

# 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 !

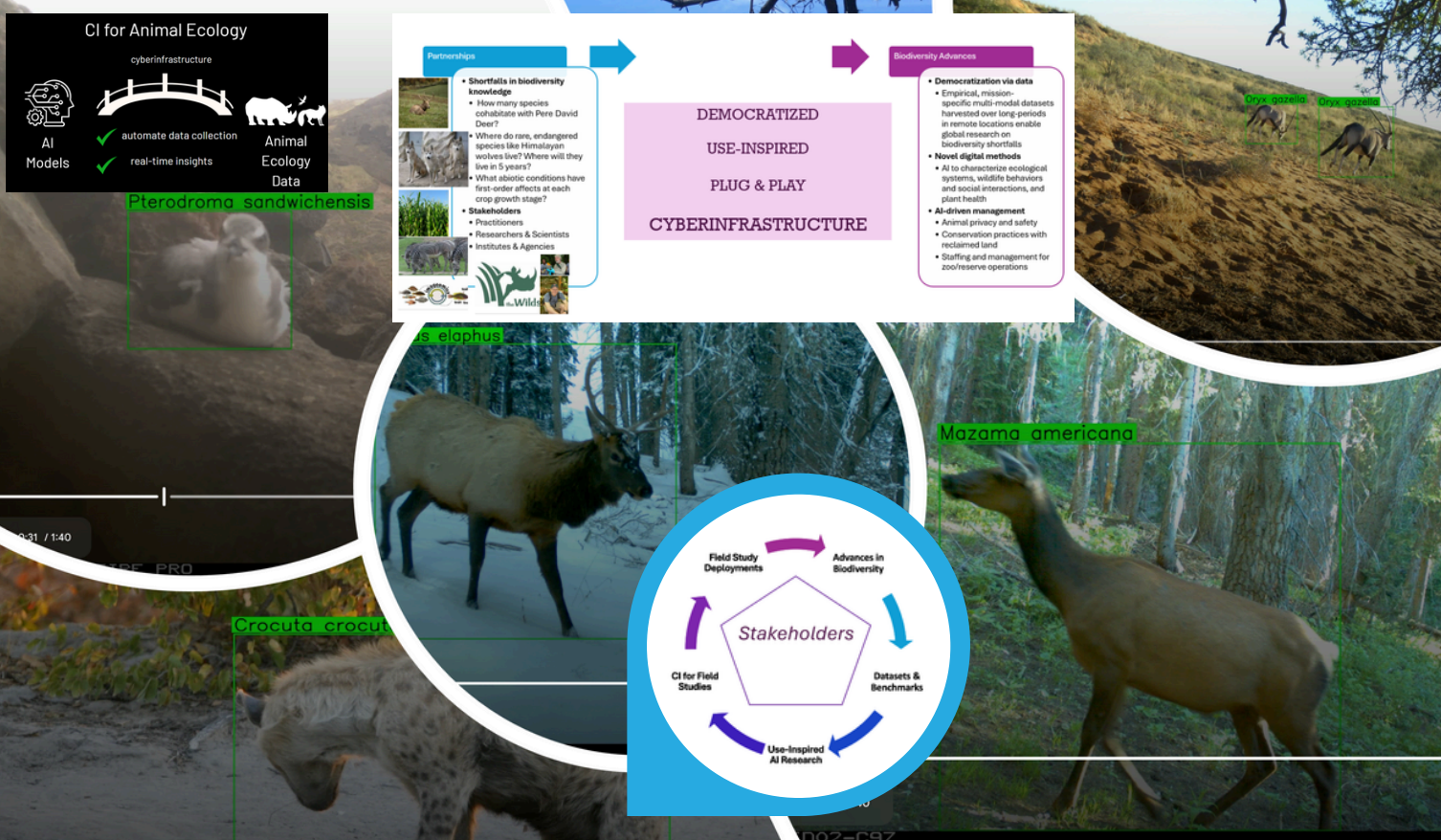
**When: Thursday, July 10, 2025 , 11AM - Noon EST**

**Zoom Link:**

**<https://osu.zoom.us/j/93195486710?pwd=UVRwNG4wVkVVCV25QSnZDMWxOWVg2QT09>**

**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

**Partnerships**

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

**Biodiversity Advances**

- Democratization via data
  - Empirical, 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
  - Animal privacy and safety
  - Conservation practices with reclaimed land
  - Staffing and management for zoo/reserve operations

**DEMOCRATIZED USE-INSPIRED PLUG & PLAY CYBERINFRASTRUCTURE**

**Field Study Deployments** → **Advances in Biodiversity** → **Datasets & Benchmarks** → **Use-Inspired AI Research** → **CI for Field Studies** → **Field Study Deployments**

**Stakeholders**

**Pterodroma sandwichensis**

**Crocuta crocuta**

**Mazama americana**

**Elephant**

