

A. Center/Institute/Program

Center Name: Institute for Applied Ecosystem Studies

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Director/Chairperson: Eric Gustafson
Representative to AERC: Eric Gustafson

B. Major objectives of the Center/Institute/Program

The mission of the Institute for Applied Ecosystem Studies is to develop the theory and application of scaling science to provide knowledge at relevant scales in forestry.

C. Major ecosystem research emphases

1. The link between **energy, climate, and tree genetics** is key to developing fast-growing tree crops as energy feedstocks and to understanding the effects of climate change on natural and plantation forests, but critical knowledge gaps exist for both of these subjects.
2. Increased understanding is needed for **climate change impacts** on forest productivity, species composition, and the biogeochemistry of terrestrial ecosystems at multiple scales, and critical feedback processes between biological and physical components of the climate system. Methods are needed for assessing the hazards, risks, and opportunities of forest management to make recommendations for mitigating effects of climate change on forest ecosystems.
3. The reciprocal link between the **spatial and temporal dynamics** of landscape elements and ecological processes is a first principle of landscape ecology, and we seek to use this link to make reliable predictions to guide management and policy decisions.
4. Innovative **scaling concepts and tools** are needed to integrate disciplinary research and translate forestry knowledge to policy-relevant scales.

D. Staff

Permanent scientific staff: PhD: 5, MS: 1
Scientific support Staff: Postdocs: 0, Technicians: 10
Other support staff: Clerical: 1, Administrative: 1
Graduate students: PhD: 0, MS: 0
Summer undergraduates: 10

Affiliates – we partner with about 20 cooperators through Research Joint Venture Agreements and informal collaborations.

Faculty:

Postdoctoral fellows and senior staff:

Graduate students:

Technicians:

Undergraduates:

E. Approximate annual funding (recent year)

Core funding: \$ 2.5M

Sources: Congressional appropriation

Endowment: None

Grants: \$260K

Other:

F. Areas and facilities for ecosystem research studies

Harshaw Research Farm (Aspen-FACE experiment)

Argonne Experimental Forest on the Chequamegon-Nicolet National Forest

Institute labs, growth chambers and greenhouses

G. Research staff directly involved in ecosystem research (names and specialty areas)

Eric Gustafson, landscape ecology

Mark Kubiske, global change effects on tree physiology and forest communities

Deahn Donnerwright, wildlife ecology and effects of timber harvest residual removal on biodiversity

Paula Marquardt, plant genetics

Brian Sturtevant, disturbance ecology, landscape succession and disturbance modeling with LANDIS-II

Ron Zalesny, hybrid poplar genetics, short-rotation intensive culture. bioenergy

H. Long-term data sets (code name, number of years of data, computer accessibility)

None