





7130 Marshy Point Road, Middle River, MD 21220 www.marshypoint.org | 410-887-2817

The Marshy Point Nature Center Council's Newsletter

June-July-August 2023

Join the Fun and be a Part of history

Daniel Dean, Research Chair

During the spring, I had the pleasure of meeting with both Patricia Samford, Ph.D and Sara Rivers-Cofield, Director and Curator of Federal Collections for the Maryland Archaeological Conservation Laboratory (MAC Lab). Marshy Point sought help with identifying items found during our archaeology project and some artifacts previously residing in the nature center. This inquiry prompted our archaeological investigation of site 18BA623, Cassandor Hamilton.



Our hypothesis was reinforced with the identification of items ranging between the early and middle-18th century through the middle of the 19th century. We have a pit, dubbed the Chevy Pit, which is still under review as a trash pit containing a Chevy truck part and other 20th-century samples.

If you were able to attend our spring festival, we had a looping slide of some of the newly identified items. Highlights of the samples included a printed underglaze refined white earthenware ca. 1800-1830, Astbury red earthenware ca. 1720-1750, British brown salt glaze stoneware ca. 1690-1775, a clay pipe stem fragment 4/64" ca. 1750-1800, a Dipt mocha refined white earthenware ca. 1780-1820, and handpainted pearlware underglaze polychrome ca. 1795-

1815. One of the identified faunal remains is a pig's tooth showing its potential diet.

There are many more artifacts which still need to be cleaned for review. Items are batched from our shovel test pits where we dig uniform holes and document the soil's strata layers until we hit a sterile area. We then continue further down to confirm our end of study. The dirt is sifted while you look to find anything involving human interaction. Keeping history and archaeology together, we are discovering the forgotten.

Not only can you enjoy the historical timelines of the families I have written about, but you can partake in the hands-on experience to bring their stories back to life with hidden clues never seen before. Get your hands dirty and join us! Our digs and artifact cleaning days are open to the public. All ages and abilities are welcome.

For more information or to register, please email us at research_chair@marshypoint.org.



Bee Basics

Bees come in all colors, shapes, and sizes here in Maryland and are champions in the pollination world. Around 400 native and non-native species make their home in our great state, working to keep our crops growing and our flowers gloriously abloom. The USDA estimates 80 percent of insect crop pollination is accomplished by bees. Such little creatures do so much work! What's their secret weapon? It's their eyesight!

The five common families of bees found in Maryland are the Adrenidae (miner bees), Apidae (honey bees, bumble bees, and allies), Halictidae (sweat bees), Megachilidae (leaf-cutter bees, mason bees, and allies), and Colletidae (plasterer bees).

Bees are insects; like all insects, they have a head, thorax, and abdomen. Donning six legs and two pairs of wings, a bee's abdomen is segmented with the female having six segments and the male seven. Bees' multi-functional antennae that allow them to feel and smell sit on their head. Only females have a stinger that is actually a modified ovipositor, or egglaying device.

Bees have two different eye types with different functions. The three smaller eyes, located in their head's center-top, are called ocelli. These little eyes have single lenses and help with bees' stability and navigation; they enable bees to judge light intensity and stay oriented. Their two compound eyes provide a 280-degree field of vision.

A bee's compound eyes are made up of thousands of tiny lenses called facets. Each of these facets takes in one small part of the insect's vision. The bee's brain then converts these signals into a mosaic-like image. Every facet is connected to a tiny tube that contains eight cells that respond to light. Each of these units, called an ommatidium, contains a lens (facet), a cone of visual cells, and pigment cells that separate it from its neighbor cells. Four of these cells respond to yellow-green light, two respond to blue light, and one responds to ultraviolet light. These lenses work together to provide a complete picture of the bee's surroundings. The bee uses its compound eyes for seeing shapes and colors and to navigate

Bees have a far higher flicker threshold, which allows them to see individual flowers while traveling at a high rate of speed, whereas humans can't. Because of this, they respond better to moving rather than stationary objects and can pollinate plants with pinpoint accuracy.

Colors that people see are based on how a pigment absorbs and reflects light. When light hits an object, some color is absorbed and some is reflected. Our eyes perceive the reflected portion as color, but we are far more limited in what colors we can see. Bees have a much broader range of color vision; they can see what we can't! In addition to a broader color spectrum, bees can also see ultraviolet light. Studies found that if deprived of ultraviolet light, bees lose interest in foraging and will remain in the hive until they are forced out by starvation and severe food shortages.

A bee's super-sight powers go much farther than seeing mere colors. A bee can also detect polarized light. Polarized light moves in one direction and is caused when air molecules from the atmosphere scatter the photons to create a "superhighway of light. A bee's amazing eyesight can scan and match the polarization patterns in the sky. What makes this such a super-cool characteristic is that bees can use polarized light to locate direction even when the sun isn't shining; they communicate the directions to their colony. By checking the pattern of polarized light in the sky, bees can easily find their way; it's a bee's version of GPS!

Many patterns on flowers are invisible to humans, but the nectar "bullseyes" are visible to bees. In a bee's world, the colors of flowers also help to target the nectar areas. In fact, some flowers—such as pansies sunflowers, and primrose—have nectar guides that can only be seen in ultraviolet light.

Bees have mandibles used for a variety of tasks from biting to sculpting pollen to digging. However, their teeth are not like human teeth. Bee mandibles or jaws, which function like human teeth, include sharp or rounded points that are used to bite, chew, carry, and protect. The number of teeth varies among the different bee species. In addition, bees have special tongues that are either long or short, depending on the shape of the flower they visit to consume nectar.

All bees need nests, and just about all bee species build their own. Miner bees select open, sunny areas to excavate a network of tunnels underground to lay their eggs. Other bees nest in holes, and many spe-

Bee Basics cont.

Bev Wall

cies take advantage pre-existing holes made by other insects to construct their nests. Some bees—such as carpenter bees—burrow into wood, as many a homeowner can attest. Most of our native bees are solitary nesters and do not share with others, while some bees are colonial, centering their complex society a around a queen.

Scientists consider bees to be a keystone species, meaning that they are so essential to our ecosystem, it will collapse without them. Not only do we love our bees for their gifts to our beautiful landscapes, but their contribution to the US economy is worth approximately 14.6 billion dollars thanks to the crops they pollinate; at least 90 commercially grown crops, such as almonds, apples, blueberries,

cherries, avocados, cucumbers, onions, and oranges, depend upon bee pollination for survival.

So, here's the buzz: bees do something remarkable every single day. Their favorite flower colors are purple, violet, and blue. "Bee" friendly—invite them into your environment instead of swatting and spraying pesticides to get rid of them. "Bee" wise these super

pollinators ed!



Tree Identification

Carl Gold

The older I get, the more interested I am in trying to identify which tree is which. Perhaps it is because of that old saw (no pun intended) "A society grows great when old men plant trees, the shade of which they know they will never sit in." Identifying trees when they have their leaves is fairly easy if you have a dichotomous key. Like a cheat code for a video game or a "you decide" children's book, a dichotomous key provides a sequence of observation steps, each offering a choice of alternatives that ultimately lead to a conclusion. If there are many trees with similar leaves, then look to branch and bark structure for identification. It can be harder to do this in winter with no leaves and you must rely on bark and branch structure.

Leafy Tree Key

- Are the leaves simple or compound? Simple leaves have a single blade attached to a stem known as a petiole. Compound leaves have multiple blades known as leaflets.
- Are the leaves alternate or opposite? This refers to the arrangement of the leaves on the twig. If they are zig zag, they are alternate. If they are directly across from one another, they are opposite.
- Are the leaves entire or toothed? Entire leaves are smooth on the edges (also known as the margin);
- Toothed leaves are serrated, or zigzagged, on the margin.

- Are the bases (bottoms) of the leaves even or uneven? Do both sides of the leaf line up symmetrically with one another or are they offset?
- Are the leaves lobed or not lobed? This refers to the actual shape of the leaf does the leaf have sections that jut out or does it have a consistent leaf edge?

Some native tree leaf examples are:

- Pawpaw—simple, alternate, entire, even, not lobed. Native Umbrella magnolias also fit all these indicators as do persimmons, sassafras, and black gum. Faced with these commonalties, dig deeper (pun intended) and examine the leaves more closely. Are they oval (persimmon) or elliptical (pawpaw), smooth or hairy (sassafras), dark (black gum), white (Sweetbay magnolia white on underside) or shiny (black gum)?
- Red Oak—simple, alternate, entire, even, lobed, and not oval. Pin, black, and scarlet oak share these characteristics.
- Eastern Redbud—simple, alternate, entire, even, not oval, and not lobed.
- American Elm—simple, alternate, toothed, uneven.

Branch and Bark Key-Deciduous Trees

In winter, reliance is focused on branch and bark.

Tree Identification

If you are in Maryland and the branches are opposite, i.e., symmetrical, you can almost always narrow your choice to maple, ash, or dogwood— MAD— (plus buckeye and horse chestnut much less commonly). If asymmetrical, you know you are looking at something else.

As the tree grows each year, it gets taller and its circumference expands. Bark must accommodate this expansion without failing its responsibility to protect the tree. Just like a yearly tree ring, a new layer of bark is created every year. The pattern of the overlapping layers of bark provides not only beauty but a way to identify the tree. Some deciduous (loses leaves in winter) native tree examples are:

- American beech—alternate branches and smooth bark.
- Ash—opposite branches, smooth bark when young, and textured when older. Unfortunately, the emerald ash borer has wiped out most of our native ash trees. When you find one, it is likely to be riddled with holes from this nonnative insect. The birds then strip away the bark to go after the borer.
- Sweet gum—alternate branches and bark in four quadrants or wings, fantastical.

• Native cherry—alternate branches, smooth bark on young trees that turns in to textured potato-chip-looking pieces that peel off.

Evergreen Trees

For native evergreen conifers, such as pine, spruce, fir and hemlock, the best identification tactic is to look at the needles and how they attach to the branches of the tree. For example:

- Eastern white pine—the green needles are in bunches of five.
- Red pine—bunches of two.
- Yellow pine—bunches of three.
- Spruce—needles are sharp and shiny, and they hang downward. The seeds are found under the scales of the cones.
- Fir—needles are similar to spruce but not as sharp or spiny; they don't hurt when you touch them.

These are just a starting point to add to your enjoyment of the woods. See you out there.

Carl R. Gold is a Maryland Master Naturalist and a Baltimore City Forestry Board certified Tree Keeper; he can be reached at cgold@carlgoldlaw.com.

Parents can find it daunting when their young

Collecting Fossils: A family adventure Reed Hellman

daughter or son starts using words like brontosaurus, triceratops, or even Cretaceous! Fortunately, the Chesapeake region has several locales where families facing "dinosaur fever" can find some hands-on paleontology.

Throughout geological time, the Chesapeake region was repeatedly inundated and exposed by oceans and inland bays. As the Earth's tectonic plates shifted and continents fragmented and collided, hundreds of layers of sediment buried the traces of uncountable billions of creatures. Today, paleontologists—both professional and amateur—hunt for those traces at several regional sites.

The Calvert Cliffs in Southern Maryland's Calvert County hold one of the world's most extensive exposures of fossils from the Miocene Era, 10 to 20 million years ago. The cliffs border the Chesapeake Bay's western shore for more than thirty miles, with bands of fossil-filled sand, clay, and marl layering the cliff's face, marking the bottoms of ancient shallow seas. The cliffs erode onto the narrow beaches, depositing relict shells, whalebone, sharks' teeth, and other traces of Miocene life.

Hunting Along the Tideline

The cliffs at Calvert Cliffs State Park, in Lusby, hold more than 600 species of fossil sharks, whales, crocodiles, fish, and supporting vertebrates and invertebrates. Strewn along the tideline, shards of prehistoric Chesapectens scallop shells mix with precursor snails and bivalves. Fragments of dense,



dark whalebone or effectivelooking sharks' tooth reward lucky and observant collectors. While you can use shovels to sift the sand for fossils, many people prefer to prowl the

Collecting Fossils: A family adventure

foreshore and shallows, prepared to quickly plunge an arm into the water to grab a Charcarodon tooth or an ancient porpoise vertebra.

The Flag Ponds Nature Park, also in Lusby, offers fossil hunting in a topography that is completely different than the Calvert Cliffs. This county park's wide expanses of Chesapeake Bay beach and foreshore, wetlands, and freshwater ponds once enclosed a sheltered harbor that supported a major "pound net" fishery. Now, a visitors' center with wildlife exhibits, a boardwalk, observation platforms and pier, and hiking trails to forested heights combine with fossil hunting to make Flag Ponds a collecting experience for the whole family.

While the beach is accessible at both parks, neither permits access to the actual cliffs. For a small cash fee, Matoaka, a cabin colony in St. Leonard, offers day use at their beach and an opportunity to approach the cliffs.

"At Matoaka, you can get in front of the cliffs and walk for miles, staying below mean high tide line," explained Paul Murdoch of Chesapeake Heritage and Paleontology Tours. "In the cliffs you can see nearly 10 million years of almost uninterrupted evolution."

Certified as a Chesapeake Bay Storyteller by the National Park Service and Maryland Department of Tourism, Murdoch leads customizable, guided fossil hunting tours at Flag Ponds Nature Park and other Calvert County sites. His two- or three-hour tours can include lunch and a tour of the Calvert Marine Museum in Solomons. The museum's exhibits serve as an excellent "primer" about life in the Chesapeake, from the prehistoric to the modern.

Where Dinosaurs Roamed

For actual dinosaurs, Dinosaur Park in Laurel preserves a rare deposit of the extinct reptiles' remains from the early Cretaceous period, about 115 million years ago. First discovered in 1858 by African American miners digging for iron ore, the open pit mine's riches range from vestiges of early flowering plants to bones and teeth of the Maryland State Dinosaur Astrodon johnstoni.

Bones from this deposit helped scientists understand and reconstruct dinosaurs' true-life appearance and diversity. Today, on scheduled Saturdays at Dinosaur Park, the public can work alongside paleontologists to help uncover the past. Hundreds of fossils discovered by visitors have been collected and cataloged.

At Westmoreland State Park, on the Potomac River in Virginia's Northern Neck, visitors can participate in fossil programs and interpretive tours along the river's eroding shoreline. Trails lead from the Visitor Center to the Potomac's shore below Horsehead Cliffs. Erosion over time has exposed the remains of porpoises, whales, and sharks from 15 million years ago.

Chesapeake fossil hunting—for child or parent can be an exciting introduction to paleontology or an opportunity to expand an existing collection. Regardless the reason for the hunt, it will surely be an education and an adventure.

For More Information

Calvert County Office of Tourism 410-535-4583 | www.Choosecalvert.com

Flag Ponds Nature Park 410-586-1477 or 535-5327

Calvert Cliffs State Park 443-975-4360 | https://dnr.maryland.gov

Chesapeake Heritage And Paleontology Tours 443-764–0767 http://www.chaptours.org

Dinosaur Park 301-627-1286 | https://www.pgparks.com

Westmoreland State Park 804-493-8821 | http://www.dcr.virginia.gov

Reed Hellman is a professional writer living. E-mail questions and comments to RHWay2Go@gmail.com.



Want to be a Citizen Scientist? Better Call Tom! David Rockland

If we'd been told a year ago we would be budding citizen scientists a year later, we would have been surprised; we didn't know what a citizen scientist did. Now things are a bit different thanks in large part to the tutelage of Dr. Tom Fisher, Professor Emeritus at Horn Point Lab, UMCES.

Our story begins with taking the Maryland Master Naturalist course to learn more about the nature around our property, land that straddles Stratton Creek and came with an old farmhouse that we bought in 2000. While our first focus was fixing up the house and putting it on the National Historic Register, we also put the land in two conservation programs with the USDA. One is forest buffer strips in two fields adjacent to Stratton Creek, which flows by the house, and the other is a wetlands restoration effort along the Mason Branch of the Tuckahoe River that receives the outflow of Stratton Creek. The property is surrounded by farm fields.



As we learned more in the Master Naturalist program, we began to wonder whether the buffer strips were making a difference when it came to farm runoff, specifically concentrations of nitrate and phosphate that eventually find their way into the Chesapeake. A call to Shore Rivers led us to Tom, our teacher and mentor. He suggested we do monthly water quality sampling at four points along the Creek, beginning where it comes into the property, and then near where it flows into Mason Branch, with a couple sites in the middle. He and his colleague Anne Gustafson also taught us how to do the sampling, loaned us some equipment, and lined us up with Chesapeake Biological Lab to analyze the water samples.

So far, we've had some initial data analyzed by the lab. A story is starting to emerge, which we hope to be able to better tell with a full year of data early next year. What is truly rewarding, however, is to begin to better understand our own land, and hopefully add a bit of data and insight into the science related to water run-off from agriculture into the Chesapeake. We'd be happy to share the data with anybody interested, such as a grad student in search of a thesis topic.

While we both shied away from careers in "real science," such as biology and chemistry, instead choosing business and news media, it has been a true pleasure to become budding citizen scientists with Tom's guidance. We'll happily share our full results once the project is complete and then move on to developing a better understanding of how the wetlands restoration we did is affecting the wildlife habitat and water quality of the Tuckahoe River's Mason Branch.

There is a lot that can be done on your own property to make the Chesapeake better. Citizen science can help you understand your impact, while contributing to greater scientific knowledge and understanding. Get involved—it's fun!!



Senior Naturalist's Report

Well, the mummichogs have emerged from the mud of the Dundee Creek, so that is a sure sign spring has finally found its way back to us in this little corner of Baltimore County. The mummichogs' awakening also brings the eastern blue birds' nesting, mayapples' flowering on the forest understory, and the grey tree frogs' trill through the sweetgum canopy.

In terms of human activities around the park, we have had some great things percolating after the equinox. We had another successful round of trail guide training in collaboration with Cromwell Valley Park. For Marshy Point's training day, we took the class out and canoed the Dundee in preparation for all of their volunteerism for canoe field trips in the spring and summer. For the first canoe trip of the year, we had wonderful weather and got to encounter treasures of the marsh before the emerging vegetation hides them for the growing season. We observed two muskrat lodges along the marsh edge and several game trails were easily identified through the mud. Overall, it was a real treat and I already look forward to the fall session of trail guide training.

Marshy Point held its annual spring festival this year; like many festivals before, it was a busy day, beloved by many who came out to enjoy the dozens of vendors, exhibitors and activities. I would like to express my gratitude to all of the staff, volunteers and community members that make events like that such a success. The thunderstorms by the end of the day did not damper the day, but it did make for an incredibly fast festival break down to say the least.

I can honestly say that this time of the year, field trip season, is most agreeable for a naturalist. Every week staff are engaging with the hundreds of children that come to the park to explore and learn about nature. Time sure flies by when you are wading in the wetlands looking for leaches and whirligigs or teaching a group how to do a pry stroke in a canoe.

This certainly looks like a promising summer at Marshy Point - I encourage you all to keep your eves on our program calendar for June, July and August. We will be leading watersports, nature study, night hikes, campfires, historical days and an engaging citizen science opportunity. Marshy Point will becoming a SAV Watch site this summer. Subaquatic vegetation, or SAV for short, is the vegetation that grows underneath the surface of the water. It can provide food and shelter for shellfish, fish, mammals, birds and helps improve overall quality of the water. Marshy Point nature center will host a free training on July 14 to become a SAV watcher and once a month in the summer, we will have SAV watch workshops. In these workshops, the group will go out in the creek to study and record the species they find for that day. This data will then be shared to Chesapeake Monitoring Cooperative for long-term monitoring and restoration efforts throughout the Chesapeake Bay. Therefore, if you cannot find me this summer, that just means I am up to my elbows in wild-celery studying some SAV.



President's Message

Dave Oshman

Thank you to everyone who came out to the Spring Festival on April 15th. Despite the poor weather forecast, we stayed dry, and more than 1000 community members came out to see us. Of course, the Spring Festival is the start to our busy season down at the Marsh. The frogs are calling, our native trees are flowering, our osprey are sitting on their eggs, we are planning our archeology digs and summer calendar, and the "crops" are starting to grow in our Community Garden plots. I hope to see you around the park this summer, taking advantage of all the awesomeness that is Marshy Point.





Marshy Point Nature Center 7130 Marshy Point Road Baltimore, MD 21220



Support Marshy Point Nature Center

Help support Marshy Point by becoming a member! Our annual memberships are valid January 1 – December 31. Membership fees vary by type, which includes individual, single senior, senior couple, and family options. Members receive special program discounts, have access to priority summer camp registration—including a \$25 discount for family membership holders—and are invited to members -only events. Membership fees support the nature center and park by funding programs, scholarships, animal care, exhibit development, trail maintenance, and more. You can begin or renew your membership on our website or by completing and returning the membership registration form; fees may be paid by check made out to MPNCC, with cash, or on our website.

Marshy Point Newsletter Staff Editor: Gerry Oshman Layout and Design: Briana Searfoss