

# Foundational Science in Flight: USGS Bird Programs Support Conservation, Culture, and a Thriving U.S. Economy

Birds are vital to our economy, ecosystems, and cultural heritage. Investing in bird conservation benefits communities, businesses, and working lands while reinforcing our Nation’s legacy of stewardship and biodiversity. When we value birds, we ensure a richer, healthier, and more vibrant future for all Americans.

## The USGS Leads Two National Bird Monitoring Programs

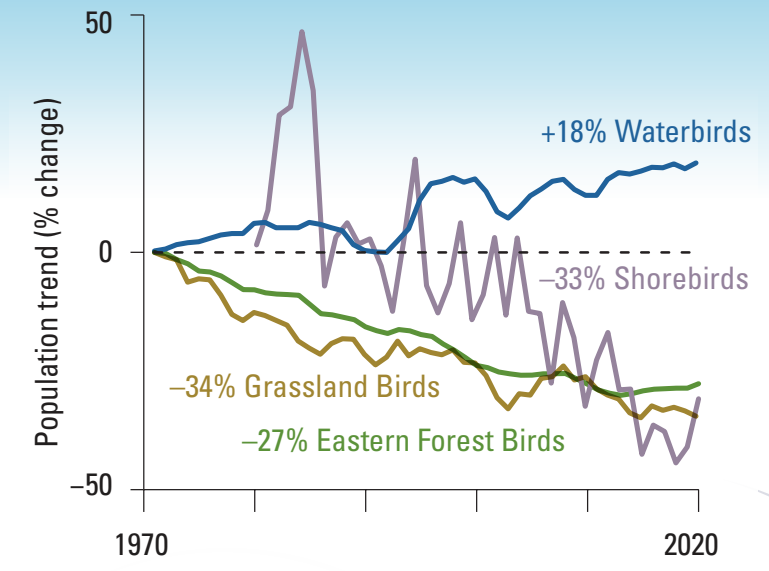
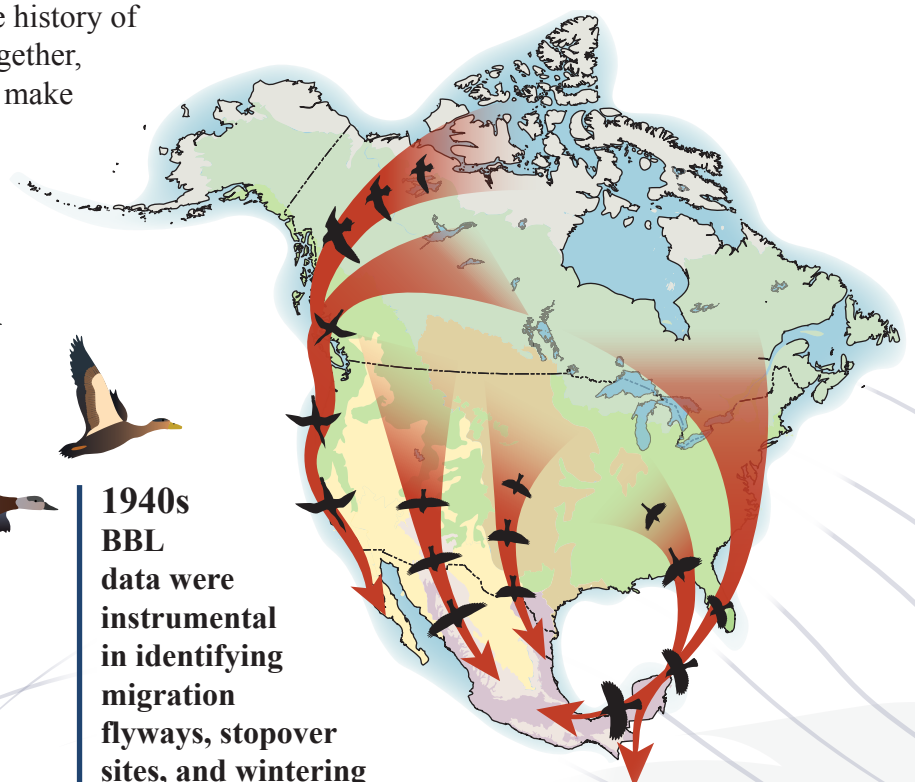
People who appreciate birds contribute more than \$100 billion in related purchases to the United States (U.S.) economy annually, helping to support 1.4 million jobs and \$90 billion in labor-related income (U.S. Fish and Wildlife Service, 2022)<sup>1</sup>. Across the Nation, the U.S. Geological Survey’s (USGS) Bird Banding Laboratory (BBL) and Breeding Bird Survey (BBS) are critical to the functions of Federal and State wildlife agencies, Migratory Bird Flyway Councils, and non-governmental organizations. Data supplied by the BBL and the BBS help resource managers meet their mandates to reduce conflicts between birds and people, identify species of greatest conservation need, and set healthy harvest levels. Industries in the private sector have adopted science-based, sustainable practices driven by data from the BBL and the BBS that benefit their own operations and birds. Without sufficient support for the BBL and the BBS, groups with varying interests that depend on these data to reach effective management decisions and achieve collaborative outcomes for bird-related challenges are adversely impacted.



<sup>1</sup>Healthy bird populations benefit the United States economy directly via spending on bird-related recreation, including bird feeding, bird watching, and hunting; and indirectly via services birds provide, such as protecting farm crops from pest damage.

# The USGS Bird Banding Lab (BBL) and Breeding Bird Survey (BBS): Catalyzing Discovery for More Than 100 Years

Through the BBL and the BBS, the USGS delivers the best available information to support bird management and conservation based on sound and objective science. These USGS bird programs are the foundation for effective bird management and conservation nationwide because they provide the longest, most definitive history of changes in North American bird populations. Together, these organizations enable resource managers to make informed decisions when incorporating the Migratory Bird Treaty Act, the North American Waterfowl Management Plan, State wildlife action plans, and other Federal and State initiatives into their work.



**2025 and beyond**  
The BBL and the BBS plan to continually innovate to support management of birds as an economic driver, a cultural touchstone, and an ecological necessity.

**2001**  
BBS data were incorporated to help improve safety in commercial and military flights as part of the U.S. Air Force's Bird Avoidance Model.

**2000s–2020s**  
USGS scientists developed cutting-edge methods of analyses to model trends of more than 540 bird species across North America. Models increase the value of BBS data at management-relevant scales by accounting for variation in space and time and provide data for recurring *State of the Birds* reports, published by the North American Bird Conservation Initiative.

**2022**  
Bird marking enabled USGS scientists to track movement of a wild bird infected with highly pathogenic avian influenza, which is key to understanding disease spread to poultry.

**1995**  
USGS data became integral to protect U.S. hunting heritage as these data are used in the Adaptive Harvest Management model for waterfowl and harvest strategies for other birds.

**1989**  
BBS data indicated widespread declines in many long-distance, migratory birds and demonstrated the need for international cooperation to conserve these species. This led to the establishment of Partners in Flight in 1990 and the Neotropical Migratory Bird Conservation Act in 2000 to help protect what is now a greater than \$100 billion economic engine in the U.S.

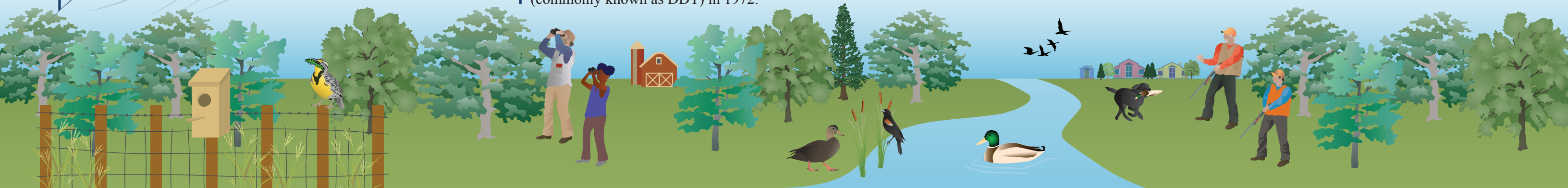
**1966**  
The Breeding Bird Survey (BBS) was initiated in the U.S. and Canada. Since then, the BBS has tracked changes in continental bird populations to help keep common birds common for future generations and inform science-based management decisions.

**1960s**  
Bird banding was a key tool in recognizing the decline of peregrine falcon and other species, spurring conservation actions to prevent extinctions, which included the ban of dichlorodiphenyltrichloroethane (commonly known as DDT) in 1972.

**1940s**  
BBL data were instrumental in identifying migration flyways, stopover sites, and wintering grounds, leading to the development of wildlife refuges and science-based bird population management.

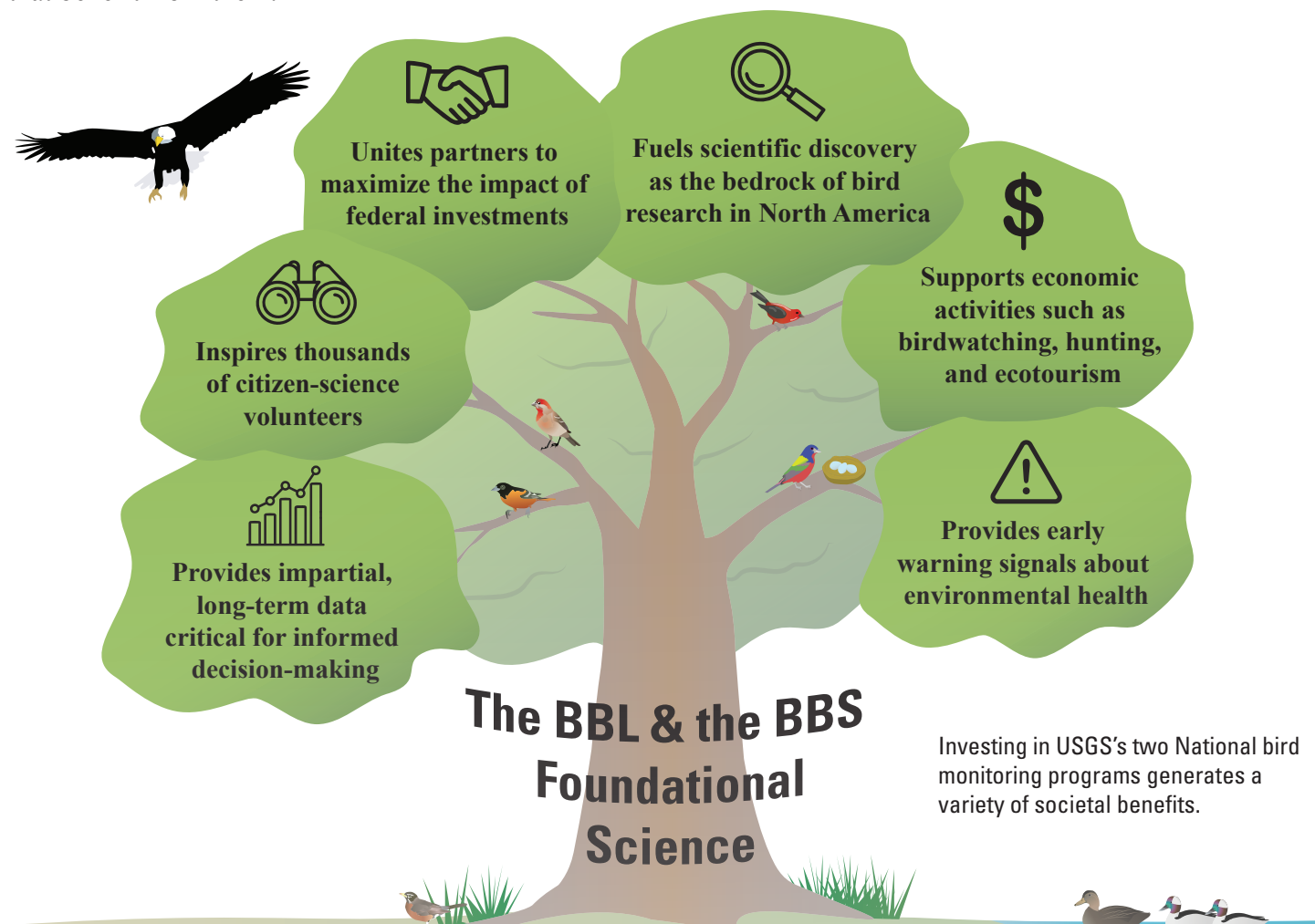
**1918**  
The Migratory Bird Treaty Act was passed. The Act directed the creation of a federal bird banding program to aid long-term management of this important natural resource.

**1920**  
The Bird Banding Laboratory (BBL) was established, and in 1923, formed the North American Bird Banding Program with Canada's Bird Banding Office, recognizing a shared stewardship responsibility for migratory birds.



# Advancing a Brighter Future for Birds and People

The USGS is pursuing innovative partnerships with public and private organizations to ensure that the BBL and the BBS continue to deliver data that partners depend on and make advances to better meet societal needs. By harnessing the power of technology, engaging with new partners, and fostering a culture of data-driven decision-making, there can be a brighter future for North American bird populations and the people and lands that benefit from them.



## The BBL & the BBS Foundational Science

Investing in USGS's two National bird monitoring programs generates a variety of societal benefits.

To learn more or explore opportunities to work with us to sustain and advance USGS's critical bird-monitoring programs, contact Tom O'Connell, Eastern Ecological Science Center Director at 304-724-4401 or [toconnell@usgs.gov](mailto:toconnell@usgs.gov).

### References

U.S. Fish and Wildlife Service 2022, 2022 National survey of fishing, hunting, and wildlife-associated recreation: U.S. Fish and Service [Report], 87 p. [Also available at <https://www.fws.gov/media/2022-national-survey-fishing-hunting-and-wildlife-associated-recreation>.]

Photograph [Ross's geese in flight] courtesy of Andrea Mott of United States Geological Survey, photograph [northern cardinal with sunflower seed] by ksblack99, photograph [students watching birds] by Glacier National Park, photograph [father and son hunting] by USFWS Midwest Region, and photograph [American kestrel with vole] by the U.S. Department of Agriculture Natural Resources Conservation Service Montana.

Citation: Ziolkowski, D., Jr., Celis-Murillo, A., Malpass, J., Pardieck, K., Martin, J., and Walker, L., 2025, Foundational science in flight—USGS bird programs support conservation, culture, and a thriving U.S. economy: U.S. Geological Survey Fact Sheet 2025–3011, 4 p. <https://doi.org/10.3133/fs20253011>

Science communication and design concepts developed by Annie Carew, Lili Badri, and Vanessa Vargas-Nguyen, University of Maryland Center for Environmental Science.



ISSN 2327-6932 (online)  
ISSN 2327-6916 (print)  
<https://doi.org/fs20253011>