

Monitoring Avian Productivity and Survival (MAPS) Program

A continent-wide network informing landbird conservation

PROJECT SUMMARY



WILL TURNER

Western tanager (*Piranga ludoviciana*)

The MAPS Program

Globally, landbird populations are facing increasing threats from habitat loss and pollution to invasive species and extreme weather associated with climate change. Several long-term North American monitoring programs provide critical information on many species. The Monitoring Avian Productivity and Survival (MAPS) program, established in 1989 by The Institute for Bird Populations (IBP), collects and archives annual bird banding data from a network of >400 stations that operate during the breeding season. These data are analyzed to quantify the primary demographic parameters (survival rate, productivity, recruitment, and population trend) that affect population change for >150 landbird species.

How Are MAPS Data Used?

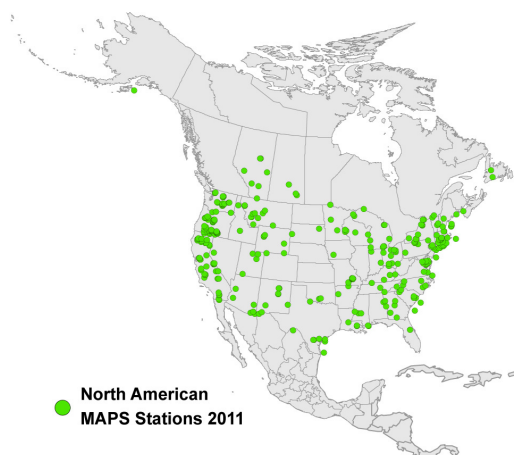
MAPS data are used to describe the spatial and temporal patterns of landbirds' demographic parameters during the breeding season and evaluate how these patterns might be influenced by continental and regional weather, habitat, and landscape-use/landscape change. When combined with the MAPS sister program MoSI (Monitoreo de Sobrevivencia Invernal) that collects banding data during the non-breeding season in Mexico, Central America and the Caribbean, these

data provide a unique suite of datasets used to identify the factors influencing bird populations throughout their annual life cycle. This information is critical to informing conservation of North American landbird populations by providing tools to a) assess the impact of landscape-scale management plans, b) connect local breeding populations with over-wintering regions, and c) explore the effects of climate change predictions on landbird communities.

Operating A MAPS Station

MAPS stations are operated following a standardized procedure (DeSante et al. 2010). Stations typically operate ten mist nets on one day in each of a series of six to ten consecutive ten-day periods during the breeding season (between May and August). Data is collected for at least five consecutive years, but should be operated for several decades in order to effectively track temporal changes and obtain more precise demographic estimates. Individual birds are often captured numerous times, such as a Swainson's Thrush that was repeatedly captured in Oregon over a period of 12 years.

Mist nets are typically 12 m (39.4 feet) long with a mesh size of 30 mm (1.18 inch). Net locations are fixed from year to year and opened for 6 hours per day, starting at sunrise. To reduce stress to captured birds, researchers at stations in hotter climates may adjust the number of nets and sampling time while keeping the total sampling effort at 60 net-hours per session. Each bird captured is uniquely marked with a



numbered aluminum leg band provided by the U.S. Geological Survey's Bird Banding Laboratory. Data recorded for each bird captured include: band number, capture status, species, age, sex, physical condition, date, time, station, and net number. Once submitted to IBP, all data are proofed, entered into a database, verified, and archived with Avian Knowledge Network (<http://www.avianknowledge.net/content/>).

Partners and Publications

The Institute for Bird Populations collaborates with numerous federal agencies, academic institutes, research organizations, non-profits, and individuals to collect and analyze data. The two longest-running MAPS datasets were collected from a network of 50 Pacific Northwest MAPS stations on US Forest Service and Bureau of Land Management lands, and over 15 Department of Defense installations from Texas to Maine.

MAPS results are featured in numerous publications including reports, newsletters, and peer-reviewed publications. Recently, IBP published and made available online estimates of survival rates, adult population sizes, and productivity indices for 192 species using 15 years (1992-2006) of MAPS data (Michel et al. 2011, DeSante and Kaschube 2009). In addition, the



Kentucky Warbler (*Oporornis formosus*)

WADE LEITNER

MAPS program discovered and documented the molt migration strategy used by several birds species in Western North America (Pyle et al. 2009).

Recently, IBP published results on www.DataBasin.org, a spatial dataset library managed by the Conservation Biology Institute. This web interface allows users to access, map, and download summary results for reports and presentations.

Literature Cited

DeSante, D.F., and D.R. Kaschube. 2009. The Monitoring Avian Productivity and Survivorship (MAPS) program 2004, 2005, and 2006 report. Bird Populations 9:86-169. (http://birdpop.net/pubs/files/desante/2009/554_DeSante2009.pdf)

DeSante, D. F., K. M. Burton, P. Velez, D. Froehlich, and D. Kaschube. MAPS Manual 2010 Protocol: Instructions for the establishment and operation of constant-effort bird-banding stations as part of the Monitoring Avian Productivity and Survivorship (MAPS) Program. The Institute for Bird Populations. Point Reyes Station, California. (<http://www.birdpop.org/DownloadDocuments/manual/2010/MAPSManual10.pdf>)

Michel, N., DeSante, D.F., Kaschube, D.R., and Nott, M.P. 2011. The Monitoring Avian Productivity and Survivorship (MAPS) Program Annual Reports, 1989-2006. NBII/MAPS Avian Demographics Query Interface. <http://www.birdpop.org/nbii2006/NBIIHome.asp>

Pyle, P., W. Leitner, L. Lozano-Angulo, F. Avilez-Teran, H. Swanson, E. Gómez Limón, and M. Chambers. 2009. Temporal, spatial, and annual variation in the occurrence of molt-migrant passerines in the Mexican monsoon region. The Condor 111(4): 7.

Project Contacts

For information regarding the Institute for Bird Populations' MAPS program and other efforts in conservation of landbirds, go to <http://www.birdpop.org/>.



CLAIRE ZUGMEYER AND WADE LEITNER

Clockwise from top: examining feathers to determine bird health and age; removing bird from mist net; and entering data into MAPS computer program.