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All birds are captured and handled with appropriate training and institutional, state, and federal permits

A Passion for Songbirds at Hendrix College

BY CYNTHIA MWENJA, PhD

Maureen McClung—Judy and Randy Wilbourn Odyssey Associate Professor of Biology and Chair of the Environmental Studies Program at Hendrix College—researches animal ecology, specifically how human-caused changes to the landscape impact animals. Throughout the course of her career, she has studied a variety of animals through this lens.

As a student at Hendrix, McClung researched fish; she later focused on yellow-eyed penguins in New Zealand while earning a postgraduate diploma in Science. She has also studied bees, butterflies, and tamarin monkeys—and she's currently running a game-camera project to assess the effects of urbanization on wildlife in and around Little Rock, Arkansas. Her primary focus, however, is researching how songbird behavior and populations are influenced by the ways humans are changing landscapes.

Collaborative Colleague

In every project she undertakes, McClung seeks opportunities for collaboration. She co-teaches, conducts a plethora of meaningful research projects with students, and she pursues research projects with off-campus partners, as well. One such research partner is Matt Moran, professor emeritus of Biology at Hendrix College and ecologist at the Eternal Children's Rainforest in Costa Rica. McClung was his student during her undergraduate years at Hendrix, and when she returned to the school as a professor, the two "started working on a bunch of projects," as Moran says; these include butterfly research and some big data papers. They each bring different skill sets to their shared research, and having two ecologists working together "really helped to boost research productivity," Moran says. McClung is planning to take students on a research trip to Costa Rica to develop long-term monitoring programs aimed at assessing biodiversity levels in the region.

Getting Students Involved

McClung hopes to get students into natural spaces early in their time at Hendrix. One way that she does that is by co-teaching "Nature and Well-Being," a freshman seminar which focuses on the importance of connecting to and taking care of nature. Students perform service days at the nearby Hendrix Creek Preserve during which they remove invasive species and trash.

Lindsay Kennedy, Professor of Psychology at Hendrix, is McClung's co-teacher in the class. "[McClung] really gets in there with them, encourages them to engage fully and get a little messy, and stops regularly to show and explain to them the amazing nature all around," Kennedy says. "What's really special about that service day is seeing the students who have been quiet in class come alive as they engage with nature and their classmates." McClung hopes this outdoor experience will encourage students to continue enjoying outdoor spaces throughout their years at Hendrix.

Kennedy has noticed how McClung's enthusiasm and encouragement pull students into her world. "I dare anyone to be outside with her and not get swept up in her enthusiasm for nature—birds, especially." Many students have been pulled into a love for nature and a passion for birds through working with McClung. One of these is Kevin Krajcir, conservation biologist and grants coordinator for the Arkansas Natural Heritage Commission. He says he got drawn in through bird-watching trips and bird walks on campus that she organized, and he "fell in love with birds" thanks to her. McClung

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became Krajcir's academic and research advisor, and he is still pursuing the research project he began as an undergraduate—using online data collection to project the effects of natural gas and oil development on breeding bird population trends. In his current position, he spends about half of his time doing field research and the other half focusing on grants administration, and he appreciates the opportunity to experience "what applied conservation looks like."

Hannia Valero, a Biology major who will graduate from Hendrix in 2025, started participating in the Hendrix Naturalists Club during her freshman year; McClung is the faculty advisor. During that first year, through activities led by McClung such as butterfly tagging and fossil hunting, Valero steadily gained interest in conservation and biology. Valero took a research position under McClung, spending last summer bird banding at Stone Prairie Wildlife Management Area, and she is now working on the urban wildlife project, with cameras capturing photos of wildlife living around Little Rock. It was McClung's Conservation Biology class last semester, though, that opened Valero's eyes to a variety of potential career paths. McClung brought career professionals to speak with the students about what they do and the importance of conservation work. Valero says that she is still deciding, but she knows she will work in conservation, perhaps in a museum setting or maybe as an educator or biologist.

Additionally, Valero is involved with the campus radio station, KHDX, where McClung serves as faculty advisor. At the station, Valero has the opportunity to host radio shows and talk about science. This combination shows Valero the value of liberal arts—that it's "okay to study science and do creative things."

Student Research: Bird Window Strike Project

Once students begin to get interested in issues of conservation, McClung concentrates on drawing them into conducting field research with her. Moran admires the way

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McClung "really gets the students involved in research—it's not superficial." He says the students design the experiments and learn to write up their results for publication. They get the full process and even bring research ideas of their own to McClung. Moran says that McClung's students are far ahead of most of their peers when they get to graduate school because of the rich research experiences they have had under her guidance. Two current projects focus on gathering information about birds on campus.

In one ongoing initiative—the Bird Window Strike Project—students systematically survey the campus for window collisions. McClung says this sort of investigation is a major trend in bird research, helping to show how birds are navigating the built environment. She reports that campus oak trees draw in warblers, among other species, on their spring migration from March through May. The migrating warblers tend to be fatigued and hungry, and they are attracted to the insects living in blooming oak flowers. The emerging flowers and leaves on campus are very bright, and the tired birds may confuse the reflections of these plants in the glass for the plants themselves. In many cases, the resulting window collision causes the bird's death. Even if a bird is only stunned, it is more vulnerable to predation until it recovers.

To find out more about how many birds are affected at Hendrix, McClung is currently recruiting students to repeat the research that students conducted in 2023. Starting in April, when spring migration is beginning to peak, three teams of trained student researchers will survey twice weekly for birds that have collided with glass and been stunned or died. By collecting and analyzing this data, McClung hopes to learn which sides of buildings produce the most collisions and which windows are the most hazardous for the birds. With this information in hand, she can then make evidence-based mitigation recommendations to the college.

McClung points out that window collision mitigation can span price points. On the less-expensive side are solutions like window-collision tape or strips of paracord hanging outside of windows. A higher cost option can be installed during renovations: bird-friendly glass appears clear to humans, but birds can perceive that the panes are there. She also says that solutions are advancing rapidly—the American Bird Conservancy's website offers many strategies for mitigating window collisions, and their list continues to grow.

The window-collision researchers also collect the dead birds for use in another project in which the birds are prepared to be included in a museum collection. Valero is part of this group of student researchers, and the work sparked her love for birds. She is now much more aware of how architecture affects bird species, and she says this research is what drew her into bird conservation.

McClung wants to go beyond simply involving students in research; she also wants them to learn about the processes of science—developing research protocols, defining a conservation issue to research, and being agents of change by using science to inform recommendations that will benefit nature.

Student Research: Bird Banding

While the bird window strike project will provide essential data to allow collision mitigation on campus, McClung notes that working with dead and stunned birds can be sobering. Bird banding can offer "more delight," she says. McClung has federal certification to be a bird bander. As she points out, "This kind of work is heavily regulated," needing "proper approval and training." When conducting bird banding events, she makes sure that "all birds are captured and handled with appropriate training and institutional, state, and federal permits."

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To gather birds for banding, researchers erect mist nets—nearly invisible pieces of mesh of about twelve meters by three meters, strung between two poles. The birds are caught in the mesh, then gently extracted. The researchers try to determine whether each bird is male or female and how old it might be. They then place a metal band with a unique number on one leg. If the bird is caught again, McClung says, they can begin to understand something about its movements.

McClung leads bird banding workshops each spring at Hendrix Creek Preserve, a conservation easement adjacent to the college campus that was created around 2012 by multiple public and private stakeholders. The preserve features a restored wetland along with a pine forest and a retention pond; walkways and bridges allow visitors to view a variety of wildlife, including birds, squirrels, butterflies, and bees. Many migratory species pass through the preserve, as well. For the workshops, McClung spends several days in May teaching students the process of bird banding: how to set up the mist nets, how to handle the birds, how to assess sex and age, and how to band the birds. She points out that people spend a great deal of time and money to gain these skills, but she is committed to making sure that students learn them.

McClung was recognized with an internal grant at Hendrix; starting in June, she will be renewed as the Odyssey Professor. In this role, she will spend three years expanding the current banding program, and she will add a fall banding program, as well. Her goal is to establish baseline information about how birds are using the Hendrix College campus and the Hendrix Creek Preserve.

Habitat Management

McClung is also planning to write grants for habitat management at Hendrix Creek Preserve, with a goal of removing invasive plants and cultivating native species. She says that these changes will be "good for the preserve and good for the birds." The project is currently in the early planning stages—McClung and her partners are determining what the needs are ecologically and what the stakeholders want.

McClung continually looks for ways to fold the students into all activities involved in research. She hopes to work with four students each year so that they learn what the field science process is, beginning with writing grants and including speaking and working with community members and project managers. Then, of course, the budding field scientists must also track how the wildlife is responding to the changes that have been made.

Support for Academic Passion

McClung appreciates the support, resources, and academic freedom she enjoys at Hendrix. "When I've had a dream I wanted to pursue," she says, "I have been given resources and encouraged. Having that support keeps me here." She also points out that allowing faculty members to stoke a passion helps that passion spread to students; former students are now ornithologists because she was allowed to pursue that passion.

Krajcir also keenly appreciates the support McClung has received, and he would encourage college administrators to invest in such professors to "let them shine." He points to the "massive impact" that McClung has had on students like him through the kinds of outreach activities and research opportunities he experienced. He notes that these opportunities continued to grow as Hendrix continued to support McClung's dreams, now including conference attendance for students, a bird class for non-majors, and the bird banding program. He points out that many of McClung's mentees "have gone on to do amazing things," and he is happy to have been her advisee and student—and now collaborator and friend. Moran mentored McClung, and they now research together; McClung now works with former students like Krajcir in turn. The support they have all received from Hendrix is tangibly changing lives—and making strides in improving the natural world, as well.

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