

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
 - Prof. Murray Clayton.
 - Forest Ecology, Fall 2013 and Fall 2014
 - Redesigned, created and independently implemented lab lessons in field and computer lab for ~70 students.
 - Prof. Tom Gower (2013) and Prof. Phil Townsend (2014).
 - Living With Wildlife, Spring 2014
 - Graded journals and exams, assisted students during office hours.
 - Prof. Stan Temple.
- 2013–2014 **Arborist**, *Urban Tree Alliance*, Madison, WI.
- Worked part time as ground crew, hauling brush and aiding climber.
 - Developed online Wisconsin tree species identification application.

- Feb–Jul 2013 **Arborist**, *American Tree Experts*, New Berlin, WI.
- Performed ground crew work and climbed for pruning and removals
 - As certified pesticide applicator, treated for a number of pests including the emerald ash borer.
- 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.
 - Cross-country coach
- 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
- 2007–2010 **Greenhouse Assistant**, *Wash. U. Plant Research Facility*, St. Louis, MO.
- Water, transplant, and propagate plants; maintain greenhouse.
 - Work-Study
- Apr–Aug 2009 **Farm Education Intern and Farmer**, *Farm And Wilderness*, Plymouth, VT.
- 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.
- Jan–May 2008 **Undergraduate Teaching Assistant**, *Washington University in St. Louis*.
- Brave New Crops, Environmental Studies 3322
 - Prof. Glenn Davis Stone

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	
	Society of American Foresters National Convention	Madison, WI

Posters

Apr 2018	Functional and Species Diversity of Trees in Urban Streets	
	NASA Biodiversity and Ecological Forecasting Team Meeting	Washington, D.C.
May 2016	How Does the Urban Forest Affect the Urban Heat Island and Building Energy Use?	
	NASA Biodiversity and Ecological Forecasting Team Meeting	Silver Springs, MD.

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.

2017	Cheyenne Brandt	<i>Effect of Leaf Area and Tree Canopy on the Urban Heat Island of Madison, WI.</i>
2015	Bobby Shepherd	<i>Investigating the influence of the urban heat island on autumn phenology of (<i>Acer platanoides</i>) with smartphone hemispherical photos.</i>

Professional Affiliations

Society of American Foresters, 2016–Present

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