

# Tedward Erker

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## Education

- 2013–Present **Ph.D.**, *University of Wisconsin–Madison*, 3.929.  
Forestry, Department of Forest and Wildlife Ecology  
Committee: Phil Townsend, Jun Zhu, Chris Kucharik, Eric Kruger, Annemarie Schneider.
- 2013–Present **M.S.**, *University of Wisconsin–Madison*.  
Biometry, Department of Statistics
- 2006–2010 **B.A.**, *Washington University in St. Louis*, 3.83.  
Environmental Studies–Ecology/Biology, Summa Cum Laude

## Experience

- 2015–Present **Research Assistant**, *UW-Madison*.
- Map Urban Forests of Wisconsin
    - Tested 3 machine learning algorithms to classify terabytes of imagery
    - Processed imagery in parallel at UW's Center for High Throughput Computing
    - Geospatial analysis in R and image segmentation in python.
  - Carbon Budget of Urban Forest
    - Assessed impact of tree canopy on residential building energy use and carbon emissions of ~30,000 Madison homes.
  - Canopy Foliar Trait Mapping with Imaging Spectroscopy.
    - Applied partial least squares regression models to predict foliar canopy traits (e.g. nitrogen content) from imaging spectroscopy data
    - Explored anthropogenic and environmental drivers of trait variation across Madison, WI.
- 2013–2015 **Teaching Assistant**, *UW-Madison*.
- Statistical Methods for Bioscience II, Spring 2015
    - Led 2 weekly discussion groups, graded homework and exams for this graduate-level course largely covering multiple linear and logistic regression
  - Forest Ecology, Fall 2013 and Fall 2014
  - Living With Wildlife, Spring 2014
- 2010–2012 **Chemistry and Biology Teacher**, *Confluence Prep Academy*, St. Louis.
- Educated over 120 students in six classes daily.
  - As first year teacher, developed chemistry curriculum for new charter school integrating College Readiness Standards with Missouri Science Standards.
- 2010–2012 **Corps Member**, *Teach For America*, Chicago & St. Louis.
- Selected from over 46,000 applicants nationwide
  - Committed two years to teach in under-resourced public schools

## Awards, Grants, and Fellowships

Jan 2018	Stan Conference Scholarship	
2015-2018	NASA Earth and Space Science Fellowship	\$105,000
Sep 2016	Mapping Wisconsin's Urban Tree Canopy (co-author), Wisconsin DNR	\$50,000
Oct 2016	George Kress Award for Outstanding Contribution of a Graduate Student	\$1,000
May 2016	Travel Award, UW-Madison Department of Forest and Wildlife Ecology	
Mar 2016	Cool Science Image contest winner, "Madison Lakes"	
May 2010	Outstanding Overall Achievement in Environmental Studies	
Jun 2008	Tyson Research Center Summer Undergraduate Research Fellowship	\$3,750

## --- Presentations

Nov 2016 **Mapping Urban Tree Canopy of Wisconsin**, M, a.  
d  
Madison, WI Society of American Foresters National Convention. Madison, WI

## --- Posters

Apr 2018 **Functional and Species Diversity of Trees in Urban Streets**, Washington, D.C..  
NASA Biodiversity and Ecological Forecasting Team Meeting

## --- Teaching Experience

### Spring 2015

#### **Statistical Methods for Bioscience II Teaching Assistant**

Led 2 weekly discussion groups, graded homework and exams for this graduate-level course. Prof. Murray Clayton. ;

### Fall 2013 and Fall 2014

#### **Forest Ecology Teaching Assistant**

Redesigned, created and independently implemented lab lessons in field and computer lab for ~70 students. Prof. Tom Gower (2013) and Prof. Phil Townsend (2014).

### Spring 2014

#### **Living With Wildlife Teaching Assistant**

Graded journals and exams, assisted students during office hours. Prof. Stan Temple.

### August 2010 - May 2012

#### **High School Chemistry and Biology Teacher**

Educated over 120 students in six classes daily. As first year teacher, developed chemistry curriculum for new charter school integrating College Readiness Standards with Missouri Science Standards. Cross-country coach. Confluence Preparatory Academy. St. Louis, MO.

### June 2010 - May 2012

#### **Teach For America Corps Member**

Selected from over 46,000 applicants nationwide to join the national teacher corps of recent college graduates who commit two years to teach in under-resourced public schools. Chicago, IL & St. Louis, MO.

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## Mentoring

My undergraduate mentees research a topic, collect new data, perform statistical analyses, and write final papers to complete small research projects. They create posters or presentations to share their work.

Fall 2017

### **Cheyenne Brandt**

Undergraduate Research Project: Effect of Leaf Area and Tree Canopy on the Urban Heat Island of Madison, WI.

Fall 2015

### **Bobby Shepherd**

Undergraduate Research Project: Investigating the influence of the urban heat island on autumn phenology of Norway Maple (*Acer platanoides*) with smartphone hemispherical photos.

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## Relevant Work Experience

August 2013 - December 2014

### **Arborist**

Worked part time as ground crew, hauling brush and aiding climber. Developed online Wisconsin tree species identification application. Urban Tree Alliance, Non-profit. Madison, WI.

February 2013 - August 2013

### **Arborist**

Performed ground crew work, climbed, and as certified pesticide applicator treated for a number of pests including the emerald ash borer. American Tree Experts. New Berlin, WI

March 2007 - May 2010

### **Greenhouse Assistant**

Water, transplant, propagate plants; maintain greenhouse. Work-Study at Washington University Plant Research Facility. St. Louis, MO.

April - August 2009

### **Farm Education Intern and Farmer**

Organized and guided trips of 16-40 students at farm and wilderness education center. Managed 3/4 acre garden and cared for sheep, goats, chickens, pigs, and cows as part of farm team. Farm And Wilderness Summer Camps. Plymouth, VT.

May - August 2008

### **Research Assistant**

Sampled vegetation, identified over 100 plant species as part of study to explore phylogenetic relationships in invasiveness. Tyson Research Center. Eureka, MO.

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## Professional Affiliations

Society of American Foresters, 2016–Present

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## Languages

Spoken: English, Spanish

Computing: R

## Service to the Department and University

Oct 2015 - Present

**Graduate Student Representative, Department of Forest and Wildlife Ecology**

Jul 2017

**Software Carpentry Volunteer**

## Service to Community

Fall 2014 and Fall 2015

**Guest Lab Instructor, Sustainability by the Numbers, Shabazz High School**

Fall 2017

**Guest Lab Instructor, AP Environmental Studies, East High School**

## Graduate Coursework

Semester	Course	Grade
F 2013	Diseases of Trees and Shrubs	A
	Tree Physiology	A
	Statistical Methods for Bioscience I	A
S 2014	Inquiry-Based Biology Teaching	A
	Intermediate Data Analysis with R	A
	Principles of Silviculture	S
	Statistical Methods for Bioscience II	A
	Teaching Biology: Special Topics	A
	Advanced Data Analysis with R	A
Su 2014	Calculus-Functions of Variables	S
F 2014	Field Methods in Remote Sensing	A
	Environmental Biophysics	A
	Intro Mathematical Statistics I	A
S 2015	Tools for Reproducible Research	A
	Remote Sensing Digital Image Processing	A
	Intro Mathematical Statistics II	AB
	Teaching Statistics	A
Su 2015	Statistical Consulting	A
F 2015	Statistical Methods-Spatial Data	AB
S 2016	Multilevel Models	A
S 2017	Ecosystem Concepts	B