



ICICLE  
DEMOCRATIZING AI

Intelligent Cyberinfrastructure with Computational  
Learning in the Environment (ICICLE)

## Webinar Series

# Cyberinfrastructure for Biodiversity Research

Researchers, Practitioners, Developers

interested in exploring the *benefits of field studies and emphasizing relationships with the biodiversity community*

here is an opportunity to learn from experts in the field !

When: Thursday, June 12 ,2025 , 11AM - Noon EST

Zoom Link:

<https://osu.zoom.us/j/93195486710?pwd=UVRwNG4wVkVCV25QSnZDMWxOWVg2QT09>

**ABSTRACT:** Use-inspired cyberinfrastructure (CI) delivers efficacious, efficient, and context-aware data, software, and hardware to help research communities solve their problems. In biodiversity communities, drones, camera traps, and acoustic sensors are increasingly critical CI, enabling breakthroughs driven by data harvested in the field. However, **many pressing intellectual shortfalls in biodiversity require coordinated, adaptive, and multi-modal sensing systems not supported by today's CI for biodiversity research.** This webinar will present *Smart Fields*, an interdisciplinary collaboration housed in the ICICLE AI Institute, that is developing novel, use-inspired CI to supercharge biodiversity research. By design, **our CI emphasizes relationships with the biodiversity community and products that make field studies more effective, efficient, and affordable.** With our CI as a backdrop, biodiversity researchers and practitioners are (1) *exploring ambitious plans to develop a living lab at the largest conservation center in North America*, (2) *conducting field studies with integrated drones, camera traps, and acoustic sensors that adapt to each other*, (3) *making better use of a wide range of AI systems from species detection to code generation*, and (4) *enhancing existing CI for biodiversity.*

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CI for Animal Ecology

cyberinfrastructure

AI Models

✓ automate data collection

✓ real-time insights

Animal Ecology Data

Pterodroma sandwichensis

Spiza hircus

Corvus sinuatus

Antilocapra americana

Dryas gazelle

Dryas gazelle

Stakeholders

Field Study Deployments

Advances in Biodiversity

CI for Field Studies

Use-Inspired AI Research

Datasets & Benchmarks

Mazama americana

Crocuta crocuta

Partnerships

- Shortfalls in biodiversity knowledge
  - How many species collaborate with Piers David Over?
  - Where do rare, endangered species like Himalayan monies live? Where will they live in 5 years?
  - What source conditions have first-order effects at each crop growth stage?
- Stakeholders
  - Practitioners
  - Researchers & Scientists
  - Institutes & Agencies

Democratized via data

- Emergent, mission-specific multi-modal datasets harvested over long periods in remote locations enable global research on biodiversity shortfalls
- Novel digital methods
  - AI to characterize ecological systems, wildlife behaviors and social interactions, and plant health
- AI-driven management
  - Avoided privacy and safety
  - Conservation practices with reclaimed land
  - Staffing and management for zooserve operations

DEMOCRATIZED

USE-INSPIRED

PLUG & PLAY

CYBERINFRASTRUCTURE



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