

The Oak Woodland Bird Conservation Plan: A Strategy for Protecting and Managing Oak Woodland Habitats and Associated Birds in California¹

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Introduction

Over 330 species of birds, mammals, reptiles, and amphibians depend on oak woodlands in California (fig. 1) at some stage in their life cycle (Barrett 1980; Verner 1980; Block and Morrison 1998). These woodlands are able to sustain such abundant wildlife primarily because they produce acorns, a high quality and frequently copious food supply. The birds of California's oak woodlands are connected to this distinctive habitat mainly through acorns, the fruits of oaks that are eaten and stored by dozens of species. This ecological relationship is also reciprocal: species like Western Scrub-Jays (*Aphelocoma californica*), Steller's Jays (*Cyanocitta stelleri*), and Yellow-billed Magpies (*Pica nuttalli*) do not completely retrieve cached acorns and thus act as dispersers of oak seedlings across the landscape. Large oak trees also provide cavities for cavity-dependent nesting birds and other wildlife, as well as caching sites for acorn woodpeckers, nuthatches, and other species. Additionally, Oaks commonly host mistletoe, the fruits of which are an important food for Western Bluebirds (*Sialia mexicana*), Phainopepla (*Phainopepla nitens*), and other species. The ties between oaks and birds are profound and diverse. Oaks also provide important shelter in the form of cavities for nesting. Moreover, oak woodlands are among the most highly prized of California's landscapes, for both aesthetic reasons and utilitarian needs such as firewood collection and grazing.

California's oak woodlands are threatened in many ways. Ongoing loss to development and agriculture (Bolsinger 1988, Thomas 1997), the lack of regeneration of several key tree species of oaks (White 1971; Griffin 1971, 1976), and the recent "Sudden Oak Death" (SOD) crisis (e.g., Svihra 1999 a,b,c; Standiford 2000) are the main threats to oak woodland habitat. Today, only two-thirds of California's original oak woodlands remain (approximately 7 million acres (Thomas 1997)). Of those, only about 4 percent enjoy

protected status. Lack of recruitment of young oaks combined with the SOD epidemic affect seven of the ten acorn-bearing species of oak trees in California (table 1). The combined effect of these two problems on native wildlife populations is inestimable.

The Oak Woodland Bird Conservation Plan (BCP) (Zack et al., 2002; see also <http://www.prbo.org/calpif/plans.html> and printed copies (albeit without species' accounts) are available from PRBO) has been developed by California Partners in Flight to guide conservation policy and action on behalf of oak woodland habitats and wildlife, with the goal of supporting the long-term viability and recovery of both native bird populations and other native species. This BCP will serve as a repository for information, published or unpublished, on the ecology, distribution, and status of focal bird species, historic and current threats, landscape patterns, and conservation measures. This plan, along with the associated Geographic Information System (GIS) database of oak woodland habitats and monitoring data maintained at the Point Reyes Bird Observatory (PRBO), is the first iteration of a continuous process of updating habitat conservation recommendations based on the latest scientific monitoring and research data.

Designing conservation efforts for oak woodland habitats based on the needs of birds is useful because birds occupy a diverse range of niches within oak woodlands: from those that nest on the ground (e.g., Lark Sparrow [*Chondestes grammacus*]), to those that nest in the cavities of mature trees (e.g., Western Bluebird), to those that feed primarily on insects (e.g., Blue-gray Gnatcatcher [*Polioptila caerulea*]), and those that rely heavily on the acorn mast (e.g., of course, the Acorn Woodpecker [*Melanerpes formicivorus*], the Western Scrub-Jay, and the Oak Titmouse [*Baeolophus inornatus*]). Evidence and experience indicate that by managing for diversity of birds, diverse oak woodland habitat structure will be maintained and many other elements of terrestrial biodiversity will be conserved.

This BCP addresses the problems facing landbirds in oak woodland habitats throughout California and provides science-based recommendations to both public and private landowners. It outlines specific conserva-

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tion action items, including detailed management, acquisition, and research recommendations, designed to heighten our understanding of how the threats and issues surrounding California’s oak woodlands are and will affect the birds that are intimately connected to them.

At over 120 sites throughout California, monitoring data on oak woodland birds have been collected continuously over the past 10 years. This BCP places an emphasis on a suite of seven bird species (*table 2*) chosen because of their conservation interest to serve as focal species representative of the range of oak habitats in the state. Visit the web site (URL above) to view maps of oak woodland habitat coverage, focal species’ ranges and PIF monitoring sites in California. Preliminary analyses of the seven focal species’ habitat requirements reveal the following:

- Four of seven focal species have experienced significant population declines, local extirpations, or

both. The only species that appears to be significantly and consistently increasing is the Western Scrub-Jay, a bird that adjusts readily to urbanization but is also an important nest predator of many other native bird species.

- Loss of habitat or habitat structure (such as dead standing trees, mature trees with cavities, or a change in the shrubby understory component) is implicated as a likely cause of decline and/or other problems for five of the seven focal species. For example, standing dead trees, or living large trees with dead limbs are an essential resource for Acorn Woodpeckers to cache acorn mast. The creation and defense of the stored mast is central to the biology of this species (Koenig and Mumme 1987). Fire suppression has likely led to an increase in the shrubby understory of many oak woodlands, and thus is likely a contributing cause of the decline of Lark Sparrows (Sauer et al. 2000).

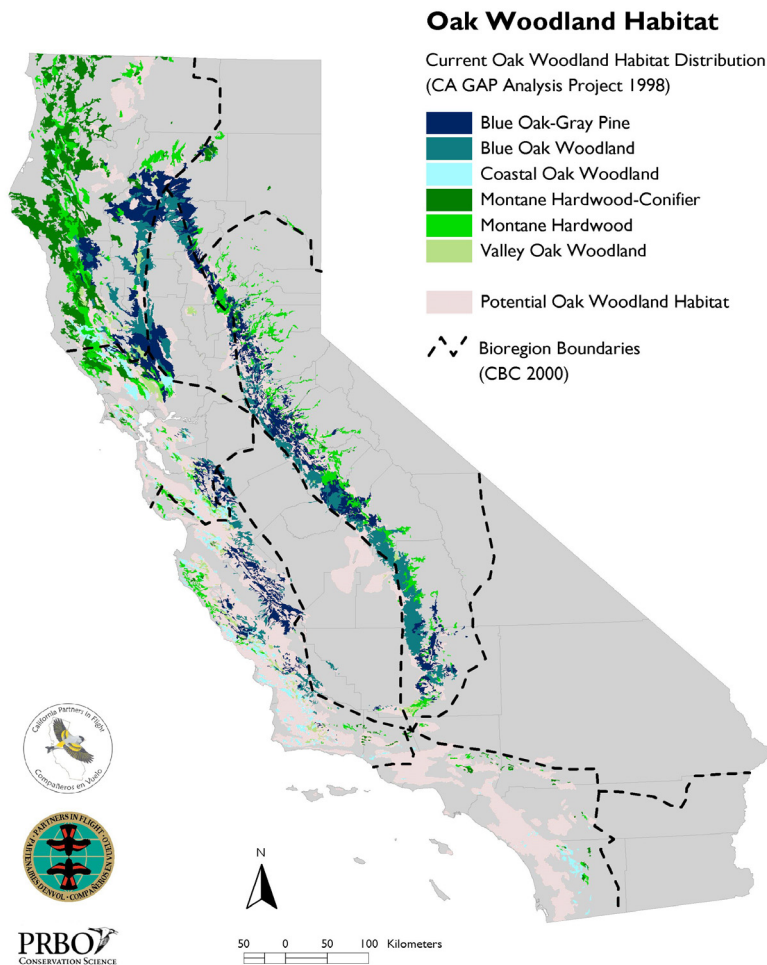


Figure 1—(from Figure 2-1 in Zack et al. 2002) Approximate current coverage of oak woodland habitats throughout California. Based on the California GAP Analysis Project, 1998 and potential coverage based on Kuchler 1976.

Table 1— *The Oak Trees (and Tanoak) of California and the presence/absence of conservation problems discussed in the text. From table 4-1 in Zack et al. 2002.*

Common name	Scientific name	Group ¹	General distribution in California ²	Recruitment problems? ³	Infected by SOD? ⁴
Tanoak	<i>Lithocarpus densiflorus</i>	--	Coastal forests, spotty in Klamaths and Sierras		Yes
Black Oak	<i>Quercus kelloggii</i>	Red	Northern foothills	Occasional	Yes
Blue Oak	<i>Quercus douglasii</i>	White	Central Valley foothills, dry coastal	Yes	
Canyon Oak	<i>Quercus chrysolepis</i>	Interm.	Foothills throughout state		
Coast Live Oak	<i>Quercus agrifolia</i>	Red	Central, southern coastal forests	Yes	Yes
Engelmann Oak	<i>Quercus engelmannii</i>	White	Extreme southern, coastal CA		
Interior Live Oak	<i>Quercus wislizenii</i>	Red	More interior foothills		Yes
Island Oak	<i>Quercus tomentella</i>	Interm.	Channel, Guadalupe Islands	Yes	
Oregon Oak	<i>Quercus garryana</i>	White	N CA (coastal and Klamaths), spotty along Sierras		
Valley Oak	<i>Quercus lobata</i>	White	Central Valley, dry coastal	Yes	

¹Taxonomic group (from Tucker (1980): Red oaks are those with pointed lobes and densely hairy inner shells of acorns, among other characteristics; White oaks have round lobes and smooth inner shells of acorns, among other characteristics; Intermediate oaks (Interm.) are just that with respect to characters.)

²The general distribution was described from range maps of *Lithocarpus* from Tappeiner et al. (1990), and of *Quercus* in Pavlik et al. (1991).

³If recruitment (regeneration) is problematic for oaks, as noted by studies from the literature, a “Yes” or “Occasional” is entered in the column.

⁴If oaks have been observed to have symptoms of the new Phytophthora infection (“Sudden Oak Death”, SOD), a “Yes” is entered in the column.

Accordingly, a series of conservation recommendations are provided in the plan, focusing primarily on protection, restoration, and management of habitat that will facilitate and promote natural oak woodland regeneration. Key recommendations include prioritizing the protection of sites with intact oak regeneration, encouraging the replacement of weedy annual grasses with native perennial grasses to the oak woodland understory, restoring natural fire regimes to oak woodlands with the use of prescribed fire, and maintain and enhance natural vegetation corridors between oak woodlands and adjacent natural habitats. Other recommendations focus on the need to promote nest success by retaining mature oaks in altered landscapes to provide nest cavities and by keeping down the number of native and introduced nest predators. Species-specific conservation recommendations for the Western Bluebird, Blue-gray Gnatcatcher, and Acorn Woodpecker are also defined.

High priority conservation areas or “portfolio sites,” distinguished by their protected status and potential for managing oak woodland habitat through restoration, are identified within the ten bioregions of California as defined by the California Biodiversity Council (CBC 2000). Through a process of adaptive conservation planning, conservation action items will continuously

be derived from a synthesis of proven practices, species’ distributions and ecologies, and land-use patterns. Information gaps revealed will guide future research and monitoring.

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Table 2— *Birds associated with oak woodlands in California, with information on their use of acorns, nesting substrate, general foraging habitat in oak woodlands, and whether the species is endemic to California. From table 3-1 in Zack et al. 2002.*

Species	1° or 2° species ¹	Consumes acorns?	Caches acorns?	Nest ²	Foraging habitat in oak woodlands	California endemic?
Wood Duck	2°	Yes		2° Cavity	Wooded Streams	
Red-shouldered Hawk	2°			Platform	Woodlands	?
Wild Turkey (I) ³	2°	Yes		Ground	Woodlands	
Band-tailed Pigeon	2°	Yes		Platform	Woodlands	
California Quail	2°	Yes		Ground	Woodland-shrub	
Northern Pygmy Owl	2°			2° Cavity	Woodlands	
Acorn Woodpecker	1°	Yes	Tree, many	1° Cavity	Woodlands	
Lewis Woodpecker	2°	Yes		1° Cavity	Woodlands	
Nuttall's Woodpecker	2°	Yes		1° Cavity	Woodlands	YES
Ash-throated Flycatcher	2°			2° Cavity	Open Woodlands	
Western Scrub-Jay	1°	Yes	Ground, many	Cup	Woodland-Scrub	
Yellow-billed Magpie	1°	Yes	Ground, few	Cup	Woodlands	YES
Oak Titmouse	1°	Yes	Tree, few	2° Cavity	Woodlands	YES
White-breasted Nuthatch	2°	Yes	Tree, few	2° Cavity	Woodlands	
Bewick's Wren	2°			2° Cavity	Woodland-Scrub	
Blue-gray Gnatcatcher	1°			Cup	Woodlands	
Western Bluebird	1°			2° Cavity	Open Woodlands	
California Thrasher	2°			Cup	Woodland-Scrub	YES
European Starling (I)	2°			2° Cavity	Agriculture edge	
Hutton's Vireo	2°			Cup	Woodlands	
California Towhee	2°			Cup	Woodland-Scrub	YES
Lark Sparrow	1°			Ground	Grass - Woodland	

¹1° species are those for which we have full written accounts in this plan, 2° species are of similar concern, but with no written accounts to date.

²2° Cavity nesting species differ as to whether they excavate their own cavities (1° cavity nester) or they take over disused nests (2° cavity nester).

³(I) denotes an introduced, nonnative species.

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