

# Eagles migrate through bad weather to arrive in time to nest

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*Photo: Paul J. Fusco*

A Golden Eagle wears a GPS transmitter, allowing researchers to track its migratory movements. Credit: P. Fusco

Migration is tough, and birds do everything they can to optimize it. How do factors like weather and experience affect the strategies they choose? A new study from *The Auk: Ornithological Advances* shows that older, more experienced Golden Eagles actually migrate in poorer weather

conditions and cover less ground than their younger counterparts, but for a good reason—they're timing their efforts around raising the next generation of eagles.

Adrian Rus of Boise State University (now at Australia's University of Sydney), Todd Katzner of the USGS, and their colleagues studied GPS telemetry tracks to evaluate the migratory performance of almost 90 Golden Eagles in eastern North America and determine how performance related to season, age, and [weather](#). Unsurprisingly, eagles flew faster and farther when they had strong tailwinds and thermals to help them along. What was counterintuitive, however, was that older eagles did not cover more ground than younger eagles despite their greater experience. Instead, older eagles migrated in poorer weather conditions and travelled more slowly.

The researchers believe this is because older birds face different pressures than younger birds. Even if the weather is bad and will slow them down, they need to start heading north earlier than young birds that aren't breeding, because they have to get back to their breeding grounds in time to reclaim their territories and start nesting. "Younger eagles just need to survive the summer, so they can be choosy about when they travel north and only migrate when conditions are really ideal for fast soaring flight," explains Katzner.

Lead author Adrian Rus, who worked on the study as an undergraduate, enjoyed the challenges involved in analyzing the migration data. "The best part about working on this project was using specialized software to visualize the golden [eagle](#) migrations and being able to pair it with meteorological data to answer my biological questions," he says. "As a result, the project greatly improved my geospatial and statistical analysis skills and was instrumental my current graduate research in animal movement ecology."

"Rus et al. provide an unusual demonstration of the interaction between migration experience and seasonal environments," according to Oklahoma University's Jeff Kelly, an expert on avian migration. "It is likely that the migration experience that older [birds](#) have enables them to extend their summer season through early spring and late autumn [migration](#) despite declining atmospheric conditions. Rus et al.'s demonstration of this insight into the interaction between age and the migratory environment expands our thinking about the life history tradeoffs that occur across the annual cycle of migrants."

**More information:** "Counterintuitive roles of experience and weather on migratory performance" [americanornithologypubs.org/doi ... 10.1642/AUK-16-147.1](https://americanornithologypubs.org/doi/10.1642/AUK-16-147.1)

Provided by The Auk

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