



Achieving Recovery and
Preventing Extinction

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Editor's Note

This will be the final edition of the *Endangered Species Bulletin* in its current format. Starting this fall, the publication will appear exclusively online at www.fws.gov/endangered/news/bulletin.html, and will be updated bimonthly. Each edition will include an in-depth feature article coupled with several supporting articles, a live endangered and threatened species news feed, plus other new and social media offerings.

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You can also call us at 703-358-2171.

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The Bulletin welcomes manuscripts on a wide range of topics related to endangered species. Please send an inquiry before drafting the article.

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◀ **On the cover:** The U.S. Fish and Wildlife Service and its conservation partners involved in the 30-year long Tennessee purple coneflower (*Echinacea tennesseensis*) recovery effort have reason to celebrate. In August 2011, the Service proposed to recognize the wildflower's recovery by removing it from the federal list of endangered and threatened species. ©2011 Daniel W Reed, www.2bnTheWild.com



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Recovering Endangered and Threatened Species

What Recovery Entails

by Debby Crouse



Kemp's ridleys display one of the most unique synchronized nesting habits in the natural world—females will come ashore in large groups and nest.

Photo courtesy of Gladys Porter Zoo

At first glance, someone reading the Endangered Species Act (ESA) may miss the recovery section altogether – Section 4(f), which directs the development and implementation of recovery plans for the conservation and survival of listed species, with little further guidance regarding the contents or implementation of these plans. All of this fits into two thirds of a page in a law that is 45 pages in length.

By delving deeper, one will realize the fundamental focus of the ESA is the recovery of endangered and threatened species. Most other sections within the ESA simply provide mechanisms to facilitate recovery. Indeed, the

primary purpose of the ESA, as stated by Congress is to “provide a means whereby the ecosystems upon which endangered species and threatened species depend may become conserved, [and] to provide a program for the conservation of such . . . species.”

So how do we achieve recovery, and how do all of the other aspects of the ESA fit in? This edition of the *Endangered Species Bulletin* outlines the recovery process from beginning to end.

We begin with an article describing the purpose of recovery plans and their role in strategically guiding the recovery program for any given species. Recovery plans provide

direction for effectively achieving recovery. They also serve as outreach documents to those who are not directly involved with a species' recovery, but have an interest in the implementation of a recovery plan and how that plan might affect them. Therefore, plans must build a logic train between the current status of a species, the reasons for its endangered or threatened status, and why we believe a particular strategy and suite of recovery actions serves as the most efficient and effective way to recover the species. The Ash Meadows National Wildlife Refuge article later in the edition describes a recovery program guided by a relatively uncommon ecosystem-based recovery plan addressing a suite

of species impacted by the same threats in a small area.

The U.S. Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS) have been charged with determining whether to list species, reclassify them, or delist them—the Service for terrestrial and freshwater aquatic species, and NMFS for most marine species. These determinations are based on an analysis of various factors, commonly referred to as threats. Each listed species has a unique combination of biological attributes and threats (e.g., loss of habitat) that has led to its endangered or threatened status. Analyzing a species' inherent vulnerabilities and how, when, and where various threats may affect the species helps us craft the most effective strategy for recovery. This is exemplified by the article on the threatened southwest Alaskan distinct population segment (DPS) of the northern sea otter (*Enhydra lutris kenyoni*), which demonstrates how such a threats assessment led to identifying the most important threats to the DPS and a targeted recovery program for the otters.

Species recovery has its challenges. The article on the threatened bull trout (*Salvelinus confluentus*) in the Lemhi Basin illustrates how we can address uncertainty when making

management decisions for endangered and threatened species, and therefore overcome various challenges to species recovery despite the uncertainties. Building adaptive management into a recovery program allows us to use the best tools currently available as we continue to learn more about a species and its management needs. A suite of additional articles highlight the diversity of situations and obstacles we encounter during the recovery process and how our biologists rise to these challenges.

Still, even the best of plans will not lead to recovery if they are not implemented. However, neither the Service nor NMFS have the resources, authorities, or the skills necessary to fully execute most recovery plans. We rely on our partnerships with other programs within the Service, NMFS, other Federal agencies, States, Tribes, private landowners, conservation organization, and industry to help implement many of the actions outlined in recovery plans. Several articles in this edition illuminate a few of the various partnerships and 'tools' that have helped facilitate implementation of most recovery plans.

Usually, it is up to the lead recovery biologist to engage conservation partners and coordinate their overall actions into a cohesive, strategic whole. This, however, is only one,

and sometimes a minor, part of what they do. So what does it take to be a successful recovery biologist? Here, one of our recent Recovery Champion award winners gives us a glimpse of what it can be like to take on that role.

Once a recovery plan has been implemented, how do we determine a species has recovered to the point that it can be delisted, and how do we ensure the species' status does not deteriorate again once ESA protections are removed? The tale of the Lake Erie watersnake (*Nerodia sipedon insularum*) illustrates the entire process from recovery planning through implementation to delisting and subsequent 'post-delisting' monitoring.

We are constantly seeking ways to improve coordination throughout the Endangered Species Program to enhance the efficiency and effectiveness of species recovery. We see periodic threats assessments as an activity needed throughout a species' tenure under the ESA. A shared framework and database for the latest species' information and threats assessment will ensure a common understanding of a species' status and issues, giving us a jump start on species' management and recovery throughout the program. Another project underway is the updating of the NMFS/FWS joint recovery planning guidance to address ways to make plans more flexible and user-friendly for our recovery biologists, conservation partners, and other stakeholders, to help them identify opportunities to make more meaningful contributions to recovery.

The Black-footed Ferret Recovery Program is celebrating two major milestones this year: the 30th Anniversary of the species rediscovery and the 20th Anniversary of their successful return to the wild. *Ryan Hagerty, USFWS*



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Guiding the Recovery Process

Recovery Plans and Planning

by Mary Parkin



Jesup's milk-vetch, an extremely rare member of the bean family, occurs only at three sites along a 15-mile stretch of the Connecticut River in New Hampshire and Vermont. ©Lisa Mattei, New England Wild Flower Society

In 1989, as the newly minted Recovery Coordinator for the U.S. Fish and Wildlife Service's Northeast Region, my first encounter with a recovery plan was for the endangered Jesup's milk-vetch (*Astragalus robbinsii* var. *jesupi*). With the 1988 Endangered Species Act (ESA) amendments and a few recovery plan examples in hand, I worked alongside the Service's lead biologist

and a contract botanist to create a document that would do justice to the issues facing this rare plant.

Our efforts resulted in a plan with a wildly ambitious set of recovery criteria and wish-list of actions. I still recall, though, the stimulating discussions, the careful analysis, and the many questions asked as we attempted to chart an effective course of action. To

this day, the plan, however outdated, continues to provide the underpinning for valuable recovery activities.

As reflected in the language of the ESA – and particularly in its 1988 amendments – Congress envisioned recovery plans as conservation guides pertaining to virtually every listed species, with the dual purpose of ensuring effective action and accountability to the public (which is kept informed of recovery progress through biennial recovery reports to Congress and other reporting mechanisms). Appreciation of the need for sound recovery plans has evolved over the years; now, more than ever, we understand that recovery is a complex process requiring a focused strategy based upon good information, clear goals, and specific proposals.

Recovery plans have followed this evolution of understanding ever since 1976, when the first plan for the Columbia white-tailed deer (*Odocoileus virginianus leucurus*) was produced. The recently approved St. Andrew beach mouse (*Peromyscus polionotus peninsularis*) plan, for example, is different from early plans in many ways. Most notably, its recommendations stem from a systematic threats assessment that quantifies specific dangers to the species, whereas early recovery plans included general descriptions of threats and focused primarily on population targets. As well as more fully responding to threats, current plans tend to call for more rigorous scientific analyses and treatment of uncertainties, more explicit recovery strategies, and increased monitoring. Biologists embarking on recovery planning efforts today also follow updated guidance on the minimum requirements of a plan, including site-specific management actions; objective, measurable delisting criteria; and time/cost estimates for achieving recovery.



Piping plovers are the beneficiaries of an extensive recovery cooperator network. Federal and state agencies, state municipal beach managers, and non-governmental organizations focus a considerable amount of attention on the research, monitoring, protection, and management of these small shorebirds. ©Jim Fenton

Despite these advances, it's reasonable to ask how much inherent value recovery plans add to the actual recovery process. Some see a tension between the “thinking” and “doing” phases of recovery, contending that planning diverts attention and funding from on-the-ground actions. It's also fair to say, however, that planning is essential for designing effective restoration activities. Recovery plans force us to envision what success looks like and to lay out a clear path for achieving that vision.

Species can benefit from individual planning endeavors in several specific ways. There is often a “bounce” in visibility and recovery momentum during the planning effort. For example, through the process of revising its recovery plan, the threatened Chittenango ovate amber snail (*Succinea chittenangoensis*) gained an invigorated recovery team and funding for long-delayed actions. Partnerships are typically enhanced, as exemplified by collaboration of multiple entities for the recovery of piping plovers (*Charadrius melodius*). Planning allows us to identify critical

information gaps that need to be filled in order to make better recovery decisions and prevent inadvertent impacts to species. Taking the time to develop a plan also allows us to step back and reflect on present and future challenges to recovery, such as the emergent threat of white-nose syndrome, a rapidly spreading fungal disease that is putting Indiana bat (*Myotis sodalis*) and other bat species at great risk. Finally, good planning makes it more likely that approved recovery actions – among all possible actions – will have tangible benefits for the listed species, and the plan document allows us to convey this confidence to others. In this sense, recovery plans serve an essential function as outreach materials for both partners and the general public. Laying out a clear case for a particular recovery strategy and the associated recovery criteria and actions heightens that prospect that others will understand their role in and be motivated to contribute to the recovery process.

For species on the initial endangered species list, the “Class of 1967,”

recovery actions were implemented on a species-by-species basis. Now, however, half of our approved recovery plans are designed to address multiple species that occupy shared habitats or face similar threats. As of June 2011, 1,100 species were included in a total of 552 approved plans. Among others, multi-species recovery plans have been prepared for the Holmgren's milk-vetch (*Astragalus holmgreniorum*) and the Shivwits milk-vetch (*Astragalus ampullarioides*), found in Utah and Arizona, for several freshwater mussel species, and for a host of Hawaiian plants and animals. When species are co-listed because of shared habitats, biological traits, or threats, a plan may consolidate strategies and actions. Ecosystem-based plans can also prove useful, particularly if all of the covered species are endemic to that ecosystem. As a guiding principle, all recovery plans should steer recovery in the most efficacious way possible.

Our ultimate goal of restoring endangered and threatened species to long-term viability in the wild has been well-served through the traditional recovery planning process. But as times are changing, so are the approaches to recovery planning. In years to come, recovery plans will be even more practical and dynamic, more attuned to new technologies, and more responsive to scientific advances. Recovery is, by definition, an optimistic, forward-looking venture, and as we continue to hone our planning tools and skills, we'll be ever more able to guide species to a secure future.

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Evaluating Threats for the Southwest Alaskan Sea Otter

by Douglas Burn



Biologists lay out tangle nets to capture sea otters in Alaska. USFWS

Species become endangered or threatened due to one or more factors, commonly referred to as threats. Usually, these threats are primarily human-induced. Threats affecting a species' abundance, range, reproductive capability, and/or their genetic diversity make them more vulnerable to other threats or natural events, such as hurricanes or climate change. Recent recovery plans incorporate an explicit "threats assessment" to identify various

threats, evaluate their impacts on the species, and rank their relative contribution to the species' endangered or threatened status. This makes for a more effective recovery strategy, which focuses on abating threats in order of their priority. It also facilitates a better understanding by potential conservation partners and other stakeholders of how and why we identify a particular strategy and a prioritized suite of recovery actions to most effectively achieve recovery

of the species. In turn, potential partners more readily see how they can contribute to the species' recovery.

Depending on the specificity of the information available, threats assessments can range from more a qualitative assessment based on the studied opinion of a number of experts on the species' issues, to a quantitative and detailed assessment based on empirical data. In either case, the added value of explicitly analyzing threats is the clarification of areas of uncertainty, pointing to needed research in order to refine our understanding of a species' threats and their relative impacts. The threats assessment developed for the 2010 draft recovery plan for the southwest Alaskan distinct population segment (DPS) of the northern sea otter (*Enhydra lutris kenyoni*) illustrates such an assessment and how it has facilitated development of a recovery strategy and plan for otters.

The DPS was listed as threatened in 2005 after survey information indicated that the otters had declined in abundance by more than 50 percent since the mid-1980s. The cause of the overall decline is not known with certainty, but the weight of evidence points to increased predation, most likely by the killer whale (*Orcinus orca*), as the most likely cause. Other threats considered in the recovery plan include infectious disease, contaminants, oil spills, food limitation, disturbance, bycatch in fisheries, subsistence harvest, and loss of habitat.

The recovery team began by identifying six ranking criteria for each threat:

- Potential impact—the amount of effect the threat could have on the population in an area where the threat occurs;

- Geographical scope—the geographical extent of the threat across the management unit being considered;
- Likelihood—the likelihood that the threat will occur within the next 10 years;
- Level of confidence—the degree of confidence in the assessment of the previous three factors;
- Importance to recovery—an overall assessment of how much the threat could affect recovery; and
- Management potential—an estimate of the likelihood that the threat could be managed to reduce or eliminate its impact.

The importance of each of these factors was ranked with one of three categories, such as “low/moderate/high” or “not likely/somewhat likely/very likely.” For example, the threat of oil spills could have a “high” potential

impact on sea otters because they rely on a dense and well-maintained coat of fur as insulation from the cold waters where they occurs, and crude oil reduces the insulative capability of otter fur. However, the likelihood of occurrence over a wide geographic scope was determined “not likely” because large oil spills are a relatively rare occurrence. In this type of analysis, important threats with high management potential indicate areas where recovery actions may be the most successful.

After ranking all the threats for each of the five geographic management units within the DPS, the recovery team integrated all this information to create a summary ranking (low/moderate/high importance) for each threat. It was determined that most of the threats were of low importance, with only predation ranking as high importance. The recovery plan includes a narrative description of each threat, which describes the rationale behind the summary ranking.

The team also developed a Recovery Action Plan that details an exhaustive list of actions that could be taken to help recover the DPS. The list of actions was partially informed by the outcome of the threats analysis describe above. In addition, the assignment of priorities in the Recovery Implementation Schedule was also based on the importance of each threat.

To be effective, recovery plans must identify and prioritize among multiple threats according to the risk they pose to the species sustainability. Variations of this more explicit and transparent approach to analyzing threats have also been used in other recent plans such as that for the St. Andrew beach mouse (*Peromyscus polionotus peninsularis*), the northwest Atlantic population of the loggerhead sea turtle (*Caretta caretta*), and the Kemp’s ridley sea turtle (*Lepidochelys kempii*), and have contributed to more effective recovery planning. As with all aspects of the recovery process, threats assessments should be reviewed and updated appropriately as new information becomes available. They can also be used to determine whether a species is ready for delisting, or if the recovery plan is in need of revision.

A mother and pup sea otter caught in a research net. Adult sea otters are radio-tagged and tracked for up to two years. USFWS



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The Role of Safe Harbor Agreements in the Recovery of Listed Species in California

by Richard Kuyper

Because the majority of land within the United States is privately owned, and the range of many listed species are found partially or even entirely on private lands, it is necessary for the U.S. Fish and Wildlife Service to work successfully with private landowners to contribute to the recovery of listed species. In California, safe harbor

agreements are fostering relationships with private land owners and playing a significant role in recovery of listed species.

In a nutshell, safe harbor agreements are agreements between the Service and landowners who agree to carry out management activities on their lands that provide a net

conservation benefit to a listed species (e.g., contribute to recovery). In return for their contributions to species recovery, landowners are authorized to return the property to baseline conditions at the end of the agreement. Baseline condition refers to the amount of listed species habitat that existed on the landowner's property prior to entering into the

The California tiger salamander is one of the species benefiting from the Safe Harbor program. *John Cleckler, USFWS*





Landowners participating in the Safe Harbor program work to create and conserve suitable breeding habitat for both the California tiger salamander and California red-legged frog. Photos by James Jones, East Bay Municipal Utility District

agreement. Although temporary in nature, many of the conservation measures and management actions that are implemented in a safe harbor agreement come directly from recovery plans for the covered species. These beneficial actions continue for the

duration of the agreement, typically providing a net conservation benefit to the covered species for decades.

The Service's Sacramento Fish and Wildlife Office works with a variety of conservation partners to implement

safe harbor agreements that are providing significant conservation for listed species, such as the California red-legged frog (*Rana draytonii*) and the California tiger salamander (*Ambystoma californiense*).

In northern California, many California red-legged frog and California tiger salamander populations occupy small artificial water impoundments, or stock ponds, created by cattle ranchers for the purpose of providing water for their cattle. These stock ponds also serve as ideal breeding habitat for red-legged frogs and tiger salamanders, where they lay egg masses on emergent vegetation. The stock ponds hold water long enough into the dry California summer for the larvae to metamorphose into adults and disperse to upland areas. In some areas of northern California, these stock ponds make up some of the last remaining breeding habitat for these listed species. Most of these ponds were installed decades ago and can require expensive maintenance to address eroding dams or siltation, where the stock ponds are filled in with sediment over time and are no longer able to hold water. Many ranchers are fearful of listed species inhabiting their property, so they abandon the ponds in favor of less expensive options, such as off-stream water tanks and troughs that do not provide habitat for the listed amphibians.

The Service's Sacramento Fish and Wildlife Office partnered with the Alameda County Resource Conservation District, the U.S. Department of Agriculture's Natural Resources Conservation Service, and the Environmental Defense Fund to implement a programmatic safe harbor agreement to enroll landowners who want to maintain their stock ponds and surrounding uplands as habitat for the California red-legged frog and California tiger salamander. The Alameda Resource Conservation

“The ranchers we work with are proud of the land stewardship they provide. The safe harbor demonstrates to them that the Fish and Wildlife Service sees and values that stewardship,” says Pete Van Horn, program administrator for the Alameda County Resource Conservation District. “These projects wouldn’t happen without this real sense of partnership.”

District holds the programmatic safe harbor permit. To date, they have enrolled eight ranches, with over 10,000

acres (4,047 hectares) of habitat being managed for the two listed amphibians.

“The ranchers we work with are proud of the land stewardship they provide. The safe harbor demonstrates to them that the Fish and Wildlife Service sees and values that stewardship,” says Pete Van Horn, program administrator for the Alameda County Resource Conservation District. “These projects wouldn’t happen without this real sense of partnership.”

Recently, the Sacramento Fish and Wildlife Office partnered again with the Environmental Defense Fund to develop a safe harbor agreement to benefit the California red-legged frog and the California tiger salamander. This agreement was not with ranchers, but rather the East Bay Municipal Utility District, which provides water and power to the east San Francisco Bay area, including cities such as Oakland and Berkeley. This safe harbor agreement creates and

conserves suitable breeding and dispersal habitat for these species within almost 20,000 acres (8,000 hectares) of enrolled lands. The Utility District works to remove non-native bullfrogs and predatory fish from their stock ponds, and conducts habitat enhancement at the ponds by creating a diversity of habitats in each pond—each component targeting a life-phase for the frogs and salamanders. These voluntary management activities help ensure the ponds remain suitable breeding habitat for the two listed amphibians.

Currently, the Utility District has known occurrences of California tiger salamander on their lands and known occurrences of the California red-legged frog on private lands adjacent to the Utility District’s lands. The Utility District is hopeful that red-legged frogs will disperse to stock ponds on their property and utilize the stock ponds for breeding. However, they also wanted assurances that the listed species on

California tiger salamander larvae. USFWS





The federally threatened California red-legged frog now has a more secure future because of the voluntary management activities of landowners in California.

Flo Gardipee, USFWS

their land would not limit their ability to carry out their hydropower and water delivery obligations. The safe harbor agreement was a natural fit because the Utility District is now able to manage habitat on their lands to benefit the federally-listed species covered under the agreement without the fear of additional regulatory restrictions.

“Through this agreement, land managers have the ability to accomplish the District’s goal of good stewardship of its lands,” says Jose Setka, Supervising Fisheries and Wildlife Biologist for East Bay Municipal Utility District. “We have already discovered new California tiger salamander populations in new areas

during monitoring required in the agreement.” These new habitats will be added to the existing protected areas within the Utility District’s lands.

Together, these two safe harbor agreements have resulted in the protection and management of over 30,000 acres of aquatic and upland habitat for the California red-legged frog and the California tiger salamander. Although these agreements are temporary in nature, they both provide protection and beneficial management for the two listed amphibians for the 30-year duration of the agreements. At the end of the agreement, a landowner is authorized to return their property to baseline conditions, but it is likely

that many landowners will renew their safe harbor agreements with the Service and continue providing a net conservation benefit for listed species for many more decades to come.

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What Does It Take to be a Successful Recovery Biologist?

by Judy Jacobs

With a wingspan of over 7 feet (2 meters), the short-tailed albatross is the largest of three albatross species found in the North Pacific Ocean. It was also once the most numerous. Photo courtesy of the Yamashina Institute

When this question was posed to me, a single word popped into my mind. But first, let me say a bit about myself. I began my career with the U.S. Fish and Wildlife Service in the Endangered Species Program in 1981, and I've stayed with the program ever since. The work provides not only a sense of moral satisfaction, but also, importantly for me, it is never dull. Each species has its unique set of biological traits and challenges. Figuring out how to recover each endangered species is like solving a new puzzle. So, the word that popped into my head: creativity. That's the aspect of recovery I enjoy the most.

Of course, partnership skills are also essential for species recovery. The most creative and well-written recovery

plan would do no good if people aren't willing to implement it. Negotiation skills and the ability to listen are definitely needed. Two other qualities required for a recovery biologist are persistence and a talent for being an entrepreneur. A species is listed under the Endangered Species Act only after other conservation efforts have failed; if we give up, there's no other safety net. It takes talent to find conservation partners and funding sources, and to convince them about the value of their involvement in the species' recovery.

But back to creativity, and its close cousin, flexibility. Imagine recovering an endangered species as climbing a mountain. If a team member or partner suggests an alternate pathway to the summit, or if we run into a brick wall in the path we're on, can we be

creative and flexible enough to find another way, while progressing ever upwards?

Creative problem solving has come in very handy in recovery actions for the short-tailed albatross (*Phoebastria albatrus*), or STAL for short. This bird nests primarily in Japan but forages extensively in the waters off Alaska. The largest and once the most abundant of the three albatross species in the north Pacific, STAL were decimated by feather hunters during the late 1800s, and was thought to be extinct by the turn of the 20th century. Like the dodo, STAL nested on remote islands and had no fear of predators. In fact, the Japanese name for STAL, *ahoudori*, means "stupid bird." Unlike the dodo, however, albatrosses are powerful fliers, and their young remain

at sea for 5 to 8 years before returning to breed. In the mid-20th century, a few short-tails began showing up on the Japanese island of Torishima, one of the former breeding colonies. The Japanese were quick to realize what they had nearly lost, so they designated both the island and STAL as national treasures. But there was one slight problem: Torishima is an active volcano and could blow at any time! And just to spice things up, the *ahoudori* chose to nest on an unstable outwash slope. A landslide actually buried several chicks there in 2010. One other smaller STAL colony does exist, but it's on an island claimed by Japan, China, and Taiwan, so visiting there is politically infeasible.

The Short-Tailed Albatross Recovery Team (START) agreed that establishing at least one additional breeding colony within part of the bird's former range would be required for recovery. The best way to do this, we thought, would be to move young (one-month-old) chicks and rear them to fledging at the new location, in hopes that they would return there

to breed. STAL chicks take about 4 months from hatching to fledging, so we'd have to plan on at least a 3-month rearing period. We had no experience in raising baby albatrosses, so we looked for someone who did. Our best bet was researchers at the northern royal albatross colony at Taiaroa Head, New Zealand. Biologists there occasionally rear orphaned chicks or provide additional food to chicks that have lost one parent. In 2006, we acquired funding and arranged for our Japanese partners at the Yamashina Institute for Ornithology (who would be the main chick-rearers) to go to the Taiaroa Head colony for training. Unfortunately (for us, not the chicks), there were no orphaned chicks or other supplemental feeding needs at Taiaroa Head that year. Here was a brick wall in our path, or at least a one-year delay, with no guarantee that there would be an opportunity the next year either.

Was there another path to consider? I put out a few feelers within the Service. Could we possibly work at the big Laysan albatross colony on Midway

Atoll National Wildlife Refuge in the northwestern Hawaiian Islands? This proved not to be possible. However, the refuge biologist at Midway, John Klavitter, indicated that he could "spare" 10 Laysan chicks for rearing elsewhere. By a stroke of luck, Laysan albatrosses are reclaiming part of their former range on the island of Kaua'i. At Kilauea Point NWR, refuge biologist Brenda Zaun agreed to host the chick-rearing experiment. Although only four of the 10 chicks fledged, we learned to become much better albatross foster-parents, and our partners became much more engaged in the effort.

We've just finished our fourth year of STAL chick translocation at our new selected colony site, Mukojima Island, Japan, and have successfully fledged all the chicks (55 so far). We are encouraged to see some 2008 and 2009 fledglings returning to the new colony and even practicing courtship dancing!

So, my advice to recovery biologists is this: Don't be stopped by, or keep knocking your head into, those brick walls. Sit back, turn on your creative juices, and find another pathway up the hill. Your persistence will pay off!

Fish and Wildlife Service biologist Judy Jacobs (left) and Junko Obata of the Yamashina Institute for Ornithology (right) feed a translocated short-tailed albatross chick. Photo courtesy of the Yamashina Institute



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Editor's note: In 2006, Judy was honored by the Service as a Recovery Champion for her work with the short-tailed albatross. In 2010, the Yamashina Institute for Ornithology also received recognition as a Recovery Champion for its work on this species. For more information, visit <http://www.fws.gov/endangered/what-we-do/recovery-champions/index.html>.

“Is it a Colony Yet?”

Short-tailed Albatross Translocation Project Update

by Judy Jacobs

Endangered Species Bulletin readers may recall an article in the Spring 2009 edition (http://www.fws.gov/endangered/bulletin/2009/bulletin_spring2009-all.pdf) describing efforts of the Service and the Yamashina Institute for Ornithology to learn how to rear albatross chicks, with the ultimate goal of establishing a breeding colony of the endangered short-tailed albatross (STAL) on a safe (non-volcanic) and accessible island. The article ended with our first-year (2008) attempt to rear STAL chicks on

Mukojima, an island in the Bonin chain selected for the new colony site.

The month-old STAL chicks moved to Mukojima in February 2008 were reared successfully. After more than three months of daily feeding, all 10 chicks fledged. The post-fledging movements of five of these chicks, followed by satellite telemetry, were comparable to those of five parent-reared chicks fledged from Torishima. Given the success of our 2008 results, we decided to move 15 STAL chicks to Mukojima each year in 2009, 2010, and 2011. Ironically, just 10 days after the 2010 translocation, heavy rains on Torishima caused a landslide that killed at least two chicks at the donor colony and partially buried several others.

The good news is that all of the chicks moved to Mukojima in 2009 through 2011 fledged successfully, bringing the total number of chicks fledged from Mukojima to 55! Satellite tracking shows that the translocated fledglings appear to be surviving as well, or possibly even better, than their Torishima age-mates.

So the bottom line: Are the Mukojima birds a colony yet? No. The short-tailed albatross is a long-lived bird that does not reach

breeding maturity until five or six years of age. However, we've seen some early signs that are very encouraging.

In mid-April 2009, two subadult short-tailed albatrosses visited Mukojima (apparently attracted by decoys, the presence of translocated chicks, and playbacks of STAL vocalizations recorded at the Torishima colony). These subadults practiced their courtship dancing on Mukojima, a good sign that they might return to nest there in future years. Later that April, a subadult “visited” one of the older translocated chicks that was close to fledging.

In 2010 and 2011, subadult STAL have again been seen numerous times on Mukojima. Also, some of the young STAL that fledged in 2008 were spotted briefly back on Torishima, but they subsequently spent more time and exhibited courtship behavior on Mukojima. This indicates that the birds are behaving just like albatrosses should, flying extensively and recognizing their own species. Best of all, they seem to recognize Mukojima as a place where they might breed in the future!!

With these early paybacks on our extensive investments, we are excited to continue the translocation work for one more year, ultimately fledging (if all goes well) a total of 70 STAL from the new colony site. We have good reason to hope that our dream of creating a safe breeding colony for STAL will become a reality.

A translocated albatross chick still sporting remnant down on its head. Feathers will cover this chick's head prior to fledging in the coming days. Greg Balogh, USFWS

(Opposite page top): Biologists of the Yamashina Institute prepare a short-tailed albatross chick for its helicopter trip from Torishima to its new home on Mukojima Island. Kiyooki Ozaki, Yamashina Institute
(Opposite page bottom): Short-tailed albatross chicks arrive at the new colony site on Mukojima Island. Photo courtesy of the Yamashina Institute







Lupine and Cows

A Private Lands Success Story

by Kate Norman

Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*) is kind of a rock star among plants. It is a showy member of the pea family, with flowers that range from purple to brown in color, palmately compound leaves (i.e. leaflets are arranged like fingers on a hand), and a scent that has been compared to either grape soda or dirty socks. Not only is this lupine a rare species, it is also the primary host plant for the endangered Fender's blue butterfly (*Icaricia icarioides fenderi*), a celebrity in its own right.

Both Kincaid's lupine and Fender's blue butterfly rely predominantly on prairie habitat. The prairies of the Pacific Northwest are some of the rarest ecosystems in North America. Prior to European settlement, the valleys were frequently burned by the native people living in the area. When Europeans moved in, they adopted a protocol of fire suppression. Today, less than one percent of the historic prairies still exist. Most of the habitat has been converted to agriculture or urban development, but even areas that have been left alone have rarely survived intact. Without fire or some form of disturbance, the prairies are overrun with woody species and invasive weeds.

Kincaid's lupine is a long-lived perennial that is found mainly in the Willamette Valley, Oregon, where it occupies native grassland habitats.

Kate Norman, USFWS

Compounding the decline of the prairie ecosystem is the reality that most of this species' populations are found on private property. Plant species on private property have little protection under the Endangered Species Act. Unlike the case with animal species, the law has no prohibitions on the "take" of listed plants, unless the take occurs while state laws are being violated. Landowners are free to manage their threatened or endangered plant populations as they see fit.

So, with all of these factors, how is it that Kincaid's lupine has become, quite literally, a "poster child" for rare species management?

We have achieved success with this species and we're moving towards recovery and delisting. But this success has not resulted from any all-powerful authority. Progress has been achieved almost entirely through voluntary conservation by our partners and private landowners.

One of the greatest examples of how this species has been taken to heart can be found two hours north of Portland, Oregon, near the northern extent of the species' range. On an organic dairy farm in Boistfort Valley, Washington, surrounded by the foothills of the coast range, Kincaid's lupine thrives among a herd of cows.

It Began with Critical Habitat
Ted Thomas, an ecologist with the U.S. Fish and Wildlife Service's

Washington State Fish and Wildlife Office, says “critical habitat is where it all began.” Several historical reports of Kincaid’s lupine were documented in this area by the Washington Natural Heritage Program. Six years ago, these locations were included in a proposed designation of critical habitat for this species. Ted called the landowners to engage them in a discussion about this tool—what it is, what it isn’t, and what options are available for pursuing an exclusion. Critical habitat is designated in areas that possess habitat features that are necessary for a species’ survival. In some cases, an area may be excluded from critical habitat if it is determined that the benefits of exclusion outweigh the benefits of inclusion. Mary and John Mallonee were listening. With Ted’s help, and with guidance from Marty Cheney of the Natural Resource Conservation Service and Joe Arnett of the Washington Department of Natural Resources, the Mallonees created a grazing and management plan. The plan ensures that they can graze their cattle during certain times of the year and rotate their herds regularly while providing habitat for the lupine. During the comment period for the proposed critical habitat, the Mallonees submitted their management plan, which allowed them to be excluded from the final designation.

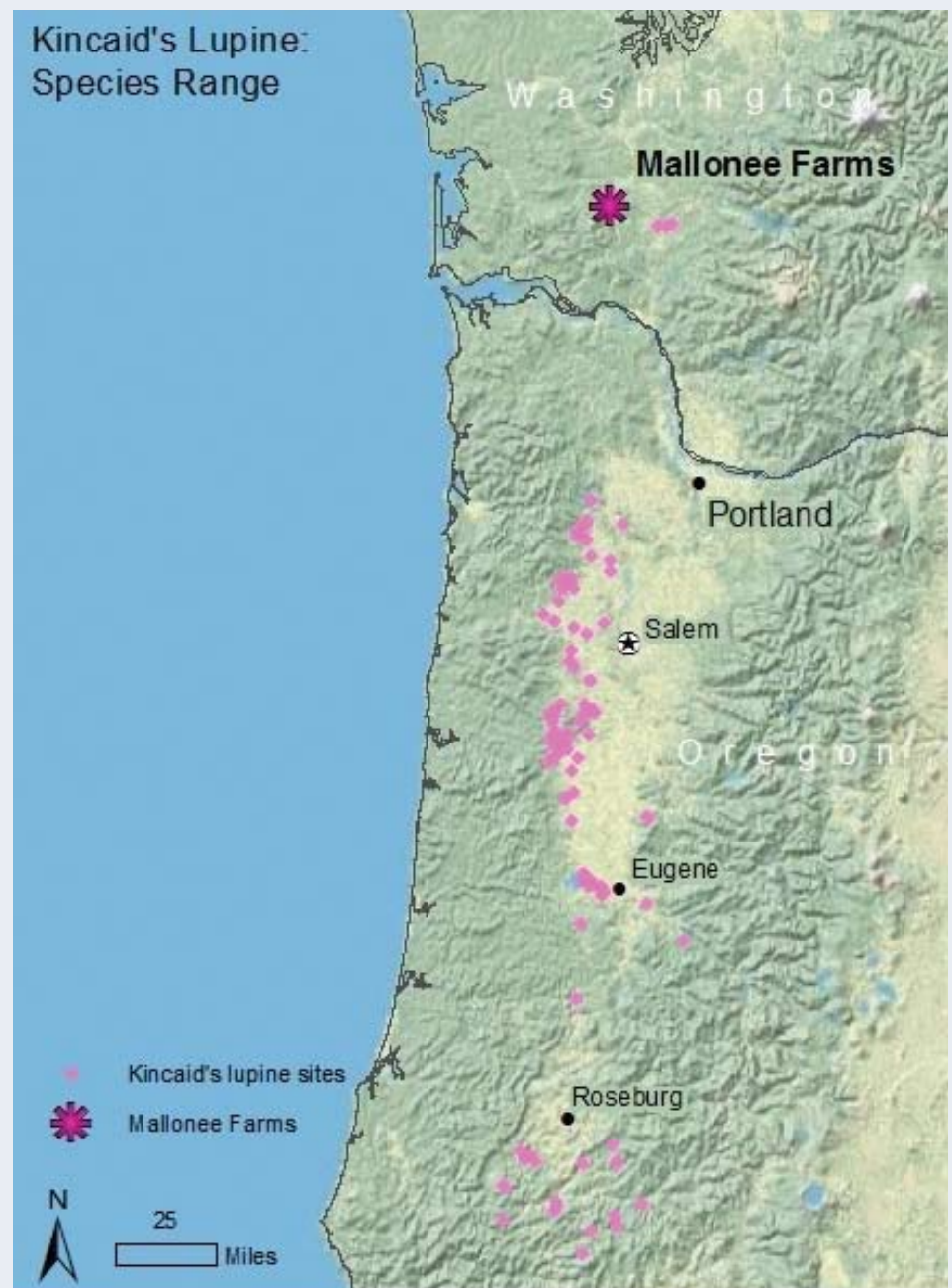
Bessie Helps the Lupine

The Mallonees’ story doesn’t end there. The first year after the grazing plan was put in place, they invited a group of 40 biologists out to see the site and prove to the nonbelievers that grazing was compatible with maintaining Kincaid’s lupine. In fact, that lupine was not only surviving but expanding.

The northern limit of Kincaid’s lupine is Lewis County, Washington, and it occurs as far south as Douglas County, Oregon. The Mallonee Farm is located in the northern extent of the species’ range.

Kate Norman, USFWS

Private landowners play a key role in conservation of threatened and endangered species. Where species occur on federal, state, or local government property, agency contacts are invaluable. But many species occur predominantly or exclusively on private property. In these cases, the only way to achieve recovery is by working with the landowners and supporting them in managing their habitat.





John and Mary Mallonee. Rebecca Dare, Washington Native Plant Society

“The Mallonees have an interesting story because their use of the land creates perfect conditions for lupine,” explains Joe Arnett. As organic farmers, they don’t use herbicides that could kill or harm the lupines. The absence of herbicide use is likely the reason why Kincaid’s lupine is still found on this site while it is absent from neighboring fields.

The grazing practices have also been beneficial. “[The Mallonees] are managing by stubble heights of the forage, the animals aren’t out there when the ground is really wet, and, since there’s plenty of palatable forage, they have no reason to want to eat the lupine,” says Marty Cheney. As Maynard Mallonee, son of the lupine property owners explains, “We call it the field of dreams theory. We maintain

the property and the plants are going to thrive as long as we provide them what they want, a safe, friendly habitat.”

The thriving populations of Kincaid’s lupine have drawn interest from federal, state, and other biologists. The Native Plant Society has visited on field trips, local school groups have been invited to the site, and every year the Mallonees, in conjunction with their dairy co-op, Organic Valley, host a Lupine Pasture Walk. In its fourth year in 2010, the Mallonees had over 130 participants.

Mary and John open up their pasture to showcase not only the Kincaid’s lupine, but other native wet and upland prairie plants that are found on the farm, including the mule ear (*Wyethia*

angustifolia), camas (*Camassia quamash*), pale larkspur (*Delphinium pavonaceum*), and thin leaved peavine (*Lathyrus holochlorus*). Their three children, Maynard Mallonee, Jodi Mallonee, and Diana Frampton, all help to prepare for this event. The lupine pasture day now includes a presentation by Joe Arnett on Kincaid’s lupine biology, lunch provided by Organic Valley, a botany bike ride, a hands-on soil lesson, and, of course, a walk through the lupine pasture with botanists from the state and federal conservation partners.

Word of Mouth

“The Mallonees are the ultimate family conservationists; they’re genuinely concerned about their stewardship of their land and the health of their land is demonstrated by the robust

lupine population,” says Ted Thomas. Although the Mallonees were more receptive to the idea of conserving Kincaid’s lupine than some other landowners, they have shared their positive experience with neighbors and friends who didn’t understand their interest in the plant. Mary remembers people telling her how terrible it could be to have a listed species, but she feels very differently about the work they’ve done and the relationships they’ve created. “Every time we walk in this pasture with Joe or Marty and other conservation people, we learn something new, every single time... It’s been a wonderful experience.”

John and Mary Mallonee have one of the healthiest Kincaid’s lupine populations in existence. Their commitment to the species and to

“The Mallonees are the ultimate family conservationists; they’re genuinely concerned about their stewardship of their land and the health of their land is demonstrated by the robust lupine population,” says Ted Thomas.

sharing their success has encouraged other landowners to talk to Joe, Ted, and Marty. The Mallonees have also done a great deal towards educating others about this rare species by

opening up their property and showcasing the lupine. By managing their grazing, the Mallonees have discovered how cows can be a lupine’s best friend and how protecting and managing for a listed species doesn’t have to cost landowners their livelihoods. If you’d like to learn more about the Mallonee Farm or the Annual Lupine Pasture Walk, please visit malloneefarms.com.

Kate Norman, who until recently worked on Kincaid’s lupine as a botanist in the Service’s Oregon Fish and Wildlife Office, is now with the endangered species recovery branch in the Arlington, Virginia, national headquarters office. Kate can be reached at kate_norman@fws.gov or 703-358-1871.

Joe Arnett (center) from Washington Natural Heritage Program shows a group of lupine pasture walk attendees Kincaid’s lupine. Ted Thomas, USFWS



Consultation as a Recovery Tool

by Larry Salata



The U.S. Forest Service and the Bureau of Land Management adopted the Northwest Forest Plan in 1994 to end the impasse over management of Federal forest lands in the Pacific Northwest within the range of the northern spotted owl. ©Jared Hobbs, hobbsphotos.com

The purpose of the Endangered Species Act (ESA) is to conserve endangered and threatened species and the ecosystems upon which they depend. The consultation provisions in section 7 of the ESA play a significant role in achieving that objective by directing federal agencies to carry out programs to conserve listed species, and to ensure their actions do not

jeopardize these species or result in the destruction or adverse modification of critical habitat.

Section 7 consultation involves coordination between federal agencies and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service prior to carrying out, funding, or otherwise authorizing federal actions that may affect listed species or critical

habitat. Adequate consideration of listed species in planning and implementing federal actions is fundamental to complying with the conservation purposes of the ESA.

The U.S. Supreme Court's 1978 decision in *Tennessee Valley Authority v. Hill*, a well-known case involving the construction of a dam on the Tennessee River that was likely to inundate occupied critical habitat of the endangered snail darter (*Percina tanasi*), affirmed the preeminent role of the ESA and section 7 in shaping federal actions to conserve listed species: "The plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost...the legislative history undergirding section 7 reveals an explicit congressional decision to require agencies to afford first priority to the declared national policy of saving endangered species." Accordingly, federal agencies are encouraged to integrate conservation programs into their activities to promote the recovery of listed species.

Several noteworthy examples of such integration resulting from ESA section 7 consultations involve federal agency activities in the Pacific Northwest, California, and Indiana.

In response to the requirements of section 7, the U.S. Forest Service and the Bureau of Land Management adopted the Pacific Northwest Forest Plan in 1994 as part of their land management responsibilities. Under the plan, large blocks of reserves are being managed for older forest habitat over an approximately 24 million-acre (9.7 million-hectare) area to address the conservation needs of the threatened northern spotted owl (*Strix occidentalis caurina*) and a multitude of other listed and non-listed species.

On San Clemente Island in southern California, the Navy has successfully

integrated conservation programs into its military mission. It has invested millions of dollars to eradicate feral goats and pigs that were causing significant damage to the habitat of native species, some of which are found nowhere else in the world. The Navy also funds ongoing research, monitoring, and habitat restoration activities on the island. Many listed species and listing candidates that occur on San Clemente Island have benefitted greatly from these conservation actions. Foremost among these recovery efforts is a world-class captive propagation and reintroduction program for the endangered San Clemente loggerhead shrike (*Lanius ludovicianus mearnsi*). From a low of five pairs in the wild in 1988, the shrike population increased to 82 pairs by 2009, and extinction has been averted.

For more than 30 years, the Marine Corps has funded intensive management and monitoring of the endangered California least tern (*Sterna antillarum browni*) and the least Bell's vireo (*Vireo bellii pusillus*) while carrying out its military training mission at Camp Pendleton in northern San Diego County, California. In the case of the vireo, those efforts began about five years before it was listed. As a result of these conservation actions, Camp Pendleton is home to about one-quarter of all California least terns and over one-third of all least Bell's vireos. The Marine Corps is also managing regionally significant populations of several other listed species on the Base.

At Klamath Lake in northern California, the Bureau of Reclamation operates a major water storage and delivery project for agricultural use. In conjunction with project operations, the Bureau has installed a fish screen on a major diversion canal, built a fish ladder to restore upstream movement of endangered shortnose and Lost River suckers (*Chasmistes brevirostris* and *Deltistes luxatus*, respectively)

into Klamath Lake, and removed a dam on an upstream tributary to facilitate sucker spawning. Since 2002, the Bureau has funded research on the status of these fish and the factors affecting their survival. Both species have also benefitted from extensive habitat restoration funded by the Bureau.

In 1997, endangered Indiana bats (*Myotis sodalis*) were first documented on the Army's Camp Atterbury Joint Maneuver Training Center in Indiana. At least three maternity colonies are now known to occur on this 33,000-acre (13,350-hectare) installation, giving it one of the highest concentrations of maternity colonies known across the bat's range. The Center is a very active facility, but its development has not precluded the Army from integrating Indiana bat conservation into the military mission. The Army and the Fish and Wildlife Service have cooperated to ensure that new training areas (e.g., a tank range) were developed in ways that avoid or minimize adverse impacts on Indiana bats. The Army has set aside some of the best habitat on the Center as Indiana bat management zones that are off limits to incompatible uses. The Army also has an active Indiana bat

monitoring and research program on the Center.

These examples are just a few out of tens of thousands of cases nationwide where compliance with section 7 has facilitated federal conservation of listed species to varying degrees. The Fish and Wildlife Service continues to work on enhancing the effectiveness of section 7 consultations as a recovery tool by encouraging federal agencies to integrate conservation actions into their activities. In 2006, the Service initiated a national effort to establish a web-based system for the development of "conservation frameworks" that describe the needs of listed species. The intent of these frameworks is to help federal agencies determine the best management practices to consider as part of their proposed actions to promote species recovery. This tool and other types of such integration are likely to further strengthen the role of the Service's consultation program in species recovery.

Larry Salata, the Branch Chief for Consultation and Conservation Planning in the Service's Pacific Regional Office in Portland, Oregon, can be reached at larry_salata@fws.gov or 503-231-2350.

The Army and the U.S. Fish and Wildlife Service have cooperated to ensure that development activities on Camp Atterbury Joint Maneuver Training Center in Indiana—an extremely active military facility—does not adversely impact the federally endangered Indiana bat. *Andrew King, USFWS*

