

# The Price of



# Protection

As the ESA turns 35, a look at the cost of saving species

By Divya Abhat



In August 2008 the Bush Administration proposed [changes](#) to a section of the Endangered Species Act (ESA [PL 93-205](#)) that would effectively allow individual federal agencies, from the Environmental Protection Agency to the Department of Defense to the Bureau of Land Management, to decide if a proposed action would negatively impact a threatened or endangered species. The proposal would change the process that has been in place since the law was passed in 1986, where proposed actions have been required to be reviewed by scientists from the U. S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS, a part of the National Oceanic and Atmospheric Administration). The proposed change—and its unusually brief, initial 30-day comment period—triggered a rapid response from a coalition of groups committed to species conservation, including The Wildlife Society (TWS).

The debate over timing and authority in decision-making related to endangered species reflects the close connection between costs and benefits of carrying out many environmental laws. The ESA has yielded a mix of laudable successes and a myriad of costs including manpower, time, land use expenditures, penalties and fines for offenses, and extensive litigation. While tallying the costs in real dollar values is a near impossible task, reviewing

monetary and other costs is a valuable exercise during these times of change.

## Birth of the ESA

In 1972 President Richard Nixon referred to environmental legislation at the time as inadequate, and called on Congress to pass a “stronger law to protect endangered species of wildlife” ([Archives 1972](#)). The ESA was passed the following year to protect species and the ecosystems they depend upon. The law gave the NMFS the authority to administer the status of marine species, and FWS purview over freshwater fish and all other species. Both NMFS and FWS determine if a species qualifies for listing under the ESA based on broad [criteria](#) including:

- the present or threatened destruction, modification, or curtailment of its habitat or range;
- overutilization for commercial, recreational, scientific, or educational purposes;
- disease or predation;
- the inadequacy of existing regulatory mechanisms; and/or
- other natural or manmade factors affecting its continued existence.

A species receives regulatory protection when it is formally listed as threatened or endangered under the ESA. Species listed as endangered



Credit: Julie Maher/ WCS

Bruce Foster, collections manager at the Central Park Zoo in New York, holds a rare Wyoming toad (*Bufo baxteri*) in his hands. One of the biggest threats facing the species is an amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) that caused a global decline in amphibian populations in the late 1990s. The toad species, listed as endangered under the Endangered Species Act, was once thought to have gone extinct in the wild.

are considered to be in more immediate danger of extinction than threatened species. Species that warrant being proposed for listing when available resources allow can be classified as “candidate species.” Additionally, because habitat loss accounts for a significant decline in populations, FWS and NMFS can designate critical habitat for a listed species.

Once a species or habitat is listed, federal agencies are required to ensure that human activities are not

likely to jeopardize the species’ continued existence. Regulatory protections prevent the “taking” (which includes intentionally or inadvertently harassing, harming, wounding, or killing) of any individual member of that species, and other harm to the listed individuals that may be caused by damage to their critical habitat. FWS or NMFS is responsible for overseeing measures—at the state and federal levels—to manage endangered species, such as monitoring and enhancement of a habitat. The Services must also create a recovery plan that outlines the objectives of listing the species, the tasks to protect it, and the estimated costs and timeline for its recovery.

### Notable Victories

In its 35 years, the ESA has helped prevent the extinction of hundreds of species of animals and plants—a benefit that some would argue outweighs any cost. “If all that’s left in the world is cockroaches and carp, our life is pretty impoverished,” says Ed Bangs, a wildlife biologist at FWS. Currently the ESA lists 1,577 species of plants and animals as endangered, 355 species as threatened, and 280 species as candidates for listing ([FWS Threatened and Endangered Species System](#)). From a straight numbers perspective, the Act has been an unparalleled success: **93 percent** of all species listed for ESA protection have either increased in population size or remained stable. Notable examples of ESA successes are the California condor (*Gymnogyps californianus*), which was brought from the brink of extinction to 270 individuals, of which 125 live in the wild, and whooping cranes (*Grus americana*), whose numbers grew from 54 in 1967 to 436 in 2003.



Credit: Larry Master/ USFWS

### SUCCESS STORY > West Virginia Northern Flying Squirrel

In August 2008 the West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*) became the most recent species to be delisted under the ESA. When the species was listed as endangered in 1985, only 10 individuals were located in a limited number of sites. Since then, more than 1,200 squirrels have been captured in a broad geographic area approximating the extent of its historic range. In a 1990 recovery plan for the two subspecies of the northern flying squirrel—the West Virginia and Carolina northern flying squirrels—FWS estimated \$1,360,000 in recovery costs would be needed to monitor populations, analyze the effects of mining and logging on the species’ habitat, and assess habitat requirements ([Appalachian northern flying squirrels](#)). The West Virginia northern flying squirrel, unlike other squirrel species, forages on lichen and fungi. Regeneration, management, and protection of habitat rich in those foods are the primary reasons for the species’ recovery. FWS, along with state and other agencies, will continue to monitor the status of the flying squirrel for another 10 years.

## INTERNATIONAL RELATIONS

### How the ESA and CITES Overlap

In the early 1960s the international community was growing increasingly concerned by the rate at which wild plants and animals were being threatened by unregulated trade practices. In 1973, 80 nations, including the United States, signed the [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#) (CITES), an international treaty to ensure that international trade does not threaten the survival of certain plants and animals. When the U.S. Congress passed the Endangered Species Act later that year, it implemented CITES protection in the U.S. under Section 8 of the Act ([Endangered Species Program](#)).

CITES is the only global treaty designed to ensure that international trade in wildlife does not threaten a species. Under the treaty, countries collaborate to prevent the over-exploitation and further decline of certain plant and animal species. Trade under CITES is regulated through a permit system that includes imports, exports, and re-exports. Permits can be issued for scientific research, zoos and aquariums, breeding, hunting trophies, and commercial or personal use. Today, over 170 countries have signed on to CITES, and over 30,000 species are listed in one of three appendices. Once every two years, these countries, referred to as Parties, meet to review the implementation of the treaty and to consider amendments to the appendices.

Under CITES, species are listed in one of three appendices based on their conservation status. Appendix I species are threatened with extinction and cannot be commercially traded. Appendix II species are not currently threatened with extinction but may become so if trade is not carefully controlled, and species for which a range country asks for better control of

international trade are listed in Appendix III. The African elephant (*Loxodonta africana*), for example, is included in Appendix I (except in Botswana, Namibia, South Africa and Zimbabwe where it is listed in Appendix II). In 1989 CITES banned all international trade in ivory after a 50 percent decline in elephant numbers between 1979 and 1989. Since then, elephant populations have steadily recovered in some areas while they remain endangered in others.

In the U.S., the Division of Scientific Authority and the Division of Management Authority in the U.S. Fish and Wildlife Service's (FWS) [International Affairs](#) program, as well as the FWS Office of Law Enforcement, oversee the implementation of CITES. As a signatory to CITES, FWS must ensure that all importers and exporters have proper permits to trade and transport CITES-listed animals and plants. The U.S.'s share in world wildlife trade is between \$1 billion and \$2 billion per year ([U.S. GAO Office 2004](#)). While the Division of Management Authority develops policies and regulations and administers the issuance of CITES permits, the Division of Scientific Authority provides scientific advice on issuing permits for international trade, identifies and makes recommendations for species to be listed in the CITES Appendices, and evaluates documents and proposals for the Parties meeting.

A bulk of CITES' core administrative costs are financed from the CITES Trust Fund. The fund is replenished by annual contributions from the member countries and is based on the United Nations scale of assessment or a country's capacity to pay. In 2008, the U.S. is scheduled to pay over \$1 million of the total \$4 million due to the fund ([CITES Trust Fund, Status of Contributions](#)).

## What Price Success?

Although the recovery of an endangered population is a quantifiable measure of the ESA's success, the actual cost of recovering a population is far from easy to calculate because of the multiple factors involved in an ESA listing and the absence of clear cost-benefit analyses.

### COST: Money

Spending levels for the federal endangered species program ballooned from \$4 million in 1974 to approximately \$151 million in 2008. Notably, the 2009 budget request for the endangered species program dipped to approximately \$147 million

([FWS 2008 Press Release](#)). A 2002 [Government Accounting Office](#) report shows how those funds are allocated, ranging from covering the cost of managing species recovery to funding the listing process, consulting over projects that could affect species, conserving candidate species, and providing incentives for landowners.

For example, more than \$24 million in state and federal funds has been spent on grizzly bear (*Ursus arctos*) recovery in the Greater Yellowstone area since the FWS first listed the population in 1975 ([FWS 2007](#)). The funds have covered habitat mapping and monitoring, population monitoring, research, outreach, sanitation enhancement,

and management of conflicts with people. By 2007 the Yellowstone grizzlies had recovered and were delisted. “The adequate regulatory mechanisms are quite comprehensive and complicated,” says Chris Serhveen, FWS grizzly bear recovery coordinator. The post-delisting management plan “costs over \$3 million a year to implement,” he says.

In terms of Northern Rocky Mountain gray wolf (*Canis lupus*) recovery, the federal government (especially FWS) spent about \$27 million between 1974 and 2007 ([FWS 2007 Annual Report](#)). This includes the National Park Service spending \$200,000 annually for wolf research, and USDA Wildlife Services spending more than \$575,000 on investigating suspected wolf damage to livestock and wolf control. Today, a healthy population of roughly 2,700 gray wolves roams the lower 48 states. Feelings are mixed about whether they were worth the cost. Yellowstone wolves translate into big tourist dollars as they bring in up to \$35 million annually to Montana, Idaho, and Wyoming. However, there and elsewhere in the West, local people are concerned about the impact wolf predation may have on livestock and big game hunting. Both are multibillion-dollar industries nationwide.

### COST: Time

To get a species considered for listing (apart from an FWS proposal to list a species), an individual or organization must prepare a petition. Then, FWS begins a 90-day period to determine if the petition

is valid and, if so, begins to assess the status of the species to determine if it is likely to be threatened or endangered in “the foreseeable future,” or a species-specific timeframe that can extend up to 300 years. If the scientific data support listing, FWS must then publish a proposed rule in the *Federal Register* and open the process to scientific review and a 60-day public comment period. After reviewing the final data and public comments, FWS must announce the decision to list the species and publish the final rule in the *Federal Register*. Within 30 days of that announcement, FWS must then add the new species to the official ESA list.

### COST: Lost Livestock

More than half of all listed species spend at least part of their life cycle on privately owned lands ([FWS 2008](#)). However, costs that could affect landowners’ livelihoods—such as loss of livestock to predation by a protected species—are difficult to assess. In Montana, Wyoming, and Idaho, for example, a total of 895 cattle and 1,778 sheep were killed by wolves between 1987 and 2007 ([Montana Fish, Wildlife, and Parks](#)). Many other cases of suspected wolf predation are unconfirmed. Beyond that, “there are many losses that are far greater than the loss of one or two livestock,” says Lane Adamson, director of the Madison Valley Ranchlands Group in Montana. In 2005, he says, a rancher brought 1,100 yearling heifers into the valley, moving 900 to one pasture area and 200 to another. During the summer, wolves killed about four or five of the yearlings in the larger pasture. By the end of the summer, the mere presence of wolves on the land had stressed the other yearlings so significantly that, according to Adamson, the “900 head were 90 pounds lighter than the 200 head across the fence.” Based on market price at the time, the rancher lost \$81,000 worth of beef, “and there’s absolutely no way he would be compensated,” Adamson says.

### COST: Restrictions on Land Use

Some landowners dread the discovery of a protected species on their land since it may affect their ability to harvest timber. Perhaps the most famous such case involves the northern spotted owl (*Strix occidentalis caurina*), listed as threatened in 1990 ([FWS: Northern Spotted Owl](#)). In 1991 a judge in Seattle temporarily shut down most timber sales in the owl’s preferred habitat of old-growth forests on federal lands. Loggers were eventually prevented

### SUCCESS STORY > Aleutian Canada Goose

The Aleutian Canada goose (*Branta canadensis leucopareia*), a subspecies of the Canada goose, was listed as endangered in 1967 under federal laws that predated the ESA—making it one of the first species to be listed. Because of the introduction of non-native foxes within the goose’s nesting range in Alaska, Aleutian goose populations had dropped to approximately 800 individuals. Over three decades,

FWS worked closely with landowners and private groups to recover the species, which FWS delisted in 2001. Today, more than 37,000 individuals roam the Aleutian Islands ([Environmental Conservation Online System: Aleutian Canada Goose](#)).



Credit: USFWS

from cutting approximately two billion board feet of federal timber per year, dramatically affecting the income of some. In 2002 timber-industry groups sued the administration for failing to review the status of the northern spotted owl. In August 2008 amidst controversy over its decision, FWS reduced the designated critical habitat by 23 percent or 1.6 million acres, which eased restrictions on logging in some areas. At the same time, FWS also released a 30-year plan for recovery of the spotted owl, projected to cost \$489.2 million. According to Dominick DellaSala, chief scientist of the National Center for Conservation Science and Policy, however, FWS routinely estimates the costs of critical habitat protections and not the benefits, including economic benefits of clean water, healthy fish runs, carbon sequestration, and recreation ([Pacific River Council 2008](#)).

### **COST: Fines and Penalties**

Fines and penalties under the ESA vary widely depending on the type and frequency of violations. Civil penalties can range from as low as \$100 for violating an ESA research permit to as high as \$21,000 for fishing in a protected buffer zone ([Endangered Species Act Penalty Schedule 2001](#)). Federal fines of \$50,000 and imprisonment may also be imposed for offenses such as collecting parts of a protected species or injuring and killing a member of the species by destroying its critical habitat. When the total balance in collected fines exceeds \$500,000, the Treasury Secretary is required to deposit the amount into a cooperative endangered species fund.

### **COST: Litigation**

The FWS is under constant scrutiny over decisions to list or delist a species, or to designate critical habitat. As often as not, ESA listing decisions and rule changes prompt law suits or public protests. In 2007 approximately 25 law suits were filed against FWS, followed by 42 in 2008. “What makes a listing controversial,” says Michael Bean, chairman of the Environmental Defense Fund’s (EDF) wildlife program, “is the potential impact it has on industries, local jobs, or communities. Controversy is directly correlated with the potential impact on existing economic or other interests.”

FWS estimates that it spends approximately \$1.05 million annually to manage, coordinate, track,

### **SUCCESS STORY >**

#### **American Bald Eagle**

In his 2007 announcement to delist the American bald eagle (*Haliaeetus leucocephalus*), Secretary of the Interior Dirk Kempthorne said, “Based on its dramatic recovery, it is my honor to announce the Department of the Interior’s decision to remove the American bald eagle from the Endangered Species List.” In 1963 FWS listed the eagle, under laws predating the ESA, as endangered across the lower 48 states after the population declined significantly due to the widespread use of the pesticide DDT. Legal protections under the ESA, along with a ban on the use of DDT in 1972, resulted in an increase in breeding pairs from 417 in 1963 to 9,789 in 2007. Between 1989 and 1998, FWS spent approximately \$69 million on eagle recovery and protection programs. Based on the Post-Delisting Monitoring Plan, FWS will continue to monitor the bird over a 20-year period ([Environmental Conservation Online System: Bald Eagle](#)).



Credit: Larry Master/ USFWS



Credit: J. Mark Higley

In California, Hoopa tribe members Dawn McCovey (left) and Aaron Pole attach a leg band to a juvenile northern spotted owl (*Strix occidentalis caurina*), a species listed as threatened under the Endangered Species Act in 1990. Tribal members have been monitoring the owls on the Hoopa Reservation for over a decade, banding more than 320 of the birds since 1992.

and support ESA Section 4 litigation. This does not include the staff time and costs for the completion of court-ordered or court-approved actions. A majority of ESA claims are citizen suits in which legal fees are paid out of a Department of Justice account called the Judgment Fund, according to Kassie Siegel, director of the [Center for Biological Diversity](#). “In limited circumstances, litigation fees can come out of the [FWS] budget,” she says. According to FWS, the Service spends \$100,000 annually in attorneys’ fees for cases in which the government has not prevailed and fees are not paid by the Judgment Fund.

However, Siegel says, “if you look at the macro-economic data, they show that the ESA listings overall have a positive economic impact. The horror stories that you hear of the species listings costing somebody money are so highly localized and so infrequent that they do not ripple through state economies.” A Massachusetts Institute of Technology study of the economic impact of the ESA on the agricultural sector ([Meyer 1995](#)) supports this claim, as researchers did not find a decline in gross state product or construction employment related to ESA action. Despite findings like these, however, many feel that the impact of ESA-related actions on more local levels cannot be ignored. “We’re the ones who bear the brunt of all the expense,” Lane Adamson says. “We lose all the livestock.”

### COST: Political Capital

“The ESA is a political law,” says FWS’s Ed Bangs, noting the reality that environmental laws “are human decisions...by the American people and our representatives.” In fact, the number of ESA listings has notably varied during different administrations: 47 species were listed during the administration of Gerald Ford, 126 under Jimmy Carter, 255 under Ronald Regan, 231 under George H.W. Bush, and 521 under Bill Clinton ([The Listing Record, Greenwald et al. 2005](#)). Under George W. Bush, 60 species have been listed.

“Politics has an appropriate place in considering and making critical habitat and recovery decisions, not unlike any other law where factors other than science play a role,” says Dan Ashe, science advisor to the FWS director, Dale Hall. “The challenge is to make sure you are being explicit about that,” says Ashe. “And oftentimes we try to make political or economic or other decisions look as if they were scientific or science-based decisions.” In 2007 the Center for Biological Diversity filed six lawsuits against the Bush Administration for “political interference with 55 endangered species in 28 states” ([55 Species Campaign, CBD](#)). The lawsuits included the proposed—and then rejected—critical habitat designation for the loach minnow (*Rhinichthys cobitis*) and the Mississippi gopher frog (*Rana capito sevosa*). “There is a lot of discretion given to the Fish and Wildlife Service or National Marine Fisheries Service to decide which species are eligible for listing,” says EDF’s Michael Bean. “It is a potential source for criticism that the standards for what gets listed and what doesn’t are as loose as they are.”



Credit: USFWS

### SUCCESS STORY > Brown Pelican

In 1903 President Theodore Roosevelt created a wildlife refuge at Pelican Island in Florida to protect the brown pelican (*Pelecanus occidentalis*), a move that

launched the National Wildlife Refuge System. FWS listed the bird as endangered in 1970. The listing, along with the 1972 ban on DDT, led to an increase in the brown pelican population from 8,000 birds in 1976 to more than 620,000 in 2008. In February 2008 FWS proposed delisting the species, and a decision is pending. Even if the brown pelican is delisted under the ESA, other federal laws, such as the Migratory Bird Treaty Act and the Lacey Act, will continue to provide protection ([Environmental Conservation Online System: Brown Pelican](#)).

### Cutting Costs: Programs to Curb the Burden

To offset some of the costs associated with the ESA, FWS has created programs designed to help people, industries, or agencies directly affected by the protection of a particular species. Under the [Cooperative Endangered Species Conservation Fund](#), for example, the Service provides funding to states and territories that participate in conservation projects on non-federal land. In 2007 FWS provided nearly \$81 million to support four grant programs—Traditional Conservation Grants, Habitat Conservation Planning (HCP) Assistance Grants, HCP Land Acquisition Grants, and Recovery Land Acquisition Grants. “Traditional Conservation Grants fund any number of activities that aren’t tied to land acquisition,” says Don Morgan, chief for the

Branch of State Grants in the Endangered Species Program. "They include activities ranging from genetic research to stream restoration to propagation of a listed species." HCP Planning Assistance Grants provide funding for surveys, inventories, and other HCP Planning activities; HCP Land Acquisition Grants fund the acquisition of lands associated with approved HCPs; and Recovery Land Acquisition Grants support activities that address habitat needs such as better foraging grounds for a listed species.

"The general objective is to aid in the conservation and recovery of threatened and endangered species," Morgan says. "Section 6 of the ESA provides us with the authority to cooperate with states and provide financial assistance."

FWS has also developed the [Safe Harbor Agreements Program](#) to promote voluntary management by private landowners who can help conserve listed species on non-federal property. In exchange for agreeing to work to protect listed species on their property, landowners get assurance from FWS that no additional future regulatory restrictions related to those species will be imposed. Non-federal organizations are also working to compensate landowners and livestock producers affected by the ESA. [Defenders of Wildlife](#), for example, has spent more than \$1 million compensating farmers for their livestock losses due to wolf predation. "Success," says Carolyn Sime, wolf program coordinator at Montana Fish, Wildlife, and Parks, "is when a landowner walks up to you and says, 'Maybe there are ways to live with wolves and raise livestock around them.'"

### Value vs. Cost

The ultimate value of protecting a species is the benefit of a healthy ecosystem. Scientists estimate that the natural rate of extinction is roughly one species every 100 years. In North America, however, more than 500 species have gone extinct in less than 400 years, proving that although extinction is a natural process, the current rate of extinction is not (FWS). "We're wrestling with our moral obligations," says Ed Bangs. "As a society, I would think that we have to also consider what we want our quality of life to be, and how we make decisions about what that entails in terms of wildlife. From a purely dollars and cents thing, listing decisions can't even consider that." ■

*Divya Abhat is a science writer for The Wildlife Society.*



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