Ohio Natural History Conference

Biodiversity & Technology: The Future of Natural History

February 27th, 2021
Virtual Event

Conference Abstracts
(Presenters are given in bold)

Keynote Presentation
1. Hunt Brood X – Cicada Safari.
   Dr. Gene Kritsky – Dean of Behavioral and Natural Sciences Mount St. Joseph University

2. How Ornithologists Use Technology to Study Bird Migration.
   Andy Jones, PhD. William A. and Nancy R. Klamm Chair and Curator of Ornithology, Cleveland Museum of Natural History

3. From bits to terabytes: How small community science contributions result in big conservation success.
   Matthew Shumar, Program Coordinator. Ohio Bird Conservation Initiative.

   Birders in the U.S. have contributed to citizen science for more than 100 years with the Christmas Bird Count, and beginning the in the 1960s, programs such as the Breeding Bird Survey (BBS) and statewide breeding bird atlases brought new opportunities for birdwatchers to contribute to the study and conservation of bird populations. The BBS has become a landmark effort, generating population information for more than 400 species in North America, and providing data used in thousands of peer-review scientific publications. BBS volunteers are required to be seasoned birders with an in-depth knowledge of the vocalizations of local avifauna, so there is some barrier to entry. In 2002, a new collaborative effort between the Cornell Lab of Ornithology and the National Audubon Society brought opportunities for birders of any skill level to contribute to our understanding of bird distributions. This project, eBird, has become one of the largest databases on biodiversity in the world. By the end of 2020, eBird had grown to over 915,000,000 observations, including 169,000,000 that were submitted in the pandemic-year alone. eBird now makes up over 43% of all data in the Global Biodiversity Information Facility and has provided new insight into species distributions, spatial movements and population trends, and spawned a number of important conservation successes. The best part about eBird is that virtually everyone can participate.
4. **Using a Citizen Science App (Tree Health Survey) to Track Beech Leaf Disease.**  
    **Dan Volk**, Forest Health Project Coordinator. Cleveland Metroparks

    Learn how citizen scientists have been contributing knowledge towards beech leaf disease, an emerging threat to forest health. With a smartphone app called Tree Health Survey, users can help determine the extent of this deadly disease.

5. **Emerging uses of Drones for Forest Health.**  
    **Alistair Reynolds**, Invasive Species Forester Ohio Department of Natural Resources; Division of Forestry

    The Division of Forestry started experimenting with drones in 2014 and has been using them on State and private lands since. Learn how the DOF use drones to monitor forest health and track tree diseases such as oak wilt and White pine decline, as well as invasive plant detection, remote sensing, and how do drones fit into the bigger picture of remote sensing in forestry.

6. **Entomology field work during Covid: challenges and successes.**  
    **Emily Franzen**, Research Associate, Xavier University

    During the 2020 field season we were able to employ several undergraduates and perform field work with some minor modifications. We altered schedules, changed the lab setup, and reduced contact inside to a minimum to allow us to collect data in our field experiments. We were able to complete four different experiments during the summer with minimal disruption to our plans.

7. **Ohio Eastern Massasauga Rattlesnake Surveys: Tin, VES or AHDriFT Camera Traps?**  
    **Evan D. Amber**, Graduate Student. The Ohio State University

    The Eastern Massasauga Rattlesnake (Sistrurus catenatus) is Federally threatened. The Ohio Conservation Plan: Massasauga (2017, v.1.0) includes visual encounter surveys (VES) and artificial cover (corrugated tin) surveys, which require intensive field effort (~25 visits). The Adapted-Hunt Drift Fence Technique (AHDriFT) is a relatively new low-effort camera trapping method for ectotherms and small mammals, but has not been applied to Massasauga. We deployed Y-shaped AHDriFT arrays in fields with known Massasauga populations from March – October, 2019 (12 arrays, plus three in non-Massasauga fields) and 2020 (15 arrays). In 2019, we compared arrays to prior VES and tin surveys. In 2020, we evaluated concurrent tin and AHDriFT surveys and assessed detection covariates. Arrays obtained a total of 206 EMR detections, 2 – 4 times that of traditional methods. In 2019, arrays detected 0.48
snakes/person-hour, surpassing prior VES (0.11 snakes/person-hour) and tin surveys (0.28 snakes/person-hour). In 2020, arrays exceeded tin catch-per-person-hour by at least 2.6 – 6 times. Weekly array detection probability equated to maximum tin (1.5 – 2 tin/ha) detection probability per survey (0.5) using only 1 array/\sim 15 ha. Additional arrays increased weekly detection probability to 0.6 – 0.9. However, arrays have lower weekly detection probability (0.1 – 0.4) in sites with sparse Massasauga populations, so if these data are generalizable warrants further study. Arrays were most effective from July – October, requiring as few as four field visits for 12 weeks of camera trapping. Optimal array placement is in dense vegetation away from predator perch trees. Overall, AHDriFT was more effective than traditional methods for Ohio Massasauga surveys.

8. Restoration of Lake Sturgeon to the Maumee River

Matt Cross, Conservation Biologist. The Toledo Zoo.

Lake Sturgeon (*Acipenser fulvescens*) were once abundant in Lake Erie, which boasted the largest population in all the Great Lakes. However, by the mid-1900’s these numbers declined rapidly to the point where sturgeon were considered extirpated from 90% of their historic spawning rivers. Recently, a massive collaborative effort on the Maumee River began raising and releasing Lake Sturgeon to bolster and stabilize the remaining population. To date, these efforts have involved the release of \sim 6,000 Lake Sturgeon into the river, and tracking movement, growth and survival with PIT tags and acoustic telemetry.