NWRC Research Scientists: Dr. Bradley F. Blackwell

Last Modified:

Dr. Blackwell focuses his research toward understanding and exploiting animal sensory ecology and antipredator behavior relative to human-wildlife interactions. He works primarily in the area of aviation safety but is also interested in applications of sensory ecology and animal behavior in the broader perspectives of animal response to vehicle approach and other forms of human disturbance to wildlife populations.

Research Project

Understanding, Preventing, and Mitigating the Negative Effects of Wildlife Collisions with Aircraft, Other Vehicles, and Structures

The goals of this project are to understand and quantify animal sensory ecology and antipredator behaviors to reduce animal-vehicle and structure collisions, the role of sUAS relative to wildlife monitoring and hazing, and airspace and land cover use on and near airports by birds recognized as hazardous to aviation safety.

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Current Studies

- Collaboration with the FAA and Purdue University colleague to quantify the visual configuration of several avian species and understand how these metrics influence detection and antipredator responses to vehicle approach, such as aircraft.
- Collaboration with the FAA, NWRC colleagues, and colleagues at Purdue to understand avian perceived risk in response to UAS (aircraft and drone) approach.
- Development of methods and tools to exploit sensory ecology and antipredator behavior in wildlife to reduce use of select habitats.
- Collaboration with the University of Georgia, Savannah River Ecology Laboratory, and the FAA on assessment of birdstrike likelihood and development of strike risk models at southeastern US airports.
- Collaboration with the University of North Dakota, Wildlife Services ND/SD, and the FAA on applications of an UAS to mitigate bird strike risk within a flight route.
- Collaboration with the WS Airport Wildlife Hazard Program, the United States Navy, and Purdue University to develop aircraft lighting that will enhance detection of and response to approaching aircraft by Canada Geese, Turkey

Vultures, and Broad-winged Hawks.

Patents

- Philiben, S., and B.F. Blackwell. 2005. A hazard avoidance system. U. S. Patent Serial Number 10/286,570; Letter Patent Certificate No. US 6,940,424, B2, 06 September. U. S. Patent and Trademark Office.
- DeVault, T. W., T. W. Seamans, and B. F. Blackwell. 2020. Frontal vehicle illumination to reduce animal-vehicle collisions. U. S. Patent and Trademark office. Filed 30 October 2019. US Patent Number 16/668,253

Publications

View Dr. Bradley F. Blackwell's publications.

- Shiels, A. B., B. F. Blackwell, S. Beckerman. 2025. A review of small mammal trapping and survey methodologies to maximize efficiency and safety at airports. The Wildlife Society Bulletin. Wildlife Society Bulletin 2025; e1572. https://doi.org/10.1002/wsb.1572.
- Crumpton, J., M. B. Pfeiffer, S. Samiappan, J. A. Elmore, L. R. Jones, B. S. Krishnana, R. B Iglay, E. Fernández-Juricic, and B. F. Blackwell. 2024. Relief displacement of airborne objects. Remote Sensing Letters 15:872-882, DOI: 10.1080/2150704X.2024.2387131.
- Iglay, R.B., L.R. Jones, J.A. Elmore, K.O. Evans, S. Samiappan, M.B. Pfeiffer, and B.F. Blackwell. 2024. The unpublished realities of wildlife monitoring with Unoccupied Aircraft Systems (UAS): a survey of end users. Wildlife Society Bulletin. 136 (1): 17–35. https://doi.org/10.1676/23-00006.
- Jones, L. R., C. Mensaha, J. A. Elmore, K. O. Evans, M. B. Pfeiffer, B. F. Blackwell, and R. B. Iglay. 2024. Heating decoys to mimic thermal signatures of live animals for drone detection. MethodsX 13:102933. doi: 10.1016/j.mex.2024.102933.

Education

- Ph.D., Wildlife Ecology, University of Maine
- M.S., Zoology, North Carolina State University

- B.S., Animal Science, North Carolina State University

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