

Staff and Students

(Continued from Page 3)

Kim Strader
Carrie Whitacre

Assistant Curator, Native Plant Trail
Assistant Curator,
Herbaceous Gardens

Robbin Winkler Arnold
Karen York
Chris Youngs

Weekend Visitor Services Aide
VNPS Office Manager
Grounds Coordinator

Melissa Hey
Kelsey Huelsman
David Lambrecht
Kate Lecroy
Dawson Little
Valerie Martin
Joe Milligan
Kiera O'Neil
Alexandra Parisien
Jason Robinson
Clare Rodenberg
Olivia Ruffins
Ezekiel Sandor
Laura Schammel
Cyrene Schweitzer
Madaris Serrano Perez
Amber Slatosky
Emily Spindler
Laurel Tucker
Adalberto Ubinas
Monica Velasco
Emma Jeanne Wilkin
Benjamin Wolf

Graduate Researcher
Graduate Researcher
Graduate Researcher
Graduate Researcher
Undergraduate Researcher
Volunteer Researcher
Research Technician
REU
Graduate Researcher
Research Technician
Graduate Researcher
REU
Research Technician
Research Technician
Graduate Researcher
REU
Graduate Researcher
Graduate Researcher
High School Intern
REU
REU
REU
REU
REU

Students and Visiting Researchers

(Academic year 2018-2019 & Summer 2019)

Zoe Bergman
Caroline Bowman
Ross Brown
Drew Buckley
Cyle DeHaven
Margaret Donnan
Shalom Entner
Stephanie Gastelum
Emma Grover
David Grow
Nichole Gustafson
Kristian Harris

Graduate Researcher
Horticultural Intern
Undergraduate Researcher
Undergraduate Researcher
High School Intern
Research Technician
REU
REU
REU
Graduate Researcher
Graduate Researcher
Undergraduate Researcher



Annual Report

Fiscal Year 2019

Blandy Experimental Farm and the Foundation of the State Arboretum of Virginia

A joint publication covering the period from July 1, 2018 through June 30, 2019



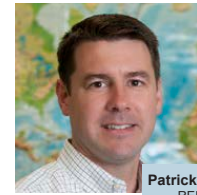
A Year of Creative Projects, Including the "Bee Wall"

A new structure blends art and science in a habitat for cavity-nesting bees and wasps. Located next to the Community Garden, the cob wall is made of clay, sand, straw, and water. Toronto artist Sarah Peebles designed the wall, which includes an observation port to view nesting bees and wasps. Here, State Arboretum Curator T'ai Roulston explains the project to Foundation of the State Arboretum board members and guests.

National Science Foundation Research Experience for Undergraduates

University of Virginia at Blandy Experimental Farm

2019 Program Participants



Patrick Crumrine, PhD
REU Coordinator
Rowan University



Shalom Entner
Hometown: Baltimore, Maryland
Howard University
The effects of plant anti-herbivore chemicals on wing patterning in Nymphalidae.
Mentor: Rebecca Forkner



Stephanie Gastelum
Hometown: Yuma, Arizona
Northern Arizona University
The Goldilocks Conopid: This bee is too small. This bee is too big. This bee is just right.
Mentor: Amber Slatosky



Emma Grover
Hometown: Greenville, South Carolina
University of Virginia
The effects of thiamethoxam on *Bombus impatiens* foraging efficiency
Mentor: T'ai Roulston



Kiera O'Neil
Hometown: Murrysville, Pennsylvania
Washington and Jefferson College
Do volatile terpenes empower *Monarda fistulosa* as a "grassroots community organizer"?
Mentor: Mary McKenna



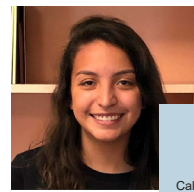
Olivia Ruffins
Hometown: Altadena, California
Beloit College
Analysis of plant usage in declining bumblebee populations in northern Virginia through pollen analysis
Mentor: Dave Carr



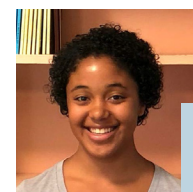
Madaris Serrano
Hometown: Humacao, Puerto Rico
University of Puerto Rico Humacao
Effects of artificial light at night on the behavior and performance of the monarch butterfly caterpillar
Mentor: Kyle Haynes



Adalberto Ubinas
Hometown: Bayamon, Puerto Rico
University of Puerto Rico Humacao
Buzzing at night?: Understanding overnight behavior in bumblebees and its causes.
Mentor: T'ai Roulston



Monica Velasco
Hometown: Riverside, California
California Baptist University
Plant chemical variation and the effectiveness of rhizobia mutualists
Mentor: Rebecca Forkner



Emma Jeanne Wilkin
Hometown: Apopka, Florida
Howard University
The path of least resistance: Interpond movement of Painted Turtles during a period of high habitat connectivity
Mentor: Patrick Crumrine



Ben Wolf
Hometown: Glenshaw, Pennsylvania
Chatham University
How do native warm-season fields and fallow cold-season fields affect pollen collection and hive success in bumblebees
Mentor: Dave Carr

Ten undergraduates from six states plus Puerto Rico spent their summer at Blandy conducting mentored research in the Research Experience for Undergraduates (REU) program, which is supported by the National Science Foundation.

From the Director

The Year of the Tree

Or How a Handful of Seeds Became a Center for Environmental Research
By David Carr

Director, Blandy Experimental Farm
It was a busy, productive year at the State Arboretum of Virginia, with a great deal of effort focused on raising the profile of the tree collection. On Arbor Day in April 2019, the State Arboretum of Virginia proclaimed the Eastern Redbud the “State Arboretum’s Tree of the Year.” It was a new idea to highlight one of the wonderful native trees of



Arboretum Specialist Jared Manzo and his wife Amelia carry home a tree from Garden Fair

Virginia and to remind everyone of our historic focus on trees.

In keeping with the theme, this summer, Caroline Bowman, our horticulture intern, logged GPS coordinates for 593 trees to include them in our online Arboretum mapping tool. This year, our Arboretum staff also added 105 new trees and shrubs to the collection.

We once again welcomed Virginia Big Trees to measure our largest specimens as contenders for the Virginia’s Champion Trees register. (We’re pleased to say the State Arboretum is home to 16 state champions, sized by circumference, height, and average crown spread, including the Table Mountain Pine, Arizona Cypress, and Japanese Umbrella Pine). And our beautiful and popular Ginkgo Grove did not disappoint as its

brilliant golden colors again attracted thousands of visitors in the fall – some of whom were making their first trip to the Arboretum.

Surprisingly, in retrospect, there is nothing in Graham Blandy’s 1926 bequest to the University of Virginia to suggest that Blandy Experimental Farm would host the State Arboretum of Virginia. That was not the plan. I doubt that it was the plan when Blandy’s first Director, Dr. Orland E. White, accessioned his first tree here (a pawpaw from seeds received in 1926, for those who are curious). He was building a research collection, but he arrived at the University of Virginia from the Brooklyn Botanic Garden. He undoubtedly had a sense of how to put together an arboretum. His collection had design and purpose. The trees were arranged in family groups – the conifers (Pinaceae), the oaks and beeches (Fagaceae), the maples (Aceraceae), and so on. The family groups were arranged in the same way that an herbarium was arranged in that day – by the Engler-Prantl system.

The collection started with the most primitive families and proceeded through what were regarded as increasingly more advanced families. In arranging this system, he took advantage of the local topography and the view to the east of the Blue Ridge Mountains to create something on the landscape that inspired.

When Dr. White retired in 1955, the University honored him by formally naming his collection – a professional labor of 28 years – the Orland E. White Arboretum. It was still not the State Arboretum, however. In fact, Blandy and the Orland E. White Arboretum went through a period of relative neglect after the retirement of Blandy’s second Director, Dr. Ralph Singleton, in 1965. It stayed in that state for over a decade.

In the early 1980s, Blandy began a rebirth. Dr. Ed Connor of the Department of Environmental Sciences proposed using Blandy as an ecological field

station in 1982, and an organization called “The Friends of Blandy” incorporated as a nonprofit organization in 1984 “for the promotion of research, education, and community service.” The Friends of Blandy worked to make the Orland E. White Arboretum a more valuable public resource, and to this end, persuaded the Virginia General Assembly to designate it as the State Arboretum of Virginia in 1986. In 1997, the Friends of Blandy formally became the Foundation we know today.

The State Arboretum of Virginia now includes over 5,000 trees and shrubs spread over 172 of Blandy’s 700 acres. The collection includes over 1,000 species and varieties. The most distinctive parts of the Arboretum still date to the Orland White era. These include the magnificent conifer collection that greets you as you pass through the archway, the Cedar of Lebanon Allee along Tuleyries Lane, and our famous Ginkgo Grove, mentioned earlier, that bursts into a golden glow to mark the end of every autumn.

The 33 years as the State Arboretum of Virginia has allowed us to build on Orland White’s legacy and transform Blandy into the environmental research and education center that it is today. The designation as the State Arboretum shifted the curation focus to plants native to Virginia. The Native Plant Trail began development in the mid 1990s to highlight the Commonwealth’s rich diversity of trees. The designation has also let us employ professional staff to care for the trees and the grounds. The designation has enabled us to build outstanding K-12 and public programs that use the collection in many educational ways.

We may not have been the State Arboretum by design, but the vision of what Blandy could become guided us to where we are today. Generations of committed leaders have imagined what might be possible and worked to make that a reality. Each has passed the torch to the leaders of the future. The constant through our history has been the trees.

“The constant through our history has been the trees.”

A Busy Year for Public Programs, With One Very Big Change

Approximately 1,375 people attended more than three dozen public programs last fiscal year, including 32 campers in three Summer Nature Camps for children. Holiday Workshops attracted 74 people to make wreaths and holiday decorations in 2018.

But the most significant number of all was 12, the number of years Public Programs Director Steve Carroll had under his belt when he retired from Blandy this past fall. Steve led many walks, talks, and programs and fostered partnerships with numerous other organizations. He created the Blandy Community Garden and initiated a series of informal gatherings called Science Cafés. Steve was instrumental in establishing Blandy’s walking trails and improving interpretation of the chestnut collection. He also started the Blandy Book Club.

Steve’s contributions can be seen throughout the grounds, from the Little Free Library at the main parking area to the interpretive signs along Wilkins Lane Loop Drive. His work will carry on long after his very well-deserved retirement.



From the President

Continued from Page 4

Sadly, this year we lost another long-time volunteer, Sam Adams. Sam, among other roles, was the primary bushhog operator at Blandy, expertly keeping the miles of trails open and, as an aside, reporting to Arboretum Curator T’ai Roulston the number of monarch butterflies spotted while mowing.

To honor Sam’s commitment to the Arboretum, we are focusing on a memorial project that involves the buckeye tree. According to his wife, Susie, this tree was his favorite.

I would be remiss if I did not thank Steve Carroll for all he has done for Blandy as Public Programs Director. Steve retired this fall after 12 years at Blandy, constantly providing quality programs and instruction on a wide variety of subjects. He even found time to create the community gardens at Blandy. Well done, Steve. We’ll all miss you and hope you come back to visit.

Finally, we are in the process of developing a comprehensive five-year cash flow projection so we can closely follow our income and spending trajectories to ensure we are able to meet our spending needs in the future.

Your continued help in this area is critical as we identify our most important projects to fund and at the same time maintain a tight rein on expenses.

Once again, it has been an honor to serve as FOSA’s President for 2018-2019. As I enter my final year in this role, I want to thank you for continuing to be involved with FOSA, the State Arboretum of Virginia, and Blandy Experimental Farm. You truly are the inspiration that allows us to take on new environmental education and research challenges, putting nature first every day.



High School Interns Rewarded with Summer Experience

Two high school students were able to take on internship positions at Blandy this summer, thanks to the generosity of the James R. Wilkins Charitable Trust. Laurel Tucker, from John Handley High School, and Cyle DeHaven, from James Wood High School, played an active role in Blandy’s summer research program.

Blandy's Education Team Expands its Programming

A Watershed Moment

New Partnership Immerses Students in Watershed
 By Candace Lutzow-Felling
 Director of Education

We had another wonderful and busy year engaging preschool through high school students in outdoor investigations at the State Arboretum. Over 6,000 students learned about plants and their pollinators; dug into soil and examined rocks; studied bird, insect, reptile, and mammal adaptations and searched the Arboretum for evidence of these creatures. Others were immersed in scientific investigations focused on our wetlands, succession fields, woodlands, and meadow ecosystems. The expertise of our education instructors and alignment of our programs with state learning objectives, in addition to the diverse, safe learning environment, are the main reasons why teachers bring their students to the Arboretum for our education programs.

This year, we also began a three-year partnership with Clarke County Public Schools training elementary, middle, and high school teachers in watershed education and working in collaboration with them to create multi-disciplinary curricular units focused on our local and regional watersheds. This ambitious project is funded through the National Oceanic and Atmospheric Administration Bay Watershed and Education Program (NOAA B-WET). During the 2018-19 school year, Blandy educators, in partnership with Clarke County teachers, taught 12 watershed-based programs at Blandy to 677 Clarke County grade 4 through high school students. To prepare teachers for the school



High school students learn how to collect macroinvertebrates

year, Blandy and Clarke county education leaders designed and provided 86 hours of instruction during 23 professional development sessions offered throughout the school year. One of these was a three-day intensive watershed institute held at UVA's Anheuser-Busch Ecological Research station on the Eastern Shore. Teachers explored Chesapeake Bay wetland and coastal strand habitats, collected soil and water samples to analyze in the research station's lab, and experienced the unique culture and agricultural economy of the Eastern Shore Bay area.

Audiences served by Blandy's Education Program (July 1, 2018 through June 30, 2019)

Category	Number
PreK-12 School Programs	
Education Programs	294
Students Served	5,846
Teachers attending	319
Chaperones attending	1,276
School Divisions Served	13
Schools Served	85
Public School	46
Private school	18
Home School	5
Science Fairs Judged	2
Students Judged	35
Other Outreach Events	155
Professional Development & Adult Programs	
Teacher Professional Development, # attending	205
Scientist Professional Development, # attending	10
Adult Community Outreach, # attending (presentations & classes)	128
Outreach Summary	
# students served	6,036
# teachers served	524
# undergraduates served	10
# adult community served	1,404
TOTAL OUTREACH IMPACT (# served)	7, 974
<i>Bold #'s calculated in the total</i>	



Students had a chance encounter with a Bluebird Trail volunteer as they were conducting an active game to study bird migration. 4th grade students. May 2019



Governor's school students mapping invasive organisms in Rattlesnake Spring. March 2019

Blandy Experimental Farm

Beginning Balance	\$1,079,548.83
Income	
Revenue	\$ 32,852.08
FOSA Support	\$ 197,556.41
Gifts	\$ 57,313.02
Reimbursements	\$ 24,980.73
Grants	\$ 374,955.00
Endowment Distribution	\$1,399,615.68
State Support	\$ 304,927.00
Interest	\$ 1,177.04
UVA Support	\$ 271,447.96
Transfers	\$ (50,000.00)*
Total Income	\$2,614,824.92

Expenses	
Salaries & Wages	\$1,616,723.93
Student Support	\$ 237,855.25
Teacher Support	\$ 16,200.00
Supplies & Services	\$ 259,681.68
Travel & Prof. Dev.	\$ 61,949.36
Printing & Publication	\$ 5,114.49
Communications	\$ 21,473.37
Utilities	\$ 69,944.98
Equipment	\$ 65,817.68
Insurance	\$ 2,314.38
eVA Fees	\$ 2,012.83
Transfers/Other	\$ (6,846.00)
F&A Costs	\$ 27,927.04
Total Expenses	\$2,380,168.99

Ending Balance \$1,314,204.76
 This is an unaudited summary of income and expenditures from Blandy's University accounts. The audited financial statements of the University of Virginia are available here:
<http://evp-coo.virginia.edu/annual-financial-reports>

*Gift from Thomas R. Flory transferred to the Thomas R. Flory in Honor of Walter S. Flory, Jr. Endowment for Blandy.

2019 At a Glance



Arboretum specialists Sabrina Hartley and Jared Manzo help measure the girth of a Sycamore Maple

16

Number of Virginia State Champion trees in the Arboretum collection.

7,974

Number of students, teachers, undergraduates, and adults in 13 school divisions served by Blandy's education program

1,375
 Number of people who signed up for a walk, talk or program at Blandy



Emma Grover, an REU student from South Carolina, samples aquatic life in Lake George

\$243,343
 Value of grants, awards, and fellowships received

Faculty July 2018-June 2019

David Carr	Director
Steven Carroll	Director of Public Programs
Patrick Crumrine	REU Coordinator
Rebecca Forkner	REU Mentor
Kyle Haynes	Associate Director
Candace Lutzow-Felling	Director of Education: School Programs
Mary McKenna	Minority Outreach Coordinator
T'ai Roulston	Curator

Visiting Faculty

Howard Epstein	University of Virginia
Harmony Dagleish	College of William and Mary
Jose Fuentes	Penn State
Daniel Hanley	Long Island University
Richard Karban	UC Davis
Abigail Kula	Mount St. Mary's University
Robert Kula	USDA-ARS
Bill McShea	Smithsonian Conservation Biology Institute
Laurel Rodgers	Shenandoah University
Adam Smith	George Washington University
John Steffan	Shepherd University
Anne Wright	Virginia Commonwealth University

Louie Yang UC Davis
 Melissa Zwick Stockton University

Staff (July 2018 - June 2019)

Robin Arnold	Administrative Specialist
John Campbell	Custodial Service Coord. & Maintenance Technician
Robin Couch Cardillo	FOSA Director
Leah Chaldares	Environmental Educator
Tim Farmer	Public Relations Coordinator
Robert Fawcett	Grounds Coordinator
Emily Ford	Lead Environmental Educator
Brandon Fox	Buildings Assistant
Sabrina Hartley	Arboretum Specialist
Dennis Heflin	Buildings Superintendent
Ann Hirschy	Weekend Visitor Services Aide
Lillian Ledford	Environmental Educator
Jared Manzo	Arboretum Specialist
Donald (Mike) Marlow	Grounds Worker
Judy Masi	Business Administrator
Carol Melby	Administrative Specialist
Koy Mislowsky	Events & Volunteer Coordinator
Jack Monsted	Assistant Curator, Native Plant Trail
Chris Schmidt	Arborist
William Spinrad	Weekend Visitor Services Aide

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From the President

FOSA: Revitalizing and Ready To Grow

By **Steve Bauserman**
FOSA President

Looking back on the past year, the Foundation of the State Arboretum has made many exciting changes. I know this report is for a fiscal year, but forgive me if I slip into the next fiscal year as I share our ongoing projects.

With any organization, significant personnel changes can bring not only uncertainty but also an opportunity for reflection and improvement on goals and objectives. Last year, I explained that long-time director Martha Bjelland retired and, midway through the fiscal year, we hired Robin Couch Cardillo. This past summer, Anne Heacock, FOSA's treasurer and paid CPA, moved to Richmond and resigned her positions. With no reflection on the jobs and commitments these individuals performed for FOSA, the officers and board took the opportunity to review procedures and goals and rededicate ourselves to the mission of



Caroline Bowman was a summer horticultural intern and spent much of her time mapping trees with a GPS

supporting the State Arboretum and the educational efforts of Blandy for students and the public. Sometimes it is helpful to periodically review how we do things simply to confirm we are on track, or that we need to change course.

Robin, a director with prior non-profit experience and familiarity with Blandy, has been an energizer for exploring new ideas to increase membership, FOSA income, and educational opportunities for our members, the public, and students.

Last year, I mentioned our major undertaking to repurpose the extremely small gift shop into the hub of an information/educational outreach center on campus. While this idea started a couple of years ago, this past year has seen a concerted effort to move the project forward. We have been working with the virtual reality team at Shenandoah University with the objective of providing a modern, up-to-date, and dynamic center

featuring an interactive information wall, as well as a low-tech tactile display for children. Lots more needs to be finalized, but the objective is to have a compact, yet highly flexible center that is user-friendly to folks of various levels of technology expertise and easily upgradable as technology changes.

Losing the income from the shop as well as our decision to replace a declining fall ArborFest with the new Nature Nurtures fundraising event have had the obvious negative impact on our ability to meet our financial obligations to Blandy and our mission. In looking more closely at finances, we recognized our membership categories, both the level of benefits and the costs, needed updating. We believe they are now competitive with similar organizations and better reward our members.

We are fortunate to have outside contributions for funding certain activities, such as the 2019 sponsorship of Caroline Bowman by the Fauquier and

Loudoun Garden Club as a Public Gardens Intern. Bowman is an undergraduate at Virginia Tech. Additionally, the James R. Wilkins Charitable Trust graciously continues its annual commitment to sponsor two local high school students – this year, Laurel Tucker from John Handley High School and Cyle DeHaven from James Wood High School – to work with the REU summer college students and faculty at Blandy. And FOSA continued to fund one graduate-level researcher at Blandy, with the help of the Luminescence Foundation.

Other events we're excited about include our first Tree of the Year award. As the State Arboretum of Virginia, we felt it only fitting to promote one of our native trees. On Arbor Day 2019, we named the Eastern Red Bud as the Arboretum's inaugural Tree of the Year. A relatively small tree, the Eastern Red Bud makes a spectacular statement each spring with its

Volunteer of the Year
Neil Myers
Volunteer since 2016
Native Plant Trail, Tour Docent, Public Programs

2018/2019
Top Volunteers

100+ Hours
Rob Humphrey
Neil Myers
Jim Wyatt

50+ Hours
Sally Anderson
Sara Dydak
Kay Jones
Bob Lee
Peter Mango

Total Volunteer Hours
1,726

early, easily identified blossoms. If you are doing landscaping, give this tree a good look.

We also welcomed several new board members, voting them in at our June Annual Meeting and preparing them to assume their roles in July: Thom Flory (who grew up on Blandy farm), Celie Harris, Alex Newhart, and Tracy Smith. Each has joined FOSA committees and is already contributing to moving us forward.

We honored Neil Myers as our Volunteer of the Year and recognized our other volunteers for their tireless donation of time to our mission (which, by the way, Virginia values at over \$50,000 for the year). Well done to all!

Please See Page 11



Grants, Awards, and Fellowships

Cardillo, R.C., and Carroll, S.B. \$500. American Woodmark Foundation. Support of Summer Nature Camps.

Carroll, S.B., \$5,000. UNDERSTORY: Support for a public program and Native Plant Trail interpretive panels. Botanical Artists for Education and the Environment.

Epstein, H.E., Walker, R., and X. Yang. 2018. USDA NRCS Conservation Innovation Grants, \$75,000. Using drone-based hyperspectral imagery to map individual species of invasive plants in the Northern Blue Ridge Mountains of Virginia.

Haynes, K.J., Pasquarella, V., Woodcock, C., Siegert, N., Morin, R., and A.M. Liebhold. 2018-2021. USDA Forest Health Monitoring, Evaluation Monitoring, \$43,031. Combining novel remote sensing methods with FIA data to evaluate effects of drought and gypsy moth defoliation on tree mortality at landscape scales.

Annual Forum Highlights Summer Research Program



Madaris Serrano-Perez

The annual summer research forum included 10 undergraduate students presenting the results of their work in Blandy's Research Experience for Undergraduates (REU) program. Two students received Tom Callahan Undergraduate Research Awards, and for the first time, the University of Puerto Rico at Humacao swept the awards presentations. Madaris Serrano-Perez, under the guidance of Kyle Haynes as mentor, won Best Presentation for "Effects of Artificial Light at Night on the Behavior and Performance of the Monarch Butterfly Caterpillar." Adalberto Ubina, mentored by T'ai Roulston, won Most Creative Presentation for "Buzzing at Night? Understanding Overnighting Behavior in Bumble Bees and its Causes." Blandy's REU program is funded by the National Science Foundation and with Blandy internal funds. The program provides a summer of mentored research experience with an established researcher.



Adalberto Ubina

The Callahan Award is given in memory of former FOSA Board Member and NSF researcher Tom Callahan, who lost his battle with cancer in 1999.

Lutzow-Felling, C. National Oceanic and Atmospheric Administration, Chesapeake Bay Watershed Education and Training Program, Developing environmental literacy through systemic, vertically aligned, integrated curricula, grades K-12, \$113,512.

Lutzow-Felling, C. Earth Force, Inc., \$5,000. Alliance to Advance Student Action Projects.

Parisien, A. 2019. University of Virginia, Department of Environmental Science, Moore Award, \$5,000.

Rodenberg, C. 2019. University of Virginia, Department of Environmental Science, Exploratory Research Award, \$1,300.

Publications

Firebaugh, A., and K.J. Haynes. 2019. Light pollution may create demographic traps for nocturnal insects. *Basic and Applied Ecology* 34: 118-125.

Grow, D. 2019. Escaping arboreta: Understanding the ecological impacts of a non-native tree recently escaping cultivation. MS Thesis. Towson University.

Haber AI, JW Sims, MC Mescher, CM De Moraes, DE Carr. 2019. A key floral scent component (β -trans-bergamotene) drives pollinator preferences independently of pollen rewards in *Mimulus guttatus*. *Functional Ecology* 33:218-228.

Haynes, K.J., and A. Firebaugh. 2019. Light pollution may inhibit firefly courtship flashing and mating success: Response to Lewis and Owens (2019). *Basic and Applied Ecology* 35: 67-69.

Haynes, K.J., Walter, J.A., and A.M. Liebhold. 2019. Population spatial synchrony enhanced by periodicity and low detuning with environmental forcing. *Proceedings of the Royal Society B: Biological Sciences* 286: 20182828.

Huelsman, K. 2019. Utilizing ecosystem function multifunctionality to assess supporting ecosystem services of three land-use types in Northwestern Virginia. University of Virginia, Department of Environmental Sciences, M.S. Thesis.

Struckman, A., Couture, J.J., LaMar, M.D., and H.J. Dalglish. 2019. The demographic effects of functional traits: an integral projection model approach reveals population-level consequences of reproduction-defence trade-offs. *Ecology Letters* 22: 1396-1406.

Yu, K, P D'Odorico, S Collins, D Carr, A Porporato, W Anderegg, W Gilhooly III, L Wang, A Bhattachan, M Bartlett, S Hartzell, J Yin, Y He, J Fuentes. 2019. The competitive advantage of CAM plants over the C4 grasses under drought and CO2 enrichment. *Ecosphere* 10: e02721. 10.1002/ecs2.2721.

Continued from Page 7

In Memory of Gorden Hosmer MacDougall
Barbara Eliades

In Memory of Matthew Mackay-Smith
Donna and Bruce Downing

In Memory of Andy Miller
Janel and Thomas Melgaard

In Memory of Jessica Orozco, REU Class of 2011
Kate LeCroy

In Honor of Stephen Pope's Dog, Blake
Victoria and Bob Deppensmith

In Honor of Kurt Prister
Julia and Russ Harper

In Memory of Tona Renforth Bays
Chrissie and Ronald Beck

In Honor of Tressa Reuling
Winchester-Clarke Garden Club

In Honor of Harriet Seveke
Sue and Joe Metz

In Honor of Kim Strader
Donna and Bruce Downing

In Memory of Joan Symmes
Kathy Clark and Jim Wyatt
Eda and David Doyle
Shirley Gaunt
Mary and Aubrey Owen
Beverly Sears
Louise Sinclair
Janet Slonaker

In Honor of Carrie Whitacre
Goose Creek Herb Guild

Student Research

Jack Kent Cooke Foundation
James Dooley
Fauquier and Loudoun Garden Club
In Honor of Roma Sherman
Luminescence Foundation, Inc.
James R. Wilkins Charitable Trust

Summer Nature Camps

American Woodmark Foundation
Greenway Garden Club
Town and Country Garden Club (Virginia)
Virginia Native Plant Society, Piedmont Chapter
Winchester-Clarke Garden Club

Restricted Gifts

Equestrian Trail

In Memory of Melanie Stiers
Drs. Sarah and David McLellan
Peace & Quiet Farm
Anne Watkins
Sylvia Wilson

Honorary/Memorial Benches

In Memory of George Vasjuta
Susanne Vasjuta

Honorary/Memorial Trees

In Memory of William Hines and Judith Randal
Judith Randal Hines

In Memory of Kenlynn White
Julie Dodson

Endowment

Permanent Endowment

In Memory of Joan Symmes
Kathy Clark and Jim Wyatt

In Honor of Jim Wyatt
Cynthia Wyatt

Gift In Kind

Chuck Ashcroft
Sue Balc
Kathy Clark and Jim Wyatt
Mrs. H. Hugh Hecl
Linda and Rob Humphrey
iHeart Media
Panera Bread
Purple Fern Photography
Sweet Tooth Bakery
The Virginia Farm Market
Sharon Winstead

FOSA sincerely attempts to acknowledge all gifts received. Though we appreciate any size donation, those under \$15 are not printed to conserve paper (and our trees). We regret any errors or omissions in compiling this donor list.

Foundation of the State Arboretum

Without Donor Restrictions	With Donor Restrictions	Total
NET ASSETS as of 7/1/18	16,466	949,748
CHANGE IN NET ASSETS	-59,712	-11,455
NET ASSETS as of 6/30/19	-43,246	938,293

REVENUE AND SUPPORT			
Contributions	71,092	14,894	85,986
Membership	17,617		17,617
Investment Return, Net	5,589	27,801	33,390
Public Program Fees	19,242		19,242
Fundraising Events, Net of Expenses of \$17,593	59,762		59,762
Sales, Net	-7		-7
Net Assets Released from Restrictions	54,150	-54,150	
Total	227,445	-11,455	215,990

FUNCTIONAL EXPENSES	Program Services	Management and General	Fundraising	Total
Administrative Expenses		47,760		47,760
Collection and Grounds Improvement	53,497			53,497
Public Program Expenses	12,284		1,908	14,192
Research Experience	494			494
Public Information	7,499			7,499
Support of Blandy and State Arboretum	155,590	8,125		163,715
Total	229,364	55,885	1,908	287,157

LIABILITIES AND ASSETS	
Liabilities, accounts payable	11,654
Net Assets	
Net Assets without Donor Restrictions as of 6/30/19	-43,246
Net Assets with Donor Restrictions as of 6/30/19	938,293
Total Net Assets	895,047
Total Liabilities and Net Assets	906,701

This summary is based on the Foundation's audited financial statements, which are available upon request.

Foundation of the State Arboretum

Board of Directors

July 1, 2018-June 30, 2019 (End of term in parentheses)

David Carr	(ex officio)	Karen McGlathery	(ex officio)
Josephine "Jolly" de Give	(6/30/20)	Jonathan "Jay" Monroe	(6/30/21)
Heather Dudley	(6/30/21)	Chris Oldham	(6/30/19)
Karla Etten	(6/30/20)	Frederick "Fritz" Reuter III	(6/30/21)
Christie Green	(6/30/19)	Polly Rowley	(6/30/22)
Susan Harris	(ex officio)	Roma Sherman	(6/30/19)
Frank "Hank" Hartz	(6/30/20)	Marianne Stanley	(6/30/20)
Kevin Hessberg	(6/30/21)	Nancy Takahashi	(6/30/22)
Scott Johnston	(6/30/20)	Beatrice von Gontard	(6/30/21)
Michelle Morris Jones	(6/30/21)	Robert Wever	(6/30/19)
G. Robert Lee	(6/30/20)	Sandy Wilson	(6/30/21)

Board members are elected for three-year terms, and each may serve two consecutive terms. The Board also includes the following ex officio members: the Director of Blandy Experimental Farm and two representatives appointed by the University of Virginia. The Board of Directors elects officers annually, and the term of office is one year.

FOSA Committee Chairs

Arboretum Collections
Nancy Takahashi

Development & Membership
Michelle Morris Jones

Education
Brenda Wiens

Equestrian
Sylvia Wilson

Events
Bill Powers

Finance
Marianne Stanley
Anne Heacock

Government Relations
Bob Lee

Nominating
Jolly de Give

Public Programs
Christine Perdue

Officers

J. Stephen Bauserman
President

Elsie Wilson Thompson
Vice President

Anne H. Heacock
Treasurer

Mary Olien
Secretary

Christine Perdue
Immediate Past President

Thank You to Our Donors!

July 1, 2018 through June 30, 2019

**Ginkgo Guild
(\$5,000+ Unrestricted Giving)**

Appreciation of Earth and Animal Foundation
Botanical Artists for Education and the Environment
Luminescence Foundation, Inc.
Elsie Wilson Thompson
Wise Foundation

**Blandy Society
(\$1,000+ Unrestricted Giving)**

William M. Backer Foundation
Deborah and J. Stephen Bauserman
Peter Bullough
Jack and Page Carter Fund of the Community Foundation of the Northern Shenandoah Valley
Kathy Clark and Jim Wyatt
Andrew U. Ferrari Foundation
Thomas R. Flory
Michael Goldfarb
Sandra and Theodore Guarriello
Anne H. Heacock
Josephine “Jolly” de Give
Sue Kellon and G. Robert Lee
Mildred Koehler
Christine Perdue and Turner Smith
Pettit-Wilson Family Foundation of the Community Foundation for Loudoun and Northern Fauquier Counties
Dr. Catherine Reed
Jennifer Riley and Michael Oak
Patricia Robinson
Polly Rowley
Roma and John Sherman
Mrs. Harrison Symmes
Nancy Takahashi
Laurie Volk
Beatrice von Gontard
Melissa Zwick and Patrick Crumrine

Unrestricted Giving

Alphabetical Order
Judy and Roger Aaron
Nancy and Gary Adams
Barbara and Joseph Alderman
Loretta Allison



The iconic view through the Quarters Archway is always stunning

Sally Anderson and Richard Cooper
Christine Anderson
MJ Anthony
Ayr Hill Garden Club
Sandra Bailey
Kathryn Baker
Larry Baker
Robert Ballard
Bank of Clarke County
Liz Barratt-Brown and Bos Dewey
Dr. and Mrs. Alessandro Basso
Beautification of Front Royal Committee
The Benevity Community Impact Fund
Angie Snell Bennett
Leron Bielak and Raymonde Egli-Bielak
George Ann Birkhofer
Ron and Martha Bjelland
The Blandy Sketch Group
Kathy and Keith Boi
Inage Braune
Debra Brown
Katharine and Stuart Brown
Nancy and Randy Bryant
Sylvia and James Buchanan
The Buckley Family Endowment, Inc.
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Robert Calhoun

David Carr and Judith Masi
Judith and Brawner Cates
Chapel Square Garden Club
Robert Claytor
Charlotte Connell
Anne Crocker
Dana Crone
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Erin Dale
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Stefan Donner
Donna and Bruce Downing
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Leslie Durham
Lorraine Edwards
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Susan Harris and Russell Gallop
Natalie Henry
Susan Heytler
Margaret Hoffman
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Joan Hope
Joya and James Hricko
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Jane Johnston
Susan Johnston
Rita Jurek
Virginia and Joseph Kalbach
Sigrid Kilcullen
Diana and Kelly Kincannon
Pam Klein
Cyrus and Amy Kump
Catherine Larmore



Students in Blandy Summer Nature Camp learn about turtles.

Blair and Robert Lawrence
Kathryn LeCroy
Jennifer Lee
Alice and Richard Lloyd
Marion Lobstein
Karen Reed Lowe
Lucketts Antique Fair
Meridith and Justin Mackay-Smith
Anne Macon
Susan Burns Malcolm
Winslow McCagg
McGriff Insurance Services
Judy and Neal McKinley
Candy and Howard Means Family Fund
Janel and Thomas Melgaard
Mr. and Mrs. Robert Menuet
Susan and Joe Metz
Doris Michael
Teresa and Randy Minchew
Darlene Minor
Craig Miron
Clair B. Mitchell
Ariel Mixon
Lynn and Robert Mobley
Jonathan Monroe
Ellen Morgan
Norman Morrison
Gordon Myers
Network for Good
Karen Newlun
Deb and David Norman
Dr. Victoria Norwood and Kathryn Kahler, MSN, the Catalysis Fund of the Community Foundation of Charlottesville Area

Regina O'Brien
Kimberly and Michael O'Donnell
George Ohrstrom II
Natalia Ossinova
Don and Amy Owen Charitable Fund of the Community Foundation for Loudoun and Northern Fauquier Counties
Mary and Aubrey Owen
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Peace & Quiet Farm
Joanna Petty
Andrew Platt
Ernest Polanskas
Shirley Pomeroy
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Richard Raspert
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Kevin Reid
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Robert Richardson
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Beverly Sears
Rosslyn and Larry Selzer
Susan Sharpe
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Shenandoah Valley Westminster-Canterbury
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Jone Shilliday and Tim Kirk
Louise Sinclair
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Kaye and Gerald Smith Family Fund of the Community Foundation of Harrisonburg and Rockingham County
Stacey Sperow
John Staelin and Elizabeth Locke
Marianne Stanley
Sidney Stern
Robert Stieg
McHenry Mac Stiff
Joanna Taylor
Alison Teetor
TIAA Charitable
Margaret Tipton
Mary Triplette
Scott Truax
Laurel Tschirgi and Mark Schroeder
Helen and Gerald Turner
Kathryn and Charles Uphaus
Victoria & Bob Deppensmith
Jessica and Nicholas Viscuso
Deborah Vogel
Anne Watkins
Mischele Way
Robert Wever and Charlotte Casey
Whitestone Farm LLC
Michael Wildasin
Matthew Wills
Mr. and Mrs. Orme Wilson III
Winchester-Clarke Garden Club
Carol Woodbeck
Rene Woolcott
Teresa Yancey Crane

Unrestricted Honorary/Memorials

In Honor of Steve Bauserman
Donna and Bruce Downing

In Honor of Steve Carroll
Garden Club of Warren County
Glen Burnie Garden Club
Loudoun County Master Gardeners
Goose Creek Herb Guild

In Memory of David Hargrove
Richard Raspert

In Memory of Bill Jones
B.J. Fawcett