A new Historical Walking Tour brochure tells the story of the Kellogg family’s life on their Gull Lake Estate and maps stops at each of the estate’s historical buildings.

KBS marked ten years of partnership with Michigan Career and Technical Institute, a vocational training center for adults with disabilities. MCTI students work with the KBS Grounds staff to receive landscape management training and help keep KBS beautiful for visitors.

The KBS Volunteer Program’s new Adopt-a-Trail opportunity allows individuals and families help us to maintain walking trails at KBS for the enjoyment of all.

An updated website ~ shoreline.msu.edu ~ provides information about different ‘green’ lakescaping techniques that can be seen at the KBS Shoreline Demonstration Area.

MSU student interns Ernest Schenk and Brock Downs worked with the KBS Grounds Department and the Gull Lake Landscape Company to design and plant elegant, new landscaping at the Caretaker’s Cottage. The interns were supported by funds from the W.K. Kellogg Manor House & Estate and Conservation Legacy Endowments.

Contributions from local individuals, organizations and foundations made possible the installation of interpretive signs at the Kellogg Bird Sanctuary to enhance visitor experiences with added learning opportunities.

The KBS Long-term Ecological Research (LTER) program, the Kellogg Bird Sanctuary and KBS volunteers worked together to develop a valuable teaching tool for elementary students. The new Agriculture & Ecology Student Activity Trail demonstrates ways that plants, animals, soil and people are all important to sustainable agriculture.

YOUR KBS

WE INVITE YOU TO VISIT OUR CAMPUS, LEARN MORE ABOUT THE NATURAL WORLD AND CELEBRATE W.K. KELLOGG’S LEGACY.
The BEACON High School Residential Program brought 31 high school students from districts across Michigan for a weeklong summer workshop that increased their understanding of natural and managed ecosystems and their linkages to society. The KBS Administration 3700 East Gulf Lake Drive Hickory Corners, MI 49060 (269) 671-2507 director@kbs.msu.edu

W.K. Kellogg Manor House & Conference Center 3700 East Gulf Lake Drive Hickory Corners, MI 49060 Manor House: (269) 671-2610 manorhouse@kbs.msu.edu Conference Center: (269) 671-2400 crecenecer@kbs.msu.edu

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Killogg Bird Sanctuary 12685 E. C Avenue Augusta, MI 49002 (269) 671-2510 birdsanctuary@kbs.msu.edu

Killogg Farm & Pasteur Dairy Center 1041 North 40th Street Hickory Corners, MI 49060 (269) 671-2507 killoggfarm@kbs.msu.edu

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. Dear Friends and Neighbors, KBS’s location and unique facilities allow us to accomplish things that our community cannot otherwise do. Our world-class research facilities are surrounded by diverse and ecologically interesting landscapes. In partnership with MSU and at the local community, we continue to develop innovations in education and research that recreate the future we work with local schools in science and math educate our students to understand students and teachers throughout the region. This year, we expanded our portfolio to include students enrolled in the Gulf Lake Community Schools Gateway Academy. (Read more about the project inside this report!)

We have a historical legacy, being located on property developed by W.K. Kellogg when he lived on Gulf Lake. Through an endowment in his name, we now have a greater capacity to preserve the many historic structures and grounds of the Kellogg Estate, and to provide opportunities for students to help us share Mr. Kellogg’s story and enrich the experience of all who visit our lakeside campus. You have generously helped us grow this endowment and as a result we are close to reaching a matching goal from the W.K. Kellogg Foundation.

It is important to our mission that learners of all ages and experiences feel welcome at KBS. This year, we established several new trails at the Bird Sanctuary and a new Adopt-a-Trail volunteer program, and hope that these will further contribute community to KBS, encourage people to explore our landscapes and to join us quickly along a path to environmental stewardship. Undergraduate interns from MSU and local colleges helped support these trails that go along with these trails; paid internships are available for these students to provide educational experiences for students.

We hope this report will make you proud of our commitment to KBS. Our faculty, staff, and student continue to develop partnerships that enhance the work we do. Your support for KBS through memberships, gifts and contributions, through memberships, gifts and contributions, provides an opportunity for us to develop the enjoyment of our gardens and be recognized in this list.

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

In memory of:

- Sophie Bachman
- Bill Courter
- Gayle Dvorak
- Joe Dvorak
- Jack Wood
- David R. & Rafael P. Wong
- Todd & Diana Wyatt

In honor of:

- Barbara Baker
- David Dvorak
- Sam Morrison

- Memorial bench

We make every effort to ensure all donors are recognized in our annual report. If your name has been omitted, please contact our Development Office at 269-671-2444.
Nitrogen is essential for plant growth and a key ingredient in most fertilizers. But plants often absorb only some of the nitrogen provided by fertilizers; the rest moves out of the soil and into groundwater, or is converted to nitrous oxide, a greenhouse gas. Helping farmers find ways to reduce nitrogen fertilizer use is the goal of a new project led by KBS researchers and funded by a $1.46 million, four-year grant from the National Science Foundation. The multidisciplinary research team, led by KBS faculty member Dr. Diana Stuart (Sociology), will work with 75 Midwestern farms to determine how fertilizer use and climate affect soil fertility and crop production. They will focus on determining what underlies farmers’ decisions regarding fertilizer use.

The team also includes KBS faculty Dr. G. Philip Robertson (Plant, Soil & Microbial Sciences) and Dr. Bruno Basso (Geological Sciences) and several MSU social science faculty.

“Results from this project will be useful to inform approaches on how best to reduce water pollution and greenhouse gas emissions from Midwestern corn farming,” Stuart told MSU Today in June. “It will provide new information and models to aid policymakers working to curb pollution and climate change.”

When Dr. Nalini Nadkarni (University of Utah) came to KBS in October as a Visiting Scholar, she brought her dual passions for forest ecology and education to students at Gateway Academy, an alternative high school within the Gulf Lake Community Schools (GLCS). After sharing a slide show of her research on forest canopies, she took the students outside, strapped herself into a harness and climbed a tree to demonstrate the power of experience.

Inspired by Dr. Nadkarni’s visit, a team of educators from KBS and GLCS worked together to obtain funding to develop hands-on learning activities to enhance Gateway’s online science curriculum. To inform their work, the team spent time in the field with KBS scientists and attended a science education workshop at the University of Wisconsin-Madison’s Great Lakes Bioenergy Research Center. The real-life science experiences helped the team create engaging supplemental activities that use microscopes and science kits to investigate heredity, natural selection, plant growth and ecology.

“By pairing activities with the online courses, Gateway students will get a more authentic science experience than is offered at other alternative academies,” said Gateway instructor Matt Hawkins. “We hope it will inspire them to continue their education and think about science careers.”

Support for this project was provided by the Great Lakes Bioenergy Research Center, Perrigo Foundation, Gulf Lake Community Schools Foundation and contributions to KBS.

Mapping the Napo

Winding for 550 miles through Ecuador and Peru, the Napo River supports a diverse rainforest ecosystem and indigenous villages sustained by farming and fishing. Flooding is a natural part of the river’s dynamics and its floodplains fill with run-off during heavy, seasonal rains.

Little is known about how water moves between the Napo and its floodplains – a growing concern as development of the region’s oil reserves, commercial dredging and other facets of modernization generate pollution that spreads when the river floods. When a pipeline burst last May, spilling thousands of gallons of crude oil into the Napo, researchers were already on the ground.

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Teacher Development

Working with KBS faculty member Dr. Stephen Hamilton (Ecosystem Ecology, Biogeochemistry), volunteers from the Gulf Lake Quality Organization (GLQO) and Michigan Department of Environmental Quality staff, McManus and GLQO member Mike Gallagher surveyed plants along 160 transects in Gulf Lake, sampling at three depths for evidence of invasive aquatic species like Eurasian Water Milfoil and Curly Pondweed. With help from Hamilton and MSU outreach specialist Jo Latimore, McManus learned to identify plants she collected, occasionally sending back photos with her cell phone to consult with the experts to identify a sample.

She now brings her own samples into her classroom, and is contributing to monitoring efforts at a lake where she lives.

“T’ve participated in a lot of science programs, but this summer was something for me. The hands-on experience was invaluable.”

Funding for the KBS RET program comes from the National Science Foundation and Great Lakes Bioenergy Research Center.

OUR KBS...

Helping Farmers GO GREEN

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