

BIRD CONSERVATION

The Magazine of American Bird Conservancy

Fall 2011





Advancing the Frontiers of Habitat Conservation

Some years ago, several ABC staff were mulling over ways to prevent incursions into our Latin American partners' forest reserves for wood-cutting and poaching. Finally, someone exclaimed, "The best defense could be a good offense," meaning that if we funded reserve neighbors to plant trees on their degraded pastureland adjacent to the reserves, we would not only provide critical buffers to our forests, but strengthen relations with our neighbors, and by extension, the entire community. We realized that we could push the forest frontier outward instead of retreating inward. This ultimately led to a multinational "silvipasture" development program funded by the World Bank, with ABC providing the conservation leadership. But more importantly, it spawned many new ABC approaches in both reserve sustainability and habitat recovery.

Though protecting the best remaining habitats for rare or declining bird species will always be a core strategy for ABC, we see an increasing role for restoring degraded habitat for birds. Why, I have been asked, would ABC ever undertake recovery of degraded

habitats while there is still good quality habitat remaining to be protected? There are actually several good answers to this. In the case of silvipasture (see article on page 22 for details on this technique), we were able to create landscapes that accommodate both cattle and trees, improving environmental quality and providing additional income for the landowner. This approach to reforestation can improve a landowner's understanding of a comprehensive "land ethic" and maybe even turn them into passionate conservationists.

Sometimes – as in the case of the Golden-winged Warbler – there is simply too little suitable habitat remaining, and more must be created. With the Kirtland's Warbler (see back page), which relies on young jack pine habitat, very specific conditions must be maintained to keep the species from disappearing altogether. Numerous habitats whose natural succession has been blunted by poor management beg to be recovered by improved fire or water management.

In some cases, prime habitat is just too expansive, or too expensive to purchase, or not for sale at all. In

those situations, sometimes the only option is to create or recover similar, nearby habitats. In other cases, a region's culture may be tied to rural land uses, and we can accomplish more for birds by working within the community, engaging farmers and ranchers in conservation on their own land. Since we cannot own all we want protected, showing the benefits of habitat recovery to landowners is the best way we know to leverage conservation dollars. Finally, by connecting smaller tracts of good habitat together with corridors of recovering or working habitat (such as shade coffee farms in the Andes), we can increase the habitat value of the smaller tracts.

In this issue of *Bird Conservation*, you will read about many of the challenges and approaches to habitat recovery. These methods augment the great tradition of "conservation through acquisition," and help us push the frontiers of bird protection. In doing so, we anticipate that habitat recovery and restoration will generate a new class of citizen conservationists.

George Fenwick
President, ABC





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ON THE WIRE

New Bird Species for Bolivia

In a recently published scientific article in *The Wilson Bulletin*, the Palkachupa Cotinga, previously considered a subspecies of the Swallow-tailed Cotinga found in Brazil, is proposed for elevation to full species status. The bird was rediscovered in Bolivia in 2000 by ABC partner Asociación Armonía after almost 100 years.

Like the Swallow-tailed Cotinga, the Palkachupa is a small, brightly colored bird with vivid yellow, white, and black feathers; the males have a long forked tail. It is distinguished from its more common Brazilian cousin by tail

length and colorization, and vocalizations. Both birds forage by flycatching from the canopy and eating fruits. They prefer to nest in trees along forest edges and even in isolated trees amongst savannah-type habitat. Their nests have also been found on barren, rocky ridge tops, which may indicate a lack of adequate nesting trees.

The Palkachupa Cotinga is endemic to Bolivia, and is likely to be classed as Critically Endangered due to its small population (600-800 individuals) and restricted geographic range. The population stronghold is based

around the small indigenous village of Atén in the northwest of the country, where Armonía has worked for the past three years to conserve the cotinga, establishing a 59-acre reserve, and raising awareness of the bird's plight within the local community.

"We truly hope this publication will result in more attention to this unique species, as well as additional resources towards its protection and improved understanding of its ecology," said Bennett Hennessey, Executive



Palkachupa Cotingas: Benjamin Skolnik, ABC

Director of Armonía and the author of the article.

Habitat for this new species continues to be reduced by ranching and agriculture. Future conservation actions will include reforestation and outreach campaigns, reserve expansion through land acquisition, community-driven tourism, and monitoring.

U.S. Fish and Wildlife Service to Initiate Listing of Red Knots

In July 2011, the U.S. Fish and Wildlife Service (FWS) announced it will expedite the process of adding the declining *rufa* subspecies of the Red Knot to the federal Endangered Species List.

This decision follows the release of the results of the 2011 population count on the bird's main wintering grounds in Tierra del

Fuego, South America. The survey found a shocking decline from the previous winter of at least 5,000 birds—approximately one third of the population. The FWS decision also coincides with the release of a new study that confirms the importance of an abundant horseshoe crab population in Delaware Bay to the survival of the *rufa* Red Knot. The

knots feed on the crab eggs during a critical stopover at the bay during their spring migration north to breed.

Despite growing evidence of unsustainable take of horseshoe crabs for use as bait in conch pots, the Atlantic States Marine Fisheries Commission, which regulates horseshoe crab harvest, has failed to reduce take quotas in the last six years. In fact, the Commission dismantled its own Shorebird Technical Committee after it recommended a moratorium on harvests.

ABC has worked for a decade to protect the population of horseshoe crabs from overfishing to safeguard the supply of eggs for the knot and other shorebirds.

"It became clear to us that the only way that the Atlantic States Marine Fisheries Commission was going to enact the necessary safeguards to protect the Red Knot's food supply was if they were forced to by federal action," said Darin Schroeder, Vice President of Conservation Advocacy at ABC. To that end, ABC joined other conservation groups in advocating for the listing of the *rufa* Red Knot under the Endangered Species Act.

"The U.S. Fish and Wildlife Service decision to list the *rufa* Red Knot, though long overdue, will someday be recognized as the turning point in staving off the bird's extinction," Schroeder said.



rufa Red Knot: Paula Sullivan



Horseshoe crab: FWS

New Peruvian Reserve protects birds plus newly-discovered plant and frog species

In June 2011, ABC and our Peruvian partner ECOAN, with support from the Gordon and Betty Moore Foundation, established a new reserve totaling more than 2,400 acres to help protect high-altitude cloud forests in central Peru. The San Marcos Private Conservation Area will protect part of the upper watersheds of biodiversity-rich Tingo Maria National Park.

The reserve is located on land owned by 125 families of the San Marcos community near Huánuco, and will be managed by them. ECOAN also worked with the community to earn approval for the reserve from the Peruvian national government.

Recent surveys discovered five new plant species and two new frog species in the area, which are in the process of



Powerful Woodpecker: Kevin Heffernan

being scientifically described. Bird species in the new reserve include the Fire-throated Metaltail, Powerful Woodpecker, and Brown-flanked Tanager. Only

thirty percent of the forest has been surveyed, however, and it is possible that the endemic and endangered Golden-backed Mountain-Tanager may also occur here.

Private Conservation Areas are an effective means of preserving lands in Peru, and serve as strong examples of the solid conservation results that can be achieved when local communities, government agencies, and private, non-profit groups work together.

ABC and ECOAN have also established seven community-owned and -operated Private Conservation Areas in the Cordillera Vilcanota of southern Peru to protect threatened *Polylepis* forests (see article on page 9).

These cloud forests are part of the new San Marcos Private Conservation Area. Daniel J. Lebbin, ABC



Trail at Abra Patricia Reserve, Peru: Benjamin Skolnik, ABC

Help ABC Stop Habitat Loss in Latin America!

Dozens of bird species are declining due to deforestation on their wintering grounds in Latin America. ABC is leading the way in restoring important habitat in Colombia, Ecuador, and Peru by working with our partners and local communities to plant more than 275,000 trees for the benefit of migratory species such as the Cerulean and Golden-winged Warblers, and endemic species such as the El Oro Parakeet and Long-whiskered Owllet. But we need your help.

ABC has received a grant from the U.S. Fish and Wildlife Service to support our reforestation projects in Latin America, **but we still need to raise \$30,000 in vital matching funds to complete our work.** Will you help us meet this goal?

You can help ABC stop habitat loss – the number one threat to birds – with your donation today. Please use the enclosed envelope to make an additional gift, or give online at www.abcbirds.org.



Red-crested Tree Rat Rediscovered at Santa Marta

This May, a unique, guinea-pig-sized rodent, not seen since 1898 despite several organized searches, showed up at the ecolodge in the Santa Marta Reserve in Colombia. The lone red-crested tree rat stayed for almost two hours while two excited research volunteers working with ABC partner Fundación ProAves snapped photos. “He just shuffled up the handrail near where we were sitting and seemed totally unperturbed by all the excitement he was causing. We are absolutely delighted to

have rediscovered such a wonderful creature after just a month of volunteering with ProAves,” said Lizzie Noble from Godalming, England, one of the volunteers. “Clearly the El Dorado Reserve has many more exciting discoveries waiting.”

“Had we not worked with ProAves to establish this reserve, it is reasonable to believe this species would still remain something that was only talked about in science journals or seen in collections. Now we need to work together to see that this species

continues to be a part of our world,” added George Fenwick, President of ABC.

The red-crested tree rat will now likely be designated as Critically Endangered on the International Union for Conservation of Nature’s Red List of Threatened Species. Of concern is increasing human settlement and the introduction of non-native species, such as cats, that prey on native fauna.



The newly rediscovered red-crested tree rat at the Santa Marta Reserve, Colombia: Lizzie Noble, Fundación ProAves

Lead Removal to Save Thousands of Albatross Chicks on Midway

This August, years of dedicated advocacy by ABC and others finally paid off as the U.S. Fish and Wildlife Service announced an agreement for a \$21 million effort to remove lead-based paint from Midway Atoll National Wildlife Refuge. This action marks a significant step forward in solving a decades-old problem that has resulted in the death of as many as 130,000 Laysan Albatross from lead poisoning.

Midway hosts nearly one million breeding Laysan Albatrosses every year, making it the world’s largest colony. Unfortunately, curious albatross chicks eat lead-based paint chips peeling off 95 abandoned buildings on the island. The chicks then develop a condition known as droop-wing, which leaves them unable to lift their developing wings off the ground. As many as 10,000 chicks have died each year from the toxic effects of lead, which include starvation and dehydration.



The clean-up will consist of abatement of lead-based paint from the exterior of the buildings, the demolition of certain structures, and the excavation and removal of soils that contain high levels of lead. Abatement activities will be conducted between July and October, when few birds are present on Midway. The entire project is expected to take five or six years, and the clean-up plan prioritizes sites with the highest potential to affect the birds.

“We are thrilled that the U.S. Fish and Wildlife Service is dedicating significant funding to put a stop to the horrific wildlife deaths that Midway has witnessed. This is an outcome we have been working towards for over ten years,” said George Wallace, Vice President for Oceans and Islands at ABC.

This action marks a significant step forward in solving a decades-old problem that has resulted in the death of as many as 130,000 Laysan Albatross from lead poisoning.

Laysan Albatross chick: George Wallace, ABC

HABITAT RESTORATION

Bird conservationists have developed a variety of tools to address the habitat needs of declining species. Perhaps the best-known is land protection, whereby habitat is safeguarded through the creation of public refuges, parks, private protected areas, or conservation easements. However, land protection alone can only get you so far.

More often than not, remaining habitat is degraded or simply insufficient to guarantee stable or increasing bird populations. Habitat restoration, broadly defined as the process of returning a degraded habitat to a healthy condition, then becomes a key conservation strategy. This is a more labor-intensive process requiring planning, persistence, and patience, without the immediate gratification of acquiring land. Habitat restoration is more often a journey than a destination, because full recovery of damaged ecosystems is frequently difficult to implement and takes time. Nevertheless, it's a goal worth shooting for.

Habitat restoration may involve any number and combination of practices, such as reforestation, grassland and forestry management (including selective thinning, controlled burning, and even clearcuts), water management, livestock exclusion/access control, pollution prevention, and invasive species control, often, of course, in tandem with a strong educational component directed at land managers, local authorities, and the public. Sometimes restoration can even include removing dams, beach erosion controls, and other structures that negatively influence the habitat, though not surprisingly, these opportunities are rare.

“Winning back” degraded habitat can help restore many native plant and animal species that had disappeared from the landscape, while creating other benefits such as improved air



Coffee seedlings flourishing in one of ECOAN's nurseries in Peru, 2011. Benjamin Skolnik, ABC

and water quality, pollution and erosion control, carbon sequestration, and watershed protection.

Many threatened bird species have already benefitted from the more hands-on approach of habitat restoration. Kirtland's Warblers (see page 24) have responded well to the restoration and maintenance of their fire-dependent nesting habitat, rebounding from the brink of extinction to thriving populations in several locations.

The Florida Scrub-Jay, another species that has dwindled to alarmingly low numbers, is also benefitting from ongoing habitat restoration. On a recent trip to Florida, ABC's David Pashley noted several healthy populations of scrub-jays and Red-cockaded Woodpeckers, (another endangered species) when he visited Ocala National Forest.

“Forest Service personnel have to create and maintain two completely different habitats for these birds. Their methods – controlled burns for the woodpecker, and maintaining early-succession habitat for the jay – seem to be working, since there are good numbers of both species present,” observed Pashley.

ABC and its partners continue to pioneer novel methods of habitat restoration, including new reforestation methods, techniques such as silvipasture that combine agriculture with habitat conservation, and working with local communities to plant trees and reduce deforestation.

Communicating the results of restoration projects is also a key ingredient to success. Sometimes, the benefits of habitat rejuvenation can most effectively be demonstrated by example. And so we hope that this issue of *Bird Conservation* piques your interest, teaches you more about the need for habitat restoration and management, and most importantly, convinces you of its value for birds.



Florida Scrub-Jay: Larry Master

REFORESTATION ACROSS THE AMERICAS:

NICARAGUA

by Andrew Rothman, International Conservation Officer, ABC



Faces, young and old, some worn from sun, some curious, others somewhat skeptical, all seemingly nervous, begin to show up at the small two-walled classroom at the El Jaguar Reserve in the mountains of northwestern Nicaragua. Often the forests here can be socked in with clouds. However, for this February reforestation workshop, with more than a dozen neighbors and local officials in attendance, the sun is bright over the forest and shade coffee plantations.

While we may wish that people could and would make decisions based on what is best for our environment and the long term survival of biodiversity, we have to expect that more often than not, people make decisions based on economic factors and the need to provide for their families. But the one need not be exclusive of the other. Many of the reserve's neighbors have come today to participate in workshops to better understand the benefits that reforestation and habitat restoration can have on their farms. They are happy to protect wildlife, but their driving motivation is to provide for their families.

I am helping Georges Duriaux, a trained agronomist and part-owner of El Jaguar, and Ana Lucia Corrales of Rainforest Alliance conduct the workshop on sustainable development. The meeting, supported by a grant from the Neotropical Migratory Bird Conservation Act, draws an engaged and lively crowd. There is interest from the neighbors in adding shade trees



Local landowners show off their posters from the workshop: Andrew Rothman, ABC, March 2011

to their coffee plantations, as well as reforesting along waterways. They can understand that planting and maintaining trees helps retain soil moisture and reduce erosion. Reforesting can help reduce their irrigation costs, and it will keep their coffee, potatoes, grazing land, and other crops healthier. It will also build beneficial habitat for local birds such as the vulnerable Highland Guan, and declining migrants such as the Golden-winged Warbler. In this region, maintaining soil moisture content and reducing erosion are key factors in restoring Golden-wing Warbler habitat. Participants leave with migratory bird posters, calendars, and T-shirts, and the satisfaction of knowing they can do something to benefit their farms and birds.

The next day, our group of workshop organizers takes a trip from the El Jaguar Reserve to the long extinct Yali volcano, the next closest area of good cloud forest habitat. We wind up and down and around the hills, past dozens of coffee farms, potato farms, and cattle ranches. We stop to talk to one coffee farmer. His brother was at the workshop and learned about reforestation. He wonders if he might be able to get some trees for his coffee plantation. We say of course. Word is already spreading that reforestation is good.



Reforestation in progress: Georges Duriaux, August 2011

We get to the end of the road, and walk a mile farther in the tropical, midday heat to visit the farmer who owns a good deal of the land that is considered Volcan Yali. He invites us in for a coffee, and his children look on with puzzled grins as we talk about reforestation and the possibility of setting up a nursery for growing and distributing trees in the region. After the coffee we go to see the trees he has already planted. We take a picture with him and his six-year-old son next to a tree he planted some 20 years ago that now towers over them. He already knows the benefits of reforestation and wants to get involved. His example will almost certainly benefit the project by encouraging other farms to join.

On the way back to El Jaguar we are able to see the ridgeline where a corridor of trees and habitat from El Jaguar to Volcan Yali could be created. It is exciting that neighbors are getting involved, and there is some initial momentum to continue to protect and build habitat in key Golden-winged Warbler wintering areas. As we pull back into El Jaguar, we decide to play the recording of the Golden-winged Warbler; fantastically after just a few notes a male appears; a golden moment.

FROM NICARAGUA TO BOLIVIA



Ash-breasted Tit-Tyrant (left) and Royal Cinclodes (below): Fabrice Schmitt



perhaps concentrating birds at the lowest portions of the forest with the least amount of accumulation. Whatever the reason, I was happy to find the birds I had come to see, including the Royal Cinclodes, Ash-breasted Tit-Tyrant, and White-browed Tit-Spinetail. After birding, we spent the night huddled in our sleeping bags on the chilly concrete floor of a local schoolhouse, trying to stay warm with hot noodle soup and tea prepared on camp stoves.

Visitors and community members who are planting trees in these reforestation areas must hike long distances over steep, rocky terrain to reach the best *Polylepis* areas, where the ground is soft, moist, and covered with moss. These *Polylepis* woodlands grow very slowly in the cold, windy climate; therefore, they are particularly impacted by local people cutting the trees for firewood, grassland

burns, and grazing livestock, which eat or trample small tree saplings.

ECOAN has been working with residents of more than 20 communities to reduce these threats and restore the forests by replanting *Polylepis* and other native trees, and erecting fencing to protect habitat. Some of the best restoration results I have seen here involve thickets of naturally regenerating *Polylepis* in an area fenced to keep out cattle. This takes advantage of *Polylepis* high seed production.

Growing conditions are much kinder in the humid, montane forests of the Abra Patricia and Huembo Reserves in northern Peru, where ABC and ECOAN are also working on forest restoration. Abra Patricia is closer to 8,500 feet in elevation, so altitude sickness is not the concern for visitors there that it is in Vilcanota. A temperate climate and abundant rainfall allow new plantings to flourish with minimal care.

Abra Patricia and Huembo span two major Alliance for Zero Extinction sites, connecting the humid eastern Andean cloud forests of Abra Patricia, which shelter the endangered Long-whiskered Owlet and Ochre-fronted Antpitta, to the drier Utcubamba

PERU

by Daniel J. Lebbin,
Conservation Biologist, ABC

The very first time I visited one of our project areas in the high-altitude Vilcanota region of southern Peru, I spent the night in Cancha Cancha, where ABC and partner group ECOAN are working to create a new Private Conservation Area to add to the more than 15,000 acres already protected in the Vilcanota Reserve Network. Cancha Cancha is one of the best places to see the Royal Cinclodes and other birds dependent on threatened *Polylepis* forests.

At over 13,000 feet above sea level, many visitors to *Polylepis* forests suffer from altitude sickness. I thought I was well-acclimated from my time in Cusco (parts of which are at over 11,000 feet), but I still found myself laughing for no apparent reason, one symptom of low oxygen levels. I had just enough brain power left to focus on finding the few *Polylepis* birds I was after.

A recent *friaje*, or cold front, had left a few inches of snow on the ground,



Marvelous Spatuletail: Daniel J. Lebbin, ABC

A newly-planted Andean Alder sapling, Abra Patricia:
Daniel J. Lebbin, ABC



Limoncillo seedlings in greenhouse (above) and Little Woodstar feeding on Limoncillo flower (below): Daniel J. Lebbin, ABC



buffer zone around the reserves. Local people (more than one thousand families) and landowners in at least five communities are participating in this tree-planting effort.

At a reforestation plot in the Abra Patricia Reserve, newly planted Andean alders sprout skyward in a former pasture. Turkey Vultures and a Variable Hawk drift by overhead, scanning the cleared areas along the road for a possible meal, while a White-bellied Woodstar zooms by to forage on flowering bushes. Nursery beds nearby are full of thousands of tiny alders, which will pave the way for other plants to flourish. Other tiny seedlings will one day flower to provide nectar for hummingbirds or shade for coffee plants, or grow coffee beans themselves, offering landowners an alternative to cattle grazing and sugar cane production. One day, some of these trees will tower over the landscape as part of a restored forest canopy.

During a recent visit, a local community leader proudly showed me the reforestation work he has undertaken on his land beneath the shady canopy of alders planted only four years ago. His community has even built an orchid garden, and is investing in other projects to attract tourists. Through forest restoration and grass-roots tourism development, he is pioneering a more diversified and sustainable economy in his town.

The local people who work at the communal plant nurseries in the area are also proud to participate in these reforestation efforts. On a typical day, a woman fills bags with soil in the nursery while her children play nearby, and their grandfather explains to me and a group of visitors how the nursery composts plant waste to make good quality soil. He demonstrates how they plants seeds into bags, and once the saplings are big enough, transport them to field sites for planting. He shows us a sample delivery agreement between the nursery and the landowners, specifying the quantity of trees promised and the landowner's responsibility to maintain them.

ABC and ECOAN now plant over 40 varieties of trees and shrubs here, many of which produce nectar for hummingbirds, fruit for tanagers, or provide habitat for the insects that make up a key food source for migratory warblers and other birds. Each plant represents the hope of local people, who will use them to build a better life as well as an improved environment for birds.

River Valley, home of the endemic and endangered Marvelous Spatuletail. These reserves are connected by one of the few paved highways crossing the Peruvian Andes. Along this road, small lumber yards can be found selling boards cut from trees harvested nearby, and much of the land close to the road has been cleared by local farmers for pastures and crops. Aside from protecting and restoring forests within these reserves, our project is putting back trees onto degraded private lands within a broad

A landowner and ECOAN staffer peruse a reforestation agreement: Daniel J. Lebbin, ABC



Bagging soil for plant seedlings: Daniel J. Lebbin, ABC



BOLIVIA

by Benjamin Skolnik, Conservation Projects Specialist, ABC



Across the southern Peruvian border lies wild, little-explored terrain, deep within the Apolobamba and Madidi protected areas of the Bolivian Andes. The critically endangered Royal Cinclodes, one of the rarest birds in the country, is relegated to the few small *Polylepis* forest fragments that remain in these areas. The Royal Cinclodes has adapted to an unfortunate niche. It does not just need a *Polylepis* forest; it requires a dense *Polylepis* canopy with a large expanse of moist moss groundcover underneath. Firewood collecting, cattle grazing, and uncontrolled seasonal burning of nearby pastureland has taken its toll on this very specialized habitat.

However, we have high hopes that last year's reforestation campaign, which planted 10,000 native fuel wood trees, will help restore parts of this *Polylepis* forest. Our next task is to get the rather finicky *Polylepis* trees to grow more densely, and provide the right conditions for the moss to grow so the Royal Cinclodes can thrive. This will require years of continued effort in these remote, inhospitable mountains.

The Beni: Bolivia's Pantanal

Travelling eastward, the Andes gradually transition to plains, and forest yields to tropical grassland.

"See those patches of forest evenly spread across the horizon?" said Bennett Hennessey, Executive Director of ABC's Bolivian partner group Asociación Armonía. "Those may have been created by humans thousands of years ago." People may have lived on these forest "islands" to avoid seasonal flooding, which inundates these lands



Blue-throated Macaws; Giant Anteater: Benjamin Skolnik, ABC

for most of the year. Anthropologists speculate that these people also used these higher areas to cultivate a variety of food crops.

Bennett and I are in the Beni tropical savannah in northeastern Bolivia, one of two endemic ecosystems in the country (the other being inter-Andean dry valley in the center of the country, where ABC is working to restore habitat for the Red-fronted Macaw). The forest islands are surrounded by a sea of grassland that harbors an enormous diversity of wildlife. It looks more like the Serengeti plains of Africa than anything I have seen in ten years of traveling through Latin America. The maned wolf, with its long, lanky legs, is a specialist hunter of the grassland habitat found here. The giant anteater can also be seen meandering along, hunting for insects. More significantly, this site is home to the largest population of the critically endangered Blue-throated Macaw. This morning, we enjoyed easy views of several family groups and flocks of up to thirty individuals; now we are stalking elusive grassland specialists, such as the Cock-tailed Tyrant and Masked Finch, both considered vulnerable to extinction.

Armonía manages the Barba Azul Nature Reserve (Barba Azul is the local name for the macaw), which

protects over 12,000 acres—a sizeable reserve, but still only a small part of the entire Beni ecosystem. This reserve, initially established to protect the macaw, is now a haven for dozens of threatened species. While traveling the reserve, we discuss opportunities for management of this unique place; Armonía is creating a system of fire breaks and will conduct patchwork burns to maximize habitat for key grassland species.

Meanwhile, we may try to establish additional forest islands to create more palm fruits and roosting sites in the reserve, which will also minimize the impacts of ongoing habitat destruction beyond the reserve's boundaries, mostly from cattle ranching.

Through ongoing habitat restoration efforts, ABC and its partners have also been able to learn an extraordinary amount about cultivating native trees. We are pioneers in this field in Bolivia because many local agronomists are limited in knowledge of commercial tree species; our outstanding record of success in relatively few years shows what can be accomplished when the effort is made. Our partners have so far planted over one and half million trees, and maintain nurseries with an annual capacity to produce more than a million saplings of over 150 tree varieties. With continued support, we expect to improve our ability and accomplish much more.

ECUADOR and COLOMBIA *by Benjamin Skolnik, Conservation Projects Specialist, ABC*



Several cell phones hang precariously from tree limbs in the small parking area outside the Jorupe Reserve in southern Ecuador, making a sort of avant-garde tropical Christmas tree. It is early on a March morning, and Fundación Jocotoco's Director of Reserves, Javier Robayo,



Grey-cheeked Parakeet: Adrian Royle

Executive Director, Zoltan Waliczky, and I are heading out to see some of the many dry-forest specialist bird species such as the Grey-breasted Flycatcher and Grey-cheeked Parakeet. One phone rings and a forest guard comes running down the path. He answers the call on his tiptoes in an effort not to dislodge the phone from the only place one can apparently get a signal, comically leaving it hanging from the branch throughout the conversation. His call is about a massive effort to plant 227,000 native trees on old cattle pasture at four reserves owned by ABC partner Fundación Jocotoco. These pastures could provide excellent bird habitat if properly restored.

The trees that line the parking lot and road that shade us from the intense tropical sun were planted in a

previous reforestation campaign just two years ago. At over 15 feet, I find their exceptional size hard to believe given the slow growth rates of trees in North America. The forest guard boasts that these trees grew so quickly due to his constant watering. We see other trees that are smaller and were apparently harder to access with water buckets. Jocotoco has become one of the leading institutions in Latin America when it comes to reforestation of native vegetation. In just a few years, they have planted an outstanding 650,000 trees. If one were ever unconvinced of the merits of planting trees, Ecuador is certainly the place to visit.

Jorupe Reserve, Ecuador: Benjamin Skolnik, ABC



The mega-diverse country of Colombia is well-known to host a disproportionate amount of the world's bird species, many of which are threatened. Fortunately, migrant and resident birds alike are finding sanctuary in Colombian forests thanks to the encouraging reforestation efforts of ABC partner, Fundación ProAves.

At nearly all of their 18 reserves, ProAves employs forest guards and local residents to establish and maintain tree nurseries. An incredible 80 species of native trees are transplanted within degraded properties acquired by ProAves and incorporated into existing private reserves. This adds vital habitat for dozens of highly threatened species, including the magnificent Dusky Starfrontlet hummingbird and the

elusive Blue-billed Curassow. In addition, lands outside the reserves are reforested to create greater habitat connectivity. For instance, the Cerulean Warbler, a bright blue migrant from the United States, benefits from a conservation corridor project linking private properties between three ProAves reserves in the Serranía de los Yaragués. Landowners are encouraged to maintain forest plots and plant shade trees on coffee and cacao farms in exchange for training and other incentives, such as the installation of irrigation systems. At a recent workshop held by ABC in Peru, ProAves staff exclaimed how



Dusky Starfrontlet: Alonso Quevedo Gil

excited they were to scale up their efforts and become more efficient at producing plants after they witnessed the local Peruvian workers speedily transplant seedlings. We can only be thrilled at this force for positive change in Colombia, where so much land is being lost to urban growth and development.



Cerulean Warbler: Barth Schorre

REFORESTING THE APPALACHIANS

In the heavily wooded Appalachian region, reforestation efforts are rarely needed at a large scale. Riparian areas or pastures may be planted to trees after decades of grazing, or small fields surrounded by forest might be given a jump start back to forest cover by planting desirable hardwoods or trees that produce food for wildlife, but active planting of seedlings is rarely used on larger areas for two reasons: it is very hard work, and Appalachian forests are pretty good at re-establishing themselves... most of the time.

Various types of “surface mining” (which includes conventional contour mining, but also the controversial practice of mountaintop removal) have left visible and lasting scars on the Appalachian landscape. Following the implementation of the Surface Mining Control and Reclamation Act of 1977, regulators focused on stabilizing the landforms created by mining to prevent erosion, instead of restoring diverse, native forests. This resulted in companies compacting soil excessively and planting aggressive, non-native (and inexpensive) ground covers such as fescue.

These compacted soils and non-native plants have impeded natural forest succession, effectively preventing the surrounding native forests from re-establishing themselves. Mine operators and regulators have witnessed many failed reforestation attempts, making them reluctant to plant anything other than hay and pasture, which they know they can establish easily when they end mining activity. Over the last three decades, an estimated 750,000-1,000,000 acres

throughout the Appalachians have been reclaimed to grasses and other undesirable vegetation, such as autumn olive and non-native *lespedeza*.

From a bird conservation perspective, this situation creates quite a conundrum. Coal mining fragments forests important to priority bird species, including the Acadian Flycatcher, Wood Thrush, and Cerulean, Worm-eating, and Kentucky Warblers. However, in portions of the region, those same reclaimed mine sites offer the only early-successional habitats on the landscape that support viable populations of other high-priority species, including the Henslow’s Sparrow and Northern Bobwhite (grassland-dependent), and the Golden-winged Warbler and American Woodcock (shrubland-dependent).

ARRI TO THE RESCUE

Enter the Appalachian Regional Reforestation Initiative (ARRI - <http://arri.osmre.gov>), a multi-partner coalition begun in 2004, coordinated by the Office of Surface Mining and Reclamation Enforcement. ARRI was created to restore eastern forests by re-establishing native habitat on newly reclaimed coal mine sites.

ABC and the Appalachian Mountains Joint Venture (AMJV) are active partners in the ARRI coalition. ABC has worked to raise ARRI’s profile within federal agencies and Congress, and to secure funds for reforestation projects that will benefit priority birds. ABC has raised funds for three projects to date (one each in Maryland, Ohio, and Virginia). The AMJV’s contribution to the ARRI

partnership is to provide migratory bird expertise as part of the ARRI Science Team, which helps guide the partnership with up-to-date findings on planting techniques, soil compaction, and wildlife responses to the projects.

AMJV staff and partners are also developing conservation planning tools that will enable ARRI partners to better identify the most appropriate land restoration and management options for high-priority species in each project area. Most importantly, though, ARRI is beginning to change the way mineland reclamation is conducted, ultimately increasing the number of reclaimed minelands that will support diverse, native Appalachian bird habitat.

This May ARRI was awarded the first Presidential Migratory Bird Stewardship Award, an accolade that ARRI leaders hope will help the coalition strengthen its partnerships and garner more resources to continue expanding their reforestation efforts.

— Brian Smith, ABC’s Appalachian Mountains Joint Venture Coordinator



Golden-winged Warbler: Laura Erickson

Habitat Restoration and the ESA

If you were asked to pick one concept that you most associate with the Endangered Species Act (ESA), what would come to mind? Perhaps it would be protection of animals from hunting, feather collection, or persecution; or maybe captive breeding and reintroduction of species to former strongholds. That's because when most of us think about the ESA, we think of a few high-profile species such as the gray wolf, Peregrine Falcon, or Bald Eagle. But while protection from take and reintroductions do figure prominently in many ESA recovery efforts, they are not the only available techniques.

The ESA also provides for the formation of *Habitat Conservation Plans* for

listed species, designation of Critical Habitat, and the creation of *Safe Harbor* and *Candidate Conservation Agreements*. All four strategies aim to protect existing habitat or create additional habitat for listed species or species that may soon need listing. That is because, unless you are planning on maintaining a thriving population of an endangered species solely in captivity, habitat is a critical factor in any recovery effort. It is these habitat components that set the ESA apart from other wildlife laws.

Providing Habitat for the Most Endangered Birds

Without the impetus and funding of the ESA, habitat restoration efforts

that have helped recover the Kirtland's Warbler (see page 24) and Red-cockaded Woodpecker would almost certainly never have happened.

Another species that has benefitted from habitat restoration under the ESA is the California Clapper Rail. In the last 100 years, more than 80 percent of the saltmarsh habitat in San Francisco Bay has disappeared, limiting efforts to recover the rail population from the overhunting that decimated it in the late 19th Century. ESA-funded management has included creation of buffer areas and habitat corridors to protect rails from predation by foxes, and experimental creation of tidal channels and use of dredge spoil to modify habitat.



California Clapper Rail: Eleanor Briccetti

ESA-funded management has included creation of buffer areas and habitat corridors to protect the endangered California Clapper Rail.

San Francisco Bay National Wildlife Refuge: USFWS



San Francisco Bay National Wildlife Refuge: USFWS





The ESA's record is one of remarkable achievement for our nation's most threatened birds; the act has the potential to restore many millions more acres of native habitat.

At the San Francisco Bay National Wildlife Refuge Complex, restoration of 1,500 acres of former farm land is being achieved by the selective breaching of existing levees to open up areas to tidal action that slowly, but naturally, creates healthy marshland. The refuge has also been working to mitigate for the conversion of salt marsh to brackish marsh in Coyote Creek, which occurred due to the excessive outflow of freshwater from the San Jose Water Pollution Control Plant. This effort has resulted in the purchase of more than 800 acres of inactive salt evaporation ponds from Cargill Salt Company that will be restored to tidal marsh and seasonal wetlands, benefitting the rail and other species, including the endangered salt marsh harvest mouse.

In Hawai'i too, habitat restoration under the ESA is providing a crucial leg-up to several endangered species, particularly the Palila and Maui Parrotbill. On the Big Island, fencing on Mauna Kea is being funded to the tune of at least \$2.4 million to keep out non-native grazing mammals, and pave the way for active habitat restoration, including reforestation and control of invasive ivy and fountain grass. At Kahikinui, East Maui, biologists are beginning efforts to restore some 3,000 acres that has been overgrazed for over 200 years by sheep and cows. A trial restoration plot is being fenced off, and once complete, will become a living laboratory in

which to test habitat restoration techniques. Among them are the many ways of dealing with invasive kikuyu grass that include herbicide applications, tree planting, and natural regeneration. The long-term objective is to restore native forest habitat for the endangered Maui Parrotbill.

To List or Not to List

Sometimes, it is not listing under the ESA that stimulates habitat restoration efforts, but the threat of listing. In the case of the Greater Sage-Grouse, more money is now slated to go to habitat restoration to prevent the species from being listed than would likely be available under the ESA if it actually were listed.

Cattle ranchers and oil, wind, and natural gas industries worry that ESA listing of the sage-grouse will impose grazing and drilling restrictions in core areas in Colorado, Montana, and Wyoming. To head off this possibility, the Department of Agriculture's Natural Resources Conservation Service is providing \$23 million (to be matched by other, non-federal sources) for the purchase of development rights on nearly 50,000 acres of farms and rangeland with suitable sage-grouse habitat. Private companies are also kicking in funds. One wind power corporation is proposing to establish a \$16 million sage-grouse conservation fund to help mitigate a 170-turbine wind project in Idaho and Nevada. By comparison, the U.S. Fish and Wildlife Service (FWS) gets only \$180 million or so to fund all its ESA recovery activities for 91 species of birds, 289 other vertebrate species, 203 invertebrate species, and 792 species of plants.

The ESA Under Fire

The ESA continues to come under attack in Congress, a result of industry pressure that variously portrays it as a corporate profit barrier, job killer, and tax drain. The need for the United States to get its financial house in order has only served to exacerbate the rhetoric, and is being used by some in Congress as an excuse to cut a program that they don't like for political or financial reasons.

Language that would have gutted the ESA by preventing FWS from listing new species, designating Critical Habitat, or assisting law enforcement to protect species was included in a recent House Interior Appropriations Bill. Thankfully, a strong outpouring of public condemnation, including many ABC supporters who took part in an emergency action campaign, resulted in a bipartisan vote to strip the provision from the spending bill.

The ESA's record is one of remarkable achievement for our nation's most threatened birds (see ABC's ESA report at www.abcbirds.org), and the act has the potential to restore many millions more acres of native habitat to benefit not only birds, but the health of our rivers and watersheds, forests, and grasslands. While it may seem counter-intuitive at a time when fiscal belt-tightening is recognized by all as being imperative, we should be increasing funding for the ESA. With our nation's wild heritage at stake, we cannot invest too much in endangered species habitat restoration.

— *Gavin Shire, ABC Vice President of Communications*



Maui Parrotbill: Michael Walther, Oahu Nature Tours

Going with the Flow

Water Management and Habitat Restoration

When we think of habitat restoration, we usually think about planting trees or designing a wetland to bring back a vegetation community that is in short supply for wildlife. However, there are some species of birds, particularly terns, plovers, and skimmers, that prefer to nest on completely bare ground, such as wide sandy beaches or sandbars in the middle of large rivers. In fact, when vegetation starts to grow in or around their nesting areas, habitat becomes unsuitable and the birds quickly move away to find new areas that are completely free of vegetation. These birds are dependent on floods from snowmelt or storms for habitat renewal. These major events remove vegetation from sandbars or dunes and deposit new bare sand, which is quickly colonized by birds.

Dam Habitat Loss

Over the past century, humans have gone to great lengths to control floods on rivers. Large dams now capture snowmelt so that water can be released more gradually from dams, protecting farms or other infrastructure in river flood plains, and holding back water so that it can be released for municipal or agricultural use in late summer, by which time many rivers would normally have run dry. By absorbing huge spring run-off spikes, large dams have reduced the frequency of very large floods. Consequently, vegetation has grown on many river

sandbars formerly scoured clean every year. In extreme cases, as on the central Platte River in the Midwest, bare sandbars have become forested islands in the absence of floods that would normally remove young cottonwood or willow saplings.

This type of habitat loss has led to the ESA listing of two populations of sandbar-nesting birds on large rivers of the interior United States: the Interior population of the Least Tern and the Northern Great Plains population of the Piping Plover. For these species, many miles of river that formerly contained sandbars were completely inundated under reservoirs that formed behind dams. In the remaining areas below the dams, bare sandbars have become less common due to the absence of large annual floods.

Shifting Sands

On stretches of rivers where floods are not frequent enough to create new sandbars naturally, and where tern and plover nesting habitat is in short supply as a result, endangered species consultations between the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers have resulted in programs to mechanically create new bare sandbars. If done properly, sandbars created by the Corps using dredgers and bulldozers can result in immediate habitat use and high productivity for both Interior Least Terns and Great Plains Piping Plovers.

This practice has been most widely applied on the Missouri River in South Dakota and Nebraska, and successful sandbar habitat restoration has also occurred on the Arkansas and Canadian Rivers in Oklahoma.

A 76-acre sandbar complex constructed on the Missouri River: Missouri River Futures/U.S. Army Corps of Engineers





Between 2006 and 2010, most of the successful nesting for both terns and plovers on the Missouri River occurred on mechanically created sandbars (though major flooding on the Missouri River in 2011 will very likely create extensive new sandbars that will last for several years after flood waters recede).

As more and more sandbars are lost, tern and plover nesting can become concentrated on a small number of sandbars. As a result, there have been situations where a small number of predators have destroyed regional productivity through repeated visits to the same nesting colonies. It is important to avoid this situation by maintaining a minimum amount of regionally available suitable habitat via dam releases, vegetation removal, and mechanical habitat creation. This requires regular monitoring of sandbar habitat conditions to inform habitat restoration activities.

ABC has been working with the Army Corps of Engineers on such adaptive management approaches by developing methods to measure how sandbar habitat changes in response

to different flow regimes and habitat conditions. Models of how sandbar-nesting bird populations will respond to alternative management approaches help guide these efforts.

While sandbar creation is a critical activity, when it comes to habitat for nesting terns and plovers, maintenance of existing sandbars is equally important, given that large floods are so much less frequent than they used to be on big rivers. Sandbar maintenance requires vigilant removal of young seedlings of pioneering tree species such as cottonwood, willow, and tamarisk, which quickly become established on new bare sandbars. Once these species have established roots and survived several growing seasons, their removal (in the absence

of large floods) becomes either physically impossible or cost-prohibitive. Given the amount of riparian habitat loss in the United States it may seem counter-intuitive to destroy new cottonwood recruits; however, without this action, sandbars will quickly become unsuitable for nesting by terns and plovers, as well as several state-listed turtle species that nest on bare sandbars.

Recurring Restoration Required

So how does mechanical sandbar restoration fit in with other potential conservation measures for sandbar-nesting birds? This is not a simple question to answer, since it is difficult to predict how common habitat-forming floods will be in the future.

In the absence of large-scale dam removal, which seems unlikely, mechanical habitat creation and sandbar maintenance will be necessary at times on some rivers during periods of extensive drought, when reservoir levels are low and flood releases are rare.

Sandbar habitat restoration, like all habitat restoration, is costly. The more bare sandbars that can be created with high water releases from dams, and the more that bare sandbars can be managed to last after they have been created (via vegetation removal programs), the less necessary expensive restoration programs will be.

— Casey Lott, Coastal and Waterways Program Coordinator, ABC



Black Skimmer: Greg Lavaty

Least Tern and chicks: Bill Dalton



The Burning Question



Human beings have been using fire for hundreds of thousands of years to cook, stay warm, wage war, and yes, manage habitat. There are numerous references in early American literature of Native Americans using fire to drive game, encourage the growth of new grasses for grazing by elk and bison, and keep the understory of forests and woodlands open for easier travel and foraging.

Some of these fires were of fairly low intensity, just skimming the surface when fuel loads were light, but others, especially in drought periods, became huge conflagrations that burned over vast areas of the continent and dramatically altered the structure of forests and woodlands for decades thereafter.

Rejuvenating Essential Habitat—from the Mountains to the Prairies

That the once-great prairies of the central United States were a product of frequent fire is now well understood by ecologists. More recently, we have also gained an increased understanding of the role fire has played in maintaining both oak- and pine-dominated ecosystems. Using tree ring analysis and radio-carbon dating of soil charcoal, we have learned that while fire patterns and intervals were highly variable, fires were much more frequent and widespread prior to European settlement than most people first thought.

Landscapes that are flatter and had fewer natural fire breaks, such as the tallgrass prairie region of the Midwest

and the expansive coastal plains of the Southeast, had more widespread and frequent fires, while fire that occurred in areas that are more of a mix of plains and hills, such as the central hardwoods region, produced a mosaic of prairie, savannas, and open woodlands. The diversity and abundance of grasses and other flowering plants in our historical landscapes was arguably much greater than in modern times. Only in the most rugged topography, where moisture accumulated and north- and east-facing slopes were protected from the drying effects of the sun, were fires relatively infrequent, and what we think of today as “forests” were able to develop and persist.

In mountainous western landscapes, the frequency and intensity of fires varied greatly by elevation and aspect, which affected both the distribution and structure of grassland, shrubland, and forest habitats. Ponderosa pine forests were most frequently disturbed by fire, with drier sites experiencing low-intensity fires every five to thirty years. This resulted in open stands of large, fire-resistant trees. Frequent fires kept Douglas-fir and junipers from encroaching into grassland

and sagebrush habitats, and fire was essential to rejuvenating aspen and whitebark pine stands.

Fire suppression, coupled with extensive logging around the turn of the 20th Century, and the destructive farming and open-range grazing practices that followed, degraded much of our most diverse and biologically rich native ecosystems. But in many areas where the sod has yet to be broken, we still have a chance to recover some of those ecosystems where the seeds and rootstocks of the native flora still, miraculously, remain viable after all these years. This restoration typically requires thinning of overstocked trees to allow sunlight to reach the ground, and allowing fires to encourage the native grasses and forbs to regrow.

Many species of birds are dependent on the grass-shrub communities that once characterized prairies and the understories of savannas and open oak/pine woodlands, including WatchList species such as Bachman's and Henslow's Sparrows, Blue-winged and Prairie Warblers, and Northern Bobwhite. Bird-habitat models developed by the Central Hardwoods Joint Venture's staff and partners



Lewis's Woodpecker: John D. White; Northern Bobwhite (inset): Bill Hubick



acres of younger, dense ponderosa pine stands throughout the Rocky Mountains. Towards that end, the Public Land Management Act of 2009 established the *Collaborative Forest Landscape Restoration Program* under the auspices of the U.S.D.A. Forest Service. So far, 31 projects have been proposed across the country, including an effort to restore 750,000 acres of the Coconino and Kaibab National Forests.

Understanding Fire's Function

Over the last half-century, we have come to understand that managing land to prevent all fires is a fool's errand with potentially catastrophic ramifications for both people and wildlife. With more understanding and better landowner education, we are beginning to see a change in how communities are working with rather than against fire-dependent habitats. Smart management is allowing for the natural regeneration on which birds depend, while preventing destructive out-of-control blazes. Striking the right balance is difficult, and we cannot claim to know all the answers yet. We do, however, have a better understanding of the role of fire, and a clearer appreciation of its nature as a dangerous servant and fearful master.

—Dan Casey, Northern Rockies Bird Conservation Region Coordinator, and Jane Fitzgerald, Central Hardwoods Joint Venture Coordinator, ABC

suggest that we could meet population objectives for these species if we can restore just over a million acres of native ecosystems, such as barren and glade complexes, and open oak and pine woodlands. The JV is working towards this goal, and treated over 130,000 acres with thinning and/or prescribed fire in 2010 alone.

In the Northern Rockies, the Lewis's Woodpecker and Flammulated Owl both prefer the open, uneven-aged mature stands of ponderosa pine that comprised as much as 80 percent of this landscape one hundred years ago. Now perhaps no more than ten percent of this habitat remains, and fire suppression has led to higher densities of Douglas-fir in these stands, making them much more susceptible to high-intensity fires. Efforts are underway by ABC, consulting foresters, and landowners to open up these

stands by thinning the understory. These thinning efforts reduce the risks to homes and timber resources from catastrophic fire while simultaneously restoring conditions needed by declining bird species.

But management must be done with the specific needs of these birds in mind, which include large snags for nesting, and patchy shrub and conifer seedlings in the understory to provide forage. Prescribed fire is one of the best tools for maintaining open, patchy understory in this habitat.

The Intermountain West Joint Venture is looking to double the amount of suitable habitat for Flammulated Owls, and to increase Lewis's Woodpecker populations by ten percent. This will require active management of ten percent or more of the estimated 16 million

Island Birds are Different

Recovering Our Most Isolated Habitats



Laysan Albatross: Michael Walther, Oahu Nature Tours

When it comes to recovering and protecting diminished bird populations, it turns out that islands are different—really different. And it goes beyond just being surrounded by water, although that has a lot to do with it.

Attributes such as distance to the nearest land, especially continents, the time that an island has been isolated, and its size are strong drivers that shape the animal and plant communities on islands, including their bird life.

Island avifauna tends to be less diverse than that of continents because it can only evolve from the few individuals and species that are able to reach these remote places. However, given enough time, some island communities have blossomed from very simple beginnings. Examples include the Hawaiian and Galapagos Islands. In both cases, a single finch ancestor gave rise to spectacular radiations of bird species (honeycreepers in Hawai'i and Darwin's finches on the Galapagos) that filled the available ecological niches.

Terrestrial mammals do not tend to make it to remote islands, and so, over long periods of time, absent this threat of predation, many island bird species have lost their ability to fly and now nest on the ground.

Seabirds, even those with worldwide distributions, evolved to nest on remote islands where predation from terrestrial predators was not a factor.

Island birds often have high adult survival from year to year, but produce fewer young. They also may lose resistance to avian diseases that are prevalent on continents, and because they often arise from only a few individuals in the first place, island bird species may lack the genetic diversity that would enable them to respond to changes in their environment.

The Alien Onslaught

When people intrude on these special places, it is inevitably with disastrous consequences. People bring – intentionally and unintentionally – a host of alien species including rats, cats, dogs, goats, pigs, plants, and insects, and foreign diseases that attack native animals and plants alike. Native birds are often decimated, and many have gone extinct from this onslaught—the current toll stands at 71 bird species in Hawai'i, with ten more not seen in many years.

Some situations are unlikely to be reversible. For example, the removal of rats or feral cats from very large islands, such as the main Hawaiian Islands, will probably never be achieved. As a result, predator control to protect endangered species such as the Newell's Shearwater and Puaiohi over vast areas on Kaua'i will likely have to continue indefinitely. However, on smaller islands or portions of large islands, there are conservation actions underway that are providing truly inspiring and dramatic results.

Restoration Techniques and Results

Foremost among the methods for restoring island habitat is the eradication of exotic plants and grazing mammals. Grazing mammals such as rabbits, goats, pigs, sheep, and cows, can destroy bird habitat through over-grazing. A notorious example is from Laysan Island in the Northwestern Hawaiian Islands, where a German immigrant, Max Schlemmer, introduced domestic rabbits, hares, and guinea pigs.



Guano extraction had already taken a huge toll on the island's seabirds, but an explosion in the rabbit population finished off Laysan by defoliating the habitat, which in turn caused massive soil erosion. The Laysan Millerbird and Laysan Rail went extinct as a result. In 1923, members of a scientific expedition removed all the remaining rabbits, but before the habitat could recover, a massive dust storm killed the last three Laysan 'Apapane. Today an intensive restoration program is underway on the island. Seabird populations have largely rebounded, and the habitat on Laysan is now recovered to the point that there are plans to translocate Millerbirds there from Nihoa.

In the Galapagos, by 2006, Project Isabela had succeeded in eradicating goats from Pinta (14,500 acres) and Santiago (144,500 acres) Islands and the northern portion of Isabela Island (618,000 acres). The Santiago eradication is the largest ever whole island eradication of goats. The use of helicopters and radio-tracking were critical to the success of the effort.

Biologists are already seeing a dramatic, positive impact on the native

plants and birds, including the vulnerable Galapagos Rail, whose habitat was adversely impacted by overgrazing, and the critically endangered Galapagos Petrel, whose nests were trampled by the goats.

Exotic species eradication on small islands can have an equally significant impact, especially for seabirds. For example, on Isla Natividad, off the west coast of Mexico's Baja Peninsula, a colony of only 20 cats was decimating the global stronghold population of Black-vented Shearwaters, killing approximately 1,000 shearwaters per month. Once the cats were removed by Grupo de Ecología y Conservación de Islas (GECI) and Island Conservation in 2001, the shearwaters quickly rebounded.

In addition to being voracious predators of birds, chicks, and eggs, rats also destroy island ecosystems by eating seeds, plants, and other organisms. Their elimination can also yield dramatic results for native birds. On Midway Atoll National Wildlife Refuge, Bonin Petrels exploded from 5,000 pairs to over 100,000 after rats were eradicated in 1997. Now that rats have been removed from

the aptly named Rat Island in the Aleutians, seabirds are breeding in rat-free conditions not seen for over 200 years.

Continuing Work

As the techniques evolve, such as the aerial application of rodenticides and other poisons, we have seen a huge leap in the size of islands that can be cleared of rats and other invasives. Telemetry, GPS, and sophisticated data management are also making it easier to remove grazing mammals from islands.

For very large islands, the creation of "islands within islands" through the use of ungulate fences and hi-tech, predator-proof fencing is a very effective means for preventing the extinctions of endemic and range-restricted bird species. Overall, there have been some significant achievements and reasons for renewed hope that the conservation of the amazing remaining avian diversity on islands is increasingly within reach.

—George E. Wallace, Vice President,
Oceans and Islands, ABC

Newell's Shearwater (A'o): Jim Denny, kauaibirds.com



Puaiohi: Eric VanderWerf



Chris Farmer, ABC's Science Coordinator for Reintroduction of Hawaiian Birds, releasing a Nihoa Millerbird: D. Tsukayama



Greener Acres: SILVIPASTURE

On a sunny day last May in northern Peru, cows and chickens quietly foraged and rested in a pasture. The animals were not randomly scattered, but were sheltering from the fierce tropical sun in the shade cast by a line of alder trees. In less than four years, these fast-growing trees had flourished to the point where they could shade livestock, provide habitat for wildlife, and create a variety of other benefits for both the landowner and the local ecosystem.

The trees were planted in 2008 on a private ranch near the Abra Patricia Bird Reserve as part of a large silvipasture project begun by ABC's Peruvian partner, Asociación Ecosistemas Andinos (ECOAN). Silvipasture is a farming method that combines grazing livestock and growing trees on the same piece of land. This may include the practice of planting living fences of trees along the edges of fields or pastures. ABC and partners have already planted more than 450,000 trees across Colombia, Ecuador, and Peru to help establish silvipasture systems.

A Win-Win Way to Farm

Unlike most habitat restoration techniques, silvipasture does not aim to recreate original, native habitat solely for birds; rather it enables a landowner to continue to graze animals on his land while providing benefit to birds that would not exist in a purely arable landscape. The technique also has



Workshop participant, Oso Perdido, Peru, May 2011: Daniel J. Lebbin, ABC

the added benefit of generating tree crops such as timber, fruit, or nuts, which can create additional sources of income for the farmer.

Trees planted for living fences can cut fencing costs by half; trees planted in pastures and along fence lines reduce erosion, especially along streams, improve soils, and reduce the need for fertilizers by adding organic matter to the soil. Trees store carbon and reduce carbon emissions from soil; they provide buffer areas around forest reserves, reducing the abrupt "edge effect" where forest meets pasture, and help to keep livestock away from sensitive riparian areas. Reduced heat stress and greater moisture retention under silvipasture plantings can also improve grass production for cattle. In northern Peru, ranchers have reported to ECOAN that their pasture grasses grew more lushly in partial shade than in full sun. Importantly, silvipasture improves a rancher's bottom line. Studies conducted in Colombia demonstrated an increase in net income for ranchers who had made the conversion to silvipasture. Compared to traditional grass monocultures, ranchers using silvipastoral techniques increased milk production, reduced fodder and irrigation costs, were able to graze more animals per acre, and got all these benefits without the cost or impacts of chemical fertilizers.

Wildlife, particularly birds, benefits from diversified landscapes provided by silvipasture. In many agricultural areas, where the majority of trees have been cut down to create pasture, replanting trees on even a small portion of land can go a long way towards making what was once a desert for endemic and migrant birds into an oasis of usable habitat. While restoring the original forests over these



A line of young Andean Alder trees provides shade for livestock and will eventually provide habitat for birds as well: Daniel J. Lebbin, ABC

working lands is not an outcome of silvipasture, it does recover representatives of the native tree species and some of their ecological functions.

Interior forest birds will never prefer a silvipasture over a forest, but many species will use silvipasture to forage, returning to the forest for nesting and roosting. Some birds that are otherwise reluctant to cross open spaces will use silvipastures or living fences as travel corridors to cross between separate patches of more intact habitat. Golden-winged Warblers wintering in the tropics often use the landscape in this way. Birds that prefer secondary-growth forests, such as wrens, jays, thrushes, and finches, will readily use silvipasture habitats. Silvipasture has excellent potential for connecting patches of natural habitat, such as private reserves and parks. It is also a useful technique for reducing the hard edges of private reserves by creating buffer zones of better bird habitat, so the reserves are not islands of primary habitat in a sea of pasture.

While silvipasture and living fences have clear limitations (some birds will simply never use them), they have proven to be valuable tools in bird conservation efforts. Their tangible benefits to birds and local communities make them important components of the comprehensive approach to habitat restoration implemented by ABC and our international partners.

— David Wiedenfeld, *Conservation Science Specialist* and Daniel J. Lebbin, *Conservation Biologist, ABC*



PLANNED GIVING

You Can Help Secure the Future for Birds



You can play an important role in the future of bird conservation by including American Bird Conservancy in your estate plans. There are several ways to make a bequest through your will, retirement plan, trust, or life insurance policy. Tax laws enacted by Congress last year, which extend charitable IRA provisions, dividend and capital gains rates, and the two-year extension of income tax rates for individuals, make this an important time to consult with your tax advisor and examine your charitable giving options.

If you haven't included ABC in your estate plans, won't you consider it now? Join ABC's Legacy Circle and help ensure bird conservation results for years to come.

For more information on ABC's Legacy Circle, please contact Jack Morrison at 540-253-5780 or jmorrison@abcbirds.org, or visit www.abcbirds.org/membership/planned_giving.html.

SPECIES PROFILE

Kirtland's Warbler – Poster Bird for Habitat Restoration

The Kirtland's Warbler can fairly be called the poster bird for targeted habitat restoration. This species is such an extreme habitat specialist that if it were not for conservation intervention, it would likely have gone extinct decades ago.

The Kirtland's Warbler has one of the smallest breeding ranges of any North American bird species. During its breeding season, it is found in only a few counties on the northern Lower Peninsula of Michigan, in small numbers on the Upper Peninsula, and more recently, as numbers have begun to recover, in a few sites in Wisconsin and Ontario.

This warbler nests on the ground in dense young stands of jack pines that are between six and 15 years old and five to 20 feet tall. The birds prefer jack pine stands over 80 acres in size. This habitat was historically maintained by naturally occurring wildfires that periodically swept through the region.

With the advent of modern fire protection and suppression efforts, forest management practices did not emphasize the regeneration of jack pine habitat, and Kirtland's numbers plummeted to fewer than 400 birds by 1974. The changed habitat also led to increases in Brown-headed Cowbird numbers. Cowbird parasitism caused a drastic decline in species numbers—at one point up to 70 percent of Kirtland's nests were parasitized.

Due to these precipitous declines, the U.S. Fish and Wildlife Service listed the Kirtland's Warbler as Endangered in 1967 under the Endangered Species Preservation Act, precursor to the ESA.



The Kirtland's Warbler winters primarily in early successional broadleaf scrub and shrubby habitats in the Bahamas and Turks and Caicos Islands. In the late 1990s, a partnership that included agencies in the United States and the Bahamas was formed to identify and protect wintering habitats used by the Kirtland's Warbler and other birds.

Projects to train Bahamians to identify and monitor Kirtland's Warblers, pinpoint critical wintering habitats within the islands, and support continuing conservation work are ongoing.

A rigorous cowbird control program has now reduced nest parasitism to only three percent. Extensive tracts of young jack pines, which are necessary for successful breeding, are being maintained on the 125,000-acre Kirtland's Warbler Management Area through managed burns, clear-cutting, and seeding of jack pines.

Today, conservation measures seem to be working. Over 150,000 acres of public lands have been set aside by the Michigan Department of Natural Resources, the U.S.D.A. Forest Service, and the U.S. Fish and Wildlife Service specifically for Kirtland's Warbler management, and the species is beginning to thrive once more. Population surveys from 2010 found over 3,400 individual birds.

The Kirtland's Warbler has met its recovery population goal thanks to dedication of many people. However, its continued success will depend upon annual habitat management and cowbird control.