

## **NED K. Johnson Young Investigator Award, 2008**

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Source: The Auk, 126(1) : 223-224

Published By: American Ornithological Society

URL: <https://doi.org/10.1525/010.126.0102>

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*The Auk* 126(1):223–224, 2009  
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 Printed in USA.

## NED K. JOHNSON YOUNG INVESTIGATOR AWARD, 2008

A. MARM KILPATRICK



A. Marm Kilpatrick, 25 August 2004.  
 (Photograph by Ryan Peters.)

The Ned K. Johnson Young Investigator Award was created to recognize outstanding and promising ornithological research contributions made by persons early in their careers, with the hope and expectation that such individuals will provide future leadership in ornithology within and beyond North America. The AOU is proud and confident of its selection of Dr. A. Marm Kilpatrick as the 2008 recipient of this award.

Kilpatrick studies the impact of pathogens on animal populations, the effects of changes in animal communities on pathogen dynamics, and the spread of animal pathogens to new areas. His work is important, timely, and at the cutting edge of the field, as reflected in extensive media coverage, requests to testify before Congress, and abundant citations of his research. Originally trained as an engineer (B.S., Mechanical Engineering, University of California, Los Angeles; M.S., Mechanical Engineering, Massachusetts Institute of Technology), since graduating with a Ph.D. in Zoology from the University of Wisconsin, Madison, Kilpatrick has become a leading figure investigating the ecology of disease in avian populations.

Kilpatrick's research combines theory and empiricism elegantly and creatively. In a paper published in *PLoS Biology*, he demonstrated that *Culex pipiens*, an important vector of West Nile virus (WNV), shifts its feeding preferences from birds to humans coincidentally with the dispersal of its preferred host, American Robin (*Turdus migratorius*), which leads to increases in human WNV infections. He also developed a novel integrative risk-assessment index, presented in an article in a journal of the Center for Disease Control, *Emerging Infectious Diseases*, and showed that mosquito vector species previously not thought to transmit

WNV to humans appear to be responsible for more than 80% of human infections, which has important implications for wetland conservation. More recently, in a paper in *PNAS*, he used a multifaceted analysis combining virus phylogenies, migratory bird movement, and poultry and pet-bird trade data to predict the past and future global spread of avian influenza (H5N1). This work suggested that invasion of H5N1 into the Western Hemisphere was most likely to come via poultry imports into Central and South America and that its entry into the United States was more likely via natural avian migration from southern neighboring countries, rather than through Alaska.

These studies represent only a small part of Kilpatrick's exceptional level of scholarship in his young career—35 publications in his first seven years. During his Ph.D. work, he investigated the effects of chronic malaria infections on fitness in the endemic Hawaii Amakihi (*Hemignathus virens*) and proposed a novel strategy for the conservation of Hawaii's avifauna in the face of disease and introduced predators. In addition to his work on birds, Kilpatrick is studying the ecology of chytridiomycosis, a fungal disease responsible for extensive amphibian extinctions, and contributed to a critical assessment of the role of chytridiomycosis and climate in the population dynamics of amphibians.

In his new position as an Assistant Professor at the University of California, Santa Cruz, Kilpatrick is examining the role of land use, avian community composition, and climate on the ecology of WNV transmission, the effect of land use on Lyme disease risk, and the impacts of WNV on bird populations. He is also performing a risk analysis of transmission of *Brucella abortus* from American Bison (*Bison bison*) and elk (*Cervus elaphus*) to cattle

in Yellowstone National Park. Kilpatrick has consistently emphasized mentorship as well as scholarship, helping train four graduate students and more than 20 undergraduates, several of whom shared authorship on scientific publications. Moreover, Kilpatrick has been exceptionally successful in garnering financial support for his work, both as a professional scientist and as a student. For these reasons, the AOU is proud to award A. Marm Kilpatrick the Ned K. Johnson Young Investigator Award for 2008.

*Award criteria.*—The Ned K. Johnson Young Investigator Award recognizes outstanding and promising work by a researcher

early in his or her career in any field of ornithology. Candidates excel in research and show distinct promise for leadership in ornithology within and beyond North America. They must have received their doctorate within five years of being nominated, must not have received the award previously, and must be a member of the AOU at the time of nomination. The award, presented for the first time in 2005, consists of a framed certificate and an honorarium provided through a gift to the endowment of the AOU honoring Ned K. Johnson, a lifelong supporter and former President (1996–1998) of the AOU.