

## Kathleen S. Knight

Research Ecologist, USDA Forest Service Northern Research Station  
359 Main Road  
Delaware, OH 43015  
740-368-0063  
ksknight@fs.fed.us

### EDUCATION

**PhD 2006**                                      **University of Minnesota**                      **Ecology, Evolution, and Behavior**  
Advisor: Peter Reich    GPA: 3.97  
Factors that influence the invasion success of two woody invaders of forest understories

**B.A. 2001**                                      **Hiram College**                                      **Biology; Music Performance**  
GPA: 3.95                                      Summa Cum Laude

### EMPLOYMENT

Research Ecologist	USDA Forest Service	2006 – present
Research Assistant	University of Minnesota	Summer 2002 – 2005
Teaching Assistant	University of Minnesota	Fall 2002 – Spring 2004
Teaching Assistant	Hiram College	Fall 1998, Spring 2001
Science Tutor	Hiram College	Fall 1998, 2000, 2001
NSF REU – Henry Wilbur	Mountain Lake Biological Station	Summer 2000
Intern - Jim Steffen	Chicago Botanic Garden	Summer 1999
NSF REU – Andrew Sih	University of Kentucky	Summer 1998

### PUBLICATIONS

Knight KS, Long RP, Smith A, Gandhi K, Rebeck J, and Herms DA. 200\_. How fast will the trees die? Modeling ash (*Fraxinus* spp.) decline in forest stands infested by emerald ash borer (*Agrilus planipennis*). *In preparation*

Knight KS and Reich PB. 200\_. *Prunus serotina* escapes soil pathogens while *Rhamnus cathartica* encounters biotic resistance: a trans-Atlantic comparison of soil biota effects on two invasive species. *In preparation*

Knight KS, Long RP, Smith A, Gandhi K, Rebeck J, and Herms DA. 200\_. How fast will the trees die? A transition matrix model of ash (*Fraxinus* spp.) decline in forest stands infested by emerald ash borer (*Agrilus planipennis*). In: Proceedings, Emerald ash borer research and technology development meeting. pp. xx-xx. Pittsburgh, PA 23-24 Oct. 2007. Abstract. *In press*

Knight KS, Oleksyn J, Jagodzinski AM, Reich PB and Kasprowicz M. 2008. Overstory tree species regulate colonization by native and exotic plants: a source of positive relationships between understory diversity and invasibility. *Diversity and Distributions* DOI: 10.1111/j.1472-4642.2008.00468.x

Kurylo JS, Knight KS, Stewart JR, and Endress AG. 2007. *Rhamnus cathartica*: Native and naturalized distribution and habitat preferences. *Journal of the Torrey Botanical Society* 134: 420-430.

Knight KS, Kurylo JS, Endress AG, Stewart JR and Reich PB. 2007. Ecology and Ecosystem Impacts of *Rhamnus cathartica*: A review. *Biological Invasions* 9: 925-937.

Knight KS, Long RP, and Rebeck J. 2007. Predicting emerald ash borer-induced changes in forest tree species composition. In: Mastro, Victor; Lance, David; Reardon, Richard; Parra, Gregory, comps. Proceedings, Emerald ash borer and Asian longhorned beetle

- research and technology development meeting. pp. 25-26. Cincinnati, OH 29 Oct. – 2 Nov. 2006. FHTET-2007-04. Morgantown, WV: U.S. Department of Agriculture, Forest Service, Forest Health Technology Enterprise Team. Abstract.
- Knight KS. 2006. Factors that influence invasion success of two woody invaders of forest understories. Dissertation, University of Minnesota
- Knight KS and Reich PB. 2005. Opposite relationships between invasibility and native species richness at patch vs. landscape scales. *Oikos* 109: 81-88.
- Knight KS. 2005. Buckthorn biology and invasion history. In: Skinner LC (ed) Proceedings: Symposium on the biology, ecology and management of garlic mustard (*Alliaria petiolata*) and European buckthorn (*Rhamnus cathartica*) pp30-33. University of Minnesota 17-18 May 2005. USDA Forest Service Publication, St. Paul, Minnesota
- Knight KS. 2005. Biotic and abiotic influences on *Rhamnus cathartica* (common buckthorn) establishment. In: Skinner LC (ed) Proceedings: Symposium on the biology, ecology and management of garlic mustard (*Alliaria petiolata*) and European buckthorn (*Rhamnus cathartica*) pp34-36. University of Minnesota 17-18 May 2005. USDA Forest Service Publication, St. Paul, Minnesota

### **RESEARCH GRANTS**

- USDA Forest Service and Animal and Plant Health Inspection Service Request for Technology Development Proposals to improve the management of Emerald Ash Borer (EAB). A Tool for Assessing EAB Management Methods: A Model of Ash Decline for EAB-infested Forests. K. Knight, R. Long, and D. Herms. \$67,938; 2008-2010.
- USDA-NRI Weedy and Invasive Species in Agroecosystems. Responding to emerald ash borer impacts on forest structure and invasive plant colonization. J. Cardina, D. Herms, and K. Knight. \$499,959; 2007-2011
- GAPSA Travel Grant, University of Minnesota. \$200; 2005
- Anderson Fellowship, University of Minnesota. \$2500; 2005
- Doctoral Dissertation Improvement Grant, University of Minnesota. \$2500; 2004
- Applied Ecological Services Grant. \$2000; 2004
- Crosby Fellowship, University of Minnesota. \$5000 stipend + \$2000 grant; 2004
- Dayton Fellowship Grant, University of Minnesota. \$1100 research grant; 2004

### **INVITED PRESENTATIONS**

- Knight KS and Herms DA. 2008 Emerald ash borer: biology, impacts, research results, and implications. Forest Health 2008: Insect and Disease Update Meetings. March 19, Bloomsburg, PA, and March 20, St. Marys, PA.
- Knight KS. 2008. Emerald ash borer: an introduced species wreaking havoc in North America. January 29. Ohio State University Biology 102
- Knight KS, Long RP, Smith A, Gandhi K, Rebeck J, and Herms DA. 2008. How fast will the trees die? A transition matrix model of ash (*Fraxinus* spp.) decline in forest stands infested by emerald ash borer (*Agrilus planipennis*). January 10. Ohio State University Department of Evolution, Ecology, and Organismal Biology seminar series
- Knight KS, Long RP, Smith A, Gandhi K, Rebeck J, and Herms DA. 2007. How fast will the trees die? A transition matrix model of ash (*Fraxinus* spp.) decline in forest stands infested by emerald ash borer (*Agrilus planipennis*). EAB Research Update. November 7. Waldo, OH. (presented by K. Gandhi)

- Knight KS. 2006. Buckthorn ecology and ecosystem impacts. Buckthorn Workshop, Midwest Invasive Plant Symposium.
- Knight KS. 2005. Biology and impacts of buckthorn (*Rhamnus cathartica*) in the U.S. Biology, Ecology and Management of Garlic Mustard and European Buckthorn Workshop Co-sponsored by MN DNR, U.S. Forest Service, University of Minnesota
- Knight KS and Reich PB. 2005. Biotic and abiotic constraints on buckthorn invasion. Biology, Ecology and Management of Garlic Mustard and European Buckthorn Workshop Co-sponsored by: MN DNR, U.S. Forest Service, University of Minnesota
- Knight KS. 2004. Ecology of Biological Invasions. Ecology course, University of Minnesota Department of Ecology, Evolution, and Behavior
- Knight KS. 2004. What makes an area invasible? Augsburg College Biology Department Seminar Series
- Knight KS. 2003. Invasive Plants. Forest Ecology course, University of Minnesota Department of Forest Resources
- Knight KS. 2003. Buckthorn Ecology and Invasion History. Restoration Ecology course, University of Minnesota Department of Horticulture
- Knight KS. 2003. Ecology of Biological Invasions. Ecology course, University of Minnesota Department of Ecology, Evolution, and Behavior
- Knight KS. 2003. Climate Change. Biodiversity course, Macalester College Biology Department
- Knight KS. 2003. Biological Invasions. Biodiversity course, Macalester College Biology Department

### **CONTRIBUTED PRESENTATIONS**

- Knight KS, Long RP, Rebbeck J, Smith A, Gandhi K, and Herms DA. 2008. How fast will the trees die? Modeling ash (*Fraxinus spp.*) decline in forest stands infested by emerald ash borer (*Agrilus planipennis*) Ecological Society of America Conference. August, Milwaukee, WI.
- Knight KS, Rebbeck J, Bogard DA, and Gandhi K. 2008. A living laboratory at Dempsey wetlands: Forest ecology and emerald ash borer (*Agrilus planipennis*) research by middle school students. Ecological Society of America Conference. Poster. August, Milwaukee, WI.
- Knight KS, Long RP, Rebbeck J, Smith A, Gandhi K, and Herms DA. 2008. How fast will the trees die? A transition matrix model of ash (*Fraxinus spp.*) decline in forest stands infested by emerald ash borer (*Agrilus planipennis*) Poster. Central Hardwoods Forest Conference. April 8, Lafayette, IN.
- Knight KS, Long RP, Rebbeck J, Smith A, Gandhi K, Herms DA, Cardina J, and Herms CP. 2008. Effects of emerald ash borer on forest ecosystems. USFS Northern Research Station Seminar Series. March 10 Delaware, OH.
- Knight KS, Long RP, Rebbeck J, Smith A, Gandhi K, and Herms DA. 2008. Ash mortality in forests infested by emerald ash borer (*Agrilus planipennis*). Poster. Oak Openings Research Forum. January 26 Toledo, OH.
- Knight KS, Long RP, Smith A, Gandhi K, Rebbeck J, and Herms DA. 2007. How fast will the trees die? A transition matrix model of ash (*Fraxinus spp.*) decline in forest stands infested by emerald ash borer (*Agrilus planipennis*). EAB Research and Development Meeting. October 23-24. Pittsburgh, PA.

- Herms DA, Gandhi KJK, Cardina J, Long RP, Knight KS, Smith A, and McCullough DG. 2007. Impacts of emerald ash borer – induced gap formation on forest communities. EAB Research and Development Meeting. October 23-24. Pittsburgh, PA.
- Knight KS, Long RP, Smith A, Gandhi K, and Herms DA. 2007. How fast will the trees die? A transition matrix model of ash (*Fraxinus* spp.) decline in forest stands infested by emerald ash borer (*Agrilus planipennis*). Natural Areas Conference. October 9-12. Cleveland, OH
- Cardina J, Herms CP, Knight KS, Herms DA, and Smith A. 2007. Invasive plant surveys in emerald ash borer-impacted forest communities. Natural Areas Conference. October 9-12. Cleveland, OH.
- Herms DA, Gandhi KJK, Cardina J, Long RP, Knight KS, Smith A, and McCullough DG. 2007. Impacts of emerald ash borer – induced gap formation on forest communities. Natural Areas Conference. October 9-12. Cleveland, OH.
- Knight KS, Long RP, and Rebeck J. 2007. Predicting changes in forest composition due to emerald ash borer. Oak Openings Research Forum. January. Toledo, OH
- Knight KS, Long RP, and Rebeck J. 2006. Effects of emerald ash borer on forest communities. EAB-ALB annual meeting
- Knight KS, Oleksyn J, Jagodzinski AM, Reich PB and Kasproicz M. 2006. The effects of overstory tree species on invasion of *Prunus serotina* in Poland: Experimental evidence for positive relationships between understory diversity and invasibility. Ecological Society of America annual meeting
- Knight KS and Reich PB. 2005. Overstory and understory plant competition inhibits *Rhamnus cathartica*, an invasive shrub. Ecological Society of America annual meeting
- Knight KS and Reich PB. 2005. Native plant competition with buckthorn. Invasive Biology Research Consortium Retreat, Chaska, MN
- Knight KS and Reich PB. 2004. Opposite relationships between diversity and invasibility at patch vs. landscape scales. Invasive Biology Research Consortium Retreat, Chaska, MN
- Knight KS and Reich PB. 2003. Scale-Dependent relationship between species richness and buckthorn invasion. Poster; CONFOR Conference; Thunder Bay, Ontario

## **AWARDS, HONORS, FELLOWSHIPS, and SCHOLARSHIPS**

Wood-Rill Fellowship	UMN Center for Hardwood Ecology	2004-2005
Outstanding Performance Award for Teaching Assistants		2003
Nominated for Outstanding Performance Award for TA's		2002
This award is based on nominations and recommendation letters from students, recommendation letters from faculty, and end-of-semester student evaluations		
NSF Honorable Mention	NSF Graduate Fellowship Program	2001; 2002; 2003
Graduate Fellowship	University of Minnesota	2001-2002
Phi Beta Kappa	Hiram College	2001
Berg Scholarship	Hiram College Biology Dept.	2001
K.S. McMurray Scholarship	Hiram College Biology Dept.	2000
Frohring Scholarship	Hiram College Study Abroad	1999
Goldwater Scholarship	B.M.G. Foundation	1999-2001
Dean's List	Hiram College	1997-2001
Alpha Society (academic honor soc.)	Hiram College	1997-2001
Mastin Scholarship	Hiram College Biology Dept.	1997-2001
AUI Trustee Scholarship	Associated Universities Inc.	1997-2001

## **TEACHING**

### **Teaching Experience**

#### **University of Minnesota Teaching Assistant:**

Received Outstanding Performance Award for Teaching Assistants	2003
Plant Interactions with Animals & Microbes (writing intensive)	Fall 2003
Ecology	Spring 2003; 2004
General Biology	Fall 2002; 2003

#### **Hiram College Teaching Assistant:**

Vascular Plants (included 3-week field trip)	Spring 2001
Botany	Fall 1998

#### **Hiram College Tutor:**

Science Learning Center	Fall 2000; 2001
Botany	Fall 1998

### **Teaching Development Activities**

#### **The University of Minnesota Center for Teaching and Learning Services:**

Preparing Future Faculty: Practicum for Future Faculty (3 credit course)	Spring 2003
Preparing Future Faculty: Teaching in Higher Education (3 credit course)	Fall 2002
Preparing Future Faculty Retreat (one day of workshops)	January 2002
Teaching Enrichment Series (one day of workshops)	August 2002

#### **The University of Minnesota Center for Interdisciplinary Studies of Writing:**

Teaching with Writing (1 week intensive seminar)	August 2003
--	-------------

#### **The University of Minnesota Academy of Distinguished Teachers:**

Teaching and Learning in a Research University (one day of workshops)	April 2003
---	------------

### **INSTITUTIONAL SERVICE**

CBS Mentoring Program	University of Minnesota	2003-2004
EEB Ethics and Aesthetics Committee	University of Minnesota	2003-2004
Led Orientation for New TA's workshop	University of Minnesota	August 2003
EEB Graduate Student President	University of Minnesota	2002-2003
Friday Noon Seminar Committee	University of Minnesota	2001-2002
AIBS Student Chapter President	Hiram College	2000-2001
Environmental Club Vice-President	Hiram College	2000-2001
Environmental Club Secretary	Hiram College	1999-2000

### **PROFESSIONAL AFFILIATIONS**

Ohio Invasive Plants Council – Research Workgroup Member		2006-present
Ecological Society of America		2004-present
Midwest Invasive Plants Network		2007-present
Society of American Foresters		2007-present

### **COMMUNITY OUTREACH**

Research Ecologist at Dempsey Middle School (Delaware, OH)		2006-present
Led 7 <sup>th</sup> and 8 <sup>th</sup> grade advanced science classes in using school Forest as a living laboratory for monitoring and EAB research		
Science Fair Judge (several school and regional fairs in OH and MN)		2003-2007
Regional Science Bowl Volunteer (St. Paul, MN)		January 2004; 2005
Naturalist at Linwood School (Wyoming, MN)		Spring 2003
Led biology labs and forest hikes for kindergarten to 6 <sup>th</sup> grade students		
Invasive Plant Expert (St. Paul, MN)		Fall 2002
Identified buckthorn and other invasive shrubs for homeowners		

### **REVIEWER**

Iowa Science Federation (grant proposal)	
Journal of the Torrey Botanical Society (manuscript)	

## **REFERENCES**

### **Dr. Susan Stout (my research unit project leader 2007-present)**

USDA Forest Service Northern Research Station  
P.O. Box 267  
Irvine, PA 16329  
E-mail: [sstout@fs.fed.us](mailto:ssout@fs.fed.us)  
Phone: 814-563-1040

### **Dr. Robert Long (my research unit project leader 2006-2007)**

USDA Forest Service Northern Research Station  
359 Main Road  
Delaware, OH 43015  
E-mail: [rlong@fs.fed.us](mailto:rlong@fs.fed.us)  
Phone: 740-368-0052

### **Dr. Peter Reich (graduate advisor 2001-2006)**

Department of Forest Resources  
1530 N Cleveland Ave  
St Paul, MN 55108  
E-mail: [preich@umn.edu](mailto:preich@umn.edu)  
Phone: 612-624-4270

### **Dr. Donald Alstad (I was a teaching assistant for his Ecology course in 2003 and 2004)**

Department of Ecology, Evolution and Behavior  
1987 Upper Buford Circle  
St Paul, MN 55108  
E-mail: [dna@umn.edu](mailto:dna@umn.edu)  
Phone: 612-624-6748