Conservation Priorities for Landbirds of the Pacific Coast of Oregon and Washington[1]

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Abstract

Conservation of landbirds in western Oregon and Washington is being guided by two Bird Conservation Plans, a Coniferous Forest plan and a Lowlands and Valley plan. In coniferous forests, all seral stages are recognized as important to maintain avian communities, although late-successional habitats are a priority because of their reduced presence across the landscape. Conservation priorities focus on forest management and providing habitat conditions and special habitat attributes for focal species at site and landscape scales. The best approach for implementing landbird conservation will be incorporating bird conservation objectives into policy and planning of forest management agencies and private companies. The best tools for measuring the success of conservation efforts include habitat monitoring of desired conditions and population monitoring of resident birds. Priority habitats in the lowlands and valleys include grassland, oak, and riparian. Conservation priorities emphasize protection and restoration activities, and enhancing populations for many declining species. Securing protection status for important areas and conducting restoration activities is likely to be the best approach for the declining and heavily impacted grassland, oak, and riparian habitats. The best tools for measuring the success of conservation efforts include tracking the amount and condition of land secured for conservation, and tracking populations of declining and sensitive species. With limited resources, the two most important conservation activities to implement now for landbirds in western Oregon and Washington are protection and management of high priority lowland sites, and institutionalizing landbird conservation into forest management policy and planning.

Key words: coniferous forests, conservation priorities, declining species, landbirds, Pacific Coast, western Oregon and Washington.

Introduction

In the Southern Pacific Rainforest Physiographic Region (mostly western Oregon and Washington except for the west-slope of the Cascade Mountains), a review of Breeding Bird Survey (BBS) data over the last approximately 35 years indicated that 38 species had significantly declining long-term (1966 to 2000) population trends, but only 19 species had significantly increasing trends (Sauer et al. 2001) (*table 1*). Further examination of the data indicated that there was high confidence in the reliability of the data for 24 of the 38 declining species (63 percent), but only six of the 19 increasing species (32 percent). Thus, our most confident assessment of landbird population trends based on BBS data in western Oregon and Washington indicated that there were four times as many species with significant declining trends than with significant increasing trends.

Further, many of the species with significantly increasing trends were generalist species that are already common or abundant, and hence are of little conservation concern. Some examples include Rock Dove, Steller's Jay, House Sparrow, and Red-winged Blackbird (*table 1*). Two exceptions were Osprey and Bald Eagle, which are rebounding from low populations. Some of the other species with significantly increasing trends were species formerly peripheral to this area that are expanding their range, such as Brown Pelican, Black Phoebe, and Red-shouldered Hawk.

Among significantly declining species, a variety of ecological niches were represented, but the most noteworthy patterns were the relatively large number of aerial insectivores (i.e., swifts, swallows, flycatchers, nighthawk), late-successional coniferous forest species (e.g., Blue Grouse, Pine Siskin, Golden-crowned Kinglet, Chestnut-backed Chickadee, Olive-sided Flycatcher, and Vaux's Swift), and grassland-oak species (e.g., American Kestrel, Lazuli Bunting, Western Wood-pewee, Bushtit, Western Bluebird, Chipping Sparrow, and Western Meadowlark) (*table 1*). These patterns likely reflected the conservation issues of habitat loss due to harvesting of late-successional forest and human development in the lowland grassland-oak habitats.

Scope

The Pacific Coast of Oregon and Washington as defined in this paper includes all lands west of the crest of

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Table 1— *Species with significant population trends ($p < 0.10$) based on Breeding Bird Survey data from the Southern Pacific Rainforest Physiographic Region, 1966-2000 (Sauer et al. 2001).*

Declining species	
Cinnamon Teal *(Anas cyanoptera)*	Golden Eagle *(Aquila chrysaetos)*
American Kestrel *(Falco sparverius)*	Ring-necked Pheasant* *(Phasianus colchicus)*
Ruffed Grouse *(Bonasa umbellus)*	Blue Grouse *(Dendragapus obscurus)*
Mourning Dove* *(Zenaida macroura)*	Common Nighthawk *(Chordeiles minor)*
Vaux's Swift *(Chaetura vauxi)*	Rufous Hummingbird* *(Selasphorus rufus)*
Belted Kingfisher *(Ceryle alcyon)*	Northern Flicker* *(Colaptus auratus)*
Olive-sided Flycatcher* *(Contopus cooperi)*	Western Wood-pewee* *(Contopus sordidulus)*
Willow Flycatcher* *(Empidonax trallii)*	Pacific-slope Flycatcher* *(Empidonax difficilis)*
Cliff Swallow* *(Petrochelidon pyrrhonota)*	Barn Swallow* *(Hirundo rustica)*
Chestnut-backed Chickadee* *(Poecile rufescens)*	Bushtit* *(Psaltriparus minimus)*
Golden-crowned Kinglet* *(Regulus satrapa)*	Western Bluebird* *(Sialia mexicana)*
Swainson's Thrush* *(Catharus ustulatus)*	Orange-crowned Warbler* *(Vermivora celata)*
MacGillivary's Warbler* *(Oporornis tolmiei)*	Chipping Sparrow *(Spizella passerina)*
Lark Sparrow *(Chondestes grammacus)*	Song Sparrow* *(Melospiza melodia)*
White-crowned Sparrow* *(Zonotrichia leucophrys)*	Dark-eyed Junco *(Junco hyemalis)*
Lazuli Bunting *(Passerina amoena)*	Western Meadowlark* *(Sturnella neglecta)*
Brown-headed Cowbird *(Molothrus ater)*	Bullock's Oriole* *(Icterus bullockii)*
Pine Siskin* *(Carduelis pinus)*	American Goldfinch* *(Carduelis tristis)*
Increasing species	
Brown Pelican *(Pelecanus occidentalis)*	Black Phoebe *(Sayornis nigricans)*
Black-crowned Night Heron *(Nycticorax nycticorax)*	Steller's Jay* *(Cyanocitta stelleri)*
Osprey (*Pandion haliaetus*)	Common Raven* *(Corvus corax)*
Bald Eagle (*Haliaeetus leucocephalus*)	Common Yellowthroat* *(Geothlypis trichas)*
Sharp-shinned Hawk (*Accipter striatus*)	California Towhee *(Pipilo crissalis)*
Red-shouldered Hawk (*Buteo lineatus*)	Black-headed Grosbeak *(Pheucticus melanocephalus)*
Wild Turkey (*Meleagris gallopavo*)	Red-winged Blackbird *(Agelaius phoeniceus)*
Caspian Tern (*Sterna caspia*)	Evening Grosbeak *(Coccothraustes vespertinus)*
Rock Dove (*Columba livia*)	House Sparrow *(Passer domesticus)*
Northern Pygmy-owl (*Glaucidium gnoma*)	

* = a high degree of confidence or reliability in the trend (Sauer et al. 2001)

the Cascade Mountains. This area is entirely encompassed within the Oregon and Washington portion of the Northern Pacific Rainforest Bird Conservation Region. PIF-based landbird conservation efforts in this area are being directed by two Oregon-Washington PIF Bird Conservation Plans: *Conservation Strategy for Landbirds in Coniferous Forests of Western Oregon and Washington* (Altman 1999) and *Conservation Strategy for Landbirds in Lowlands and Valleys of Western Oregon and Washington* (Altman 2000). The former plan covers the west-slope of the Cascade Mountains and three coastal mountain ranges: Olympic Mountains, Oregon Coast Range, and the Klamath-Siskiyou Mountains. The latter plan includes primarily the Puget Lowlands and Willamette Valley, but also the San Juan Islands, Umpqua Valley, Rogue Valley, and non-coniferous forest coastal lowland and riparian habitats.

Purpose

This paper describes coarse-level high priorities for landbird conservation in the Pacific Coastal region of Oregon and Washington, and provides relevant recommendations to implement and track the progress of actions designed to address those priorities. Establishing conservation priorities is not a trivial task, and is always an issue of scale. The purpose of this paper is to identify some of the highest and most immediate priorities at the regional scale to provide direction for land managers and conservationists and encourage conservation actions within the context of the "big picture." We recognize that local opportunities, strategies, and priorities may be justifiably different, but suggest that landbird conservation is likely to be most successful in the long-term when activities support large landscape and regional goals and priorities to the extent possible.

Determination of regional priorities required assimilation and evaluation of common themes in Pacific Coast bird

conservation. What is presented here is my interpretation of numerous conversations among many colleagues over the last 10 years of planning and implementing landbird conservation in western Oregon and Washington. Any list of priorities is, of course, debatable, and the intent here is not to provide the ultimate list, but to suggest that there is a broad constituency that indicates certain conservation actions are of the greatest importance from a regional perspective. This prioritization also was intended to assist in answering the following three questions posed to all presenters in the Asilomar PIF Conference, Pacific Coast session. The questions were posed to provide consistency when discussing the means of achieving priorities in the context of the North American Bird Conservation Initiative (NABCI) and all-bird all-habitat conservation (Elliott et al. this volume):

1. What do you see as the best tools or mechanisms for implementing your conservation priorities?

2. What do you see as the best tools or mechanisms for measuring the success of your conservation actions?

3. If reasonably unlimited resources were available for conservation, what would you suggest as the most important one or two conservation activities that should be initiated now?

Coniferous Forests

Conservation Issues

Coniferous forests of western Oregon and Washington are among the most intensively managed forests in the world. These forests have been substantially altered by forest management practices associated primarily with timber harvest (Franklin 1989). This included emphasizing shorter rotation periods, clearcutting and even-aged management, chemical applications to enhance growth and control pests, and thinning to reduce competition from deciduous trees and less vigorous conifers.

The consequences of these and other intensive forest management activities on landbirds is complex and dependent on numerous environmental and ecological factors. In general, the four areas of concern for landbirds that relate to intensive forest management include shortening of the grass-forb-shrub stage (i.e., less time in this stage due to growth enhancement), reductions in structural diversity, loss of snags, and reductions in late-successional forest (Meslow and Wight 1975).

Current forest management, particularly on federal lands, has shifted towards ecosystem management in which maintaining ecological values and functions is integrated with sustainable commodity production (Franklin 1989). In particular, there is more of an emphasis on retention or creation of structural complexity in harvest units and attempts to retain features thought to be important to late-successional forest species.

Most management activities in coniferous forests of western Oregon and Washington have been directed at listed species (e.g., Spotted Owl [*Strix occidentalis*] and Marbled Murrelet [*Brachyramphus marmoratus*]), emphasized stand-level activities, or indicated conservation under the general term of "neotropical migrants." Thus, the major conservation gaps are consideration of non-listed but declining or otherwise ecologically significant species, knowledge and application of landscape factors to conservation implementation, and specific direction for management for a suite of priority or focal landbird species. These are the factors that were emphasized in the landbird conservation plans.

Priorities

The conservation priority for coniferous forests is forest management that provides habitat conditions and attributes for focal and/or declining species at site and landscape scales (*table 2*). All forest seral stages are important to maintain the complete coniferous forest avian community, although late-successional habitats are a priority because of their reduced presence across the forested landscape, and their importance to declining populations of late-successional species.

Because the primary conservation issue is habitat alteration from forest management, the highest priority is institutionalizing landbird objectives and conservation emphasis into forest management policy and planning. Until landbird conservation is institutionalized, conservation efforts for landbirds will be sporadic, local, and potentially out of context from a regional perspective. Institutionalizing landbird conservation is mostly dependent on people to campaign for a stronger emphasis on wildlife, especially birds, in forest management policy and planning and in forest practice regulations.

Implementation

To ensure implementation of landbird conservation priorities on public lands, it will be important to incorporate landbird conservation objectives during any proposed forest management activities. Another important opportunity is during the process of updating U.S. Forest Service, U.S. Bureau of Land Management, and State Forestry land use plans at local and regional levels. These plans are updated periodically, and it will be essential to have a strong presence during these efforts with clearly articulated, scientifically sound,

Table 2— *Forest conditions and associated habitat attributes and focal species for landbird conservation in coniferous forests of western Oregon and Washington (Altman 1999 modified for Version 2.0, in prep.).*

Forest condition	Habitat attribute	Focal species
Old-growth/Mature forest	Large snags	Pileated Woodpecker *(Dryocopus pileatus)*
(Multi-layered)	Large trees	Brown Creeper (*Certhia Americana)*
	Deciduous canopy trees	Pacific-slope Flycatcher
	Mid-story tree layers	Varied Thrush (*Ixoreus naevius*)
	Conifer cones	Red Crossbill (*Loxia curvirostra*)
Mature/Young forest	Closed canopy	Hermit Warbler *(Dendroica occidentalis)*
(Multi-layered/Understory	Open mid-story	Hammond's Flycatcher (*Empidonax hammondii*)
reinitiating)	Deciduous understory	Wilson's Warbler (*Wilsonia pusilla*)
	Forest floor complexity	Winter Wren (*Troglodytes troglodytes*)
Young/Pole forest	Deciduous canopy trees	Black-throated Gray Warbler *(Dendroica nigrescens)*
(Understory reinitiating/	Deciduous understory	Hutton's Vireo (*Vireo huttoni*)
stem exclusion)		
Early-seral forest	Residual canopy trees	Olive-sided Flycatcher
(Stand initiation)	Snags	Western Bluebird
	Deciduous vegetation	Orange-crowned Warbler
	Interspersion of shrubs	Mountain Quail (*Oreortyx pictus*)
	Nectar-producing plants	Rufous Hummingbird
	Nectar producing plants	Rufous Hummingbird

and practical objectives for landbirds. The planning process mechanism can be laborious and time consuming, but offers the best opportunity to affect bird conservation over large landscapes.

Another essential opportunity to implement landbird conservation priorities will be working with private forest products companies. There are many opportunities to conduct management for landbirds within the context of commercial forest land management, especially in early and mid-seral stages. These opportunities include retention or creation of structural features and providing specific vegetative composition as described in the landbird conservation plan (also see *table 2*). A variety of approaches may need to be used to effectively implement landbird conservation priorities. These will range from negotiated volunteer or incentive programs to forest management regulations (Buchanan this volume). In all of these approaches, it will be important to work with forest products companies through direct personal communication with appropriate staff, and present realistic expectations that reflect the benefits of both conservation and economics.

Tracking Progress

The best tools for measuring the success of conservation efforts in coniferous forests include monitoring of desired habitat conditions and bird species population monitoring, especially resident birds. Migratory birds are impacted by conditions at numerous places outside Oregon and Washington, thus are less desirable as indicators of progress than resident birds.

Lowlands and Valleys

Conservation Issues

The two predominant conservation issues in the lowlands and valleys of western Oregon and Washington are habitat loss and degradation due directly or indirectly to an expanding human population, and extensive private land ownership (Altman 2000). Urban and residential sprawl has eliminated and/or degraded most of the quality native habitats, and landscape-scale management and restoration activities are problematic due to the dominance of private land ownership.

Another principal factor contributing to the loss and degradation of quality habitats for landbirds is the alteration of natural ecological processes such as fire and flooding. Fire suppression in the grassland-oak mosaic has resulted in encroachment of conifers, particularly Douglas-fir. This has changed the composition of the vegetation community because oak trees are suppressed by, and have poor recruitment, due to the presence of these conifers (Thilenius 1968). Flood control has reduced the areal extent of riparian habitats, altered hydrological regimes, and altered community composition by allowing a forest community to develop in areas formerly dominated by early successional willow floodplain shrub habitat.

The highly urban and residential nature of lowland and valley habitats also has resulted in hostile landscapes

for landbirds, even where habitat is suitable. Several non-native bird species (e.g., European Starling [*Sturnus vulgaris*], House Sparrow), and high densities of domestic cats have negatively impacted native landbird species. Additionally, extensive agricultural development has provided suitable habitat for an invasive brood parasite, the Brown-headed Cowbird.

Priorities

The two greatest conservation priorities are protection and restoration activities to address high levels of both habitat loss and degradation for priority habitats. In the lowlands and valleys, priority habitats include the grassland-oak mosaic and riparian habitats because of their reduced presence and degree of degradation across the landscape, and their significance to populations of declining species, especially those associated with grassland-oak habitats (see *table 1*).

The greatest priority is protection of the highest priority lowland sites. Because of the expanding human population and the concomitant loss of habitat associated with development, there is a sense of urgency to secure conservation status for high priority sites, because these sites may be lost if not protected. This will require considerable funds, but it is generally a one-time cost for each site.

The second priority is restoration of degraded sites. Most of what hasn't been lost is highly fragmented and degraded. Restoration is a rapidly evolving science that requires varying levels of active management and adaptive management principles. Additionally, restoration will be an on-going process in many situations that requires regular management either through anthropogenic use of natural processes (e.g., flooding, fire) or use of mechanical applications (e.g., mowing, planting). Thus, costs must be considered over a long period of time.

In the case of both protection and restoration, identification and prioritization of sites is essential in lieu of limited financial resources and an expanding human population. There have been several significant efforts to identify and prioritize sites including PIF plans, The Nature Conservancy Ecoregional Plans, Important Bird Area programs of the American Bird Conservancy and National Audubon Society, and Pacific Coast Joint Venture (PCJV) Willamette Valley and Puget Trough Implementation Plans. The highest priority sites for protection and restoration can be identified where prioritized areas among these plans overlap.

Implementation

Securing conservation status for important sites and conducting restoration and management activities is likely to be the best approach for the declining and heavily impacted grassland-oak and riparian habitats. This might include acquisition, easements, or other means of securing conservation values. Because so much degradation also has occurred, another important activity will be management that restores or improves function and process to the habitat.

An emerging tool for conservation of lowland habitats for landbirds, especially in terms of protection and securing conservation status for important habitats, is the PCJV. Under the vision of NABCI, Joint Ventures are being encouraged to expand their mission and sphere of influence beyond wetlands and waterfowl to play an integral role in the implementation of all-bird, all-habitat conservation. As integrated bird conservation evolves under NABCI, and opportunities for landbird conservation are enhanced through new funding programs, the experience of PCJV partners in habitat protection can be important.

A variety of other tools exist through State Programs (e.g., State Wildlife Grants) and Federal Agencies (e.g., USFWS Private Landowner Programs). Perhaps the most important opportunity for conservation on the private lands that dominate the lowlands and valleys is through programs of the Natural Resources Conservation Service (NRCS). They assist in implementing the Farm Bill through programs such as the Wildlife Habitat Incentive Program and the Conservation Reserve Enhancement Program. Thus, they have the ability to affect large areas if the bird conservation objectives of PIF are institutionalized into their programs.

Tracking Progress

Tracking progress primarily will be a numbers game. The best tools for measuring success in the lowlands and valleys will be tracking the amount of land secured for conservation, and monitoring populations of focal and declining species. There also will need to be assessments of the quality and location (e.g., connectedness) of habitat secured for conservation, and the viability of landbird populations to ensure that efforts are providing "real" conservation value.

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