

Long-term study reveals fluctuations in birds' nesting success

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A decades-long study of Song Sparrows on British Columbia's Mandarte Island has yielded new insights into factors affecting bird nesting success. Credit: D. Janus

Understanding the factors that affect a bird species' nesting success can

be crucial for planning effective conservation efforts. However, many studies of nesting birds last only a few years—and that means they can miss the effects of long-term variation and rare events. A new study from *The Auk: Ornithological Advances* demonstrates this with nearly four decades of data from Song Sparrows in British Columbia.

The University of British Columbia's Merle Crombie and Peter Arcese used 39 years of data from an island population of Song Sparrows to examine how the factors influencing their nesting success changed over long periods of time. Over almost 3,000 nesting attempts, 64% of which were successful, a number of patterns emerged. Some, such as the fact that older female [birds](#) were less successful, remained consistent over time. However, others, such as the effects of rainfall, population density, and nest parasitism, interacted with each other in complex ways that caused their importance to wax and wane over the decades, and inbreeding only became a significant negative factor when it increased sharply during the middle portion of the study. Unpredictable, rare fluctuations such as this can have large effects that shorter-term studies rarely capture.

"Researchers have been learning about the Song Sparrow population on Mandarte Island since 1960, and monitoring the population continuously since 1975," says Arcese. "Because the population is semi-isolated, small, and resident year-round, we band all birds in the nest and have genotyped all nestlings since 1991." A close focus on individuals, fitness, and relatedness in the Mandarte Song Sparrow population has allowed researchers to report the most precise demographic and population genetic parameters yet estimated in wild populations.

"Most studies of plant and animal populations in nature last three to five years, but ecological processes are often dramatically affected by climate and community change, which plays out over decades," he continues.

"Long-term studies like ours provide an invaluable record of change in

[population](#) processes, which can help interpret the results of short-term studies of species not as easily studied as Song Sparrows."

More information: "Temporal variation in the effects of individual and environmental factors on nest success" [DOI: 10.1642/AUK-17-189.1](#)

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