



First Ives Lake Conference Fosters Scientific Collaboration

By Jill Riddell

In September, the Huron Mountain Wildlife Foundation hosted fifteen field scientists at the first scientific conference ever held at the Ives Lake Field Station. This small, informal conference provided a forum for HMWF-sponsored researchers from different disciplines to learn about one another's work and to hear about discoveries and data-sets that potentially could shed light on their own research at the Huron Mountains.

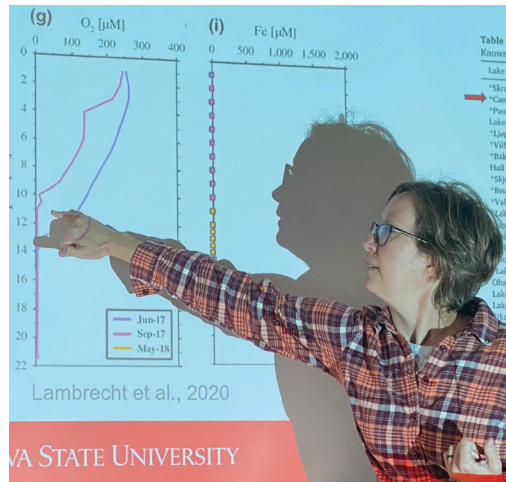
The conference succeeded in forging promising connections among researchers and generating mutual familiarity with the wide breadth of Foundation-supported research projects. This is important because while the Ives Lake station hosts around 25 research teams in an average season, groups often don't overlap much. While most conference participants had made multiple visits, they were mostly unfamiliar with projects being conducted by other researchers and the potential for cross-fertilization. "We've been conscious of this all along," says Kerry Woods, director of science for the Foundation. "Investigators come from many different institutions and typically

are in residence at the field station for only one or two weeks each year, so their opportunity to acquire broad knowledge of what's going on in the Huron Mountains is scant. Opportunities for collaboration on exciting, emergent integrative work get missed."

An overlapping second objective for the conference was to raise awareness of HMWF's program among other field stations and research organizations of the Upper Great Lakes region and to foster future networking. Representatives from several major regional research stations participated in the conference. These included Directors or Assistant Directors of the University of Michigan Biological Station, the University of Notre Dame Environmental Research Center, and the University of Wisconsin Limnological Station at Trout Lake. Several members of the HMWF Board joined the group for all or part of the conference.

The large living room of the Thorpe House (formerly the "Red House") was a congenial facility for semi-formal sessions of research presentations. Work-rooms at the Stone House made an elegant





dining venue, and the Stone House porch overlooking Ives Lake was ideal for informal discussion and brainstorming before and after dinner. Discussion sessions focused on networking possibilities, management of data-sets, and a range of issues common to research field stations.

But site visits are always a high point when field-based researchers get together. “Academics in the natural sciences tend to feel closer to the heart of science when talking about research questions and findings in the midst of the system that’s being studied,” said Woods.

Groups of conference attendees visited sites along the Salmon Trout River, where several participants have projects addressing questions about population biology and ecosystem function; to the old-growth forests which host some of the longest-term permanent-plot studies of forest dynamics in eastern North America; to Canyon Lake where current researchers focus on the biogeochemistry of this unique meromictic lake; to a decade-old deer enclosure; and to the Fisher Creek area to view long-term study sites focused on the population dynamics of white pine in old-growth forests.

“This ‘First Ives Lake Research Conference’ focused on long-term studies in terrestrial and aquatic systems of the Huron Mountains,” said Woods. “We hope that this collegial weekend results in intensive cross-pollination of ideas, and will catalyze new, collaborative initiatives.”

Discussions are already afoot for planning the Second Ives Lake Research Conference, perhaps in 2024. Potential themes include biodiversity studies in pristine landscapes; the research value of “reference ecosystems” such as the Huron Mountains; or a focus on paleoecological and dendrochronological studies.

SCIENTISTS SPEAK ON THE EXPERIENCE

“It was interesting to meet folks whose work I had heard of for years, but that I had never crossed paths with at the field station. The format made me appreciate the diversity of unique habitats within the HMC property, and to think more deeply about how our study sites can be used as both a reference for past conditions and also sentinels of ongoing global change. Plus, the food was awesome!” **from Amy Marcarelli (Michigan Tech, Professor of Biology and Director Ecosystem Science Center)**

“Experiencing the Ives property and hearing the science stories about the area was exciting. Getting to spend this time as part of the research community helped me see how we can connect science activities across field stations in Michigan and the Midwest. Building these connections makes our individual, placed-based research more impactful.” **from Aimee Classen (Professor of Ecology and Director University of Michigan Biological Station)**



HMWF Annual Meeting 2022

For those unable to attend the August 2 annual meeting of the Wildlife Foundation, I’ll report on the two high points: the presentation of the William and Anne Manierre Award, and the main speaker for the afternoon.

The Manierre Award was endowed in recognition of the Manierre’s long-time support of the Foundation’s work. It honors a researcher for a paper published recently in the peer-reviewed literature. It was first awarded in 2000, and has been awarded every year since 2007. This year’s award went to Dr. Dennis Riege for his 2021 paper, “The versatile role of *Pinus strobus* within the composition and structure of permanent plots in five mature mixed forests of the Upper Midwest U.S.A.,” published in *The American Midland Naturalist*.

Understanding dynamics of *P. strobus* (white pine) in old-growth forests remains an ecological challenge. While the species is an important part of the structure of many stands—including in the Huron Mountains—it lacks the tolerance of shade that hemlock and sugar maple have, so it is unclear how and when new individuals are established. Riege used long-term monitoring of pine seedlings and saplings in several large plots, first established in 2006 near Fisher Creek, along with plots in several other old-growth remnants, to gain insight into population dynamics of white pine.

Riege’s studies demonstrate the potential and value of cross-fertilization among HMWF-sponsored research studies. One of his plots serves as a “control” for the long-term deer-fencing experiment conducted by Dr. Don Waller of the University of Wisconsin; the baseline it provides adds to the power of Waller’s experiment. Riege’s work also adds to earlier studies of white pine in the Huron Mountains; notably, Dr. Robert Fahey won the 2013 Manierre Award for his work using studies of tree-cores to understand population dynamics of white pine.

The featured speaker for the meeting was Dr. Jalene LaMontagne of DePaul University. LaMontagne and her collaborator and former student, Abigail Leeper, were last year’s Manierre Award winners. LaMontagne returned in 2022 to talk about the ongoing project that produced her award-winning papers. Every year since 2012, LaMontagne and her students have been studying the “masting” behavior of white spruce, initially in several sites in the upper Midwest (near the species’ southern range limit) and subsequently across the continent. “Masting” refers to the habit of synchronized production of massive cone and seed crops, alternating with one to several years of very little cone production.

LaMontagne’s work documents strong, population-wide masting synchrony in white spruce – but, curiously, at each event, some individual trees break away the synchronous behavior. Extensive analysis of soil properties and annual weather patterns at the Hurons and elsewhere suggest that this behavior is largely cued by climate variation.

More recently LaMontagne’s analyses have expanded to include datasets from across North America (white spruce is an important boreal forest tree across the continent), and those results strengthen the notion that the behavior is climate-driven. Mast years show marked correspondence to different climate patterns in different parts of the species’ range. This work has been productive, leading to a number of collaborations between LaMontagne and other researchers, which has gained support from major funding organizations. LaMontagne’s work at the Hurons has, for the last several years, been fully support by National Science Foundation funds.

Caption here.



Data-Sets Added to the List of Results from HMWF Researchers

By Kerry Woods

The 2022 list of research “products” from HMWF-supported research includes papers published in peer-reviewed journals, theses, and presentations at regional and national meetings. This quantity in the last category remains low as the number of in-person conferences is still suffering somewhat from the suppressive effect of Covid-19. Theses and papers will be added to the list available at our website (www.hmwf.org) under the “Research Reports” tab; DOIs (digital object identifiers) provide links to on-line versions of these publications. An increasing proportion of these publications is “open-access,” so you’ll find you can access the full paper without a subscription or other payment. Publications that are not open-access are typically available by requesting a copy from the author.

This year, I’m introducing a new category of “products” to our website and to this summary. Increasingly, primary datasets, archived in online repositories, are being treated as publications in their own right. In fact, most journals now require researchers to archive the original data on which the articles are based. This practice is well-established in some fields, like genetics. In the field sciences supported by HMWF, long-standing repositories exist for dendrochronological (tree-ring) data and paleoecological data (pollen, charcoal, etc. From lake sediment cores), but new vehicles, like the “Environmental Data Initiative,” provide a broader and

more flexible platform for diverse researchers to permanently archive original data with “metadata” to support potential future users.

Along with other research-sponsoring organizations, HMWF now requires researchers to publicly archive original datasets. The archive process can allow for a reasonable “embargo” period, during which researchers originating data-sets can have exclusive access to data-sets, include original collectors as co-authors on any resulting publications, etc. But the advantage of permanent archiving is that the baseline or comparative data will never be lost to the research community. This is important. All of us in the natural sciences have experienced the dire feeling when we search for something and discover that an essential and irreplaceable data-sets has been lost because a researcher retired or died. It’s heartbreakingly common to discover paper files or digital files were either disposed of or have become uninterpretable. I will not drag this out with personal stories of close calls or disasters, but there are many!

We are just beginning to compile information about datasets that are or will become available. I list a few examples here, and more will be appearing on our website. But I am quite confident that their existence will support future integrative analyses and “metanalyses” that would not otherwise have been possible.

THESES AND BOOKS

Fleissner, E. R. 2021. Investigating the Changes in Fish Behavior in Response to Anthropogenic Sound. MS Thesis, University of Minnesota-Duluth.

Gorring, P. 2019. Gene to Genus: Systematics and Population Dynamics in Lamiini Beetles (Coleoptera: Cerambycidae) With Focus on Monochamus Dejean. PhD Thesis, Harvard University.

Lambrecht, N. L. 2019. Insights into early Earth ocean biogeochemistry from intensive monitoring of two ferruginous meromictic lakes. PhD Thesis. Iowa State University.

Warner, S.M. 2021. Tree Rings and Climate in the Great Lakes Region—Past, Present, and Future. PhD Thesis, Michigan State University.

Werner, Thomas, Tessa Steenwinkel, and John Jaenike. 2018. The Encyclopedia of North American Drosophilids Volume 1: Drosophilids of the Midwest and Northeast. <https://digitalcommons.mtu.edu/oabooks/1>

PEER-REVIEWED PAPERS

Houghton DC, DeWalt RE, Hubbard T, Schmude KL, Dimick JJ, Holzenthal RW, Blahnik RJ, Snitgen JL. 2022. Checklist of the caddisflies (Insecta: Trichoptera) of the Upper Midwest region of the United States. *ZooKeys* 1111:287-300. <https://doi.org/10.3897/zookeys.1111.72345>

Houghton DC. 2022. Comparison of caddisfly (Insecta: Trichoptera) assemblages from different habitat types of the Huron Mountains of Michigan, USA. *ZooKeys* 1111:267-286. <https://doi.org/10.3897/zookeys.1111.70195>.

Lafferty DJR, McKenney EA, Gillman SJ, Kailing CD, Walimaa MC, Kailing MJ, et al. 2022. The gut microbiome of wild American marten in the Upper Peninsula of Michigan. *PLoS ONE* 17(11): e0275850. <https://doi.org/10.1371/journal.pone.0275850>

Mancuso J., E. Messick and S.D. Tiegs. 2022. Parsing Spatial and Temporal Variation in Stream Ecosystem Functioning. *Ecosphere* 13 (8), e4202

Spicer, M.E., H. Mellor, W.P. Carson. 2020. Seeing beyond the trees: a comparison of tropical and temperate plant growth forms and their vertical distribution. *Ecology*, 101: e02974

U’Ren, J.M., F. Lutzoni, J. Miadlikowska, N.B. Zimmerman, I. Carbone, G. May, A.E. Arnold. 2019. Host availability drives distributions of fungal endophytes in the imperilled boreal realm. *Nature Ecology & Evolution* 3:1430-1437 <https://doi.org/10.1038/s41559-019-0975-2>

CONFERENCE PRESENTATIONS

Mancuso, J., E. Messick and S.D. Tiegs. 2022. “Parsing Spatial and Temporal Variation in Stream Ecosystem Functioning” Joint Aquatic Sciences Meeting (JASM). Grand Rapids, Michigan, USA.

Murchie KJ and PB McIntyre. 2022. Suckers for suckers: volunteers collect migration phenology data and advocate for conservation. Joint Aquatic Sciences Meeting. Grand Rapids, Michigan, USA.

Quincy Santomieri, Kristian Gacgacao, Madeleine Naliwko and Xiaoyong Chen. 2022. Effects of invasive earthworms on Huron Mountain Forest Soil Composition. 2022 Illinois LSAMP Symposium, Chicago, Illinois, USA.

PUBLISHED DATA-SETS

(some examples; more at <http://www.hmwf.org/archives/data/>)

Dye, A. 2020. Two sets of tree-ring measurements from Rush Lake and Mountain Lake areas, available from the NOAA National Centers for Environmental Information. <https://doi.org/10.2592/1807-rk54>. and <https://doi.org/10.25921/qn3b-ed56>

Jackson, ST, JJ Andersen. 2005. Several data-sets of pollen from lake sediment cores, Lake Ann: <https://data.neotomadb.org/48906> <https://data.neotomadb.org/48907> <https://data.neotomadb.org/48908> <https://data.neotomadb.org/48909>

Lambrecht, N., S. Katsev, C. Wittkop, S. J. Hall, C. Sheik, A. Picard, M. Fakhraee, and E. D. Swanner. 2019. Biogeochemical and physical controls on methane fluxes from two ferruginous meromictic lakes. Environmental Data Initiative. doi:10.6073/pasta/58e69641730756555069631ebc687a61

Stambaugh, M.C. and others. 2013. Fire histories from four sites (Burnt Mt., Mt. Lake area, Rush Lake area, Pine Lake and River area), reconstructed from burn scars on red pine stumps and snags, available from the NOAA National Centers for Environmental Information. <https://doi.org/10.25921/as9h-xf43>, <https://doi.org/10.25921/5vmj-7b11>, <https://doi.org/10.25921/k6zw-8p94>, <https://doi.org/10.25921/4zyv-1y19>

Kerry Woods. 2014. Long-term tree demography in old-growth forests of Huron Mts, MI from permanent-plot censuses, 1962-2009. Knowledge Network for Biocomplexity. doi:10.5063/F1PC3085.

DONATIONS WELCOME

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Photo by Bill Thompson/USFWS

How Porcupines Have Fared in the Hurons

By Jill Riddell

Porcupine populations throughout North America currently are stable, including in the Upper Peninsula, but that wasn't always the case. In the 1800s, timber cutting and changes in forest cover were rough on porcupines—but were even harder on fishers, the species most likely to prey upon porcupines.

In addition to losing habitat, the number of fishers dropped because trappers caught fishers and sold the pelts to furriers. By the 1930s, fishers were completely extirpated from the U.P. The last confirmed sighting of a fisher was in 1936, in Marquette County. Without fishers present to keep porcupine numbers in balance, porcupine populations surged. In the late 1950s, the density at Ottawa National Forest was 23 porcupines per square kilometer.

Land managers disliked porcupines because they feed on trees. Plus, it was hard for woodsmen not to take it personally when porcupines pursued their passion for salt: at the Huron Mountain Club, porcupines gnawed on sweat-soaked gloves, boots dusted with road salt, and the handles of oars left in boats. In the 1960s, systematic shooting and trapping of porcupines was initiated and carried out on the Club property. At that point, forest land managers weren't aware of the important role porcupines play in promoting forest structure and diversity.

By the late 1950s, small numbers of fishers were live-trapped from their last remaining site in Minnesota and reintroduced in the Adirondacks. Anecdotal evidence at that time suggested that bringing fishers back decreased porcupine populations. By the 1960s, fashion trends had moved away from fisher pelts and toward the pelts of spotted big cats like leopards. The decrease in fisher trapping combined with deliberate fisher introduction in more states, including Michigan,

HURON MOUNTAIN WILDLIFE FOUNDATION



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Since 1955, the Huron Mountain Wildlife Foundation has supported original research in a wide variety of scientific fields. The research takes place in the Upper Peninsula of Michigan. More information on the Foundation can be found at: www.hmwf.org

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eventually reestablished fishers to the North Woods. By 1989, fishers went from having the conservation status of extirpated to one of being abundant.

As for porcupines in the Huron Mountains: they're here, though infrequently spotted. In one healthy forest in Minnesota where studies were conducted, within each square mile there were several porcupines. That may well be true here. They're no longer endangered anywhere in their range.