

PRESS RELEASE

Tsukuba, March 19, 2025

Unveiling the Potential of Japanese Bird Banding Data for Avian Movement Research

Researchers reveal how applying statistical methods to Japanese bird banding data can revolutionize the conservation of East Asian migratory birds

Japan's bird banding data, collected over decades, has largely remained underutilized in avian movement research. Researchers from Japan have now shown that applying advanced statistical methods to this data can significantly expand the scope of bird movement studies. Their findings highlight that increasing the accessibility of this data for international researchers could enhance conservation efforts for East Asian migratory birds.

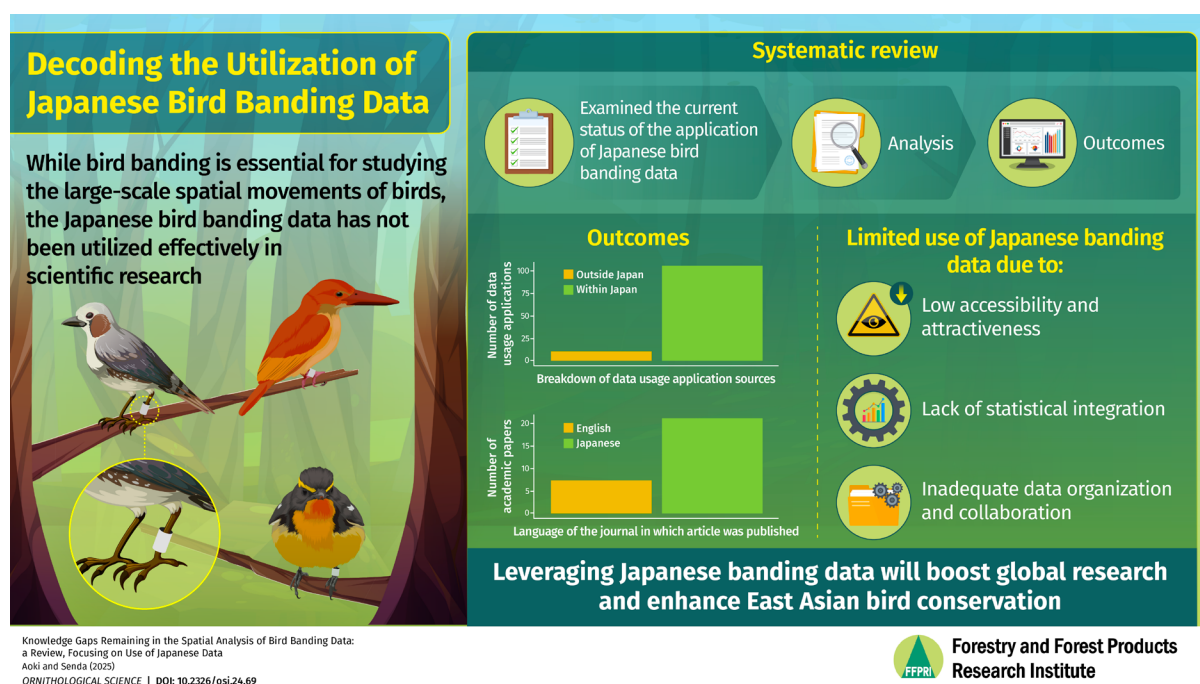


Image title: Harnessing the untapped potential of Japanese bird banding data

Image caption: Researchers from Japan highlight the untapped potential of Japan's extensive bird banding data, emphasizing its underutilization in ornithology. By applying advanced statistical methods to this "big data," they aim to revolutionize the conservation of East Asian migratory birds and enhance our understanding of their movement patterns.

Image credit: Dr. Daisuke Aoki from Forestry and Forest Products Research Institute, Japan

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Bird banding has long been a valuable tool for studying the movements of migratory birds, providing essential insights into their migration patterns, behavior, and ecology. However, despite decades of bird banding efforts in Japan, the extensive dataset accumulated over the years has not been fully utilized in avian movement research. Most migration studies have focused on data from Europe and North America, leaving Japan's extensive dataset relatively underexplored. This gap in utilizing Japanese bird banding data has limited our understanding of avian movements, particularly in the East Asian-Australian Flyway, one of the world's richest migratory corridors in terms of species diversity.

To address this gap, Dr. Daisuke Aoki, a tenure-track researcher from the Wildlife Ecology Lab, Department of Wildlife Biology, Forestry and Forest Products Research Institute, Japan, in collaboration with Ms. Mariko Senda from the Yamashina Institute for Ornithology, Japan, conducted a systematic review of Japanese bird banding data spanning over a century, utilizing archives from the Yamashina Institute for Ornithology. Their study, published in Volume 24 Issue 1 of [*ORNITHOLOGICAL SCIENCE*](#) on 11 February 2025, aimed to identify how the extensive dataset could be better utilized in avian movement research, especially through the application of advanced statistical methods.

Their findings revealed that despite Japan's long history of bird banding, much of the data has been underused, with surprisingly few publications focused on spatial movement studies. Most of the existing research relied on this data for historical records of banding or descriptive studies on bird migration. *"None of the spatial movement inferences used the banding recovery data in a fully statistically integrated way,"* says Dr. Aoki, emphasizing the missed opportunity to apply modern statistical methods to understand the spatial movement of Japanese migratory birds.

Additionally, the results showed that Japanese banding data had been used mostly by local banders, indicating poor accessibility and low attractiveness to non-Japanese and non-bander researchers. Factors such as language barriers and a lack of international collaboration may contribute to this underuse.

"Our study will help society acknowledge the utility of existing biodiversity data in Asia, such as the Japanese bird banding data, and address the issues related to biodiversity and conservation," says Dr. Aoki.

The researchers emphasize that for Japanese bird banding data to become more visible and accessible to the global scientific community, a comprehensive data organization and analytical effort is essential. Drawing from the success of the Japanese genetic barcoding project, which fostered international collaborations, organizing and sharing bird banding data could promote global cooperation and expand our understanding of avian migration. This approach would enable researchers worldwide to challenge traditional hypotheses based primarily on European and North American studies, addressing gaps in bird ecology and evolution.

In addition, they propose combining traditional bird banding data with newer tracking technologies, such as global positioning systems and radar, to overcome the limitations of both methods. While modern technologies offer real-time data, they are often costly and

limited in geographic coverage. By integrating these with long-term banding data, researchers could gain a more comprehensive understanding of avian movement across large distances.

Overall, this study reveals the untapped potential of Japanese bird banding data in advancing our understanding of avian movement. *“By applying modern statistical methods and improving data accessibility for international researchers, Japan’s bird banding records could play a critical role in informing conservation efforts for migratory birds,”* concludes Dr. Aoki.

Reference

Title of original paper: Knowledge Gaps Remaining in the Spatial Analysis of Bird Banding Data: a Review, Focusing on Use of Japanese Data
Journal: ORNITHOLOGICAL SCIENCE
DOI: [10.2326/osj.24.69](https://doi.org/10.2326/osj.24.69)

Additional information for EurekAlert

Latest Article Publication Date: 11 February 2025
Method of Research: Systematic review
Subject of Research: Not Applicable
Conflicts of Interest Statement: The authors declare no conflicts of interest.

About Forestry and Forest Products Research Institute, Japan

Inaugurated as a unit for forest experiments in Tokyo in 1905, the Forestry and Forest Products Research Institute (FFPRI) was largely reorganized in 1988, when it received its current name. During its history of over 110 years, the FFPRI has been conducting interdisciplinary research on forests, forestry, the timber industry, and tree breeding with an agenda based around sustainable development goals. The FFPRI is currently looking to collaborate with more diverse stakeholders, such as international organizations, government agencies, and industry and academic leaders, to conduct much needed forest-related research and make sure we preserve these renewable resources.

Website: <https://www.ffpri.affrc.go.jp/ffpri/en/index.html>

About Dr. Daisuke Aoki from Forestry and Forest Products Research Institute, Japan

Dr. Daisuke Aoki is currently a tenure-track researcher at the Wildlife Ecology Lab, Department of Wildlife Biology, Forestry and Forest Products Research Institute, Japan. Dr. Aoki holds a Ph.D. from the Graduate School of Science, Hokkaido University, Japan. He has received multiple awards, including the 65th Ecological Society of Japan English Presentation Best Award, the 34th Society of Population Ecology Excellent Poster Award, and the Ornithological Society of Japan Poster Award. He has also contributed to several scientific journals, reviewing for prominent publications such as the *Journal of Biogeography* and *Ecology and Evolution*.

Funding information

NA

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