



North Coast and Cascades Network Landbird Monitoring

2025 Field Season Report

Why We Monitor Birds

Many bird species in North America have declined substantially during the past half century. It is estimated that North America's breeding bird population has decreased by 30% since the 1970s, representing a loss of approximately 3 billion birds. Habitat loss and degradation (on breeding grounds as well as non-breeding ranges of migratory species) have been the primary driver of these changes, but other factors including climate change, outdoor cats, avian flu, and invasive species likely play a role as well.

In the North Coast and Cascades Network (NCCN), landbirds were selected as an important "vital sign" for

monitoring because they are relatively easy to detect and are akin to canaries in a coal mine. Landbirds provide important ecological functions, such as seed dispersal and insect control, making them good indicators of ecosystem health. To that end, landbirds were selected as a vital sign to better understand if bird populations in NCCN parks were stable or changing. Monitoring of landbird trends in the three large mountain parks (Mount Rainier National Park (MORA), North Cascades National Park Service Complex (NOCA), Olympic National Park (OLYM)) and two smaller lowland parks (Lewis and Clark National Historical Park (LEWI) and San Juan Island National Historical Park (SAJH)) began in 2005, in partnership with The Institute for Bird Populations (IBP) (Figure 1).

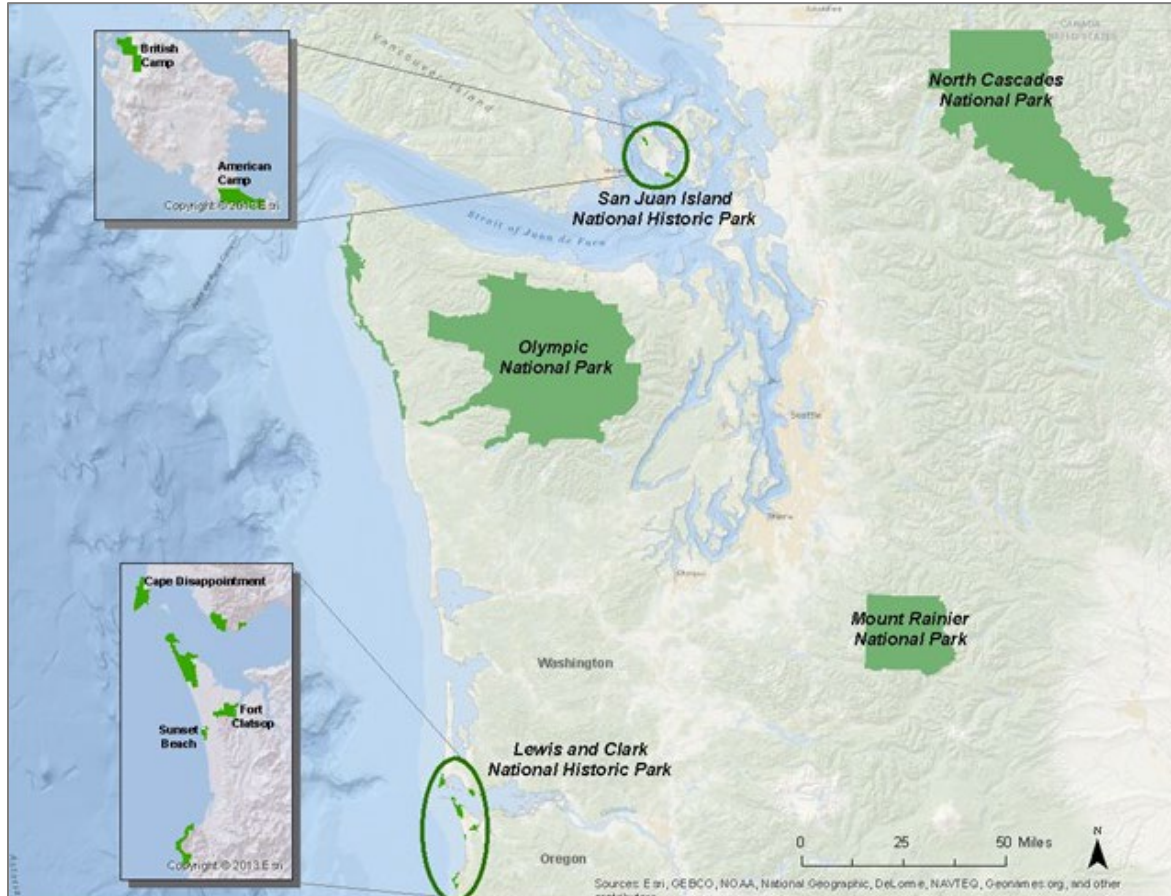


Figure 1. National Park Service units participating in the North Coast and Cascades Network Landbird Monitoring Project. NPS

How We Count Birds

IBP staff conduct surveys annually at the mountain parks and alternate years between the lowland parks. The data collected have provided critical information for assessing changes in bird abundance and distribution in national parks over time. Monitoring data also provide important reference information for comparison with North American trends and an understanding of the effects of more intensive land management practices elsewhere in the region.



Cedar Waxwing. IBP / Eric Guzman

Birds are monitored along permanent transects comprised of point count stations (approximately 12 to 25 stations depending on topography) spaced 200 meters apart along these transects. Transect surveys start within 10 minutes of official sunrise and continue for 3.5 hours. In addition to formal transect monitoring, incidental observations recorded during crew time in the park are used to supplement detections made during transect surveys. A detailed description of survey methods is present in the NCCN Landbird Monitoring Protocol¹.



Rufous Hummingbird. IBP / Melissa Marshall

Transects at OLYM, MORA, and NOCA are based on an alternating panel design where one set, or panel, of transects is surveyed annually and five panels of transects are surveyed on a 5-year return interval (Figures 2–4). Each year we sample all annual panel transects and one of the five alternating panels at each large park.

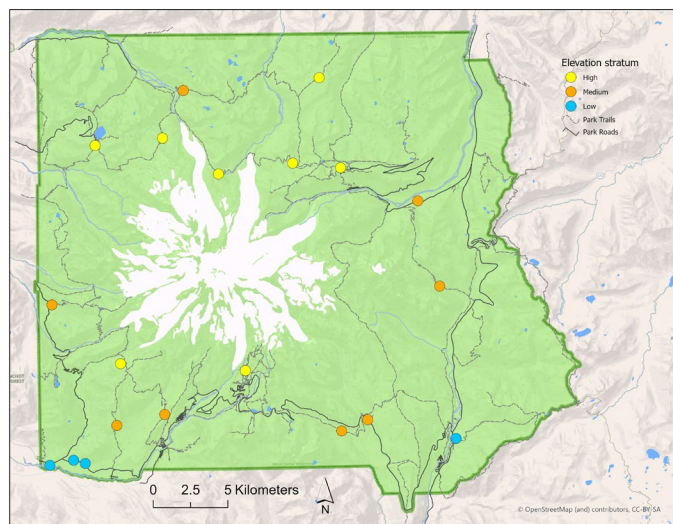


Figure 2. Locations of point count stations surveyed at Mount Rainier National Park in 2025. NPS

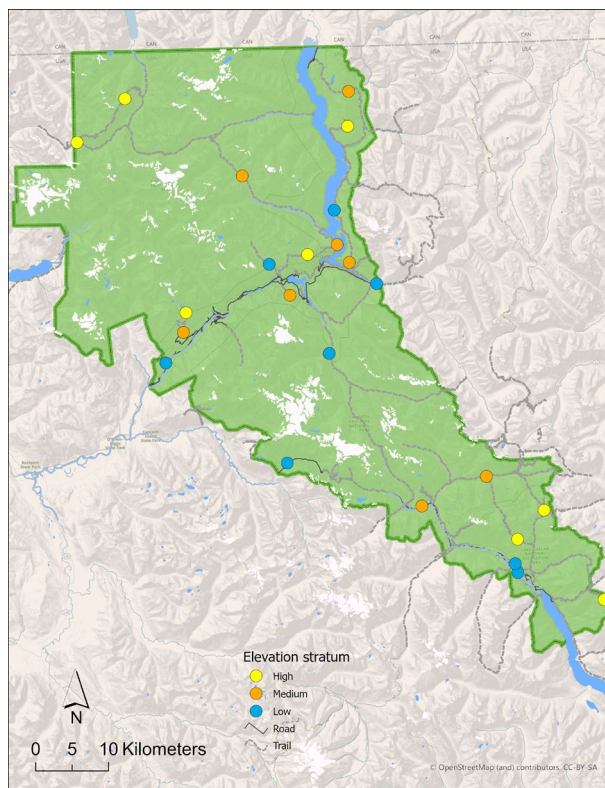


Figure 3. Locations of point count stations surveyed at North Cascades National Park Service Complex in 2025. NPS

¹ Siegel, R. B., et al. 2007. Landbird monitoring protocol for national parks in the North Coast and Cascades Network. U.S. Geological

NCCN Parks as Refuges for Birds

There is growing evidence that national parks and other protected areas can serve as refuges for wildlife^{2,3} especially in regions where land-use change has altered large portions of available habitat. By combining over 20 years of annual bird monitoring observations across NCCN parks, our ongoing work is revealing that most bird populations in these parks have been stable or increasing since monitoring began in 2005. Our results contrast with broader North American trends that include survey data from outside of national parks⁴ and highlight the benefits of protected areas to a wide range of bird species. Although our trends underscore the importance of maintaining critical habitat for a diversity of species, they also align with our understanding that national parks make a disproportionate contribution to bird and wildlife conservation more broadly because they protect species from multiple, difficult to manage threats (e.g., drought, wildfire, and disease).⁵



Townsend's Warbler. IBP / Melissa Marshall

2025 Highlights

The 2025 season represented the 21st consecutive season for the landbirds monitoring protocol. During the 2025 field season, which spanned May 26 to July 31, crews visited four NCCN parks. Snowpack in 2025 was unusually low throughout the field season. This was due to dry spring conditions and warmer than average winter and spring months, resulting in early melt-out of snow.

In 2025, our field team completed surveys at all 68 of the target transects.

- 1) We conducted surveys at 1,266 point count stations along 68 transects in the large wilderness parks,

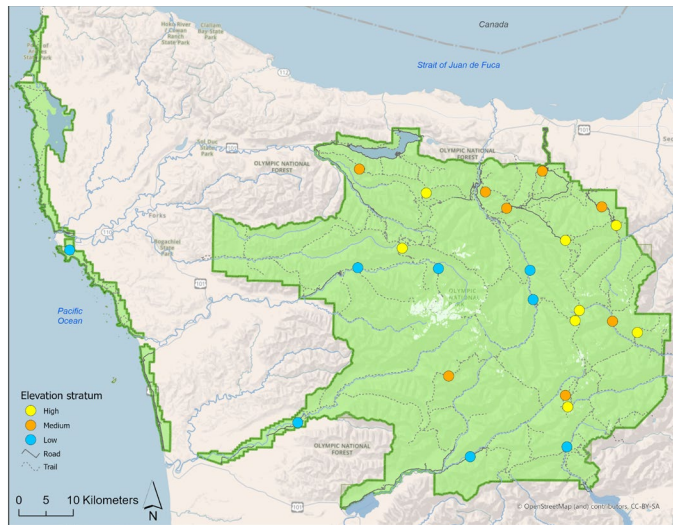


Figure 4. Locations of point count stations surveyed at Olympic National Park in 2025. NPS

In the smaller parks, SAJH and LEWI, monitoring follows a grid design (with a random starting point) covering the entire park area (Figure 5).

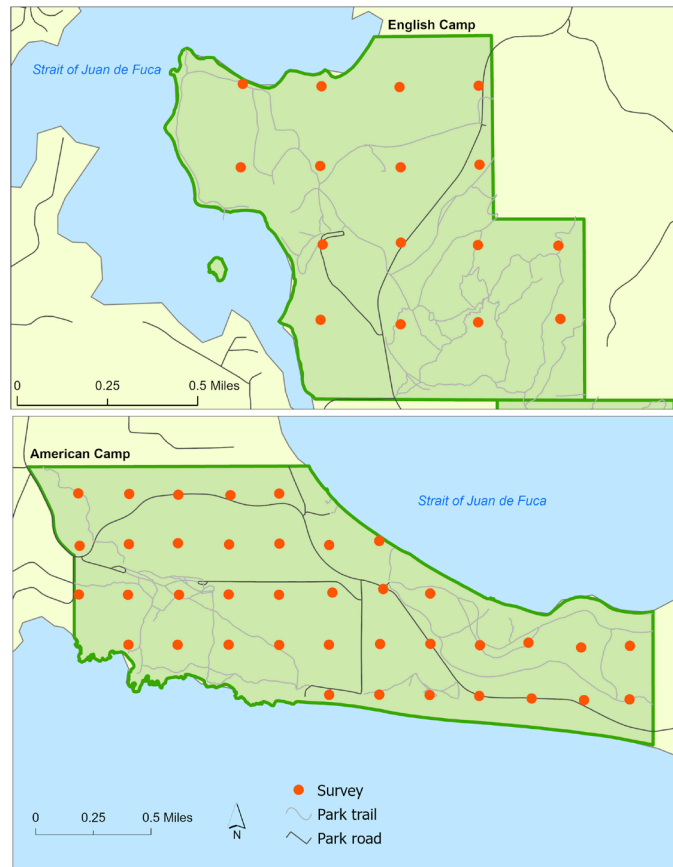


Figure 5. Locations of point count stations surveyed at San Juan Island National Historical Park in 2025; adjacent point count stations are 350 m apart. NPS

² Rodhouse et al. 2016. A macroecological perspective on strategic bat conservation in the U.S. National Park Service. *Ecosphere* 7(11) <https://doi.org/10.1002/ecs2.1576>

³ Mi et al. 2023. Global protected areas as refuges for amphibians and reptiles under climate change. *Nature Communications* 14, 1389. <https://doi.org/10.1038/s41467-023-36987-y>

⁴ Rosenberg et al. 2019. Decline of the North American avifauna. *Science* 366(6461): 120-124. <https://doi.org/10.1126/science.aaw1313>

⁵ Selwood, K.E., and H.C. Zimmer. 2020. Refuges for biodiversity conservation: A review of the evidence. *Biological Conservation* Volume 245, May 2020. <https://doi.org/10.1016/j.biocon.2020.108502>

MORA, NOCA, and OLYM, and at 54 point count stations at SAJH.

- 2) Across the three mountain parks (MORA, NOCA, and OLYM), we documented the presence of 152 species, 102 of which were detected during point counts; the other 50 were incidental observations detected outside of the point count periods. During the 1,266 point counts in the three mountain parks, we counted 17,179 individual birds, with an average of 13.6 birds detected per point. The five most frequently detected species on point counts across all three mountain parks were (in order from highest to lowest numbers) Pine Siskin, Dark-eyed Junco, Evening Grosbeak, Varied Thrush, and Red-breasted Nuthatch. Other species, such as Western Tanager, also had high numbers of detections in 2025, and their detections have been increasing since the start of the monitoring program (Figure 6).
- 3) The number of bird detections on annual-panel transects across the three large parks increased by about 20% between 2024 and 2025. This overall increase in detections is in part due to an unusually high number of Evening Grosbeak detections in 2025, which were higher than in any other year since the start of the monitoring program. Detections of Pine Siskin and Red Crossbill (the other irruptive finches whose numbers fluctuate greatly from year to year) were also higher than the long-term average, including those in 2024.
- 4) At SAJH, our 54 point counts yielded 2,314 detections of 80 species. The most frequently detected species (excluding Surf Scoter) was Pine

Siskin, followed by Red Crossbill, American Robin, Northern House Wren, and Spotted Towhee. Surf Scoter, which is a non-landbird species that often occurs in large flocks and can greatly inflate our total and average number of detections per point, accounted for 148 of these detections. When this species is excluded to provide a better comparison with data from previous years, 2,166 birds were detected with a detection rate of 40.1 birds per point. This high number is in part due to the large number of Pine Siskin detections in 2025.

We caution, however, that these detection totals have not been adjusted for differences in survey effort, observer effects, or potential differences in detectability of birds between years; such adjustments will be made in conjunction with trend analyses in a future multi-year report.



Evening Grosbeak. IBP / Eric Guzman

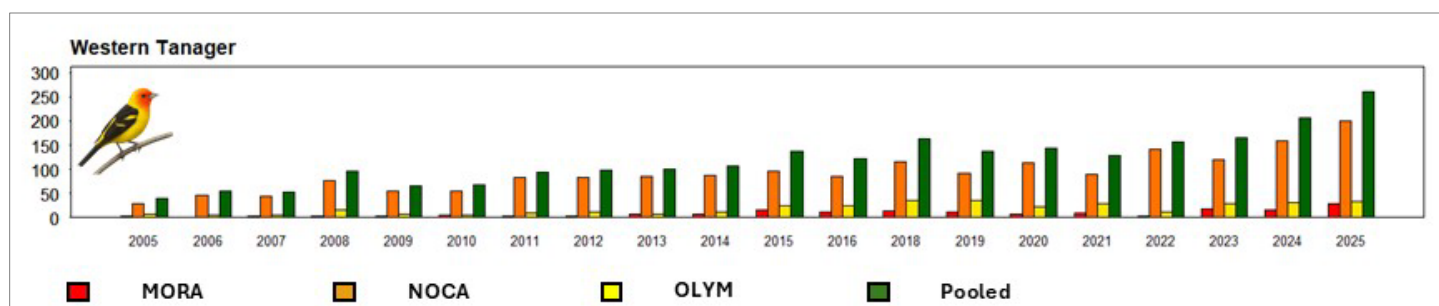


Figure 6. Detections of Western Tanagers have generally increased in Mount Rainier, North Cascades, and Olympic National Parks since the start of the monitoring program in 2005. Bar chart provided by the Institute of Bird Populations. Western Tanager graphic created with assistance from Microsoft Copilot.

More Information

Rodney Siegel
Executive Director, The Institute for Bird Populations
Email: rsiegel@birdpop.org

Andrew Ray
North Coast and Cascades Network I&M Program Manager
Email: Andrew_Ray@nps.gov

Miranda Terwilliger
Olympic Wildlife Branch Chief and Project Lead
Email: Miranda_Terwilliger@nps.gov

Brief prepared by: Mandy Holmgren
Staff Biologist, The Institute for Bird Populations