Extraordinary Organisms at Jug Bay

Ever wonder whether encounters that Jug Bay staff, volunteers, and frequent visitors have with the flora and fauna at the Sanctuary sometimes become a little routine? Whether these encounters might lack the edge of fascination that brand new visitors often feel in observing the Sanctuary’s creatures for the first time? Nothing could be further from the truth. Along with the organisms that are routinely expected to be seen at the Sanctuary, Jug Bay also offers up fresh amazement again and again, in the form of organisms that are uncommon, hard to see, or unusual in terms of their appearance or life histories. Staff members picked a few of their favorite extraordinary Sanctuary creatures that have been sighted so far in 2016 to share in this issue of Marsh Notes.

Tardigrades

Would you believe that an animal exists on earth that can survive temperatures from −458 °F to 300 °F, pressure conditions that are six times greater than those found in the deepest parts of the ocean, and radiation doses that are hundreds of times higher than the human lethal dose, and that animal can not only survive but also reproduce in the vacuum of outer space? What if we told you that this animal can be found right here in the waters around Jug Bay? The microscopic creatures called tardigrades, commonly referred to as “water bears” or “moss piglets,” are an absolute enigma in the Animal Kingdom, even requiring their own phylum. Jug Bay staff have been searching for this creature for the better part of seven months, so you can imagine the eruptions of squeals and delight when this one was spotted in a run-of-the-mill plankton tow off our River Pier dock in early April! This discovery makes a fantastic addition to our student plankton investigation program at Jug Bay!

Juniper Hairstreak

Sometimes it’s all about being in the right place at the right time. On a quick staff outing to observe the Least Brook Lamprey running in the Glendening Nature Preserve, Liana spotted a small, unusual green flutter on the ground directly on the hiking trail. Just as one of the Jug Bay staff members was about to take a would-be fatal step upon the fluttering creature, she shouted “Stop!” She knelt down to take a closer look and saw what appeared to me to be an unusual green butterfly. A few photographs and a positive ID later confirmed that we were lucky enough to encounter a Juniper Hairstreak, *Callophrys gryneus*. Closely associated with Eastern Red cedars (*Juniperus virginiana*), this tiny butterfly’s bright green coloration with rusty brown stripes edged in white mimics the way light reflects off the scales of the cedar leaves, helping it to better blend into its environment.

Barn Owl

With its startling shriek and ghostly white face, the Barn Owl (*Tyto alba*) is unforgettable, once you’ve had the good fortune to encounter it. The Sanctuary’s stars are aligned for this nocturnal predator; Jug Bay has had resident Barn Owls a few times in the past 20 years, and they were spotted again this winter and spring. We don’t know whether they were nesting, as there would
be no nest structure that would serve as a clue: Barn Owls that use barns lay their eggs directly on a beam in the rafters. These rare owls are very sensitive and easily stressed, particularly females who are nesting. Andy Brown, a longtime naturalist in Calvert County, says that as of 2006, Maryland had only 54 known Barn Owls statewide, most of them on the Eastern Shore. Furthermore, the draft of the wildlife report due out this summer from the Department of Natural Resources says the Barn Owl is at high risk for extinction in Maryland. Three likely reasons for their decline are a decrease in open grasslands, a loss of nest sites, and the use of poisons intended for rodents, which Barn Owls eat.

Bioluminescent Mushrooms

In April, while on a mushroom identification hike with an expert in mycology, we discovered that Jug Bay provides habitat for a bioluminescent mushroom known as Bitter Oyster (*Panellus stipticus*). To give this discovery some perspective, there are approximately 100,000 fungal species currently described by scientists on earth, and of these 100,000, only about 70 species are bioluminescent. So, we are very lucky to have one of them in our backyard! This particular mushroom is widespread in the U.S., but it is most common in the eastern part of the country. Our glow-in-the dark mushroom is a hardwood-rotting saprobe (e.g., it survives by decomposing dead or decaying organic material). This mushroom may seem “common” during the day—but at night it emits a bright bluish-green light. It has a bitter taste, so it is not good to eat, but reports indicate it has been used as an antihemorrhagic agent and as a violent purgative. It seems that our Sanctuary never stops giving us surprises!

Brook Lamprey

Brook Lampreys are fascinating creatures that make a brief appearance in our streams in spring. Jug Bay Wetlands Sanctuary has documented both the Least Brook Lamprey (*Lampetra aepyptera*) and the American Brook Lamprey (*Lampetra appendix*). Both species are 4–6 inches long, have a long eel-like body and no scales, and are jawless. The adults have a disk-shaped mouth with teeth in the center that can be a real surprise to the first-time viewer. Brook Lampreys spawn in March and April. They communally create pits at the upper end of a shallow stream riffle. As many as 20 Brook Lamprey can be seen using their suction cup-like mouth to move stones around to create the perfect pit for a female to deposit eggs. After hatching, ammocoetes (larval lampreys) float downstream to slow-moving water, burrow into the sediment, and feed off organic particles. They transform into the non-parasitic adult after three years. The adults do not feed. Their sole purpose as an adult is to spawn, and they die shortly after.

Jug Bay staff were fortunate to witness the cooperative pit-arranging efforts of the Brook Lamprey pictured here during the last week of March.

Extraordinary Organisms, cont.
Dear Friends,

Is sea level rise real for you? It wasn’t for me until a confluence of events made me starkly aware of the issues. I live comfortably in Pindell at about 120 feet elevation, where sometime in the far, far distant future, one could possibly walk to the waterfront. Pindell is the old railroad station locale at the gates to the River and Jug Bay Farms. I subscribe to Accuwether, which sends me weather alerts, one of which is coastal flooding alerts. At first it seemed rather amusing to me that I should receive a “coastal flooding alert for Pindell, MD, due to a tidal anomaly.” I haven’t been keeping track of how many I have received, but one thing is certain: the frequency of the alerts and extension of time for a given alert have increased. Yet, these text alerts had no reality for me. I have seen the articles in the Capital about the flooding in downtown Annapolis, the major plans by the Naval Academy to shore up their flood wall, and the extensive emergency planning of Anne Arundel County. No matter how much you read about sea level rise, if it doesn’t affect you directly, you may be supportive of efforts to mitigate the effects, but it’s easy to put it off as something to worry about later.

But two separate recent events primed me for the seriousness of the impact of sea level rise on the wetlands of Jug Bay. Worldwide, wetlands provide the most services that directly affect us, primarily carbon storage, water storage, and nutrient removal. The long-term water quality studies at Jug Bay attest to their importance to us on a local scale.

At the end of April, I invited Dr. Pati Delgado to give a presentation to the Chesapeake Environmental Protection Association. Over the years, Pati has set up a research effort to document the sea level rise at Jug Bay. Her research has begun to show the impacts on the Jug Bay surroundings. The rate of sea level rise in a specific local area depends on that area’s topography. For example, if the slope of the wetlands is gentle, then a small rise of water level will encompass a large area. If the slope is high or abruptly runs into cliff, the area affected is less for a given rise. Sea level rise brings with it something else. Being the sea, it increases the salinity of the water. So the rise actually has two detrimental effects on the aquatic plant communities that do the heavy lifting for provisioning of ecosystem services, namely inundation and salt. The plant communities that are both salt and water tolerant are few, whereas the rich biodiversity lies in those areas where inundation is less frequent and less salt tolerant. Remember that freshwater wetlands like Jug Bay have evolved to respond to freshwater events like surges from storms and only occasionally to tidal anomalies.

About a week after Pati had given her presentation, I had a visit from a friend, a birder from the northern state of Pennsylvania. I wanted to introduce him to the birds at Jug Bay. It was a rainy morning, and the usual group of volunteers were doing the weekly waterbird survey. As usual, I paid no attention to the “Coastal flooding alert in Pindell.” I took my friend to the observation deck so that he could give an overview of the wetlands. At first the river just looked high as we looked over to the opposite shore. But my response was shock when I looked down at the boardwalk. It was underwater! I thought we’d designed it to be above high tide. Now the pieces were beginning to fall into place. This was no longer hypothetical for me, it was real. As we walked along the railroad trail, the lapping of the water at the trail’s edge began to make the consequences of what Pati was talking about real. There was little wind that day, and yet there were places along the trail that less than an inch of rise would have covered the trail.

I began thinking should we raise the railroad trail or not? But then raising the trail will have no effect on the loss of wetlands. The major question for Jug Bay is will sea level rise contribute a net loss or gain of wetlands? In either case, there will be a loss of ecosystem services. If the wetlands lose area, then we will lose the conventional services we expect. If the wetlands expand, the increase in salinity will surely affect the biodiversity of the plant communities. What type of ecosystem services will these new wetlands provide? In any case, we will have to adapt to significant changes at Jug Bay. Perhaps, Pati’s efforts here will provide some insight into the future.

Al Tucker, President
Last year marked the first-ever forum in which scientists, resource managers, and other stakeholders working up and down the Patuxent River watershed came together to share their research, their findings, and their future ambitions for the Patuxent River. Dubbed the Patuxent River Conference and attended by 80+ local, state, and national representatives, several meaningful proceedings emerged from the event along with a think tank of dedicated individuals who continue to encourage science communities’ advancement of Patuxent River science.

Understanding that the health and future of the river requires the engagement of diverse audiences within the watershed, the second conference scheduled for Thursday, June 23, is focused on engaging those audiences involved in translating Patuxent River science into meaningful products and experiences for students, educators, and the public.

This year’s conference theme is “Exploring Environmental Education & Science Communication Along the Patuxent River.” The theme is explored through three overarching topic areas: Current Patuxent River Science, Patuxent River Education, and Science Translation & Artistic Interpretation. Currently, presentations cover a wide array of exciting topics including jump-starting citizen science programs within the river watershed, understanding the health and population levels of sea nettles in the Patuxent, an introduction to the archaeology excavation and cultural heritage stories in the region, and in-depth exploration of several flora and fauna including Monarch butterflies, invasive Phragmites, and more.

The Smithsonian Environmental Research Center (SERC) in Edgewater, MD, has generously offered to host this year’s conference. Many of the conference breakout rooms are located within the new Mathias Laboratory, Smithsonian’s most environmentally sustainable building to date, and the first Smithsonian building to achieve LEED Platinum status.

Registration is $50 and includes access to all the conference sessions and events and breakfast, lunch, and coffee breaks throughout the day.

Register today at www.paxcon.org!

Christine Gault, 2016 Jug Bay Award recipient, and Friends of Jug Bay President Al Tucker. Photo by Nora Torres.

Thank You from Former Sanctuary Director Christine Gault

Jug Bay Wetlands Sanctuary’s first Director, Christine Gault, received the Friends of Jug Bay’s 2016 Jug Bay Award, an honor that is presented each year at the Friends’ annual meeting. Christine sent the Friends the following thank-you note, which we wanted to share with our members, as we reflect on our recent 30-year anniversary:

“My award jug has finally made its way to Cape Cod (having been driven up by cousin Martha) and is now proudly sitting on the fireplace mantel. Looking at it, all the pride, joy, and gratitude that I felt at the award ceremony return. You all have done an outstanding job of nurturing the growth and development of the Sanctuary and its research, education, and policy programs for which I am very grateful.” —Christine Gault
Jug Bay Welcomes Two Research Interns This Summer

The Sanctuary will host two research interns this summer: Jorah Fawn Reinstein and Yasmine Hentati.

The daughter of a gardener, Jorah hails from the Pacific Northwest, where she worked as a gardener and nanny before moving to Maryland to pursue a master’s degree in landscape architecture. She is currently studying conservation of small wetlands along utility rights-of-way. This summer, she will be looking at the effect of targeted herbicide application, goat herbivory, fire, and disking on species diversity in meadow habitats at Jug Bay.

Yasmine just graduated from the University of Maryland, College Park with a B.S. in Environmental Science & Policy. Her concentration was in Wildlife Ecology & Management. She was very involved on campus as a tour guide, a member of the marching band, and a teaching assistant. In terms of research, Yasmine has been conducting deer management research with Howard County and is passionate about ungulate and carnivore ecology in Maryland. This summer at Jug Bay, Yasmine will be surveying deer and determining a deer population density in the Sanctuary, as well as hopefully doing some carnivore monitoring.

Staffing Changes in the Office

Farewell, Debra. The Sanctuary has bid a reluctant farewell to Debra Gage, who is moving to Columbia, SC, after four years as the Sanctuary’s Office Manager and as a staff Naturalist. Debra came to the Sanctuary with expertise in retail management and a passion for the Patuxent. It was a powerful combination. Her impact on the office was quick—“she really got us organized,” one of the former Naturalists said, rallying the staff to clean out closets and keep the place looking good. She tracked the budget and fed the fish (“retail was not as complex as Jug Bay,” Debra says). But she didn’t stop there. Before long, she began coordinating canoe and kayak programs and planning and leading trips to teach others about the rivers and wetlands of Anne Arundel County.

Debra is leaving for love, a rekindled romance with a man she dated 15 years ago. She plans to do the books for his fleet maintenance company but also hopes to find environmental work—“something more fun.” “This was the best job I’ve ever had,” she says, “just being in a natural setting and working with a fabulous group of people. And I learned so much...My favorite thing was getting out on the water. I lived in the Patuxent watershed, and the Patuxent is by far my favorite river.”

Welcome back, Judy. Our new Office Manager/Naturalist is Judy Burke, who is returning to the Jug Bay staff after 16 years away. Judy came to work at the Sanctuary first as a weekend naturalist and then as the volunteer coordinator and editor of Marsh Notes, making use of her experience as a journalist and her education in wildlife biology. She left the staff to work as a copy editor for U.S. News & World Report and then National Geographic Traveler, but she stayed involved in the Sanctuary through the Friends of Jug Bay, through volunteering, and through living onsite with her husband, Rick Malmgren. No longer commuting into Washington, DC, Judy is happy to be seeing more of old Jug Bay friends and to be meeting new ones. “I love this place,” Judy says. “I feel very lucky to be here.”

Judy Burke, the Sanctuary’s new Office Manager/Naturalist. Photo by Rick Malmgren.

Debra Gage, center of the photo, beaming after a successful Canoe Clean Up in 2013. Photo by Lindsay Hollister.

Jorah Fawn Reinstein and friend. Photo by Liz Barrowes.

Yasmine Hentati. Photo by Salma Belhaouane.
Open Hours:

Sanctuary Wetlands Center: Wednesdays, Fridays, Saturdays and Sundays, 9:00 am – 5:00 pm

Glendening Nature Preserve: Plummer House entrance, gate open 9:00 am – 5:00 pm, Monday–Saturday (trails, butterfly garden, dogs on leash)

Patuxent Wetland Park: daily, dawn to dusk (fishing, cartop boat launch)

Wootons Landing Wetland Park: daily, dawn to dusk (fishing, loop trail, cartop boat launch)

Sanctuary Wetlands Center admission fee: $6.00 per vehicle

Free for current Friends of Jug Bay members, active volunteers, and active and retired military.

There are no fees to visit our other sites.

Visit www.jugbay.org for directions, information and updates to our schedule.

Registration is required for all programs. Please call 410-741-9330 or email programs@jugbay.org to register. All programs meet at the Wetlands Center at 1361 Wrighton Road unless otherwise noted. Program fees are in addition to vehicle admittance fees. An adult must accompany children under 13.

Tails on the Trails
[Glendening Nature Preserve]
Saturday, June 25; Saturday, July 23; and Saturday, August 27, 10:00 am - 12:00 pm
Ages: All
Fee: Free
Get some good exercise and fresh air for yourself and your furry best friend by joining a Jug Bay naturalist for a doggy hike in the Glendening Preserve. Dogs must be well behaved and remain on a leash throughout the hike. One adult per dog required. Registration required: Call 410-741-9330 or e-mail programs@jugbay.org.

Guided Birdwalk
First Saturday of every month; 8:00 am - 11:00 am
Ages: 12 and older
Fee: $6 per vehicle entrance fee
Learn the skills of identifying birds by sight and sound on a guided hike with an experienced birder. Binoculars and field guides are available to borrow. 
Registration required: Call 410-741-9330 or e-mail programs@jugbay.org.

Barnside Blockbuster
Saturday, June 18; 8:30 pm - 10:30 pm
Ages: Families
Fee: Free
Come watch the original Independence Day with us in celebration of the up-and-coming release of Independence Day Resurgence. In July 4th spirit, celebrate our U.S. Independence Day and the union of cultures around the world. Registration required: Call 410-741-9330 or e-mail programs@jugbay.org.

Father’s Day Canoe
Sunday, June 19; 10:00 am - 2:00 pm
Ages: 7 and older
Fee: $20 (Active Net Activity #7244)
Discover the abundant wildlife in the Patuxent River wetlands. We’ll paddle up some of the smaller branches of the river to look for beavers, birds, and flowering wetland plants. Please arrive 15 minutes before the start time. Bring plenty of water, sunscreen, sun hat, sunglasses, a lunch, and shoes that can get wet.
Registration required through Active Net.

Pollinator Series: Butterflies
Sunday, June 26; 9:30 am - 2:30 pm
Ages: 18 and older
Fee: $15 per person (Active Net Activity #7239)
Pollinators are responsible for an enormous percentage of fruit, vegetable and nut production on our planet. However, many don’t know about the other valuable roles pollinators play, their needs and challenges, and what we can do to keep their populations healthy. Help us monitor our pollinator population as part of an effort to make vital meadow management decisions for our properties. In this series, participants will join us in our monthly collections, learn how to identify pollinators, and learn a different valuable habitat lesson for a specific pollinator group each time. Registration required through Active Net.

Sign up online for an outdoor adventure today at programs@jugbay.org!
Preschool Nature Series
Friday, July 1, 10:00 am - 11:00 am
Ages: 3-5
Fee: $2 per child (Active Net Activity #7235)
Children enjoy sensory activities and learn about nature through an interactive story, craft and hike. Explore a new topic the first Friday of each month. Extend your visit with free play at our Nature Play Space. Registration required through Active Net.

Family Stream Walk
[Glendening Nature Preserve]
Saturday, July 9, 10:00 am - 11:30 am
Ages: 8 and older
Fee: Free
Grab a net and wade in! Join Master Naturalist Mike Quinlan in exploring a local stream. Participants must wear closed-toe shoes and clothes that can get wet. Nets will be provided. Registration required: Call 410-741-9330 or e-mail programs@jugbay.org.

Free Clean Up By Canoe
Saturday, July 9, 10:00 am - 2:00 pm
Ages: 7 and older
Fee: Free
Have fun on the water and help clean up the Patuxent River. We will paddle the Patuxent River and Western Branch picking up trash along the way. Prompt start time. Bring plenty of water, sunscreen, sun hat, sunglasses, a lunch, and shoes that can get wet. Registration is required: Call 410-741-9330 or email programs@jugbay.org to check availability. Required registration form can be downloaded at http://www.jugbay.org/education/canoegroup-trips/.

Adult Evening in the Marsh Canoe
Saturday, July 23, 4:00 pm - 8:00 pm
Ages: 18 and older
Fee: $20 (Active Net Activity #7245)
Discover the abundant wildlife in the Patuxent River wetlands. Be on the lookout for secretive birds and marsh mammals. We will paddle up some of the smaller branches of the river to look for beavers, birds, and flowering wetland plants. Prompt start time. Bring plenty of water, sunscreen, sun hat, sunglasses, a dinner/snack, and shoes that can get wet. Registration required through Active Net.

National Moth Week
Moth Study and Campout
[Glendening Nature Preserve]
Saturday, July 30, 8:00 pm through Sunday, July 31, 9:00 am
Ages: 18 and older
Fee: Free
National Moth Week celebrates the beauty, life cycles, and habitats of moths. With the help of Jug Bay naturalists and moth experts, “moth-ers” of all abilities will learn about, observe, and document moths at Jug Bay Wetlands Sanctuary. Join us for some nocturnal citizen science—with the option to camp out at the Sanctuary! Campers must bring their own gear. A light breakfast will be provided on Sunday morning. Registration required: Call 410-741-9330 or e-mail programs@jugbay.org.

Evening in the Marsh Canoe
Saturday, August 13, 4:00 pm - 8:00 pm
Ages: 7 and older
Fee: $20 (Active Net Activity #7246)
Discover the abundant wildlife in the Patuxent River wetlands. Be on the lookout for secretive birds and marsh mammals. We will paddle up some of the smaller branches of the river to look for beavers, birds, and flowering wetland plants. Please arrive 15 minutes before the start time. Bring plenty of water, sunscreen, sun hat, sunglasses, a dinner/snack, and shoes that can get wet. Registration required through Active Net.

Volunteers and Friends of Jug Bay Annual Picnic
Sunday, August 14, 12:00 pm - 3:00 pm
Ages: All
Fee: Free
The Friends of Jug Bay invite active volunteers and current FOJB members to our annual picnic at the Wetlands Center. We’ll provide drinks, hamburgers, hot dogs, and all the trimmings. Following the picnic, the Jug Bay Fellows and STEM high school interns will present the results of their summer projects. Please RSVP at: http://www.friendsofjugbay.org/events.html.

Community Day on the Water
[Wootons Landing]
Saturday, August 27; 10:00 am - 2:00 pm
Ages: All
Enjoy kayaking, fishing, live animals, free snacks and more as our way of saying thank you for enjoying and appreciating the Patuxent River.

Pollinator Series: Solitary Bees
Sunday, August 7; 9:30 am - 2:30 pm
Ages: 18 and older
Fee: $15 per person (Active Net Activity #7241)
Pollinators are responsible for an enormous percentage of fruit, vegetable and nut production on our planet. However, many don’t know about the other valuable roles pollinators play, their needs and challenges, and what we can do to keep their populations healthy. Help us monitor our pollinator population as part of an effort to make vital meadow management decisions for our properties. In this series, participants will join us in our monthly collections, learn how to identify pollinators, and learn a different valuable habitat lesson for a specific pollinator group each time. Registration required through Active Net.
Open for Registration!

Camps and Other Summer Educational Opportunities

Jug Bay Wetlands Sanctuary hosts several summer camps and other summer educational opportunities for children and teens. Check the registration dates in the description below and sign up for these long-running and popular enrichment experiences.

Summer Camp

Children must be entering the grade specified for each camp. Note that camp size is limited; you will be notified of your registration for camp if a camp is filled. After registration, several forms will be sent to parents and must be completed for campers at least 7 days before the camp start date.

Camp scholarships are available from the Friends of Jug Bay. For more information, call the Sanctuary at (410) 741-9330 or email Heather Baden at rphade44@jugbay.org.

Life on the River

Monday, July 18 through Friday, July 22; 9:30 am - 3:30 pm
Ages: Entering 5th or 6th grades in fall 2016
Fee: $175 for FoJB members (Active Net Activity #7221); $200 for non-FoJB members (Active Net Activity #7222)
Catch frogs, build a fort, seine for fish, walk in a stream, paddle a canoe, and squish your toes in the marsh! Enjoy a week of outdoor summer fun along the Patuxent River at Jug Bay Wetlands Sanctuary. Campers will discover new animals and habitats every day through nature exploration, crafts, and games. Registration required through Active Net.

The Wild Life

Monday, August 1 through Friday, August 5; 9:30 am - 3:30 pm
Ages: Entering 7th or 8th grades in fall 2016
Fee: $175 for FoJB members (Active Net Activity #7223); $200 for non-FoJB members (Active Net Activity #7224)
Learn about life in the wild. Observe animals and their amazing adaptations while exploring the forest, stream, meadows, and wetlands of Jug Bay. Develop basic wilderness survival skills through fort building, cattail weaving, orienteering and more. Campers will end the week with an overnight campout on Thursday and canoe trip on Friday. Registration required through Active Net.

Explore the Patuxent: Teen Leadership Paddle

Two sessions: July 11–15 or August 8–12 (both Monday–Friday)
Ages: Entering 9th–12th grades in fall 2016
Cost: $200
($175 for FoJB members)
The Teen Leadership Paddle is a five-day (with 3 nights camping) canoeing expedition geared towards high school students. The program gives teens a chance to practice leadership and teamwork skills as they navigate the river, measure water quality, camp by the riverside, and prepare meals together. Paddlers enjoy a unique, on-the-water experience that features educational programming and builds a strong stewardship ethic for the river and its natural resources. Campers will become immersed in Patuxent River issues and explore their role in solving them. We are capping registration at 12 participants to maintain a hands-on learning environment. Applications will be taken through June or until spots are filled. Scholarships are available. Register at www.teenpaddle.weebly.com.
Call Trystan Sill at 410-260-8827 for more information.
Most of our projects require no experience, come to learn!
Vehicle admittance fee waived for volunteer events.

New online volunteer registration form: We encourage you to register online for volunteer opportunities at http://tinyurl.com/jbws-volunteer-registration. Got feedback on this tool after trying it out? Please send your suggestions to Melinda Fegler.
For more information, call 410-741-9330, or e-mail Volunteer & Stewardship Coordinator, Melinda Fegler, at rpfegl00@aacounty.org. Groups must call to arrange a separate event, unless otherwise noted.

**Butterfly Garden Stewardship**
*Glendening Nature Preserve*
**Tuesdays, June - August; 9:00 am - 12:00 pm**
*Ages: All*
Join fellow gardeners, butterfly watchers, and native plant enthusiasts in our garden maintenance group. Volunteers weed, water, prune, and otherwise maintain the Butterfly Garden at the Glendening Preserve’s Plummer House.
Bring work gloves, a snack, a refillable water bottle, hat and sunscreen, and clothes and shoes that can get dirty. Benefits of volunteering in the butterfly garden include resources for plant selection and garden design, identification experience with beneficial insects, and free plants and cuttings to take home.

**Bird Survey**
**Thursday, June 23; 7:30 am - 9:30 am**
*Ages: 12 and older*
Come and join the amazing volunteer birding team of Jug Bay Wetlands Sanctuary! The ornithological knowledge of this team makes for a phenomenal learning and collaborative experience. All of this in the beautiful early morning light of the Jug Bay wetlands on the Patuxent River.

**Volunteers Only Evening Canoe Trip**
**Friday, June 24**
*5:00 pm - 9:00 pm*
*Ages: 18 and older*
Jug Bay volunteer canoe guides and active volunteers are invited to have fun paddling the Patuxent River and Western Branch. All canoe equipment is provided. Bring sunscreen, sun hat, sunglasses, water, dinner/snack, and shoes that can get wet and muddy.

**Stream Water Chemistry**
**Friday, June 17, 9:30 am to 12:00 pm**
*(Galloway Creek)*
**Saturday, June 18, 9:30 am to 12:00 pm**
*(Two Run Branch)*
**and 1:00 pm to 2:30 pm**
*(Pindell Branch)*
**Friday, July 15, 9:30 am to 12:00 pm**
*(Galloway Creek)*
**Saturday, July 16, 9:30 am to 12:00 pm**
*(Two Run Branch)*
**and 1:00 pm to 2:30 pm**
*(Pindell Branch)*
**Friday, August 19, 9:30 am to 12:00 pm**
*(Galloway Creek)*
**Saturday, August 20, 9:30 am to 12:00 pm**
*(Two Run Branch)*
**and 1:00 pm - 2:30 pm**
*(Pindell Branch)*
Volunteers will be conducting field tests on dissolved oxygen content and other parameters. Water samples are also collected for lab analysis. New volunteers interested in assisting the study should contact Melinda Fegler, Volunteer Coordinator, at 410-741-9330.

**Clean Up By Canoe**
**Saturday, July 9; 10:00 am - 2:00 pm**
*Ages: 13 and older*
Join Jug Bay Wetlands Sanctuary for a fun time paddling and removing trash from the Patuxent River and Western Branch. We will provide all canoe equipment. Please bring sunscreen, sun hat, sunglasses, lunch/snack, and water and wear shoes that can get wet and muddy.

**Invasive Plant Removal**
**Saturday, July 9; 10:00 am - 12:00 pm**
*Ages: All*
Come help keep our trails free of invasive plants while enjoying the Sanctuary.

**Vernal Pool Monitoring**
**Saturday, June 18; Friday, June 24; Saturday, July 2; Friday, July 8; Saturday, July 16; Friday, July 22; July, April 30; Saturday, August 6; Friday, August 12; Saturday, August 20; and Friday, August 26, 10:00 am - 2:00 pm**
*Ages: 10 and older*
Fee: Free, vehicle entrance fee waived
Join our vernal pool monitoring volunteer team. We will meet at 10:00 am and hike out to assess hydrology and salamander and frog activity at each of our pools. Volunteers experience the variety of Jug Bay Wetlands Sanctuary habitats as well as those of Glendening Preserve.
Registration required: Call 410-741-9330 or e-mail rpfegl00@aacounty.org.

**Donations:**
Backpacks for field inquiries: Diane Goebbes, Sara Levin, Mike Lusby, Anne Muecke, Lee Sepulvado
Black light fixtures and bulbs for moth monitoring: Nick Iascone
Managing Jug Bay’s Meadows

We are very lucky to have a great amount of meadow habitat among the various properties managed by Jug Bay Wetlands Sanctuary. Very simply, a meadow or grassland is defined as an early successional ecosystem dominated by grass species and herbaceous flowering plants (forbs)—but there is more complexity to it than that. Meadows are important habitats for herps, birds, small mammals, and insects, but they must be managed consistently in the mid-Atlantic region or they will succeed into a woodland. Although succession is a natural sequential change in a vegetation community over time, succession ultimately reduces diversity. Without a regimen of heavy mowing, encroachment of woody plants can happen quickly. When regular mowing is not an option, it can become necessary to use herbicides and heavier mechanical removal to stop or reverse the progression of succession. One issue with heavy mowing is the disturbance it causes, which can encourage invasive plants to establish in a meadow. If left untreated for too long, invasive species can quickly take over, reducing biodiversity and making the meadow and adjacent forest edge unsuitable for wildlife. More autogenic or assisted natural recovery options include prescribed burning or prescribed grazing. Fire counter-balances the prolific growth of woody and invasive species, stops successional maturation, and resets the system to maintain meadow biodiversity. However, prescribed burning requires permits and often expensive contracting because of the risk of wildfires and poison ivy oils traveling in smoke. Prescribed grazing with livestock can be a less resource- and risk-heavy option, but it does require a certain passion for livestock and volunteers who are willing to meet the daily needs of the graze team. Still, running these treatments is not just about animal care. A critical step to developing an ecologically sound grazing prescription is establishing criteria to monitor and measure the prescription’s effectiveness. Quantitative data collected over time can reveal trends toward or away from treatment goals. Furthermore, monitoring during grazing treatments can help determine whether treatments are being applied in the appropriate season and at the most effective duration, frequency, and intensity. The Sanctuary will be integrating a protocol and a host of resources for this program of assisted natural meadow management, including our key new staff members Celeste and Ginger. We will be monitoring their work as they help us realize our meadows’ ultimate potential.

Extraordinary Organisms, continued from page 2

Spotted Turtle

The Spotted Turtle (Clemmys guttata) is a small, primarily aquatic turtle with a smooth black shell and obvious bright yellow spots on its carapace, legs, head, and tail. The number and arrangements of spots vary considerably among turtles; because of this, spot patterns can actually be used to identify individuals. Some individuals may also lack spots altogether on the carapace, but they will have the characteristic spots on the head and neck. Males can be distinguished from females by their concave plastron (bottom shell), brown eyes, and yellow beak. It is a satisfying sight to see a Spotted Turtle here at our very own wetlands sanctuary, not only because these turtles are well camouflaged when lurking in vernal pools, but also because the Spotted Turtle is included on the International Union for the Conservation of Nature (IUCN) Red List as an endangered species. After coming out of hibernation early in the spring, Spotted Turtles rely heavily on vernal pools as an important source of food. They spend considerable amounts of time in the pools feeding on amphibian eggs, invertebrates, and other food items.
Looking for an Adventure This Summer?

Find YOUR Chesapeake!

by Sasha Land, Coastal Training Program Coordinator, CBNERR-MD

Check out the National Park Service’s website Find Your Chesapeake at http://findyourchesapeake.com to plan your next adventures in your home town and around the Bay Region. The site features over 350 places to visit that are a mix of parks, heritage and living history sites, museums, water trails, lighthouses, and other places of interest. You can zero in on a choice that suits you by picking an adventure in the following categories: Places to Go, Things to Do, Trip Ideas, and Events.

I particularly like that, under the main navigation section Trip Ideas, Find Your Chesapeake allows you to search by Feature Type. In Feature Type, trip suggestions are presented in different ways: Off the Beaten Path steers you to the “hidden gems” of the region; you can travel through the eyes of a Chesapeake Insider, or you can key into your interests through the Top Places for...

An easy way to search the site based your interests and what state you want to visit is found on the Places to Go page. You can search for places to visit by specifying Topics such as biking, beach access, or swimming and then further narrow your search to the type of place and location. The site will then generate a list of the places that meet your criteria. For each place, the site provides great information about what there is to do, a map of where it is located, help in planning your visit, and other nearby places that you might want to visit too. It takes no time at all to come up with several places to explore.

My family and I decided to use the site to plan our recent adventure on a sunny weekend afternoon. We were interested in going biking in Maryland. Forty-six possible locations to go biking came up through the search, many of them either places that we would not have thought of when it comes to biking or places that we did not know about. We then switched to the map view so we could pick a place within a certain distance from our Annapolis-area home. Ultimately we decided on Adkins Arboretum as a place where we could bike in the woods, that was relatively flat for easy biking with a 4- and 6-year-old, and that was close to Tuckahoe State Park for an additional side trip. All in all, it was a successful trip and a fun day for our family. We biked, had a picnic in the woods, met some goats, and soaked up the warm spring sunshine. I look forward to using Find Your Chesapeake again for our next adventure, especially in our neighboring states, where I know far less about where to go.

Screen capture from Find Your Chesapeake website.
Save the Date

Friends of Jug Bay Picnic

Sunday, August 14
12 pm – 3 pm

See Public Programs inside for more details and to RSVP.

Spring 2016 Volunteers

Joe Acton
Blythe Alexander
Tere Baranano
Marty Barton
David Bateman
Mike Blackstone
Susan Blackstone
Dick Blass
Amy Boswell
Cynthia Bravo
Jay Breen
Sue Brockman
Peggy Brosnan
Zachary Bruce
Gordon Burton
Mary Burton
Danny Bystrak
Jeff Campbell
Karen Caruso
Alison Cawood
Alan Christian
Regan Christian
Michael Cunningham
Dave Davis
David Davis
Chad Dennis
Jennifer Dennis
The DeTolla family
Cathryn Dippo
Margie Dowsett
Kim Elliott
Alisa Elsner
Kristen Enzinger
Jennifer Figgins Rooks
Jack Filigenzi
Jean Filigenzi
Lee Fisher
Marizza Freeland
Richard Freeland
Elaine Friebele
Lynette Fullerton
Madeline Gardner
Dame Garney
Joyce Gilspi
David Gillum
Sarah Giordano
Diane Goebes
Christine Gramlich
The Gramlich family
Kathy Grow
Julie Haines
Jim Hazle
Jhana Hart
Kathryn Hart
Dacey Herman
Jean Kapusnick
Charles Kiehne
Ashley Knapp
Regina Kreger
Jack Krusberg
Dave Larrabee
The Lind family
Dave Linthicum
David Linthicum
Andrea Loudermilk
Cliff Loudermilk
Taylor Lundstrom
Chuck McClain
Rob McGeehren
Lisa McGarrie
Kevin McNamara
Pat Melville
Austen Milligan
Andrea Minot
Karen L. Moe
Dave Mozurkewich
Anne Muecke
Manfred Muecke
Jolo Mulaney
Hannah Mulvaney
Dotty Mumford
Jennifer Muro
John Norris
Susan Nugent
James Oland
Jim Oland
Verne Oland
Carolyn O’Reilly
Karyn Owens
Jan Owings
Siobhan Percey
Dave Perry
Beth Petenbrink
Meghan Petenbrink
Tom Petska
Sean Phillips
Robert Plunkett
Michael Quinlan
Dom Raino
Francine K. Rattner
Timothy Reichard
Cyndi Reynolds
Gordon Reynolds
Barbara Rucciani
Richard Rooks
Paul Samato
Doris Schmitz
Lee Sepulveda
Jamie Shepherd
Mary K. Sistik
Joan Slevett
Bob Smith
Dave Smith
Linda Smith
Brian Stanton
The Sutherin family
Chris Taylor
Sandy Teliah
Nora Terres
John Trageser
Kathleen Turk
Douglas Twigg
Vera Twigg
Peter Uimonen
Nancy VanDerveer
Charles Weddell
Larry Whyte
Sue Williams
Bob Williams III
David Williamson
Kristine Wood
Paula Wood

Volunteer Groups:
University of Maryland
DC Audubon Naturalist Society
Chesapeake Bay Trust
Boy Scouts of America
Eagle Scouts
The Harbor School of Annapolis

During the spring, volunteers logged 1038 hours.
A contribution worth over $27,435!

Thank You!