

SUNSHINE LIBERTY BROSI

CURRICULUM VITA

Biology Department
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A. APPOINTMENTS

Frostburg State University (FSU), Biology Department, Frostburg, Maryland, USA

Ranks:

Associate Professor (2014-present), Assistant Professor: 2010-2014, Instructor: Aug. 2007-2010 (*prior to obtaining a terminal degree*).

Appointments:

Graduate Program Coordinator for the Masters of Science Programs in Applied Ecology & Conservation Biology and Wildlife and Fisheries (2014-present), FSU does not have a PhD program.

Undergraduate Program Coordinator of the Bachelors of Science programs in Ethnobotany (2007-present) and Interpretative Biology and Natural History (2010-2015), and Wildlife & Fisheries (2010-2015).

Faculty advisor of the Sierra Student Coalition, Curator of the Herbarium, Director of the Arboretum, Webmaster for the Biology Department.

Adjunct appointments: University of Alaska, Fairbanks (Ethnobotany), West Virginia University (Biology), University of Maryland Appalachian Laboratory.

B. EDUCATION

The University of Tennessee, Department of Forestry, Wildlife and Fisheries, Knoxville, Tennessee 37996

Doctor of Philosophy in Natural Resources, May 2002 to August 18th, 2010, Defense: May 10, 2010, GPA: 3.95/4.0, 120+ Semester Hours, Dissertation: Steps toward Butternut (*Juglans cinerea* L.) Restoration, advisor: Scott E. Schlarbaum.

University of Kentucky, Department of Forestry, Lexington, Kentucky 40546

Master of Science in Forestry, August 1999 to May 2001, GPA: 3.53/4.0, 39 Semester Hours, Thesis: American Chestnut Seedling Establishment in the Knobs and Eastern Coalfields Regions of Kentucky, advisor: Charles C. Rhoades.

Warren Wilson College, Asheville, North Carolina 28815

Bachelor of Arts in Environmental Studies, Concentration in Forest Resource Conservation, August 1995 to May 1999, GPA: 3.38/3.43, 138 Semester Hours, Senior Research Project: Comparison of Cavitation Vulnerability in *Acer rubrum* L. and *Acer saccharum* Marsh. Roots and Shoots, advisor: William C. Davis & Mark Boudreau.

C. TEACHING

Teaching Responsibilities

Full-time teaching appointment, 12-18 credit hours of instruction per semester, I typically teach three courses (one with two lab sections) per academic semester plus two courses in the January-term and two additional courses during the summer session.

Experience teaching in remote field locations including one- and two-week field-based courses in rural Alaska in Kotzebue and Scammon Bay and in rural Appalachia in Pine Mountain, Kentucky and Cherokee, North Carolina. Experience teaching primarily First Nation students in collaboration with Native Elders and incorporating research and service into place-based learning.

Courses taught:

Fall:

BIOL 128: Introduction to Ethnobotany, 4-credit, (1-credit lecture, 2-credit lab), 20-30 students. Focusing on field identification and Indigenous uses of native plants and an introduction to interdisciplinary research. Activities include basket-making, natural dyes, salves, and cordage. All students complete a literature review and grant application for their undergraduate research project.

BIOL 305: Dendrology, 3-credit (1-credit lecture, 2-credit lab), 4-hour lab period, 2 lab sections per semester, 30-40 students in lecture, 15-20 students per lab section. A field-based course on woody plant identification, morphology, and using keys. Students learn common & scientific names, and families for 200 trees, shrubs, and vines with weekly quizzes and a cumulative final. Weekly fieldtrips to various forest community types across elevation, slope, and succession status.

BIOL 425: Forest Ecology and Conservation, 3-credit course (2-credit lecture, 1-credit lab), 30 students per lecture & lab. A project-based course on SFI (Sustainable Forestry Initiative) accreditation application for a watershed includes fieldtrips to high-conservation value forest types (HCVF), logging operations, and a pulp and paper mill.

EBOT 220 (UAF: Kuskokwim) Ethnobotanical Methods: (2-credit, 6 students) Online and call-in course on techniques in ethnobotany.

Spring:

BIOL 314: Plant Taxonomy, 3-credit (1-credit lecture, 2-credit lab), 4-hour lab period, 2 lab sections per semester, 30-40 students in lecture, 15-20 students per lab section. A field-based course on herbaceous plant identification, morphology, and using keys. Students learn common & scientific names, and families for 200 plants focusing on spring ephemerals and ferns with weekly quizzes and a cumulative final. Weekly fieldtrips to various community types across physiographic provenances and geologic substrate.

Odd-numbered years:

BIOL 328: Economic Botany, 3-credit (1-credit lecture, 2-credit lab), 20-30 students. Course on steps in the scientific method and identification and classification of globally important plant species. Students learn common & scientific names and families for 100 crop and medicinal plants. Students refine and collect data for their undergraduate research project. Students learn and apply analysis techniques.

BIOL 609: Plant Ecology, 3-credit (1-credit lecture, 2-credit lab), 5-10 students. Students expand on plant identification to develop an understanding of plant strategies, plant community analysis, and plant ecology. Projects include a petition to increase protection of uncommon species by modify the state legal rank or status of a species from rare to threatened or from threatened to endangered.

Even-numbered years:

BIOL 428: Ethnographic Field Techniques, 3 credit lecture course, Capstone, 20-30 students. Students are required to present their undergraduate research project which includes scientific analysis at the college research fair and at an Earth Day event. Students build a resume and apply for jobs and graduate schools. The majority of students present research posters at the Society for Economic Botany conference. Projects have included applied conservation techniques related to non-timber forest products (maple syrup and black cohosh) or increasing materials for artisans (Appalachian dulcimers, hickory chairs, and Cherokee baskets).

BIOL 600: Research Methods in the Biological Sciences, 2-credit lecture, 5-10 students. Topics include authorship, ethics, experiential design, and statistical analysis. Students are required to write and present their MS thesis proposal.

Summer:

EBOT 100: Introduction to Ethnobotany, 3 credit, 2-week field course in rural Alaska, University of Alaska Fairbanks (UAF) rural campuses for both Chukchi Campus in Bethel and Kuskokwim Campus in Kotzebue). Course focuses on the basics of botanical plant identification for northwestern plants and interviewing techniques with local Indigenous Elders. Class projects include collecting and cooking wild greens, collecting berries, fishing and canning salmon, and making sweetgrass baskets with Elders.

BIOL 460/650: Forestry Field Practices, 3-credit, blended course, 3-weeks online with a 1-week field experience. Students become certified in the Game of Logging Levels 1 & 2, Wildland Firefighters, EPA Wetlands Training, Carhart Wilderness Institute, and certified instructors for Project Learning Tree.

January:

Odd-numbered years: BIOL 494/650: Field Experiences in the Biological Sciences, 3-credit, blended course, 3-weeks online with a 1-week field experience. Students learn to weave hickory bark chair bottoms at Pine Mountain, Kentucky and follow the process from the tree to the finished product. Students complete National Institutes of Health training for research with Human Subject Participants.

Even-numbered years: BIOL 484/650: Field Experiences in Ethnobotany & Ecology, 3-credit, blended course, 3-weeks online with a 1-week field experience. Course is focused on measuring and maintaining cultural resource plantings for Cherokee Artisans on the Qualla Boundary in North Carolina. Students monitor butternut and white oak trees and learn to make a traditional Cherokee basket with members of the Eastern Band of the Cherokee.

Misc. offering times:

BIOL 499: Special Problems in Biology, BIOL 710: Thesis, BIOL 109: Humans and the Environment (lab only)

Independent Studies: Plant Distributions, Silviculture, Agroforestry, Ethnobotany of Tattoos, Appalachian Studies of Ethnobotanical Practices, Soil Analysis of Cultivated Black Cohosh Planting, Community Analysis of Vegetation and High-Elevation Swamps, Traditions of the Appalachian Dulcimer, Continued Studies of Traditions of the Appalachian Dulcimer, and Herbarium Techniques in Cataloging Specimens.

Programmatic Development

I developed and received accreditation for the BS degree in Ethnobotany at Frostburg, guided by the curriculum of the former BS program at University of Hawaii, Manoa.

Teaching materials within the Ethnobotany Degree Requirements have been peer-reviewed by the Open Science Network in Ethnobiology Education, an NSF-funded project. They have been used to develop course and programmatic learning goals, objectives, and to develop accreditation standards for the discipline. Teaching materials follow criteria established by the Vision & Change in Undergraduate Biology Education and the PULSE (Partnership for Undergraduate Life Science Education) standards.

Undergraduate research experiences in course have been externally evaluated through Grinnell's Classroom Undergraduate Research

Experiences (CURE) and Research on the Integrated Science Curriculum (RISC) a collaborative project funded by HHMI. Student scores were well above average in several areas including ethical research, knowledge of the process of science, and exposure to scientific methods, analysis, and presentations.

Advising

Completed **6** M.S. students

Graduates of M.S. program completed Naturopathic Doctor Program at Bastyr University, research with Allegany Health Department, research associate at Bent Creek Institute, research assistant at the Great Swamp National Wildlife Refuge, and Environmental Science Researcher at the Great Basin Institute.

Current: Laura G. Smith (anticipated 2016) and Bryan Whitmore (anticipated 2017)

Completed: Mitchell Hall, Michael McCampbell and Justin Bower (2014), Robert R. Kutchman and Amanda Vickers (2011), Natalie A. Walsh (2010).

Completed **26** B.S. Ethnobotany Majors within seven years, **9** undergraduates with Departmental Honors at Honors Convocation, **2** Commencement Speakers for the College of Liberal Arts and Sciences.

Graduates of B.S. in Ethnobotany currently have jobs in Land Acquisition Forestry at Maryland Department of Natural Resources, Forest Management and Site Management at Pittsburgh Botanical Garden, Adventure Guide at Highland Center Lodge of the Appalachian Mountain Club, Field Scientist at Chesapeake Environmental Services, and in graduate schools.

Academic advisor for over **60** students and all ethnobotany majors. Enrollment & graduation rates increased for all programs with an increase in female and underrepresented minorities in science programs.

D. GRANTS

Total Funding while at Frostburg State University: \$661,416 (2007-2015, approx. \$53,000 per year, internal funding below)

*graduate student, **undergraduate student

External Grants: Total External Funding 2007-2015: \$594,487

Pending, in review: Evaluating and monitoring yellow-poplar health trends in response to multi-year stressors in the Eastern United States. US Forest Service, Forest Health Protection, Evaluation and Monitoring Program (\$89,868).

Sunshine L. Brosi (PI), 2015, Identifying and Targeting Intervention Strategies for Allegheny Woodrat (*Neotoma magister*) Recovery, Northeastern Research Conservation Needs Grant Program (RCN), (\$99,804).

Sunshine Brosi, Science-Based Approach to Elm Management, 2013 and 2015, District of Columbia, Urban Forestry Association, awarded through Metropolitan Washington Council of Governments (COG): #13-023 (\$36,158 and \$8,560).

Sunshine Brosi, Summer Publication Grant, 2012, American Fellows, American Association of University Women (US \$6,000).

Patricia. D. Harrison, Gail E. Wagner, Rainer Bussmann, **Sunshine L. Brosi**, Will C. McClatchey, March 2, 2009, National Science Foundation, Research Coordination Network-Undergraduate Biology Education, RCN-UBE grant, Open Science: an education network in Ethnobiology to coordinate the development of a new culture in the undergraduate science classroom, #0840946 (\$368,173, approximately \$100,000 in support of travel for myself and my students).

Sunshine Brosi, Frost Avenue Tree Planting, 2013, Chesapeake Bay Foundation, Outreach Grant, (\$2,000).

Sunshine Brosi and Elaine Raesly, 2009, Chesapeake Bay Foundation for Arboretum restoration: Project GROWS: Greening and Restoration for On-Campus Watershed Stewardship (\$29,797).

David Puthoff and **Sunshine Brosi**, March 10, 2009, LI-COR Environmental Education Fund (LEEF) Grant, (\$40,000).

Laura G. Smith*, and Sunshine Brosi, Travel support for Society for Economic Botany Meeting, Clanwilliam, South Africa, Nature Genetics (\$2,000).

Lauren Hull*, Karen Johnson**, and **Sunshine Brosi**, Mountain Bugbane Preservation through Population Analysis & Outreach Materials, 2014, Maryland Native Plant Society (\$1,994.95).

E. AWARDS

2014, Charles B. Heiser, Jr. Mentor Award, Society for Economic Botany (SEB), presented in Cherokee, North Carolina.

2012-2013, American Fellowship, Summer Publication Grant, American Association of University Women (AAUW)

2011 Faculty Scholars Program, BiosciEdNet (BEN) Scholars Program, National Science Digital Library (NSDL) Biological Sciences Pathway, American Association for the Advancement of Science, AAAS.

Conference Host, 2016 & 2012, Annual Meetings of the Society for Economic Botany,

2016: Pine Mountain, Kentucky, June 3-9th, host institution, Frostburg State University.

2012: Featured symposium: Ethnobotany of Mountain Cultures, June 2-7th, host institution, Frostburg State University.

Merit Awards, Dean's Salary Enhancement, 2007 Service, 2008 Service Cat. 1 (2.6%), 2009 Service (3.5%), 2010 Professional Achievement Cat.1 (3.3%), 2011-2015 Service Cat. 3 (1.3%).

Graduate Student Awards: (graduate student indicated with *)

Edmund H. Fulling Oral Presentation Award, Seedling Establishment of American Chestnut, Society for Economic Botany, Michael McCampbell*, **Sunshine Brosi**, Thomas Hall, Arnold Saxton, and Scott Schlarbaum, 2014, *Castanea dentata*, in Pennsylvania, presentation, Cherokee, NC, June. \$1,000

Julie F. Morton Poster Presentation Award, Society for Economic Botany, Amanda Vickers*, **Sunshine L. Brosi**, James Howell, and David Puthoff, 2011, presentation, Chromatographic quantification of medicinal compounds in flowering and non-flowering wild-harvested *Actaea racemosa* L. Botany 2011, Healing the Planet, St. Louis, Missouri, July, \$500.

Traditional Ecological Knowledge Student Merit Award for Oral Presentation, Ecological Society of America, Natalie A. Walsh* and **Sunshine L. Brosi**, 2009, poster, Stratification protocols and germination rates of open-pollinated families of black cohosh (*Actaea racemosa* L.) from three western Maryland state forests: Population dynamics of a medicinal herb native to the Appalachian Mountains, 94th Ecological Society of America (ESA) Annual Meeting, Albuquerque, NM, Aug.

Undergraduate Student Awards: (undergraduate student indicated with **)

Li-COR Prize, Physiological Section, Botanical Society of America. Mitchell Hall**, **Sunshine L. Brosi**, and David Puthoff, 2011, The effectiveness of tomato plants (*Solanum lycopersicum*) modified with a Hessian fly-responsive (Hfr) gene against phloem-feeding and chewing insects. Botany 2011, Healing the Planet, St. Louis, Missouri, July.

Honorable Mention, Julia F. Morton Award, Mitra Karimian** and **Sunshine L. Brosi**, poster: Analysis of Dulcimer Makers in Appalachia, 2010, Society for Economic Botany 51st Annual Meeting, Xalapa, Mexico, June.

Mid-Atlantic Chapter of the International Society of Arboriculture, Scholarship Winner, 2014, Laura G. Smith**.

International Erosion Control Association, Mid-Atlantic Chapter, Scholarship, 2010, Nathan Beeman**.

Ronald E. McNair Ambassador Award for Exemplifying the Life, Values and Qualities of Dr. Ronald E. McNair, Christopher Massimino** and **Sunshine L. Brosi**, 2009, Summer Research Institute, Metabolic Profiling of in vitro Cultured Medicinal Plants: *Actaea racemosa* L., University of Maryland, College Park.

Previous Honors:Warren Wilson College

Sigma Xi Award for Outstanding Undergraduate Research Project, September 1998

Pinchot Institute Scholarship, 7th American Forest Congress in Washington, D.C., February 1996.

Beverly Hamilton Moran Scholarship \$20,000 yr., 1995-1999

Kentucky River Foothills Scholarship \$5,000 yr., 1995-1999

Valedictorian Scholarship \$4,000 yr., 1995-1999

Berea Community High School

Kentucky Governor's Scholar, June 1995

Valedictorian, 4.0 GPA

Graduated in 3 years

F. RESEARCH

My current appointment is 100% teaching, and I have focused my research publications and presentations on teaching methods. I have also researched sustainability of non-timber forest products and urban forestry

Peer-Reviewed Publications

Accepted, In Press Amanda Vickers*, **Sunshine L. Brosi**, James Howell, Bhavneet Kaurc, David Puthoff and Edward Eisenstein.

Ecological and Chemotypic Analysis for Improved Growth and Management of Naturally Occurring Black Cohosh (*Actaea racemosa* L.) Populations in Western Maryland. 2015. Special issue: Herbs and Medicinal Plants, American Journal of Plant Sciences.

Brosi, Sunshine L. & Ryan D. Huish. 2014. Chapter 6. Aligning Plant Identification Curricula to Disciplinary Standards Through the Framework of Student-Centered Learning, Innovative Strategies for Teaching in the Plant Sciences, Cassandra L. Quave (Ed.), Springer, 453p.

Vougioukalou, Sofia A., Keri Barfield, Ryan D. Huish, Laura Shiels, **Sunshine L. Brosi**, and Patricia Harrison. 2014. Chapter 3. The Contribution of Ethnobiology to Teaching Plant Sciences: Student and Faculty Perspectives, Innovative Strategies for Teaching in the Plant Sciences, Cassandra L. Quave (Ed.), Springer, 453p.

Hoban, S.M., S.E. Schlarbaum, **S.L. Brosi**, and J. Romero-Severson. 2012. A rare case of natural regeneration in butternut, a threatened forest tree, is parent and space limited. Conservation Genetics. 13 (6): 1447-1457.

Hoban, S.M., D. Borkowski, **S.L. Brosi**, T.S. McCleary, L.M. Thompson, J.S. McLachlan, M.A. Pereira, S.E. Schlarbaum, and J. Romero-Severson. 2010. Range-wide distribution of genetic diversity in North American tree *Juglans cinerea*: a product of historical range shifts, not ecological marginality or recent population decline. Molecular Ecology. 19 (22): 4876-4891.

S.L. Clark, **Brosi, S.L.**, S.E. Schlarbaum, H.D. Grissino-Mayer. 2008. Dendrochronology of two butternut (*Juglans cinerea*) populations in the southeastern United States. Forest Ecology and Management. 255 (5-6): 1772-1780.

- Brosi, S.L.**, S.E. Schlarbaum, A. M. Saxton, R.L. Anderson, P.S. Spaine, and C. Young. 2007. Restoring butternut (*Juglans cinerea* L.) to southeastern forests: determining a genetic basis of disease resistance (Tennessee). *Ecological Restoration*: Vol. 25 (1): 51-54, March 2007.
- C.C. Rhoades, **S.L. Brosi**, A. J. Dattilo and P. Vincelli. 2003. Effect of soil compaction and moisture on incidence of *Phytophthora* root rot on American chestnut (*Castanea dentata*) seedlings. *Forest Ecology and Management*. 184 (1-3): 47-54.

Proceedings and Book Reviews

- John Churchill, James Howell, and **Sunshine Brosi**, 2011, Risk Assessment to State Rare Mountain Bugbane in Western Maryland, Esri International User Conference Paper.
- Sunshine L. Brosi**, Fall 2010, Book Reviews, Ethnobotany of the Eastern Band of the Cherokee Indians, A Path to Sustaining Traditional Identity with an Emphasis on Medicinal Plant Use, by Karen Hall, *Appalachian Heritage*, 38 (4): 83-85. Reprinted with permission, Sept. 23rd, 2010, *Appalachian Independent*, Frostburg, MD.

G. INTERNAL FUNDING

I work extensively with the Frostburg State University Foundation to provide opportunities to highlight the outreach and service components of my student projects, especially collaborations in Cherokee, North Carolina and Eastern Kentucky. The experiential components of my course structure has allowed for obtaining internal funding from the University. My productivity on writing and receiving external grants has provided funding opportunities from Faculty Development.

Internal Grants: Total Internal Funding 2007-2014: \$66,929

2015

- Travel support, Society for Economic Botany Meeting, Clanwilliam, South Africa, Faculty Development (\$1,000).
 Laura G. Smith* & **Sunshine Brosi** Graduate Research Grant, Faculty Development (\$3,750).
 Field Experiences in Biology to Pine Mountain, KY, PELEF, President's Experiential Leadership Education Fund (\$1,500).

2014

- Scholarship of Teaching and Learning conference, Foundation (\$2,000).
 Course release for fall 2014, Faculty Development (\$2,000).
 Travel support, Field Experiences in Ethnobotany & Ecology to Cherokee, NC, PELEF (\$2,000).
 Travel support, student attendance Society for Economic Botany Meeting, Cherokee, NC, PELEF (\$2,000).
 Megan Carr** and **Sunshine Brosi**, Green Roof Initiative, Foundation (\$2,000).

2013

- Sunshine Brosi**, travel support to Society for Economic Botany Meeting, Faculty Development (\$2,000).
 Michael McCampbell* & **Sunshine Brosi**, Graduate Research Project, Faculty Development (\$707.30).
 Justin Bower* & **Sunshine Brosi**, Graduate Research Project, Faculty Development (\$707.30).
Sunshine Brosi, Susan Snow**, Ruth LaCourse**, David Fisher**, Permaculture Garden, Foundation (\$2,000)
Sunshine Brosi, Joe Saucedo**, Hannah Goodmuth**, Larry Shockley**, Digital Herbarium, Foundation (\$2,000)
Sunshine Brosi, Larry Shockley**, MaryAnna Cole**, Farren Smith**, Alexander Cathcart**, Farmers Market, Foundation (\$225)

2012

- Sunshine Brosi**, Susan Snow**, Brody McAllister**, MaryAnna Cole**, Farmers Community Involvement, Foundation (\$500).
 Support for student attendance, Society for Economic Botany Meeting, PELEF (\$1,000).

2011

- Red Spruce Planting for Watershed Improvements on Native Trout Streams, PELEF (\$3,000).
 Forestry Field Practices: Hands-on Career Building and Community Enhancement Skills, PELEF (\$2,000), supplement (\$3,000).
 Mary Kruger** and **Sunshine L. Brosi**, Online Ethnobotanical Herbarium, Faculty development (\$2,250).

2010

- Amanda Vickers* and **Sunshine Brosi**, travel support, Appalachian Studies Conference, Boone, NC, Foundation (\$830).
 Mitra Karimian** and **Sunshine Brosi**, Student award, Appalachian Studies Conference (\$100).

2009

- S.L. Brosi**, On-line ethnobotany learning modules, Foundation (\$4,019).
Sunshine Brosi and Natalie Walsh*, travel award, Southeastern Women's Studies Conference, Development (\$663.63).
Sunshine Brosi and Natalie Walsh*, March, student travel award, Southeastern Women's Studies Conference, Women's Studies Program (\$230).
 Michael McAlexander, **Sunshine Brosi**, and Melanie Lombardi, April, Arboretum Self-Guided Audio Tour Program, Foundation (\$1,000).

S.L. Brosi, Workshop Grant: Dr. James A. Duke Presentation, Development (\$2,397).

Sunshine Brosi, Economic Botany Class Project, Evergreen Heritage Center, Mt. Savage, Maryland (\$300).

2008

S.L. Brosi, Ethnobotanical Herb Garden at FSU's Arboretum, Foundation (\$1,500).

Natalie Walsh* and **Sunshine Brosi**, travel award, Annual Meeting of the Ecological Society of America, Foundation (\$750).

Ethnobotany Internships, Black Cohosh Research, July 2008, 2009, and 2010, Governors Internship Program, (\$7,500 each year).

Previous Grants

I received several grants during my PhD program including not included in the funding numbers above:

S. L. Brosi and S.E. Schlarbaum, March 14, 2005, Steps toward Consistent Production of Butternut-Based Dye for Cherokee Artisans on the Qualla Boundary. Revitalization of Traditional Cherokee Artisan Resources, Cherokee Preservation Foundation Revitalization of Traditional Cherokee Artisan Resources (\$37,500)

Butternut Survey, Subaward from the University of Tennessee, 2009, (\$3,000).

S.E. Schlarbaum and **S.L. Brosi**, October 2006, Planning for Integration of Cherokee Culture, Mathematics, Science, and Technology into K-12 Natural Resources Education. Revitalization of Traditional Cherokee Artisan Resources, Cherokee Preservation Foundation Revitalization of Traditional Cherokee Artisan Resources (\$5,000).

S. L. Brosi and S.E. Schlarbaum, March 14, 2006, White Oak Plantation Establishment for Traditional Arts and Crafts. Revitalization of Traditional Cherokee Artisan Resources, Cherokee Preservation Foundation Revitalization of Traditional Cherokee Artisan Resources (\$27,400).

Appalachian Studies Association (ASA), travel support, 30th Annual Meeting of the ASA, 2007, \$75.

Travel support, 91st Annual Meeting of the Ecological Society of America, Strategic Environmental Research and Development Program (SERPA), August 2006, \$1,000.

Graduate Student Travel Award, The University of Tennessee, Graduate Student Senate, travel support, 91st Annual Meeting of the Ecological Society of America, August 2006, \$220.

Collaboration on External Grants

Evergreen Heritage Center: Green Learning Stations, Appalachian Regional Commission, MD-17136-C1-302-12, \$50,000, September 2012 and Green Learning Site Plan, Green Restrooms, Appalachian Regional Center, ARC Project: MD-17136-302-11, \$80,460, September 2011.

Maryland Department of Juvenile Services, Seedling Project, Bill James Environmental Grant, \$1,000, grant written and submitted by undergraduate ethnobotany student, May 2011.

Collaborator, contributor to application and progress reports, Appalachian Center for Ethnobotanical Studies, PI: Joseph Hoffman, Frostburg State University and University of Maryland Biotechnology Institute, USDA Cooperative State Research, Education and Extension Service, July 2008 \$348,543, September 2009 \$438,984, September 2010 \$514,799 (total \$1,302,326). Sub-award: 2009: \$65,901, 2010: \$52,482.

Donations to FSU Foundation Accounts

Personal interactions with numerous donors have resulted in \$150,000 in donations to FSU Foundation Accounts including Ethnobotany Education, Ethnobotany Evergreen, Arboretum, and Society for Economic Botany Conference.

Sponsorships to support students in excess of \$12,000 have been obtained through the following agencies: New Page, United Plant Savers, The Nature Conservancy, Bartlett Tree Care, Springer Scientific, Nature Genetics, and Shoots and Roots Bitters.

H. PRESENTATIONS

Presentations are divided into three sections: research/outreach, teaching, & student research. All are oral presentations unless indicated as a poster. University support for travel to conferences is US \$500/year for faculty members only all additional support to bring students to conferences was received from internal and external funding.

Research and Outreach Presentations

2015

The People, Places, and Plants of EBOT 100: Introduction to Ethnobotany, Alaska Native Science and Engineering Program (ANSEP), University of Alaska, Fairbanks, Nov. 17th.

In the Footsteps of E. Lucy Braun Weekend, Pine Mountain Settlement School, Pine Mountain, Kentucky, Aug. 15-16.

The Brief Blooms of Alaska: Iñupiat Ethnobotany Above the Arctic Circle, Maryland Native Plant Society, Western Maryland's Chapter, Feb. 17.

2014

Invited Presentation, Botany of Cherokee Basketry, Smithsonian National Museum of Natural History, Department of Botany, Washington, DC, March 18.

Palatable or Prohibited: Conservation Concerns of Edible & Medicinal Plants, Maryland Native Plant Society, Frostburg, MD, February 18.

2013

Fieldtrip Leader, Mount Aetna & Cranesville Swamp, The Threatened Natural Communities & Rare Plants of Maryland's Mountains, Annual Meeting of the Maryland Native Plant Society, Frostburg, MD, September 22-23.

Spring Wildflower Walk, Savage River Watershed Association & Maryland Native Plant Society, Bear Pen, Garrett County, MD, April 27.

Cultural Flora of Appalachian Forests, Friends of the Frostburg Library, Frostburg, MD, April 23.

2012

American Chestnut as an Appalachian Socio-Ecological Keystone Species, Maryland Chapter of the American Chestnut Foundation, Germantown, MD, Oct. 13.

AAUW Fellowship & Black Cohosh, American Association of University Women, Frostburg Chapter, Frostburg, MD, Oct. 2.

Hoban, Sean, Scott Schlarbaum, **Sunshine Brosi**, Jeanne Romero-Severson, Genetic change in a regenerating patch of butternut, a threatened forest tree, is attributable to the contribution of few successful parents. Botany 2012, Columbus, Ohio, July 7-11.

Eisenstein, Edward, **Sunshine L. Brosi**, Mimi Hernandez, An Appalachian Consortium for the Sustainable Cultivation of Medicinal Plants. 53rd Annual Meeting, Society for Economic Botany, June 2-7, Frostburg State University.

2011

Keynote, Cherokee basketry and dye, Wild Herb Weekend, NC Herb Association, Valle Cruces, NC, July 22, *invited*.

John Churchill, James Howell, and **Sunshine Brosi**, Risk Assessment to State Rare Mountain Bugbane in Western Maryland, 2011 Esri International User Conference Paper Sessions, Understanding our World, San Diego, CA, July 11-15.

Curriculum Peer-Review and Inter-Institutional Collaboration Assisted by the Open Science Network in Ethnobiology, *invited*. Botany 2011: Botanical Society of America & Society for Economic Botany, Healing the Planet, St. Louis, Missouri, July 9-13.

Appalachian Center for Ethnobotanical Studies, ACES, 2011 Research Symposium, Mount Washington Conference Center, Baltimore, MD, June 24.

Sunshine L. Brosi and James A. Howell, Forest Communities of Black Cohosh in Western Maryland, Appalachian Plants and People; Interdependent Networks at Multiple Scales.

John B. Churchill, **Sunshine Brosi** and James Howell, Risk Assessment to State Rare Mountain Bugbane in Western Maryland
Joseph R. Ferrari, **Sunshine L. Brosi**, and James Howell, Quantifying habitat for the medicinal plant black cohosh (*Actaea racemosa* L.) in western Maryland.

Loss of Appalachian cultural keystone species, Appalachian Studies Conference: River of Earth: Action, Scholarship, Reflection, and Renewal, Eastern Kentucky University, Richmond, KY, March 13th.

2010

Sunshine L. Brosi, James A. Howell, and Joe R. Ferrari, Population dynamics of the ethnobotanical herb, black cohosh, *Actaea racemosa* L., in western Maryland, Ecological Society of America, Pittsburgh, PA, Aug. 6th.

Sunshine L. Brosi, James Howell, and Joe Ferrari. Sustainability of an Appalachian herb, black cohosh, *Actaea racemosa* L.: determining factors of habitat and abundance in western Maryland. Society for Economic Botany (SEB), 51th Annual Meeting, Xalapa, Veracruz, Mexico June.

Joe R. Ferrari, **Sunshine L. Brosi**, and James A. Howell, Habitat suitability for the medicinal plant black cohosh (*Actaea racemosa* L.) in western Maryland- a baseline study for management of non-timber forest resources, 2010 International Association of Landscape Ecology, US-IALE Twenty-fifth Anniversary Symposium, University of Georgia, Athens, GA, April 5th-9th.

Sunshine L. Brosi, People and Plant Communities of the Appalachian Mountains: Ethnobotany in western Maryland, 33rd Annual Appalachian Studies Conference, Dahlonega, GA, March 20th.

2009

Restoring culturally and biologically significant species in Appalachia: American chestnut, butternut, and white oak, Seminar Series, West Virginia University Biology Department, Nov. 9th.

Anthropogenic and ecological aspects of plant distributions: How medicinal and culinary herbs become invasive (invited presentation), Complicating Factors in Invasive Plant management: Circumstances Beyond Our Control? University of Pittsburgh at Johnstown, PA, Aug. 11th.

Sunshine L. Brosi and James Howell, Prospects for of Sustainable Management of Black Cohosh, *Actaea racemosa* L., in Western Maryland. Society for Economic Botany (SEB) 50th Annual Meeting, Charleston, SC, June.

Healthy Women and Healthy Forests: Prospects for Sustainable Management of an Ethnobotanical Herb, Black Cohosh, in Western Maryland, Southeastern Women's Studies Association (SEWSA) Annual Conference Appalachian State University, Boone, NC, Apr. 4.

2008

Sunshine L. Brosi, S.E. Schlarbaum, and A. Sharp, Cherokee White Oak Basketry, a Traditional Craft Dependent on Depleted Natural Resources. Society for Economic Botany, 49th Annual Meeting, Duke University, Durham, NC, June.
 Earth Day Celebration, Frostburg State University, Frostburg, MD, April 22.
 Integrating Ecological and Ethnobotanical Approaches to American Chestnut and Butternut Restoration. Western Maryland Nation Plant Society Meeting, Grantsville, MD, April 15.
 Maryland's Healthy Forests: Combating Exotics and Conserving Biodiversity for Culture and Crafts, Hood College, Frederick, MD, Apr. 8.
 American Chestnut: Restoring a Healthy, Historical Carbon Sequestration System, Focus the Nation, Frostburg State University, Frostburg, MD. Jan. 31.

Fall 2007

Conserving Forest Diversity, Sustainability & Health, Biology Department Seminar, FSU, Oct. 18.
 Arboretum Field Trip Leader, Maryland Native Plant Society Meeting, Frostburg, Sept. 30.

Teaching Presentations

I have presented at regional, national & international conferences on the following subjects: Matrix Assessment Techniques (alternative evaluation method), IFAT: Immediate Feedback Assessment Technique (scratch-off quizzes), Flipped Classroom (learn before lecture), Field-Based courses, Research Integrated classes, and Service Learning.

2015

The People, Places, and Plants of EBOT 100: Introduction to Ethnobotany, Kuskokwim Campus's Brown Bag Lunch Series, Bethel, Alaska, Nov. 10th.
 REIL Research Experiences in Introductory Laboratories-Biology Network, Workshop Team Acceptance, National Science Foundation, Research Coordination Network-Undergraduate Biology Education. Ecological Society of America, Baltimore, Maryland, Aug. 8-14.
Sunshine L. Brosi and Karen Hall, Connecting Students to Ecology through Culture Workshop, *Organizer of Teaching Tuesday Workshops & Workshop Presenter*, International Plant Use Forum (IPUF) & Society for Economic Botany (SEB) joint annual meeting, Clanwilliam, South Africa, June 28-July 3.

2014

Educational Hands On Workshop: Sunshine Brosi & Karen Hall, Dyeing to learn objectives: using a natural dyes activity to develop learning objectives. 2nd Annual Life Discovery, Doing Science, San Jose, CA, October 3-4.

Society for Ethnobiology (SOE) & Society for Economic Botany (SEB) joint annual meeting, Cherokee, NC, May 11-15.

Organizer of Teaching Tuesday Workshops

Workshop: Hall, Karen & Sunshine Brosi, Dyeing to learn objectives: using a natural dyes activity to develop learning objectives.

Oral Presentations:

Sunshine Brosi & Ryan Huish. Cherokee collaborative field school: teaching core concepts & competencies in ethnobiology through the lens of Cherokee Artisan Resources, Society for Ethnobiology (SOE) & Society for Economic Botany (SEB) joint annual meeting, Cherokee, NC, May 11-15.

Huish, Ryan and **Sunshine Brosi**, Student-centered learning and ethnobotanical connections in plant identification curriculum: engaging students in broader scientific competencies, Society for Ethnobiology (SOE) & Society for Economic Botany (SEB) joint annual meeting, Cherokee, NC, May 11-15.

2013

Working Group Coordinator, How to Build Networks for Change. Vision & Change II: Chronicling the Changes, Washington, DC, August 28-30.

What do we want students to know – and are we getting it across? *Organizer of Teaching Tuesday Workshops & Workshop Presenter*, Annual Meeting, Society for Economic Botany, Plymouth, England, June 29.

2012

53rd Annual Meeting, Society for Economic Botany, June 2-7, Frostburg State University

Organizer of the first Teaching Tuesday Educational Workshops

Brosi, Sunshine, Gail Wagner, Vision and Change for Ethnobiology: recommendation for core concepts and course objectives

Brosi, Sunshine, Lunch Workshop, The Scholarship of Teaching & Learning.

2010

Green Jobs Panel, Fields of Green Internship Fair, Bethesda, MD, March 27th.

The Last Forest Curriculum Guide Panel, Appalachian Studies Conference, Engaging Communities, North Georgia College and State University, Dahlonega, GA, March 21st.

Faculty Panel: The Curious Case of the Life of Academics, The 11th National Conference for McNair Scholars and Undergraduate

Research, University of Maryland College Park, MD. March 12th.
 Winter Woods Wonderland, Maryland Association for Environmental and Outdoor Education, 10th Annual Conference, Rocky Gap, MD. February 21st.

Student Research Presentations

**graduate student, **undergraduate student*, oral presentations unless indicated as a poster

I have had research presentation at national and international conferences with **over 60** undergraduate students and **7** graduate students in **14** states (AL, CA, GA, KY, MA, MD, MI, MN, MO, NC, NM, PA, SC, & WV) and **4** countries (United States, Mexico, United Kingdom, & South Africa).

2015
 Laura G. Smith* and **Sunshine Brosi**, Management of Forest Pests in the Shifting Context of Urban Ecology. International Plant Use Forum (IPUF) & Society for Economic Botany (SEB) joint annual meeting, Clanwilliam, South Africa, June 28-July 3.

Presentations at FSU's College of Liberal Arts and Sciences Undergraduate Research Symposium, May 1

Megan Carr** and **Sunshine Brosi**, Ex Situ Conservation of Endangered Native Ecosystems

Karen Johnson**, Sabrina Wasfi**, Selena Burke**, Jaime Tarnai** and **Sunshine Brosi**, What Do Traditional Appalachian Plant-Based Dyes Reveal About Changes in Gender Roles? (poster)

Laura G. Smith* and **Sunshine Brosi**, Managing Forest Pests in Washington, D.C. Graduate Research Symposium (poster)

2014
2nd Annual Life Discovery, Doing Science, San Jose, CA, October 3-4.
 Laura G. Smith* and **Sunshine Brosi**, Creating Relevance in Botany through Cultural Connections
 Lauren A. Hull* and **Sunshine Brosi**, Bugs and Botany: A Play-Based Approach to Bridging Science & Society, Lauren A. Hull**

Society for Ethnobiology (SOE) & Society for Economic Botany (SEB) joint annual meeting, Cherokee, NC, May 11-15

Michael McCampbell*, **Sunshine Brosi**, Thomas Hall, Arnold Saxton, & Scott Schlarbaum, Seedling establishment of American chestnut, *Castanea dentata*, in Pennsylvania., **Edmund H. Fulling Oral Presentation Award, US \$1,000.**

Bower, Justin**, Scott Schlarbaum, Eagle Brosi, & **Sunshine Brosi**, Health status of butternut (*Juglans cinerea* L.) in Maryland.

Poster Presentations:

Ngofa, Sedia**, Laura Smith**, Scott Schlarbaum, Ami Sharp, and **Sunshine Brosi**, Increasing the availability of butternut for traditional Cherokee dye

Messick, Kerry**, Michael McCampbell*, Matt Tillett, Megan Carr**, Ami Sharp, Scott Schlarbaum, & **Sunshine Brosi**, Establishment of white oak, *Quercus alba*, seedlings for Cherokee basketry material

Hall, Mitch*, J.B. Churchill, & **Sunshine Brosi**, Prioritizing management strategies in Washington, DC urban forests

Echeverri, Gabe**, Ian Cheek**, Ami Sharp, Scott Schlarbaum, & **Sunshine Brosi**, Rivercane as a companion for cultural resource butternut plantings

Poster Presentations at FSU's College of Liberal Arts and Sciences Undergraduate Research Symposium, May 2.

Kerry Messick**, Megan Carr**, Michael McCampbell*, Matthew Tillett*, Ami Sharp, Scott Schlarbaum, and **Sunshine Brosi** Establishment of White Oak, *Quercus alba*, Seedlings for Cherokee Basketry Material

Alex Cathcart**, Hannah Goodmuth**, Ruth LaCourse**, Joseph Linsalata**, and **Sunshine Brosi**, Herbarium Revamp: Sorting, Displaying, and Digitizing the FSU Herbarium Collection

Sedia Ngofa**, Juliana Hong**, and **Sunshine Brosi**, Increasing Availability of Butternut for Traditional Cherokee Dye: Study of Native Permaculture and Companion Planting of Temperate East Appalachia

Gabriel Echeverri**, Ian Cheek**, and **Sunshine Brosi**, Rivercane as a Companion for Cultural Resource Butternut Plantings

2013
 Mitch Hall**, J.B. Churchill, & **Sunshine L. Brosi**, Management Strategies in DC Urban Forests, Western Mountains Chapter, Maryland Native Plant Society, Frostburg, MD, October 15.

Michael McCampbell*, Thomas Hall, and **Sunshine L. Brosi**, Seedling Establishment of American chestnut, *Castanea dentata*, in Pennsylvania, Maryland Delaware Wildlife Society Meeting, New Germany State Park, MD, April 25.

Oral Presentations at FSU's Learning Green, Living Green Focus Frostburg Earth Day Celebration, April 17, Undergraduate students in 2013 Economic Botany Course: Evergreen Heritage Center Herbaceous Research, Urban Forestry, Frostburg State University's Herbarium Online, Wild Beverages of the 'Burg, Community Supported Agriculture, Arbor Day Tree Planting and Tree Campus USA Designation.

Poster Presentations at FSU's College of Liberal Arts and Sciences Undergraduate Research Symposium, May 3.

Ben Brown**, Rebecca Hiller**, Gabriel Echeverri**, and **Sunshine L. Brosi**, Beverages of the 'Burg.

Joseph Saucedo**, David Fisher**, Sedia Ngofa**, Hannah Goodmuth**, and **Sunshine L. Brosi**, Frostburg State University

Digital Herbarium

Susan R. Snow** and **Sunshine L. Brosi**, Evergreen Heritage Center Orchard Analysis

MaryAnna Cole**, Alexander Cathcart**, Farren Smith**, Larry Shockley**, and **Sunshine L. Brosi**, Local Food & Local Sustainability

Laura Smith**, Don Weston**, Joseph Linsalata**, Anna Slaten**, and **Sunshine L. Brosi**, FSU Tree Campus USA Urban Tree Project

2012

Hall, Mitchell*, **Sunshine L. Brosi**, Saving Trees and Saving Time, Mid-Atlantic Chapter, International Society of Arboriculture, Annual Meeting, Rocky Gap Resort, Cumberland, MD, Sept. 30-Oct. 2.

53rd Annual Meeting, Society for Economic Botany, June 2-7, Frostburg State University

Vickers, Amanda*, **Sunshine L. Brosi**, David P. Puthoff, James A. Howell, Bhavenett Kuar, Edward Eisenstein, Chemotypic variation and adulteration factors in *Actaea racemosa* L.

Snow, Susan R.**, John B. McAllister**, MaryAnna Cole**, **Sunshine L. Brosi**, Local Produce Trends in Allegany, Garrett and Washington Counties Maryland (poster).

Kruger, Mary**, Joseph Saucedo**, Andrew Shadel**, **Sunshine L. Brosi**, Students Perceptions of Flowers and Weeds (poster).

Fisher, David**, Morgan Bauer**, Ben Brown**, **Sunshine L. Brosi**, Campus Sustainability Assessment (poster).

Snow, Susan R.**, Ruth LaCourse**, **Sunshine L. Brosi**, Vegetative Survey of Evergreen, Green Site Plan, Green Learning (poster).

Kruger, Mary**, Joseph Saucedo**, Andrew Shadel**, **Sunshine L. Brosi**, Digital Ethnobotanical Herbarium (poster).

Smith, Laura G.**, Mitchell Hall**, Donald Weston**, Larry Shockley**, and **Sunshine L. Brosi**, Becoming Tree City USA (poster).

2011

Amanda Vickers*, **Sunshine Brosi**, Jim Howell, and David Puthoff, Black cohosh: from field to laboratory, Western Chapter of the Maryland Native Plant Society, Appalachian Lab, Frostburg, Aug 16.

A. J. Vickers*, **S. L. Brosi**, J. A. Howell and D. P. Puthoff, Concentrations in triterpene glycoside levels found to differ between reproductive and non-reproductive black cohosh. Plant Biology 2011, American Society for Plant Biologists, Minneapolis, MN, Aug. 6-10.

A. J. Vickers*, **S. L. Brosi**, J. A. Howell and D. P. Puthoff, Concentrations in triterpene glycoside levels found to differ between reproductive and non-reproductive black cohosh. Mid-Atlantic Plant Molecular Biology Society Meeting, Beltsville, MD Aug. 15-16.

A. J. Vickers*, S. L. Brosi, J. A. Howell and D. P. Puthoff, Concentrations in triterpene glycoside levels found to differ between reproductive and non-reproductive black cohosh. American Council for Medicinally Active Plants Conference, Huntsville, AL, July 19.

Botany 2011: Botanical Society of America & Society for Economic Botany, Healing the Planet, St. Louis, Missouri, July 9-13.

Amanda Vickers*, **Sunshine L. Brosi**, James Howell, and David Puthoff, Chromatographic quantification of medicinal compounds in flowering and non-flowering wild-harvested *Actaea racemosa* L. Botany 2011, Healing the Planet, St. Louis, Missouri, July 9-13. **Julie F. Morton Best Poster Award, US \$500.00.**

Mitch Hall**, **Sunshine L. Brosi**, and David Puthoff, The effectiveness of tomato plants (*Solanum lycopersicum*) modified with a Hessian fly-responsive (Hfr) gene against phloem-feeding and chewing insects. **Li-COR Prize, Physiological Section Best Poster, Botanical Society of America.**

Robbie Kutchman, **Sunshine L. Brosi**, and James A. Howell, 'The impact of artificial shade cloth and substrate on the establishment of cultivated *Actaea racemosa* L. in western Maryland, USA.'

Mary Kruger** and **Sunshine L. Brosi**, Frostburg State University's Digital Herbarium, Western Maryland Native Plant Society Meeting, June 21.

Appalachian Plants and People: Interdependent Networks at Multiple Scales, Appalachian Center for Ethnobotanical Studies, ACES, 2011 Research Symposium, Mount Washington Conference Center, Baltimore, MD, June 24:

Amanda Vickers*, **Sunshine Brosi**, James Howell, David Puthoff, Quantification of medicinal compounds in flowering and nonflowering *Actaea racemosa* L..

Robert Kutchman*, **Sunshine L. Brosi**, James A. Howell, The impact of artificial shade cloth and substrate on the establishment success of cultivated *Actaea racemosa* L. in western Maryland, USA.

Mary Kruger**, Elizabeth Deasy**, Brittany Weeks** and **Sunshine Brosi**, Economic Botany: Digital Herbarium.

Mitra Karimian** and **Sunshine L. Brosi**, Appalachian Dulcimers.

Christopher Bryant**, Nathan Beeman**, Curtis O'Donnell**, Jaret Trail** and **Sunshine L. Brosi**, Urban Forestry in Frostburg.

Christopher Massimino**, Morgan Bauer** and **Sunshine L. Brosi**, The University Compass: A Community Garden for Children.

Natalie A. Walsh* and **Sunshine L. Brosi**, Stratification protocols and germination rates of black cohosh (*Actaea racemosa* L.) populations from western Maryland.

Amanda Vickers*, **Sunshine L. Brosi**, James A. Howell, and David P. Puthoff, Assessment of five medicinal compounds in flowering and non-flowering black cohosh, Appalachian Studies Conference: River of Earth: Action, Scholarship, Reflection, and Renewal, Eastern Kentucky University, Richmond, KY, March 11th.

Mitra Karimian** and **Sunshine L. Brosi**, Appalachian dulcimer: traditional materials for a folk art shift with our changing forests, Appalachian Studies Conference: River of Earth: Action, Scholarship, Reflection, and Renewal, Eastern Kentucky University, Richmond, KY, March 13th.

2010
Robbie Kutchman*, **Sunshine L. Brosi**, and James A. Howell, Western Maryland Native Plant Society, Meeting, Frostburg, MD, Oct. 19th.

Natalie A. Walsh*, **Sunshine L. Brosi**, and James A. Howell, Stratification protocols and germination rates of black cohosh (*Actaea racemosa* L.) from populations in western Maryland, Ecological Society of America, Pittsburgh, PA, Aug. 5th. **Traditional Ecological Knowledge Student Merit Award.**

Society for Economic Botany (SEB), 51th Annual Meeting, Xalapa, Veracruz, Mexico June

Mitra Karimian**, **Sunshine L. Brosi**, Tommy Berry**, Nathan Beeman**, Steven Darrow**, Elizabeth Deasy**, Lauren Fetzer**, Carson Sommerlatt**, Analysis of Appalachian dulcimer makers (student poster), **Honorable Mention, Julia F. Morton Award.**

Natalie A. Walsh* and **Sunshine L. Brosi**, Stratification protocols and germination rates of black cohosh (*Actaea racemosa* L.) from populations in western Maryland.

Christopher Massimino** and **Sunshine L. Brosi**, Metabolic profiling of in vitro cultured medicinal plants (poster).

Natalie A. Walsh* and **Sunshine L. Brosi**, An Herb Grows in Appalachia: Sustainability of Black Cohosh Populations in Western Maryland, 33rd Annual Conference, Appalachian Studies Conference, Engaging Communities, North Georgia College and State University, Dahlonega, GA, March 21st.

Natalie A. Walsh* and **Sunshine L. Brosi**, The Science Practice and Art of Restoring Native Ecosystems, at the 2010 Stewardship Network Conference, East Lansing, MI, Jan. 23rd.

2009
Natalie A. Walsh* and **Sunshine L. Brosi**, Stratification protocols and germination rates of open-pollinated families of black cohosh (*Actaea racemosa* L.) from three western Maryland state forests: Population dynamics of a medicinal herb native to the Appalachian Mountains (poster), 94th Ecological Society of America (ESA) Annual Meeting, Albuquerque, NM, August.

Christopher Massimino** and **Sunshine Brosi**, July 7, To increase our ethnobotanical knowledge of local medicinal plants (oral presentation, undergraduate student) University of Maryland, McNair Scholars Program, Summer Research Institute, awarded the McNair Ambassador Award. Also presented at the 2009 University at Buffalo (SUNY) McNair Research Conference at Niagara Falls, NY, July 18th.

Society for Economic Botany (SEB) 50th Annual Meeting, Charleston, SC, June:

Natalie A. Walsh* and **Sunshine L. Brosi**, Stratification protocols and germination rates of open-pollinated families of black cohosh (*Actaea racemosa* L.) from three western Maryland state forests: Population dynamics of a medicinal herb native to the Appalachian Mountains.

Mitra Karimian**, **Sunshine L. Brosi**, Rebecca Shipe**, Carson Sommerlatt**, 2009. Shiitake mushroom cultivation on various low-value tree species from a crop-tree release cutting in western Maryland (poster).

Kathryn Schmeltzer**, **Sunshine L. Brosi**, Mitra Karimian**, Rebecca Shipe**, Medicinal herb cultivation in pure and mixed plantings (poster)

Carson Sommerlatt**, **Sunshine L. Brosi**, Thomas Berry**, Rebecca L. Shipe, ** The effects of soil tilling in production of herbal species in the understory of forest in western Maryland (poster).

Natalie A. Walsh* and **Sunshine L. Brosi**, Conserving Women's Herbal Healing Wisdom: Protecting Black Cohosh in Eastern Forests, SEWSA Annual Conference, Appalachian State University, Boone, NC, Apr. 4.

2008
Society for Economic Botany, 49th Annual Meeting, Duke University, Durham, NC, June.
M. Chad Smith**, Tim Pegg**, Alison Croner**, Michael Clark** and Rebecca Shipe**, and **Sunshine L. Brosi**, Maple Sugar Production of Western Maryland.
Rebecca Shipe**, **Sunshine L. Brosi**, and Alison Croner, Maple Sugar Production in Western Maryland. (poster)

I. SERVICE

Conference Hosts & Organizing Committees

Conference Host, Society for Economic Botany (SEB), 57th Annual Meeting, Pine Mountain, Kentucky (2016), 53rd Annual Meeting,

Frostburg, Maryland (2012), Conference Organizing Committee, Educational Workshops: Clanwilliam, South Africa (2015), Cherokee, North Carolina (2014), Plymouth, England (2013) and Frostburg, Maryland (2014).
 Conference Host, The Threatened Natural Communities & Rare Plants of Maryland's Mountains, Annual Meeting of the Maryland Native Plant Society, September 22nd, 2013, FSU.
 Working Group Coordinator, How to Build Networks for Change, the AAAS/NSF Vision & Change in Undergraduate Biology Education II: Chronically the Changes, Washington, DC, August 2014.
 Selected as Conference Host for 2015, Conference Organizing Committee (2013 & 2014), Life Discovery-Doing Science, in conjunction with the Ecological Society of America, Society for the Study of Evolution, Botanical Society of America, and the Society for Economic Botany.
 Realizing Vision & Change, Preparing for Next Generation Biology, Oct. 3-5, 2014, San Jose, California.
 Exploring Biology for a Changing World, March 15-16, 2013, St. Paul, Minnesota.
 Co-Organized the 1st, 2nd, 3rd & 4th Annual Regional Conference on Teaching, Learning, and Scholarship through the Center for Teaching Excellence with FSU, Allegany College of Maryland, Potomac State, and Garrett College, January 2012-2015.

Professional Service

Nationwide

Society for Economic Botany (SEB)

Secretary, SEB, elected (2013-present)

Council Member, Education Committee, SEB, elected (2011-present)

Conference Host, SEB 53rd Annual Meeting, Frostburg, Maryland, USA (2012)

Richard Evans Schultes Student Award, Judge, SEB Annual Meeting, Plymouth, England (2013)

Student Oral Presentation Judge, SEB Annual Meeting, Xalapa, Mexico (2010)

Review of Manuscripts for Ethnobotany Research and Applications

Judge, Committee Member, organizer of College/Career Fair, National 4-H Forestry Invitational: The Super Bowl of Forestry, July, Weston, WV (2011-present).

Leader, West Virginia Wildflower Pilgrimage, Blackwater Falls, May, (2011-present).

Ecological Society of America (ESA)

REIL Research Experiences in Introductory Laboratories -Biology Network, Workshop Team Acceptance, Ecological Society of America, Aug. 8-13, National Science Foundation, Research Coordination Network-Undergraduate Biology Education

Data in the Ecological Classroom Scholar, EcoEdDL, Advisory Panel, develop exercises for data analyses using Science Pipes-a data visualization tool, Ecological Society of America, National Science Foundation Award, Digital Resource Discovery and Dynamic Learning Communities for a Changing Biology (DRD) (# DUE-1044359), 2012-present.

Strategies for Ecological, Education, Diversity, and Sustainability (SEEDS) Mentor, ESA Annual Meeting, Pittsburgh, PA, July 30th - August 6th, 2010.

Editor, Life Discovery, EconBotEd, Educational Portal for Economic Botany lesson plans.

Statewide

Maryland Department of Natural Resources: Savage River State Forest Advisory Board (appointed), Off-Road Vehicle (ORV)

Working Group (appointed), Sustainable Forestry Certification Audit Process, Becoming an Outdoors Woman presenter (2010-present), Campfire Programs: Rocky Gap State Park (2009-2012), New Germany State Park, Battling Botanical Bullies (invasive species removal), Red Spruce Tree Planting in Savage River State Forest.

Allegany College of Maryland, Forestry Program, Advisory Board.

Assisted with training: Master Gardener Programs Allegany and Garrett Counties, Envirothon Teams: State and Regional City of Frostburg, Shade Tree Commission (appointed), organizer of 1st Arbor Day, applicant Tree City USA.

University and College of Liberal Arts and Sciences Service

Chair Middle-States Program Review: Wildlife & Fisheries (2014), Interpretive Biology and Natural History (2012), Ethnobotany (2011).

Major Curricular Modifications: Ethnobotany (2009), Wildlife and Fisheries (2011), Interpretive Biology and Natural History (2011).

Faculty Panel, Scholars Reception (2010-2012), Faculty Speaker, Open House (2009-2011), Legislative Session (2010)

University committees: Sustainability Committee, Center for Teaching Excellence Advisory Committee, CLAS-UUCR University Undergraduate Curriculum Requirements, Honors Program Advisory Committee, Advisory Group for Learning Green Living Green, Learning Green Living Green Community Committee, Women's Studies Steering Committee, American Association of University Women.

Chair, Campus Shade Tree Commission, Organizer of 1st Annual Arbor Day, applicant for Tree Campus USA

Sponsored Celebrate Forests: Glimpses into the Communities and Ecosystems that Sustain Us All, Photography Exhibit, Roper Gallery, June 4-30, 2012.

Departmental Service

Chair, Biology Department Committees: Graduate Studies, Ethnobotany/Wildlife & Fisheries/Interpretive Biology Curriculum Committees, Arboretum, Sierra Student Coalition (faculty advisor).

Program Coordinator: MS: Applied Ecology & Conservation Biology (since 2014), BS: Ethnobotany (since 2007), BS: Interpretive Biology and Natural History (since 2010), and BS: Wildlife and Fisheries (2010-2014).

Webmaster for the Biology Department (2010-present).

J. ADDITIONAL RELEVANT EMPLOYMENT

UT Tree Improvement Program, Tennessee Agricultural Experiment Station, The University of Tennessee, Knoxville, Tennessee, USA. May 2002-Aug. 2007.

Graduate Research Assistant, Project Coordinator of Butternut and American Chestnut Restoration Projects: grant writing and reporting, directing undergraduate and graduate students in research design, coordination, and analysis. Specific projects on artificial regeneration of hardwood species include seed collection and stratification, nursery studies, seedling grading, plantation establishment, progeny testing, seedling monitoring, and statistical analysis for over thirty hardwood species. Stand classifications, dendrochronology, soil analysis, database construction and management including GIS, and collaboration with federal, state, public and private landholding agencies throughout 12 eastern states. Designed, coordinated, and implemented numerous research studies on southern National forests, North Carolina Division of Natural Resources Educational Forests, and the Eastern Band of the Cherokee Indians.

Department of Forestry, University of Kentucky, Lexington, Kentucky, USA. Aug. 1999-May 2001.

Graduate Research Assistant: conducted field, laboratory, and greenhouse research including data collection, analysis and publication for restoration projects on timber thefts, log landings, road closures, surface mines, contoured streams, natural barrens, native meadows, and arboretums. Experience in site characterizations including analysis of soil, light, temperature, vegetation, and seedling health.

The Nature Conservancy, North Carolina Chapter, Asheville, North Carolina, USA. May-Aug. 1998.

Field Researcher: designed and implemented research on the impact of an invasive exotic vine, *Celastrus orbiculatus*, on the herbaceous layer of forested ecosystems in Western NC including Biltmore Forest, the Blue Ridge Parkway, Pisgah National Forest, and Bent Creek Experimental Forest.

Boyce Thompson Institute for Plant Research, Cornell University, Ithaca, New York, USA. May-Aug. 1997.

Laboratory Researcher: designed, implemented, and analyzed senior research project focusing on ecophysiology and hydraulic architecture in tree species *Quercus rubra* and *Acer spp.*, detecting water potential and cavitation vulnerability of xylem in both root and twig tissues.

Warren Wilson College, Natural Resources Crew, Asheville, NC. Jan. 1997-May 1999.

Student Crew Leader (98-99) and Leader of Shiitake Mushroom Project: worked as a team leader to manage a 25-member work crew, assisted in multiple undergraduate research projects, helped to develop and implement forest management plans including: pruning, thinning, harvesting, timber stand improvement, firewood production, prescribed burning, invasive species control, trail construction and maintenance, and non-timber forest products production on 700-acre college forest.