**Title.** Agriculture, ecosystem services, and avian conservation

**Organizer.** Dr. Catherine Lindell, Associate Professor, Michigan State University, Department of Integrative Biology/Center for Global Change and Earth Observations, [lindellc@msu.edu](mailto:lindellc@msu.edu), (517) 884-1241

**Invited speakers.**

**Megan Garfinkel**, Graduate Student, University of Illinois at Chicago, [mgarfi2@uic.edu](mailto:mgarfi2@uic.edu), *Can birds provide ecosystem services in North American industrial agriculture?*

**Dr. David Gonthier**, Postdoctoral Fellow, University of California Berkeley, [gonthier.david@gmail.com](mailto:gonthier.david@gmail.com), *Managing the services and disservices of birds in California strawberries*.

**Dr. Julie Jedlicka**, Assistant Professor, Missouri Western State University, [jjedlicka@missouriwestern.edu](mailto:jjedlicka@missouriwestern.edu), *Methodologies to detect avian-induced ecosystem services*.

**Dr. Cagan Sekercioglu**, Assistant Professor, University of Utah, [cagan1@gmail.com](mailto:cagan1@gmail.com), *Conservation of ecosystem services does not secure conservation of birds in a shade coffee landscape*.

**Megan Shave**, Graduate Student, Michigan State University, [megan.shave@gmail.com](mailto:megan.shave@gmail.com), *Nest boxes benefit a declining raptor and ecosystem services in a fruit-growing region*.

**Duration and format.**

Half day. Morning preferred. Regular format.

**Description.**

*Food production activities cover one fourth of the Earth’s land surface* (Millennium Assessment 2005). Investigations that simultaneously explore how birds affect agricultural systems and how agricultural systems affect birds are key to addressing the challenge of maintaining and increasing populations of bird species that provide ecosystem services important to agricultural productivity. This symposium presents recent research relevant to this challenge.

*The specific objectives of the symposium* are to 1) present some of the latest techniques available to document ecosystem services provided by birds; 2) provide attendees with recent information about methods to simultaneously evaluate services and disservices by birds and calculate economic costs and benefits; 3) discuss the interplay of ecosystem service provisioning by birds and bird conservation.

*Research topics.* After investigations under the heading of economic ornithology earlier in the 20th century, a new generation of researchers in the last twenty years has been documenting many of the positive effects birds provide to agricultural systems, often through their consumption of crop pests. The research that will be presented in this symposium addresses the next steps researchers are taking to obtain a more comprehensive and nuanced picture of bird-agriculture interactions. Julie Jedlicka will present her recent innovative work on molecular scatology as a tool to detect crop pest consumption by birds, based on studies in California vineyards. Two of the researchers, Megan Garfinkel and David Gonthier, are simultaneously measuring both services and disservices of birds. Megan works in industrial corn production systems in the Midwest and David works in strawberry fields in California, providing data from different ends of the crop production spectrum. Their work is resulting in more precise quantification of effects of birds on crop production and economic costs and benefits. Cagan Sekercioglu will tackle the issue of whether conservation of ecosystem services and the conservation of birds necessarily co-occur, based on work in a coffee landscape in Peru. Megan Shave will present her work documenting the effects of nest box installation on local population sizes of a declining raptor, the American kestrel, and, in turn, kestrel effects on fruit-consuming birds in Michigan cherry orchards.

Attendees should leave the symposium with increased knowledge about the state of the art in tools and methodologies to quantify ecosystem services and disservices of birds in agricultural systems, and the degree to which, and conditions under which, bird conservation and ecosystem service provisioning may overlap.

*Achieving diversity.*

Our speaker slate includes three women and two men; all represent the new generation of ornithologists and all are doing cutting-edge research in the topic of the symposium. It bodes well for avian biology and AOS that our researchers represent a cross-section of society.

Millennium Ecosystem Assessment. 2005. Ecosystems and Human Well-being: Synthesis. Island Press, Washington, D.C.

**Rationale.**

Interest in ecosystem services has been growing quickly over the last two decades. I searched the Web of Science with the topic “ecosystem services” and found 31 entries for all of 1997. I searched again and found 110 entries for January 2017 alone. Agricultural land-cover types are the focus of many recent investigations, both in the tropics and temperate regions, because of the potential ecosystem services provided by birds through trophic effects (resulting in crop pest management for example), with associated benefits for food production systems. Agricultural land-cover types, however, may also pose challenges for birds because of the simplification of physical structure and biodiversity compared to natural habitats. Investigations of the interactions of birds and agricultural systems, therefore, are critical to understanding the types and value of ecosystem services (and disservices) provided by birds, as well as whether and how particular agricultural systems can play a role in the conservation of birds. This symposium will address these issues with a diverse group of speakers working in several areas of the New World within various agricultural systems. This symposium fits perfectly in the theme of the meeting, Birds in the Anthropocene.