



VIRGINIA WORKING LANDSCAPES

2022 Annual Report



Smithsonian
National Zoological Park
Conservation Biology Institute

“Anyone with an interest in the natural world has experiences, memories of watching the rhythms of nature, the changing of seasons, or the migrations of plants and animals. When we engage landowners and volunteers to use and share that knowledge by participating in research, we can learn a lot more than any one person’s expertise could possibly generate.”

— KELSEY SCHOENEMANN,
VWL COLLABORATING RESEARCHER





In 2022, VWL researchers tracked fledgling birds, like this young American Kestrel (Falco sparverius), on a working farm in Virginia for the pilot season of Project Fledgling (see pg. 11); photo by Bernadette Rigley.

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VWL Program Manager Charlotte Lorick sets up vegetation monitoring equipment; photo by Brooke McDonough.

OUR MISSION

Virginia Working Landscapes (VWL) is a program of the Smithsonian's National Zoo and Conservation Biology Institute (NZCBI) in Front Royal, Virginia that promotes the conservation of native biodiversity and sustainable land management through scientific research, community engagement, and education.

OUR APPROACH

CONSERVATION SCIENCE

VWL is dedicated to advancing the science of conservation and land management by conducting innovative research on working farms. Results are used to inform best practices that promote and protect native biodiversity while supporting the goals of land managers.



COMMUNITY ENGAGEMENT

Over 80% of Virginia's landscapes are held in private ownership, making landowners the primary stewards of healthy, biodiverse ecosystems. Through our landowner network and community science program, VWL strives to empower communities with tools to maximize our collective conservation impact.



Photos (left to right) by Blaire Evancho, Hugh Kenny for Kinloch Farm, and Philip Lee.

EDUCATION

VWL cultivates the next generation of conservation scientists by training and mentoring students, interns, and graduate fellows in research development and implementation, science communication, and community-based conservation.



A MESSAGE FROM OUR DIRECTOR

Dear Friends and Supporters,

I am so pleased to present our 2022 Annual Report. The pages that follow highlight our many achievements over the past year and illustrate the significant progress we have made working with you all to advance our mission. After all, conservation begins with people, and so first and foremost, I want to acknowledge everyone who continues to contribute to these achievements – our staff, steering committee, students, community scientists, landowners, partners, and supporters.

At Virginia Working Landscapes (VWL), we recognize the significant role that our participating landowners and farmers play in maintaining and enhancing biodiversity. But in 2022, we were able to actually quantify that impact for the first time! In our new study published in *Conservation Science and Practice* (page 17), we found that 95% of interviewees from our landowner network reported adopting new conservation practices on their properties since collaborating on VWL research. These include crucial activities such as eradicating invasive species, preserving nesting habitat for grassland birds, and planting native plants. We also learned that more than 35% of interviewees are actively mentoring other landowners in conservation management.

These results confirm what we have speculated all along – that by building and nurturing a collaborative community around science and conservation, we can amplify our collective impact and drive change together.

Looking ahead, we remain committed to our mission, but recognize now more than ever the importance of incorporating the knowledge and expertise of our community to advance our research and conservation efforts. We will expand on our work by actively seeking opportunities to invite more diverse perspectives to our network of stakeholders, engaging in collaborative research, and exploring new avenues to translate science into conservation action.

Please take some time to enjoy and read through this Annual Report in detail. I think you will find the amount of great work being done here locally to be both uplifting and inspiring. Collectively, we are truly moving the needle towards a more sustainable future for generations to come.

Thank you for being a part of that.



Amy Johnson, PhD
Program Director, VWL

Amy Johnson at Old Whitewood Farm, The Plains, VA; photo by Hugh Kenny.



OUR TEAM

STAFF



AMY JOHNSON
Program Director



CHARLOTTE LORICK
Program Manager



JUSTIN PROCTOR
Virginia Grassland Bird
Initiative Coordinator



ERIN SHIBLEY
Survey & Volunteer
Coordinator



Members of the 2022 VWL team at the Smithsonian's National Zoo and Conservation Biology Institute campus in Front Royal, VA; photo by Ashley Goetz.

RESEARCH FELLOWS

Jordan Coscia
Bernadette Rigley
Rachael Green

SMSC STUDENTS

Piper Jefferson
Eva Noroski
Alexi Hunt

INTERNS

Natalie Izlar
Martín Colombo
Michaela Weglinski
Kat Sisneros
Xavier Barreda
Emma Wilson

STEERING COMMITTEE

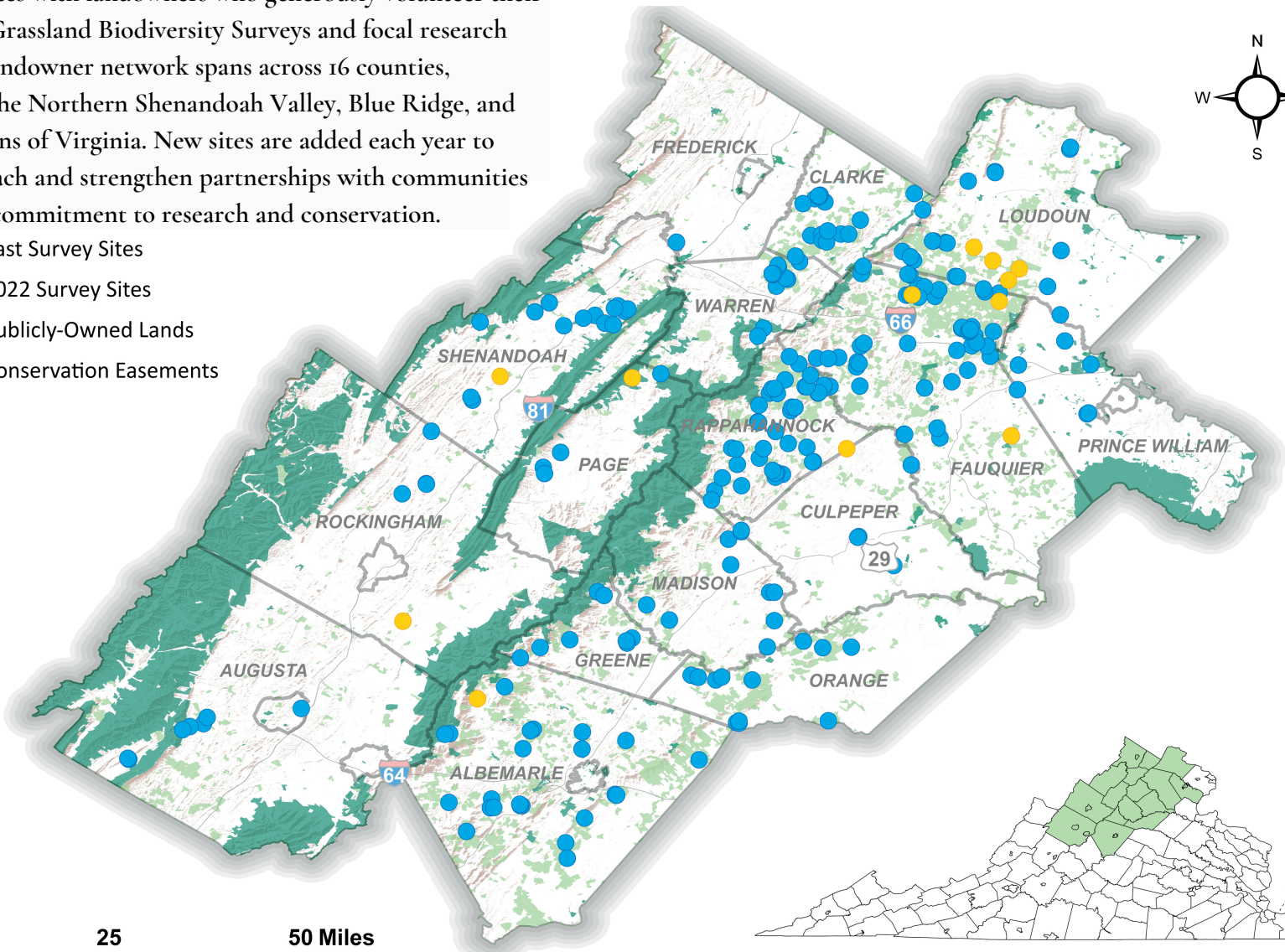
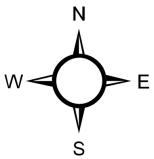
Beatrice von Gontard, Chair
George Ohrstrom II, Vice Chair
Cary Ridder, Treasurer
Jonathan Duffy
John Beardsley
John Jaquemin

Stephanie Ridder
Mike Sands
Kate Wofford
Will Pitt, NZCBI
Peter Leimgruber, NZCBI

VWL collaborates with landowners who generously volunteer their properties for Grassland Biodiversity Surveys and focal research projects. Our landowner network spans across 16 counties, encompassing the Northern Shenandoah Valley, Blue Ridge, and Piedmont regions of Virginia. New sites are added each year to broaden our reach and strengthen partnerships with communities who share our commitment to research and conservation.

- Past Survey Sites
- 2022 Survey Sites
- Publicly-Owned Lands
- Conservation Easements

OUR SURVEY REGION



0 25 50 Miles

2010-2022 VWL Survey Network Acreage

15,179 ACRES PUBLIC LAND

89,548 ACRES PRIVATE LAND

Native wildflowers bloom at Indian Ridge Farm in Page County, VA; photo by John and Debbie Sessler.



PROPERTY HIGHLIGHT

Indian Ridge Farm Page County, VA

John and Debbie Sessler of Indian Ridge Farm joined our network of VWL research sites in 2022. In this highlight, the Sesslers provide insights into the rich history of Indian Ridge Farm and offer reflections on their partnership with VWL in fostering a thriving ecosystem for native plants and wildlife. Their experience exemplifies the positive impact that collaborative efforts can have in promoting biodiversity on private lands.

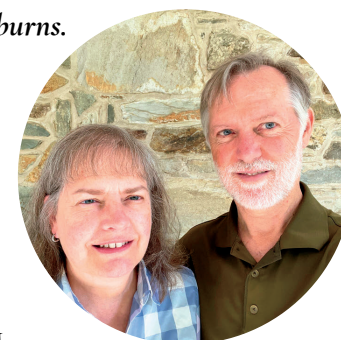
“Nestled between the slopes of the Massanutten Mountains and the winding path of the South Fork of the Shenandoah River, Indian Ridge Farm adjoins the protected Page Valley Wildlife Corridor. Mixed hardwoods populate three quarters of this 200-acre farm, while the remaining portion is a half mile of bottomland along the river. Originally cleared by the Wood family in the early 1900s, this bottomland has traditionally been used as cropland and pasture. In 2018, we restored this area to promote wildlife habitat with an emphasis on native birds and pollinators. Today, a riparian buffer of large trees, including Cottonwoods, Sycamores, and Walnuts, protects the Shenandoah riverbank. In the open fields, we have planted native warm season grasses and forbs bordered by native shrubs and smaller trees like persimmon and pawpaw.

This year, we were proud to partner with VWL in support of their vital research. To watch and work with their community scientists during Grassland Biodiversity Surveys was deeply rewarding and has helped us gain a better understanding of our grassland habitat. 60 native plant species were recorded during the surveys, including Little Bluestem, Switchgrass, Indiangrass, Virginia Rye, White and Blue Vervain, Ironweed, Joe Pye Weed, Rose Mallow, Rudbeckia, Coneflowers, Asters, Bergamot, Sunflowers, Milkweed, and Senna. Over 50 bird species were also identified, including Baltimore Oriole, Cedar Waxwing, Indigo Bunting, Yellow-billed Cuckoo, Eastern Kingbird, Yellow-breasted Chat, Green Heron, Bald Eagle, and Wild Turkey.

A few of our goals for the future are discovering efficient and effective ways to perform long term ecologic maintenance; reducing or eliminating the use of chemicals; and learning how to best apply controlled burns.

Lastly, we look forward to continuing partnerships with VWL and other like-minded organizations. And with some luck, maybe one day we will witness the return of the Bobwhite Quail to Indian Ridge Farm.”

— JOHN AND DEBBIE SESSLER,
CO-OWNERS OF INDIAN RIDGE FARM



A close-up photograph of a woman with long brown hair, wearing a green baseball cap and safety glasses, focused on measuring a small, young bird (a Bobolink) held in her hands. She is using a black and yellow ruler. The background is a soft-focus green, suggesting a natural outdoor setting. The image is used as a background for a conservation science document.

*VWL PhD Research Fellow Bernadette Rigley takes measurements of a young Bobolink (*Dolichonyx oryzivorus*) for Project Fledgling; photo by Amy Johnson.*

CONSERVATION SCIENCE

VWL conducts applied research that intersects conservation, agriculture, and communities. We leverage close collaborations with regional partners to integrate local knowledge and expertise into our project design and implementation. These collaborations empower us to develop science-based solutions to combat biodiversity loss, while simultaneously addressing the unique goals of farmers and landowners.

PROJECT FLEDGLING:

Revealing the Elusive Movements of Young Grassland Birds

In 2022, VWL launched Project Fledgling in collaboration with the Smithsonian Migratory Bird Center, the Smithsonian-Mason School of Conservation, and the Movement of Life Initiative. This innovative study uses novel tracking technology to gain a better understanding of which habitat types are most crucial for protecting grassland birds during one of their most vulnerable and understudied life-stages. Additionally, this research provides unique insights into site fidelity — the tendency of birds to exhibit loyalty to a particular location each breeding season.



Training in Tracking

VWL Grassland Bird interns played a central role in the pilot season of Project Fledgling. The team helped establish an automated radio telemetry tracking system on a working farm in Warren County, VA. Interns also developed skills in bird-handling, territory mapping, hand-tracking, and point counts.

VWL Interns Martín Colombo and Kat Sisneros install a receiving node at Oxbow Farm in Warren County, VA. Nodes can detect bird locations up to 40,000 times a day; photo by Bernadette Rigley.

This project was made possible thanks to the generous support of the Smithsonian Women's Committee.

Where Do Young Birds Go?



Bobolink fledgling outfitted with a solar-powered tracking device weighing as little as 0.6 grams; photo by Amy Johnson.

An automated wildlife tracking system (CTT) allows our researchers to detect multiple fledglings at once as they move across working landscapes. This efficient system helps us better understand the habitat-use of grassland birds just after they leave the nest and learn about how different habitats and land management practices might hinder or support the survival of many at-risk species.



This map depicts the movements of a Bobolink fledgling over a 24-hour period. Orange regions encompass daytime locations while blue regions encompass night. Our tracking data revealed that this young Bobolink foraged in hayfields and pastures during the day and took cover in a native wildflower meadow at night.

SPECIAL REPORT

from the Meadowlark Movement Ecology Project

Eastern Meadowlarks (*Sturnella magna*), an iconic indicator species of eastern grassland habitats, have declined by over 70% in the last 50 years. To better understand potential drivers of Eastern Meadowlark decline throughout the year, VWL has partnered with the Smithsonian Migratory Bird Center and the Movement of Life Initiative to track their annual migration patterns.

In 2022, our research team continued deploying Argos-GPS tags on male Eastern Meadowlarks breeding on private farms in the Piedmont and Shenandoah regions of Virginia. We also recaptured several birds that had been tagged in 2021, providing new insights into the journeys they undertake each spring and fall. In this special report of our 2022 tracking efforts, VWL PhD Research Fellow Bernadette Rigley shares revelatory findings from one bird's epic journey:

Mr. Orange poses for a photo after being tagged (again); photo by Bernadette Rigley.

"In Spring of 2021, VWL scientists captured and fitted a male Eastern Meadowlark with an Argos-GPS tracking device. Our bird team also fitted him with orange color bands that allowed us to easily observe and record his behaviors with binoculars. We documented the bird, affectionately naming him Mr. Orange, as he raised young in a grazed pasture in Warren County, VA, throughout the breeding season. We then tracked Mr. Orange as he departed his breeding grounds in the Fall.

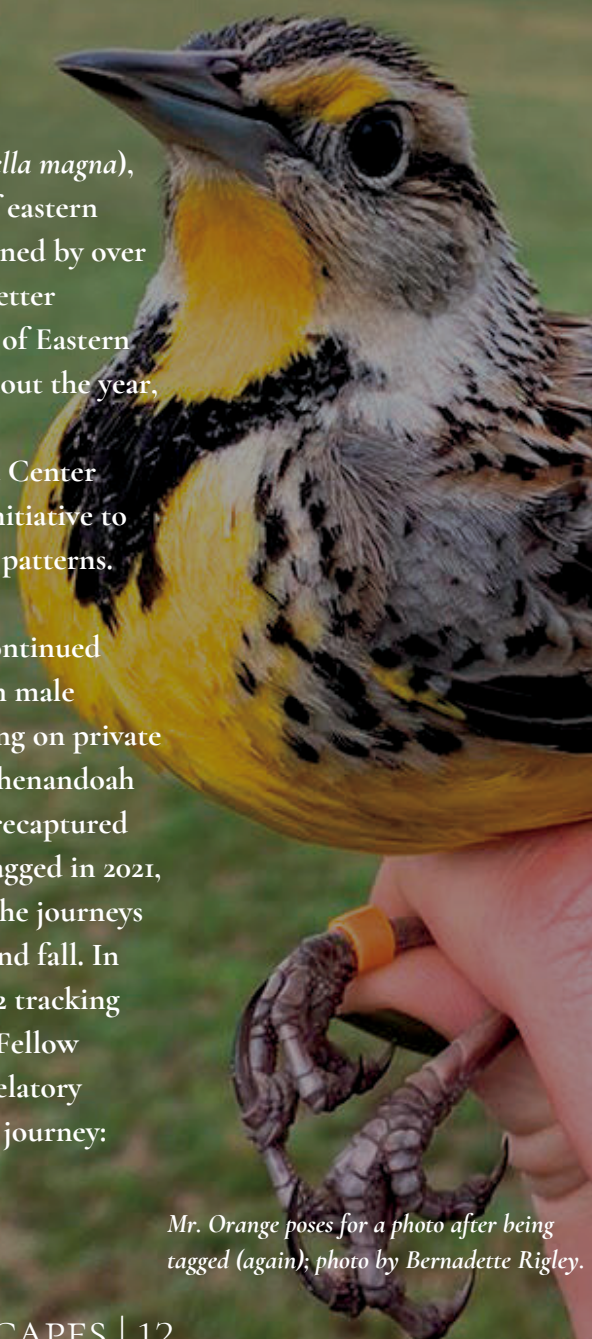
This year, Mr. Orange's GPS data revealed that he overwintered along the North Carolina coast on a row crop farm a few miles from Mattamuskeet National Wildlife Refuge. In spring, we were thrilled to find that Mr. Orange returned to the same exact breeding ground in Warren County that he had used in 2021. We recaptured Mr. Orange at this pasture and attached a new tag for continued tracking. This year, our GPS data revealed that Mr. Orange migrated to the same overwintering site in North Carolina as he had used the year before!

These successes mark the first instance in which an Eastern Meadowlark has been monitored over two consecutive years through GPS tracking. Our findings offer important insights into site fidelity, or the tendency of a bird to return to the same locations year after year."

— BERNADETTE RIGLEY, VWL
PHD RESEARCH FELLOW



*This project is supported by
The BAND Foundation,
Beatrice and Adie von Gontard,
The Jacquemin Family Foundation,
and Kathryn and Tony Everett.*



VWL PhD Research Fellow Jordan Coscia collects plant data in experimental restoration plots at the Smithsonian Conservation Biology Institute in Front Royal, VA; photo by Amy Johnson.

MAKING OF A MEADOW

Updates from Our Grassland Restoration Experiments

Native grasslands of the Southeast have lost over 90% of their historic range. Successful grassland restoration will be essential to protecting the native plants, insects, birds, and other wildlife that rely on and support these ecosystems. Since 2019, VWL has been leading a grassland restoration study in collaboration with the Clifton Institute and the Oak Spring Garden Foundation. The experiment tests four grassland establishment treatments and two grassland management practices. In 2022, VWL PhD Research Fellow Jordan Coscia conducted the fourth year of data collection. Findings from this multi-year study will help inform restoration guidelines for the establishment of native grasslands in Virginia.

This project is supported by the Oak Spring Garden Foundation and the MSA Family Fund.

“Few experiments have tested the effects of current grassland restoration guidelines, largely developed in the tallgrass prairies of the Midwest, on native grasslands in the Southeast. Therefore, I hope this project can help us determine how these guidelines impact grassland restoration under local conditions so that we can help improve the success of future restorations here in Virginia.”

— JORDAN COSCIA, VWL
PHD RESEARCH FELLOW

Watching Native Plants Bloom

Jordan and her survey team have been collecting critical data to document differences between experimental treatments. This includes measures of native and nonnative species richness, plant species abundance, percent cover, structural diversity, bloom counts, and much more! Observations from the 2022 surveys indicate that the species from our native seed mix emerged at all three sites, but the success of these species is threatened by the expansion of invasive plant species. Invasives differ at each site and are being targeted by ongoing adaptive management. We will complete all experimental grassland management practices during the spring of 2023, followed by our final data collection that summer.

(Bottom background) Seeded species emerging in the experimental plots at the Clifton Institute; photo by Jordan Coscia.

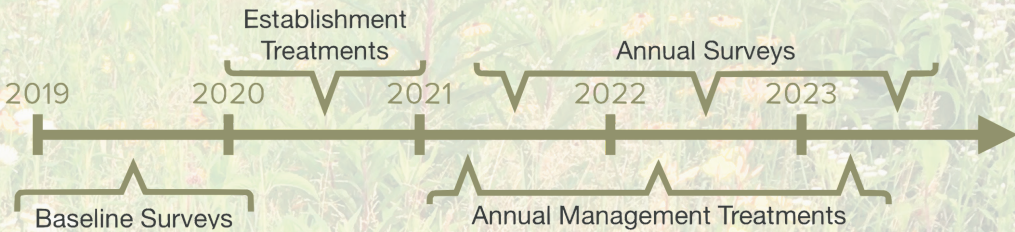
A Glimpse into Plant Surveys

It takes a dedicated team to survey 240 vegetation plots across the three experimental sites each year. In the bottom, left photo, VWL Intern Martín Colombo surveys plants emerging from a treated plot at the Oak Spring Garden Foundation; photo by Jordan Coscia. To the right, VWL PhD Fellow Jordan Coscia and Intern Natalie Izlar collect data from plots at the Clifton Institute; photo by Michaela Weglinski.



PROJECT TIMELINE

Figure by Jordan Coscia.



BEE-FRIENDLY BEEF

Promoting Native Pollinators and Cattle Production

VWL community scientist Alex Bueno uses a sweep-net to collect insects during our Bee-Friendly Beef pollinator survey training workshop; photo by Hugh Kenny for Kinloch Farm.



(Top, right photo) Beef cattle grazing in a stockpiled pasture; photo by Bernadette Rigley; (Bottom, right photos) VWL volunteers collect and document bees and other pollinators during the volunteer survey training led by VWL Survey and Volunteer Coordinator Erin Shibley and Virginia Tech pollinator scientist Dr. Parry Kietzman; photos by Hugh Kenny for Kinloch Farm.

Bees and other pollinators have declined in recent decades due, in part, to fewer native plant resources and changes in land-use. In partnership with Virginia Tech, the University of Tennessee, and six producers from Northern Virginia, VWL piloted a study in 2021 to develop bee-friendly beef production practices that can promote native bee populations and support farmers. In 2022, we planted native wildflower seed mixtures in cattle pastures to increase floral resources for pollinators. VWL community scientists and researchers then surveyed emergent plant and pollinator communities to assess the ecological impacts of integrating native wildflowers into actively grazed pastures.



Busy-Bee Data Collecting

A group of sixteen dedicated community scientists joined forces to learn a new sampling protocol, enabling our team to compare the abundance and diversity of pollinators across various experimental treatments. Under the guidance of esteemed pollinator scientist Dr. Parry Kietzman from Virginia Tech, this team conducted a total of 18 meticulous pollinator surveys. Remarkably, the data collected in just the first year already revealed notable increases in pollinator abundance within wildflower enhanced pastures.



This project is funded by a USDA Conservation Innovation Grant.

COLLABORATING SCIENTISTS

Expanding Opportunities for Private-Lands Research through the VWL Landowner Network



Black and Gold Bumble Bee (*Bombus auricomus*) observed at Cleveland Farm in Culpeper, VA; photo by Kelsey Schoenemann.

KELSEY SCHOENEMANN, a PhD candidate from the University of Virginia, led a team of volunteers from Virginia Master Naturalists in 2022 to explore the presence and behaviors of queen bumble bees across properties with varying land covers in the Piedmont region. Kelsey was interested in understanding how changing land use may impact the availability of floral resources for queen bees, especially during the early spring when they establish their nests. Surveys revealed that a significant portion of the captured queens were foraging on nonnative plant species, namely *Lamium purpureum*, *Glechoma hederaceae*, and *Elaeagnus umbellata*, which could be attributed to the observed scarcity of native blooming plants.

In the coming months, Kelsey will explore these observations in the lab, where she looks forward to discovering what secrets lie hidden inside the pollen loads carried by bumble bee queens. Using DNA metabarcoding techniques developed in Dr. H.C. Lim's lab at George Mason University, Kelsey will be able to identify the plant species of pollens collected by queens flying in early spring. This information will help land managers know what plants are important for bumble bees, especially during the queens' critical nest-founding stage.

Kesley Schoenemann uses a butterfly-net to collect a queen bumble bee foraging or nest seeking at the C.F. Phelps Wildlife Management Area in Fauquier County, VA; photo by Kelsey Schoenemann.

"I wouldn't have been able to survey on private lands without VWL, and having access to more properties gave me a reason to work with volunteer surveyors. Partnerships led to more partnerships."

— KELSEY SCHOENEMANN



DR. HENRY LEGETT from the Smithsonian Environmental Research Center's (SERC) Fisheries Conservation Lab collaborated with VWL landowners in the Rappahannock River watershed in spring of 2022 to assess the habitat conditions of Alewife and Blueback Herring, collectively known as "river herring," which have experienced significant population declines since the 20th century.

Every spring, river herring migrate from the open waters of the Atlantic Ocean, through the Chesapeake Bay, and up into freshwater tributaries to spawn. Dr. Legett measured daily water temperature patterns in streams located on local properties to investigate how seasonal changes in aquatic habitats and land use impact migration behaviors.

NEW SCIENTIFIC PUBLICATION

BY RACHAEL E. GREEN, ASHLEY DAYER, AMY E.M. JOHNSON

PUBLISHED IN CONSERVATION SCIENCE AND PRACTICE, NOV 2022

In the first publication of her master's research, VWL Graduate Research Fellow and Virginia Tech student Rachael Green summarized her research interviewing VWL landowners. Advised by Virginia Tech's Dr. Ashley Dayer and co-mentored by VWL's Program Director Dr. Amy Johnson, Rachael learned that participation in conservation research influenced landowners to adopt a variety of conservation behaviors, as shown below. This research is one of the first of its kind to document positive conservation outcomes stemming from conducting research on private lands. Congratulations, Rachael, on your first publication and for earning an MSc in Fisheries and Wildlife Sciences from Virginia Tech!

Many landowners who engaged with Dr. Legett's research became deeply interested in river herring and the science behind their conservation. After the field season, Dr. Legett provided landowners with individualized reports containing water temperature data specific to their streams. Looking ahead to 2023, Dr. Legett and the SERC Fisheries Conservation Lab will embark on a new project in partnership with the Rappahannock Tribe that will use automated telemetry technology to track the movements of river herring throughout the Atlantic Ocean and freshwater tributaries. By gaining a comprehensive understanding of river herring habitat-use during migrations, researchers hope to identify priority locations for conservation and restoration efforts.

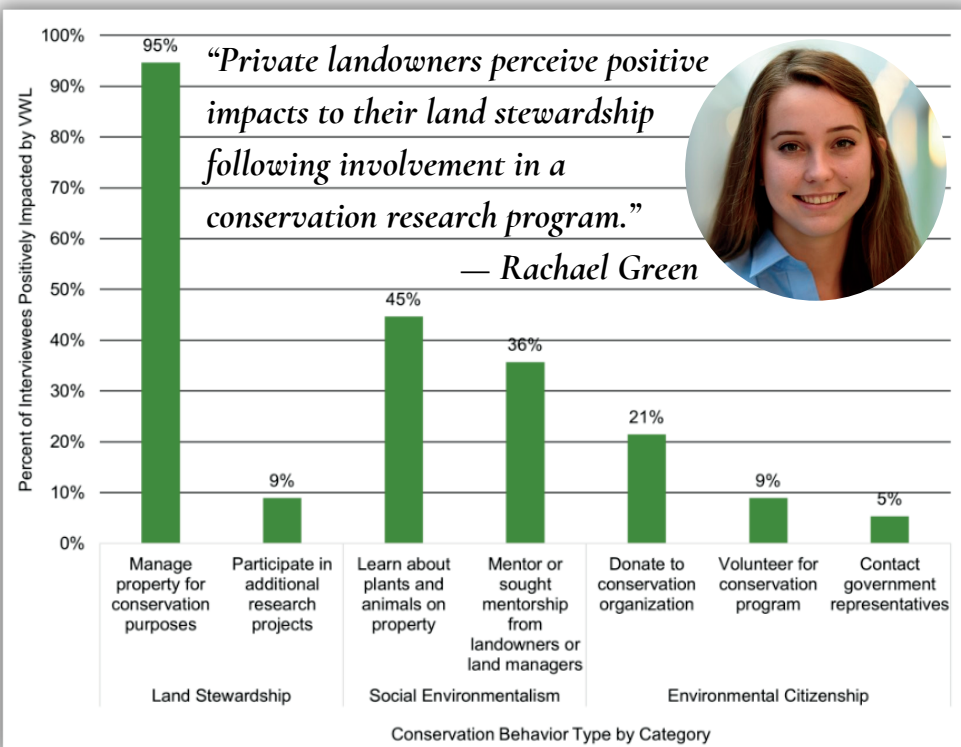
Dr. Henry Legett installs a water temperature logger to examine seasonal changes in aquatic habitats for river herring migrations; photo by SERC. River herring illustration below by NOAA.




"The VWL landowner network was invaluable to us because the temperature project was watershed scale. The Rappahannock River is massive, so collecting data from across the whole area could only be accomplished by connecting with landowners who would allow us to sample in these areas."



— DR. HENRY LEGETT, SERC





Justin Proctor, Coordinator of the Virginia Grassland Bird Initiative, (second from left) helps lead an exemplar farm walk at Heaven's Hollow Farm in Madison County, VA for local conservation practitioners to see best management practices for grassland birds in action; photo by Hugh Kenny for PEC.

COMMUNITY ENGAGEMENT

With over 80% of Virginia's landscapes held in private ownership, landowners play a key role as the primary stewards of our remaining native biodiversity and serve as the foundation of healthy ecosystems. Through our landowner network and community science programs, VWL strives to foster knowledge sharing, empowering community members with valuable tools to maximize our collective conservation impact.

THE VIRGINIA GRASSLAND BIRD INITIATIVE (VGBI)

Supporting Birds & Farmers

Launched in 2021 as a collaboration between VWL, The Piedmont Environmental Council, American Farmland Trust, and Quail Forever, VGBI draws on partner expertise in land preservation, scientific research, regenerative agriculture, and habitat restoration to assist farmers and landowners in the adoption of science-based best management practices (BMPs) that can help stem the decline of grassland birds while also benefitting production goals. Since its initial debut as the Piedmont Grassland Bird Initiative, VGBI has made a significant push to expand its impact and partnerships into new counties within the Shenandoah Valley region.

Justin Proctor and VWL landowner Bruce Jones survey fields for American Kestrels (Falco sparverius) at Jones Nature Preserve, Little Washington, VA; photo by Amy Johnson.

OVER 50

LANDOWNERS VISITED IN 2022

Visits to properties by VGBI staff result in management recommendations tailored to each landowner's unique production goals.

"We have identified several programmatic efforts that are showing really good results when it comes to engaging landowners and facilitating the adoption of new conservation practices onto their landscapes. Those include one-on-one site visits with landowners, implementing our own in-house financial incentives program, working with other technical service providers and conservation practitioners in our region to unify our collective messaging, and using nest-boxes as a conservation and outreach tool."

— JUSTIN PROCTOR, VGBI COORDINATOR

Off-Setting Financial Risks

Data from VWL's Bird-Friendly Beef research indicates that delayed haying and summer pasture stockpiling are highly effective strategies for safeguarding the critical nesting season for most grassland bird species. With funding support from the Cornell Land Trust Bird Conservation Initiative, VGBI launched an incentives program in 2022 to offset any perceived financial risks for farmers interested in transitioning over to these practices, specifically by delaying their first cutting of hay until July 1 or later, and/or implementing stockpiling from April 15 to July 1 or later. Nearly 2000 acres were enrolled in 2022, and the USDA's Natural Resources Conservation Service (NRCS) is now using VWL research results to improve state-wide cost-share programs for benefiting grassland birds and local farmers!

This project is made possible thanks to the generous support of The Volgenau Foundation.

Conserving Kestrels

VGBI partnered with the Smithsonian-Mason School of Conservation, the Clifton Institute, and other groups to facilitate ongoing research and conservation of the American Kestrel (*Falco sparverius*), a small, cavity-nesting falcon that relies on healthy grasslands for its survival. Manmade nest-boxes provide a safe nesting structure for birds, easy accessibility for researchers studying their movements and life cycle, and a tangible tool for engaging landowners in protecting these at-risk birds and their grassland habitat. In 2022, VGBI teamed up with the Rappahannock County High School to encourage youth involvement in the program. Students helped us build and distribute over 30 new nest-boxes now installed on properties across the region.



(Top photo) Adult male kestrel nesting in a cattle pasture in Loudoun County, VA; photo by October Greenfield. (Main background) Nest-box monitoring volunteer Steve Johnson (left) and PEC Wildlife Habitat Restoration Coordinator & VGBI Co-Coordinator October Greenfield (right) monitor a kestrel box at Sky Meadows State Park in Delaplane, VA, where nine kestrel boxes have been installed; photo by Hugh Kenny for PEC.

COMMUNITY SCIENCE

Examining the State of Virginia's Grasslands

Community scientists play a vital role in collecting data for our Grassland Biodiversity Surveys, contributing significantly to the success of our longest-running project since 2010. Thanks to their tremendous efforts, VWL has gained valuable insights into the factors influencing local grassland biodiversity, allowing landowners to appreciate the richness of life present on their properties. Data collected by our dedicated volunteers are also instrumental in shaping the development of best management practices that benefit both people and wildlife. We express our deepest gratitude to our amazing volunteer team for their unwavering passion and commitment to these efforts. Your invaluable contributions are instrumental in driving our mission forward. We look forward to the insights and discoveries that lie ahead in 2023!



VWL community scientist Paul Guay conducts a grassland plant survey; photo by Michaela Weglinski. (Right) Male Eastern Meadowlark (*Sturnella magna*); photo by Percy Ulsamer.

2022 SURVEYS BY THE NUMBERS

45

VOLUNTEERS

1,510

HOURS CONTRIBUTED

114

BIRD SURVEYS

103

BIRD SPECIES
OBSERVED

76

PLANT SURVEYS

218

PLANT SPECIES
OBSERVED

Welcoming Julie Piñeiro and 24 New Community Scientists!

“In 2020, my husband and I moved from Pennsylvania to a small property in Frederick County, VA, and I wanted to explore the natural history of this new place. I knew nothing about grassland communities, so getting involved in VWL was a way to learn all about the meadow birds, plants, and insects that are here. This year, I helped with grassland bird surveys at September and Jumping Run Farms in Woodstock, VA, where I experienced my first time of ever seeing Bobolinks. One day when our team was conducting point counts for a bird survey at one of our sites, a Bobolink flushed. Teri Holland, the primary birder on our team, said, ‘You know, I bet there’s a nest right here,’ and she found the nest!”

In addition to bird surveys, I helped with grassland plant surveys at Francis Mill Farm in Loudoun County. I have since been using our survey methods to identify different plants on my own property. I’m also using resources provided by VWL and places like the Clifton Institute to make the fields around my house more diverse with native plant communities!

Getting to know farmers who are interested in best practices not only from the agricultural side, but also from the ecological side has been so inspiring. Recently, I have been talking with my neighbors about mowing our fields only once a year to protect grassland birds on the old 12-acre pasture we share. As time goes on, I’m really looking forward to building more relationships with VWL. In 2023, I’m excited to participate in the pollinator surveys for the first time!”

— JULIE PIÑEIRO, 2022 VWL COMMUNITY SCIENTIST



Julie Piñeiro (back) and VWL PhD Research Fellow Jordan Coscia (front) conduct a grassland plant survey at Zinnia Ridge Farm in Culpeper, VA; photo by Mindy Alexander. (Bottom photo) Bobolink nest located by Teri Holland during a grassland bird survey with Julie Piñeiro and Jordan Wilson at Jumping Run Farm in Edinburg, VA; photo by Jordan Wilson.



Reflecting on the Years with One of Our Longest-Running Volunteers, Paul Guay

“Volunteering with VWL and SCBI is always a rewarding experience; offering the opportunity to learn, meet new people, and most importantly, finding the pleasure of being involved in a program that makes a real difference in the world. Over the years, I have conducted the Grassland Biodiversity Surveys. In 2022, I was invited to assist in the Bee-Friendly Beef Program’s plant surveys, and I was honored with an invitation to represent VWL at the Smithsonian’s Earth Optimism X Folklife Festival on the National Mall in Washington DC. Not only was participating in these events a great honor, but they were also great fun and outstanding learning experiences! As it is every year, I will cherish the new friendships developed with VWL associates, interns, other VWL community scientists, and especially the landowners of participating farms. I will definitely continue to participate in surveys and am looking forward to finding new plants, making new friends, and hopefully participating in the Folklife Festival once again. Additionally, I sometimes find myself in the role of teaching and training (and learning from!) new community scientists, which I find gratifying.”

— PAUL GUAY, VWL COMMUNITY SCIENTIST SINCE 2016



VWL community scientists compare their botanical illustrations following a workshop led by Laura Call Gastinger; photo by Erin Shibley.

Continuing Education

VWL recognizes that the learning journey for our community scientists extends beyond the summer fieldwork and biodiversity data collection. In 2022, we initiated our inaugural “Continuing Education Seminar” as a tribute to our dear friend and dedicated VWL community scientist, Sally Cunningham. With support from a new continuing education fund established by Sally’s friends and family, we were delighted to welcome acclaimed Botanical Artist and Illustrator, Lara Call Gastinger, to lead an inspiring Botanical Illustration Workshop. This event offered a unique opportunity for community scientists to explore the art of botanical illustration and develop their creative abilities. Through enriching experiences like these, VWL aims to empower our community scientists with ongoing educational opportunities, fostering their continuous growth and providing them with diverse tools to further their contributions to conservation.



“Participating in the Folklife Festival, an annual event that I frequently attended as a visitor, at the National Mall will always be one of the greatest experiences of my life.” — Paul Guay

Paul Guay, Stephanie Riley, and Erin Shibley at the 2022 Folklife Festival; photo by Sarah Wheedleton.

“GRASS ROOTS”

Celebrating the Premiere of VWL’s Film

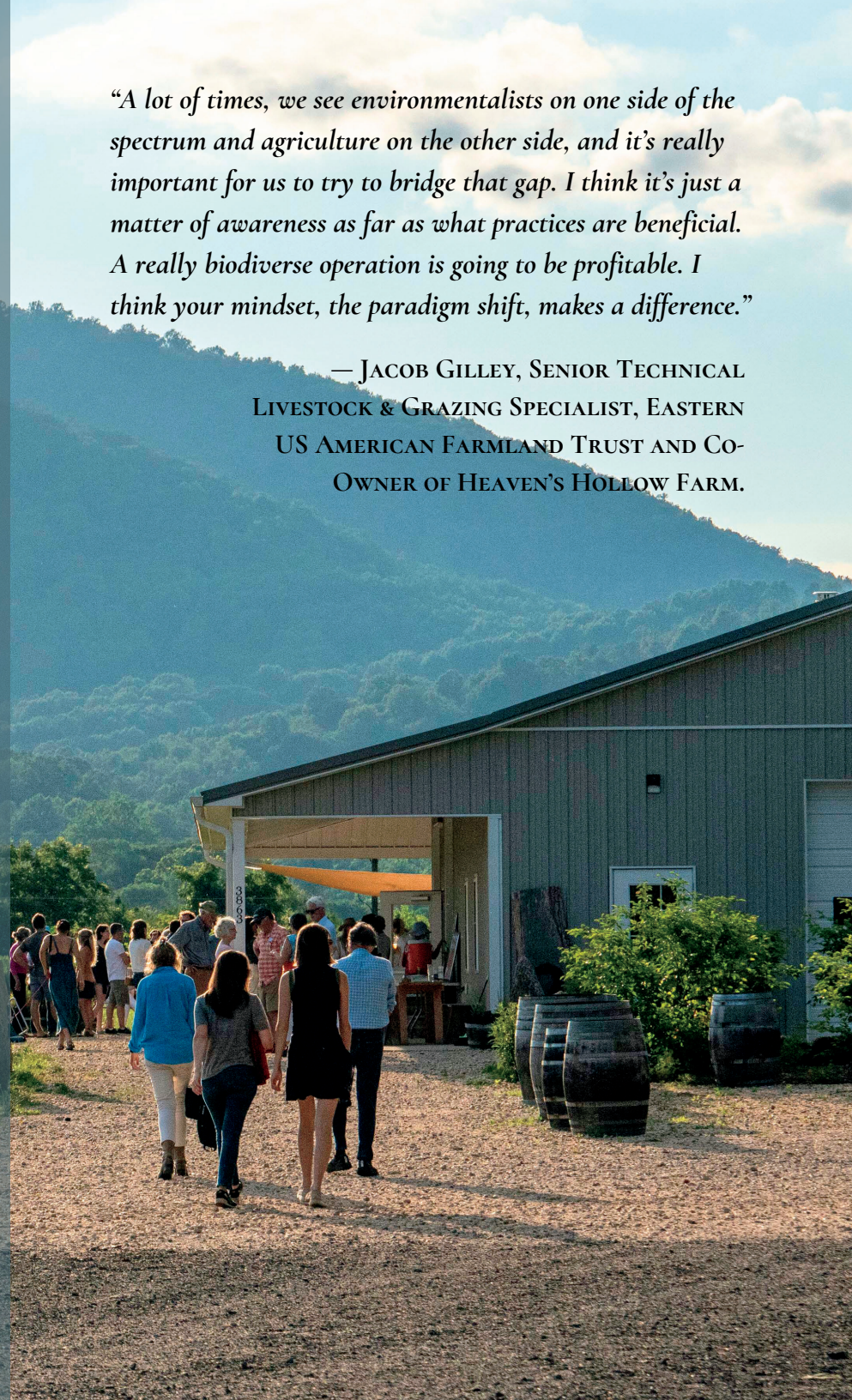
In June 2022, we were thrilled to gather over 200 attendees for the highly anticipated premiere screening of our short documentary, “Grass Roots.” Produced through a collaborative effort with NZCBI’s communications team and Smithsonian Working Land and Seascapes, the film showcased the invaluable perspectives of farmers from multiple VWL research properties. These farmers shared their insights on bridging the gap between agriculture and environmentalism, highlighting how their involvement in VWL research has played a crucial role in guiding conservation efforts for native biodiversity. Following the screening, the VWL team, accompanied by esteemed partners from The Piedmont Environmental Council, American Farmland Trust, and Quail Forever, engaged in an interactive discussion centered around the ways in which landowners can actively contribute to the support and conservation of biodiversity through the implementation of best management practices.




(Above and background photos) The VWL team, community partners, and friends came together for the premiere screening of “Grass Roots” at Pen Druid Brewing on June 24th in Sperryville, VA; photos by Hugh Kenny for PEC.

“A lot of times, we see environmentalists on one side of the spectrum and agriculture on the other side, and it’s really important for us to try to bridge that gap. I think it’s just a matter of awareness as far as what practices are beneficial. A really biodiverse operation is going to be profitable. I think your mindset, the paradigm shift, makes a difference.”

— JACOB GILLEY, SENIOR TECHNICAL
LIVESTOCK & GRAZING SPECIALIST, EASTERN
US AMERICAN FARMLAND TRUST AND CO-
OWNER OF HEAVEN’S HOLLOW FARM.





VWL Program Manager Charlotte Lorick demonstrates plant identification methods for VWL Grassland Biodiversity Intern Natalie Izlar; photo by Brooke McDonough.

EDUCATION

VWL cultivates the next generation of conservation professionals by training and mentoring students, interns, and graduate fellows in conservation research development and implementation, science communication, and community-based conservation.

2022 RESEARCH FELLOWS, STUDENTS, & INTERNS



RACHAEL GREEN
M.S. Research Fellow
Social Science

Rachael's research focused on investigating the human dimensions of private lands conservation. We extend our warmest congratulations to her on the successful completion of her MSc in Fisheries and Wildlife Sciences from Virginia Tech! Her thesis serves as a testament to her expertise in the field and her commitment to advancing our understanding of the intricate relationship between humans and conservation on private lands.



BERNADETTE RIGLEY
PhD Research Fellow
Avian Ecology

Bernadette, a PhD student at George Mason University, leads VWL's grassland bird research across multiple projects. In addition to her research responsibilities, Bernadette dedicates her time to mentoring interns and actively engaging with communities to promote conservation efforts. Her diverse contributions play a vital role in advancing our understanding of grassland bird ecology and fostering meaningful connections between conservation and agriculture.



JORDAN COSCIA
PhD Research Fellow
Restoration Ecology

Jordan, a PhD student at Virginia Tech, oversees VWL's research on grassland restoration. Jordan's research with VWL investigates the impacts of grassland establishment and management on native plant communities. In addition, Jordan is building collaborations with partners across Virginia to better understand the distribution and health of remnant native grasslands, contributing to the advancement of knowledge in eastern grassland restoration and conservation.



PIPER JEFFERSON
Undergraduate
Practicum Student

Piper, an undergraduate student at the Smithsonian-George Mason School of Conservation, completed a practicum experience with VWL. Mentored by Erin Shibley, Piper developed VWL community scientist training materials. Combining her passion for science and art, she created visual field identification resources for grassland plants commonly observed during our plant surveys. Piper also participated in site visits with new landowners and helped select survey locations for our field season.



EVA NOROSKI
Undergraduate
Practicum Student

Eva joined VWL as one of our Undergraduate Practicum Students from the Smithsonian-George Mason School of Conservation. Eva completed her practicum experience under the mentorship of Justin Proctor. Eva contributed to our Virginia Grassland Bird Initiative with kestrel box monitoring and mapping, and site visits with landowners.



ALEXI HUNT
Undergraduate
Practicum Student

Alexi, a student from the Smithsonian-George Mason School of Conservation, completed a practicum experience with VWL in 2022. Alexi assisted with our Virginia Grassland Bird Initiative efforts under the mentorship of Justin Proctor, gaining hands-on experiences with nest-box installation and monitoring, bird-handling, and landowner and partner engagement.



MICHAELA WEGLINSKI
Conservation
Communications Intern

Michaela, with a BA in Writing, Literature, and Publishing from Emerson College, made significant contributions to VWL's outreach and communication endeavors. As part of her internship, she played a key role in curating content for VWL's monthly newsletter and coordinated impactful social media posts, effectively reaching out to our audience and raising awareness about conservation.



KAT SISNEROS
Grassland Bird Intern

A graduate of Colorado State University, Kat joined the VWL team to assist with Project Fledgling. Her role involved using tracking technology to monitor the movements of fledging grassland birds once they left the nest. Kat's dedication helped us advance our understanding of the post-nesting behavior and dispersal patterns of these declining species.



MARTÍN COLOMBO
Grassland Bird Intern

After recently completing his PhD research on nesting ecology in the Pampas of Argentina, Martín joined VWL to lend his expertise to our grassland bird nesting study. Drawing upon his own research, Martín brought valuable skills to the team while also embracing the opportunity to acquire new proficiencies in tracking and monitoring adult and fledgling grassland birds in Virginia.



EMMA WILSON
Grassland Bird Intern

An undergraduate student at North Carolina State University, Emma spent her summer with the VWL team gaining skills in territory mapping of grassland birds, nest monitoring, and science communication. Her commitment and eagerness to learn contributed significantly to her growth as a budding conservation scientist.



XAVIER BARREDA
Intern

Xavier, a graduate of Virginia Tech, made valuable contributions to our grassland biodiversity surveys and played a crucial role in helping develop a comprehensive database of best management practices for grassland birds. Following his internship with us, Xavier embarked on a new adventure with the Peace Corps as a sustainable agriculture extension promoter in Panama. We wish him the best in his endeavors to make a positive impact on agricultural communities around the world!



NATALIE IZLAR
Grassland Biodiversity
Intern

With a BS in Environmental Science, Natalie became an invaluable addition to the VWL team, providing vital support for grassland vegetation monitoring and restoration research. In addition to her research contributions, Natalie worked closely with us to create informative resources aimed at increasing awareness about the importance of native plant conservation.

2022 ACKNOWLEDGEMENTS

SURVEY PROPERTIES

APD Farm
Bainum Foundation Farm
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Crusher Run Farm
Eldon Farms
Fountain Hill Farm
Francis Mill Farm
Gap Run Farm
Glenmore/Oakdale Farm
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Indian Ridge Farm
Innisfree Village
Jolee Farm
Lakota Ranch
Little Milan
Oak Spring Garden Foundation
Oakham Farm
Over Jordan Farm
Oxbow Farm
Persimmon Tree Farm
Pullen Hay
Rockingham Farm
September Farm/Jumping Run Farm
Smithsonian Conservation Biology Institute
Sycamore Grove Farm
The Alibi
The Clifton Institute
Wachtmeister Farm
Westbourne



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George Mason University
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Movement of Life Initiative, NZCBI
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Oak Spring Garden Foundation
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Virginia Tech

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Christine Bowlen
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Linda Bueno
Alex Brubaker
Mark Bruns
Bob Butterworth
Nancy Cohen
Hillary Davidson
Art Drauglis
Bill Ford
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Corey Hunsdon
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Teri Holland
Amber Jenkins
Phil Kenny
Edmund LeGrand
Linda Lowery
Crystal Luong
Jeanne Mayo
Diana McHenry
Jenny Meyer
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Amber Saville-Andree
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American Kestrel (Falco sparverius) in flight; photo by Hugh Kenny for PEC.

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2022 FINANCIAL REPORT

100% OF VWL FUNDS COME FROM
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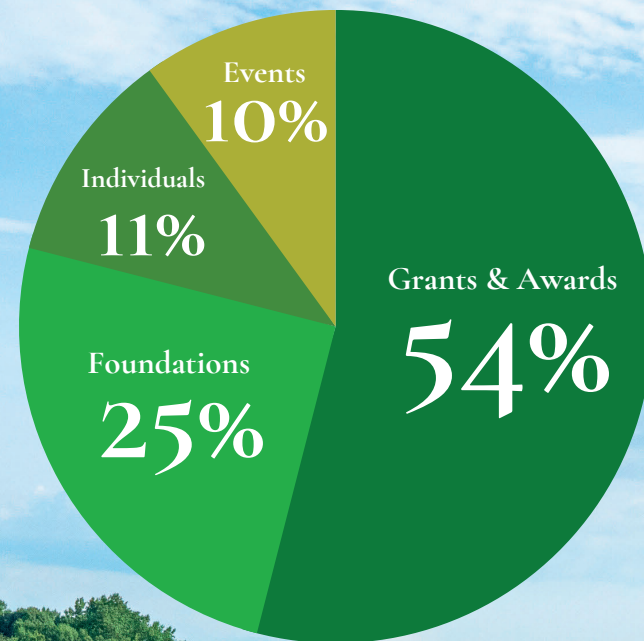
Together we can conserve Virginia's diverse wildlife and rich landscapes.

To donate to VWL, visit: www.vaworkinglandscapes.org/donate

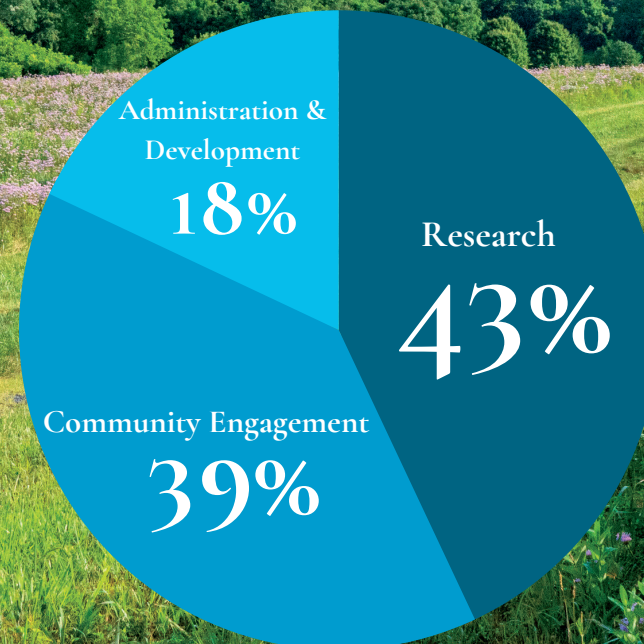
The Smithsonian is a 501(c)3. All contributions are tax deductible.

OPERATING BUDGET: \$352,187

INCOME



EXPENSES



Field Walk through stands of Wild Bergamot (*Monarda fistulosa*) at the Volgenau Farm, Fauquier County, VA; photo by Hugh Kenny for PEC.

Bumble bee (Bombus spp.) on Wild Bergamot (Monarda fistulosa) at the Volgenau Farm, Fauquier County, VA; photo by Hugh Kenny for PEC.



VIRGINIA WORKING LANDSCAPES

Smithsonian's National Zoo & Conservation Biology Institute

1500 Remount Road, MRC 5537

Front Royal, Virginia 22630

Report designed by Caitlyn Dittmeier, VWL



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(Front Cover) VWL volunteer training and bird walk at Kinloch Farm in Fauquier County, Virginia in May 2022; photo by Hugh Kenny for Kinloch Farm.

(Back Cover) VWL volunteer training and bird walk at Kinloch Farm, Fauquier County, VA; photo by Hugh Kenny for Kinloch Farm.