Developing a Bird Conservation Plan for the Diverse Coniferous Forests of California[1]

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Abstract

Bird conservation plans represent one of the pillars of the National Partners in Flight (PIF) bird conservation strategy known as the Flight Plan. The Flight Plan provides the framework for bird conservation plans that, in turn, set conservation priorities and specific objectives for bird populations and habitat for each state or eco-region in the nation. Many of California's birds and other wildlife depend upon coniferous forests. In 1998, the California PIF partners identified a need for a comprehensive bird conservation plan for the coniferous forests of California. In order to develop the plan, initial meetings focused on identifying the focal bird species and categorizing the forested habitats that were perceived as most integral to completing the plan. Responsibility for drafting several of the more important chapters was delegated to Forest Service and Point Reyes Bird Observatory (PRBO) staff and, later, to the Klamath Bird Observatory; there were advantages and disadvantages to each method. Eight conservation objectives included within the plan are described and briefly discussed; and six implementation tasks are identified.

Key words: Bird Conservation Plan, California, coniferous forest, Partners in Flight.

Introduction

In March 1998, the California PIF (CPIF) cooperators identified a need for a comprehensive bird conservation plan for the coniferous forests of California. It was envisioned that such a plan would address all coniferous forest habitats in California and an initial list of 21 bird species which show an affinity to coniferous forests was identified.

Bird conservation plans represent one of the pillars of the national PIF bird conservation strategy known as the Flight Plan (Partners in Flight 2001, 2002). The Flight Plan provides the framework for bird conservation plans that, in turn, will set conservation priorities and specific objectives for bird populations and habitat for each state or ecoregion in the nation. The ultimate goal of PIF land bird conservation planning, as expressed through the bird conservation plans, is to sustain healthy populations of native land birds over the long-term. Bird conservation plans are generally prepared (Partners in Flight 2001) using a four-step process:

a) identifying the species and habitats most in need of conservation;

b) describing desired conditions for those habitats;

c) developing biological objectives consistent with the desired conditions; and

d) identifying recommended conservation actions that would achieve the biological objectives.

While many bird conservation plans prepared under the Flight Plan's vision address birds at a physiographic area or ecoregion level, the bird conservation plans in California have instead mostly been habitat-based (e.g., the Riparian Bird Conservation Plan (RHJV 2000)).

Many of California's birds and other wildlife depend upon coniferous forests. A large array of such forests exists within the state, encompassing a number of habitat types (Robinson and Alexander 2002). Associated bird communities are also quite varied, with some species quite specialized in the forest type required for breeding, and others that are generalists and can be found in numerous coniferous forest habitats across the state. Approximately 45 percent of California's land mass is covered with coniferous forests (Davis et al. 1998); yet, a century of intensive resource extraction and forest management has led to major changes in the amount and quality of coniferous forest habitat. Problems that the forests have faced include loss of habitat to logging, lack of replacement of old growth stands due to rotations of insufficient length in time; fire suppression; elimination of snags and dead trees, and fragmentation. Bird and other wildlife populations have subsequently been altered by such changes; declines and extirpations have been observed in a number of species, some of which are now afforded

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special status at the federal or state level. Others will likely require such protection in the future, if efforts are not employed to curb these declines.

The objectives of this paper are to:

a) Describe and comment on the process used to develop California's coniferous forest bird conservation plan;

b) Identify and briefly describe the conservation objectives included in the coniferous forest bird conservation plan; and

c) Identify and briefly discuss the implementation tasks contained within the coniferous forest bird conservation plan.

Materials and Methods

In May 1999, the Regional Forester for the Pacific Southwest Region of the USDA Forest Service announced that he would work with Point Reyes Bird Observatory (PRBO) to develop a bird conservation plan for the coniferous forests of California. PRBO is a non-profit membership organization founded in 1965 that works to conserve birds, other wildlife and their ecosystems through innovative scientific research and outreach. The Forest Service had agreed to take the lead in the development of this conservation plan because of the many coniferous-forested lands in California that were in Forest Service ownership.

A Coniferous Forest Bird Conservation Plan Working Group was formed to identify potential focus bird species that would be included as part of the conservation plan. The group also identified the types of coniferous-forested habitats that would be addressed within the conservation plan.

The draft list of focal species included a Primary List of bird species that would receive detailed species accounts in the final conservation plan; a Secondary List of species that would receive a species account summary (i.e., a shortened version of a detailed species account); and a list of species that would be addressed in the conservation plan via the use of "Bio-regional Notes" - that is, the species would be mentioned within the context of certain bio-regions where their conservation needs are of importance.

During FY 2000, the Regional Forester funded the Forest Service efforts to assist PRBO in organizing all comments received, helping to assign authors to various bird species, and preparing initial drafts of the chapters that would be part of the bird conservation plan. Later, a partnership with the Klamath Bird Observatory was funded to complete the plan. Compensation was provided to authors who were enlisted to develop the remaining detailed species accounts.

Conservation objectives and implementation tasks that are included in the conservation plan were identified by reviewing the detailed species accounts, research papers dealing with the conservation of birds in coniferous forests, and the state of Oregon's Coniferous Forest Bird Conservation Plan (Altman 1999).

Results and Discussion

Eight people attended the initial meeting of the Coniferous Forest Bird Conservation Plan Working Group in August 1999. The primary objective of this meeting was to develop a focal species list (*table 1*). Focal bird species, as used here, are those species whose requirements represent a spectrum of habitat characteristics and types (Chase and Geupel, this volume). Conservation planners have found it useful to concentrate on a few "focal" species because these species help define which spatial and compositional attributes characterize a healthy ecosystem and guide the development of appropriate management regimes. A landscape designed and managed to meet the focal species' needs encompasses the requirements of other species (Lambeck 1997).

The Working Group grappled with some of the difficulties (*table 2*) involved with developing a conservation plan for a broad array of habitat types, such as those found in the coniferous forests of California.

After several iterations, the Working Group arrived at a decision to categorize coniferous forests into six conifer habitat types. These conifer habitat types are described and cross-referenced using three widely accepted vegetation classification schemes: the Society of American Foresters Forest Cover Types (Eyre 1980); California Wildlife Habitat Relationships habitat types (Mayer and Laudenslayer 1988), and vegetation series described by Sawyer and Keeler-Wolf (1995). Each Society of American Foresters conifer habitat type is made up of one or more vegetation series as described in Sawyer and Keeler-Wolf (1995). In turn, each of these vegetation series is cross-referenced with corresponding Wildlife Habitat Relationships habitat types (e.g., *table 3*).

The California PIF web site and the USDA Forest Service's mailing lists were used to solicit comments on the focal species list and to recruit authors for the various species accounts. However, little progress was made between October 1999 and October 2000, primarily as a result of conflicting work priorities and other barriers. The difficulties that were experienced may be summarized as follows:

Table 1— *List of focal species for the Coniferous Forest Bird Conservation Plan.*

Species list category	Species included in this category
Primary species list (species which will receive a detailed species account in the conservation plan)	Black-backed Woodpecker (*Picoides arcticus*), Black-throated Gray Warbler (*Dendroica nigrescens*), Brown Creeper (*Certhia americana*), Dark-eyed Junco (*Junco hyemalis*), Flammulated Owl (*Otus flammeolus*), Fox Sparrow (*Passerella iliaca*), Golden-crowned Kinglet (*Regulus satrapa*), MacGillivray's Warbler (*Oporornis tolmiei*), Olive-sided Flycatcher (*Contopus cooperi*), Pileated Woodpecker (*Dryocopus pileatus*), Red-breasted Nuthatch (*Sitta canadensis*), Vaux's Swift (*Chaetura vauxi*), and Western Tanager (*Piranga ludoviciana*)
Secondary species list (species which will receive a species account summary)	Yellow-rumped Warbler (*Dendroica coronata*), Steller's Jay (*Cyanocitta stelleri*), Spotted Owl (*Strix occidentalis*), Cassin's Finch (*Carpodacus cassinii*), Clark's Nutcracker (*Nucifraga columbiana*), Gray Jay (*Perisoreus canadensis*), Gray Flycatcher (*Empidonax wrightii*), Mountain Quail (*Oreortyx pictus*), Purple Finch (*Carpodacus purpureus*), and Chipping Sparrow (*Spizella passerina*)
Bio-regional notes species (species which will be mentioned in the text as appropriate)	Varied Thrush (*Ixoreus naevius*), Townsend's Solitaire (*Myadestes townsendi*), Pinyon Jay (*Gymnorhinus cyanocephalus*), Great Gray Owl (*Strix nebulosa*), Plumbeous Vireo (*Vireo plumbeus*), and Marbled Murrelet (*Brachyramphus marmoratus*)

Table 2— *Summary of the difficulties encountered by the Coniferous Forest Bird Conservation Plan Working Group during the development of the Conservation Plan.*

Description of problem	Brief discussion for why this was a problem
Selecting species representative of various seral stages/types of conifer habitats	A great diversity exists in the types of coniferous forests found in California; and for each habitat type, different bird species may be present depending on the age of the forest
How young can a forest be and still be a forest?	At what age does a forest begin? Are small openings within a forested landscape also part of the forest?
Do we include pinyon/juniper?	Some members of the Working Group were not sure if pinyon/juniper habitat would be covered in a separate bird conservation plan for California
Over 50 species were included on the initial focal species list	Preparing a detailed species account for over 50 species would quickly exceed the resources that were available to complete the conservation plan

Table 3— *Example of the relationships between the three vegetation classification schemes used in the coniferous forest bird conservation plan.*

SAF Major Forest Type Group: Douglas-fir		
Applicable Sawyer-Keeler-Wolf Vegetation Series	**Society of American Foresters Forest Cover Type**	**WHR Habitat Type**
Douglas-fir	Interior Douglas-fir, Pacific Douglas-fir, Douglas-fir/western hemlock	Sierra mixed conifer, Klamath Mixed Conifer, Douglas-fir
Douglas-fir/Ponderosa Pine	Pacific Ponderosa pine/Douglas-fir	Douglas-fir
Douglas-fir/tanoak	Douglas-fir/tanoak/Pacific Madrone	Montane hardwood conifer, Douglas-fir
Bigcone Douglas-fir, Bigcone Douglas-fir/canyon live oak		Douglas-fir

- Conflicting Work Priorities. The Forest Service staff person assigned to prepare the initial draft of the coniferous forest bird conservation plan found it difficult to simultaneously perform her regular duties, respond to emergency fires, and take on the task of preparing the coniferous forest bird conservation plan.

- Communication Barriers. Communication between people may be affected by social, age, language, and political/economic barriers (Scott et al 2000: 417).

These barriers also affect communication between agencies, where problems may arise due to language differences, the number of people who have a need to communicate with one another, and the number of protocols that govern how communication may actually take place. In the case of the coniferous forest bird conservation plan, the large number of authors (many of whom work for different agencies or institutions), combined with the issue of conflicting work priorities noted above, contributed to creating barriers to effective communication both within and between agencies. For example, it was not until September 2000 that all parties involved in the development of the coniferous forest bird conservation plan realized that a significant part of the document still needed to be written.

In December 2000, the Regional Forester established an additional fund to accomplish all remaining work on the conservation plan. This money was used to establish a partnership with the Klamath Bird Observatory to prepare several of the conservation plan's more important chapters and to pay Forest Service biologists or contractors to prepare the remaining detailed species accounts. In addition, a more frequent schedule of communication was established between all agencies and institutions charged with preparing the various components of the conservation plan.

Conservation Objectives

Forty-three specific recommendations (e.g., *table 4*) for coniferous forest habitat activities throughout California were developed across five "conservation need" categories. Within each conservation need category, one or more conservation objectives were identified.

All of the conservation recommendations documented in the plan were developed within each of the five conservation need categories by combining information from the most recent scientific data and analyses available with input from conservation organizations, agencies, scientific researchers, and the public. Essentially, all of these recommendations seek to reverse the current declines of many coniferous forest-associated bird populations, and to maintain stable conditions of others.

Conservation objectives developed under the Habitat Protection category are aimed at identifying multiple avenues for prioritizing the protection of coniferous forests across a diverse landscape involving multiple ownerships.

Conservation objectives developed under the Habitat Management and Restoration categories remind us that effective management of coniferous forest habitats is crucial to the survival and recovery of coniferous forest associated land birds. Proper management increases habitat value to wildlife, arrests species declines, and contributes to the recovery of declining bird populations.

In order to successfully protect and expand native bird populations, managers must have the most recent data available on populations and their habitat needs. Conservation objectives developed for Monitoring and Research are aimed at standardizing the scientific monitoring of populations and providing decision makers with the population data and habitat needs that are necessary for making informed decisions.

Policy conservation objectives recognize that conservation efforts will make little headway without effective policy development. This mechanism anticipates the need for policy makers to examine and appropriately amend statutory and regulatory programs that endanger native habitats or that unnecessarily impede restoration actions.

Implementation Tasks

Six implementation tasks were identified within the coniferous forest bird conservation plan (*table 5*). The tasks identified here are but one part of the overall implementation plan being developed for the coniferous forest bird conservation plan. These tasks, and the implementation plan they are a part of, will ultimately provide a framework for land managers and partners to set bio-regional coniferous forest habitat conservation priorities that benefit coniferous forest-associated bird species. A brief description of each implementation task is provided (*table 5*).

Table 4—Sample of the conservation recommendations included in the Coniferous Forest Bird Conservation Plan.

Conservation need category	Conservation objective	Recommendation example
Habitat protection	Prioritize coniferous forest sites for protection	Prioritize the protection of existing old-growth/late successional coniferous forest habitats
Habitat management	Manage for old-growth/late successional conditions	Manage for large trees
	Management should ensure that the diversity of coniferous forest types, processes, and characteristics in California are represented	Revise fire management regimes to mimic natural fire patterns wherever possible
Restoration	Implement and time land management activities in coniferous forests to increase avian reproductive success and enhance populations	Limit restoration or management activities (e.g., prescribed fire or firewood removal) to the non-breeding season
Monitoring and research	Provide data on pressing conservation issues affecting birds	Consider reproductive success and survival rates when monitoring populations, assessing habitat value, and developing conservation plans
	Maximize the effectiveness of ongoing monitoring and management efforts	Increase communication and coordination between land managers and specialists hired to implement specific projects or conduct monitoring
	Use information gathered in avian monitoring programs to test specific coniferous forest habitat needs for bird species, and the effects of management practices	Conduct replicate studies on the impacts of long-term grazing on bird communities in coniferous forests
Policy recommendations	Encourage regulatory and land management agencies to recognize that avian productivity is a prime criterion for determining protected status of specific habitats, mitigation requirements for environmental impacts, and preferred land management practices	Consider avian population parameters (such as reproductive success) as important criteria when designating priority or special-status sites such as Research Natural Areas

Conclusion and Recommendations

Preparation of a well-researched and useful bird conservation plan for a physiographic province or a broad habitat category (such as coniferous forests) is a complex, long-term process requiring input from many people. Based on our experiences with the coniferous forest bird conservation plan the following recommendations are made for future authors who aspire to prepare a bird conservation plan:

1. Clearly Defined Roles. To ensure that practical, well-researched conservation plans are prepared on time and within budget, everyone involved in the effort must have clearly defined roles and know what their responsibilities are. It must be remembered that bird conservation plans are large, complex documents where multiple people are assigned the task for working on various parts of the final product. In such an environment, it becomes easy for one or more people to feel that their role(s) are not clearly defined. Roles should be clearly defined in writing as early in the process as possible.

2. Dedicated Time. The persons who are actually charged with authorship of major sections of the conservation plan must be granted major blocks of uninterrupted time that are dedicated to that task. Although well qualified to perform this work, employees of state or federal agencies often have an existing workload of sufficient size that precludes them from spending the time needed to prepare a well-researched bird conservation plan. Hiring a temporary, full-time position or contracting the work out are two solutions that address this problem, and both of these options may sometimes cost less money than assigning this work to a permanent, full-time employee who can only afford to work intermittently on the project.

Table 5—*Implementation Tasks identified in the Coniferous Forest Bird Conservation Plan.*

Name of implementation task	Brief description
Interface with other conservation and planning efforts	Conservation objectives can be used in the development of site-specific conservation plans, such as state and private Habitat Conservation Plans. Other conservation objectives may be met via parallel conservation efforts on state, federal, or private lands.
Community communication workshops	Three community communication workshops are planned in California to provide Forest Service managers an opportunity to become familiar with the contents of the plan and to identify opportunities where the plan could be integrated into ongoing or planned activities.
Briefing for Regional Forester and PSW Station Director	A briefing of this plan for the Regional Forester and Station Director provides yet another opportunity to place institutional commitment to the PIF program at various levels of the Forest Service.
Include coniferous forest bird conservation goals into Forest Plan revision process	Over the next 5-10 yrs, many of the National Forests in CA will be revising their Land and Resource Management Plans (LMP), providing regional wildlife program managers an opportunity to emphasize the importance of the need to incorporate land bird interests into the LMP plan revisions.
Monitor the effectiveness of the coniferous forest bird conservation plan	Monitoring, and the closely related concept of adaptive management, are two elements of any plan's implementation.
Integrating with the North American Bird Conservation Initiative	Implementation of the coniferous forest bird conservation plan will be integrated with the larger North American Bird Conservation Initiative.

3. Frequent, Effective Communication. In addition, a protocol of frequent communication between everyone involved in bringing the document together must be established and maintained throughout the term of the project. Recognition of this need is critical, especially when one considers that 20 or more authors may contribute to the final product. It is recommended that one person from each lead agency or institution be responsible for maintaining an open line of communication and participating in all important decisions that need to be made.

Finally, it should be noted that conservation objectives and implementation plans are important components of any bird conservation plan. Conservation objectives outline one or more paths to successful habitat protection, management, or restoration and enable the monitoring that is needed to ensure that adaptive management processes can improve on existing conservation strategies. Implementation plans are designed to ensure that an effective, consistent message is communicated between land managers and partners which allows conservation priorities to be established on both local and regional scales. For example, a feedback form developed specifically for the coniferous forest bird conservation plan is now being used in a modified format on PRBO's Internet site (Point Reyes Bird Observatory 2002) to monitor and acquire information about all of the bird conservation plans currently in use in California.

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