


Jug Bay Wetlands Sanctuary

Yellow Loop Self-Guided Audio/Visual Tour
(formerly the QR Code Tour)

Click  for Audio playlist or go to
<https://jugbay.org/yellow-loop-audio-tour/>

1. Jug Bay History

The soil column sign near the
entrance to the Nature
Playspace

The sign before you shows objects that have been found beneath the soil at Jug Bay. By unearthing the objects pictured here and observing the depth where they are found, archaeologists have learned a lot about past residents of the Jug Bay area. If someone dug into the soil 2000 years from now, they might find clues to our lives, including everyday objects like plastic bottles, glass, and aluminum cans.

If the soil has not been disturbed, the deeper in the soil the artifacts are found, the older they are. The objects shown at the bottom of the sign depict tools left behind by semi-nomadic Native American tribes as far back as 10,000 years ago! Among these are projectile points (spear heads) with fluted sides, used in hunting.

Above the deepest layer, new types of tools were found. These include stone axe heads, stone bowls, and spear points used from 8,000 to 2,000 BC. As Native American populations grew, permanent villages along the Patuxent were established (see the side panel depicting Native American life corresponding to each layer).

In the next layer lay shards of pottery—a technological advance—and in fact, possibly the reason for the name Jug Bay. Around 800 AD, the Native Americans developed the bow and arrow.

One layer up, archaeologists found remnants of European settlement in the 1600s. Bits of crockery or ceramics, handmade nails, coins, buttons, and clay pipestems for smoking tobacco, give testimony to the colonists' way of life. They grew tobacco after clearing vast tracts of woodlands, which caused the Patuxent River to fill up with eroded soil.

2. A Tangle of soil, water & vegetation

The observation deck

The question is: **What do you see in front of you?**

Water: That is the **Patuxent River**. It is the only river that flows entirely within the state of Maryland. It is 110 miles from headwaters to mouth and contributes about 90% of its water to the Chesapeake Bay.

Vegetation: **A Tidal Freshwater Wetland**. A wetland is a transitional place between water and land and as such displays characteristics of both. This particular wetland experiences the influence of the tides (the water level goes up and down). Because of Jug Bay's location far upstream, the strength of freshwater coming from the Patuxent overcomes the salty water coming from the Chesapeake Bay, maintaining an essentially freshwater environment.

This wetland is a very diverse place and the home of a specialized group of plants adapted to live under the influence of water. One example is spatterdock. This is the dark-green plant with broad leaves you can see covering the grounds below. Its bright yellow flower can be seen between April to October.

All together: **An Estuary**. Also known as the place "where the river meets the sea".

3. Spicebush

Post along the trail



The shrubs along the path here have a delicious fragrance. Rub a leaf and take a whiff! Spicebush (*Lindera benzoin*) is regarded as the “forsythia of the wilds” because clusters of tiny, aromatic, greenish-yellow flowers bloom along the branches in early spring before the leaves emerge. The fruit, a 1-cm long red berry, is highly prized by birds in the fall because it is rich in lipid, or fat.

Pioneers called this plant fever bush because a strong tea made from the bark brings on a sweat, activating the immune system and expelling toxins. Native Americans used a berry infusion for coughs, colds, delayed menstruation, croup, and measles. The oil from the berries was used externally for chronic arthritis.

The caterpillar of the spicebush swallowtail butterfly feeds on the leaves of this shrub, as does the promethea silkmoth. Promethea moth cocoons, if present, can be found in the winter, resembling dead leaves still hanging from the twigs.



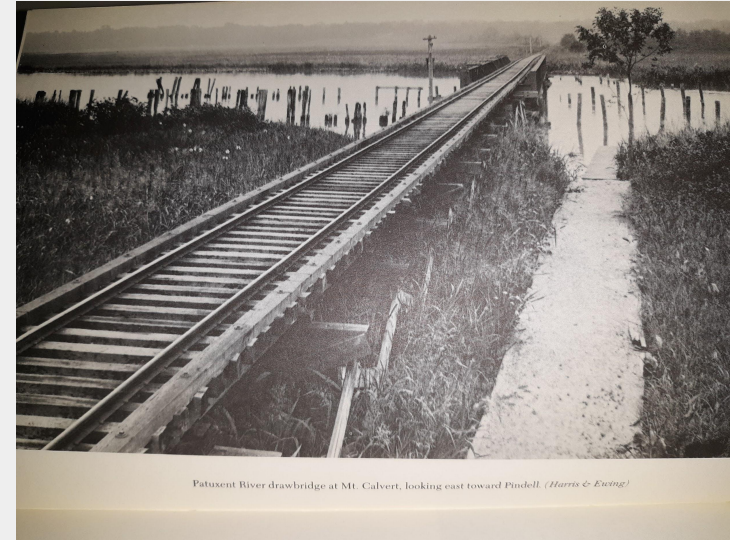
4. Railroad Bed

The sign for Railroad Bed Trail

As you walk down this railroad bed try to picture yourself back in time – how about late 1800's!

It was around 1896 when Chesapeake Beach Railroad started running the "Honeysuckle Route" which started at Seat Pleasant in Maryland, crossed the Patuxent River into what is now Jug Bay Wetlands Sanctuary, and ended in Chesapeake Beach. Its main purpose was to carry vacationers from Washington D.C. to the popular resort town of Chesapeake Beach. However, just 35 years after initial operations the entire line was abandoned.

Today from the river pier at the end of this trail you can see the pivot for the trestle, designed to allow the occasional steamboat to pass. Yes....steamboats navigated the Patuxent River, but that's another story!



Patuxent River drawbridge at Mt. Calvert, looking east toward Pindoll. (Harris & Ewing)

5. Native Ground Cover

Post along trail



Clubmoss (*Lycopodium*)

Lycopodium is the genus of clubmosses, also known as creeping cedars. We have four species documented here at Jug Bay.

Photo: http://www.thismia.com/L/Lycopodium_complanatum.html

Look down! The forest floor is composed of leaf litter, fallen trees, and ground covers. Ground covers are small plants close to the ground, such as ferns, wildflowers, weeds, mosses, mushrooms and other fungi. Though small in size, these plants are an important part of the forest ecosystem. They play a role in leaf litter decomposition and provide food to wildlife. Native ground covers, like the three pictured here, are throughout our forest. Can you find all three?



Spotted Wintergreen (*Chimaphila maculata*)

The leaves of this plant can be found year-round. Spotted wintergreen has a light-green stripe down the middle of its dark evergreen leaves.

Flowers: small, white flowers appear June - August

Photo: <http://www.ct-botanical-society.org/galleries/chimaphilamacu.html>



Beechdrops (*Epifagus virginiana*)

Look at the base of beech trees for this plant. Beechdrops are a parasitic plant. They do not have chlorophyll to make their own food. Instead, beechdrops tap into the roots of beech trees and absorb the nutrients they need to survive.

Flowering time: August – October

Click [here](#) for a great article on Beech Drops from West Virginia Department of Natural Resources.

Photo: <http://www.ct-botanical-society.org/galleries/epifagusvirg.html>

6. Swamp

Sign for swamp blind

This is called a swamp or forested wetland. Unlike marshes (also a type of wetland), they have trees and bushes. Jug Bay swamps are dominated by trees such as Red Maple, Green Ash, Sweetbay Magnolia, and Smooth Alder. Swamps are often classified by the types of trees that grow in them.

Swamps are transition areas. They are neither totally land nor totally water. At Jug Bay swamps are often found between tidal freshwater marshes and the uplands. These swamps have saturated soils but are inundated only during the highest tides.

This transition zone supports greater species diversity than the marshes or the forest. Birds such as Red-winged Blackbirds and Common Yellowthroats nest here, but they may stray some distance into the uplands or the marsh to forage.

Swamps exist in many kinds of climates and on every continent except Antarctica and they vary in size from the small ones found in Jug Bay to huge area such as the Everglades in Florida.

Swamps like other wetlands are among the most valuable ecosystems on Earth. They act like giant sponges or reservoirs. When heavy rains cause flooding, swamps absorb excess water, moderating the effects of flooding. Swamps also protect coastal areas from storm surges that can wash away fragile coastline. The swamp ecosystem also acts as a water treatment plant, filtering wastes and purifying water naturally.

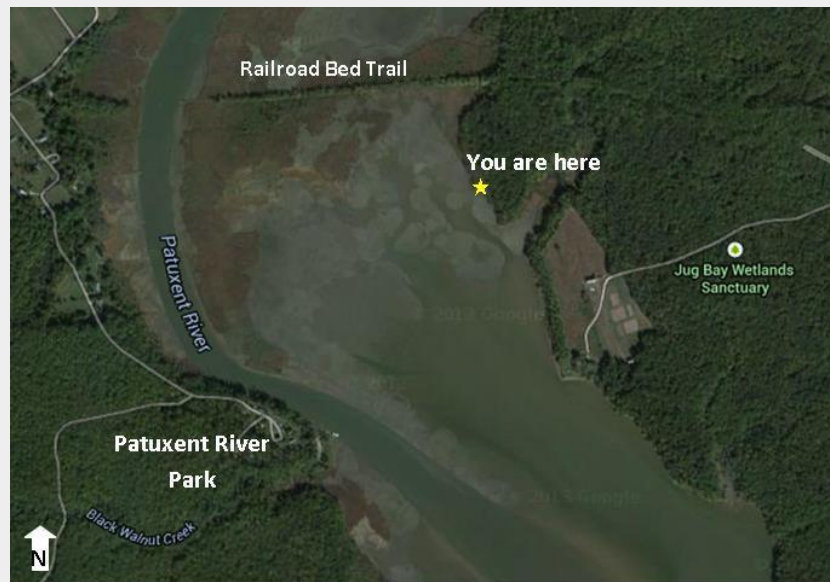
7. What Do You See?

Inside swamp blind

Welcome to Swamp Blind. Take a moment to sit and enjoy this quiet view. You are “blind” to the wildlife when inside this small structure, allowing you to comfortably observe wildlife. The thick wetland vegetation and distance from the river’s main channel make this a great location to watch waterfowl.

As you look across the river, you will notice a white building on the hill. You are looking at the Jug Bay Natural Area, headquarters of Patuxent River Park, a Maryland-National Capital Park and Planning Commission site in Southern Prince George’s County. This stretch of river is protected on both sides by county park land.

[Click here to learn about Patuxent River Park.](#)



8. Creek Meets the River

Bench on Otter Point Boardwalk



Spatterdock (*Nuphar lutea*) is a common wetland plant of Jug Bay found in the low marsh.

You are standing where Two Run Creek meets the Patuxent River. Look to your left and you will see the forest through which the creek winds and flows to this point. The Patuxent River continues 42 miles south of here to connect to the Chesapeake Bay. Our actions here impact the Chesapeake Bay because of the waterways that connect us.

We are in the Chesapeake Bay Watershed. A watershed is an area of land that drains into a body of water. The Chesapeake Bay Watershed spans more than 64,000 square miles. It encompasses parts of six states- Delaware, Maryland, New York, Pennsylvania, Virginia and West Virginia- as well as the District of Columbia. 18 million people live in the Chesapeake Bay watershed. We are all connected by our waterways.

[Click here to learn more about the Chesapeake Bay Watershed.](#)



9. Beaver Pond

Post at the beaver dam

Beavers build a habitat for themselves, but that habitat provides a lot of positive environmental benefits for us. The next time you see a stream dammed up or a tree cut by a beaver, think about all the good things that will come of it:

- Beaver ponds help with droughts. They provide storage for rainwater, which is gradually released through dry periods.
- The pond slows stormwater down, reducing erosion and allowing sediment to settle out.
- Beaver dams, which are often 5 feet thick, act as natural filters that keep sediment from flowing downstream and into the river.
- Beaver ponds act as natural wetlands. The plants and bacteria in this wetland absorb fertilizers from farm runoff and other sources. Bacteria in the cellulose-rich bottom of a beaver dam metabolize and decompose pesticides and toxins.
- The pond also neutralizes acidity in the water.
- Beaver ponds even have a positive effect on climate change because they store a lot of carbon.



The beavers' lodge, resembling a cone-shaped pile of branches, can be seen just upstream of the dam. Beavers enter the lodge through an underwater opening, then emerge into the protected interior where a whole family (as many as four adults and six or eight juveniles) sleeps through the day.

10. Beaver Pond Habitat

Railing of beaver pond viewing
deck

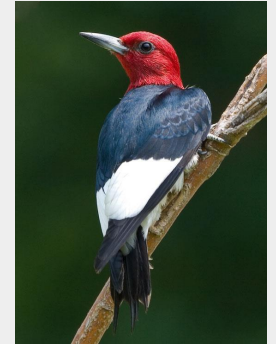
Nature's engineer, the beaver, is a remarkable creature. They are the only animal, besides humans, that can alter the landscape on a large scale. Their lodge and dam building skills are legendary, but what about the destruction of all those trees? Yes, trees are gnawed down for building and for food. But, a lot of the tree stumps resprout, and the habitat value of beaver ponds make them wildlife hotspots.

The Two Run Branch beaver pond has been active for over 20 years. In that time, a wide variety of animals have been observed.

In the spring and summer you can hear up to eight different species of frogs & toads singing.

Turtles bask on fallen logs. Fish, insects, and muskrats cruise the water. Ducks and geese feed in the shallows, and cavity nesting birds such as Red-headed Woodpecker and Tree Swallow visit seasonally.

Recently, volunteers watched a Gray Fox swim through the pond and walk right across the dam. Enjoy!



11. Monitoring Migratory Birds

Post along the trail

This space is used by Jug Bay volunteers to set a mist net. Mist nets are used by ornithologists to capture wild birds for banding or research purposes. Mist nets are typically made of nylon mesh suspended between two poles. When properly deployed, the nets are virtually invisible.

Since 1990, every summer during the breeding season volunteers have erected mist nets in this and 13 other locations within the Sanctuary to capture songbirds. Each bird captured is identified to species and its age and sex determined. The purpose of this long-term study is to monitor avian productivity (number of birds born during the breeding season) and survivorship (how long an individual bird lives).

Since the study started, volunteers have banded 2,877 birds of 64 different species. The top three species captured are Wood thrush, Red-eyed vireo, and Acadian flycatcher.

In 2013 a Red-eyed vireo banded in 2003 was recaptured, setting a new North American longevity record of 10 years 11 months for this species!



Wood thrush



Red-eyed vireo



Acadian
flycatcher

12. Persimmon Tree

Post on trail, very near last stop



Trees can be hard to tell apart if you don't know what to look for. Location, tree shape, bark, leaves and twigs all give us clues though. The dark, rectangular blocks on the trunk of a persimmon are distinctive, and this tree is worth getting to know.

The Common Persimmon, *Diospyros virginiana*, is a member of the Ebony family. The word "persimmon" comes from the Native American tribe Algonquins. The genus name comes from the Greek dios and pyros meaning divine fruit, or fruit of Zeus. In September and October their "divine fruits" are ripening. If you encounter a persimmon tree at just the right time, you might find their delicious golf ball sized, orange fruits ready to eat.

The uses for Common Persimmon don't stop there either. Historically, Native Americans made persimmon bread and stored the dried fruit like prunes. Unripe fruit and inner bark have been used in the treatment of some ailments. Today, the dried, roasted, ground seeds can be used as a substitute for coffee. The fruits are used in many types of dessert. Persimmon leaves can be used to make teas. And, the hardness and shock resistance of the wood make it ideal for golf club heads, billiard cues, weaving shuttles, and shoe lasts.

Animals depend on persimmons too. Bees make honey using nectar collected from the flowers. Leaves and twigs are eaten in fall and winter by White-tailed Deer. The fruit is eaten by everything from songbirds to turkeys and dogs to deer.

Enjoy this amazing tree, and consider planting it at home or in your community!

13. Two Run Creek

Top of steps that lead along the
creek

This small creek is called Two Run Branch – one of three streams that flow through the Sanctuary and into the Patuxent River. Two Run Branch is about 2.5 miles long from headwaters near Route 4 to the mouth at the Patuxent. The watershed is composed mostly of forest, residential land, and agriculture fields.

Despite its small size this creek harbors a lot of life: fish, crayfish, salamanders, aquatic insects and queen snakes. We have identified 25 species of fish and 15 families of aquatic insects. Songbirds, herons, and raccoons feed in the creek and on shore. A beaver pond near the mouth supports muskrats, wood ducks, painted turtles and frogs. Bald eagles nest on tall trees over the water.

Presently, Two Run Branch suffers from an overload of sediments and nutrients. Sediments (silt and clay) make the water murky and smother aquatic plants. Nutrients from septic tanks and agriculture fields can cause over enrichment of the water.

For over two decades Sanctuary volunteers and staff have assessed the health of this stream by collecting water samples, and by monitoring fish and aquatic insect populations. Our studies reveal that Two Run ranks Fair to Good when compared with other county streams.

If you would like to learn more about streams and our monitoring effort please visit our website at www.JugBay.org

14. Deer Exclosures

Post along trail

You are looking at a deer exclosure – why do we have these in the Sanctuary?

Well, for about two decades the woods within the Sanctuary have been suffering from the overbrowsing of white-tailed deer. The seedlings and saplings (young trees) of hardwood such as oak, hickory and red maple are scarce. Spring wildflowers are also becoming rare. A deer browse line is evident in many areas of the Sanctuary.

Wildlife ecologists have identified deer browsing as the major cause of this loss of natural diversity and subsequent damage to our forests. Hundreds of acres of forest at Jug Bay are now severely damaged by deer. Forest damage is occurring throughout eastern North America and within every park in Anne Arundel County.

Our approach to restore the forests at Jug Bay is to manage the deer population. In 2008 the Anne Arundel County Council voted unanimously to approve deer management in County parks, and Jug Bay was the first site to implement it, starting in 2010.

This and other deer exclosures are helping us to keep deer away from these small areas to observe through time what's able to grow without deer disturbance and to evaluate the value of deer control on the restoration of our forests.



15. Bringing Nature Home

The bird feeders near the
parking lot



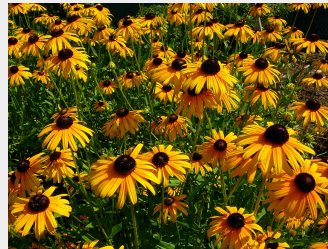
Monarch butterflies

Do you like seeing songbirds or butterflies in your yard? Choosing plants that grow naturally in this area, native species, is a great way to encourage beneficial wildlife to visit. Maybe you know about monarchs and milkweed—adult monarch butterflies only lay their eggs on milkweed plants—their caterpillar babies cannot eat any other types of plants.

There are many other benefits to native plant gardening as well. Since the plants are already in the area they are found naturally, they can tolerate wet years and dry years better with little or no intervention. Many native shrubs, like this bayberry grove, produce beautiful berries that birds can eat. And wildflowers, like these Black-eyed Susans are critical to supporting pollinating insects.

As entomologist Doug Tallamy said in his ground-breaking book, *Bringing Nature Home*, “It is now within the power of individual gardeners to do something that we all dream of doing: to ‘make a difference.’ In this case, ‘the difference’ will be the future of biodiversity, to the native plants and animals of North America and the ecosystems that maintain them.”

Check out the fantastic [U.S. Fish & Wildlife Service’s Chesapeake Native Plant guide](#) for more information.



Black-eyed Susans



Bayberry shrub