

# Researchers dig deep to unveil causes of decline for North America's smallest falcon

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Male American kestrel, marked with a wing tag, flying over Sussex County, New Jersey. Credit: Herb Houghton

The American kestrel, a colorful and charismatic falcon, has kept researchers scratching their heads for years. Population declines are

confirmed across North America, but who or what to blame has remained elusive.

A new paper, "Evidence of Continuing Downward Trends in American Kestrel Populations and Recommendations for Research Into Causal Factors," published in the *Journal of Raptor Research*, provides needed updates on the status of [kestrel](#) populations at the regional scale, and offers a comprehensive discussion on the potential causes for the species' decline.

Importantly, the authors point out that kestrels could be experiencing trouble outside of the [breeding season](#), a part of their annual cycle that is arguably understudied. This paper provides an updated common ground for raptor researchers through which they can streamline study priorities, an important recalibration if this beloved falcon is to remain numerous in our skies.

Authors David M. Bird and John A. Smallwood posit that multiple factors are likely causing kestrel declines, evidenced by the fact that while many populations are declining, some are rebounding or stabilizing. Not all kestrels are encountering the same challenges.

Bird and Smallwood present essential research pathways moving forward, including investigating the impact of Cooper's Hawks on kestrel distributions and survival, assessing [habitat degradation](#) on the kestrel's wintering grounds (which often fall outside of U.S. borders), looking at fine-scale changes in habitat quality on the [breeding grounds](#), examining the impacts of climate change on the availability of prey species for kestrels, determining how important grasshoppers are as a prey species, and studying the impacts of rodenticides and pesticides on the health of kestrel populations.

Not only are focused research recommendations put forth in this paper,

but several theories about the kestrel decline are put to rest. West Nile virus and competition for nesting cavities from European starlings are no longer considered significant threats to kestrel success.



Researcher monitoring a kestrel nest box in Hope Township, New Jersey. Credit: Mary Anne Smallwood

Raptors serve as bioindicators, meaning they shed light on the overall health of the ecosystems in which they reside. The American kestrel is no exception. To support these birds in their quest for survival is to support environmental health across North America, and this is not just a cause for experts. Citizen scientists collect essential data on various aspects of the kestrel picture by participating in projects like the Breeding Bird Survey. Without [public participation](#), our understanding of the decline of this species would be far less comprehensive.

Proof of this lies in the study design of Bird and Smallwood's work. They analyzed four types of data that spanned between 38 and 55 years and depended on the participation of [citizen scientists](#): the Breeding Bird Survey, Christmas Bird Count, migration data from two sites located along flyways in the east, and nest box monitoring programs. The latter, according to Smallwood, "has generated an invaluable database that allows us to examine not only [population](#) trends but also lots of aspects of kestrel behavior and ecology."



Female American kestrel protecting her brood in a nest box in northwestern New Jersey. Credit: John Smallwood

Notably, Breeding Bird Surveys revealed that kestrel declines have been observed in 23 of 25 bird conservation regions, with the mid-Atlantic seeing the worst of it. Surveys across Canada also showed high rates of decline. Population increases occurred in only 3 of these conservation regions, including the Chihuahuan Desert. The authors' further assessment of these trends suggests that the magnitude of decline may be lessening, meaning the declines are real, but that extinction is not the only possible outcome. We may just see fewer and fewer kestrels, until we consistently see few—a quieter, blander, sparsely-falconed

landscape.

Smallwood and Bird bring to light the nuanced reality of conservation by showing just how interwoven threats to wildlife can be. This assessment of casual factors in the American kestrel's decline illustrates that human activities are making life difficult for this beloved falcon, yet no single issue is to blame.

"That the population has experienced such a marked decline should be a wake-up call," says Smallwood. "Something is out of kilter across North American ecosystems and the problem could be much more widespread than for just this remarkable species."

**More information:** David M. Bird et al, Evidence of Continuing Downward Trends in American Kestrel Populations and Recommendations for Research into Causal Factors, *Journal of Raptor Research* (2023). [DOI: 10.3356/JRR-22-35](https://doi.org/10.3356/JRR-22-35)

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