



LEOPOLD CENTER
FOR SUSTAINABLE AGRICULTURE

ANNUAL REPORT • 2024



Message from the Associate Director

“**T**here are two things that interest me,” once wrote Aldo Leopold, “The relation of people to each other, and the relation of people to the land.” It’s an obscure quote, but one of my favorites. It captures exactly how I feel. This year, as I start a new role as the associate director of the Leopold Center for Sustainable Agriculture, the quote has taken on new meaning.



Next year will mark the end of my first decade at Iowa State. I moved here after earning degrees in wildlife conservation at land-grant universities across the Midwest. A descendent of the discipline Leopold is credited for founding, I am a wildlife ecologist and extension educator. I study where birds live on farms and try to help more farmers help more birds. My role in Extension has taken me all over our state, where I’ve had the gift of learning from farmers, land managers, community leaders and other lovers of land like me about what’s working to foster profitable and resilient farms where water and wildlife thrive too. These are lessons I’ll take with me into this new chapter of my career and perhaps a new chapter of the Center’s storied history.

We’re still defining what the associate director will do. So far, Interim Director Stephen Dinsmore has graciously integrated me into the workings of the Center and the logic behind his decision-making and messaging. I’ll keep doing that and finding ways to be helpful to the Center’s mission. The website needs a facelift: it looks like a time capsule from the 2010s. I’ll help fix that. And I’m going to listen and learn, a lot.

I know some of the amazing things the Center did in the almost three decades it operated before I arrived on campus. I understand, too, some of the criticisms that led to its defunding the year after I arrived. As its associate director, I’m going to work to learn more about that history—both the innovative solutions the Center helped catalyze and the conflicts over land that sometimes simmer between people. I hope to learn it, read it, hear it all. That way, Dr. Dinsmore and I and all the exceptionally talented educators, researchers and students the Center supports can focus on the hard work of helping people help land. That is after all, the only thing that interests me.

Adam K. Janke

Adam Janke, Associate Director LCSA

Director’s Message

Dear friends of the Leopold Center,



Please enjoy the 2024 annual report of the Leopold Center for Sustainable Agriculture.

To begin, I am pleased to introduce Dr. Adam Janke as the new associate director for the Center. Adam is a faculty member at Iowa State University who works at the intersection of water and wildlife conservation in agricultural landscapes. We will be working together on an updated vision for the center so please stay tuned!

The Center continues to provide support for many activities related to sustainable agriculture. This report highlights some of these, most pertaining to research and Extension. Our partnership with the Iowa State University Graduate Program in Sustainable Agriculture (GPSA) to host the Shivvers Memorial Lecture in concert with their spring research symposium continued in 2024 with a presentation by organic pioneer John Reganold, Regents Professor of Soil Science and Agroecology at Washington State University. His dynamic talk shared findings from decades researching organic and conventional farms around the world.

We were pleased to present the Spencer Award to pollinator champion Jamie Beyer, a long-time advocate for bees and conservation. This award recognizes individuals who have contributed significantly to the environmental and economic stability of Iowa agriculture and farming communities. We would love to hear your ideas for people who should be considered for our Spencer Award—or as future Shivvers lecturers.

We’ve also included a financial summary in this report, which shows that the Center remains in good standing.

I’ll close by thanking everyone who supports the activities of the Leopold Center for Sustainable Agriculture. Your help is vital as we continue our mission to identify and support efforts to manage rural land for cleaner water, better conservation of natural resources and greater agricultural and community vitality.

Best wishes for the coming year!

Stephen Dinsmore
Stephen Dinsmore, Interim Director

THANK YOU!

The Leopold Center for Sustainable Agriculture at Iowa State University appreciates these donors in 2024 whose generous contributions help LCSA continue its work at the intersection of agriculture and sustainability:

- Paula Connors and Paul Opperman, Dubuque, Iowa
- Jack and K. Marie Gregersen, Cedar Falls, Iowa
- Robert Manross and Elizabeth Cheek-Jones, Carmel, Indiana
- Dr. Nicholas Miller, St. Paul, Minnesota
- Alan Oppedal, Ruthven, Iowa

Above, bumblebee on coneflower photo: Stephen Dinsmore

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2024 FINANCIALS ISU Foundation Accounts

2023 BALANCE CARRY FORWARD \$292,967

INCOME/ENDOWMENT EARNINGS

Restricted*\$4,360
Unrestricted.....\$284,681

Subtotal Current Income \$289,041

EXPENSES

Operations\$8,869
Restricted Expenses*\$2,297
Unrestricted Expenses.....\$1,700
Obligated Support—ISU.....\$20,747
Research Projects.....\$66,103
Organizational Support\$0

Subtotal Expenses \$99,716

2024 BALANCE \$482,292

* Restricted accounts are funded by the Shivvers and the Spencer Family Endowment funds.

Pollinator champion Jamie Beyer receives Spencer Award

Jamie Beyer, an advocate for bees and conservation, received the Leopold Center's Spencer Award in 2024. Beyer has been president of the Central Iowa Beekeepers Association and active in the Iowa Honey Producers Association.

In a letter supporting Beyer's Spencer Award nomination, Matthew O'Neal, professor of plant pathology, entomology and microbiology, and a Wallace Chair for Sustainable Agriculture at Iowa State, wrote, "Jamie Beyer has been a voice for the community of beekeepers, providing leadership, training to newcomers and outreach to many audiences, but Jamie is more than a beekeeper. His awareness of the multiple ways in which agriculture and our landscape interact to impact the health of natural and human communities has made him an effective advocate for sustainable agriculture in its many forms."

The award, established by the Spencer family, recognizes farmers or others who have contributed significantly to the environmental and economic stability of Iowa agriculture and farming communities. Read the full article on the LCSA website at <https://go.iastate.edu/FGBWTF>.



Organic pioneer Reganold gives 2024 Shivvers Lecture

Award-winning researcher, educator and author John Reganold presented the 2024 Shivvers Lecture on March 18. The event was hosted by the Leopold Center for Sustainable Agriculture (LCSA) and the Graduate Program in Sustainable Agriculture (GPSA) at Iowa State, in coordination with GPSA's annual research symposium.

Reganold's work, leadership and teaching have been widely recognized by groups including the Natural Resources Defense Council and the American Association for the Advancement of Science. He received Rodale's prestigious Organic Pioneer Award in 2022.

As Regents Professor of Soil Science and Agroecology at Washington State University, Reganold conducted research on more than 100 farms across five continents. His extensive data sets show that organic, biodynamic and integrated farming systems can be profitable and often offer environmental and social benefits when compared to conventional farms.

The Shivvers Memorial Lecture has been presented by the LCSA at Iowa State University since 1969 with support from the Shivvers family.



ISU researchers launch study on sustainable cocoa farming and health

New research led by Shawn Dorius, professor of sociology and criminal justice, and graduate researcher Sydney Etten at Iowa State University is exploring how sustainable cocoa farming in Uganda intersects with public health. The project, "Sustainable Agriculture in the Context of High Burden of Disease: A One Health Approach," focuses on the Kamuli District, where cocoa farming is rapidly expanding.

Cocoa, often intercropped with bananas and legumes, is a valuable cash crop that supports household needs, such as school fees for children. However, post-harvest practices—particularly the disposal of cocoa pod husks (CPH)—may increase malaria risk by creating stagnant water habitats for mosquitoes.

The Leopold Center-supported initiative is grounded in the One Health framework, which links human, animal and environmental health.

This study aims to identify farming practices that support both ecological sustainability and community well-being. The findings will inform future training and outreach efforts by Iowa State's Center for Sustainable Rural Livelihoods and its Ugandan partners.



Waste disposal of cocoa pod husks can create stagnant water habitats for mosquitoes.

Photo: Shawn Dorius

Floodplain plant communities attenuate export of sediment and P downstream

By Peter Moore, adjunct assistant professor, natural resource ecology and management

River corridors deliver the environmental byproducts of agriculture downstream but can also serve as buffers to that delivery. Low-lying floodplains adjacent to rivers can be a sink for fine sediment and sediment-bound nutrients like phosphorus (P) if floodwaters inundate them, and if conditions on the floodplain promote deposition and/or trapping.

Riparian and floodplain vegetation is expected to play an important role in sediment and P trapping, but details of that remain unknown. A key aspect of that uncertainty concerns the physical traits of the plant species commonly found in floodplains. Which species are found in different parts of the floodplain and how often are they inundated with water? How broad and dense is their foliage? Are their stems rigid, or do they bend easily so that the plants “lie down” in the current? These are questions the research team sought to answer as a component of a larger study of sediment and P transport in the Nishnabotna River basin.

In the Leopold Center-supported project that wrapped up in 2024, researcher Peter Moore, natural resource ecology and management, and master’s student Kelvin Adu Baah, environmental science, with two field assistants, visited 150 sites randomly distributed across a 10-mile reach of the West Nishnabotna River floodplain in southwest Iowa. They collected sediment samples and surveyed the vegetation in different ways. The researchers divided sites into broad vegetation

communities, including crops (soybean or corn), grass and forest. More than 50 plant species were identified across all sites, but each community type was dominated by one (crops) or just a few species.

While ground cover, foliage obstruction and rigidity individually did not correlate well with sediment and P trapping on the floodplain, a composite variable, “flow resistance index,” did. In general, grassed sites had larger index values and trapped more sediment and P per site than forested sites. Because annual crops are often absent during spring floods, the team concluded that grassed sites—though they covered the smallest area (less than 6% of the floodplain)—were most effective at trapping fine sediment and P from floodwaters. Researchers concluded that broader planting of tall grasses in hydrologically connected floodplains can therefore potentially help reduce downstream export of sediment and P.



Graduate student Kelvin Adu Baah (center) with field assistants Kayla Nordman (left) and Maria Crawford.

Photo: Peter Moore

Impacts of disturbance on central Iowa forests

By Jan Thompson, Morrill Professor, natural resource ecology and management, Iowa State University

The landscape of Iowa currently has just over 2.85 million acres of forest land, with contiguous areas of forest concentrated in the eastern third of the state and along major rivers and streams throughout the state. Plant communities, especially spring-flowering herbaceous plants in the understory of Iowa’s forests, have important ecological functions (providing a reservoir of biological diversity as well as nutrient capture and recycling) and have changed over time, influenced by patterns of land use within and around them.

A Leopold Center-supported project is reassessing plant community characteristics first measured 25 years ago in forests in seven central Iowa counties, including privately-owned forests that were grazed along with nearby areas not used for grazing and compared to relatively pristine forest preserves. Our objectives were to determine if these plant communities have continued to change over time and whether other contemporary changes (e.g., climate, nutrient enrichment) have led to greater

numbers of invasive and native generalist species, as well as which types of forests and species should be targeted for restoration efforts.

During spring and summer 2024, a team of faculty, graduate students and undergraduate students assessed forest plant communities present on 40 of the plots located at 10 different sites that had been first examined in the summer of 2000.

Overall, we catalogued 30 species of spring-flowering and 79 species of summer-flowering herbaceous plants, 30 species of native woody plants (shrubs, vines, small trees) and 32 non-native plants (herbaceous and woody). Preliminary analyses indicate important differences in numbers of spring-flowering and total herbaceous species among plot types (both were greatest in pristine forest plots and lowest in formerly grazed forest plots). Analyses of data is ongoing to describe changes in plant community composition over time as well as possible differences among soil characteristics.



Diverse understory species in a pristine forest include honewort, spring beauty and yellow forest violet.

Photo: Noah Schultz

LCSA continues support for Wallace Chairs and GPSA students

Leopold Center helped support the active, interdisciplinary portfolios of research, extension and teaching projects in 2024 conducted by Iowa State University Henry A. Wallace Chairs for Sustainable Agriculture, Professor J. Arbuckle, sociology and criminal justice, and Professor Matt O'Neal, plant pathology, entomology and microbiology. They presented reports of their work at state, national and international meetings, contributing to the pursuit of agricultural sustainability in Iowa and far beyond.

They also led work to develop a proposal to establish an undergraduate program in sustainable agriculture at Iowa State. Under O'Neal's leadership, a core group of faculty met to develop curriculum ideas, and Arbuckle coordinated a group of social scientists planning a conservation social science track for the proposed program.

Other responsibilities included supporting and advising graduate students and collaborating with many partners in academia and the private sector to further a wide variety of projects.

GPSA

In 2024, LCSA provided \$21,329 to the Iowa State's Graduate Program for Sustainable Agriculture (GPSA), which helped support student scholarships, and activities and expenses for the annual GPSA research Symposium.

More information at <https://www.susag.iastate.edu>.

Iowa Learning Farms and Leopold Center: A 20-year success story

Lhe Leopold Center for Sustainable Agriculture has been an important partner of the Iowa Learning Farms from the beginning in 2004. ILF marked its 20th year in 2024, and the Leopold Center's support helped ILF continue to host successful in-person and virtual field days.

Thirty-one in-person field days were held in 2024 with 956 participants. The field days featured the following topics: cover crops, relay intercropping, nutrient management, bioreactors, saturated buffers, forestry managements, beavers, wetlands, water quality, rotational grazing, soil health and perennial vegetation.

ILF hosted six virtual field days with 781 attendees and 1,848 archival views. These events highlighted topics including pasturing oxbows, perennial ground cover in cropping systems, agricultural drainage well closures and smart agricultural drainage projects.

Find out more at <https://www.iowalearningfarms.org/events-1>.



Farmer partner Justin Jordan hosted a field day to discuss how he has worked to implement a variety of practices like no-till, cover crops and CRP on his farm in recent years.

Photo: ILF

Trees and tiles: Quantifying ecosystem goods and services of saturated riparian forest buffers

By William "Billy" Beck, Iowa State University Extension and Outreach forestry specialist

A recent Leopold Center for Sustainable Agriculture award seeks to quantify ecosystem goods and services of saturated riparian forest buffers (SRFB)—a novel edge-of-field conservation practice with a significant perennial woody vegetation (i.e., trees) component.

The award builds upon a previous LCSA effort that established a 3.5-acre research, teaching and extension SRFB in central Iowa in 2021. The practice has potential to provide farmers with tangible benefits (e.g., fuelwood, wildlife habitat) in addition to water quality enhancement, with cost-share available through the Natural Resources Conservation Service (NRCS) code CP-22S. To address concerns over trees adjacent to tile lines, annual "scoping" of tiles is quantifying woody root intrusion.

Nitrate removal

Bi-weekly groundwater nitrate sampling indicates a mean nitrate concentration reduction of 66% from incoming tile water to the edge of the 50-foot buffer. Individual tree species treatment blocks show an interesting preliminary trend in performance, with swamp white oak reducing nitrate concentration by 84%, hickory/pecan by 72%, and sycamore by 42%.

Pollinator use

Assistant Professor Katherine Kral-O'Brien, natural resource ecology and management, initiated annual pollinator presence surveys in 2024 and found honeybee, hoverfly and butterfly species present—notably black swallowtail, pearl crescent and monarch. Plant-pollinator interactions are expected to increase as the native trees, shrubs and forbs mature.

Root intrusion

The lateral tile was first "scoped" in fall 2024 to assess presence of in-tile roots associated with tree species treatments. In-tile rooting was rare overall, regardless of tree species. When roots were encountered, the vast majority appeared to be associated with non-woody vegetation.

Learn more about trees and tiles

Numerous ISU Extension and Outreach events have centered on the SRFB site. Check out a 2024 Iowa Learning Farms webinar on this topic, at <https://go.iastate.edu/N3ZBCC>.



Forestry students Luke Morarend (left) and Cesar Martinez (right) standing in one of the sycamore treatment blocks in October 2024. The sycamores are almost 10 feet tall after four growing seasons.

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