



Valley Views

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President's Note

By Suzanne Offutt, PVAS President

Recently, I got into a conversation about the extraordinary power of a seed, and then stumbled on an old Organic Gardening issue about young superstars in the gardening world. Did you know that seeds have an impenetrable seed coat; have powerful radicles that are the first root to germinate; and that their forceful cotyledons, the first leaves to emerge, break through the soil to harness the power of the sun for feeding and growing the plant? Wow, how amazing is that? All those summertime vegetables, graceful flowers, pungent herbs, and roadside weeds have their start as a seed.

On another snowy day it is good to think about seeds with their latent and emergent power, which I find analogous to PVAS. Over 30 years ago a handful of people, barely the number required to constitute a chapter, came together to form this National Audubon chapter. In an area that had few other organizations offering opportunities to get out and enjoy nature, PVAS brought people together for activities that ranged from educational programming to fun field trips.

Fast forward over those 30-odd years to find an organization that has sewn not just one seed but hundreds. Those hundreds of seeds have touched over two generations of people in our four-county region. Our seeds have generated forests, gardens, buildings, watershed protections, nature preserves, educational programs, solar energy, grassland preserves, field trips, wee naturalists, camp attendees, master naturalists... The dispersal of our seeds is an awesome accomplishment.

And what is a seed, really, but a form of energy. Whether you contribute to the steadfastness of the impenetrable seed wall, help put down deep roots in the region, or step out with the forceful power of leaves, each of us contributes our part. Just as each of our members contributes their own energy through a variety of means, we are a better, stronger organization for all of those contributions. As we begin to draw a close on our annual appeal, we ask for your continued generous support through a financial investment in PVAS. Though it may seem like a small amount, each of us offering what we are able contributes to the synergy of the whole organization. We will continue to grow as we take on the challenge of building the Chimney Swift Tower on the Shepherd University campus, expand our campus and preserves,

and offer quality adult and youth programs. We are able to do extraordinary things.

Come plant your seeds in this fertile garden.

(For an entertaining view on the power of seeds, take a look at the YouTube video, *Superseed Grows to NC State*.)

Discover Your Backyard Wilderness: A Film Screening and Discussion

April 8, 2019, 7 – 9 p.m.

**National Conservation Training Center
698 Conservation Way, Shepherdstown, WV**

The Friends of NCTC, the American Conservation Film Festival, and the Potomac Valley Audubon Society will hold a special screening of the award-winning film *Backyard Wilderness*, followed by a Skype discussion with the filmmakers. Free, no registration required.
www.potomacaudubon.org/event/discover-your-backyard-wilderness-a-film-screening-and-discussion/

"This Race is for the Birds!"

At Broomgrass Farm, in Gerrardstown, WV

Saturday, April 6, 2019

Professionally timed 10K and 5K, and
a free Kids Fun Run

Register today: www.potomacaudubon.org/race/

7:30-8:45 a.m. Day-of Registration & Bib Pick-Up

9:00 a.m. 10K & 5K Start

10:45 a.m. Kids Fun Run for children under 10

Runners and walkers alike can enjoy the trails at Broomgrass that wind through fields and forests, including a long stretch close to the waters of Back Creek

Wonderful family event!

Like us on Facebook

Email race4birds@potomacaudubon.org

Looking forward to seeing you
on the trails of Broomgrass!

Potomac Valley Audubon Society is dedicated to preserving, restoring, and enjoying the natural world through education and action.

American Redstart – Fancy Woodland Dancers

By Wil Hershberger

A good look at a male American Redstart can be a life-changing event. These gorgeous songbirds are strikingly patterned with black, orange, and white. The orange patches on the sides of the base of the tail are what gives this species its name and are referred to as flash patterns. Some describe this species as “lively.” That’s an understatement; they are spastic and rarely hold a pose for more than a second or two. The females and young males are gorgeous in their own right, decked out in yellow, dark greens, grays, and white. This species is a forest interior breeder, preferring later stages of secondary succession over mature woodlands. American Redstarts can be found from the flood plains of our large rivers to the hillsides in our preserved landscapes.

The female American Redstart selects the nest site from those shown to her by the territorial male during his courtship displays. She selects the best site on the basis of how well hidden the nest will be from the sun and predators, how stable the supports are, and if the nesting material will adhere to the branches where the nest will be built. If all is to her liking, she alone builds the nest. In 1945, Louis Strum¹ observed a female building a nest and found that she made about 700 trips to construct that nest in just three days. His observations showed that she spent 14.5 hours working on the nest during the second day of construction.



American Redstart, male © Evan Lipton; Macaulay Library



American Redstart, female © Jeremiah Trimble; Macaulay Library

Nests are placed six to 18 feet from the ground and are composed of strips of bark, spider webs, grasses, fine plant materials, and may even contain paper from a paper wasps’ nest. The nests are typically situated in the vertical crotch of a sapling, especially if there are three branches to stabilize the cup. A clutch of three to four glossy-white eggs are incubated by the female for about nine to 11 days. The hatchlings are fed by both adults for about 10 days, at which time they fledge. The young are dependent on the adults for an additional week or two, during which the male looks after part of the brood, and the female looks after the others.

During courtship, and defense of the female while she is building the nest, a male American Redstart will flash his tail spots and droop his wings to show off his bright orange patches to his rivals and mate, all while dancing about in the lower branches of small trees and saplings. He also sings – a lot. His songs are varied, often changing song type from one rendition to the next. This can make sound identification rather difficult, as your first impression is that you are hearing a Magnolia Warbler male singing.

The male American Redstart’s courtship song often ends with a downward sounding inflection, an accented ending song (<https://macaulaylibrary.org/asset/534344>). During the early days of setting up a territory and selecting a mate, males may engage in song fights with aerial chasing. These are preceded by lots of chip notes (<https://macaulaylibrary.org/asset/534342>). After these fights, the resident male may sit and sing a series of songs, changing the song type after each song as if to show off what he can do (known as serial mode singing) (<https://macaulaylibrary.org/asset/534361>). These are the song bouts that can make identification very difficult. The serially delivered songs are often of song types with unaccented endings. These appear to be directed toward other males in the area. A male may have four to five song types in his vocabulary.

American Redstarts are migratory birds, spending our summer here breeding and then returning to Central and northern South America and the Greater Antilles for our winter. During these peregrinations, this species is susceptible to injury and death by colliding with stationary objects from communication towers and guidewires, to high-rise buildings, and glass walls. American Redstarts prefer undisturbed woodlands on their wintering grounds. The explosive growth of human populations in the wintering range and on the breeding grounds has significantly reduced the amount of suitable habitat available to this and other successional habitat dependent species.

American Redstarts benefit from shade-grown coffee landscapes in the wintering grounds, and they provide a valuable service to the farmer by significantly reducing insect pests. We can help this beautiful species and maintain their songs in our area by supporting shade-grown coffee growers and by helping to preserve suitable breeding habitats for these fancy woodland dancers – the American Redstart.

PVAS Events

Adult Programs

Springtime brings a flutter of activity in and around the Potomac Valley Audubon Society. Warmer spring breezes bring new energy and an array of exciting opportunities.

Instinctively, the birds know sunshine and warmth await them, and our local birders eagerly anticipate their migration with eyes and binoculars drawn toward the skies. Spring means bird walks aplenty! If you haven't joined one of Beth Poole's bird walks, we encourage you to do so. Beth knows the trails of Cool Spring Preserve like the 'back of her hand' and would be thrilled to have you join her on the third Wednesday of every month as she searches for Eastern Bluebirds, Yellow Warblers, Yellow-breasted Chats and more.

If you prefer Saturday morning bird walks, look no further. PVAS's expert birders have teamed up with naturalists from the USGS Fish Health Lab and together, we offer monthly bird walks on the USGS property, where the bird species are diverse, and the quality of the wetland is excellent. Deb Hale's April 27th walk combines the rich history and natural beauty of the area as her bird walk joins in the celebration of the 75th Anniversary of Harpers Ferry National Historical Parks.

International Migratory Bird Day is an annual conservation initiative that helps to bring awareness to migratory birds and their habitats. PVAS is eager to participate again this year through bird walks and our annual Ruth Ann Dean Memorial Birdathon. Join an IMBD walk or chose one day during that week to count birds with a team or on your own. Similar to a walkathon, a Birdathon helps raise money as participants accept donations or pledges per species counted in a 24-hour period. This fun event is an important fundraiser for PVAS, and everyone can be involved. Check out the birding calendar for further details www.potomacaudubon.org/calendar/category/bird-events/.

One of the pillars of PVAS's birding program is the Natural History Workshop, Birding 101. Offered for four consecutive weeks in spring, this workshop educates and inspires 'want-to-be' birders and turns them in to confident bird lovers.

Looking beyond the plentiful birding opportunities, PVAS has a full calendar of events.

Spring Wildflower and Botany Walks at various venues allow for our community to see and learn about our native flora. As spring unfolds, many of us look to enhance our seasonal gardens. Our April monthly program will tackle composting myths and address common problems, while a subsequent workshop will offer a hands-on approach, diving deeper into the concept of composting to help find solutions for individual situations. The Chakras and

Earth Workshop will explore how the seven major energy points in the body (or Chakras) correspond to different aspects of nature. We encourage you to view PVAS's Calendar of Events to find up-to-date information about these events and more www.potomacaudubon.org/calendar/.



PVAS Events

2019 Board of Directors Candidates

Jim Cummins, Vice-President:

Jim is a retired freshwater ecologist. Jim and his wife Nancy, a retired Jefferson County teacher, live in Bakerton. He has a Masters of Science (1985) in Biology from George Washington University. Jim co-started the District of Columbia's fisheries program where he worked from 1985 to 1988. From 1988 until his retirement in 2016 he was the Director of the Living Resources for the Interstate Commission on the Potomac River Basin. His projects included biological assessments of streams and rivers in WV, MD, PA and DC, environmental flow studies, habitat restoration and fish passage, especially in regard to the Little Falls Dam near Washington, D.C. and a linked American shad stocking program with integrated student and volunteer involvement. Jim enjoys woodworking, gardening, fishing, canoeing, playing music, working at various scales to improve the community, reading, and trying to keep a beagle named "Abe" from causing trouble.

Steve Paradis, Treasurer (current Board member, new position):

Steve has been a resident of Bolivar since moving to the eastern panhandle nearly ten years ago to work for the Appalachian Trail Conservancy in Harpers Ferry where he was responsible for managing the internal workings of the organization as chief operating officer. An alumnus of M.I.T. and Stanford University, Steve has extensive experience in operations and manufacturing. He returned to the for-profit sector in 2014 as a business consultant, focusing on financing and organizational management of early stage ventures in energy and water. Steve was introduced to PVAS and its extensive offering of adult programs by his life partner, Lisa, an enthusiastic birder who was inspired Birding 101. He looks forward to bringing a business acumen and a love for nature and the outdoors to the board.

Don Campbell, At-large Member (re-election):

Don is retired from the National Park Service. While Superintendent of Harpers Ferry National Historical Park, he oversaw three decades of restoration, development and preservation at the park. He is the recipient of the Stephen T. Mather award from the National Parks and Conservation Association for outstanding stewardship and defense of the National Parks. Born in Napa, California, he joined the National Park Service in San Francisco as a park planner working on development of park and wilderness proposals in the west and southwest. After a move to the Seattle office, he worked extensively in the Pacific Northwest and Alaska on new park area studies for legislation. He shared in a Presidential Design Award for the planning of Klondike Gold Rush National Historical Park. Don earned a bachelors degree in Landscape Architecture from Utah State University and a master of landscape architecture from the University of California, Berkeley. During his extensive career, Don has fostered partnerships that support protection of resources through stewardship and environmental educational programs. He is concerned about loss of wildlife habitat.

Melissa Gonzalez, At-large Member:

Melissa has ten years of experience in the communications field, mostly with the public sector, specifically working for federal agencies such as the Department of Veterans Affairs, and the National Institutes of Health. In both agencies she had both digital media production and public affairs roles. She is passionate about using the power of integrated marketing communications to protect wildlife and natural resources. She is a public servant with the U.S. Fish and Wildlife Service, where she develops communication strategies and visual productions supporting both the agency and the National Conservation Training Center's missions. Raised in a rainforest, ten minutes away from the beach on the Caribbean Island of Puerto Rico, Melissa had the opportunity to study and complete her bachelor's degree in TV and Radio Communications, as well as her Master's degree, specializing in advertising, from the University of Puerto Rico and the University of the Sacred Heart respectively.

Mina Goodrich, At-large Member (re-election):

Mina retired in 1999 after a long career in health care with the Department of Veteran's Affairs, both in Martinsburg and Washington,

D.C. A native of Shepherdstown, she has been a member of PVAS since its early days. She previously served two terms as Secretary of PVAS. Mina has also been active on the boards of the Friends of the Shepherdstown Library, the Jefferson County Animal Welfare Society and the Shepherdstown Community Club. She also volunteers regularly at the Shepherdstown Library. She has a Bachelor's degree in Social Work from Shepherd University and an M.B.A. from Frostburg State University in Maryland.

Rita Hennessy, At-large Member:

Rita brings her skills in partnerships, fundraising, and adult education from a 29-year career with the National Park Service. Currently, Rita is the NPS Program Lead for the National Trails System, focusing on legislative and policy issues, as well as facilitating national and regional partnerships. Rita holds a BS in Recreation Resource Management from the University of Montana, a MA in Community Change and Civic Leadership from Antioch McGregor, a Graduate certificate in Volunteer Administration from the University of North Texas, and recently completed a Professional Certificate in Sustainable Food Systems from Johns Hopkins University. Rita also serves on the Board of Jefferson Growers, Artisans, and Producers where she is creating a Farm to School program for Jefferson County. She lives with her husband, Sean Palmer, and 2 dogs in a net zero, solar home in Shepherdstown. Her passions include local foods, cooking, and native meadow restoration.

Peter L. Mulford, At-large Member:

Peter grew up in Rochester, NY and is a graduate of The University of Vermont (AB, Political Science and Psychology) and Cornell University (MBA, Sloan Program in Healthcare Administration). He served as a U.S. Army Medevac Pilot during the Vietnam War. He is a retired Healthcare Administrator, and served as CEO of 3 community hospital systems. He was CEO of the City Hospital, Gateway Regional Healthcare System in Martinsburg from 1985-1999. He and his wife Betty returned to Martinsburg in 2012 when he came out of retirement to become CEO of the United Way of the Eastern Panhandle. Now 'fully retired', he continues as an adjunct lecturer at Shepherd University in the healthcare concentration of the graduate MBA program. "Pete" is on the Board of CCAP/Loaves and Fishes, is the Potomac District Chair of the Shenandoah Area Boy Scout Council, and is a part-time volunteer for Meals on Wheels. He has been a life-long member of Rotary International, is a multiple Paul Harris Fellow, and serves as the Foundation Committee Chair of the Martinsburg Rotary Club. He is an active supporter of the Sierra Club, several environmental, youth and veteran organizations, and Hedges Chapel. He is currently participating in the WV Master Naturalist training program.

Patti Mulkeen-Corley, At-large Member:

Patti is a newly-retired teacher who lives outside of Charles Town with her also-retired husband, Tom. She has a B.S. from Clarion University and Masters from Shippensburg University, both in special education. Volunteering at Cool Springs is on her retirement checklist. She likes to hike, bike, and kayak. She is a novice birder and enjoys tagging along with and learning from the birding experts. She is a member of the League of Women Voters of Jefferson County; while League president in the 90s, they dealt with many local land use and environmental issues. Patti and Tom are also longtime members of the WV Rivers Coalition.

Rod Snyder, At-large Member (re-election):

Rod serves as president of Field to Market: The Alliance for Sustainable Agriculture, a nonprofit focused on defining, measuring and advancing the sustainability of commodity crop production in the United States. Prior to this role, Rod held positions as Public Policy Director for the National Corn Growers Association and Government Affairs Leader for CropLife America. He is particularly recognized for his work at the intersection of agricultural and environmental issues. In 2016, Rod was a candidate for the West Virginia House of Delegates in the 67th district and remains active with numerous community groups in the Eastern Panhandle. He resides on his family's farm in Shenandoah Junction,

Volunteer Spotlight**Have You Met Mary Youngblood?**

Mary is one of our wonderful Morgan County volunteers. She completed the Master Naturalist program in 2010 and has been volunteering with PVAS ever since. Her love and knowledge of Eidolon is unparalleled. You will often find her at Eidolon volunteer days, and she serves as KC's eyes on Eidolon when KC is unable to reach the preserve. Mary frequently updates the kiosk and has even helped with annual preserve reports.

She also has been a bird seed sale volunteer for many years and occasionally ventures away from her beloved Eidolon to volunteer at the other preserves. Mary and her friend Sylvia can also be found on the mountain in their spare time, happily pulling invasive weeds.

All of our PVAS volunteers are great! If you know someone who deserves a shout out, please contact Kristin at Kristin@PotomacAudubon.org.

**Camp Programs****Introducing: Cristen Gillett,
Site Director at Yankauer**

We are excited to announce that past PVAS Discovery Camp Counselor, Cristen Gillett will be our Yankauer Site Director for camp this summer.

Cristen Gillett comes to our program as an NAI certified interpretive guide with seven years of experience in informal science and conservation education. She has a passion for teaching kids about how to make their world a better place. Cristen is currently teaching second grade in Berkeley County and working on a Masters degree in elementary education. She is thrilled to come back and bring her enthusiasm and skills to our Discovery Camps.

Last summer, Cristen, a true animal lover, wowed the campers when she brought her snake, chameleon, and snapping turtle to camp to teach about reptiles. Cristen also brought along new camp sing-along songs and new, creative camp activities that were a hit with the campers.

Cristen will be working with Amy Moore, PVAS's camp director, to create an unforgettable summer camp experience. We are in the process of hiring five

individuals to work as camp counselors along with Matt Wuertzer, our

AmeriCorps volunteer. We plan to have three counselors for each of the Yankauer and Cool Spring camps that will run simultaneously for seven weeks in June and July. We are hoping to provide a camp experience to 430 children this summer.

If you know of any youngster that you think would enjoy a week outside in nature, then the Audubon Discovery Camp is just for them. Information and registration for all camp sessions are available at www.potomacaudubon.org/education/youth/

**Get Ready for Summer Camp!****Summer Camp registrations are steadily growing.**

Check out our website for session details and online registration:

www.potomacaudubon.org/education/youth/discover-camp/

Camp scholarships will be available again this year.

Scholarship info is available on the website.

For information, contact Camp Scholarship

Committee Chair Mary Etta Boesl at

meboesl@yahoo.com

Family and Youth Programs

Spring Break Fun!

Passport to Nature Library Program

For the past few years, PVAS has partnered with Jefferson and Berkeley County public libraries for our spring break library program. Throughout the week of April 15-19, PVAS will be hosting a themed nature program at different libraries each day. The programs are designed for kids ages three and up and feature a nature themed book and craft. Kids will receive a “Nature Passport” that they can stamp for each program they attend.

- **Monday, April 15:**
Bolivar-Harpers Ferry Library, 10:30 AM, “Into the Outdoors”
- **Tuesday, April 16:**
Old Charles Town Library, 10:30 AM, “Birds of a Feather”
- **Wednesday, April 17:**
Martinsburg Library, 11:00 AM, “Animal Tracking”
- **Thursday, April 18:**
North Berkeley Library, 10:30 AM, “Animal Tails”
Shepherdstown Library, 1:00 PM, “Are you a Ladybug?”
- **Friday, April 19:**
Hedgesville Library, 10:30 AM, “Animal Tails”



Boys and Girls Club Spring Break Camp

This spring, we are partnering with the Boys and Girls Club of the Eastern Panhandle to provide a one-day nature camp to about 50 students in Berkeley and Jefferson counties. The Berkeley County Club students will spend April 15 at Yankauer, while the Jefferson County students will spend April 16 at Cool Spring.

The goal of this partnership is to give a more diverse group of children a meaningful, hands-on nature experience. We hope that through activities like building forts and hiking in the woods, kids will leave with a new love and appreciation for nature.

Watershed Wonders

This spring is a big season for our fourth grade Watershed Education program. We are serving nine schools and 1,672 students across Berkeley, Jefferson, and Morgan Counties.

New this year is a direct service project that students from Tomahawk Intermediate, Potomack Intermediate, and Mountain Ridge Intermediate will complete.

Throughout the Watershed program, students have learned about how run-off can cause erosion and carry soil into our waterways. They learned that trees and other plants have roots that hold the soil in place, and that we can protect streams and rivers by planting a buffer zone of trees. Thus, for an action project, we have received grant funding for these schools to plant a buffer zone of trees on their campus.

Each class will plant their very own class tree that they will care for the rest of the year. We are very excited to be able to provide this service project to students, as it has been well documented that the key to most meaningful watershed experiences is to provide students with a way to be the solution, take action, and have a sense of ownership of their land.



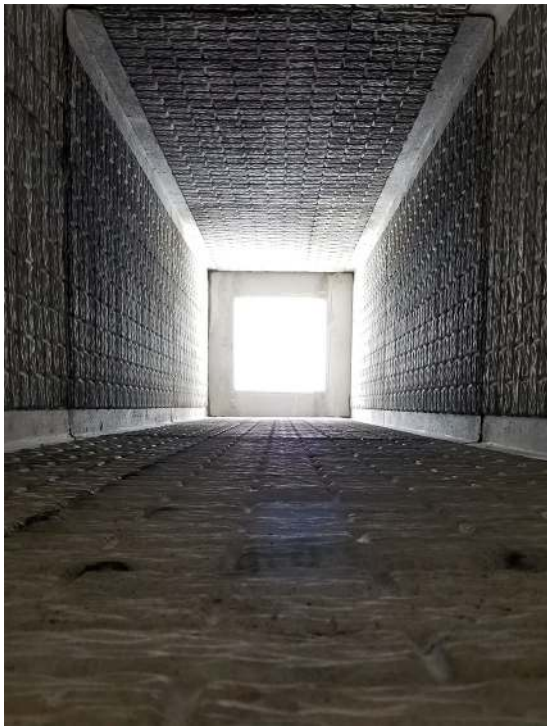
Conservation

The Roost has Risen!*By KC Walters*

The Chimney Swift tower has been erected! After over two years of planning, preparing, and fundraising, the new migratory roosting tower has finally come to fruition.

We officially broke ground on the tower on March 4th and just three short weeks later, Suzanne, KC and Cecelia Mason, of Shepherd University, stood in awe of the 30-foot marvel as the final piece was placed on the top of the tower. As Suzanne stated during KC's Facebook Live video, it was truly "a crowning moment."

Jim Schmitt of Schmitt Construction Company has played a pivotal role in making this tower a reality. He worked hard to modify our original engineering plans to make the tower both economically and ecologically feasible. In lieu of bricks, the tower was constructed from stamped concrete. Molds shaped like walls of brick were erected on site and then filled with concrete. Once the concrete had set, the molds were removed and the tower was revealed.



And just in time too, because the Chimney Swifts are on their way! The Swifts spent the winter in the Amazon Basin of Peru and are now venturing 6,000 miles into North America to their summer breeding grounds.

of those birds. As a Shepherd alumni, Jim remembers coming out of class and watching the Chimney Swift murmurations around Sara Cree Hall before dropping into the tower for the night.

The new tower Jim has constructed on Shepherd's campus near the water retention ponds will be able to hold approximately 5,000 Swifts. We are all so excited to welcome the Swifts back to Shepherdstown. PVAS plans to hold "A Swift Night Out" event this fall to celebrate this momentous occasion for our community!

To build the tower this year, rather than delay it further, PVAS secured an interest free loan. We are continuing to fundraise to now pay back this loan. We thank all of our donors for their generous support and dedication to help this charismatic, near-threatened species! If you would like to contribute to our efforts to "Raise the Roost" you can donate to this project specifically by mail or on our website at: <https://www.potomacaudubon.org/conservation/conservation-initiatives/chimneyswifts/>.



Conservation

Owl Baby Season Has Begun

By October Greenfield, AmeriCorps Volunteer

Many owls are early nesters. Great Horned Owls and Barred Owls often begin nesting in January or February. Rather than building their own nest, Great Horned Owls use nests that were previously used by other critters, like Bald Eagles or Red-tailed Hawks. Barred Owls typically nest in a natural tree cavity, although they may also use nests built by other animals.

Of course, there is some risk to nesting so early. It can be a challenge to keep the eggs warm while snow falls and temperatures drop below freezing. The female stays on the nest for extended periods of time, while the male brings food back to her. Occasionally, the female will leave to hunt, and the male will take over incubation at the nest. The eggs must be kept warm if they are going to hatch. So why would owls nest so early?

Great Horned Owls and Barred Owls take longer to grow and fledge than smaller birds such as songbirds. They also have to become master hunters, learning to use their keen vision and hearing to catch their prey. The earlier they hatch, the more time they have to learn to fly and hunt before the weather turns cold again.

By March, many young owls have entered their “branching” stage. At about six weeks of age, young owls leave the nest and move onto branches nearby and begin exploring their world. The adults still feed and care for the young. At seven weeks old, the young will begin testing their wings and start taking short flights. They can use their strong feet and talons to climb back up the trees until they become strong enough to fly better. Fledged owls can remain in close vicinity of their nest. They can even be observed begging for food from the adults up to five months after leaving the nest.

Keep an eye up on the trees while you are out and about this spring; you might spot a young owl. Please use caution when searching for or observing active nests. Observe nests from a distance and utilize binoculars, spotting scopes, or cameras with large zoom lenses for a closer view. Too much nest disturbance could cause owls to abandon their nest. Observing from a distance will cause less stress to the owls and allow them a better chance of successfully raising their young.

Top Five: Insect Adaptations

By Matt Wuertzer, AmeriCorps Volunteer

Spring is finally in the air. With the melting of snow comes the growth of new trees and wildflowers, and the return of old friends, as birds migrate back and mammals emerge from their deep sleep. With these come some animals we might think a bit unsavory, but mosquitoes aside, there are some really interesting local insects to keep an eye out for this spring.

1. Walking stick

These elusive insects are masters of disguise. Not only do they look like sticks, but they stay perfectly still like them too. If that doesn't work, they can secrete bitter chemicals, or even lose their own limbs in defense.



2. Bombardier beetle

These insects are engineers of chemical warfare. When they feel threatened, bombardier beetles can spray dangerous, volatile chemicals at threats.



3. Praying Mantis

One of the insect world's deadliest hunters, the praying mantises have evolved strong forelimbs that they use to capture and hold their prey.

4. Scorpionflies

Don't be fooled by that tail; this insect is completely harmless! The males have a long tail resembling a scorpion's, used to hold onto mates.



5. Ichneumon wasp

No, that's not a stinger on this insect's abdomen. Females of this wasp group have a long appendage called an ovipositor that they use to lay eggs. In some species the ovipositor can be over four inches long.

Notes from the Preserves

Spring in the Preserves

By KC Walters

Spring has sprung! The preserves are coming to life again with migrating birds, baby animals, buds bursting on trees, and blooming wildflowers. Our team of land management volunteers have battled the mud, snow, and wind to make sure the preserves did not go unloved all winter.

The Nature Playspace revamp has begun. During the February Cool Spring Workday, volunteers took down the existing playspace elements and cleared out a larger space for the new elements. Then in March, the excavation began to remove the top layer of soil and add wood chips under each element. Mary and Peter Palmer graciously lent their time, expertise, and skid steer to make this possible. Now the rebuild begins. We anticipate the new playspace being open in time for the start of summer camp.

The battle of the mud continues at Cool Spring Preserve. In the last two months, we have added more bridges to make the trails passable, and volunteers have worked hard digging trenches to divert water. Thank you to all of our visitors who have been patient and understanding as we continue to try to remedy this ongoing problem.

At Eidolon, Yankauer, and Stauffer's Marsh, volunteers dutifully battled the brush off-trail to locate boundary lines and put up new signs. Together, we explored new and exciting parts of the preserves most visitors do not get to see.



I am in need of a few items for land management: a tire pump for the wheelbarrows, tool hanging hooks, and a small, gas-powered chainsaw. If you have one of these items that you are willing to donate, please reach out to me at katelyn@potomacaudubon.org. Thank you!

Spring is the time for all Master Naturalists to jump into earning 2019 volunteer hours. I'm always excited to see new faces at the volunteer workdays from each new class. Registering for workdays on our website or sending an email to katelyn@potomacaudubon.org, helps me to better plan the workday activities and communicate with you about changes or cancellations.

Advocacy

Our Most Effective Tool for Fighting Climate Change: A Tree*By Neal Barkus, Panhandle Progressive*

You can't avoid noticing the rapid development of housing in the Eastern Panhandle. Just blink and an old farm or wooded area has been replaced by a Dan Ryan development extravaganza. In my established farming neighborhood alone there are four homes under construction. But often these homes end up being naked structures with no landscaping and no trees. Evidently, new home buyers are more interested in square footage and amenities than saving or establishing wooded areas. More's the pity. Trees add grace and beauty, provide protection against cold winter winds and blazing summer heat, prevent rainwater erosion, and create habitat for birds and other wildlife. Perhaps most importantly, trees remove prodigious amounts of carbon dioxide from the air.

In the not too distant past, West Virginia was covered with virgin forest. One estimate from 1870 was that of the 16,640,000 acres in the state "at least 10,000,000 acres are still in the vigor and freshness of original growth." But between 1870 and 1920, the timber industry literally changed the face of the state. Timber was the first of our natural resources to be extracted, followed by coal and now gas.

Obviously the extraction industries in West Virginia have all contributed heavily to the production of carbon dioxide, the greenhouse gas chiefly responsible for climate change. Surprisingly, huge amounts of carbon dioxide are produced by the timber industry itself. A recent study in Oregon found that wood products generated about one and one-half times more emissions than the transportation and energy sectors in that state. Timber industry emissions come from the fuel burned in logging operations, hauling and milling and the ongoing decomposition of trees after they are cut. And, as wood is a carbon-based fuel, burning wood produces carbon dioxide, although not as much as burning more carbon rich fuels like coal, oil or gas.

But the main impact of the timber industry on the climate is the destruction of forest carbon sinks. Through the process of photosynthesis trees remove carbon dioxide from the air and release oxygen. A single tree can absorb as much as 48 pounds of carbon dioxide per year and can sequester one ton of carbon dioxide by the time it reaches 40 years of age. Large forests consume and store huge amounts of carbon dioxide.

In his recent book, *Carbon Capture*, MIT Research Engineer Howard Herzog identifies "negative emissions technologies" as one path toward stabilizing the amount of carbon dioxide in the atmosphere. These technologies actually remove carbon dioxide from the air, as opposed to preventing its emission in the first place. Among emission prevention practices would be things like engineering controls on smokestacks, tax provisions that favor renewables, and tightening environmental regulations. The most important negative emissions technology is planting trees to fix atmospheric carbon in biomass and soils, termed afforestation and reforestation (AR).

Worldwide carbon emissions are approaching 40 gigatons per year. So to make any real difference AR must be able to operate

on the gigaton-per-year level. Today AR is the only negative emissions technology deployed on a large scale, but it functions only at the megaton level of carbon dioxide removal. Still AR is the least expensive of such technologies -- estimated at \$10 per ton of removed carbon dioxide compared with \$1000 per ton removed by direct air capture through engineering systems.

Under the Kyoto Protocols, industrialized countries can meet targets by developing carbon-reduction projects in third-world countries. Often these have been afforestation of unused agricultural land through plantations of fast-growing trees of a uniform type, such as Scotch pine. Critics of this procedure point out that the resulting biomass is more like a single-purpose tool than a true forest. Forests create a whole range of wildlife diversity, environmental and economic benefits that single species plantations do not. Replanting a depleted forest with diverse native species has worked better.

This brings me back around to how important trees are on small-scale private property. Deciduous trees, planted on the south and west sides, will keep a house cool in the summer and let the sun warm it in the winter, reducing energy use. Just three trees, properly placed around a house, can save up to 30% of energy use. Trees or shrubs planted to shade air conditioners lead to more efficient cooling. A unit operating in the shade uses as much as 10% less electricity than the same one operating in the sun.

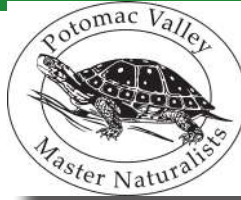
Planting a row of conifer trees on the north and northwest sides of your property creates a wall against cold winter winds, saving on heating costs. The best protection from wind occurs when the windbreak is no more than the distance of one or two tree heights from the house. Most of the Eastern Panhandle is in hardiness zone 6, which makes Norway Spruce, Leyland Cypress and Eastern White Pine perfect for wind breaks in our area.

Planting trees anywhere is a boon to the environment. Even planting them in rural areas is beneficial because, in addition to capturing carbon dioxide, they act as soil anchors, preventing erosion and rainwater runoff into streams. Particularly when planted strategically in groups, trees in rural areas create wildlife corridors linking streams, feeding areas and shelter. Native trees provide perfect food for native wildlife. In this area Red Mulberry, Serviceberry, Hawthorn, Hackberry, Cherry, River Birch, and Black Walnut thrive.

The magnitude of the climate problem is so huge and making a real difference so beyond the reach of any individual, that sometimes it seems hopeless. But, of course, this is no way to think about the situation. There are individual behaviors that when changed on a vast scale can contribute to solving huge problems. Planting a tree -- or better yet a bunch of them -- is a low cost act that employs living things to do what they do best and what we desperately need them to do. And it is an act within the reach of everyone.

PVMN

Potomac Valley Master Naturalists Welcome the Class of 2019!



PVMN welcomed 21 students into the program during the opening weekend of March 16 and 17. Classes were held at the National Conservation Training Center, and included training on Ecology, Nature Interpretation, Recording and Sharing, and much more. April's classes at NCTC will include Wetlands, Wildflowers, and Weeds. The coordinating committee is looking forward to an exciting year ahead as the students offer a diverse array of experiences and expertise.

The members of the 2019 class are as follows: Leslie Boyd, Alana Flynn, Christy Fraga, Christina Hoffman, Tamar Kavaldjian-Liskey, Meg Kinghorn, Ellen Kinzer, Justin Kline, Margaret Liskey, Michael Liskey, David Martz, Peter Mulford, Diana Mullis, Erkin Nasar, Jennifer Reed-Grimmett, Karli Rogers, Robert Schwartz, Abby Streu, Stacy Toup, Casey Wilson, and Matthew Wuertzer.



Master Naturalist students from previous years who may still need classes in order to certify as a Master Naturalist can find the 2019 class schedule on the Master Naturalist website page: www.potomacaudubon.org/education/adult/masternat/.

If you are interested in attending classes in order to complete your certification, please contact Carol Winckler (cjwinck@frontiernet.net) so she can plan classroom space accordingly.

BECOME A PVAS MEMBER!

ALL of your dues will stay here to support local PVAS efforts and help us grow! And here's what you'll get:

- Ten-percent member discount to many PVAS programs and events.
- A subscription to *Valley Views*, the PVAS newsletter.
- Free or reduced admission to participating nature centers and/or their programs across the country.
- E-mail alerts about events and programs (upon request).
- An invitation to a PVAS Members annual gathering.
- Discounts to participating **local businesses**.

Membership Form

To become a local member, send in the form below and enclose a check. Dues are \$50/household, \$35/teachers (covering membership for everyone in your household for one year), or \$20/full-time adult student (benefits apply to member only). Make the check out to "PVAS." For details, go to: <http://potomacaudubon.org/member>.

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Phone (optional): _____

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To save postage costs, PVAS regularly sends its newsletter by e-mail. You can be assured that we do not share email addresses with anyone. If you would prefer to receive the newsletter by U.S. mail check here: ____.

Clip and mail this form to:

Membership Chair, PVAS
PO Box 578
Shepherdstown, WV 25443



Thank you for your support!

About the National Audubon Society

National Audubon has a membership program that is separate from PVAS. To become a National member, go to the Society's website at www.audubon.org, and click on "join." If you join National Audubon and reside in Berkeley, Jefferson, or Morgan counties in West Virginia, or in Washington County Maryland, you will automatically become an affiliate of PVAS, but not a full PVAS member. Affiliates will have access to our communications, and invitations to our events. However, all National Audubon dues go to the National Audubon Society and are not shared with PVAS. We heartily invite you to become a dues-paying member of both organizations.



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The Potomac Valley Audubon Society meets at 7:00 p.m. on the second Wednesday of each month, September through May. Programs are free and open to the public. For additional information about PVAS or its programs and activities, please contact any of the board members listed here or see <http://www.potomacaudubon.org>. PVAS serves the Eastern Panhandle of West Virginia and neighboring Washington County, Maryland.

All Officers, Board Members, and Staff can be contacted at 681-252-1387.

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Vice President:	Michael Sullivan (2019)
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	Stephen Paradis (2020)
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Emerita Board Member

Jean Neely

Special Contacts

Executive Director:	Kristin Alexander (304-676-3397)	Kristin@PotomacAudubon.org
Land/Conservation Mgr:	KC Walters (304-283-7319)	katelyn@potomacaudubon.org
Lead Teacher/Naturalist:	Amy Moore (240-818-4714)	Amy@PotomacAudubon.org
Adult Prog. Coord:	Krista Hawley (703-303-1026)	AdultPrograms@PotomacAudubon.org
Program Administrator:	JiJi Russell (681-252-1387)	Admin@PotomacAudubon.org
WV Promise VISTA Volunteer:	Ariana Hagenau	Ariana@PotomacAudubon.org
Web Master:	Kathy Bilton	kathy@fred.net
PVAS Wildlife Rescue Coord:	Diana Mullis (304-754-3753)	dianamullis7@gmail.com
Valley Views editor/publisher:	Charlotte Fremaux (301-404-8639)	newsletter@potomacaudubon.org

PVAS BOARD

PVAS Board meetings take place the first Thursday of every other month (September through June).

Meetings are open to all PVAS members. Please contact the President or Vice President if you would like to attend.