simply stopped a polluter from harming others would not be affected.

A number of groups have been trying to come up with modifications of the Endangered Species Act that would provide incentives for landowner cooperation. One suggestion is to provide property tax credits for landowners who commit themselves to long-range habitat protection. Another is to pay landowners "bounties" or "rewards" for endangered species found on their land. Still another is to "rent" the land that is to be used for endangered species.

All these approaches are worth considering. But the key change must be to remove the ability of the Fish and Wildlife Service to seize control of land without compensation. This may happen through court action or legislative action.

This change would have two benefits: Landowners would no longer fear finding endangered species on their property, and the

Fish and Wildlife Service would have to consider costs, and thus would have to recognize the goals of others, since it would depend on funding through the normal congressional budget process. Furthermore, the Fish and Wildlife Service would find that its incentives had changed. Once the agency had to pay for what it used, its staff would begin to search for cost-effective ways of preserving species.

Now, wildlife habitat devoted exclusively to nurturing listed species is essentially costless to the Fish and Wildlife Service, and its officials have an incentive to overuse it—that is, they rely on direct control of habitat as the chief way of protecting species. Yet there may be ways of protecting wildlife that don't exclude so many other uses of the land. The captive breeding that brought back the peregrine falcon requires little or no habitat specifically for the falcon. Specially designed boxes for red-cockaded woodpeckers, replacing the cavities of old trees, might be a cost-effective alternative. (Companies such as International Paper are already using such boxes, and many more landowners could be persuaded to do so if that did not increase the danger of draconian controls should the woodpeckers nest there.)

LARGE SUCCESSES ON SMALL BUDGETS

Putting the Fish and Wildlife Service "on budget" does not mean that protection would disappear or even diminish. There will be little incentive for covert habitat or animal destruction, and landowners will be far more amenable to cooperation. Equally important, if the penalties are removed, there is plenty of evidence that individuals and organizations will take action on their own to protect species. Private organizations, both for-profit and non-profit, have for many decades developed highly effective, low-cost habitat preservation. Removing landowner penalties will make it easier for them to gain landowner help in doing so.

Here are a few examples of what to expect. (For information

about these and other groups, contact them at the addresses listed in the Appendix.) The Delta Waterfowl Foundation has an "adopt-a-pothole" program, which pays farmers who protect prairie potholes (depressions in the land that harbor nesting areas for ducks). The Montana Land Reliance keeps large stretches of agricultural land from development through voluntary donations of conservation easements. Many private refuges protect birds and other species; some of them "pay for themselves" by oil or gas drilling. The Pine Butte Preserve in Montana, owned by The Nature Conservancy, provides "eco-tourist" facilities for interested environmentalists, helping to support the preserve, which protects lowland habitat for the threatened grizzly bear. The managers of this preserve have actually created habitat for the bear by burning grasslands in the spring to allow for vegetation to grow and by planting chokecherries, a prized food of the grizzly.

REASONS FOR OPTIMISM

Not everyone, of course, will act to protect endangered species simply because the penalties are removed. But in a diverse country where there is plenty of freedom and thus growing amounts of wealth, we can expect ever more protection of the environment. There are concrete reasons to believe this.

Economists have begun to document a link between economic growth and interest in environmental protection. One reason is that people with higher incomes are willing to pay more for environmental quality. Economist Donald Coursey finds that in the United States and in other industrial nations, citizens' support for measures to improve environmental quality is highly sensitive to income changes. xviii In economic terms, the "income elasticity of demand" for environmental quality is 2.5, he says. That means that a 10 percent increase in income leads to a 25 percent increase in citizens' willingness and ability to pay for environmental measures. Similarly, a 10 percent decline in a

community's income leads to a 25 percent decline in that community's support for costly environmental measures.

According to Coursey, the demand for environmental quality has approximately the same income responsiveness as the demand for luxury automobiles like the BMW and Mercedes-Benz. Environment, it turns out, is a BMW!

There are other indications of this link between economic growth and environmental protection. Gene M. Grossman and Alan Krueger studied several environmental measures for many countries and found that while economic growth in very poor countries "may be associated with worsening environmental conditions," once a "critical level of income has been reached," air and water quality improves. (They found the critical level to be an annual per capita gross domestic product of less than \$8,000 in 1985 dollars, or about \$11,200 today; the U.S. per capita GDP today is about \$26,000). xix The relationship between economic growth and concern for the environment is also illustrated by the fact that the incomes of Sierra Club members are far higher than average incomes. xx Simply improving our economy will spur more people to take action to protect the environment, and protecting endangered species is one such action.

But the Endangered Species Act in its current form is a roadblock to creative environmental protection. It not only imposes unnecessarily high costs on landowners; it has also created animosity between environmental groups and landowner groups. In the political arena (unlike the market), discrediting another group or individual can be advantageous. So each group castigates the other, taking advantage of every opportunity to undermine the other's claims. The bitter conflict over the role of the Endangered Species Act in the California fires is just one sign of this deep division. Environmentalists are doing everything possible to discredit the property rights movement; the property rights movement is doing the same to environmentalists.

Thus, today protection of species is a political football. That is because landowners' rights are up for grabs. The landowner fears the Fish and Wildlife Service because it is allowed to take away property rights, while environmental groups fear that

property rights legislation will take away the discretionary power of the Fish and Wildlife Service.

Only when rights are explicit and well-defended can landowners and environmentalists work together. Just as good fences make good neighbors (because they clearly define property rights), protection of property rights fosters sensitivity to the desires of others. One of the best examples of such cooperation is the long history at Rainey Preserve, where major oil and gas companies operate natural gas wells under controls worked out with the owners, the National Audubon Society.

ENDANGERED SPECIES ON PUBLIC LAND

Our discussion so far has dealt primarily with the effect of the Endangered Species Act on private land. The effects are important because perhaps half of all the endangered species are found on private land. xxi But the most publicized and hostile conflicts have occurred over the application of the Act to federal land. Land-use decisions following the 1990 designation of the northern spotted owl as a threatened subspecies are the most recent example. Logging was halted on millions of acres of federally-owned national forests in Washington and Oregon.

Just as the mission of the Endangered Species Act trumps all other goals on private land, it trumps the other goals of federal agencies, including the Forest Service's goal of harvesting and selling timber. Agencies like the Forest Service must bend to the wishes of the Fish and Wildlife Service, just as private landowners do, even when less disruptive actions could solve the problem equally well.

To correct this imbalance, some means of deciding how land should be managed is needed. It would be possible to require the Fish and Wildlife Service to compensate another federal agency when its mission reduces the ability of that agency to use land to pursue its goals. However, since all federal land is owned by the taxpayer and its management overseen by Congress, another

approach may be more feasible. The Fish and Wildlife Service could be required to go to Congress when it believes that a parcel of land managed by another agency is necessary to protect a listed species. Congress could explicitly debate the transfer of control over any sizeable tract of federal land. In this way, the goals of all citizens could be considered; one single goal would not automatically triumph without discussion. Such debate could be triggered by the quantity of land that the Fish and Wildlife Service wants to control; perhaps the transfer of control over any parcel over 100 acres should be made only when Congress concurs.

Another reform could enlist the help of the private sector to protect endangered species on federal lands. A number of federal laws could be changed to allow environmental groups to bid for the lease or purchase of federal lands to protect endangered species habitat (or pursue other environmental goals). For example, today only someone willing to cut down timber can bid on Forest Service timber sales; it is illegal to purchase timber and not harvest. But the law could be changed so that Defenders of Wildlife or The Wilderness Society could bid for parcels and then be allowed not to log, preserving the habitat for endangered species. (Concerns over disease and fire control, however, would have to be addressed.)

CONCLUSION

In summary, any reform of the Endangered Species Act should have as its goal making endangered species the friend, not the enemy, of landowners. This can be largely accomplished by ending the Fish and Wildlife Service's power to control land without compensation.

Several results will stem from such a change. Landowners will no longer fear finding endangered species on their property and will become much more cooperative. The Fish and Wildlife Service will go "on budget." Its goals will be weighed against

other desirable goals, and it will have an incentive to husband its resources, try out creative approaches, and establish priorities.

To achieve these outcomes, either judicial or legislative change is required. The Supreme Court may decide that the control of land to protect endangered species is a taking, and require compensation under the Constitution's Fifth Amendment.

Or, the Supreme Court may uphold the *Sweet Home* decision that the Act does not normally authorize habitat restrictions on private land.

Or, without any judicial action, Congress may, through broad "takings" legislation, require that a reduction in property value requires compensation.

Or, Congress may amend the Act itself to require compensation. This would give Congress an opportunity to specify the way in which the Fish and Wildlife Service could compensate landowners and encourage mutually beneficial land uses.

On public land, other goals than endangered species protection must be considered, too. Inter-agency compensation is one approach; a more feasible one may be to let Congress decide which goal has priority when the Fish and Wildlife Service wants to control a significant amount of federal acreage.

These changes, however they come about, will end the tragic situation that is now occurring as landowners learn that they will lose their freedom and their property if they find endangered species on their land. If property rights are respected, both landowners and species will benefit.

NOTES

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- ii. M. Lynne Corn, *Endangered Species Act Issues* (Washington, DC: Congressional Research Service, May 27, 1992), p. 1.
- iii. U.S. Fish and Wildlife Service, "Endangered and Threatened Wildlife and Plants," 50 CFR 17.11 & 17.12 (special reprint, August 20, 1994). This annual list included 20 delistings. Since then, seven additional species have been delisted, reports the Competitive Enterprise Institute (Washington, DC), in "Delisted Endangered and Threatened Species," March 9, 1995.
- iv. U.S. Fish and Wildlife Service, "Endangered and Threatened Wildlife and Plants," 50 CFR 17.11 & 17.12 (Special reprint, August 20, 1994).
- v. Lee Ann Welch, "Property Rights Conflicts under the Endangered Species Act: Protection of the Red-Cockaded Woodpecker," PERC Working Paper No. 94-12, Bozeman, MT, 1994.
- vi. Ike C. Sugg, "Ecosystem Babbitt-Babble," *The Wall Street Journal*, April 2, 1993, p. A12.
- vii. Welch, p. 47.
- viii. Ike Sugg, "California Fires—Losing Houses, Saving Rats," *The Wall Street Journal*, November 10, 1993.
- ix. Larry McKinney, "Reauthorizing the Endangered Species Act—Incentives for Rural Landowners," in *Building Economic Incentives Into the Endangered Species Act* (Washington, DC: Defenders of Wildlife, May 1994), p. 74.
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- xi. General Accounting Office, "Endangered Species Act: Impact of Species Protection Efforts on the 1993 California Fire," GAO/RCED-94-224, July 8, 1994.
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- xiii. Transcript of a talk by Michael Bean at a U.S. Fish and Wildlife Service seminar, November 3, 1994, Marymount University, Arlington, VA.
- xiv. *Dolan v. City of Tigard*, Supreme Court Reporter, Vol. 114, p. 2309 (1994).

xv. Sweet Home v. Babbitt, 17 Federal Reporter 3rd., Vol. 17, p. 1463 (D.C. Cir. 1994).

xvi. Jim McKinney, Mark Shaffer, Jeff Olson, "Economic Incentives to Preserve Endangered Species Habitat and Biodiversity on Private Land," in *Building Economic Incentives Into the Endangered Species Act* (Washington, DC: Defenders of Wildlife, May 1994), p. 1.

xvii. Terry L. Anderson and Jody J Olsen, "Positive Incentives for Saving Endangered Species," in *Building Economic Incentives Into the Endangered Species Act* (Washington, DC: Defenders of Wildlife, May 1994), p. 110.

xviii. Donald Coursey discussed this topic in "The Demand for Environmental Quality," a paper presented January 1993 at the annual meeting of the American Economic Association in Anaheim, California.

xix. Gene M. Grossman and Alan B. Krueger, "Economic Growth and the Environment," *NBER Working Paper Series* (National Bureau of Economic Research, Cambridge, MA, 1994), p. 19.

xx. 1992 Reader Survey prepared by *Sierra* (San Francisco, CA: Sierra Club), p. 1.

xxi. Hank Fischer, Bill Snape, and Wendy Hudson, "Building Economic Incentives Into the Endangered Species Act," *Endangered Species Technical Bulletin* (U.S. Fish and Wildlife Service, 1994), Vol. XIX, No. 2, p. 4.