

Agenda

The Insect Apocalypse and the Status of Insects in the Built Environment

S. Waters

Background on insect decline and specifically pollinator decline
Causes of pollinator declines
Impacts of pollinator declines
What we can do and how this applies to landscape decision making

How Pollinators Interact with Landscapes

S. Waters

Diversity of pollinators and pollinator life cycles
Impacts of landscape features on pollinator success

- Nesting habitat
- Floral resources
- Spatial and temporal consideration

How whole communities of pollinators are interconnected with communities of plants

Insects and Native Plants

D. Delaney

Investigating mutualisms, co evolution and floral visitation
Floral rewards from the plant perspective
Floral rewards from the flower visitor's perspective
Preferences: case studies looking at visitation in native plant genera

Ants - Nuisance Pests in and Around Buildings

D-H Choe

Biology of ants
Impact on structure
Management of ants

- Cultural
- Mechanical
- Chemical

Reduced risk IPM (integrated pest management)

Creating Pollinator Habitat

A. Melathopoulos

Recognizing common pollinators
Ten principles for landscaping for pollinators
Managing pests and weeds to promote pollinators
Case studies

- Examples of exemplary pollinator landscapes

Effects of Landscape Design on Vector-Borne Diseases

B. Allan

Impacts of land use on arthropod disease vectors and human exposure risk
Changes in tick- and mosquito-borne diseases along urban-to-rural land-use gradient
Green spaces and other landscape design strategies to mitigate vector-borne diseases

Insects in the Built Environment

Live, Interactive Webinar - Monday, October 26, 2020



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Learning Objectives

You'll be able to:

Describe how human activity, including development and construction, are impacting insect populations.

Take steps to limit the adverse impact of development and construction on insects, including pollinators.

Explain how pollinator communities are interconnected with communities of plants.

Describe the important benefits that native plants have on populations of native insects.

Examine the impact of ant populations on structures, and identify important strategies for managing ants.

Identify the impact of landscape design on the prevalence of insect-borne diseases on humans.



HalfMoon Education Online Learning

Insects in the Built Environment

Live, Interactive Webinar - Monday, October 26, 2020



Learn about causes of pollinator decline

Explore impacts of landscape features on pollinator success

Discuss the impact of ants on structures and explore management options

Review landscape design strategies to mitigate vector-borne diseases

Distinguished Faculty:

Susan Waters, PhD – Center for Natural Land Management
Deborah Delaney, PhD – University of Delaware
Dong-Hwan Choe, PhD – University of California
Andony Melathopoulos, PhD – Oregon State University
Brian Allan, PhD – University of Illinois Urbana-Champaign

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CM | 6.5



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Faculty

Susan Waters, PhD *Center for Natural Lands Management*
Dr. Waters is the Rare Species Ecologist at the Center for Natural Lands Management in Olympia, Washington. Her research focuses on plant-pollinator community dynamics in Puget Trough/Willamette Valley prairies, and on restoration of habitat for rare butterflies. Dr. Waters’ training is in pollination ecology and plant community ecology, with an emphasis on species interactions under climate change. She earned her doctorate at the University of Washington, where her research focused on native-exotic plant interactions mediated by pollinators and the effects of phenological shifting on those interactions. She currently studies how prairie plant-pollinator networks change as sites undergo restoration and as native plant populations rebound. Dr. Waters also co-founded and co-directed the Urban Pollination Project, a citizen science initiative in Seattle that investigated urban land use impacts on bumblebee foraging and urban food production. Dr. Waters is an affiliate professor at the University of Washington-Bothell.

Deborah Delaney, PhD *University of Delaware*
Deborah Delaney is an associate professor in the Department of Entomology and Wildlife Ecology at the University of Delaware where she mentors graduate and undergraduate students working on various aspects of pollinator health and productivity. She teaches Insects and Society, Apiculture, Pollination Ecology, Aquatic Entomology and Bridging Art and Science: Environmental Communication. She has over 30 years of experience working with pollinators, specifically honey bees and maintains between 50- 100 colonies in and throughout Delaware, Pennsylvania and Maryland. Her research program has four main focal areas: 1) genetic identity and diversity of US honey bees, 2) temporal stability of pollinator populations, 3) best management solutions for creating sustainable managed pollinator populations and 4) pollinator nutrition and forage mapping.

Dong-Hwan Choe, PhD *University of California*
Dr. Choe’s research focuses on three major areas: urban entomology, insect behavior, and chemical ecology. In particular, his research has focused on exploring innate and learned behaviors of economically or environmentally important insect species to develop more effective integrated pest management (IPM) programs. Dr. Choe uses manipulative laboratory studies to investigate how the

behaviors of pest insects can be exploited to improve management and to develop novel management techniques. He also uses field studies to test the feasibility of these new techniques in real-world conditions. He draws upon his expertise in behavioral ecology, experimental design, chemical ecology and analytical chemistry to illuminate the biology of target insects, and to inform the design of new approaches for control. In addition to the bioassays involving chemistry, physiology, behavior, and toxicology, the effort to incorporate the behavioral information of target species into the working IPM program often requires extensive design, manufacturing, and testing of devices in the field. To meet these goals, Dr. Choe works with other researchers especially from industries and other academic disciplines when possible. Subjects of current work include chemical ecology of ants, development of new control strategy for pest ants, bed bug chemical ecology, bed bug detection and control, reduced-risk IPM, and development of web-based resource for urban pest management.

Andony Melathopoulos, PhD *Oregon State University*
Dr. Melathopoulos is an Assistant Professor in Pollinator Health Extension in the Department of Horticulture at Oregon State University, which was the first such position in the United States. He also sits on the Steering Committee of the Oregon Bee Project, which coordinates pollinator health work across state agencies, leads the Oregon Bee Atlas and hosts a weekly podcast called PolliNation. In 2018 Andony was recognized with the national Pollinator Advocate award by the North American Pollinator Protection Campaign

Brian Allan, PhD *University of Illinois Urbana-Champaign*
Dr. Allan is broadly interested in the ecology of infectious diseases, particularly diseases transmitted via the bite of an infected arthropod (e.g., ticks, mosquitoes). Much of Dr. Allan’s research focuses upon the consequences of human-mediated global change, such as climate change and human land-use, on the risk of exposure to parasites and pathogens carried by wildlife. While Dr. Allan works on these questions in a wide variety of wildlife communities and disease systems, he is especially interested in understanding the effects of landscape change on the emergence and transmission of tick-borne diseases. He uses a broad array of tools in approaching these questions, including molecular technologies, remote sensing applications, and theoretical modeling.

Webinar Information

Log into Webinar	Break
9:00 - 9:30 am CDT	1:15 - 1:45 pm CDT
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9:30 am - 1:15 pm CDT	1:45 - 5:15 pm CDT

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Registration

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