

A Journey of a Thousand Steps

by Paul Nickerson and
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Photo by C. Perez/USFWS



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The piping plover (top), seabeach amaranth (above), and Kemp's ridley sea turtle (opposite page) all benefit from the conservation of beach habitats. Progress toward recovery of the Kemp's ridley also has been aided by multi-national teams that collect and protect eggs.

Photo by David Bowman/USFWS

The Endangered Species Act of 1973 (ESA) requires the Fish and Wildlife Service and National Oceanic and Atmospheric Administration-Fisheries to develop recovery plans for listed endangered and threatened species and to implement these plans to the extent that resources allow. Species are considered to be recovered when their status has improved to the point that ESA protection is no longer necessary. Some critics of the endangered species program contend that very few species have been “delisted” since the ESA was passed, in spite of the money and effort that has been expended. If one looks only at the number of recovered and delisted species in contrast to the entire list, it would be easy to agree with that conclusion, yet such a cursory review hardly gives an accurate picture.

Many people see recovery as a straightforward goal that we should be able to achieve in a reasonable time. Unfortunately, however, there is seldom anything simple or straightforward about the recovery of an imperiled species. Instead, it is a complex, often circuitous process, a journey of a thousand steps. Sometimes great strides can be made in short order, but for most species, recovery is a hard-won victory following a fight against great odds.

Limits to the pace and success of recovery may be biological, fiscal, or anthropogenic (human-caused) in nature. Development pressures, economic and recreational uses, natural resource extraction, unintended technological consequences (e.g., effects of new sophisticated sonar on whales and dolphins, outmigrating salmon being ground up in power generating turbines) and biological

manipulations (exterminations of predators, intentional introductions of invasive species, etc.) are arrayed against the conservation of ecosystems. Ultimately, our society's ability and willingness to eliminate or ameliorate threats to biological diversity will determine what comes off the list and what may have to stay on it. Based on decades of experience and investigation, we are now able to identify a variety of specific obstacles to recovery and suggest the steps that might be taken to overcome them.

Sometimes, the factors that may prolong recovery relate directly to the life cycles of the species in question. For instance, sea turtles are slow to reach breeding age, so it may take years, even decades, of work before we see results from such programs as “head-starting” young turtles that are hatched and raised for a time in captivity. Coupled with





Stock Island tree snail

Photo by Beth Forys

continuing threats such as egg collection, predation, the trade in turtle shell, human consumption, and incidental take during shrimping operations, there's little wonder that sea turtle recovery is slow in coming. But with an attitude of "Never Say Die," our nation hasn't given up. As a result, we are witnessing a remarkable success story for one sea turtle species as Kemp's ridley turtles (*Lepidochelys kempii*) once again crawl ashore to nest in Texas after years of head-starting and releases.

Invasive plants and animals can also pose a serious problem for listed species. When there are few natural enemies in the areas they are colonizing, they can be extremely difficult to control. Zebra mussels, phragmites, and exotic snails are but a few of the more pervasive impediments to the recovery of some listed species. In many cases, invasive species imperil the existence of listed species through over-competition or predation.

Sometimes the culprit is an otherwise benign natural event. For example, Karner blue butterflies (*Lycaeides melissa samuelis*) rely on early successional pine savanna dominated by pitch pine and lupine. This dynamic habitat is literally growing out of existence in much of the butterfly's range, and efforts to replicate

this type of open habitat in the absence of wildfires are being undertaken at great expense.

In most cases, habitat is lost or altered as a consequence of human activity. In the Southeast, many habitats of mussel species that need clear, flowing water have been inundated by dams or degraded by pollution, nearly obliterating the world's epicenter of molluscan diversity. To prevent the extinction of some of these rare mollusks, we have learned how to propagate certain species in captivity, with the goal that their offspring can then be used to repopulate depleted stretches of suitable habitat. This work, which has entailed years of research and experimentation, is well underway. But even with the improvements in water quality that have been achieved with other environmental laws, it will be decades before we begin to approach recovery in the remaining wildlife habitats.

Single catastrophic events can also be major setbacks to recovery. Recently, oil spilled from a barge despoiled Ram Island in Buzzards Bay, Massachusetts. Ram Island had been cleared of competing gulls some years ago to open up beach nesting habitat for the endangered roseate tern (*Sterna dougallii dougallii*),

Grizzly bears

Photo by Chris Servheen/USFWS





Recovery of Robbins' cinquefoil (left) was made possible by a partnership to protect the fragile alpine habitat and establish new populations. Pictured at left are Ken Kimball of the Appalachian Mountain Club, Bill Brumback of the New England Wild Flower Society, and Kathy Starke of the White Mountain National Forest.
 Photos by Susi von Oettingen/USFWS.



which then flocked to nest there. We are now faced with the need to frighten these terns away from the island so they won't become fouled by oil, even though a failure to nest this year could significantly set back the tern's progress towards recovery.

Lack of suitable undisturbed habitat is the principal biological factor that limits our prospects of achieving full recovery for many listed species. Two threatened species, nesting piping plovers (*Charadrius melodus*) and a plant, the seabeach amaranth (*Amaranthus pumilis*), compete with beach-goers, off-road vehicles, predators, development, and storm tides for a narrow strip of beach just above the high tide line. Intense management has improved the numbers of these birds and plants, but as long as the competing uses remain,

we won't be able to walk away from our beach protection responsibilities. A multitude of other species are also limited by lack of suitable habitat. For example, Stock Island tree snails (*Orthalicus reses*) are limited to a few Brazilian pepper trees in Florida because development has eliminated most of their habitat. Some of our listed fish exist primarily in refugia at hatcheries.

Research into the biology of species and the threats they face frequently is needed before progress towards recovery can be achieved, but this information often can be gained only over considerable time and through sustained effort. Planning an effective course for species recovery depends on having this knowledge. And although there are times when the road to recovery can readily be mapped, the funds needed to complete this journey are always limited. This situation places listed species in the unfortunate position of "competing" with each other for recovery resources. Finally, the recovery program itself must compete for funding with nondiscretionary aspects of the endangered species program that require immediate attention, such as listing, interagency consultations, and law enforcement.

Yes, recovery takes time and patience, and incremental progress is important. Much effort has been expended to recover flagship species like wolves

(*Canis lupus*), bald eagles (*Haliaeetus leucocephalus*), California condors (*Gymnogyps californianus*), salmon (*Oncorhynchus* spp.), whooping cranes (*Grus americana*), black-footed ferrets (*Mustela nigripes*), and grizzly bears (*Ursus arctos*). As a result, their populations are stable or increasing. In fact, wolves and eagles are now the subject of reclassification or delisting rules. We have also made great progress in improving the status of hundreds of other listed species, and even while they remain listed, their numbers are up and more habitat is protected. Over time, these and additional species will recover fully. The peregrine falcon (*Falco peregrinus*), Aleutian Canada goose (*Branta canadensis leucopareia*), and Robbins' cinquefoil (*Potentilla robbinsiana*) are three that were delisted recently after years of ESA protection and recovery efforts. Each is now self-sustaining and a living testimony to humankind's ultimate commitment to conserving biological diversity.

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