HEADWATERS

A core publication of the Lilly Center for Lakes & Streams | Spring 2026

LILLY CENTER FOR LAKES & STREAMS

STEWARDSHIP THROUGH SCIENCE

It is with deep sadness that we share the passing of Dr. Ron Manahan. As the former president of Grace College, Dr. Manahan was **instrumental** in the creation of the Lilly Center for Lakes & Streams. His interest in environmental stewardship began as he worked on his dissertation many years ago. Eventually, Dr. Manahan taught the first environmental ethics class at Grace College, a class he later passed on to our director, Dr. Nate Bosch.

Dr. Manahan envisioned a center that would serve college students and the broader community, preparing young professionals to enter their chosen fields. Today, that vision lives on in the work at the Lilly Center. We remain deeply grateful for his steady counsel, unwavering advocacy, and personal investment in our mission over the years.

We honor Dr. Manahan's **legacy** by continuing the work he helped begin. Each year, over 45 college students gain hands-on experience in research, education, and lake stewardship as they develop both professional skills and a heart for service. Through initiatives like Lake R_x, these interns will play an active role to **revitalize** lake health and create thriving communities.

Ron, you are missed. •

Turn to page 6 to see how college interns are putting their skills to use to serve the community that Dr. Manahan loved.

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Cover: Carl, an ambassador painted turtle at the Lilly Center, enjoys the spring sunshine.

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BLAZE YOUR PATH

Expeditions, Workshops, or Critter Encounters, we have something for everyone. Whether you are 6 or 67, all you need is a **curiosity** about the world and a willingness to get your hands dirty. RSVP for **free events** at *lakes.grace.edu* or scan the QR code:

SCAN ME

SPRING

April 25
Expedition: Spring Foraging
Discover food in nature at Tri-County Fish & Wildlife Area with Carrie Vrabel.

May 2
Workshop: Porch Gardening
Learn about gardening in small spaces with Purdue Extension.

May 16
Expedition: Wildflower Hike
Be awed by spring blooms at Wildwood Nature Preserve with ACRES Land Trust.

SUMMER

June 10, 17, 24
Stories & STEM
Join us for storytime and an activity at the Warsaw Community Public Library.

June 12, 26, and July 10
Critter Encounters
Explore the amazing world of native critters with projects and storytime. Attendees will get up close and personal with fish, crayfish, and snakes!

June 13
Workshop: Native Mussels
Dive into the world of mussels with Carter Schuh, a former Lilly Center intern.

July 1
Swamp Stomp
Middle schoolers trek through wetlands and do a scientific activity.

July 25
Expedition: Summer Foraging
Discover food in nature at Tri-County Fish & Wildlife Area with Carrie Vrabel.

August 29
Expedition: Birding on the Water
Enjoy birding from a raft with Kosciusko County Soil & Water Conservation District.

AUTUMN

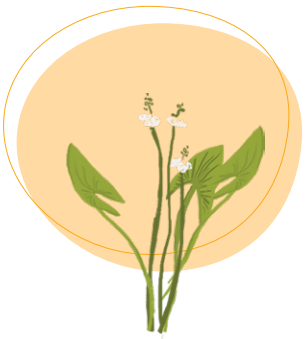
September 12
Workshop: Native Propagation
Learn how to start your own plants with Purdue Extension.

September 19
Expedition: Fall Foraging
Discover food in nature at Tri-County Fish & Wildlife Area with Carrie Vrabel.

October 3
Workshop: Native Seed Collecting
Jacob Macke of Chapman Lake Nursery teaches seed collection and preparation.

Date TBA
Expedition: Fall Tree Walk
Dr. Nate Bosch and Heather Harwood (Wawasee Area Conservancy Foundation) demonstrate tree identification.

November 17
Workshop: Herpetology Lecture
Dive into the world of amphibians and reptiles with Indiana DNR expert, Nate Engbrecht.



WETLANDS 101

NATURE'S DAMP TREASURES

By guest columnist and wetlands expert, Steve Coyle

When you envision wetlands, what comes to mind? Wet, dark, dreary places or seas of green glades? Let's explore these natural treasures and the benefits they provide to us and our lakes.

What Are Wetlands?

It is all in the name, Wet_Lands:

1. Are areas that are wet all or part of the time
2. Have soils derived from wet, low oxygen conditions
3. Host vegetation that thrives in these conditions.

But it is not always straightforward. Although wetlands are usually wet, they might not be year-round. Constantly wet swamps are wetlands. So are some prairies which are wet most of the time but look dry during the summer. Sometimes, you cannot see the water which lies just below the surface.

Wetlands differ due to variations in vegetation, soils, landscape, climate, and water chemistry. They can have surface water plants, clusters of trees or shrubs, open meadows, shorelines, or a combination! Scientists have developed over 50 different descriptions across nine general categories. However, four categories are mainly used in our region.

Wetland Types

Marshes are mostly underwater and dominated by soft-stemmed plants. Lakes like Webster and The Backwaters have good examples of freshwater marshes.

Swamps are home to woody plants like trees and shrubs that like their feet wet. Find them in the Tri-County Fish & Wildlife Area. Most lakes in Kosciusko County have combinations of marshes and swamps.

Bogs are characterized by spongy peat deposits and covered by a thick carpet of sphagnum moss.

Fens are peat areas covered by grasses, reeds, and flowers. Fens and bogs are sources of prized gardening moss. While both exist in our region, they typically are found around the Great Lakes and other northern climates.

Not just a dirty swamp.

Wetlands are the transition between

solid land and deeper open water. They perform vital environmental and economic functions. They are the most biologically diverse and productive of all ecosystems. Wetlands act as "nurseries" for aquatic life and provide habitats for hundreds of plants and animals. Wetlands help recharge groundwater used for drinking water and agriculture.

As sponges, they absorb flood water from major rain events and reduce wave action on lakes. Wetlands are "nature's kidneys" and help filter water and runoff from parking lots, home lawns, and farmland before they enter lakes.

The state of Kosciusko County wetlands

Our lake region is blessed with many wetlands that provide beauty and benefits. But wetlands are in danger. Seawalls eliminate natural shorelines, including wetlands, which intensifies wave activity. Over the past decades, waves have eroded wetland shorelines by up to 70 feet in certain areas. Commercial activities reduce the number of wetlands recharging our groundwater.

As for our remaining wetlands, many are in decline – they age like humans do! Unfortunately, human activities can accelerate wetland aging by increasing sediment runoff and clogging wetland plants. Tired wetlands no longer perform the beneficial functions.

Whether the wetland near you is beautiful and lush or spooky and dark, it has the potential to provide great benefits to your lake for years to come! Assessing and revitalizing wetlands is part of Lake R_x, the Lilly Center's plan for healthy lakes.

HOW TO EAT LIKE A WETLAND

AND OTHER SURPRISING TAKEAWAYS FROM THE LAKE DOCTOR PODCAST

HOW CONSTRUCTED WETLANDS IMPROVE WATER QUALITY

Expert guest: Dr. Stephen Jacquemin

Can wetlands really help reduce excess nutrients in lakes by up to 60%? Dr. Stephen Jacquemin of Wright State University is building artificial wetlands to help **combat harmful blue-green algae blooms**. This must-watch episode is a hopeful look at our lakes' futures.

WATCH NOW

HOW TO EAT LIKE A WETLAND

Expert guest: Landon Vine

In this show-and-tell episode, wetland scientist Landon Vine shares his passion for these important ecosystems. He also opens our eyes to the beauty that exists in wetland ecosystems — beauty **exclusive to Indiana**! You'll walk away with a renewed appreciation for the hard work that wetlands do for your lake.

WATCH NOW

2025-26 Student team: Hallie Arnold, Abigail Bechtel, Kaylie Biddle, Kelsey Bough, Daniel Burch, Bella Carter, Blake Clement, Eden Cook, Josue Corbalan Martinez, Ty Davis, Jalen Gilbert, Lucas Grady, Carter Heathco, Madison Herstad, Emily Jordan, Jack Killinger, Hailey Kim, Catie Marks, Faith Mauger, Alessandro Miller, Jackson Million, Noah Monson, Hutch Moore (right, inset), Lex Moser, Abigail Nees, Jerica Neir, Georgina Odero, Caleb Overpeck, Hayden Painter, Joel Petrie, Georgia Pogue, Jennyfer Ponce, Tess Price, Erik Robinson, Mia Rodriguez, Nolan Roeske, Keren Santiago Suazo, Melia Schalow, Becca Schuch, Kendra Shuler, Annika Simons, Janessa Snethens, Claire Sprankle, Toby Stevens, Joselyn Swank, Jaxon Yeager.

PREPARING FOR ***SERVICE***

HOW INTERNS ARE MAKING AN IMPACT TODAY

Hutch Moore (pictured, inset) always knew that he wanted to work in a lab. His role as a lab assistant at the Lilly Center confirmed this direction for his career. But, this kind of work can have its challenges.

"In those moments, I remember how our toxin testing directly impacts our community," said Hutch. "I enjoy my work because it **helps people be safe** in the water."

As part of the research lab, Hutch and his team conduct toxin testing for blue-green algae and *E. coli*, prepare algae slides, and quantify algae populations to correlate them with toxin results.

Now, Hutch is taking on a new project alongside Lilly Center scientist Dr. Joe Frentzel. This *E. coli* project sets the stage for many exciting projects in the future.

Through DNA analysis and comparison, Hutch and the research team will work to **discern** between harmful and non-harmful strains of *E. coli*. Not all *E. coli* is dangerous to humans. The team will be taking a closer look at harmful strains to better understand the *E. coli* in our lakes and streams.

Although high *E. coli* counts can be worrying, Hutch hopes that providing more detailed information will help lake residents make better, more **informed decisions** when recreating. This data also helps the Lilly Center make the best prescriptions for Lake R_X solutions.

Stay tuned for more on this project in the coming months!

All 46 college student interns pictured above are investing in Kosciusko County and building their resumes at the Lilly Center. By sharpening their research, teaching, marketing, leadership, and countless other skills, they are serving their community today — and preparing for **future service**. •

Learn more about* E. coli *by visiting our website, lakes.grace.edu.