



# MONITORING, MODELING, AND MANAGEMENT OF LANDBIRD POPULATIONS IN FORESTS OF THE PACIFIC NORTHWEST

FACT SHEET NUMBER 1

## THE INSTITUTE FOR BIRD POPULATIONS

“... a tax-exempt, 501(c)(3) California nonprofit corporation dedicated to fostering a global approach to research and the dissemination of information on changes in the abundance, distribution, and ecology of bird populations” (www.birdpop.org).

### Introduction

Because birds are excellent indicators of ecosystem health they can help us identify effective management actions that maintain the biological diversity of ecosystems across North America.

An important goal of landbird conservation is to maintain or create “source” habitats for target species, in which the annual numbers of fledglings exceed the numbers of adults that die, such that the excess fledglings can disperse to unoccupied breeding habitat the next year.



Wilson’s Warbler is

### Background Monitoring

Since 1992, the Forest Service has collaborated with the Institute for Bird Populations, through its Monitoring Avian Productivity and Survivorship (MAPS) program, to conduct demographic monitoring (Level 3) of avian populations. Consequently, by 2007, IBP had banded over 100,000 birds in sixteen years of monitoring landbird populations on six national forests in Washington and Oregon.

### Management Models

This collaboration has quantified demographics for 13 species of regional conservation concern. By combining demographic datasets with regional landscape data, IBP has constructed management models to quantify those habitat attributes that are associated with high adult abundance and high productivity; which are typical of healthy “source” populations.

These models and ongoing monitoring efforts, allow land managers and biologists to a) assess the likely effects of land management plans and b) monitor the effectiveness of the implementation of those plans.

Currently, these models are being used to predict the effects of recent management actions on six USFS Region Six forests. Ongoing monitoring of those managed areas, and comparison to unmanaged

“control” areas will measure the effectiveness of those actions in maintaining productive and abundant local populations.

In addition, this collaboration has shown that annual variation in population performance is strongly linked to the influences of climate and weather on populations during both the breeding season and the non-breeding season. Climatic extremes experienced in recent decades, such as El-Nino events, have had dramatic effects on the different life-cycle parameters (e.g. birth and death) that drive avian population dynamics. This further demonstrates the need for long-term demographic monitoring such as the MAPS monitoring effort discussed here.

### Species of Conservation Concern

The following species were included:

#### Neotropical migrants:

- *Hammond's Flycatcher*
- *“Western” Flycatcher*
- *Warbling Vireo*
- *Swainson's Thrush*
- *MacGillivray's Warbler*
- *Wilson's Warbler*
- *Chipping Sparrow*
- *Lincoln's Sparrow*

#### Short-distance migrants:

- *Chestnut-backed Chickadee*
- *Winter Wren*
- *Song Sparrow*
- *Dark-eyed Junco*
- *Pine siskin*