



## Scientists and Artists Collaborate in the Huron Mountains

By Declan Spring

Five years ago, Lynn Keller, a literary scholar specializing in Ecopoetics and Director of the University of Wisconsin's Center for Culture, History, and Environment dreamed up the idea of a collaboration between humanists and scientists. She reached out to Anne Pringle, a world-renowned mycologist known for her research on the immortality of fungi. "Anne was an exciting scientist, but also someone who I knew could interact with the humanists because of the immortality aspect," says Lynne.

In September 2017, Lynn and Anne were joined by the acclaimed printmaker Emily Arthur, the Pulitzer-prize winning poet Forrest Gander, and some of Lynn, Emily, and Anne's grad students (including Daniel Levitis, a scientist in Pringle's lab and Adriana Barrios, an artist whose multimedia works offer visual responses to scientific fieldwork). The group drove up from Madison, Wisconsin, to the Huron Mountain Wildlife Foundation's Ives Lake Research Center. Their plan was to explore the woods and identify fungi and lichens in the wild, and to see how humanists and scientists can help each other see differently.

And, perhaps, as a result of this venture, to produce some new creative work.

This remarkable collaboration was uplifting for everybody involved, and hopefully will be for the public that receives the artistic gifts that emerged from the convergence of science and the art.

"There was a holistic connection through our interests and perspectives," Anne said. "We walked around the land and learned about mushrooms and lichen. It took us an extremely long time to



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cover ground, we were looking at so much stuff.”

Forrest spent a significant amount of time with the lichens. “It was eye opening to me to see how common these species are,” he said, “And how little I noticed them before. They’re everywhere.”

White and deadly fungi called “destroying angel” (in the genus *Amanita*) are of particular interest to Anne. These were observed and studied —as were lungworts, a type of lichen sensitive to air pollution. It lives in abundance in the clean air of the Huron Mountains.

In the evenings, the collaborators had dinner and conversations, and examined the finds of the day. Mushrooms were identified by examining their overall structures, caps, stems, and their colors and markings and gill patterns. This was undertaken on large tables in the Stone House. Mushrooms were dried in a Snackmaster food dehydrator, and prints were made of the mushrooms’ microscopic spores by placing them upside down on white paper until the spores’ pattern and color emerged.

Identification wasn’t always easy, and in addition to the assistance of plenty of books, required much consultation and conversation. “The fungi were often indistinguishable, but what I’ll never forget was seeing these brilliant turquoise specimens come in,” Lynn Keller noted.

The artistic results of this gathering are both substantive and diverse. Forrest produced a stunning series of poems about lichen called “Twice Alive,” which appears in his new book of the same name, published by New Directions. In Forrest’s poems, he links

the symbiotic and transformative relationships between species that compose lichen with human intimacy. Here’s the opening stanza:

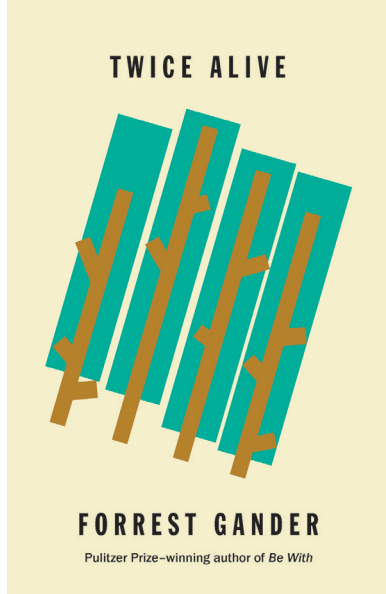
“mycobiont just beginning to **en wrap** photobiont, each to become something else, its own life and a contested mutuality twice alive.

Emily Arthur, a progressive American printmaker, cast mushrooms in wax and created gorgeous bronze mushrooms, a painstaking process involving coolers of ice and ceramic molds through which the liquefied bronze was poured. In March 2018, in an exhibit at the University of Wisconsin, the objects were displayed on pedestals, with the “Twice Alive” poems, cut in vinyl letters, installed on the gallery walls. There were also events including a lively reception and a panel discussion between the collaborators.

And finally, perhaps the seminal creation, is a limited edition artist’s book. The bronze mushrooms, patinaed and finished, will



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be embedded in a cushion of green moss, and placed in a linen box with Forrest's "Twice Alive" printed using the letterpress technique. Daniel Kelm, an award-winning bookbinder from Easthampton, MA, known for distinctive work, is building the boxes and binding the pages of the book hand-painted by Emily (there are twenty-one pages in all, with an oversized fold-out of natural history notes by Anne Pringle). The book, which isn't yet completed, will be professionally printed and constructed by other collaborating artisans in the Easthampton area.

"In the contemporary art world," Emily noted, "the concept of the *artist's book* is a collaborative and interdisciplinary art object." It will be sold to collectors and libraries that specialize in artist's books.

"The humility in studying and working in this space together was really significant," Emily added. "It was an exciting path to follow that keeps expanding out."

"What came out of this," Anne Pringle said, "is joy."

#### ***Some Additional Notes on the Project:***

*Dr. Dan Levitis (who's mentioned in the essay) was the original connection for this project, and it was who suggested going to the Huron Mountains. A decade earlier, Dan had visited the Ives Lake Field Station with Kerry Woods when he was an undergraduate at Bennington. He was an undergraduate field assistant. Dan subsequently went on to get a PhD at UC-Berkeley.*

*Anne Pringle is continuing her research at the Hurons again this fall, where she'll be conducting a more intensive study of the genetics and taxonomy of the 'Amanita virens' (destroying angel) complex of mushroom species. Anne believes there's considerable unrecognized diversity within the North American group.*

## **ALL ARE WELCOME!**

**Annual Meeting**  
**August 3, Tuesday**  
**4:00 p.m.**

The Playhouse  
&

**Bonus:** This year also come to the Big Party, Wednesday, at Ives  
(See back page of this newsletter for details)

### **Keynote Speaker**

**Karen J. Murchie, Ph.D., Director of Freshwater Research**  
**Daniel P. Haerther Center for Conservation and Research**  
**John G. Shedd Aquarium in Chicago, Illinois**

"The Fishcademy Awards – Role of Best Supporting Fish  
Goes to Sucker"

This year, Karen Murchie will be talking about *Catostomidae*, a type of fish known in English by the woefully unflattering name of "sucker." Murchie's study of suckers in rivers of the Huron Mountains is part of a much larger effort to document fish migrations across the Great Lakes tributaries. Suckers were chosen by Murchie because they are abundant and easy to spot.

"And, besides," says Murchie, "Suckers are awesome. They come in runs of fish in the tens of thousands in some locations. We call them the wildebeests of the Great Lakes."

Research director Kerry Woods will discuss the year's projects, and the annual Manierre Award will be presented.





# HMWF Research Projects in 2021

By Kerry Woods

The 2020 season at the Ives Lake Research Station was relatively quiet because so many researchers postponed coming because of the COVID-19 pandemic. A late opening, low user densities required to minimize infection risk, and restrictions in place at researchers' home institutions resulted in a number of projects being deferred in whole or in part. The 2020 'user-day' count was lower than usual.

However, thanks to the cooperation and flexibility of researchers and the efforts of Brock, the station manager, in scheduling and sanitizing, we were still able to have a small but productive season. There were no cases of COVID.

Although COVID is still affecting the plans of some of the research community, 2021 will be a very busy year at Ives Lake. Delayed projects are coming back on-line as COVID-related restrictions are relaxed and these, added to the usual collection of continuing and new projects, may result in our busiest research season ever. We will have 27 projects underway, with 45 lead researchers arriving from 30 different institutions.

## *Synopsis of projects, along with some context*

HMWF, with over 65 years of research history and a world-class, protected 'reference ecosystem' as research area, is particularly well-positioned to promote the sort of long-term studies that are critical to understanding the dynamics of global change and many current studies exploit this value. Several exploit 'heritage' data-sets from prior work. Researchers from the lab of **Dr. Scott Robinson (University of Florida)** are examining changes in breeding bird communities by replicating and expanding on the work of Kielbaso et al. from 1997-1999. **Dr. Cody Thompson (University of Michigan)** continues studies assessing the potential for hybridization between northern and southern flying squirrels following the general replacement of the former by the latter in the upper Midwest, first documented at the Huron Mountains by Dr. Phil Myers in HMWF-sponsored studies two decades ago.

While it is logistically daunting, in today's scholarly world, to undertake studies with decade-plus time-scales, HMWF enables researchers to initiate studies planned for unusually long periods. Another group of ongoing projects falls in this category. **Drs. Fritz Nelson (University of Delaware and Northern Michigan University)** and **Ken Hinkel (University of Cincinnati and Michigan Tech.)** are in the 17th year of monitoring microclimatic patterns and lake thermal budgets and have begun supplementing their project with models of snowpack dynamics. **Dr. Dennis Riege (retired from University of Maryland)** has sustained studies of forest dynamics, with a focus on white pine regeneration, over 16 years, yielding new insights into properties of old-growth forests. **Dr. Jalene LaMontagne (DePaul University)** has crossed the decade mark in her long-term studies (currently funded by the National Science Foundation) of reproductive dynamics of white spruce, a boreal species in the southern part of its range.

**Dr. Don Waller (University of Wisconsin)** is lead investigator in an 11-year (so far) experiment using 'exclosures' to assess the effects of large deer populations on forest ecosystem properties (this project follows up on questions raised by Aldo Leopold in his consulting visit to HMC in the 1930s, and makes use of Dennis Riege's study as a 'control'). **Drs. Walter Carson (Pittsburgh University)** and **Rose Marie Muzika (Carnegie Museum)** are in the 6th year of a planned decade-plus study that focuses specifically on the effects of deer herbivory on forest understories and on the potential for restoration of plants depleted by deer.

Aquatic ecosystems host their share of long-term studies. **Dr.**

**Donna Kashian (Wayne State University)** continues regional comparative monitoring of stream invertebrate communities begun in 2008. **Dr. Karen Murchie's (John G. Shedd Aquarium)** study of the timing of sucker spawning migrations has been maintained for "only" five years, but follows earlier work at the Huron Mountains and throughout the upper Great Lakes to allow assessment of long-term changes.

A different approach to understanding long-term patterns of change in pristine ecosystems uses what researchers call 'proxy' data. Since the 1970s, HMWF researchers have, for example, used patterns of organic remains in lake sediments ("paleoecology") and changes in growth rates of trees as recorded in annual growth rings ("dendrochronology") to yield information about ecosystem and climate history. Two current projects continue this thread. **Dr. Steve Voelker (SUNY-Environmental Science and Forestry-Syracuse)** recently published results of earlier work using white pine growth patterns to reconstruct winter conditions over several centuries, and is now using tree-ring sequences from ancient submerged logs in Huron Mountain lakes, hoping to extend the tree-ring and climate records further back in time. This project is complemented by a newer project led by **Dr. Evan Larson (University Wisconsin-Platteville)** and **Dr. Daniel Cziczko (Purdue University)** using tree-ring studies from a broader set of species, both living individuals and logs preserved by submersion in lake waters, to add detail and depth to climate reconstructions.

Other studies, while not explicitly taking a long-term perspective, rely on the 'reference ecosystem' value of Huron Mountain Club lands. Because of its secure protection in relatively pristine condition, this landscape affords an opportunity to study how natural systems work with minimal human intervention and, equally importantly, provides a comparative 'baseline' for assessing how human activities have altered ecological processes in other systems. However, indirect effects of human activity encroach even in protected landscapes in forms like global climate change, atmospheric pollution, and establishment of non-native species.

Several studies attempt to pin down the consequences of such impacts in the Huron Mountain landscape. **Dr. Cory McDonald (Michigan Tech. University)**, in a new project, is assessing effects on lake systems of increasing atmospheric deposition of biologically available nitrogen – an important nutrient. **Dr. David Costello (Kent State University)**, follows up on earlier work with a new, National Science Foundation-funded project, assessing how deposition of trace metals affects stream ecosystem function. **Drs. Xiaoyong Chen and Mary Carrington (Governor's State University of Illinois)** are studying the effects on soil structure and ecosystem function of invasive earthworms in forests of the Huron Mountains. **Dr. Tara Bal (Michigan Tech University)** is initiating another study of earthworms, focusing on their effect on health of sugar maples. (Both of these studies build on earlier earthworm research by Dr. Erik Lilleskov.) Several of the long-term studies already mentioned are specifically concerned with understanding the regional effects of global climate change. Additionally, work by a multi-institutional team led by **Dr. Jeff Atkins (Virginia Commonwealth University)** uses modern instrumentation to assess how trees in old-growth forests respond physiologically to increasingly common extreme heat events, potentially informing projections of forest change.

Projects addressing more specific conservation questions include a new project undertaken by **Dr. David Flaspohler** and **grad student Ryne Rutherford (Michigan Tech. University)** assessing effects of recreational usage of 'granite bedrock glades (or balds).' The pristine examples of this

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rare, regional community type at the Huron Mountains provide an essential comparative baseline for their work. **Dr. Casey Huckins' (Michigan Tech. University)** long-term studies of 'coaster' brook trout in the Salmon Trout River have transitioned to more directly conservation-oriented activities, and HMWF is supporting his monitoring of the effects of spawning habitat restoration on both fish and macroinvertebrate communities.

As usual, several studies focus on documenting biodiversity of the Huron Mountain landscape. This year, **Dr. Anne Pringle (University of Wisconsin-Madison)** continues work with fungi, focusing on better understanding of taxonomic diversity among a group of *Amanita* ("destroying angel") mushrooms. **Dr. Stephen Kolomyjec (Lake Superior State University)** is initiating a survey of freshwater sponges in the region. **Dr. Susan Knight (University Wisconsin – Center for Limnology)** continues intensive surveys of aquatic plant communities. **Dr. Thomas Werner (Michigan Tech. University), Dr. Jim Bess (Northland Environmental Services), and Dr. Patrick Goring (Michigan State University)** continue surveys of several insect groups (moths, fruit-flies, leafhoppers, beetles) that have already add several hundred species to the overall inventory of biodiversity for the region. While the immediate motivation for these studies is contribution to the ongoing (and never to be complete) inventory of the region's biodiversity, one of their greatest values may be in providing baselines against which future changes can be assessed (Goring's project, for example, includes long-term tracking of relative abundance of several species of 'pine sawyer' beetles).

Two final projects are systems-level studies exploring how complex linkages among biological and geophysical factors regulate whole-system properties. **Dr. Rachel Headley (University Wisconsin-Parkside)** and colleagues are modeling how geological and hydrological variation interact, through effects on sediment properties, to affect biological properties of aquatic and streamshore communities (with particular focus on Odonata – dragonflies and damselflies) along the Salmon Trout River. **Dr. Elizabeth Swanner (Iowa State University)** and **Dr. Chad Wittkop (Minnesota State-Mankato)** are in the seventh year of an NSF-funded project exploring the

unique biogeochemical properties of Canyon Lake, where the permanently stratified deep waters exhibit characteristics shared by few modern water-bodies but, perhaps, echoing conditions in the oceans of Earth's early history.

The great diversity of current and recent research projects sponsored by HMWF – dealing with questions related to insect population studies, microbial genetics, geochemistry of lakes, ecosystem function of old-growth forests, and much more – speaks to the great and broad value of the Huron Mountain landscape as a research area. This value has been long appreciated.

More recently a strong, common thread to many of the projects proposed to HMWF has emerged with increasing clarity in recent years, and that is a focus on understanding long-term processes of change. Ecologists and other natural scientists are deeply aware that natural systems have always been dynamic on decade- and century-scales while, and understanding these natural dynamics has become increasingly urgent with the advent of accelerated, human-driven change in all ecosystems.

Few research areas can match the Huron Mountains landscape as a 'laboratory' for the study of system change with minimal direct human influence; this 'reference ecosystem' value provides a basis for comparison with areas with more complex histories of human influence, and a sort of experimental control for better understanding natural processes. Even fewer scenarios exist where researchers can work with a rich, decades-deep archive of data-sets from past studies, and have the support and security required for initiation of new long-term studies.

Combined, these factors create in the Huron Mountains a near-unique potential for critical research into the function of natural systems of the Great Lakes region, and awareness of that potential has spread broadly in the scientific community. This value might not have been anticipated by the founders of the Huron Mountain Club, but it is a consequence we can comprehend now as we appreciate the continued support of the Club and of the many donors who have supported the research program of the Foundation.

# Gala at Ives Lake on August 4 “Cheers to 66 Years!”

*By Barbara Manierre*

Everyone is invited to the Huron Mountain Wildlife Foundation's party on the shores of Ives Lake. We're celebrating 66 years of science, and the formal dedication of the Thorpe House, formerly known as the Red House. We'll be honoring Wayne Thorpe's many years of service to the Foundation. Happily this is an actual event, not a virtual one! There will be good food, good drink, good music, good friends – and even a few spirited speeches. Enjoy wood-fired pizzas made on site, wine and local beer, and Donckers ice cream.

In addition to celebrating 66 years of science, we'll raise funds to support our ongoing research projects and the endowment. Why not become a Cheers event sponsor? Contact me at [barbarahmanierre@gmail.com](mailto:barbarahmanierre@gmail.com), and I can fill you in on details. Contributions can be made through the HMWF website (just note the reason for your gift in the message box) or by sending a check to Ted McGraw at 71 Links Road, Hobe Sound, FL 33455. Individual gala tickets are \$50.

Our auction will be filled with fabulous items contributed by creative HMWF supporters. Just to pique your interest....Pete Sheret has made a beautiful bowl from wood found at the bottom of Ives Lake. Jay Farwell has created table runners with charming woodland creatures. Biby Dykema has designed a diamond-capped necklace featuring a stone from the Lake Superior shore. And Mary Driver has contributed a mosaic titled “Riotous Sky Over Lake Superior.” These and more will be on display in the playhouse from August 2-4. And regardless of whether you are at HMC during these dates, check out the auction and bid online.

So don your best lakeside casual apparel, throw in a splash of red, and join us for Cheers to 66 Years on August 4th. We hope to see you there!

## **About the Huron Mountain Wildlife Foundation:**

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](http://www.hmwf.org)

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