

# BIRD CONSERVATION

The Magazine of American Bird Conservancy

Fall 2012



# Is Species Conservation Enough?

*How should we as conservationists decide which birds deserve protection? Where should we draw the line that tells us which groups of birds are “unique” enough to merit saving?*

At one extreme, a conservation skeptic might insist that preserving one type of bird from each genus is sufficient. At the other, passionate lovers of wildlife may not accept the loss of even one individual. A more typical birder might nominate the species as the key conservation level because the concept of species is familiar to us.



● American Dipper: USFWS

Science gets us closer to the answers, but it cannot draw the line: the purpose of science is to gather knowledge, not to make decisions for us. Furthermore, like life itself, the science of taxonomy is in a constant state of change. Baltimore and Bullock's Orioles have been “lumped” into Northern Oriole and then “split” again, all based on the most current scientific opinion. And with constant advances in genetics, even our understanding of relationships at the family and order levels is being challenged.

And yet decisions need to be made. Almost every day we hear about a new threat to a vaguely defined population of birds: Recently, for example, I learned that only one stronghold for the American Dipper remains east of the Rockies, in a single creek in the Black Hills of South Dakota. Scientists studying this bird have proclaimed it a new species, but others aren't so sure. Still others are calling for this bird to be protected, whether it is a new species or not.

Variations on that kind of argument are now taking place all over the United States. Are the genetically and morphologically identical tree- and ground-nesting Marbled Murrelets each worthy of conservation? What is lost if Wayne's Warbler, a distinct population of the common, boreal forest-nesting Black-throated Green Warbler that nests in cypress bottoms of the Carolinas,

becomes extinct? Do we care about the continuation of these evolutionary processes, or do we take a pass on preserving them because these birds are not sufficiently “unique”?

When in doubt about whether to take conservation action, I fall back on the precautionary principle, which says, in essence, that when uncertain about the potential harmful effect of an action, the prudent

course is the conservative one. Or, as Aldo Leopold wrote, “Save all of the pieces.”

I say, save the Black Hills Dipper regardless of which taxonomic opinion prevails; and while we are at it, we ought to save Wayne's Warbler, the rhododendron-dwelling Swainson's Warbler, and the tree-nesting Marbled Murrelet too. Sometimes there's no time to wait for taxonomic certainty. That's the kind of fiddling that let Rome burn.

In other words, is species conservation sufficient? We believe the answer is ‘no’, and in this issue of *Bird Conservation* we explain why. And it is critical for future generations that we get it right.

ABC's Mike Parr deserves credit for compiling the complete checklist of birds and their conservation rankings (also available at [www.abcbirds.org/checklist](http://www.abcbirds.org/checklist)). ABC would also like to thank Chuck Hunter, Arvind Panjabi, and David Sibley for their valuable contributions to this issue of *Bird Conservation*.

George Fenwick  
President, American Bird Conservancy





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● Palm Warbler (Yellow - eastern): Robert Rooye

# BIRD Conservation

FALL 2012

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Masked Bobwhite



● Masked Bobwhite

Scan to check out ABC's new mobile website!



### Symbols

Birds are scored according to the standard Partners in Flight system, then ranked as follows:

- At-Risk
- Vulnerable
- Potential Concern
- Secure
- Less than 5% of global population in the U.S.

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## Western Snowy Plovers Making Gains

In July 2012, more than 24,500 acres of Pacific Coast beach-dune habitat in Washington, Oregon, and California was designated as Critical Habitat for the Western Snowy Plover, a small shorebird protected by the Endangered Species Act (ESA) since 1993. This designation is more than double the 12,150 acres originally set aside for this bird in 2005.

Biologists estimate that approximately 2,500 Snowy Plovers breed along the Pacific Coast from early March to late September. Prior to 1970, the coastal population was thought to have nested at more than 50 locations, but today, only 28 major nesting areas remain. The primary causes for this decline is loss of nesting habitat due to development, human activity on beaches, and invasive grasses.

“We are pleased that the U.S. Fish and Wildlife Service is restoring and enhancing the amount of Critical

Habitat for the Western Snowy Plover,” said Bob Altman, American Bird Conservancy’s Pacific Northwest Conservation Officer. “We know that the chance of species recovery is much greater when there is more federally protected habitat, so this is an important step in the effort to conserve this endangered coastal population of Snowy Plovers.”

Since the species was added to the ESA, many local groups have voluntarily worked to protect plovers and their breeding areas, and to help educate the beach-going public about the bird’s needs. In many areas, beach users have cooperated with local groups to improve the breeding situation for plovers.

A pair of Western Snowy Plover chicks recently fledged at Pescadero State Beach in California, the first time the species has successfully nested there in 32 years, thanks in

part to a policy banning dogs from the beach and a cable fence installed by volunteers and park staff to create a small sanctuary for the plovers.

Along the Gulf Coast, ABC has been promoting a beach-nesting bird program with similar goals of creating and preserving coastal habitat for plovers, terns, and Black Skimmers through a public education campaign.

“Engaging coastal users is a key part of conservation for birds like the Western Snowy Plover,” says Kacy Ray, ABC’s Beach-Nesting Bird Conservation Project Officer. “In the Gulf, ABC and partners are asking fishermen and recreationists to ‘Fish, Swim, and Play from 50 Yards Away’ from birds nesting on islands and beaches.”

## HELP ABC!



**Q:** What do Lear’s Macaws in Brazil have in common with Long-billed Curlews in Montana? Cerulean and Golden-winged Warblers in Appalachian Forests with the Pale-headed Brush-Finch in Ecuador? The Yellow-eared Parrot with the Baird’s Sparrow?

**A:** All are threatened or rapidly declining species that ABC and our international partners are working tirelessly to protect!

### And we need your help.

Our cooperative approach with partners throughout the hemisphere is achieving real results for birds in Latin America and here at home. Since

1999, ABC has partnered with 20 organizations in 12 countries to create a network of 44 bird reserves that protect more than 40 percent of the rarest bird species in the Americas. We’ve also been working together for years to protect priority migratory birds on their wintering and breeding grounds.

Your donation today will help ABC and our international partners protect the most threatened species throughout the Americas. Please use the enclosed envelope to make an additional gift, or give online at [www.abcbirds.org](http://www.abcbirds.org).

Pale-headed Brush-Finch: A. Somoza (Note: non-U.S. birds not yet assigned ranking symbols by ABC).

## Streaked Horned Lark: Subspecies Conservation in Action

A conservation project in Washington State is helping to conserve the rare Streaked form of the Horned Lark. This subspecies is rufous above with distinct breast- and flank-streaking, and now occurs only in some parts of western Oregon and Washington, though it once occurred in southwestern British Columbia. It breeds in remnant prairie and managed grasslands in the Puget Lowlands and Willamette Valley, on islands in the Columbia River, and on beaches in southwest Washington. It is listed as Endangered by the state of Washington, and is a candidate for listing under the Endangered Species Act.

The project, led by the Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, the Center for Natural Lands Management, and Oregon State University, takes eggs from Oregon lark nests and puts them in Washington nests. Through this technique, biologists hope to diversify the genetic base with the aim of increasing poor hatch rates

in the Puget population, which currently stands at just 300 or so birds. Initial results have been positive, and biologists have already spotted a leg-banded lark from Oregon parents returning to the Puget Lowlands.



● Horned Lark (*Streaked - Pacific NW*): Rod Gilbert

“We are faced with a declining population that requires an emergency rescue effort,” said Bob Altman, American Bird Conservancy’s Pacific Northwest Coordinator. “We need an ‘all-of-the-above’ strategy to save this population. While we have enough data on low genetic variability and hatch rates to suggest this approach is worth trying, it will need to be combined with

extensive, ongoing habitat restoration and research into other possible threats to reduce the potential for extinction of these birds.”

A substantial portion of the lark’s habitat has been lost or degraded—over 90 percent of native prairie in Washington’s South Puget Sound region, and 99 percent of the prairie and savanna in Oregon’s Willamette Valley have been lost to development and agriculture. There has been significant range contraction from both the northern and southern extent of the lark’s range, and recent population estimates indicate that there are only around 1,500 Streaked Horned Larks remaining in the world.

Of the limited number of sites remaining in Washington, about half are on airports (the largest population in Oregon is also at an airport). However, outreach and dialogue between airport managers and a regional Streaked Horned Lark Working Group provides hope for improved management of these sites for the species.

## Goshawk Subspecies in Canada Gains Protected Status in the United States

After a number of reviews and legal challenges, the U.S. Fish and Wildlife Service (FWS) released its final determination to list the Queen Charlotte Goshawk in British Columbia, Canada as threatened under the U.S. Endangered Species Act (ESA).

The Queen Charlotte Goshawk is a small, dark form of the species that inhabits the temperate rainforest-dominated archipelagos and coastal mainland of southeastern Alaska and British Columbia. It is reliant on mature and old-growth forest where it nests, and hunts medium-sized mammals and birds, such as red squirrels

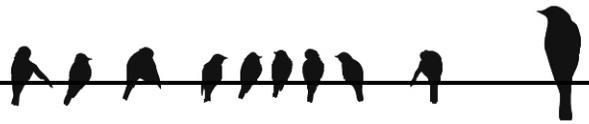
and grouse (it requires 10-25,000 acres for each nesting territory). Its primary threat is logging of mature trees, which results in denser, second-growth forest with fewer suitable nesting sites and lower prey abundance.

While the U.S. listing of the Canadian Distinct Population Segment recognizes the threats to the Queen Charlotte Goshawk, FWS has no authority to designate Critical Habitat outside the United States. Without the ability to protect habitat required for the bird to thrive and recover, protection resulting from this listing is limited to restrictions on the import of birds into the United States, and



Northern Goshawk: wikipedia.org

actions of federal U.S. government agencies (such as funding of projects) in Canada. The Queen Charlotte Goshawk has been protected under the Canadian Species at Risk Act (their equivalent of the ESA) since 2000.



## Study Shows More Rare Hawaiian Birds May Be Developing Immunity to Deadly Diseases

A study published in July by scientists from the Pacific Island Ecosystems Research Center and the Hakalau Forest National Wildlife Refuge suggests that some of Hawai'i's native birds may be developing immunity to the mosquito-borne diseases that have severely impacted their populations. Three of Hawai'i Island's rarest forest birds, the endangered Hawai'i Creeper, Hawai'i 'Ākepa, and 'Akiapōlā'au were detected at lower elevations for the first time in 30 years. This follows on from earlier studies showing that the more numerous Hawai'i 'Amakihi had begun repopulating lower elevation areas from which it had previously been extirpated.

These findings are potentially significant because all three endangered honeycreepers have been highly susceptible to avian malaria and avian pox—both



● 'Ākepa: Jack Jeffrey

mosquito-transmitted diseases. As a result, their ranges had been restricted to the cooler, mosquito-free, higher elevations of the refuge. Scientists have been increasingly concerned that rising global temperatures could enable mosquitoes to survive at higher elevations, shrinking the disease-free zone,

and further reducing native forest bird populations.

“Although the cause for these birds appearing in lower elevation habitat is uncertain at this time, we are hopeful that after decades of avian mortality and extinctions caused by mosquito-borne diseases, these three highly endangered species have begun to develop some level of resistance,” said Dr. Chris Farmer, Science Coordinator for Reintroduction of Hawaiian Birds at ABC. “A single bite from a disease-carrying mosquito can be fatal to some Hawaiian honeycreepers.”

Since the arrival of Europeans in the Hawaiian Islands, 71 out of a total of 113 endemic bird species have gone extinct. Of the remaining 42, 32 are federally listed under the U.S. Endangered Species Act, and ten of those have not been seen for up to 40 years.

## New Species of Barbet Described in Peru

A paper by Glenn Seeholzer and colleagues recently published in *The Auk* describes a colorful new barbet that has been found in the Cerros del Sira mountains of Peru. The Sira Barbet is similar to the Scarlet-banded Barbet of Peru's Cordillera Azul, but differs in measurements and shows more red in its plumage. Both barbets are endemic to Peru, where they inhabit cloud forests on outlying ridges east of the Andes, but are geographically separated from each other by about 270 miles.

The scientific name of the new barbet is *Capito fitzpatricki* to honor John Fitzpatrick, Director of the Cornell Lab of Ornithology, who inspired and mentored several of the authors during their undergraduate careers. The Sira Barbet occurs partly within the Sira Communal Reserve, and is also somewhat protected by the remoteness and steep topography of its habitat. The species will probably qualify as Vulnerable like its northern counterpart, the Scarlet-banded Barbet.



The newly-described Sira Barbet occurs in cloud forest in central-eastern Peru. Photo: Michael G. Harvey

# Conserving Total Bird Diversity in the United States

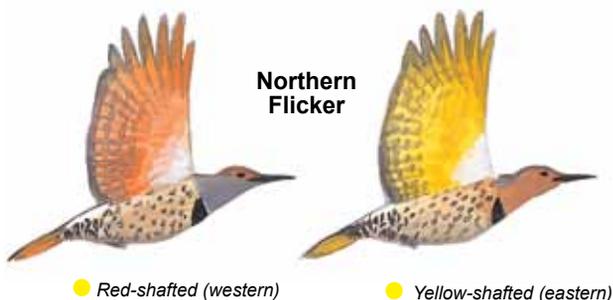


*For bird conservationists, the coin of the realm has almost always been the species. Efforts to protect bird diversity are measured by species count, and efforts to prevent extinction—with some exceptions—focus at the species level. But natural diversity is almost infinitely complex, and so our species-based system of conservation priority-setting misses the vast array of differences that separate birds of the same species. This diversity cannot be protected until it has been recognized and ranked. ABC believes that bird conservation should address all diversity from the species to the population level.*

At the next level beyond species are distinctive geographic forms, or “subspecies”. Well-known examples include Yellow-shafted and Red-shafted Northern Flickers, and Bronzed and Purple forms of the Common Grackle. But any good biologist will tell you that the differences between “birds of a feather” are more complex than meet the eye—and much more must be done to head off

looming threats to birds beyond the species, and even subspecies, level.

For example, some bird species may not have recognized subspecies, but still have populations with separate ranges, such as eastern and western Barrow’s Goldeneyes, and eastern and western Golden Eagles. Other species have populations that occupy separate and distinct ecological niches, but are otherwise identical—for example, Swainson’s Warblers that nest in Appalachian forests instead of bottomland swamps. Beyond this, there are species that have distinctive color morphs such as some owls, nightjars, jaegers, and raptors (some morphs are regionally concentrated, others are not); and even hybrid populations that occupy specific geographies. Myrtle and Audubon’s Warblers have such a zone in the Canadian Rockies. In fact,



## TYPES OF BIRD DIVERSITY

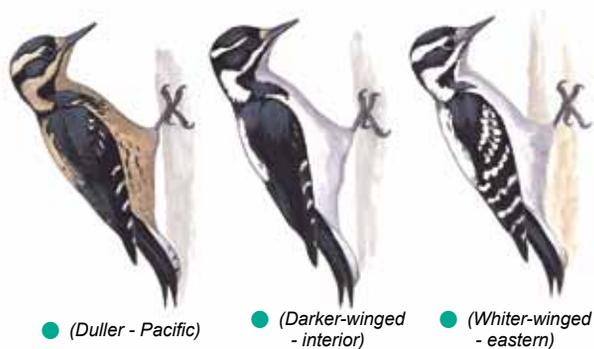
The deeper one delves into bird diversity, the more complex and interesting things become. There are a variety of ways to divide birds into distinct groups or populations, but ABC is focusing on the following:

**Species** – variously defined, but generally meaning a distinctive form or group of closely related forms that is (or are) reproductively isolated from other such forms or groupings.

**Subspecies** – a regional variant within a species that is distinctive in form, but is not completely isolated or highly differentiated—while these variants have different breeding ranges from each other, they may mix outside the nesting season.

**Cline** – a gradient of forms within a species that may not cleave easily into clear subspecies. In some cases, while extreme geographic forms of a species may be quite distinctive (e.g., eastern and western forms of the Hairy Woodpecker), it can be hard or impossible to identify precise locations along the gradient where divergence to the subspecies level takes place. For now, however, ABC still views subspecies division as the most practical means of categorizing and creating conservation rankings for forms within clinal species.

Hairy Woodpecker cline



**Population Segment** – a geographically separate population of a species or subspecies that has limited gene flow to other similar populations due to its isolation, but is otherwise generally indistinguishable (e.g., the eastern population of the Golden Eagle).

**Habitype** – ABC has created this term to describe a group of individuals within a species that occupies an ecologically unique niche – e.g., habitat preference, timing of breeding, or a specific nesting strategy – but that is otherwise identical to other individuals within the species (e.g., tree-nesting and ground-nesting Marbled Murrelets).

**Morph** – a color variant within a species or population. These color variations can crop up seemingly randomly with no geographic concentration based on gene dominance, but ABC is most interested in those that have regional concentrations (e.g., dark morph of the Broad-winged Hawk).

**Hybrid** – a cross between two species that may or may not be regionally concentrated (e.g., hybrids between Myrtle and Audubon’s Warblers).

there are multiple, complex gradations of forms that in some birds are sharply defined, and in others blend from one to another across the landscape in “clines” from east to west or north to south.

While the U.S. Endangered Species Act (ESA) includes subspecies as well as “Distinct Population Segments” (see article page 22), the very word “**subspecies**” implies a level of inferiority that may affect the way these populations are viewed. Since so much conservation happens locally or regionally, most projects end up being directed at populations rather than at entire species. To maximize these efforts to conserve bird diversity, it would be better if actions were applied in a coordinated, strategic manner to protect all populations and ecological types.

How then can we unravel this vastly complex world of genetics and ecology to devise a national approach that truly addresses the conservation of all America’s bird diversity?

To draw conservation attention to the broader array of differences among birds, ABC has created a list for the 50 United States and U.S. territories that provides conservation rankings for both species and subspecies based on the standard bird conservation scoring system used by Partners in Flight. This list provides the critical first step in helping set priorities for those birds most in need of help, regardless of their current status as a species or subspecies.

The list also identifies important geographic population segments, populations restricted to particular ecological niches, and some morphs and hybrids. The full list (along with its methodology and bibliography) is available on ABC’s website (see [www.abcbirds.org/checklist](http://www.abcbirds.org/checklist)). A checklist version (including just forms that can be identified in the field) is included with this issue of *Bird Conservation*. This checklist includes color-coded conservation rankings from Secure (green) through Potential Concern (yellow), to Vulnerable (orange), and At-Risk (red). David Sibley’s excellent online resource on identifiable subspecies helped us select which subspecies should be included. We would also like to thank David for the use of his superb illustrations for this issue of *Bird Conservation*—look out for the new edition of David’s field guide coming soon.

This ABC list puts all birds on the radar screen for conservation regardless of taxonomic decisions so that we can better avoid birds “falling through the cracks” of conservation action. We are also pleased to include the birds of Hawai’i in the list, since our 50<sup>th</sup> state is home to many of America’s most threatened birds.

The new ABC list also provides the scientific and conceptual basis for the articles and approaches detailed in this issue of *Bird Conservation* magazine. We look forward to much spirited and constructive debate on how we can work together to conserve the full diversity of America’s birds.

The four distinctive forms of the Fox Sparrow are becoming recognized as separate species. The eastern (left) and Pacific (right) forms are pictured.



● Fox Sparrow: Robert Royse



● Sooty Sparrow: Robert Royse

We anticipate that some of the birds to which we have assigned full species status (as opposed to subspecies) in the ABC list may spark debate. However, it appears likely that as taxonomy advances, far more bird species will ultimately be recognized than is the case today. We welcome discussion on these issues, and we are particularly interested in how quantitative thresholds can be set that enable taxonomists, conservationists, and birders to agree on and operate off of a single global species and subspecies list. More details on our basis for making these decisions appear on the ABC website.

## Species to Populations

While the primary focus of ABC's new list is on providing conservation ranks for species and subspecies, we also note those species within which variation is more gradual and those with disjunct regional "population segments" that may warrant conservation attention.

Subspecies can also frequently be aggregated into regional groups that show similar characteristics. While these groups may appear quite distinct from each other, the subspecies within them may be separable only by subtle characters such as bill measurements and plumage tones. These groups can be defined in various ways, and ABC identifies several in the enclosed checklist based on forms that show common field identification characters. A more detailed taxonomy of these groups is provided in the online version of the checklist.

The concept of population segments is currently known primarily in relation to the U.S. Endangered Species Act. In this context, a "Distinct Population Segment (DPS)" is a population that is both discrete within, and significant to, a species, although its application is frequently determined by legal interpretation. While this is similar to

ABC's definition of a population segment, a DPS cannot be designated without meeting the Act's standards for listing, and its designation may be subject to both biological and legal interpretation. In contrast, ABC's goal is to list all population segments so their conservation status can be monitored and addressed prior to the need for listing.

The concepts of morphs and hybrids, though well understood and accepted, are infrequently considered in conservation circles, and ABC's "habitype" division is new.

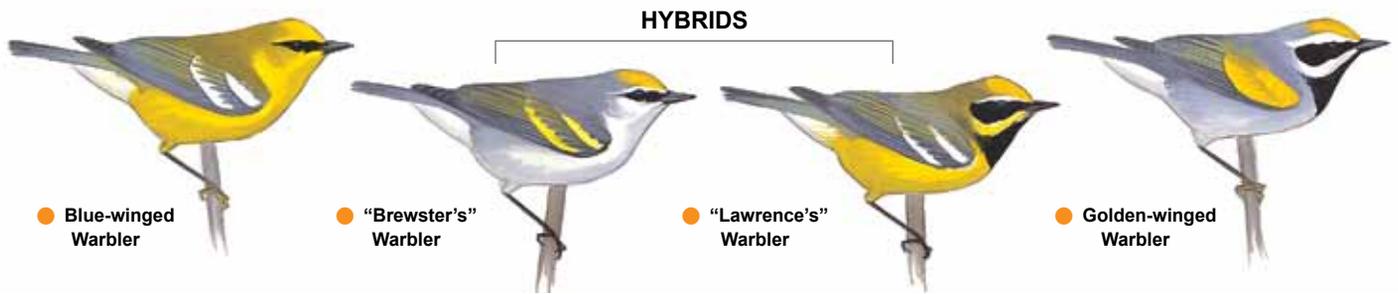
## Morphs

Around fifty American bird species have some color variants that can be regarded as morphs, and these species come from a surprisingly wide range of families. Some of these morphs occur within species that are already known to be of conservation concern, such as the Pink-footed Shearwater and Reddish Egret.

While it is unnecessary to direct conservation to specific color variants that occur randomly across populations, some morphs are geographically concentrated – such as the range-restricted dark morph of the Broad-winged Hawk that nests in Alberta, Canada – and some of these may be worthy of conservation attention.

The dark morph of the Least Bittern, also known as Cory's Least Bittern, was largely restricted to areas around Toronto, Canada, although records came from as far afield as Florida and Michigan. Sadly, there have been no confirmed North American reports of this rather spectacular form of the species for several decades.

As long as morphs that are geographically concentrated and potentially of conservation concern remain off the conservation radar screen, there is less chance that the bird



Blue-winged and Golden-winged Warblers and their hybrids. Do the hybrids merit conservation attention?

community will be aware of or able to respond to changes in their populations or threat levels. While we recognize that both conservation need and opportunity will be rare, we hope the new ABC list will be a first step towards assembling better data on the status and distributions of these intriguing birds.

## Hybrids

Hybrids – the offspring of pairings between different species – are often overlooked by the bird conservation community. When conservationists think about hybrids it is most often in the context of preventing them – especially those that benefit from human activities at the expense of rarer species whose populations could be genetically “swamped”. Well-known examples include Barred Owls (that are spreading northwest due to human-caused habitat fragmentation) interbreeding with Spotted Owls, and Mallards interbreeding with Hawaiian or Black Ducks.

Many birds occasionally naturally hybridize in the wild, but we generally have little information on what happens to the offspring of these pairings. There are a few species, though, such as Myrtle and Audubon’s Warblers, that hybridize successfully on a regular basis, and several that have stable “hybrid zones” where intermediate populations can reliably be found. Another regularly occurring, though less geographically concentrated, set of hybrids are the various combinations between Blue-winged and Golden-winged Warblers (and between them and their hybrid offspring) that give rise to the stunning “Lawrence’s Warbler” and to the subtly beautiful “Brewster’s Warbler”.

Many of us consider hybrids to be unwelcome and a potential threat to genetically “pure” bird species. Hybrid gulls along the Pacific Coast in particular frequently draw the wrath of birders, because they are increasingly abundant (thanks to human-created landfills and offal discarded from fishing boats), cannot clearly be identified to species, and perhaps at a more fundamental level, seem to represent a form of genetic pollution that decades of popular science and science fiction have taught us to shun. Why should we view natural hybridization negatively

though? Some of these hybrid populations may be worthy of conservation attention, particularly those that are geographically concentrated.

If birds in one of these hybrid zones came under threat, what should our reaction be? Should we be pleased that hybridization was going to be reduced, or should we act to protect the population as a valid component of our overall avian diversity? Birders may well be enticed by the idea of seeing a stunning Lawrence’s Warbler, but bird conservationists have yet to determine if and how we value hybrids from a conservation standpoint.

## Habitypes

ABC coined the term “habitypes” to refer to birds that have unique ecologies, but that are not otherwise distinctive from related popula-



tions. Two classic examples that we often refer to are Swainson’s Warblers that nest in Appalachian rhododendron thickets instead of bottomland hardwood swamps, and

Marbled Murrelets that nest high in trees in coastal forests of the Pacific Northwest rather than among Alaskan scree slopes.

Other examples include Common Terns that nest in freshwater rather than marine areas; and oak and cottonwood, rather than conifer-nesting, Lewis’s Woodpeckers. Each of these habitypes is ecologically unique and represents an irreplaceable and fascinating element of avian diversity, yet was not previously distinguished for conservation purposes from other populations of its species in any formal way.

ABC believes that these, and other such habitypes, have conservation value, and we identify some of them in the notes section of our list on the website. Beyond habitypes, other measures of bird diversity include regional variations in song type and molt timing. Further study may reveal even more cryptic patterns that have conservation significance. We look forward to hearing of additional examples that can be added to the list.

# CENTERS OF DIVERSIFICATION: MOUNTAINS

Shenandoah National Park, Virginia: Mike Parr

By Mike Parr, Vice-President, ABC

The unique avian diversity that can evolve in mountain environments was demonstrated to me on a recent trip I made to North Carolina. I'd been distracted from my planned route by a side excursion to find rhododendron-nesting Swainson's Warblers; I'd driven north to Pocahontas County, West Virginia, following a tip from a birding friend. Stopping near the town of Marlinton, in the Allegheny Mountains, I set off along a trail that led me to an ice-age time warp called the Cranberry Glades Botanical Area. This isolated mountain habitat lies at an altitude of 3,400 feet within the Monongahela National Forest, and it's full of plant and animal species that are normally found in much more northerly settings. Bog rosemary, buckbean, and reindeer moss, abound; this is the southernmost nesting area for the Northern Waterthrush; and Myrtle and Canada Warblers can also be found in small numbers here.

Among the longer-distance migrant warblers is a smattering of unique Appalachian bird subspecies. Birds such as the Slate-colored Junco, Black-capped Chickadee, and Blue-headed Vireo have representatives among this group, and all three can be found at Cranberry Glades.

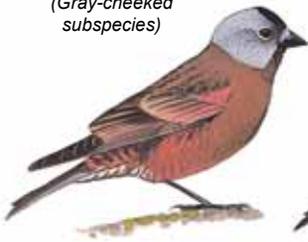
## Why are Mountains Centers of Diversification?

Mountains can be like islands on the land—surrounded by “seas” of habitat not found on the mountains themselves. Grasslands at the bottom may give way to chaparral on higher slopes and plains, or to a pinyon-juniper woodland; that in turn might give way to a zone of ponderosa pines and then to a thick ring of spruce or fir. If the mountain is tall enough you'll find a rocky, treeless zone on top—perhaps a patch of tundra. Each habitat, in turn, isolates those above and below it for species that specialize in the respective ecological zones, and these zones can change radically within a very short distance.



● Blue-headed Vireo  
(Appalachian)

● **Gray-crowned Rosy-Finch**  
(*Gray-cheeked*  
*subspecies*)



● **Gray-crowned Rosy-Finch**  
(*Brown-cheeked*  
*subspecies*)



● **Brown-capped Rosy-Finch**



● **Black Rosy-Finch**



Rosy-Finches show a wide range of diversity across their Arctic and montane-tundra habitats, and sometimes hybridize where their ranges meet.

The story of the rosy-finches makes a good case study for the link between “montane islands” and bird diversity. All three American species of rosy-finch nest in rocky tundra. In the northern portion of their range this tundra can be found at sea level, but in the southern portion—in the western mountains—it is only found where peaks extend above the tree line.

Different forms of rosy-finch are found in different mountain ranges (and on different islands in Alaska), where they live among windswept rocks and even around abandoned mine workings. When snows are still heavy and the mountain birds can't find food high up, they move down to the valleys, swarming over bird feeders, animal feeding troughs, and freshly-plowed sections of highway. It is believed that for millennia, separate groups of rosy-finches returned to separate mountain tops, becoming genetically distinct in the process. Today, several subspecies of Gray-crowned Rosy-Finch can be distinguished from one another, and two others, the Black and Brown-capped, comprise full species. Variations on this theme have led over time to the broad range of mountain bird species and subspecies we have today.

## Subspecies Vital Statistics



● **Black-capped Chickadee**  
(*Typical - eastern*)



● **Black-capped Chickadee**  
(*Gray-flanked - interior*)

Mountains in the continental United States share many habitat characteristics with boreal and tundra areas to the north, where latitude rather than altitude contributes to the colder temperatures that tend to define habitat characteristics. Because of this, and because we are north of the Equator (where bird biodiversity is at its peak), we lack the high degree of micro-endemism that is found in the Andes, where birds are more isolated with fewer comparable habitats to their north or south.

Despite this, diversification among mountain birds is still pronounced in the United States at both specific and sub-specific levels.

The list of birds with subspecies in the Appalachians includes the Blue-headed Vireo, Black-capped Chickadee, Winter Wren, Veery, Swainson's Thrush, and Slate-colored Junco; a similar list for the west features Northern Pygmy-Owl, American Three-toed Woodpecker, Gray and Steller's Jays, Hermit Thrush, Black-capped Chickadee, American Pipit, and Gray-crowned Rosy Finch. Mountain birds given full species recognition include the Black and Brown-capped Rosy-Finches and Dusky and Sooty Grouse (each of the latter two with several subspecies of its own).



● Spruce Grouse: Robert Royse

## Conservation Issues

Slopes are inherently unstable, and steep slopes are hard to access. These are the two reasons that natural mountain habitats are often the most intact in any given landscape. Simply put, they are harder to farm, log, and build roads on than surrounding lands, and so are usually the last in any given area to be impacted by human activity. Countering these natural protective qualities are the facts that mountains are often cooler and have fewer insects than surrounding lands, making them good places to live or to retreat from hot summer weather, plus they can offer winter activities such as skiing that can sometimes fragment specific areas of habitat. Mountains also sometimes harbor valuable mineral resources such as metals and coal.

While most attention in the East tends to be focused on the dramatic impact of mountaintop mining and the spread of ridge-top wind power, it is the slower processes that likely have the most significant and widespread impacts on the largest number of bird species. The clearance of trees for home sites and pastures has chipped away at the bases of the Appalachians, yet much forest remains, especially in National Forests and parks. This forest, though, grew from a landscape that was almost simultaneously clear-cut around a century ago, so large sections are now almost uniformly mature, leaving fewer young stands for birds such as Golden- and Blue-winged Warblers. The absence of small clearings that would once have been created by beaver activity or by native American communities may also be a primary threat to birds such as the Cerulean Warbler, which has been shown to have a preference for breaks in the forest canopy.

In the West, decades of fire suppression have taken a toll on mountain forests. Fire suppression leads to a significant build-up of underbrush that would otherwise be cleared out by low-intensity, periodic wildfires. Now, when fires come, as they inevitably do, they tend to be more severe and able to kill larger trees. In the meantime, some birds, such as the Flammulated Owl that prefers to hunt in more open woodlands, fare poorly in high brush-load forests.

It seems antithetical to suggest that the solutions to bird conservation in mountain forests are to thin trees and burn vegetation, but the reality is that these practices are needed in some areas to help those birds that are faring poorly in today's mature, dense and over-loaded forests. The total acreage affected by past forest management policies is vast, and continuing to improve on this management is essential to protecting mountain birds populations.



● American Three-toed Woodpecker (*Whiter-backed/Rockies*): Robert Royse

The wild card in all of this is global climate change, which is likely to increase the stress on precious ecosystems harbored by these “islands on the land.” On many mountains, average temperatures appear to be rising more quickly than they are at sea level. This change has been linked to habitat degradation that will need to be addressed if we are to maintain the abundance and diversity of mountain bird populations in the future.



● Oregon Junco: Tom Grey



● Pink-sided Junco: Robert Royse

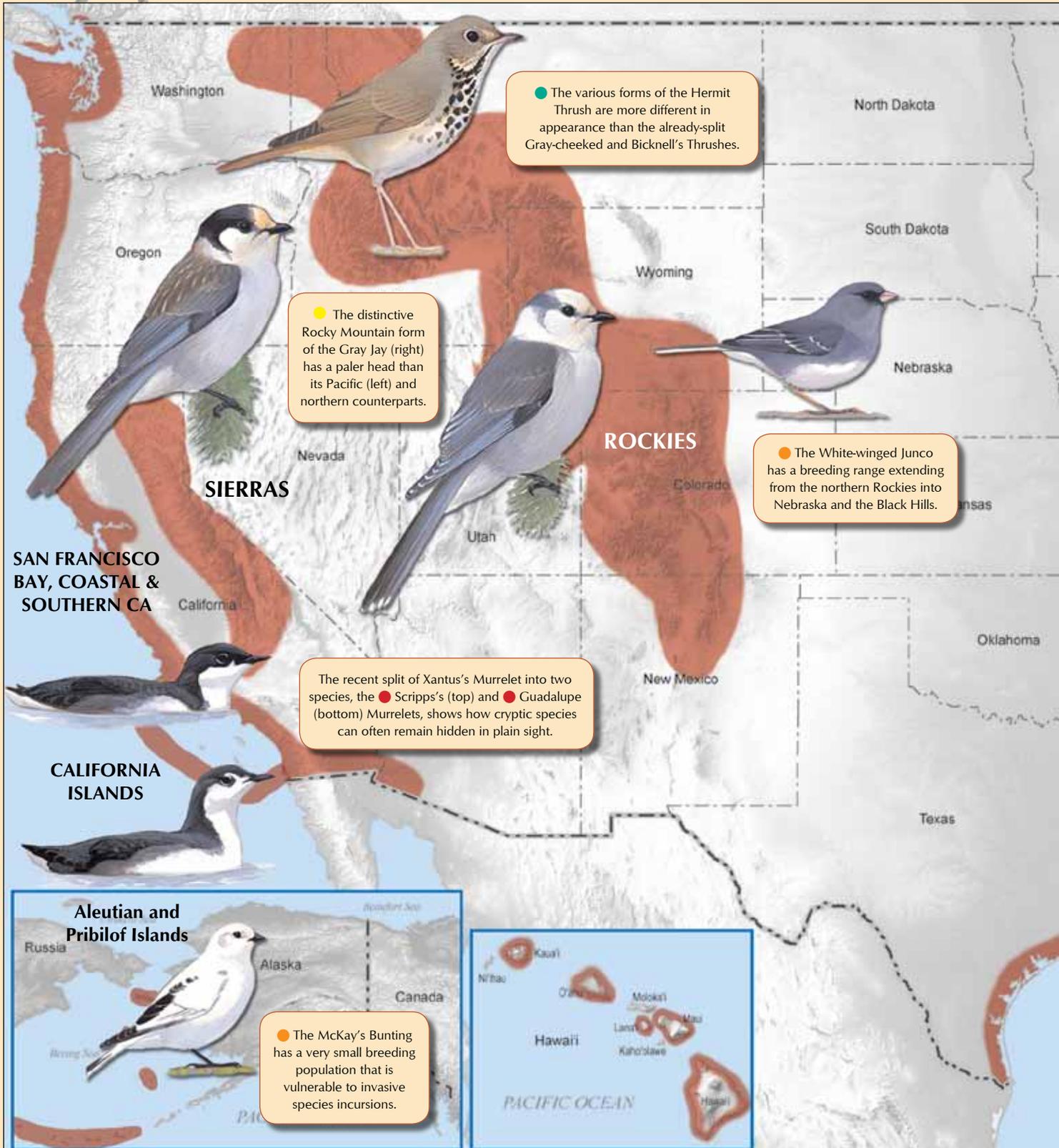


● Red-backed Junco (*Gray-headed*): Robert Royse

● Clapper Rail  
(Intermediate/darker -  
S. & Gulf)



# CENTERS OF DIVERSIFICATION



Certain parts of the United States are centers for bird diversification; these are the ecological “engine rooms” of American bird evolution. This map highlights areas of isolated habitat where bird populations have become genetically “stranded” due to topographical and ecological conditions. If this isolation is significant and long-lasting enough, it can cause bird populations to diverge so they begin to consistently differ from their close relatives in plumage and other characteristics. Ultimately, today’s subspecies can become tomorrow’s full bird species.



■ Denotes centers of diversification. Map depicts some species and subspecies examples.

## CENTERS OF DIVERSIFICATION:

# Coastal Areas and Peninsular Florida

Palo Alto Baylands, California: Mike Parr

By Mike Parr, Vice-President, ABC

**P**alo Alto Baylands Nature Preserve is a 2,100-acre protected area that lies south of San Francisco International Airport in the southern portion of San Francisco Bay. It is a fun and easy place to bird, and can be a good, quick stop on the way south to Monterey and the Big Sur coast. The bird populations here typify those that can be found in the calmer reaches and salt-marshes of the Bay – and it is a great place to look for some of the area’s unique subspecies, such as the endangered California Clapper Rail (e.g., along the ditch under the boardwalk that is sometimes called the “Clapper Railway”), or even the California Black Rail on very high winter tides when the birds are sometimes pushed out of the marsh by the rising water and into view.



The first time I visited Palo Alto Baylands I was puzzled by a high-pitched call that I was hearing everywhere. To start with, I assumed it was being made by Anna’s Hummingbirds and that they were zipping around quickly and hiding behind foliage—but the only birds I was seeing in the bushy vegetation were Song Sparrows. Then suddenly the mystery solved itself. I noticed one of the Song Sparrows opened its bill right when the strange call sounded.

I soon realized that the Song Sparrows at Palo Alto not only have a different call from eastern Song Sparrows, but they frequently also behave like Seaside Sparrows, skulking around and keeping low in the pickleweed. While these Song Sparrows are darker than others, they don’t *look* too dissimilar, but their calls, behavior, and ecology set them apart as very different and special birds. Interestingly, the reserve also lies in the heart of the global range of the salt marsh harvest mouse, which is found only in the Bay area and depends on the same habitat as the sparrows and rails.

## Why are Coasts and Peninsulas Centers of Diversification?

Coastal habitats are both small in extent and isolated. They also tend to be very different from those found on dry land: rocky and sandy beaches, dunes, sea cliffs, mangroves, saltmarshes, and mudflats. These are among the rarest of American bird habitats by total area, and many of the birds that inhabit them tend to be restricted to them. Some of these birds, especially more sedentary, short-distance migrants such as rails, sparrows, and Marsh Wrens, exhibit high levels of diversification in clusters along the Atlantic, Gulf, and Pacific coasts.

Southern peninsular Florida is ecologically unique within the United States. The region’s climate and the isolation of southern Florida habitats, coupled with the unique nature of the Everglades and central peninsula fire-dependent oak scrub, drive the diversification of the peninsula’s unique species and subspecies.

## Subspecies Vital Statistics

### Coastal Birds

Twenty-one coastal bird species have distinctive regional subspecies. These include the Common Eider, Brown Pelican, Double-crested Cormorant, Black Rail, Clapper Rail, Snowy Plover, Common Murre, Marsh Wren, Common Yellowthroat, Saltmarsh Sparrow, Seaside Sparrow, and Boat-tailed Grackle.

Subspecies among these birds are most often separated geographically between Atlantic, Gulf, and Pacific coasts, or between northern and southern sections of the same ocean coast.

Several of these subspecies are especially distinctive, but not always due to plumage characteristics. The eiders are primarily separated by differing bill structure; the California Black Rail because, unlike like other Black Rails, it doesn't migrate; the Marsh Wren due to plumage, but also the varying complexity of its song; and the Boat-tailed Grackle due to the color of its iris. In the case of the Pacific subspecies of the American Oystercatcher, it remains to be proven whether the slight plumage differences from Atlantic birds are due to extensive and long-term hybrid-

ization with Black Oystercatchers rather than subspecific differences. The eastern subspecies of the Red Knot may also be best viewed as a habitype, as it is marginally different in plumage but significantly different in ecology, being almost completely dependent on a single food-source—horseshoe crab eggs—during migration.

Several coastal subspecies are listed or candidates for listing under the Endangered Species Act, including the two Pacific Coast subspecies of the Clapper Rail, the Western Snowy Plover, the California Least Tern, and the Cape Sable Seaside Sparrow (also see below under Peninsular Florida). The *rufa* or eastern subspecies of the Red Knot is also a candidate for listing, but other coastal subspecies are as yet poorly known within the conservation community at large, let alone protected.

### Peninsular Florida Birds

Nineteen American birds have subspecies that are unique to southern Florida, including the Northern Bobwhite, Red-shouldered Hawk, Clapper Rail, Sandhill Crane, Burrowing Owl, Golden Warbler (often considered a subspecies of Yellow Warbler), Pine Warbler, Prairie Warbler, Eastern Towhee, Grasshopper Sparrow, and Boat-tailed Grackle.



● Black Rail: David Seibel. The California subspecies is threatened by habitat loss, especially in and around San Francisco Bay. Eastern populations also appear to be declining.

South Florida is perhaps best known (in terms of subspecies) for the extinction of the Dusky Seaside Sparrow, which is variously considered a species, or more often, a subspecies of the Seaside Sparrow, and which disappeared from its only known range in the Merritt Island area of Florida's Atlantic Coast in the 1980s due to habitat degradation. Among extant Florida subspecies, the Northern Bobwhite and Burrowing Owl are especially distinctive in terms of their appearance, while the Florida Prairie Warbler is especially distinctive because of its ecology—it prefers mangroves to the young scrub habitat chosen by other Prairie Warblers. Two of the region's unique subspecies are currently listed under the Endangered Species Act, the Cape Sable Seaside Sparrow and the Florida Grasshopper Sparrow (currently undergoing a rapid decline). The Florida Scrub-Jay is another ESA-listed bird that has recently diverged from close relatives elsewhere, but it is fairly distinctive and is widely recognized as a full species. Florida populations of the Crested Caracara and Snail Kite are also listed.

Florida also has some interesting distributions of color morphs, such as a higher proportion of white morph Reddish Egrets than areas to the west, as well as the greatest global concentration of the dark morph of the Short-tailed Hawk. Another intriguing south Florida bird is the Great White Heron, which is variously regarded as a white morph Great Blue Heron or a separate subspecies or species.

## Conservation Issues

Both coastal bird habitats and those in southern peninsula Florida are among the most threatened in the country. Coastal habitats are limited in extent and tend to be in high demand for beach homes and recreation. Development pressure combined with associated disturbance by beachgoers, the spread of feral cats, increases in raccoons and foxes that benefit from human activities, and the mosquito control (spraying and/or diking) that typically follows human settlement, all present threats to bird populations. Perhaps the most extreme case is that of San Francisco Bay, where more than 90% of the original coastal marshes have been lost to development, and there are ongoing problems with introduced eastern cordgrass, as well as feral cat and fox predation of threatened birds.

● Seaside Sparrow  
(Cape Sable - S. Florida)



● Seaside Sparrow  
(Duller - Atlantic)



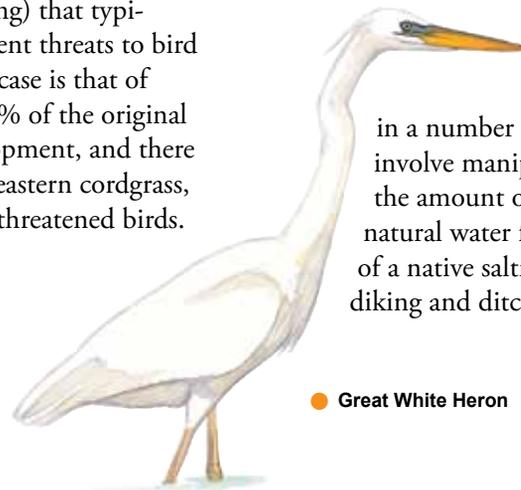
In southern Florida, decades of fire suppression and water management activities have profoundly affected the natural landscape. Some 85% of natural, fire-dependent oak scrub has been lost in the central peninsula, especially in the Lake Wales Ridge area, and water control projects in the Everglades have severely affected run-off across a large area south of Lake Okeechobee.

These habitats face “death by a thousand cuts,” and the federal and state protected lands within them are likely to take on an increasingly important role in conserving the region's birds. The potential impacts of climate change and associated sea-level rise could also be a major problem for coastal birds in particular.

The best mitigation strategy may be to increase the amount of protected habitat in coastal locations where beach and saltmarsh ecosystems have the potential to eventually move inland to areas that are currently dry land. San Francisco Bay faces an especially difficult challenge due to the extensive urban development already in place there. Restoration of the Everglades is also an enormous environmental and engineering challenge currently being led through the multi-partner Comprehensive Everglades Restoration Plan.

Another significant management challenge is how to deliver mosquito control programs that have the minimum negative effect on natural coastal marsh ecosystems. One such program is known as Open Marsh Water Management or Integrated Marsh Management.

This technique was first introduced in New Jersey, but in recent decades has been adopted in a number of other states. While it does involve manipulation of wetlands, it reduces the amount of pesticide use, is less disruptive to natural water flow, and retains more components of a native saltmarsh ecosystem than traditional diking and ditching projects.



● Great White Heron

# CENTERS OF DIVERSIFICATION: ISLANDS



By George Wallace, Vice-President for Oceans and Islands, ABC

Nihoa Island: George Wallace

Approximately 100 years ago, the subspecies of Millerbird endemic to Laysan Island was driven to extinction by introduced rabbits that destroyed the island's vegetation. But the rabbits never made it to the island of Nihoa, some 650 miles away, and the only home of a closely-related Millerbird subspecies. Recently, 24 of those birds were trapped and moved to Laysan Island (where rabbits have now been eradicated), bringing the bird back to its former island and creating a buffer against the possible global extinction of the species.

Soon after this historic translocation, John Vetter, one of the biologists with the Millerbird project arrived on Laysan to observe the birds during their first breeding season. He reported on ABC's blog: "...I jumped straight off the boat through large ocean swells into a howling rainstorm, which made for an inauspicious start to my six-month tour on Laysan. However, any doubts I might have had were quickly assuaged. After much watching and waiting, a Millerbird has hatched on Laysan—for the first time in nearly a century. On top of that incredible landmark, nearly all of the Millerbird pairs are exhibiting nesting behavior, with seven nests found so far in various stages of breeding. I will continue to monitor the little guy, as well as hope for more young ones 'flying' away from the nest cup soon."

The first phase of the project had been an unqualified success.

## Why Are Islands Centers of Diversification?

Millerbirds exist today because an island is an isolated ecological system. Some of the most isolated islands have provided modern science with its most dramatic breakthroughs in the understanding of evolution and speciation. The Galapagos Islands and their radiations of closely related finches and mockingbirds set Charles Darwin on the path to developing his theory of natural selection. And it was the field of "island biogeography" – pioneered in the 1960s by Robert McArthur and E.O. Wilson – that helped explain why the bigger and more isolated islands are, the more they tend to be hotspots for diversification.

The main Hawaiian Islands are both very isolated and relatively large, and have provided many opportunities for founding birds to diversify into a relatively rich bird life.

Consider Hawai'i's endemic honeycreepers, which all apparently evolved from a common ancestor. The Palila has a stout bill for cracking open the pods and seeds of māmane trees. Iiwis use their long, curved bills to drink nectar from flowering plants that have developed long-curved petals. Maui Parrotbills use their hooked bills to rip off bark and open small stems to glean insects.

Darwin, had he visited Hawai'i, would have been impressed. The adaptive radiation on display today is *still* impressive, but only a glimpse of what it once was. The recent historical record and fossil discoveries tell us that there were once at least 59 species of honeycreepers alone,

whereas today there are probably only 17 left. Other examples of adaptive radiation on Hawai'i included rails, thrushes, and now-extinct long-legged stilt-owls.

## Subspecies Vital Statistics

Hawai'i has no shortage of subspecies. The Hawai'i 'Amakihi has two, one found on only the Big Island, and the other on Maui and Moloka'i. 'Elepaio were once considered a single species, with three subspecies on Hawai'i, but recent genetic analyses have shown that the birds on Kaua'i, Hawai'i, and Oahu represent three distinct species.

More evidence that islands serve as hotspots is found among Hawai'i's waterbirds: in particular the Hawaiian Stilt and Hawaiian Gallinule. These two species are similar to their mainland counterparts, but are non-migratory.

Hawai'i's seabirds also show differentiation. Several subspecies of the central tropical Pacific occur in the Hawaiian Islands, including subspecies of the White-tailed Tropicbird, Masked and Brown Boobies, and Brown Noddy. Arguably the most striking of the seabird subspecies is the Black Noddy of the main Hawaiian Islands, with its bright orange legs and feet, in contrast with Black Noddies of the

Northwestern Hawaiian Islands and central Pacific (and Caribbean) that have black legs and feet. The taxonomy of the Band-rumped Storm-Petrel complex is in flux. It seems most likely that records from U.S. Atlantic waters belong to an as-yet formally undescribed species, "Grant's Storm-Petrel," and that there

may be as many as three other species of "Band-rumped Storm-Petrels" nesting in the eastern Atlantic. The Hawaiian Band-rumps are isolated from the Atlantic group and almost certainly also represent a distinct species.

The Hawaiian Islands are the most striking in terms of their avian diversification, but other islands around the U.S. coast have interesting species and subspecies as well. In Alaska, there is the 1,000-plus-mile-long Aleutian chain of islands, where birds such as Song Sparrows and ptarmigan have developed interesting new forms.

The Pribilof Islands of St. Paul and St. George have a distinctive, Dunlin-like subspecies of the Rock Sandpiper, and the even more northerly Hall and St. Matthew Islands have the striking white McKay's Bunting, a full species, but still a close relative of the Snow Bunting, from which it appears to have recently diverged.

The U.S. Channel Islands off the coast of southern California present a further array of diversity, even though the

● **Rock Sandpiper**  
(Paler - Pribilof)



● **Rock Sandpiper**  
(Darker - Aleutian/AK)



farthest of them (San Nicholas) is little more than 60 miles offshore, and the largest of them (Santa Cruz) less than 100 square miles in area. San Clemente is home to subspecies of the Loggerhead Shrike (see article page 22) and Bell's Sparrow. The San Clemente subspecies of Rufous-sided Towhee has not been seen since 1975 – an American subspecies extinction that has largely remained below the radar of the bird conservation movement – and regional subspecies of the Song Sparrow and Bewick's Wren have not been confirmed on San Clemente since 1941, though they are still holding out on other Channel Islands, along with subspecies of birds such as the Orange-crowned Warbler and Allen's Hummingbird.

## Conservation Issues

Unfortunately, while many U.S. island birds face problems, the issues confronting the Hawaiian Islands are among the most significant. The prolonged isolation of these islands has created unique, but delicately balanced ecosystems that were once devoid of many mainland plant and animal species, particularly mammals. Over time, island plants lost their ability to cope with grazing animals, and island animals lost their defenses against predators.

As a result, non-native mammals and plants introduced by humans have wreaked havoc. Plants introduced from the mainland have run rampant without the natural controls that are present on continents to keep them in check; goats, sheep, and pigs have devastated native vegetation; and rats, cats, and mongoose have found an open, eat-all-you-like buffet among the native animals.

The widespread Rock Ptarmigan has two distinctive forms in the Aleutian Islands, and an Alaskan mainland form. Subspecies definition is complicated by the complex molt patterns of these birds.



● **Rock Ptarmigan**  
(Typical -  
E. Aleutian & AK)



● **Rock Ptarmigan**  
(Dark summer male -  
W. Aleutian)



● **Rock Ptarmigan**  
(Paler summer male -  
central Aleutian)

The "Band-rumped Storm-Petrel" is likely multiple species.



○ **Band-rumped Storm-Petrel**



● Hawai'i Elepaio  
(Pale-headed - Mauna Kea)



● Hawai'i Elepaio  
(Intermediate - Kona)



● Hawai'i Elepaio  
(Brown-headed - Volcano)

Diversity of the elepaios on the Big Island of Hawai'i is extreme for a species with such as small geographic range. Photos by Jack Jeffrey.

Problems like these are compounded by the land-use pressures that accompany human population growth, and by ecological disruptions linked to global climate change. In Hawai'i the result of all of these problems has been the extinction of well over half of the islands' 113 endemic bird species, earning these islands their reputation as "the bird extinction capital of the world."

So how can we fight the many threats to avian diversity on island "hotspots" all around the world? We must start by doing everything we can to stop – and then reverse – the spread of introduced species, including diseases.

In Hawai'i, the two diseases that pose the greatest threats to native forest birds are avian malaria and pox: and they are the threats for which the fewest counter-measures are currently available. We know that fencing and clearing areas of pigs, which dig wallows used by mosquitoes, can help reduce the spread of these diseases. Even low mosquito densities can have a huge impact. Rising global temperatures allow mosquitoes to survive year-round at ever-higher elevations, and areas without mosquitoes or areas with only seasonal disease transmission are shrinking. The development of novel solutions to the mosquito-borne disease threat is urgently needed. Encouragingly, though, the Hawai'i subspecies of the Amakihi is apparently developing resistance to the disease, and 'amakihi are increasing in numbers in some lowland sites. Recent discoveries of Ākepa, and 'Akiapōlā'au at lower elevations on the Big Island indicate that other species may also be developing resistance (see article page 6).

For waterbirds, limiting invasive predators and maintaining healthy wetlands are essential. Birds such as the Hawaiian Stilt, Hawaiian Gallinule, Koloa (Hawaiian Duck), and Hawaiian Coot are doing reasonably well, indeed better than most forest birds, but only with a great deal of help. Thriving waterbird populations occur mostly on refuges where intensive predator control is ongoing.

On islands where predators have either been removed or have not arrived, strict biosecurity will always be essential.

For example, all of the Northwestern Hawaiian Islands host extraordinarily large and diverse seabird colonies; the importation of exotic predators such as rats to some islands has been disastrous, and could be again in the future. Where rats have been removed, such as on Midway, bird populations have rebounded dramatically.

Controlling invasive cats may prove to be the greatest challenge facing bird diversity on the islands of the world. On populated islands, even if feral cats were removed, owned outdoor cats can still threaten bird populations. On the island of Hawai'i, one solution is underway, led by the National Park Service with support from ABC and others: a cat-proof fence designed to protect Hawaiian Petrels nesting high on the slopes of the Mauna Loa volcano.



● The elegant Hawaiian Petrel was, until recently, regarded as one of two subspecies of the Dark-rumped Petrel, the other being split as the Galapagos Petrel. Photo by Jack Jeffrey.

The problems facing islands are complex, but there are ways to pull some of the most threatened birds on the world's islands back from the brink of extinction. That's exactly what ABC and the U.S. Fish and Wildlife Service are doing in the Northwestern Hawaiian Islands for the Millerbird. The species is now safer because it now exists in two places, which means that it cannot be driven to extinction by a localized catastrophic event or a single-island invasive species incursion.

Translocations of this kind may well become more commonplace if this one proves to be successful. We hope that they'll help us turn the tide and start to cheat human-caused extinction.

# SUBSPECIES and the ESA

By Gavin Shire, Vice-President for Communications, ABC

The Northern Spotted Owl is almost certainly America's best known avian subspecies. Though few people have ever seen one of these graceful, silent predators of the Pacific Northwest's old-growth forests, even those who know next to nothing about birds, let alone subspecies, races, morphs, or clines, have heard of this owl. Its listing under the U.S. Endangered Species Act (ESA) has sparked more controversy than any other animal in U.S. history, with the possible exception of the gray wolf and some Pacific salmon.

The ESA protects our most threatened plants and animals. It not only safeguards individual birds, their eggs, and their nests from harm, but it also sets aside areas of "Critical Habitat" as safe havens into which they can recover. In the case of the Northern Spotted Owl, that has meant designating portions of lucrative old-growth and mature forests as off-limits to loggers, igniting a long-running, nationwide debate and a series of lawsuits over how much Critical Habitat should be set aside and where.

The ESA is the only U.S. wildlife law that specifically addresses biodiversity beyond the species level. The original act of 1973 mentioned only subspecies, but in 1978, language was amended to allow biodiversity to be conserved down to the level of "Distinct Population Segment". A House of Representatives report on the 1973 law clearly expresses the intent of the lawmakers at the time when it states: "...it is in the best interests of mankind to minimize the losses of genetic variations... They are keys to puzzles which we cannot yet solve, and may provide answers to questions which we have not yet learned to ask."

● Spotted Owl (*Paler-Mexican*): Dave Palmer

Defining what constitutes a population that should be targeted for protection or exempted from it quickly became, and remains, a topic of hot debate; nevertheless, the ESA today protects 43 birds in the United States and dependent territories that it considers to be at or below the subspecies level, including interior populations of the Least Tern, the Great Lakes population of the Piping Plover, Yuma and Light-footed Clapper Rails, Masked Bobwhite, Western Snowy Plover, and San Clemente Loggerhead Shrike.



● Loggerhead Shrike: Greg Lavaty

Some of these birds have thrived with ESA protection, such as the shrike, which is found only on the island off the coast of California that gives the bird its name. This small, predatory bird with a Zorro-like mask impales its prey on thorns and barbed wire to compensate for its lack of sharp talons. It has recovered from record low of just 14 birds as a result of habitat conservation and captive-



Clapper Rails get grayer as you move from west to east. The Pacific coast populations are listed under the ESA.



● **Clapper Rail**  
(Rufous - coastal California)



● **Clapper Rail**  
(Intermediate/darker - Gulf Coast)



● **Clapper Rail**  
(Grayish - Atlantic)

breeding efforts funded by the ESA (and implemented following ABC advocacy).

Other birds have not fared so well. These include the Florida Grasshopper Sparrow, and the Cape Sable Seaside Sparrow, which is restricted entirely to the Everglades of southern Florida,

where it has evolved as a specialist of seasonally flooded inland prairies of native grasses. Sometimes called the “Goldilocks bird” because it requires the balance and timing of wild fires and floods to be “just right,” the sparrow’s populations have declined due to heavy manipulation of these natural habitat systems by humans.

The precarious future of the sparrow highlights a flaw with conservation prioritization in the United States. The only time subspecies or population conservation rises to the level of national concern is when these birds are petitioned for listing under the ESA. Until now, there has been no ongoing, systematic ranking and trend assessment for subspecies. In other words, we have a critical care emergency room for birds on the brink, but are lacking the preventative care system that might help stop them from ever getting to that point.

ABC’s new, complete avian rankings may ruffle some feathers in the bird world. Some may contest our classification or question the conservation ranking we have assigned; to those people we say yes, please, challenge these details. It will help make a better list. But let’s not get so caught up in these specifics that we lose sight of the need for such a list in the first place.

We have provided a place to start; a system for the ongoing assessment of forms beyond the species level that can be refined beyond the species by the cumulative expertise of everyone in the bird conservation community. If such an approach is adopted widely – by federal and state agencies, non-profits, research institutions, and independent scientists – it will help us prioritize our efforts to conserve all bird diversity before the emergency alarm bells start to sound.



# PRIORITY LISTS

The lists on this and the following pages show some highlights from ABC's new species and subspecies conservation analysis (see [www.abcbirds.org/checklist](http://www.abcbirds.org/checklist) for full details). We hope that these will be thought-provoking, and will lead to more conservation action for the featured birds.

## Most At-Risk

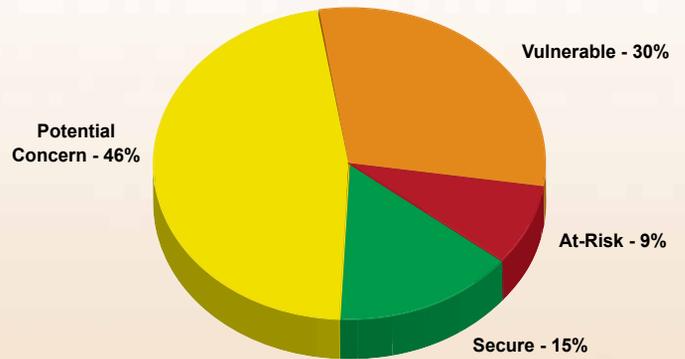
- **Here are the most At-Risk birds not currently listed under the Endangered Species Act (ESA), including candidates**

Gunnison Sage-Grouse  
Sitka Sooty Grouse (ssp)  
Lesser Prairie-Chicken  
Black-capped Petrel  
Pink-footed Shearwater  
Ashy Storm-Petrel  
Hawaiian Storm-Petrel  
Reddish Egret  
Yellow Rail  
Black Rail (both ssp)  
Gulf Snowy Plover (ssp)

Alaskan Marbled Godwit (ssp)  
Eastern Red Knot (ssp)  
Kittlitz's Murrelet  
Guadalupe Murrelet  
Scripps's Murrelet  
Craveri's Murrelet  
Red-crowned Parrot

S. CA Olive-sided Flycatcher (ssp)  
S. FL & Is. Loggerhead Shrikes (ssp)  
S. CA Pinyon Jay (ssp)  
Kauai 'Elepaio  
Hawaii 'Elepaio  
Eastern Bewick's Wren (ssp)  
Bicknell's Thrush  
SF Bay Common Yellowthroat (ssp)  
Mangrove Prairie Warbler (ssp)  
Arizona Grasshopper Sparrow (ssp)  
Eastern Painted Bunting (ssp)  
Maui 'Alauahio (Maui Creeper)

Proportion of U.S. birds in each risk category\*



\*See website at [www.abcbirds.org/checklist](http://www.abcbirds.org/checklist) for category definitions.



● Gunnison Sage-Grouse: Noppadol Paothong

# Territories

## ● At-Risk species and subspecies for U.S. territories. Those marked\* are currently neither listed nor candidates for listing under the ESA.

While this issue of *Bird Conservation* focuses mostly on the 50 U.S. states, ABC's new analysis also covers U.S. territories in the Caribbean and Pacific. You can review a full list of birds that occur in these territories with their conservation rankings on the website at [www.abcbirds.org/checklist](http://www.abcbirds.org/checklist).

### **Puerto Rico (PR)**

PR Broad-winged Hawk (ssp)  
PR Plain Pigeon (ssp)  
PR Common Ground-Dove\* (ssp)  
Puerto Rican Parrot  
Puerto Rican Nightjar  
Caribbean Black Swift (ssp)\*  
Puerto Rican Tody\*  
White-necked Crow  
Elfin-woods Warbler\*  
PR Grasshopper Sparrow\* (ssp)  
Yellow-shouldered Blackbird  
Puerto Rican Oriole\*

### **Guam and Northern Marianas (NMA)**

NMA Micronesian Scrubfowl (ssp)  
Guam Rail  
Guam Common Moorhen (ssp)  
Mariana Swiftlet  
Guam Micronesian Kingfisher (ssp)  
Mariana Crow  
Tinian Monarch\*  
Nightingale Reed Warbler  
Rota Bridled White-Eye  
Golden White-Eye\*  
Guam Micronesian Starling\* (ssp)

### **American Samoa**

Friendly Ground-Dove

● Yellow-shouldered Blackbird: Mike Morel, USFWS



*Analysis for the lists on these pages (and the following) pertains to non-accidental native birds in the 50 U.S. states and territories that have more than 5% of their global population occurring here. Those species that are potentially extinct are excluded. Note that the list on the following page uses data from the Breeding Bird Survey. Subspecies denoted by (ssp).*



● Elfin-woods Warbler: Mike Morel, USFWS



● Puerto Rican Parrot: Pablo Torres, USFWS

# Fastest Declining Migrants

- American Wigeon
- Northern Pintail
- Horned Grebe
- King Rail
- Lesser Yellowlegs
- Franklin's Gull
- Black-billed Cuckoo
- Black Swift
- Rufous Hummingbird
- Allen's Hummingbird
- Olive-sided Flycatcher
- Horned Lark
- Bank Swallow
- Varied Thrush



- Chestnut-collared Longspur
- McCown's Longspur
- Golden-winged Warbler
- Cape May Warbler
- Cerulean Warbler
- Palm Warbler
- Wilson's Warbler
- Lark Bunting
- Grasshopper Sparrow
- Baird's Sparrow
- Rusty Blackbird

Note that population trend is only one factor in assessing risk, so some species with large ranges and populations (such as the Palm Warbler) can currently be regarded as Secure, even though they are declining. This list addresses full species only. For sub-species see the online list at [www.abcbirds.org/checklist](http://www.abcbirds.org/checklist).

● Grasshopper Sparrow: Robert Royse

# Leave a Legacy for Birds

Internationally, domestically, across oceans, and on islands, right now ABC is doing great things for birds. To continue these successes for years to come, we need your help. You can leave a lasting mark on bird conservation by joining ABC's Legacy Circle, which recognizes those generous supporters who have taken the step of remembering ABC in their will or estate plans.

We are protecting thousands of acres of land throughout Latin America, collaborating with partners in ten states to restore habitat for Golden-Winged Warblers, working with fisheries

in Ecuador and Peru to save Waved Albatrosses and other seabirds, eliminating invasive species and protecting rare forest birds in Hawai'i, and so much more. Your bequest can make enduring bird conservation like this possible, and part of your legacy will then protect the birds of the Americas for future generations.

If you would like more information on leaving a legacy gift for birds, or if you have already included ABC in your estate plans, please contact ABC's Planned Giving Director, Jack Morrison, at 540-253-5780, or at [jmorrison@abcbirds.org](mailto:jmorrison@abcbirds.org).



● Puerto Rican Nightjar and chick: Mike Morel, USFWS

## SPECIES PROFILE

# Masked Bobwhite – a Southwestern Specialty

**T**he Masked Bobwhite is a handsome, gregarious little quail now restricted to a tiny area of the American Southwest and Mexico. Males are distinguished by their black throats and bright cinnamon breasts. The Masked Bobwhite was once considered a subspecies of the Northern Bobwhite, but a strong case can be made for its status as a separate species on the basis of its significantly disjunct range and plumage differences.

This bird once occurred on the grassy plains of Arizona south to Sonora, Mexico, but was extirpated from almost its entire range due to the introduction of cattle and goats, severe droughts, and fire suppression. These land-use changes allowed mesquite and creosote trees and non-native grasses to invade at the expense of the native plants that create habitat essential to the bobwhite's survival. By the early 1900s, the bird had disappeared from the United States. In 1969, the Masked Bobwhite was designated as an endangered species, and listed under the Endangered Species Act in 1973.



In 1985, a population of Masked Bobwhites was re-introduced into the 118,000-acre Buenos Aires National Wildlife Refuge (NWR) in southern Arizona, which was created specifically to protect the bird. Cattle-grazing and hunting are prohibited here, and refuge managers engage in active habitat restoration, including setting prescribed burns to restore native plants and inhibit woody vegetation.

Along with the Masked Bobwhite, Buenos Aires NWR provides safe haven to a wide range of other southwestern wildlife, including more than 325 other bird species, 53 species of reptiles and amphibians, and 58 mammal species, some of which are also endangered.

A captive breeding facility located on the refuge houses nearly 1,000 Masked Bobwhites, and is used to replenish population losses and keep the wild population between 300-500 individuals. Despite these efforts, the refuge has so far been unable to



● Masked Bobwhites: USFWS

create a self-sustaining wild breeding population, which is necessary if the Masked Bobwhite is ever to be delisted.

In 2010, funds from the American Recovery and Reinvestment Act totaling more than \$750,000 were made available for refuge habitat improvements to assist the survival of the quail. Invasive mesquite trees will be cleared from 2,000 acres, irrigation and wildlife drinking water sources improved, and grasslands managed to foster native species growth.

With this sort of continued, careful management, and the re-establishment of native grasslands, this distinctive desert quail may yet make a successful comeback.