

Hope Brooks

Qualifications Summary:

- 3+ years collaborating with federal agencies including: Smithsonian Institution, US Army, National Park Service, and USDA-APHIS
- Experience working in diverse ecosystems, including Appalachian forests, Piedmont forests, coastal and inland wetlands, and agricultural systems
- Adept at field-based research, with experience in plant identification, threatened and endangered species monitoring, and GPS unit use
- Practical background in lab-based research, such as genetics, GIS, and chemical analysis

Education:

Bachelor of Science with Distinction in Plant Science

The Pennsylvania State University: Schreyer Honors College (December 2014), University Park, PA

Cumulative GPA 3.75/4.0

Experience:

Smithsonian Environmental Research Center – *Technician (May 2015 – present), Intern (May 2013 – August 2013; May 2014 – August 2014; March 2015 – May 2015), Edgewater, MD*

- Collected genomic quality DNA from the North American Orchid Conservation Center's mycorrhizal fungi collection for subsequent identification of orchid mycorrhizal fungi.
- Assisted in monitoring populations of two federally listed species, the Small Whorled Pogonia (*Isotria medeoloides*) and Swamp Pink (*Helonias bullata*), at U.S. Army Fort A.P. Hill and one National Park Service managed site.
- Studied the effects of canopy thinning efforts and symbiotic mycorrhizal fungi on *I. medeoloides* population health, and researched the impacts of controlled burning on soil nutrient regimes and forest canopy closure in *H. bullata* populations.
- Tracked the occurrence of exotic parasites in mussels (*Mytilus spp.*) to understand the effects of the 2011 Japanese Tsunami on West Coast bivalves.
- Assisted in a NOAA-funded project researching the impacts of Common Reed (*Phragmites australis*) management practices on coastal wetlands.
- Researched the impacts of symbiotic and asymbiotic orchid germination and seedling transplant media *in vitro* on threatened and endangered orchid species for restoration efforts.
- Studied the spread of *Phragmites australis* through watersheds to identify hybrid plants and determine the extent of gene flow through pollen and seed using nuclear and chloroplast DNA.

Penn State University – *Lab Technician (Fall 2011 – September 2013), University Park, PA*

- Monitored the spread and control of *Phragmites australis* at Presque Isle on Lake Erie using unmanned aircraft systems (UAS) and existing aerial imagery.
- Measured weed and cover crop biomass for Cover Crop Cocktails and Reduced-Tillage Organic System Experiments projects.

- Researched the effects of agricultural production practices on biological control of insect pests, weed control, and soil health.
- Documented lifecycle of *Cenococcum geophilium* from 12 years of minirhizotron images collected at the Duke Forest FACE site to understand its production, lifecycle, and vitality in temperate deciduous forest ecosystems

USDA APHIS PPQ-ER – Lab Technician (Spring 2012 – Summer 2012), University Park, PA

- Collaborated on projects including the control and identification of *Phytophthora ramorum*, *Puccinia horiana*, Citrus Greening Virus, and Plum Pox Virus.
- Identified plant diseases using DNA extractions and qPCR, inoculated plants with fungi, and performed general lab duties

Certifications:

U.S. Fish and Wildlife Service State of Virginia Approved Surveyor for Small Whorled Pogonia (*Isotria medeoloides*)

Presentations and Publications:

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- *In press.* McCormick, M., **Brooks, H.**, Whigham, D. Microsatellite analysis to estimate realized dispersal distance in *Phragmites australis*. For Biological Invasions.
 - *In prep.* Rock-Blake, R., McCormick, M. **Brooks, H.**, Whigham, D., Jones, C. Symbiont abundance can affect host plant population dynamics. For American Journal of Botany.
 - **Brooks, H.**, McCormick, M., Whigham, D., Hazelton, E. (2015) Dispersal Distance of the Common Reed (*Phragmites australis*) in Chesapeake Bay Subestuaries. Presentation at the Society of Wetland Scientists meeting, Providence, RI.
 - **Brooks, H.** (2014) Exotic Vegetation Assessment (EVA): Remote Sensing *Phragmites* at Presque Isle State Park. Schreyer Honors College Thesis.
 - **Brooks, H.**, McCormick, M., Whigham D. (2013) Franken Phrag – A Monster in the Reeds: Determining the hybridization potential of *Phragmites australis* and tracing its spread. Poster Presentation at the Society of Wetland Scientists Mid-Atlantic Chapter meeting, State College, PA.

Awards and Academic Honors:

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- John n. Adam, Jr. Scholarship for Excellence in Agriculture (*Fall 2014*)
 - Swartley Scholarship in Plant Sciences (*Fall 2014*)
 - Honor Society of Phi Kappa Phi Pennsylvania State University Chapter (*Spring 2013*)
 - Penn State Alumni Annapolis Chapter Scholarship (*2013 – 2014*)
 - Oswald Scholarship (*2013 – 2014*)
 - Huber Lawrence Memorial Scholarship (*2012 – 2013*)
 - Thevaos Honors Scholarship (*2012 – 2013*)
 - Rumbaugh Family Award and Rumbaugh Agricultural Leadership Award (*2011 – 2012*)
 - Wolfe Scholarship (*2011 – 2013*)
 - Girl Scout Gold Award (*2009 – 2011*)

Extracurricular Activities:

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- Mid-Appalachian Region National Speleological Society Secretary (*February 2012 – present*)
 - Nittany Grotto Inc. Secretary-Treasurer (*June 2013 – present*)
 - Student Liaison for the Society of Wetland Scientists Conference at Penn State (*Spring 2014*)
 - Nittany Grotto Caving Club President (*January 2013 – December 2014*)