



W.K. KELLOGG BIOLOGICAL STATION

2013-14 ANNUAL REPORT

Highlights of 2013-2014

■ Sarah Carroll was awarded the *Ruth Jameyson 'Above and Beyond' Award* by MSU President Simon. Sarah is earning an MPA at WMU, and after working for 10 years at the Kellogg Bird Sanctuary, is taking on a larger role at KBS as the Development and Community Relations Coordinator.

■ Battle Creek Scout Levi Vandyke (Troop 374) installed a new Osprey platform along the Lake Loop trail at the Kellogg Bird Sanctuary as part of his Eagle Scout project.

■ Gouda, made at the MSU dairy using milk from the KBS Pasture dairy herd, won 2nd place in the Dutch-style category at the 2014 American Cheese Society Judging & Competition. This prize-winning Gouda, as well as other artisanal cheeses made from KBS milk, will be available at the KBS Holiday Walk & Market.

■ Dr. Stephen K. Hamilton, KBS Professor of Zoology, was named the 2014 recipient of the Petoskey Prize for Environmental Leadership by the Michigan Environmental Council for his work on the cleanup of the 2010 Kalamazoo River Oil Spill.

■ In May, 39 KBS employees participated in the MSU Global Day of Service. The group contributed 97 hours of volunteer work which included tree trimming and brush removal, painting and other projects at Ross Township Park.

YOUR KBS



WE INVITE YOU TO VISIT OUR CAMPUS,
LEARN MORE ABOUT THE NATURAL WORLD
AND CELEBRATE W.K. KELLOGG'S LEGACY.





A Letter from our Director

Dear Friends and Neighbors,

An exciting year at KBS began with a celebration of past accomplishments, and as we end it we are making plans for a bright future. In October 2013, we celebrated 50 years of aquatic ecology research at KBS, paying special tribute to George H. Lauff, former director of KBS. Dr. Lauff laid the foundation for excellence in ecological research here at KBS and his legacy continues today.

This summer we had a record number of students take courses and participate in research. A summer at a field station can be a transformative experience in a student's life. Here the outdoors is part of the classroom. KBS students are in the field every day and therefore able to learn about organisms in the context of their natural habitat. This gives them a better understanding of both local and global environmental issues. Many of you have donated generously to student scholarships, allowing us to continue to provide opportunities for these future scientists.

This past year we continued maintenance and improvements to the historic structures and grounds of the Kellogg Estate. Exciting plans, developed by a summer 2014 intern, are in place to restore the lagoon and grounds surrounding Windmill Island to its original grandeur. The project will emphasize sustainability and provide areas for educational programs and Manor House guests.

This report provides an overview of the exciting ways we are fulfilling our mission and strengthening ways to share our work with the public. We hope our outreach programs on bioenergy, global climate change and water quality continue to be engaging and give you an appreciation for our presence on Gull Lake and in the community. With your continued support, we will remain at the forefront of biological and ecological discoveries for generations to come.

While we celebrate these accomplishments, we join with MSU to unveil the capital campaign. By embarking on such a venture, we acknowledge the desire of the University to excel and the needs of the communities who benefit from strong endowments. The challenges in today's world are more complex, so we need to empower our students and faculty and provide the resources needed to make seemingly impossible ideas possible.

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In Memoriam We appreciate and will remember Mary Jo Hawk, who served on the Director's Advisory Board from 2008-2014.

On the Cover

This year's cover photo shows Anne Royer's summer 2014 Ecology Lab students wading in Otis Lake (Yankee Springs) to sample phytoplankton diversity. Students in this class get the opportunity to study in the field and explore population, community and ecosystem level processes in a variety of aquatic and terrestrial habitats near KBS.

Cover photo courtesy of Tomomi Suwa.

The mission of the W.K. Kellogg Biological Station (KBS) is to increase our understanding of natural and managed ecosystems and their linkages to society.

KBS Administration

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Photo by Mollie Liskiewicz

Students catching beetles under rainbow at the Experimental Pond Lab.

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Special thanks to our volunteers for donating
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hours of service this year to KBS outreach programs!

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Each year, contributions to KBS are made in memory or in honor of people whose lives have made lasting impacts. These gifts have been recognized in this list.

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In honor of:

= Sarah Carroll
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☾ Memorial bench

We make every effort to ensure all donors are recognized in our annual report. If you believe your name has been omitted, please contact our Development office, (269) 671-2444.



Your gifts matter.

Gifts and funds from endowments supplement support from MSU and grants, allowing us to provide innovative, new and important outreach, education and research programs at KBS. Thanks to generous supporters, over the past decade 10 new endowed funds have been established at KBS that will sustain support for our facilities, scholarships and internships.

Why endowments?

Different than other gifts, an endowment is invested and a portion of the income from this investment is spent each year. The balance and new contributions are reinvested to grow the fund and safeguard against inflation.

MSU is a great investment.

For the past 10 years the Common Investment Fund (CIF) at MSU has outperformed investment funds of other institutions. The median college and university investment was 8.0 percent over the last decade, while MSU’s was 8.6 percent.

We Thank You for Your Support.

(July 1, 2013 - June 30, 2014)

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Aquatic Ecology Celebration:



Photo by Liz VandenHeede
Celebrating 50 years of aquatic research at KBS were George Lauff, former KBS director; Kay Gross, current KBS director; Gary Mittelbach, KBS/MSU faculty member; Alan Tessier, program director, National Science Foundation; Craig Osenberg, faculty member, University of Florida; and Mark McPeck, faculty member, Dartmouth College.

research. Former students spoke about how a focus on basic research and an appreciation for application to environmental problems has made KBS a special place for graduate training.

Research by Lauff and his colleagues identified that phosphorus problems in Gull Lake were due to lawn fertilizers and septic system drainage fields. This research and collaboration with community members led to the formation of the Gull Lake Quality Organization (GLQO), which worked to reduce these inputs. The partnership between KBS and GLQO to understand challenges to lake water quality continues today.

Upon his retirement, Lauff established KBS’s first endowed scholarship. The G.H. Lauff Scholarship provides funding for graduate and undergraduate students to work at KBS and continues the legacy of integrating research and education that Lauff created here. 🐦

An Enduring Legacy

Cara Krieg, a KBS graduate student, conducts research on mating behavior in female house wrens and has benefitted from Dr. Lauff’s legacy in many ways. Cara has had funding every summer from Lauff research awards and has worked with undergraduates who are in the Undergraduate Research Apprenticeship (URA) program, which is supported in part by Lauff funds.



Cara Krieg holding a female house wren.

“The Lauff fund has been a major source of funding for my research,” Cara said. “It has helped me set up and maintain my research program, particularly coming from a lab with little outside funding. Having a URA has also made my research possible – it’s very difficult to monitor all the individuals in our population of about 100 adult wrens each summer.”

Two MSU undergraduates working with Cara this year – Allie Burnett (Zoology) and Aaron Aguirre (Fisheries & Wildlife) – were supported in part by Lauff funds. Both plan to pursue research in the future. Funding undergraduates to work with students like Cara is important for maintaining Lauff’s legacy at KBS.

To find out more about Cara’s research, visit her blog at <http://birds-in-boxes.blogspot.com/>. 🐦

For more information on how to support students like Cara, Allie and Aaron through a gift to the G.H. Lauff Scholarship Fund, contact the Development Office at givingtokbs@kbs.msu.edu or call (269) 671-2444.



George Lauff

- KBS Director, 1964-1989
- Transformed KBS into a year-round research center
- Established KBS’s first endowed scholarship fund

G.H. Lauff Scholarship Endowment

- Supports undergraduate & graduate students
- Tuition & Research Awards
- Over \$40,000 of support to students in 2013-14
- Endowment valued at over \$675,000

Foundations of KBS



Summer instructional program in field biology focused on summer flora, ornithology and wildlife, 1930-1941



W.K. Kellogg's estate on Gull Lake deeded to MSU and the W.K. Kellogg Biological Station is established, 1952



Construction of the Stack Building with classrooms and laboratories funded by the W.K. Kellogg Foundation, 1959



G.H. Lauff (R) appointed as KBS's first resident director, leads transformation of KBS into a year-round research facility, 1964



National Science Foundation (NSF) funds construction of Experimental Pond Laboratory, 1971



KBS designated a national Experimental Ecological Reserve, 1978



Long-term Ecological Research (LTER) site established at KBS, 1988



Pasture Dairy Center completed, featuring robotic milking machines in the nation's first LEED-certified agricultural facility, 2009

For more information on the history of KBS visit: <http://bit.ly/KBSHistory>

Interns: Enhancing the Estate

The W.K. Kellogg Manor House & Estate Endowment provides funds to maintain the historical facilities at KBS and supports summer internships. The interns work with KBS staff on projects to enhance the grounds and increase visitor appreciation for the Kellogg Estate.

This year the endowment supported three interns, one of whom, Katie Barry (Landscape Architecture), initiated a project that will lead to the restoration of the lagoon and grounds surrounding Windmill Island. The goal is to develop a landscape plan that reflects the Estate's original design, emphasizes sustainability and provides areas that can be used for educational programs. Katie was co-mentored by Mark Williams, KBS Physical Plant, and Sandy Bleisener, a professional landscape architect (and MSU graduate) at O'Boyle, Cowell, Blalock & Associates, Inc. (OCBA).



2014 Landscape Design Intern, Katie Barry

When asked about her time at KBS, Katie said, "The thing I value most at KBS is my ability to conduct research. I have learned many different techniques, from working with online resources, to interviewing historical experts or reading historical files. This experience will help me in the rest of my education as well as in my future career." 📖

A gift to the Kellogg Manor House & Estate Endowment will allow us to continue to support interns and maintain the legacy of Kellogg Estate on Gull Lake. For more information contact the KBS Development Office at givingtokbs@kbs.msu.edu or call (269) 671-2444.

This year the W.K. Kellogg Estate Botanical Guide, a collaboration between KBS interns, volunteers and staff, was printed and is now available for free at KBS.

The printing was made possible by the funds generated from the W.K. Kellogg Manor House & Estate Endowment.



A Long-Term Collaboration



Graduate student, Jeff White (Fisheries & Wildlife), monitoring water quality in Gull Lake.

For nearly half a century, KBS researchers have collaborated with the Gull Lake Quality Organization (GLQO) on research and outreach programs to protect local water quality. Research done at KBS in the 1970s showing high phosphorus levels in Gull Lake, due to lawn fertilizers and septic systems, led to efforts supported by the GLQO to install a sewer system around Gull Lake. The partnership continues today through a variety of collaborations.

- GLQO funds a graduate student fellowship at KBS to monitor water quality in Gull and Little Long lakes and surrounding streams.
- KBS scientists are synthesizing data to develop a current phosphorus budget for Gull Lake to compare to earlier budgets (1974, 1994) and determine if a 2012 statewide ban of phosphorus lawn fertilizers has impacted water quality.
- KBS and GLQO work together to monitor invasive species in local lakes and support Research Experiences for Teachers (RET) on water quality.
- GLQO sponsored "Dessert with Discussion" featuring KBS scientists whose research is focused on water quality – Dr. Stephen Hamilton (October 2013) on the cleanup of the Kalamazoo River following the 2010 Enbridge oil spill and Dr. Elena Litchman (May 2014) on causes of harmful algal blooms.

SUMMER 2014 by the numbers

- 8 Research Experiences for Undergraduates (REU) students
- 12 Undergraduate Research Apprenticeship (URA) students
- 12 academic interns
- 58 students came to KBS only to take summer courses
- \$230,000+ Amount of financial support for undergraduates leveraged from scholarships, grants, MSU funds and community support
- \$30,000+ Awarded to graduate students from KBS fellowship funds



Steve Hamilton's summer 2014 Wetland Ecology & Management class.