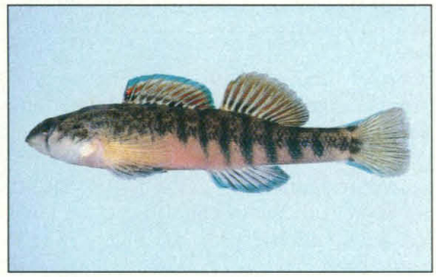
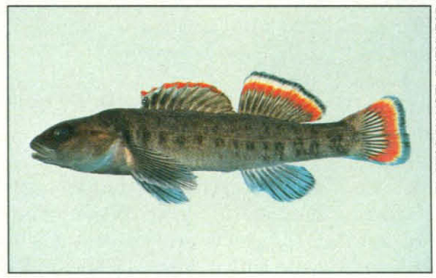
Is Endangered Species Act in Danger?

Far more plants and animals are being added to the list than are leaving it. Critics say the act is at fault; supporters say the budget for enforcement is far too small

On 20 December last year, two small fish—the Etowah darter (*Etheostoma etowahae*) and the Cherokee darter (*E. ulocentra*)—became the latest members of the endangered species list. This status provided the two darters with an array of legal protections intended to ward off extinction. It also made them bit players in one of the Capitol's longest running dramas—the reauthorization of the Endangered Species Act. The political battle, which all sides expect to be fought to a decision this year, could determine the future of the nation's ecological heritage.





PHOTOS BY NOEL BURKHEAD

Darting this way and that. The Etowah darter *(above)* and the Cherokee darter *(left)* are recent additions to the list of species covered by the Endangered Species Act. Will it help them?

Opponents claim the law costs the economy billions and violates the Fifth Amendment's ban on taking property without compensation. Proponents argue that it is a vital safety net for an increasingly threatened biosphere. Almost lost in the volley of charges and countercharges is a central question: Does the act, whatever its economic cost, actually fulfill its ecological purpose—"recovering" the species that have come under its protection? What, in other words, is the likely fate of the Etowah and Cherokee darters? Do they have a good chance of recovery? Will the probable changes to the law improve that likelihood? An inquiry by *Science* finds little reason for optimism on any of these counts.

The Endangered Species Act directs the Fish and Wildlife Service, a branch of the Department of Interior, to maintain a list of species that are either endangered (in imminent peril of becoming extinct) or threatened (likely to become endangered in the near future). The agency is supposed to use the power of the law to halt any further endangerment. Ultimately, the goal is to bring species to "recovery," which the act defines as the point "at which the measures provided pursuant to this Act are no longer necessary." If a species attains recovery, Fish and Wildlife is supposed to remove it from the official list.

At the end of 1973, when President Richard Nixon signed the Endangered Species Act into law, the list included 122 species that Fish and Wildlife was already monitoring. By the end of 1994, the agency had added another 833 domestic species, an average of almost 40 species a year. In that time, the agency removed 21 species from the list, an average of one a year. (A twenty-second species, the Bruneau hot springsnail, was removed from the list in 1993 after a federal judge ruled that Fish and Wildlife had committed procedural errors in listing it.)

In fact, the 40-to-1 ratio of listings to delistings overstates the rate of progress, because not all the delistings were due to recovery. Seven species—four fish, two birds, and a pearly mussel—left the list because Fish and Wildlife declared them extinct. These disappointments by and large cannot be attributed to the act, however. Of the seven, only one with a good chance of survival—the dusky seaside sparrow—disappeared on the agency's watch. The others were either on the verge of extinction at the time of listing because of their extreme rarity or had long been thought extinct but were placed on the list in the hope that the action would spur biologists to discover new populations.

Another eight of the 21 delisted species were removed because they should not have been on it to begin with. An example is the Rydberg milkvetch (*Astragalus perianus*), a member of the pea family originally known only through samples collected from southwestern Utah in 1905. Unable to find more Rydberg milkvetches, botanists believed *A. perianus* to be extinct. When a few populations turned up in 1975, Fish and Wildlife added the plant to the endangered list. In the 1980s, though, taxonomists decided that almost a dozen populations of the plateau milkvetch (*Astragalus serpens*), a close relative, should instead be counted as Rydberg milkvetches, increasing the numbers of the latter. Concluding in the *Federal Register* that its original action "was in error," Fish and Wildlife withdrew *A. perianus*.

But even the six domestic species that were delisted because their status had improved do not always owe that improvement to the Endangered Species Act. Consider the arctic peregrine falcon, which Fish and Wildlife struck from the list last October. Although the Endangered Species Act banned hunting the falcon or harming its habitat, these actions, according to the official notice of delisting, were not "pivotal" to its recovery. Instead, the notice continued, the bird owes its improvement largely to the numerous restrictions on pesticides in the 1960s and early 1970s—well before the Endangered Species Act was passed. (Surprisingly, the falcon is still protected by the law, despite its recovery. It resembles the still-endangered American peregrine falcon, and Fish and Wildlife has concluded that allowing people to hunt or capture arctic peregrines will lead to accidental deaths of American peregrines.)

Accounting for data errors, extinctions, and extraneous factors such as DDT leaves only a handful of possible "species success stories" under the Endangered Species Act. Indeed, Robert Gordon Jr. of the National Wilderness Institute, a leading critic of the act, argues "that not one species can be legitimately claimed as primarily owing its recovery to the Endangered Species Act." And the record is unlikely to improve soon. Prodded by a legal settlement of a suit filed by environmental groups at the end of 1992, Fish and Wildlife has picked up the pace of listings, adding more than 120 species in 1994. Meanwhile, the largest group of likely delistings consists of 14 other species the agency believes to be extinct. "That's pretty pitiful after 21 years," Gordon says.

"The obvious lesson is that the act doesn't work," says another critic, Ike Sugg of the Competitive Enterprise Institute, a free-market think tank in Washington, D.C. Unlike other environmental regulations, says Sugg, "the Endangered Species Act is not about protecting public health or safety. All

it really pretends to do is recover wildlife from endangerment, which it hasn't done very well at all."

Biodiversity's ER

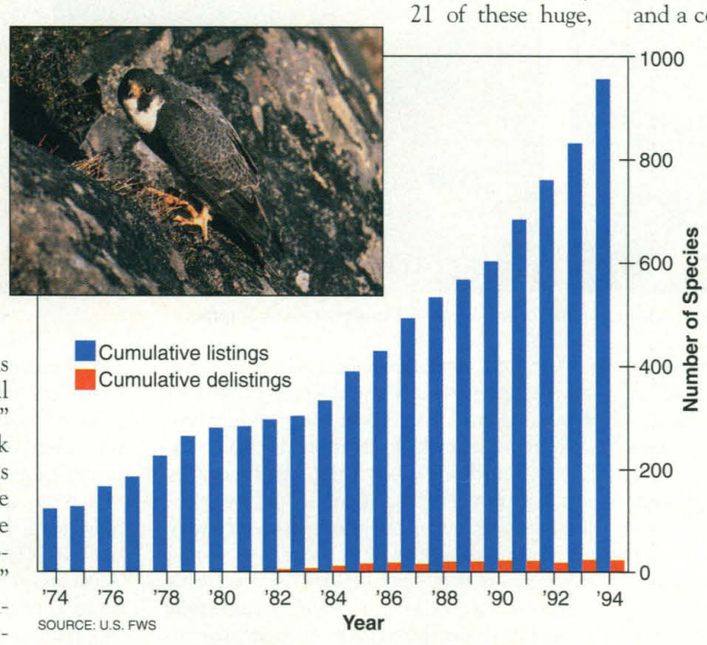
Supporters of the law interpret the record differently. According to Michael Bean of the Environmental Defense Fund, an environmental research and advocacy group in Washington, D.C., the lack of recoveries is simply a reflection of the peril faced by endangered species at the time of listing. They only come under the protection of the act, he says, "when they are so reduced in numbers and restricted in range that recovery will inevitably be protracted." The Endangered Species Act, in Bean's view, is like a hospital emergency room that only takes the most desperate cases—"you wouldn't expect a string of complete successes."

That contention is supported by an Environmental Defense Fund study of Fish and Wildlife data covering the 492 species listed between 1986 and 1991. The study shows that listing came late for most species. In the case of plants, the median number of individuals at the time of listing was only 119; animals fared a bit better, with 999. "Current thinking for vertebrates is that a thousand individuals is about 50% below what is necessary for viability," says Mark Shaffer, director of natural heritage programs at The Nature Conservancy, the big private land trust. "The point is that they are being listed so late they couldn't ever be recovered, almost no matter what. They may be worth hanging on to as long as possible, but it could well be that they can't fully recover."

Another reason for the lack of delistings, Gordon counters, is that the criteria for delisting are "often absurd." According to the law, Fish and Wildlife is supposed to create a "recovery plan" for each listed species that itemizes the steps necessary for recovery; completion of these steps triggers delisting. But some of those plans sometimes contain extraordinarily ambitious steps. As noted in a National Wilderness Institute study, the recovery plan for the loggerhead turtle, for instance, requires that almost 90 miles of the Atlantic beachfront property used as nesting sites be put in public ownership. The plan for the blunt-nosed leopard lizard asks Fish and Wildlife to "reduce or eliminate" all conflicting land uses, such as agriculture, on about 60,000 acres of the San Joaquin Valley, one of the nation's prime farm belts. And the plan for three species of beach mouse spread along the Alabama and Florida coasts calls for the government to persuade owners of oceanfront property to place covenants on their land that would forbid letting house cats roam outside. "Do you know how many Garfield fans there are?" Gordon asks. "Is it any wonder that these mice have not been delisted?"

As a result of the poor condition of listed species and the sometimes unrealistic criteria for their recovery, boosters and critics of the law agree that the number of delistings provides only a rough measure of the law's effectiveness. To Nikos Boutis of the Endangered Species Coalition, a confederation of nearly 200 environmental, religious, labor, and professional groups, the success of endangered species regulation is demonstrated by the simple survival of listed species. "There are things that are still on the list but would be extinct if they had not been" on the list, he says. "And there are many other listed species that have improved notably," all of which should be included in any effort to assess the act's record.

An example is the whooping crane, which Bean describes as "by any reasonable measure a successful effort." In 1954, only 21 of these huge, slowly reproducing birds survived in the wild. After four decades of protection, the 1994 number was 288—an order-of-magnitude increase, although still far from enough to delist the crane.



No exit. The arctic peregrine falcon is one of the few "delisted" species, as the chart shows—but the bird's recovery was not due to the act.

U.S. FISH AND WILDLIFE SERVICE/MASLOWSKI PRODUCTIONS

Yet even these modest successes are far from universal. Reclassifying species from endangered to threatened—another, lesser indication of progress under the law—has occurred even less often than delisting. Between 1973 and 1994, Fish and Wildlife reclassified only 13 species. And according to the 1992 biennial report from Fish and Wildlife on the recovery of all listed species, the latest available, only 69 of the 711 species then listed—not quite 10% of the total—could be described as "improving," indicating progress toward full recovery. And another 28% had "stable" populations, a sign that their declines had been halted. But 33% were "declining"; another 27% were "unknown." (The remaining 2% were believed to be extinct.)

Even the few "improving" species are not always being helped in the way envisioned by aficionados of untrammeled wilderness. An example is the Socorro isopod (*Thermosphaeroma thermophilum*), a sort of aquatic potato bug that exists only in the area around Socorro, New Mexico. Millions of years ago the isopod thrived in the shallow sea that then blanketed the state. The uplifting of the southwestern mountain ranges stranded it in a few hot springs—a natural evolutionary experiment. In modern times, the springs became part of the Socorro water supply. Construction drove the isopod to tiny refuges in a system of pipes and open ditches that fed a now-defunct bathhouse and a cement horse trough with water from the old spring. At that point, *T. thermophilum* was a whisker away from annihilation.

In 1976, Mike Hatch of the New Mexico Department of Game and Fish chanced on the isopod in the horse trough. Noting its rarity and oddity—*T. thermophilum* is among the few freshwater isopods—Hatch convinced Fish and Wildlife to add it to the endangered list in 1978. He also established a captive population at the University of New Mexico, an action that saved the species from extinction in 1988, when a tree root burst the pipe that fed the horse trough, allowing it to dry out. According to Gerald Burton of the Albuquerque Fish and Wildlife office, a year later the agency spent $30,000 to dig eight bathtublike concrete tanks—"condos," as Burton calls them—in an acre of land donated by the town of Socorro. All eight now support healthy populations of the isopod—a de facto isopod zoo.

Budget pathos

Because supporters and critics of the law interpret this limited record of ecological success differently, they offer sharply divergent solutions to its shortcomings. For many years, says Boutis, the law was administered by "a Fish and Wildlife Service that was outwardly hostile" to its provisions. "If you're trying to make something fail, you can gener-

ally make it fail," he argues. "If the law was actually enforced, it would be more successful." In Boutis's view, a major obstacle to enforcing the act is its "pathetic" budget: $70.4 million in fiscal year 1995, a proposed $77.6 million in 1996. "If we're going to be serious about the commitment to protect these species, we have to generate resources that jibe with the enormity of the task."

But merely enforcing and funding the current system is not sufficient for real improvement, says Shaffer. "We need to work pro-actively, rather than getting bogged down in these deathbed fights," he says. "And we should turn our focus to entire ecosystems, rather than struggling to save some species, only to learn a year later that its next-door neighbor is also endangered." The Clinton Administration has thrown its weight behind this approach by supporting such regional projects as the Balcones Canyonlands Conservation Plan, intended to protect more than three dozen species in central Texas, and the Natural Communities Conservation Planning program, a huge effort to preserve the remnants of the coastal sage scrub ecosystem in southern California. "The goal," Shaffer says, "should be to put the Endangered Species Act out of business by preventing whole ensembles of species from getting in trouble to begin with."

To Sugg, however, these ideas are "a recipe for disaster." The law already protects species from harm wherever they are found, which can bring private development and other habitat-transforming activity to a halt. This potential to inflict economic damage, Sugg claims, "not only discourages people from going out of their way to help imperiled wildlife, but actually encourages people to go out and destroy wildlife habitat."

An example of what Sugg is talking about involves the San Diego mesa mint, which Fish and Wildlife listed in 1978. Just before the plant joined the list, one of its three known populations was deliberately destroyed by the development company that owned the population's habitat, apparently in an effort to prevent the act from stopping development plans. A similar fate befell about half of the only known population of the St. Thomas Island prickly-ash, which was bulldozed just before it was listed in 1985. These unfortunate activities are known as "shoot, shovel, and shut up," says Gordon. "You're pitting the habitat owners against the species." He adds that "if a conservation program is at odds with the landowners, there's a slim chance of it succeeding."

Such perverse incentives not only encourage landowners to destroy creatures and habitat they might otherwise leave alone, but they focus political resistance on the very idea of protecting endangered species. "The more stringent you make the act, the more you restrict business from going about its activities," says Gardner Brown Jr., a University of Washington economist who is a member of a National Research Council committee that is reviewing the scientific aspects of the Endangered Species Act. "The more you do that, the more they are going to complain. If you press on people too much, they say 'We're not going to have this law anymore.' "

PHOTOS BY U.S. FISH AND WILDLIFE

Isopod zoo. Socorro isopod used to live in a trough *(left)*; now it's housed in eight concrete tanks.

Recognizing this problem, all parties agree the recovery record could be improved by providing landowners with incentives to cooperate in the task of preserving biodiversity. "The rhetoric of incentives is embraced by just about everybody," Bean says. The problem, though, is that there is considerable disagreement about the form incentives should take, when they should kick in, and how much conservation private landowners should be expected to give on their own.

The full range is exemplified by the dozen wildly varying bills introduced in the last Congress to reauthorize the act. (A law's authorization enables the government to appropriate money to administer it. The previous authorization expired in 1992, but Congress has found ways since then to fund the endangered species program anyway.) One major proposal, supported by Representative Gary Studds (D–MA) and Senator Max Baucus (D–MT), would have let the Interior Department pay private property holders to carry out conservation actions for listed species, but only if those actions went beyond those required by the law—an idea Sugg derides "as giving landowners a little candy after you hit them with a stick."

In contrast, the proposal backed by Representative Billy Tauzin (D–LA) and Senators Slade Gorton (R–WA) and Richard Shelby (R–AL) would have required Fish and Wildlife to pay 50% of the costs private landowners incur in developing conservation plans under the act and to compensate landowners for "substantial economic losses" to their property. To Boutis, this amounts to "environmental blackmail." By threatening to destroy habitat, landowners would be able to force Washington "to pay them not to destroy their property—soaking up money needed for real conservation."

Neither proposal has been reintroduced in the new 104th Congress, but the chances of a bill like the one supported by Studds and Baucus succeeding became vanishingly small with the Republican takeover of Congress. In the House, Representative Don Young (R–AK) has established a task force to consider changes in the act. According to task force coordinator and committee counsel Elizabeth Megginson, the group will hold hearings around the country in the spring, making recommendations later this year. "All of it and any of it," she says, "is open to discussion."

No matter what Congress decides to do, Brown points out, significant improvements in the law's record can occur only if its budget is raised substantially. The approach exemplified by the Studds and Baucus bills offers to pay landowners for conservation, but only after they have delivered as much as the current law demands. Because incentives kick in late in this approach, gains in conservation would come from tighter enforcement of the current law—an expensive proposition. The Tauzin and Gorton/Shelby bills move in the other direction, with compensation being paid before landowners have satisfied the current law's requirements. With less demanded by the law, enforcement budgets would be reduced. But serious gains in conservation under this approach would only come from payments to landowners—another expensive proposition.

Expanding federal programs may be a tough sell in a climate of government downsizing, but at least this Congress, in a break with the past, seems willing to bring the debate to a resolution. According to Gorton, who chairs the Senate appropriations subcommittee that oversees the Department of the Interior, "the majority of members want to resolve this issue in 1995."

–Charles C. Mann and Mark Plummer

Mann and Plummer are co-authors of Noah's Choice: The Future of Endangered Species.