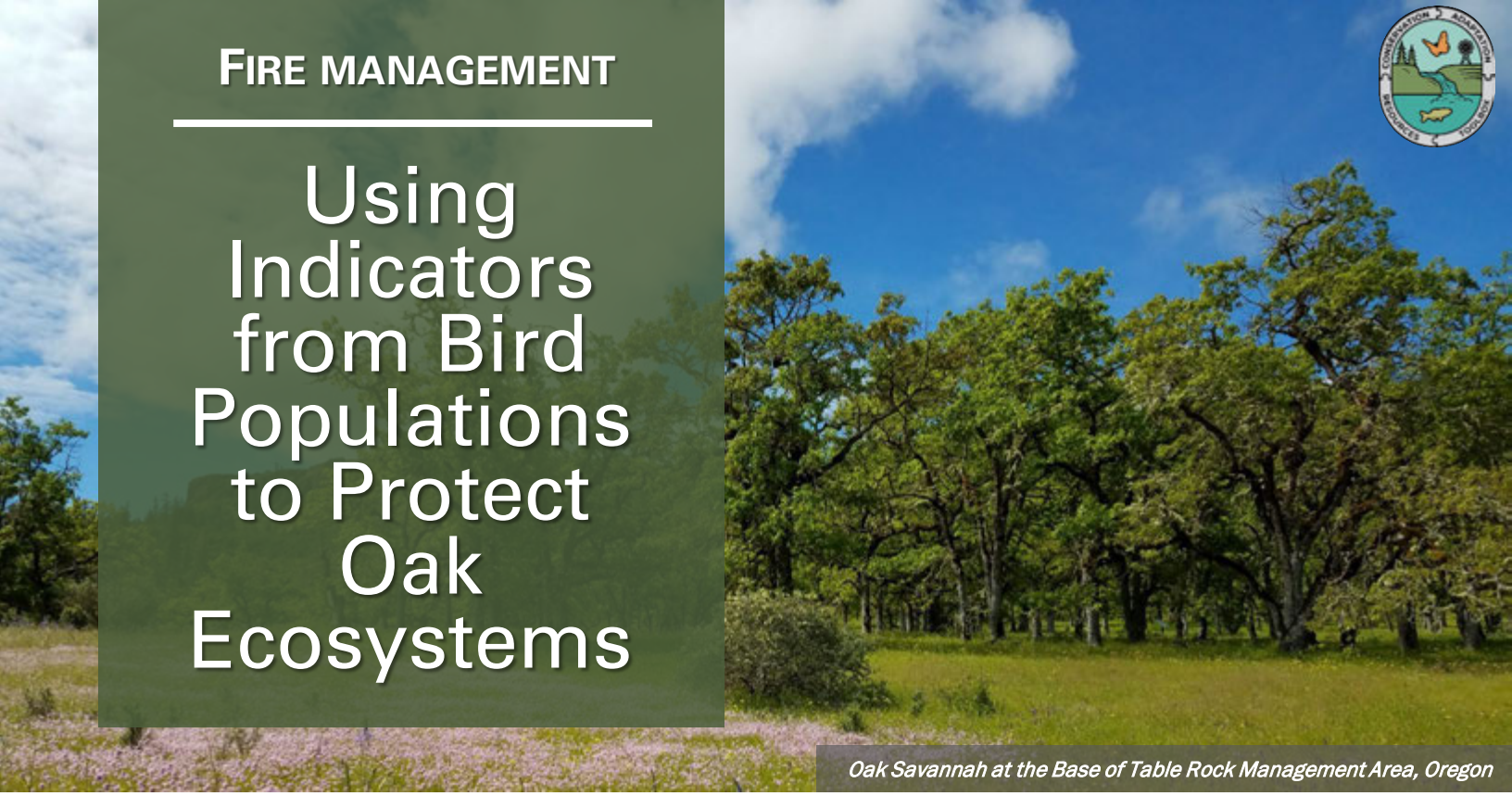
FIRE MANAGEMENT

Using Indicators from Bird Populations to Protect Oak Ecosystems



Oak Savannah at the Base of Table Rock Management Area, Oregon

INTRODUCTION

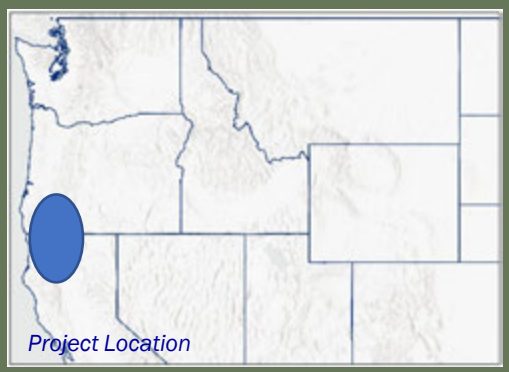
The Klamath-Siskiyou Bioregion (KSB) has North America's most diverse forests. Oak ecosystems in the KSB are generally fire-adapted. Indigenous communities used frequent, low-severity cultural burns to maintain ecosystem characteristics and fire regimes. However, cultural burning was outlawed in the early 20th century. Unsustainable logging practices and fire suppression policies further altered fire regimes and forest conditions in the KSB. Together this increases the frequency of high-severity wildfires threatening ecosystems in the KSB. The Klamath Bird Observatory (KBO) was formed to help birds respond to habitat loss, climate change, and other threats. In partnership with federal agencies and Indigenous Nations, KBO designs and executes conservation plans, and creates decision-support tools based on bird data to help forests adapt to changing fire regimes in a hotter and less predictable climate.

KEY ISSUES ADDRESSED

Although oak ecosystems are resilient to fire, they are declining because fire exclusion and climate change have altered forest structure and increased fire severity. Birds reliant on oaks have also declined over the past 30 years. Suppression of cultural burning practices has further reduced the frequency of low-to-moderate-severity wildfires in oak ecosystems. This harms oak ecosystems by increasing encroachment from conifers and raising the risk of high-severity wildfires. Climate change also increases wildfires through hotter, drier summers. In the KSB, climate change is altering fire regimes and ecosystems in unpredictable ways, creating a unique challenge for managers seeking to help these ecosystems adapt to a changing climate.

PROJECT GOALS

- Restore and protect oak ecosystems
- Collaborate with Indigenous partners to align management with Indigenous knowledge
- Use bird monitoring indicators to understand effects of management and inform future actions
- Develop climate-smart tools for managers that map ecosystem shifts



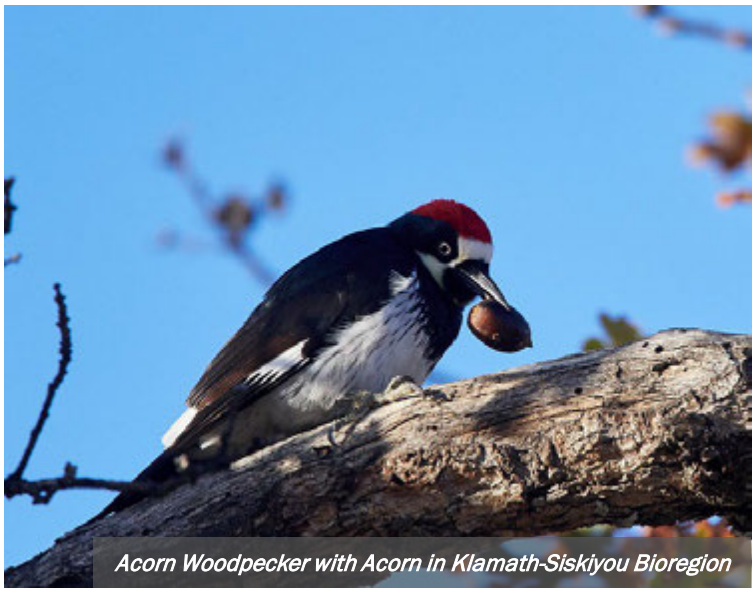
PROJECT HIGHLIGHTS

Strategic Action Plan Identifies Solutions for Oaks: The Klamath Siskiyou Oak Network (KSON) authored a Strategic Action Plan to share their approach to restoring and protecting oak ecosystems. KSON identified direct approaches (e.g. protection and restoration) and enabling strategies (e.g. conducting research and expanding partnerships).

Collaborating with Indigenous Partners: Indigenous communities in the KSB use culturally significant bird species to guide the timing of their burning practices. KBO partnered with Karuk and other Tribes to write a paper detailing indicators from culturally significant birds can inform prescribed burns.

Specific Fuel Reduction Protects Vulnerable Bird Species: KBO research found that the Bureau of Land Management's small, mosaic-style shrub reduction treatments and prescribed burns can protect bird habitats and encourage low-to-moderate severity wildfires.

Climate-Smart Decision Support: KBO has developed tools to map the projected shift in bird populations and evaluate vulnerability. Long term, accepting some shifts in bird community composition may help preserve the KSB's overall species diversity. Short term, fire managers can direct ecosystems towards new conditions to best support new bird communities.



Acorn Woodpecker with Acorn in Klamath-Siskiyou Bioregion

LESSONS LEARNED

KBO found that **using indicator communities of birds is a cost-effective way of collecting data to inform decision-making**. Common post-project monitoring can be expensive, funding is difficult to secure, and is often not long enough to capture long-term species responses. In contrast, **bird populations can be used to monitor ecosystem health over a longer period at a lower cost**. KBO's decision-support tools and research draw on long-term bird monitoring data that allows managers create informed management plans, execute them effectively, and evaluate outcomes.

Large-scale bird population declines continue partially because research goals don't always prioritize policy-relevant questions. KBO and its partners make efforts **to focus research on areas that inform policy without bias**. Public policy is the main path to benefit bird populations at large. **Marketing science to the media and public** to increase awareness in new ways can bring important policy changes to fruition.

KBO learned that by focusing on **producing science for decision-making**, like the OakBirdPop tool, rather than supporting specific policies they **can influence management actions proactively** instead of reactively responding to policy.

NEXT STEPS

- Conduct range-wide, full life cycle research on 11 priority oak and prairie-associated bird species
- Continue implementation of KSON Strategic Conservation Action Plan

PARTNERS

- Klamath Bird Observatory
- Bureau of Land Management
- Partners in Flight
- Avian Knowledge Network

CART Author: Jacob Taylor, University of Arizona, May 2025.
For more information on CART, visit https://www.fws.gov/CART
Photos Courtesy of Klamath Bird Observatory

Read the full Case Study: