

# Jennifer Nagel Boyd

Department of Biology, Geology & Environmental Science • University of Tennessee at Chattanooga  
tel 423-425-5368 • jennifer-boyd@utc.edu • www.jboydlab.com

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## Research & Academic Interests

plant ecology, biological conservation, global change biology  
experiential and community-based learning, scientific writing

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## Education

Ph.D.	2003	Columbia University	Earth & Environmental Sciences
M.Phil.	2002	Columbia University	Earth & Environmental Sciences
M.A.	2001	Columbia University	Earth & Environmental Sciences
B.S.	1997	Allegheny College	Environmental Science/English (double)

Successfully completed the first year of a two-year Earth & Environmental Sciences Journalism program at Columbia University in spring 1999 before entering my Ph.D. program.

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## Professional Experience

Graduate Program Coordinator	University of Tennessee at Chattanooga	2015-present
Associate Professor	University of Tennessee at Chattanooga	2014-present
Assistant Professor	University of Tennessee at Chattanooga	2008–2014
Visiting Assistant Professor	Connecticut College	2007–2008
Instructor/Laboratory Coordinator	University of Hartford	2006–2007
Adjunct Faculty	University of Hartford	2006
Post-Doctoral Instructor	University of Tennessee	2005
Post-Doctoral Fellow	University of Tennessee	2003–2005
Graduate Research Fellow	Columbia University	1998–2003
Teaching Assistant	Columbia University	1999–2002

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## Honors & Awards

Performance Award	University of Tennessee at Chattanooga	2015–2016
Outstanding Research Award	University of Tennessee at Chattanooga	2014–2015
Performance Award	University of Tennessee at Chattanooga	2014–2015
Performance Award	University of Tennessee at Chattanooga	2013–2014
ThinkAchieve Faculty Award	University of Tennessee at Chattanooga	2012–2013
Keep the Stars Shining Award	University of Tennessee at Chattanooga	2011–2012
Post-Doctoral Fellowship	National Parks Service	2003–2005
Doctoral Thesis Distinction	Columbia University	2003
Graduate Research Fellowship	Columbia University	1998–2003

## Peer-reviewed Publications

- Wilder L, Boyd JN (2016) Ecophysiological responses of *Tsuga canadensis* (Eastern Hemlock) to projected atmospheric CO<sub>2</sub> and warming. *Southeastern Naturalist* 15: 697-713.
- Boyd JN, Raymond GA<sup>\*\*</sup>, Call GP, Pistrang MJ (2016) Ecophysiological performance of the rare terrestrial orchid *Platanthera integrilabia* across contrasting habitats. *Plant Ecology* 217: 1259-1272.
- Peacock J, Covino R, Irvin L, Boyd J, Klug H, Auchter J, Laing C (2016) University faculty perceptions and utilization of popular culture in the classroom. *Studies in Higher Education* 41: 1-13.
- Sikkema JJ<sup>\*</sup>, Boyd JN (2015) Impacts of invasive *Ligustrum sinense* and *Lonicera japonica* removal on the co-occurring rare forest herb *Scutellaria montana*. *Acta Oecologica* 69: 182-191.
- Benson AR<sup>\*</sup>, Boyd JN (2014) Individual- and population-level effects of *Odocoileus virginianus* herbivory on the rare forest herb *Scutellaria montana*. *Global Ecology and Conservation* 1: 80-92.
- Kile HM<sup>\*</sup>, Shaw J, Boyd JN<sup>†</sup> (2013) Response of federally threatened *Scutellaria montana* (large-flowered skullcap) to pre-transplantation burning and canopy thinning. *Southeastern Naturalist* 12: 99-120.
- Kile HM<sup>\*</sup>, Shaw J, Boyd JN (2011) Relocation success of federally threatened *Scutellaria montana* (Lamiaceae, large-flowered skullcap) from a proposed highway corridor. *Journal of the Tennessee Academy of Science* 86: 101-104.
- Boyd JN, Xu CY, Griffin KL (2009) Cost-effectiveness of leaf energy and resource investment of invasive *Berberis thunbergii* (Japanese barberry) and co-occurring native shrubs. *Canadian Journal of Forest Research* 39: 2109-2118.
- Nagel<sup>†</sup> JM, Wang XZ, Lewis JD, Fung HA<sup>\*\*\*</sup>, Tissue DT, Griffin KL (2005) Atmospheric CO<sub>2</sub> enrichment alters energy-use efficiency and patterns of energy investment and allocation in *Xanthium strumarium*. *New Phytologist* 166: 513-523.
- Nagel<sup>†</sup> JM, Griffin KL (2004) Can gas-exchange characteristics help explain the invasive success of *Lythrum salicaria*? *Biological Invasions* 6: 101-111.
- Nagel<sup>†</sup> JM, Huxman TE, Griffin KL, Smith SD (2004) CO<sub>2</sub> enrichment reduces the energetic cost of biomass construction in an invasive desert grass. *Ecology* 85: 100-106.
- Nagel<sup>†</sup> JM, Griffin KL, Schuster WSF, Tissue DT, Turnbull MH, Brown KJ, Whitehead D (2002) Energy investment in leaves of red maple and co-occurring oaks within a forested watershed. *Tree Physiology* 22: 859-867.
- Nagel<sup>†</sup> JM, Griffin KL (2001) Construction cost and invasive potential: comparing *Lythrum salicaria* (Lythraceae) with co-occurring native species along pond banks. *American Journal of Botany* 88: 2252-2258.

## Manuscript in Press

- Turk JR<sup>\*</sup>, Alp N, Dattilo A, Boyd JN. Cost-benefit analysis of native warm season grasses for transmission line right-of-way revegetation. *Ecological Engineering*.

## Manuscripts in Preparation

Russo L<sup>\*</sup>, Boyd JN. The effects of invasive *Lonicera maackii* leaves on survival and growth of invasive *Aedes albopictus* mosquitoes. To be submitted to *Southeastern Naturalist* in summer/fall 2017.

Boyd JN, Sikkema J, Blunck C, Webb S, Odom A. Do invasive plants species threaten rare ones? A review. To be submitted to *Castanea* in summer/fall 2017.

<sup>‡</sup> denotes maiden name, <sup>\*</sup> graduate student, <sup>\*\*</sup> undergraduate student, <sup>\*\*\*</sup> high school student

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## Academic Publications

Boyd JN (2014) Sampling Strategies and Forestry Measurements. In *A Laboratory Manual for Introduction to Environmental Science*, 1<sup>st</sup> Edition. Kendall Hunt, Dubuque, IA.

Boyd JN (2014) Exercise 10: Species Diversity of Plankton Community. In *Investigations of Biology: Biology 1120*, 2<sup>nd</sup> Edition. Hayden McNeil, Plymouth, MI, pp. 151-162.

Boyd JN (2014) Exercise 11: Trophic Dynamics of a Rotting Log Community. In *Investigations of Biology: Biology 1120*, 2<sup>nd</sup> Edition. Hayden McNeil, Plymouth, MI, pp. 163-174.

Nagel<sup>‡</sup> JM (2003) Influence of energetic properties on plant success: comparative studies of species from various ecosystem types. Columbia University, New York, NY. (Ph.D. thesis)

<sup>‡</sup> denotes maiden name

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## Grants, Contracts & Fellowships (total external funding as PI = \$1,828,142)

Boyd J (PI); Baskauf C, Brzyski J, Cruse-Sanders J (co-PIs) Collaborative Research: RUI: Reasons for rarity? Exploring acclimatory and adaptive constraints to commonness. National Science Foundation, Division of Environmental Biology, Population and Community Ecology core program. Anticipated August 2017 – July 2021. **\$1,111,026**

Boyd J. Exploring the development of innovative models to predict species performance from ecologically important trait values. The University of Tennessee at Chattanooga, Faculty Research Grant. January 2017–December 2017. **\$1,174**

Boyd J. U.S. Fish and Wildlife Service. Assessing and enhancing the success of transplantation to support *Platanthera integrilabia* conservation. January 2017–December 2021. **\$22,354**

Deardorff M (PI); Carver E, Romagni J, Boyd J (co-PIs). Collaborative Research: ASPIRE: Appalachian Students Promoting the Integration of Research in Education. National Science Foundation, Division of Undergraduate Education, Standard Grant program. September 2017–August 2021. **\$2,112,010**

Boyd J (PI); Bonsall M, Hiestand J, Carroll A (co-PIs) Investigating intraspecific variability in energetic responses to climate change toward a mechanistic approach to modeling plant species distributions. The University of Tennessee at Chattanooga, Collaborative Research Initiative for Sponsored Programs. July 2015–June 2016. **\$7,962**

Boyd J. Intraspecific variability of climate change responses of Appalachian plant species. The University of Tennessee at Chattanooga Faculty Research Grant. July 2014–June 2015. **\$2,808**

Boyd J. Investigating intraspecific variability of responses of Appalachian plant species to climate change toward an improved understanding of species migration. The University of Tennessee at Chattanooga Research and Creative Activity Grant. July 2014–June 2015. **\$3,861**

Boyd J (PI); Chatzimanolis S, Klug, H, Shaw J, Wilson TP (co-PIs); Potts GE, Spratt HG (major participants). MRI: Acquisition of growth chambers for global change biology research and teaching at the University of Tennessee at Chattanooga. National Science Foundation, Division of Biological Infrastructure, Major Research Instrumentation. January 2014–December 2016. **\$342,945**

Boyd J. Transplantation of *Scutellaria montana* from Hamilton County Parcel 121 010, TN. S&ME Engineering Consultants. September 2013–August 2014. **\$5,812**

Boyd J. Experiential student research to support the federal protection of a rare and locally endemic orchid species. The University of Tennessee at Chattanooga, ThinkAchieve Beyond the Classroom program. September 2013–December 2014. **\$1,470**

Boyd JN. How do light and soil moisture availability affect *Platanthera integrilabia* growth and reproduction? U.S. Fish and Wildlife Service. June 2013–December 2015. **\$10,815**

Boyd J. How do light and soil moisture availability affect *Platanthera integrilabia* growth and reproduction? The University of Tennessee at Chattanooga Faculty Research Grant. May 2013–December 2014. **\$2,938**

Boyd JN. 2013 monitoring of the large-flowered skullcap (*Scutellaria montana*) in the Tennessee Army National Guard Volunteer Training Site (VTS) in Catoosa County, Georgia. The Tennessee Army National Guard. May 2013–September 2013. **\$18,926**

Boyd JN. Invasive species survey and rare species impact assessment in the Tennessee Army National Guard Volunteer Training Sites. Tennessee Army National Guard. January 2013–December 2014. **\$89,000**

Boyd JN, Shaw J. Impacts of large animal herbivory on *Scutellaria montana* in the Tennessee Army National Guard Volunteer Training Site. Tennessee Army National Guard. January 2011–December 2012. **\$63,455**

Shaw J, Boyd J. 2010 monitoring of the large-flowered skullcap (*Scutellaria montana*) in the Tennessee Army National Guard Volunteer Training Site (VTS) in Catoosa County, Georgia. The Tennessee Army National Guard. May 2010–April 2011. **\$17,982**

Boyd J, Craddock JH. Comparing the shade tolerance of American chestnut, Chinese chestnut, and their hybrids. The American Chestnut Foundation. September 2009–August 2011. **\$8,629**

Boyd J, Craddock JH. Not made for the shade? Comparing the shade tolerance of American chestnut, Chinese chestnut, and their hybrids. The University of Tennessee at Chattanooga Faculty Research Grant. May 2009–April 2010. **\$2,410**

Shaw J, Boyd J. 2009 monitoring of the large-flowered skullcap (*Scutellaria montana*) on Tennessee Army National Guard Volunteer Training Site (VTS) in Catoosa County, Georgia. The Tennessee Army National Guard. May 2009–April 2010. **\$17,982**

Boyd J, Shaw J. Effects of transplantation and prescribed burning on *Scutellaria montana* in the Tennessee Army National Guard Volunteer Training Site. The Tennessee Army National Guard. February 2009–January 2011. **\$50,180**

Nagel<sup>†</sup> JM. Energetic processes and their responses to environmental change: Potential impacts on invaded plant communities in the Great Smoky Mountains. National Park Foundation and the Ecological Society of America. August 2003–July 2005. **\$100,000**

Griffin KL, Nagel<sup>†</sup> JM. A greenhouse for plant physiological and ecological research. Comer Science and Educational Foundation, Chicago, IL, USA. July 2002–June 2003. **\$98,367**

Griffin KL, Nagel<sup>†</sup> JM. Do energy- and resource-use efficiency influence the invasive success of Japanese barberry (*Berberis thunbergii*)? The Black Rock Forest Consortium, Cornwall, NY, USA. January 2002–December 2002. **\$5,000**

<sup>†</sup> denotes maiden name

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## Technical Reports

Boyd J, Benson A, Montgomery C, Hoover D<sup>\*\*</sup>, Odell J<sup>\*\*</sup>, Raymond G<sup>\*\*</sup>, Russo L<sup>\*</sup>. Invasive non-native plant species survey and assessment, Tennessee Army National Guard Volunteer Training Site, Catoosa County, GA. Submitted to the Tennessee Army National Guard. May 2015. 92 pp.

Boyd J, Benson A, Montgomery C, Hoover D<sup>\*\*</sup>, Odell J<sup>\*\*</sup>, Raymond G<sup>\*\*</sup>, Russo L<sup>\*</sup>. Invasive non-native plant species survey and assessment, Tennessee Army National Guard Volunteer Training Site, Milan, TN. Submitted to the Tennessee Army National Guard. June 2015. 93 pp.

Boyd J, Benson A, Montgomery C, Hoover D<sup>\*\*</sup>, Odell J<sup>\*\*</sup>, Raymond G<sup>\*\*</sup>, Russo L<sup>\*</sup>. Invasive non-native plant species survey and assessment, Tennessee Army National Guard Volunteer Training Site, Smyrna, TN. Submitted to the Tennessee Army National Guard. April 2015. 84 pp.

Boyd J, Alexander K<sup>\*\*</sup>, Clark R<sup>\*\*</sup>, Holder T<sup>\*\*</sup>, Hultman W<sup>\*\*</sup>, Majors C<sup>\*\*</sup>, Parker S<sup>\*\*</sup>, Prater A<sup>\*</sup>, Russo L<sup>\*</sup>, Sellge S<sup>\*\*</sup>, Smith H<sup>\*\*</sup>, Snellgrove E<sup>\*\*</sup>, Turner A<sup>\*\*</sup>. Experiential student research to support the federal protection of rare *Platanthera integrilabia* (white fringeless orchid) on Starr Mountain, Cherokee National Forest, TN. Submitted to the Cherokee National Forest and the U.S. Fish and Wildlife Service. December 2013. 9 pp.

Boyd J, Hoover D<sup>\*\*</sup>, Majors C<sup>\*\*</sup>, Odell J<sup>\*\*</sup>, Parker S<sup>\*\*</sup>, Raymond G<sup>\*\*</sup>. 2013 large-flowered skullcap (*Scutellaria montana*) relocation from Hamilton County Parcel 121 010 to the Enterprise South Nature Park, Chattanooga, Tennessee. Submitted to S&ME Engineering Consultants. October 2013. 9 pp.

Boyd J, Sikkema J<sup>\*</sup>, Hoover D<sup>\*\*</sup>, Odell J<sup>\*\*</sup>, Raymond G<sup>\*\*</sup>. 2013 monitoring of large-flowered skullcap (*Scutellaria montana*) in the Volunteer Training Site, Tennessee Army National Guard, Catoosa Co., Georgia. Submitted to the Tennessee Army National Guard. September 2013. 277 pp.

Benson AR<sup>\*</sup>, Shaw J, Boyd J. Impacts of large animal herbivory on *Scutellaria montana* in the Tennessee Army National Guard Volunteer Training Site, Catoosa County, GA. Submitted to the Tennessee Army National Guard. December 2012. 50 pp.

Shaw J, Boyd J. *Scutellaria montana* Chapm. Transplantation monitoring report 2012 Enterprise South Industrial Park, Hamilton County, TN. Submitted to the Tennessee Department of Transportation. June 2012. 18 pp.

Kile HM<sup>\*</sup>, Shaw J, Boyd J. Responses of transplanted *Scutellaria montana* Chapm. (Lamiaceae, large-flowered skullcap) to canopy thinning and burning. Submitted to the Tennessee Army National Guard. September 2011. 32 pp.

Shaw J, Boyd J. *Scutellaria montana* Chapm. transplantation monitoring report 2011 Enterprise South Industrial Park, Hamilton County, TN. Submitted to the Tennessee Department of Transportation. June 2011. 13 pp.

Shaw J, Boyd J, Kile HM\*. Large flowered skullcap (*Scutellaria montana*, Lamiaceae) monitoring 2010 at Volunteer Training Site, Tennessee Army National Guard, Catoosa Co., Georgia. Submitted to the Tennessee Army National Guard. May 2011. 232 pp.

Shaw J, Boyd J. *Scutellaria montana* Chapm. transplantation monitoring report 2009-2010 Enterprise South Industrial Park, Hamilton County, TN. Submitted to the Tennessee Department of Transportation. June 2010. 13 pp.

Shaw J, Boyd J. *Scutellaria montana* evaluation report May 2010 proposed state industrial access to serve Volkswagen from S.R. 58 to the Enterprise South Industrial Park, Hamilton County, TN. Submitted to the Tennessee Department of Transportation. May 2010. 15 pp.

Shaw J, Boyd J, Kile HM\*. Large flowered skullcap (*Scutellaria montana*, Lamiaceae) monitoring 2009 at Volunteer Training Site, Tennessee Army National Guard, Catoosa Co., Georgia. Submitted to the Tennessee Army National Guard. April 2010. 284 pp.

Shaw J, Boyd J. Plant species of interest report 2009 SR2 Bridge over Nickajack Reservoir, Marion County, TN. Submitted to the Tennessee Department of Transportation. November 2009. 5 pp.

Shaw J, Boyd J. Bog St. John's Wort (*Hypericum adpressum*) surveyed at the proposed Marion SR 2 Bridge over Tennessee River site, Marion County, TN. Submitted to the Tennessee Department of Transportation. October 2009. 6 pp.

Shaw J, Boyd J. *Scutellaria montana* transplantation monitoring report 2009. Enterprise South Industrial Park, Hamilton County, TN. Submitted to the Tennessee Department of Transportation. June 2009. 12 pp.

‡ denotes maiden name, \* graduate student, \*\* undergraduate student

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## Presentations

Boyd J, Tyree G\*\*. Exploring the role of local adaptation in plant species responses to climate warming. Poster presentation. Ecological Society of America. Fort Lauderdale, FL. August 2016.

Boyd J, Raymond G\*\*, Call G, Pistrang M. Adaptive leaf-level physiology exhibited by the rare orchid *Platanthera integrilabia* across contrasting habitats. Oral presentation. Botany 2016. Savannah, GA. July 2016.

Boyd J. How do light and soil moisture availability affect white fringeless orchid growth and reproduction? Oral presentation. Big South Fork National River and Recreation Area/Obed Wild and Scenic River 2016 Science Meeting. Rugby, TN. April 2016.

Boyd J. An energetic approach to understanding plants in a changing climate. Oral presentation. UTC Research Dialogues. April 2016.

Frey S\*\*, Tyree G\*\*, Hiestand J, Boyd J. Collaborative construction: building a calorimeter to expand plant ecophysiological research at UTC. Poster presentation. UTC Research Dialogues. April 2016.

Parker S\*, Boyd J. The influence of light and soil moisture availability on the rare terrestrial orchid *Platanthera integrilabia*. Poster presentation. UTC Research Dialogues. April 2016.

- Wilder L<sup>\*\*</sup>, Foster K<sup>\*\*</sup>, Boyd J. An ecophysiological investigation of climate change impacts on the imperiled eastern hemlock. Poster presentation. UTC Research Dialogues. April 2016.
- Wilson J<sup>\*\*</sup>, Tyree G<sup>\*\*</sup>, Stamper J<sup>\*\*</sup>, Boyd J. Exploring the role of local adaptation in plant species responses to climate warming. Poster presentation. UTC Research Dialogues. April 2016.
- Raymond G<sup>\*\*</sup>, Boyd J. How do light availability and soil characteristics affect growth and reproduction of *Platanthera integrilabia* (white fringeless orchid)? Poster presentation. Association of Southeastern Biologists. Spartanburg, SC. April 2014.
- Russo L<sup>\*</sup>, Montgomery C, Hoover D<sup>\*\*</sup>, Odell J<sup>\*\*</sup>, Raymond G<sup>\*\*</sup>, Boyd J. Invasive plant species distribution and abundance in Tennessee Army National Guard Volunteer Training Sites: from ground surveys to Geographic Information System layers. Poster presentation. Association of Southeastern Biologists. Spartanburg, SC. April 2014.
- Odell J<sup>\*\*</sup>, Sikkema J<sup>\*</sup>, Hoover D<sup>\*\*</sup>, Raymond G<sup>\*\*</sup>, Boyd J. Ten years of monitoring of federally threatened *Scutellaria montana* in Catoosa County, Georgia: findings and recommendations. Oral presentation. Tennessee Academy of Science. Tullahoma, TN. November 2013.
- Benson A<sup>\*</sup>, Shaw J, Boyd J. Impacts of large animal herbivory on *Scutellaria montana* in the Tennessee Army National Guard Volunteer Training Site, Catoosa County, GA. Oral presentation. Association of Southeastern Biologists. Charleston, WV. April 2013.
- Benson A<sup>\*</sup>, Shaw J, Boyd J. Impacts of large animal herbivory on *Scutellaria montana* in the Tennessee Army National Guard Volunteer Training Site, Catoosa County, GA. Oral presentation. Tennessee Academy of Science. Jackson, TN. October 2012.
- Benson A<sup>\*</sup>, Shaw J, Boyd J. Impacts of large animal herbivory on *Scutellaria montana* in the Tennessee Army National Guard Volunteer Training Site, Catoosa County, GA. Oral presentation. Association of Southeastern Biologists. Athens, GA. April 2012.
- Lyon A<sup>\*\*</sup>, Craddock JH, Boyd J. Using leaf-level gas-exchange characteristics to investigate the shade tolerance of *Castanea dentata* and *C. mollissima*. Oral presentation. Association of Southeastern Biologists. Athens, GA. April 2012.
- Sikkema J<sup>\*</sup>, Shaw J, Boyd J. Effects of invasive species on federally threatened *Scutellaria montana* Chapm. Poster. Association of Southeastern Biologists. Athens, GA. April 2012.
- Lyon A<sup>\*\*</sup>, Craddock JH, Boyd J. Investigating the shade tolerance of *Castanea dentata*, *C. mollissima*, and their hybrids. Poster. Posters at the Capitol. Nashville, TN. February 2012.
- Benson A<sup>\*</sup>, Shaw J, Boyd J. Impacts of large animal herbivory on *Scutellaria montana* in the Tennessee Army National Guard Volunteer Training Site, Catoosa County, GA. Oral presentation. Tennessee Academy of Science. Jackson, TN. October 2011.
- Boyd J, Lyon A<sup>\*\*</sup>, Craddock JH. Using leaf-level gas-exchange characteristics to investigate the shade tolerance of *Castanea dentata*, *C. mollissima*, and their hybrids. Oral presentation. Tennessee Academy of Science. Jackson, TN. October 2011.
- Lyon A<sup>\*\*</sup>, Craddock JH, Boyd J. Investigating the shade tolerance of *Castanea dentata*, *C. mollissima*, and their hybrids. Oral presentation. NE-1033 Technical Committee Meeting Biological Improvement of Chestnut through Technologies that Address Management of the Species, its Pathogens and Pests. Ivoryton, CT. October 2011.

- Boyd J, Shaw J. Successful relocation of federally threatened *Scutellaria montana* (Lamiaceae, large-flowered skullcap). Oral presentation. Association of Southeastern Biologists. Huntsville, AL. April 2011.
- Kile HM<sup>\*</sup>, Shaw J, Boyd JN. The effects of canopy thinning and burning on transplantation of federally threatened *Scutellaria montana* Chapm. (Lamiaceae, large-flowered skullcap) in a southeastern deciduous forest. Oral presentation. Association of Southeastern Biologists. Huntsville, AL. April 2011.
- Makowske J<sup>\*</sup>, Shaw J, Boyd J. Investigating large animal herbivory on *Scutellaria montana* in the Tennessee Army National Guard Volunteer Training Site, Catoosa County, GA. Poster. Association of Southeastern Biologists. Huntsville, AL. April 2011.
- Boyd J, Shaw J. Relocation success of federally threatened *Scutellaria montana* (Lamiaceae, large-flowered skullcap) from a proposed highway corridor. Tennessee Academy of Science. Cookeville, TN. November 2010.
- Kile HM<sup>\*</sup>, Shaw J, Boyd J. The effects of canopy thinning and burning on transplantation of federally threatened *Scutellaria montana* (Lamiaceae, large-flowered skullcap) in a southeastern deciduous forest. Tennessee Academy of Science. Cookeville, TN. November 2010.
- Hughes K<sup>\*\*</sup>, Craddock JH, Boyd J. Comparing shade tolerance of *Castanea dentata*, *C. mollissima*, and their hybrids. NE-1033: Biological Improvement of Chestnut through Technologies that Address Management of the Species, its Pathogens and Pests. Maggie Valley, NC. September 2010.
- Kile HM<sup>\*</sup>, Shaw J, Boyd J. The effects of canopy thinning and burning on transplantation of federally threatened *Scutellaria montana* (Lamiaceae, large-flowered skullcap) in a southeastern deciduous forest. Ecological Society of America. Pittsburgh, PA. August 2010.
- Boyd J, Craddock JH. Not made for the shade? Comparing the shade tolerance of *Castanea dentata*, *Castanea mollissima* and their hybrids. Association of Southeastern Biologists. Asheville, NC. April 2010.
- Kile HM<sup>\*</sup>, Shaw J, Blyveis E<sup>\*</sup>, Boyd J. *Scutellaria montana* (Lamiaceae) 2009 monitoring at the Volunteer Training Site, Tennessee Army National Guard, Catoosa Co., Georgia. Association of Southeastern Biologists. Asheville, NC. April 2010.
- Nagel<sup>†</sup> JM, Weltzin JF. Exploring physiological determinants of community assembly in old-field systems of Great Smoky Mountains National Park. The George Wright Society Biennial Conference on Parks, Protected Areas, and Cultural Sites. Philadelphia, PA. March 2005.
- Nagel<sup>†</sup> JM, Griffin KL, Schuster WSF. Energy assimilation and expenditure of invasive *Berberis thunbergii* and co-occurring native understory shrubs. Ecological Society of America. Portland, OR. August 2004.
- Nagel<sup>†</sup> JM. Energetic properties and their response to global change – Potential impacts on plant communities in various ecosystem types. National Parks Ecological Research Fellowship Program. Santa Barbara, CA. November 2003.
- Nagel<sup>†</sup> J, Huxman T, Griffin K, Smith S. Comparing the effects of CO<sub>2</sub> enrichment of productivity and the energetic cost of biomass construction in invasive and native Mojave Desert grasses. Ecological Society of America. Savannah, GA. August 2003.



Huxman T, Nagel<sup>‡</sup> J, Zitzer S, Charlet T, DeFalco L, Housman D, Griffin K, Smith S. Responses of the annual plant component of a Mojave Desert ecosystem to elevated CO<sub>2</sub>. Ecological Society of America. Tucson, AZ. August 2002.

Nagel<sup>‡</sup> JM, Griffin KL. Leaf energy and resource investment of *Acer rubrum* and *Quercus* spp. within a forested watershed. Ecological Society of America. Madison, WI. August 2001.

Nagel<sup>‡</sup> JM, Griffin KL, Brown KJ, Schuster WSF, Tissue DT, Turnbull MH, Whitehead D. Construction cost and invasive potential: Comparing *Lythrum salicaria* (Lythraceae) with co-occurring native species along pond banks. The Black Rock Forest Research Symposium. Cornwall, NY. June 2001.

Nagel<sup>‡</sup> JM, Griffin KL. Construction cost and plant-invasiveness – Comparing purple loosestrife (*Lythrum salicaria*) with its native neighbors pond banks. Ecological Society of America. Snowbird, UT. August 2000.

<sup>‡</sup> denotes maiden name, \* graduate student, \*\* undergraduate student

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## Invited Lectures

Boyd J. Biology Seminar, University of North Carolina at Asheville. Reasons for rarity? Exploring adaptive and acclamatory constraints to commonness. November 2016.

Boyd J. Investigating intraspecific variability of responses of Appalachian plant species to climate change. College of Arts and Sciences Convocation, University of Tennessee at Chattanooga. May 2015.

Boyd J. Plant species conservation in a changing world – land use, invasions, and climate considerations. Biology Seminar, University of Colorado at Colorado Springs. February 2015.

Boyd J. Adaptations of photosynthesis: from course concepts to research applications. Biology Seminar, Westminster College, Salt Lake City, UT. January 2015.

Boyd J. Experiential student research to support the conservation of a rare locally endemic orchid species. Instructional Excellence Retreat, University of Tennessee at Chattanooga. May 2014.

Covino R, Auchter J, Boyd J, Irvin L, Klug H, Laing C, Peacock J. Pop culture in the classroom. Instructional Excellence Retreat, University of Tennessee at Chattanooga. May 2014.

Boyd J. Experiential student research to support the conservation of a rare locally endemic orchid species. Research Day, University of Tennessee at Chattanooga. April 2014.

Boyd JN. Community-based learning on the urban campus. Instructional Excellence Retreat, University of Tennessee at Chattanooga. May 2013.

Boyd JN. Not made for the shade? An ecophysiological approach to American chestnut restoration efforts. Biology Seminar Series, University of Tennessee at Chattanooga. October 2010.

Boyd JN. Not made for the shade? An ecophysiological approach to American chestnut restoration efforts. E.O. Grundset Lecture Series, Southern Adventist University, Collegedale, TN, September 2009.

Boyd JN. Overachieving in the plant world: does photosynthetic efficiency pay off? Biology/Botany Seminar Series, Connecticut College, New London, CT, February 2007.

Boyd JN. Overachieving in the plant world: does photosynthetic efficiency pay off? Environmental Science Seminar Series, Unity College, Unity, ME, February 2007.

Boyd JN. Physiological mechanisms of community-level performance in invasive versus native plant species. Department of Biology Seminar Series, Colgate University, Hamilton, NY, January 2006.

Nagel<sup>†</sup> JM. Is photosynthesis related to plant success? Exploring the importance of other (and less famous) aspects of leaf-level physiology. Department of Biology Seminar Series, Plymouth State University, Plymouth, NH, March 2005.

Nagel<sup>†</sup> JM. The influence of energetic properties in plant communities – Case studies from wetland, forest and desert ecosystems. Department of Biology Seminar Series, Skidmore College, Saratoga Springs, NY, November 2005.

Nagel<sup>†</sup> JM. Physiological mechanisms of community-level performance in invasive versus native plant species. Department of Natural Resources Seminar Series, University of Tennessee, Knoxville, TN, April 2004.

Nagel<sup>†</sup> JM. The influence of energetic properties in plant communities – Case studies from wetland, forest and desert ecosystems. Department of Ecology and Evolutionary Biology Seminar Series, University of Tennessee, Knoxville, TN, January 2004.

Nagel<sup>†</sup> JM. Energetic properties in plant communities – Case studies in forest, wetland and desert ecosystems. Department of Environmental Science Seminar Series, Dennison University, Granville, OH, February 2002.

<sup>†</sup> denotes maiden name

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## **Institutional Service**

### **University of Tennessee at Chattanooga**

Academic Affairs/Student Development Task Force	2016-present
Academic Standards Committee	2014-present
Committee on Committees	2014-present
Faculty Senate	2014-present
Graduate Council	2014-present
Graduate School Best Practices Committee	2014-present
Strategic Plan Steering Committee	2014-2015
Faculty Development Grants Committee	2013–2014
Sustainability Committee	2012–2013
Scholarships Committee	2011–2013 (chair in 2012–2013)
Library Committee	2010–2012

### **Department of Biology, Geology, and Environmental Science**

Graduate Program Coordinator	2015-present
Retention, Promotion & Tenure Committee	2014-present
Assessment & Retention Committee	2013–present
Graduate Committee	2009–present (chair in 2015–2016)

Hiring & Planning Committee	2014-2016
Student Awards & Relations Committee	2014-2016 (chair in 2014–2015)
Curriculum Committee	2012–2014
Tri-Beta Advisory Committee	2009–2010, 2011-2013
Library Committee	2009–2012
EDGE Advisory Committee	2010–2011

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## External Professional Service

### Editing & Reviewing

- National Science Foundation Panel Reviewer, Division of Environmental Biology, January 2016, November 2016.
- Fulbright Discipline Peer Reviewer (Environmental Sciences), Council for International Exchange of Scholars, September 2015.
- Physiology subject editor for *Castanea*, 2012–present.
- Reviewed/refereed numerous manuscripts for *Acta Oecologia*, *American Journal of Botany*, *Castanea*, *Ecosphere*, *New Phytologist*, *Plant Ecology*, *PLoS One*, and *Southeastern Naturalist* during the past five years.
- Reviewed *Environmental Science for a Changing World* published by W.H. Freeman and Scientific American, 2012.
- Reviewer of general ecology and introductory environmental science textbook proposals to Oxford University Press, 2012–present.

### Professional Societies

- Elected member-at-large of the Southern Appalachian Botanical Society for 2015–2017.
- Chaired the Tennessee Academy of Science Botany Section during 2013–2014 and served as section secretary during 2012–2013.
- Chaired the Association of Southeastern Biologists Poster Award Committee during 2013–2014 and served as a committee member from 2011–2013.
- Member of the Association of Southeastern Biologists, Ecological Society of America, Sigma Xi, and Tennessee Academy of Science.

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## Community Service & Outreach

### Civic Involvement

- Served as the secretary of the Signal Mountain Tree Board (advisory to Town Council) since 2009.
- Assisted the Town of Signal Mountain, TN, in advising, preparing, and submitting its successful 2010 application to the Arbor Day Foundation to become a *Tree City USA* and its renewal successful applications submitted in December 2013 and 2015.

## Public Education

- Gave the inaugural talk for the *Let's Chatt about Science* Science Café at Stone Cup Café in November 2016.
- Led a public class at the Chattanooga Nature Center called 'Plant Communities' as a core course offering for its Certificate of Native Plants program during July 2014.
- Gave a lecture to the Tennessee Valley Beekeepers Association at their March 2013 meeting about the risks of hemlock pesticide treatments to local bee populations.
- Gave a public lecture to educate homeowners about the local hemlock woolly adelgid invasion at the Signal Mountain Library, Signal Mountain, TN in June 2013.
- Designed informational literature to educate homeowners about the local hemlock woolly adelgid invasion for distribution at Signal Mountain Town Hall and Town events in spring 2013.
- Gave interviews to WDEF (local television station) about the local forest fires in October 2016; WDEF and WUTC (local NPR station) about the local hemlock woolly adelgid invasion in May 2013; and a *Chattanooga* magazine reporter about the adelgid for an article that will appear in the March/April 2014 issue.
- Gave a public lecture to educate the Signal Mountain Town Council and interested citizens about a tree cover analysis of the Town conducted by the Tennessee Department of Agriculture's Urban Forests Program at the Signal Mountain Town Hall in May 2012.
- Presented two 'green' gardening talks at Rock City, Lookout Mountain, GA, during its May 2009 Southern Blooms Festival.
- Assisted a colleague (Dr. Hill Craddock) in the training of local hikers and trail caretakers to identify and inventory American chestnuts for the Appalachian Trail Mega Transect Project at the Nantahala Outdoor Center, NC in May 2009.

## Pre-Collegiate Outreach

- Tutored Sudanese refugees in GRE-level science and math from 2012-2014 as volunteer with the NEEMA Resettlement Project, Chattanooga, TN.
- Served as a panelist for 'Career Day' at Thrasher Elementary School, Signal Mountain, TN in April 2013 to talk with 5<sup>th</sup> grade students about future career possibilities in STEM fields.
- Coordinated natural science activities, solicited Tri-Beta volunteer efforts, and led an ecology activity during the Girl Scouts STEM Event at UTC in March 2012 to provide girls from regional high school schools with experiential learning opportunities in the STEM fields.
- Advised two students from Signal Mountain Middle School in a research project that helped to earn them a third place finish in the Environmental Division of the Technology Student Association's 2009 National Conference.
- Co-mentored (with supporting project PI Betsy Von Holle) a minority college student during a summer of field research in Cape Code National Seashore as part of the National Science Foundation Research Experience for Undergraduates program in 2005.
- Co-advised (with my graduate advisor at Columbia University) a high school student as a research assistant in the American Museum of Natural History's Precollege Science Collaborative for Urban Minority Youth program. Howard assisted with part of my thesis research from 2000-2002 and co-authored a related peer-reviewed publication.

## Professional & Pedagogical Development

### Workshops

- Collaborating with a colleague (Hope Klug) during spring 2016 to develop online versions of our core Ecology and Evolution courses for undergraduate biology majors at UTC for offering in spring 2016.
- Participated in a ThinkAchieve Faculty Fellows cohort at UTC during 2013–2014 called ‘Creating Meaningful Connections: Pop Culture in the Classroom’ to explore best practices for the use of popular culture in teaching.
- Attended the second FY13 NSF Grants Conference in Washington, DC in March 2013. Information learned at the workshop was used to develop my NSF grant proposal to the MRI program, which was later successfully funded.

### New Courses Developed at UTC

Controversies in Science	University Honors	undergrad	fall 2015
Global Change Biology	Biology/Environmental Science	grad/undergrad	fall 2013
Plant Ecology	Biology/Environmental Science	grad/undergrad	fall 2012

### Experiential Learning Initiatives

- My Plant Ecology course (BIOL/ESC 4540, ESC 5730) has been indefinitely designated as an Experiential Learning Course as part of UTC’s ThinkAchieve Beyond the Classroom program.
- Awarded \$1,470 from the ThinkAchieve Beyond the Classroom program at UTC to support experiential student research during my fall 2013 Plant Ecology course.

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## Student Advisement

### Graduate Committee Chair (UTC)

Kalen Foster	fall 2016–present	Joseph Turk	graduated May 2015
Sarah Parker	spring 2016-present	Jordan Sikkema	graduated Dec 2013
Charlotte Bossy	fall 2014–present	Andrea Benson	graduated Dec 2012
Amy Katcher-Dunne	graduated Dec 2016	Mae Kile	graduated Aug 2011
Leslie Russo	graduating May 2016		

### Graduate Committee Member (UTC)

Conrad Blunck	spring 2016–present	Joel Houser	graduated May 2013
Amber Odom	fall 2015–present	Ana Metaxas	graduated May 2013
Holland Youngman	fall 2014-present	Emily Blyveis	graduated Dec 2012
Justin Walley	graduated May 2016	Ginny Richardson	graduated Aug 2011
Laura Marsh	graduated Aug 2015	Gerry Woodworth	graduated Dec 2010
Amelia Hudson	graduated Dec 2013		

### **Undergraduate University Honors Committee Member (UTC)**

Kristin Stanfill graduated May 2013  
Taylor Perkins graduated December 2012

### **Undergraduate Departmental Honors Committee Chair (UTC)**

Spenser Ryan spring 2016-present  
Gayle Tyree graduated May 2016  
Lily Wilder graduated May 2016

### **Undergraduate Research Assistants (UTC; supported by grants/contracts)**

Greg Raymond spring 2013–fall 2014  
Danny Hoover spring 2013–summer 2014  
Jared Odell spring 2013–summer 2014  
Keaton Hughes spring 2009–spring 2010

### **Undergraduate Individual Studies Students (UTC; supported by academic credit)**

Mikaela Redlin	spring 2017	Meridith McClure	fall 2014–spring 2015
Quinn Moloney	fall 2016	Taylor Bates	fall 2014
Keni Gray-Timmons	fall 2016	Matthew Martin	fall 2014
Alex Koldys	spring 2016	Ciera Majors	spring 2013–fall 2014
Jarid Prael	spring 2016	Dustin Ducote	summer 2014
Shauntra Spenser	spring 2016	Kayse Smith	spring 2014
Kalen Foster	fall 2015-present	Kelsey Alexander	fall 2013
John Wilson	fall 2015-present	Sarah Parker	fall 2013
Justin Stamper	summer–present	Emily Busby	summer 2013
Taylor Lyon	spring 2015–present	Corey Chandler	fall 2011
Holden Horvath	fall 2015	Sam Hutton	spring 2010–fall 2011
Monica Miles	fall 2015	Brent Toon	spring 2010–fall 2011
Rebekah Hook	summer–fall 2015	Jennifer Woosley	spring 2010–fall 2011
Erin Wathen	summer–fall 2015	Bella Moharreri	spring 2009–fall 2011
Anna Ford	summer 2015	Jacob Whitt	fall 2010
Shelby Thompson	summer 2015	Kira Spears	summer 2010
Travis Harrison	spring 2015	Thais Coleman	fall 2009
Katie Henckle	spring 2015	Courtney Wong	fall 2009
Sara Neumann	spring 2015	Nicholas Benton	summer 2009
Erin Colwell	fall 2014–spring 2015	Shannon McVeigh	summer 2009

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### **Student Honors & Awards**

#### **Association of Southeastern Biologists**

North Carolina Botanical Garden Research Award	Andrea Benson	2012
Southern Appalachian Botanical Society Research Award	Andrea Benson	2012
Southeast Section Best Poster Award	Mae Kile	2010

### Tennessee Academy of Science

Botany Section, first place presentation	Jared Odell	2013
Botany Section first place presentation	Andrea Benson	2012

### University of Tennessee at Chattanooga

Provost Student Research Award	Gayle Tyree	2014-2015
Graduate Student Association Travel Award	Andrea Benson	2012
Graduate Student Association Travel Award	Jordan Sikkema	2012
Graduate Student Association Travel Award	Mae Kile	2011
Sigma Xi Outstanding Research Award	Mae Kile	2011

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### Student Engagement

- Co-hosted (with my departmental colleague Hope Klug) a screening of and discussion about the movie *Hidden Figures* as part of the UTC Black History Month events in February 2017.
- Serving as a faculty advisor (with my departmental colleague Hope Klug) of the Women in Natural Sciences (WINS) student organization since fall 2015.
- Served as a discussion leader for the Freshman Year Reading Experience (FYRE) program during the 2011–2012 and 2012–2013 academic years and the Read 2 Achieve (R2A) program during the 2015–2016 academic year at UTC.
- Helped to coordinate, lead, and acquire internal funding for the weekly seminar series/colloquium in the Department of Biological & Environmental Sciences at UTC in spring 2011 (assistant), fall 2011 (assistant), spring 2012 (lead faculty), and fall 2013 (lead faculty).
- Volunteered as a server at the late night breakfast for UTC students during finals week in the spring 2012, fall 2012, and spring 2013 semesters.
- Participated in the *Housecalls* program sponsored by the UTC Office of Residence Life to ‘check in’ with assigned students during the early part of the fall 2012 and fall 2013 semesters to offer academic advice and support.
- Served as a panelist for an undergraduate workshop focused on applying to graduate school organized by departmental colleagues at UTC during November 2013.
- Volunteered to provide information about the Biological & Environmental Science Department at UTC to prospective students and their parents during a November 2012 recruitment weekend event.