

## **A. Center/Institute/Program**

### **Center Name: Ecosystem Science Center**

Address:

School of Forest Resources & Environmental Sciences  
Michigan Technological University  
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Web Page: <http://ecosystem.mtu.edu>

Director/Chairperson: Dr. Andrew Burton

Representative to AERC: Dr. Andrew Burton

## **B. Major objectives of the Center/Institute/Program**

The Ecosystem Science Center (ESC) will advance the understanding of how ecosystems function and how human activities influence ecosystem processes by:

- (1) Fostering ecosystem research through collaboration and acquisition of extramural support
- (2) Improving Michigan Tech's ability to educate graduate and undergraduate students in the area of ecosystem science

## **C. Major ecosystem research emphases**

Global change research

Exotic species ecology and management

Wildlife ecology

Carbon Sequestration and Bioenergy

Nutrient cycling and carbon allocation in northern ecosystems

Atmospheric science

Below ground ecological processes

Community Ecology

Restoration ecology

Decomposition processes

## **D. Staff**

All ESC members are faculty (including adjuncts) or staff in academic units at Michigan Tech. Only administrative staff receive a portion of their direct support from ESC.

Permanent scientific staff: PhD: 31, MS: 7

Scientific support Staff: Postdocs: 2, Technicians: 7

Other support staff: Clerical:     , Administrative: 2

Graduate students: PhD: 28+, MS: 30+

Summer undergraduates: 30+

Affiliates

### **E. Approximate annual funding (recent year)**

Core funding: Grants to ESC members result in \$5.5 million in research expenditures annually. Overhead return from these expenditures generates \$40,000 - \$60,000 for ESC annually, which is used primarily to support programs enhancing graduate education, research and travel, faculty development, and equipment acquisition.

Sources: NSF, US DOE, US DOA, US DOI, WI DNR, MI DNRE, private industry

Endowment:

Grants: All current funding is from grants

Other:

### **F. Areas and facilities for ecosystem research studies**

ESC members have individual research labs located in the School of Forest Resources and Environmental Science, the departments of Biological Sciences and Civil and Environmental Engineering and other departments at Michigan Tech. Research locations and other facilities utilized by our members are listed below.

Ford Forestry Center – a 4,547 acre facility for research and education. Physical facilities are designed to accommodate programs of education, research, and service. A modern dormitory and related facilities provide year-round housing capability for 94 people.

USDA Forest Service Northern Research Station <http://www.nrs.fs.fed.us/>. Two ESC members are USFS Research Ecologists and Michigan Tech Adjunct faculty members located at the Climate, Fire, and Carbon Cycle Sciences unit in Houghton, adjacent to Michigan Tech.

Aspen FACE site in Rhinelander, WI <http://aspenface.mtu.edu/>

Long Term Ecosystem Research on Moose and Wolves of Isle Royale  
<http://www.isleroyalewolf.org/wolfhome/home.html>

The Michigan Gradient Study <http://forest.mtu.edu/research/michigangradient/>

Huron Mountains Club Wildlife Foundation <http://www.hmwf.org/>

Seney Wildlife Refuge <http://www.fws.gov/Midwest/Seney/>

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

Joseph Bump, trophic control of ecosystem function

Andrew Burton, nutrient cycling, global climate change ecology

Molly Cavalleri, tree ecophysiology, forest response to global change

Rod Chimner, wetland and restoration ecology, climate change and carbon cycling

Paul Doskey, environmental biogeochemistry, atmospheric-biospheric exchange

Mike Falkowski, terrestrial remote sensing, landscape ecology, quantitative ecology

David Flaspohler, conservation and avian ecology, herbivory

Robert Froese, biometrics, modeling, ecosystem carbon

Oliver Gailing, ecological, conservation and forensic genetics  
Kathy Halvorsen, sociology of natural resources, environmental policy  
Casey Huckins, aquatic ecology of riparian systems, lakes and streams  
Mike Hyslop, remote sensing applications to forest resource management  
Maria Janowiak, climate change, forest carbon management  
Marty Jurgensen, forest soil productivity, ecosystem nutrient cycling  
Evan Kane, soil carbon, wetland processes, soil processes  
Peter Laks, decomposition, wood destroying insects  
Eric Lilleskov, ecosystem/ microbial community relationships, soil invasive species  
Alex Mayer, human-biophysical interactions in water systems, watershed management  
Audrey Mayer, sustainability science, environmental policy, landscape ecology  
Linda Nagel, forest vegetation dynamics and forest invasive species control  
Judith Perlinger, environmental transport and transformation of organic chemicals  
Rolf Peterson, predator/prey ecology  
Thomas Pypker, forest hydrology, ecohydrology, stable isotopes  
Sigrid Resh, soil carbon sequestration and restoration, isotope applications in forests  
Dana Richter, forest mycology, fungal ecology  
Andrew Storer, forest health and management of invasive species  
Chris Swanston, forest soil carbon cycling, climate change adaptation  
Catherine Tarasoff, invasive and road ecology, applied restoration and weed control  
Noel Urban, organic matter chemistry, wetland biogeochemistry, environmental impact and fate of pollutants  
John Vucetich, demographic and genetic elements of population biology  
Leah Vucetich, Isle Royale wolf genetics  
Chris Webster, quantitative and disturbance ecology, restoration silviculture, wildlife/habitat relationships  
Hairong Wei, gene function prediction, genomics and bioinformatics on tree growth

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

Aspen FACE site in Rhineland, WI <http://aspenface.mtu.edu/> (10 years)

Long Term Ecosystem Research on Moose and Wolves of Isle Royale  
<http://www.isleroyalewolf.org/wolfhome/home.html> (50 years for wolf and moose data)

The Michigan Gradient Study <http://forest.mtu.edu/research/michigangradient/data.htm>  
(20 years)