

A Lesser Scaup (*Aythya affinis*) Naturally Infected with Eurasian 2.3.4.4 Highly Pathogenic H5N1 Avian Influenza Virus – Movement Ecology and Host Factors

Diann Prosser¹, Hannah Schley², Nathan Simmons³, Josh Homyack³, Jeffery D. Sullivan¹,
Matthew Weegman⁴, Glenn Olsen¹, Alicia M. Berlin¹, Rebecca Poulson⁵, David
Stallknecht⁵, and Christopher K. Williams²

¹US Geological Survey

²University of Delaware

³Maryland Department of Natural Resources

⁴US Fish and Wildlife Service Arlington

⁵University of Georgia Department of Population Health

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Abstract

Despite the recognized role of wild waterfowl in the potential dispersal and transmission of highly pathogenic avian influenza (HPAI) virus, little is known about how infection affects these birds. This lack of information limits our ability to estimate viral spread in the event of an HPAI outbreak, thereby limiting our abilities to estimate and communicate risk. Here we present telemetry data from a wild Lesser Scaup (*Aythya affinis*), captured during a separate ecology study in the Chesapeake Bay, Maryland. This bird tested positive for infection with clade 2.3.4.4 HPAI virus of the A/goose/Guangdong/1/1996 (Gs/GD) H5N1 lineage (results received post-release) during the 2021-22 ongoing outbreaks in North America. While the infected bird was somewhat lighter than other adult males surgically implanted with transmitters (790g, mean=868g, n=11), it showed no clinical signs of infection at capture, during surgery, nor upon release. The bird died 3d later, pathology undetermined as the specimen was not able to be recovered. Analysis of movement data within the 3d window showed that the infected individual's maximum and average hourly movements (3894.3m, 428.8m respectively) were noticeably lower than noninfected conspecifics tagged and released the same day (mean =21594.5m, mean =1097.9m, respectively; n=4). We identified four instances where the infected bird had direct contact (fixes located within 25m and 15 min) with another marked bird during this time. Collectively, these data suggest that the HPAI positive bird observed in this study may have been shedding virus for some period prior to death, with opportunities for direct bird to bird or environmental transmission. Although limited by low sample size and proximity to the time of tagging, we hope that these data will provide useful information as managers continue to respond to this ongoing outbreak event.

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