

# The Blackwater River Watershed

This park is situated on a unique piece of Virginia's landscape in the Blackwater River watershed, located in the northern half of the Chowan River Basin. The Blackwater River flows through southern Virginia on its way to join the Chowan River just past the North Carolina border. These rivers flow into the Albemarle Sound estuary that borders the Outer Banks and mixes with the Pamlico Sound.

## What is a Watershed?

An area of land area that "sheds" rainfall and snow-melt into particular streams, creeks and rivers. Gravity helps guide the water flow from smaller bodies of water to large ones.

## Blackwater River Watershed Facts

- 90,807 Acres in size.
- About 63.5% is forested
- Roughly 36.5% has been converted into agricultural land and urban development<sup>1</sup>.

In the map of the Blackwater River Watershed, you can see the various "swamps" starting in Prince George and Surry counties that provide the headwaters for the Blackwater River. These wetland-riverine headwaters are slow flowing aquatic systems that contribute to the uniqueness of the Blackwater Swamps.

The map of the Chowan Watershed shows how extensive the Chowan River Basin is. Historically, these rivers were major transportation channels and trade routes for Indigenous Americans, and Colonial settlers. Like its sister rivers, the Chowan River remains an important part of Virginia's history and geography.

## Did you know?

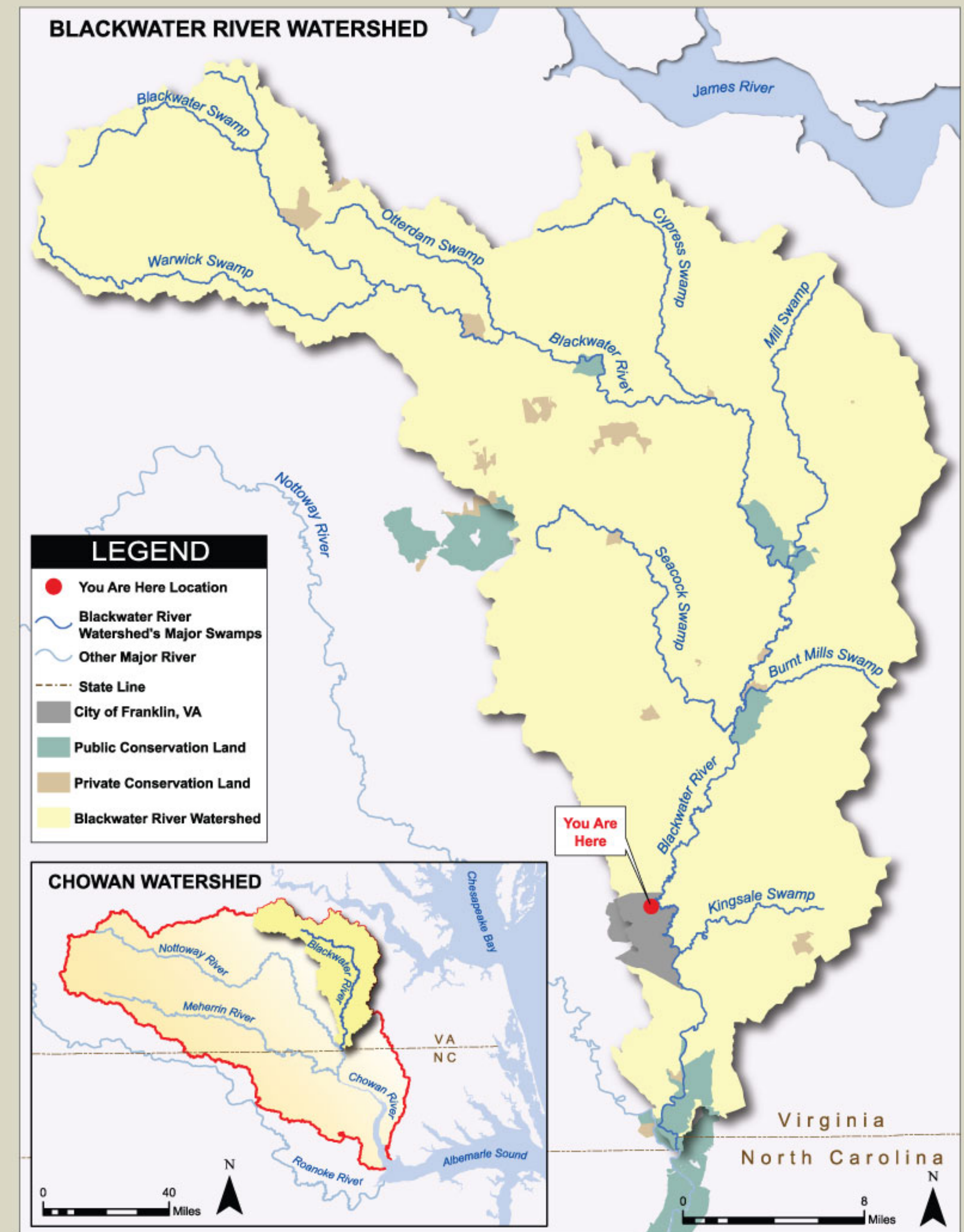
The average depth of the Blackwater River near this park is 3.25-5.25 feet<sup>2</sup>.

In September 1999, hurricane Floyd caused the river to rise to 26.27 feet<sup>3</sup> in the City of Franklin.

<sup>1</sup> data taken from [www.deq.virginia.gov](http://www.deq.virginia.gov) "Non-point Source Success Story"

<sup>2</sup> data taken from [water.weather.gov](http://water.weather.gov)

<sup>3</sup> data taken from [www.franklinva.com](http://www.franklinva.com) "City of Franklin, Historical Floods"



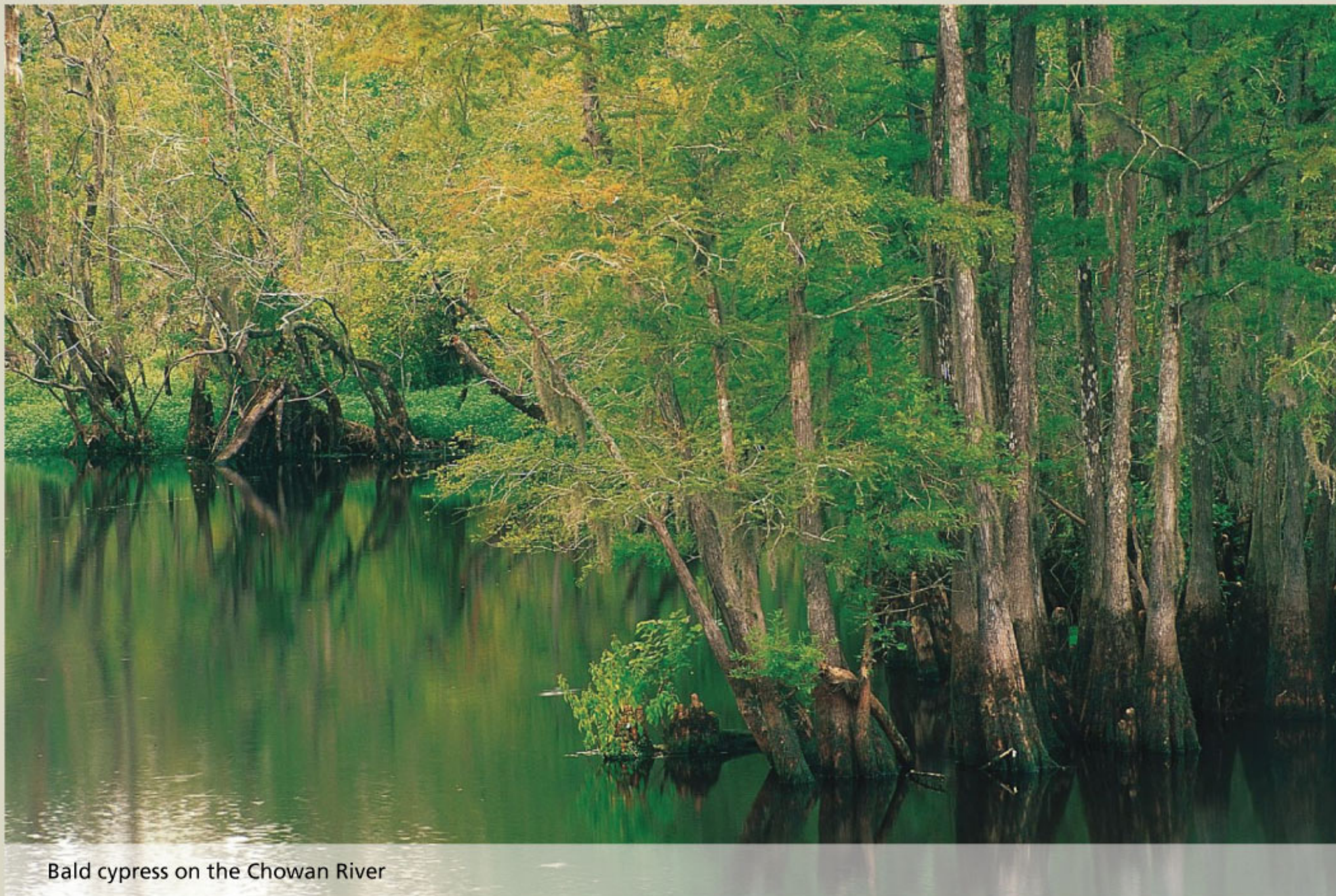
Every body of water has a watershed. Large watersheds can encompass many smaller watersheds. The Blackwater River Watershed is a sub-watershed of the Chowan Watershed.



# What is Blackwater?

Blackwater is more than just the name of the river. Blackwater is a term used to describe the slow moving, acidic waterways like the Blackwater River. They can be found all over the world from Brazil, to Australia, and all over the Southeastern United States.

As water is slowed down when it passes through these lush forested areas, the decaying vegetation colors the water a deep transparent brown as it leeches tannins (a chemical compound found in the bark and leaves of trees). This color, resembling black tea, is why rivers like this one are considered blackwater rivers.



Bald cypress on the Chowan River



For more information on the blackwater rivers in this region, scan the QR code.

QR code leads to [conservationgateway.org](https://conservationgateway.org) fact sheet

Due to the composition of the blackwater as well as frequent flooding, only certain plant communities can thrive here. The bald cypress and water tupelo forests dominate these areas due to their ability to survive in these unique conditions. This biological relationship makes these areas an important part of Virginia's natural landscape.



Bald cypress



Water tupelo



The image above shows the contrast between sand and shores and the blackwater of the Amazon River in Brazil



# Welcome to the Boardwalk

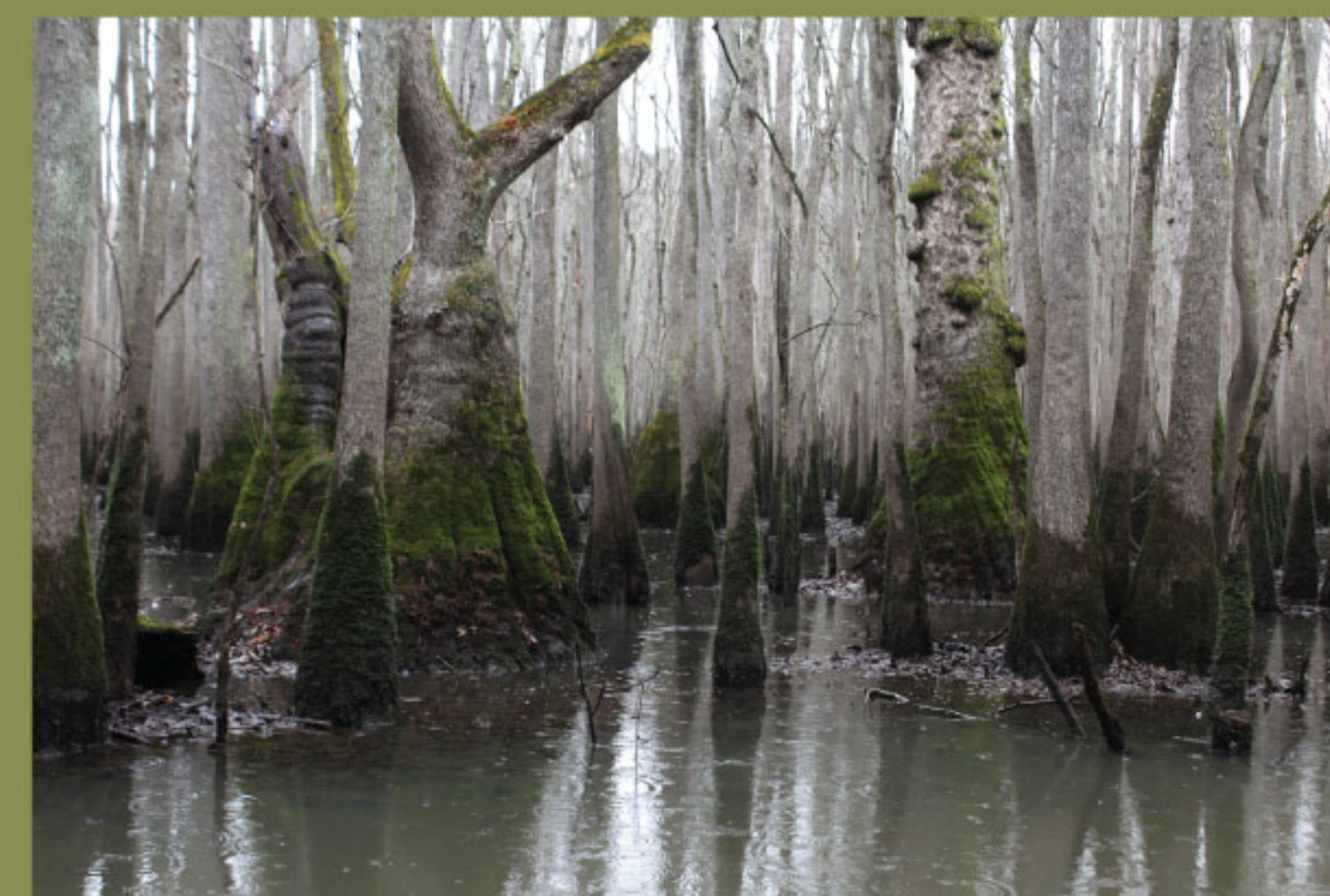


Ahead of you lies a narrow boardwalk winding its way through a blackwater swamp out to Turkey Island. The journey along this boardwalk and around parts of Turkey Island allows you to experience the swamp from within, while also keeping your feet dry. Enjoy the view of the wetland trees with their towering canopy overhead. Listen to the abundant bird life calling throughout the swamp. Notice how the light diminishes out further in the swamp making it hard to tell distances.

It was no small feat installing the boardwalk. As you can see, the machine installing the support posts had inches of room on either side. The operator had to move carefully as he transited the boardwalk since it is only 4 inches wider than the tracks on the excavator. The boardwalk supports the 6,500 lb machine from beginning to end.

## Leave No Trace

- **"Leave no trace"** means to leave an area exactly how you found it, so everyone can enjoy it just like you!
- **Please stay on the trail** for your own safety and the health of the ecosystem. The water depth is highly variable due to the topography. Feet can sink in the mud.
- **Don't litter!** Take your trash with you and dispose of it properly.
- **Take nothing but pictures.** This means even if you find a really cool rock, nest or plant, leave it so others can see it too.
- **Leave wildlife alone.** This is a protected natural ecosystem and home to many wild animals.



## What might you see while hiking here?



Birds



Plants



Invertebrates



Amphibians



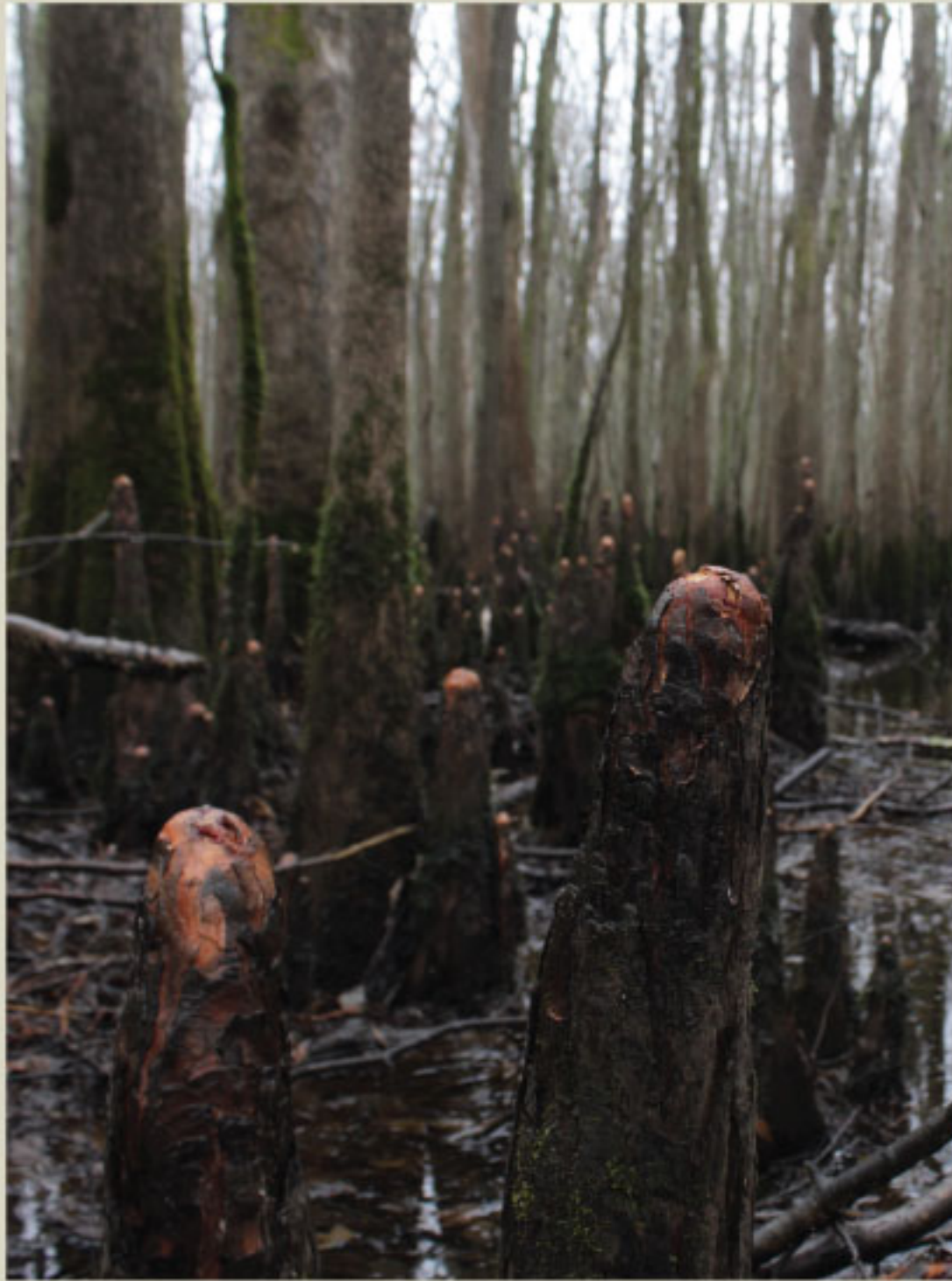
Reptiles



Small Mammals



# Cypress Knees



The bald cypress swamps on the Blackwater River are a beautiful feature unique to Virginia's waterways. Looking out from the boardwalk you may see the "knees" of the bald cypress sticking out of the water. Despite decades of study, scientists still haven't figured out exactly what purpose these "knees" serve, but they have some ideas. It's hypothesized that the "knees" may be used for reaching oxygen above the deep waters, releasing gases trapped under the mud, or possibly to help support the weight of their massive trunks.



This knee field is located in Blackwater Park.

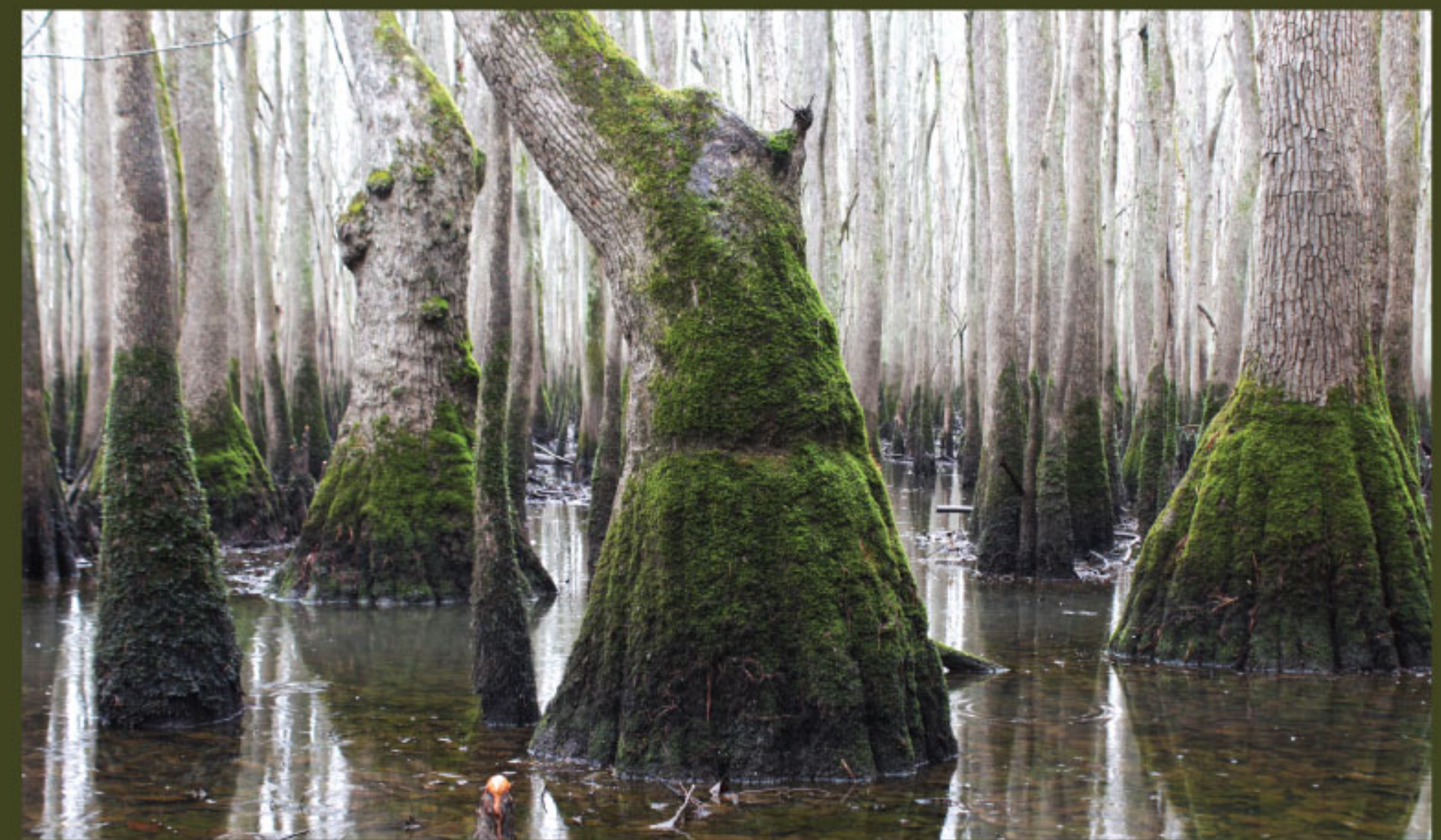
What do you think the "knees" might be for?

## and Buttresses

Have you noticed the flared bases of both the bald cypress and water tupelo trunks? These flared trunks are called buttresses. Much like how the buttresses of a cathedral support the massive infrastructure of stained glass and stone work, the buttresses of these beautiful trees support their massive, heavy trunks in the midst of unstable soils and frequent flooding. Buttresses are thought to be developed as a response to fluctuating hydrological conditions. Periods of prolonged flooding may cause the tree to form larger buttresses to support itself in weakened soil conditions.



To learn more about the Bald cypress knees and its history of curiosity and documented research, scan the QR code.



Unlike the uniform buttresses of a cathedral, each of these buttresses are formed under the unique circumstances of each tree. You may see twisted or fluted forms, or this one with its distinct band, perhaps indicating that something, or someone used it as an anchoring point.



# Dominant and Similar

The bald cypress and the water tupelo are the dominant tree species within the Blackwater River swamps. These types of forests are present throughout Virginia's Coastal Plains and play an important role in our environment by providing rich habitat for fish and wildlife as well as erosion and flood control. Bald cypress and water tupelo share this environment as well as some similar physical characteristics, such as the unique buttresses at the base of each tree. Due to their stout bases and resilience to the tannin rich swamp water, these two trees thrive where most trees cannot.

## Water Tupelo

The Water tupelo (*nyssa aquatica*) is a deciduous broad-leaf tree, meaning that they will drop their wide flat leaves in the fall. They produce small fruits called drupes that turn purple when ripe. These fruits often persist into the winter providing a tasty snack for birds and animals through cold

### Leaves



Water tupelo leaves are oval shaped and glossy.

### Fruit



Fruit are oblong and up to 1 1/2 inches long

### Bark



Scaly ridges and long fissures running up and down the trunk.

## Bald Cypress

Bald cypress (*taxodium mucronatum*) trees are deciduous conifers, meaning that they lose their needle-like leaves. While many conifers are evergreen, bald cypress turn tan to fiery orange and shed their leaves in the fall. In fact, they get the name "bald" cypress because they drop their leaves so early in the season.

With a trunk three to six feet in diameter and typical height of 100-120', bald cypresses are frequently referred to as giants. They often live as long as 600 years (145' is the Virginia record).

### Bark



The bark on the bald cypress is grayish brown and often peels away from the trunk.

### Fruit



Bald cypress "nuts" are green in early autumn, but become woody late in the season.

### Leaves

The soft bald cypress leaves almost look like they belong to an evergreen.



Bald cypress



Water tupelo

Scan the QR codes to learn more about the Bald cypress and Water-tupelo that make this area so special.



# Remnants of the Past

Out across the swamp you can see old cut stumps and standing dead trees. Over the centuries these wetlands have been subjected to expansive forestry operations. Almost all of Virginia's bald cypress/water tupelo forests have been destroyed at some point in time. One of the only old growth bald cypress forests in Virginia was discovered in 2005 in Southampton County. Only 10 miles from this park, Cypress Ridge Swamp contains trees estimated to be more than 1000 years old. The great trees here in the Blackwater Park are now protected from timber harvest for ecosystem benefits. It is a place for nature to flourish.

Foresters would select the large trees, cut them down, and float them out on flood waters. The photos here are from cypress logging operations in Louisiana in the late 1800's. These methods were used throughout the Southeast to extensively harvest bald cypress and water tupelo.



Sawyer teams would typically cut cypress and tupelo above the buttresses visible throughout the swamp.



The water tupelo has really strange growth forms, using dead stumps as a type of nurse log. This results in trees growing up from hollow bases or multi-stemmed trees out of one dead base. The photo above is of a water tupelo in this swamp that formed new stems from a dying base. The old tree has completely rotted out and disappeared. Cypress knees now grow up in the middle where a large mature tree once grew.



Look, the trees  
are turning  
their own bodies  
into pillars

of light,  
are giving off the rich  
fragrance of cinnamon  
and fulfillment,

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An excerpt from Mary Oliver's  
"In Blackwater Woods"



This image is a painting that appeared in an article in the January 31st, 1890, issue of *Science Magazine*, detailing the research of Robert H. Lamborn and his fascination with the bald cypress knees. The painting details the denuded knees of the cypress, showcasing their extensive and tangled structure.

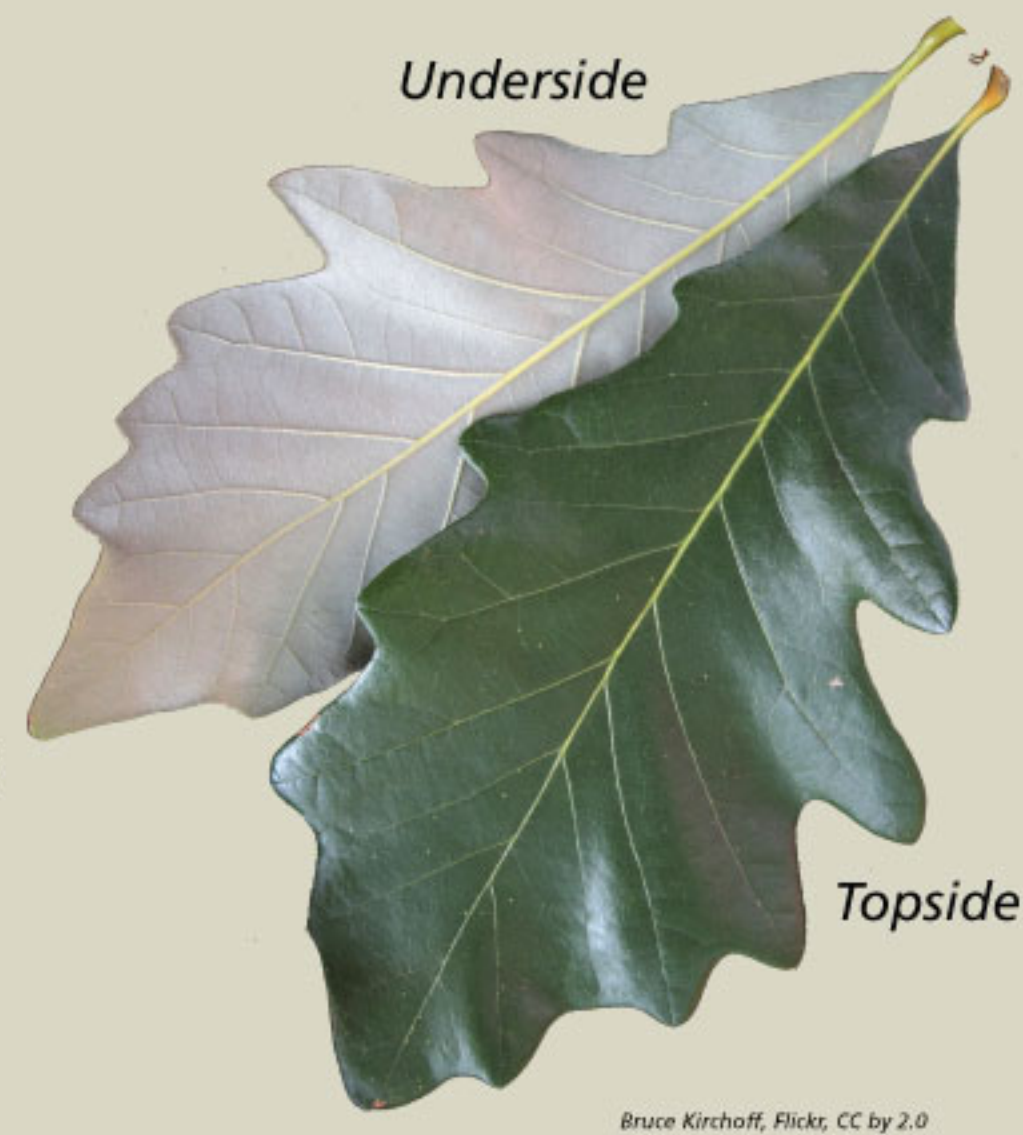
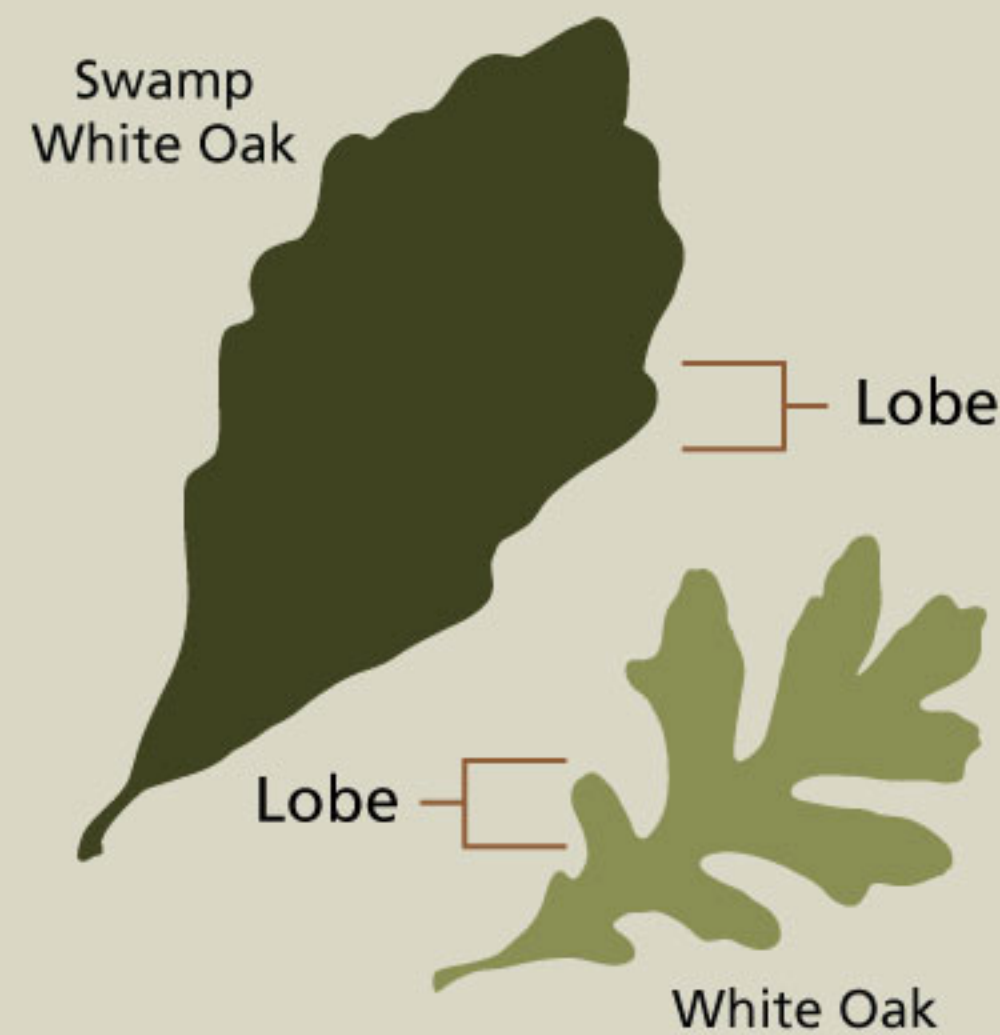


# Swamp White Oak

The swamp white oak (*quercus bicolor*) growing here is the only one along the boardwalk. It is growing on a small rise of land called a "hummock". Small elevation changes, like this hummock, are called micro-topography, and allows for shallower floods and more

## Identification

### Leaves



The top of the swamp white oak leaves are shiny and the undersides are a much lighter color.

Swamp white oak leaves have shallow lobes compared to other oak species, like the common upland white oak.



Scan the QR code to learn more about the swamp white oak.

### Fruit



Swamp white oak acorns are round and have spiked caps. Have you seen any acorns that look like this?

### Bark



While leaves are usually the quickest way to identify a tree, you can also find clues in other places. Swamp white oak trees have scaly bark that can flake away.



This swamp white oak has its roots perched atop a dead cypress stump. The draping roots provide stability and drink up the swampy water. This photo was taken in another portion of the park. Have you seen this tree?



# Water's Edge

As you get to the end of the boardwalk, look at the way the land now rises back up from out of the swamp onto Turkey Island. The vegetation transitions from an open-water system to a dryer upland forest. You can see the cypress knees diminish in number and height as the bank progresses up from the water. Notice the stains of the black water on the pine needles and leaves lying on the forest floor. You might be able to see the debris washed up from the most recent flooding.



Transitional habitats like this slope are just as important as the swamp behind you, and the forest ahead, providing niche habitats for a range of creatures like crawdads, who like the intermittent flooding this area experiences. Ahead of you, on Turkey Island, lies a totally different vegetation community and ecosystem.



Nature provides a beautiful display of perspective and gradient at the transition zone.

## Crawdads



Crawdads (*palinuridae*) are known by many names: crayfish, freshwater lobsters, and mudbugs, just to name a few. These freshwater crustaceans can be found in rivers, lakes, ponds, streams, and swamps across the United States. There are more than 330 species in the Southeastern United States alone!



Crawdads have very similar bodies to lobsters: they have two front claws, eight legs, a tail for swimming, and gills to breathe underwater. They come in a variety of colors that tend to reflect their habitats. This helps them camouflage and stay safe.



# Take Care

While walking a boardwalk across an incredible place such as this cypress swamp, it is easy to forget that these are naturally wild places. Native Virginia wildlife freely roams these ecosystems with few interactions with humans. Please be mindful that we aim to preserve all facets of the environment that exist here, including wildlife. Take as many photos as you'd like of any wildlife you encounter, but take care by keeping safe distances, and refrain from disturbing them. Please respect the park and its visitor infrastructure. Be considerate of other park visitors around you and enjoy all that nature has to offer.

## NOTICE

TICKS MAY BE FOUND IN THIS AREA

- Check often for ticks and remove immediately
- Some ticks may transmit disease



Scan the QR code to learn more about identifying Cottonmouths from northern brown watersnakes.

QR code leads to Virginia Herpetological Society fact sheet.

## What might you see here?



Cottonmouth (*agkistrodon piscivorus*)

Can you see where the snake gets its name from? Cottonmouth will typically hold their jaws agape when threatened to scare off predators. Its triangular head, vertical pupils, and thick heavy body differentiate it from the northern brown watersnake.



Northern brown watersnake (*nerodia sipedon*)

The non-venomous northern brown watersnake is commonly mistook for a cottonmouth. Defining features such as slender head shape, round pupils, and slender bodies, set them apart from the cottonmouth.

Cottonmouths or water moccasins, a native venomous snake, are usually misunderstood to be aggressive or to chase after humans. They typically only react aggressively if they are stepped on or are being threatened. They tend to be quite timid and have no interest in interacting with you.



Snapping turtle (*chelydra serpentina*)

Snapping turtles have incredibly powerful jaws. They become temperamental when out of water. If you see one on the shore, leave it alone.



# Welcome to Turkey Island

In the midst of the beautiful Blackwater Swamp, upland islands like Turkey Island provide dry ground for a different plant and wildlife community to exist. This dry land has abundant trees with a fully closed forest canopy overhead. The largest trees are loblolly pine and pin oak, with some American beech found in other parts of the island. The forest contains many understory trees such as red maple, ironwood, and American holly and very few shrubs and herbaceous plants.

The land is relatively flat and at a slightly higher elevation than the Blackwater River and swamp. Areas like this park, containing both swamp and upland island, protect a greater amount of biodiversity as upland and wetland species co-mingle here.



Eastern wild turkey (*meleagris gallopavo silvestris*)

While not rare or unusual, the turkey plays an important role in maintaining the biodiversity and health of this park.

## Look for Clues!

Animals often leave behind clues, called "signs", that let you know when they've been nearby.



Scat (poop)



Feathers or fur



Footprints or tracks



Blood



Chews, or things that have been eaten



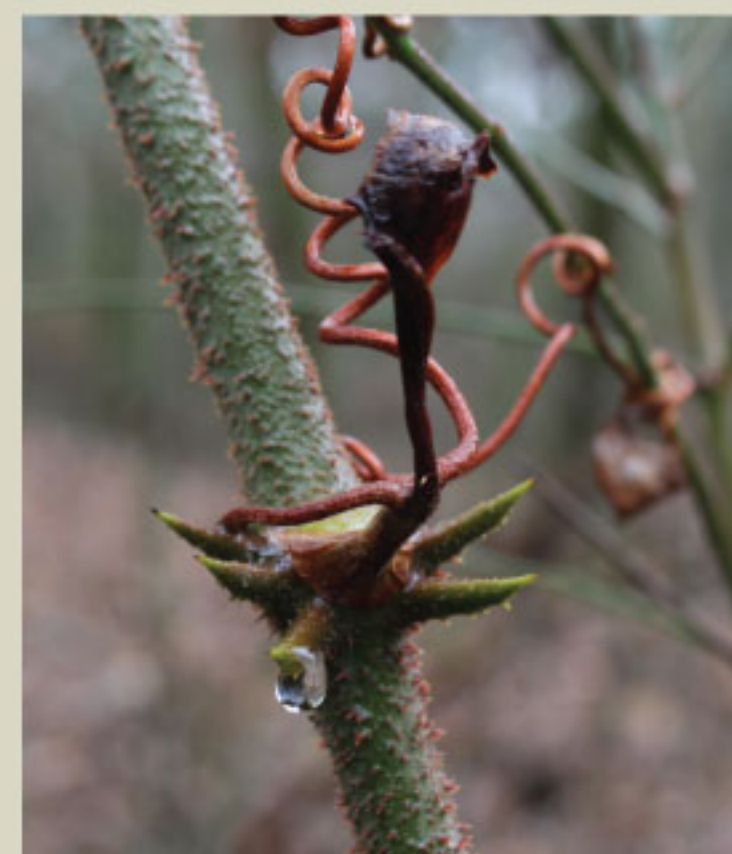
Nests or places where animals rest

What do you think might have left this chew here on Turkey Island?



American beaver (*castor canadensis*)

## What might you see here?



Laurel greenbriar (*smilax laurifolia*)

Laurel greenbriar only grows in the coastal floodplains of Virginia and exists here on Turkey Island. Its striking features are quite sinister.

In addition to the plant biodiversity, this land is used by all kinds of wildlife. The Blackwater Park and surrounding areas support several federally and state endangered and threatened wildlife species. The pileated woodpecker and the peregrine falcon frequent areas surrounding the northern portion of the Blackwater River. Preserving areas like the Blackwater Park, provides more suitable and stable environments for nesting and migration.



Peregrine falcon (*falco peregrinus*)



Pileated woodpecker (*dryocopus pileatus*)



# Island Loblolly Pines

Venturing onto Turkey Island, you may have noticed the small pine trees growing near the boardwalk entrance. Those loblolly pines (*pinus taeda*) were planted as part of a sustainable forestry program. However, they pale in comparison to the majestic loblolly pines of Turkey Island. These massive loblolly pines have existed here on this island for nearly 200 years and are reaching heights of 170-200 feet.

## Leaves

Loblolly pines have needles for leaves. Their needles are in bunches of three.

## Cones

Loblolly cones are dry and oval shaped, usually between 3" and 6" long.

## Bark

The deeply furrowed, dark brown plates of bark on mature Loblolly pines can be up to 2" thick.



This forest canopy is quite unlike the canopy of planted pine forests. This means that the loblollies here on Turkey Island have developed a much more rounded crown that fills the gaps of the surrounding canopy. The planted pines uphill will retain more of their conical shape.

Because these trees have been growing as a part of this naturally regenerated forest, they take on some different appearances than those grown in the upland plantations. Growing in the midst of slower growing trees and shrubs, pines like these have the chance to grow fast and tall with little competition from the trees that could possibly shade them out. As the understory matures, the large pine fits itself into the developed hardwood canopy.





# Pin Oak Habitat

As the ground drops slightly in elevation, the composition of the forest shift from loblolly pines to pin oaks. This slight drop in elevation, called micro-topography, results in more frequent flooding of that area.

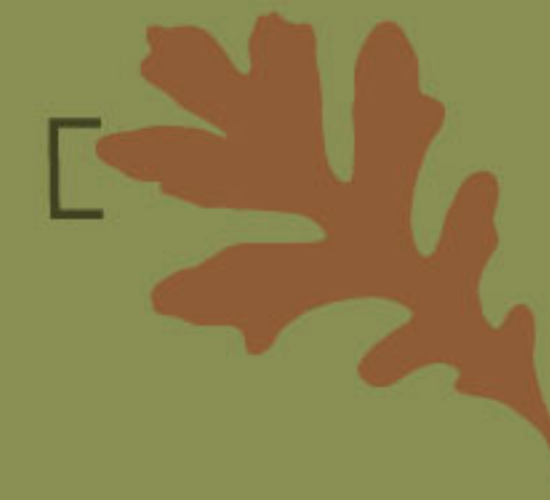
A lack of sedges in the area also indicate flooding. Sedges are grass-like plants that cannot grow in fully-submerged areas. If you look around, you can find sedges growing in the slightly higher elevation pine areas, but not in the lower elevation pin oak areas.



Scan the QR code to learn more about the pin oak.  
QR code leads to Virginia Tech Dendrology Fact Sheets

## White Oak or Red Oak?

Each of these bumps is called a "lobe".



Most oak leaves have lobes—some have 5 or more, and some only have a few.

Scientists split oaks into two groups: ones with **round** lobes, and ones with **pointy** lobes. The round lobed oaks are called "white oaks", and the pointy ones are called "red oaks".



Bur Oak



Red Oak



Swamp White Oak



Pin Oak

Can you tell which group each of these oak leaves belongs in?



Pin oak acorns are round with a shallow cap and often feature vertical stripes.



Bruce Kirchoff, Flickr, CC by 2.0

These pin oak leaves have bristles on the tips of each lobe. It's thought that pin oaks got their common name from these "pins" on their leaves.



# Woody Debris



Underneath all of the pine trees lies a carpet of pine needles. They are slow to decompose and return their nutrients to the soil. Scattered throughout the forest you will see much downed woody debris. To some people this may look messy, but this is a vital part of a natural forest ecosystem. Layers of leaves and pines create habitat for any number of creatures such as salamanders, insects, and worms.

Looking out on this patch of forest, you can see the cypress-tupelo swamp in the background. In the foreground there is a subtle mosaic of water stained leaves and moss covered downed logs. The darker leaves indicate areas of more sustained flooding and have less plant growth due to anaerobic waterlogged soil conditions. As the logs slowly decompose, they too will become part of the soil matrix at this site. Their longevity on the forest is a reminder of how slowly nature moves.

Standing dead trees and standing debris provides space for cavity nesting birds. As the trees slowly fall apart and decay, they return their nutrients to the soil around them allowing the plant life on the forest floor to thrive.



Red-cockaded woodpecker  
(*leuconotopicus borealis*)



Eastern screech owl (*megascops asio*)

## Eastern Tiger Salamander



The eastern tiger salamander burrows into the leaf litter and soil under logs before emerging each spring in search of upland pools to lay their egg masses. These have been found here in Southeast Virginia. This salamander species is listed as a Virginia state endangered species. Protecting lands like Blackwater Park are vital in supporting the recovery of these species.



Eastern painted turtle (*chrysemys picta picta*)

A tree on the water's edge may fall into the swamp creating habitat for fish and turtles.

Scan the QR code to learn more about the eastern tiger salamander.





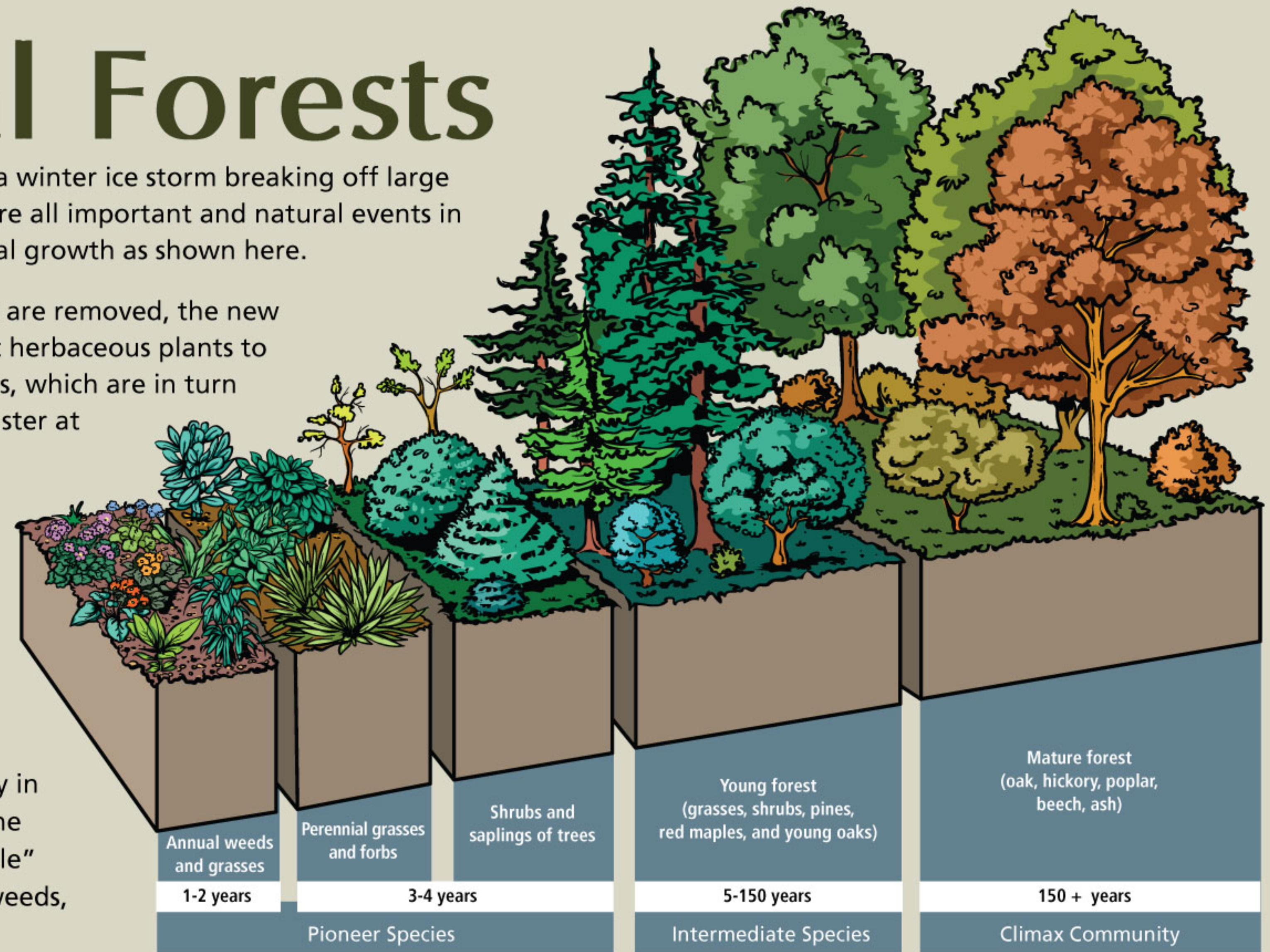
# Successional Forests

Trees being snapped in half by the wind, a raging fire, or a winter ice storm breaking off large branches, does not sound healthy for a forest; but these are all important and natural events in the life of a forest. These disturbances result in successional growth as shown here.

When the mature trees that cast shade on the forest floor are removed, the new abundance of sunlight encourages the small opportunistic herbaceous plants to proliferate. Taller perennial plants are succeeded by shrubs, which are in turn succeeded by trees. Some trees, like the red maples, are faster at reaching canopy height. These fast growing trees will eventually be surpassed by slow growing species like pin oak as the forest community reaches its mature end point, called a "climax community". The forest equilibrium, in which trees, shrubs, and herbaceous plants reach a balance, will remain until another disturbance event causes this cycle to repeat.

## Can you spot the hole out there?

Can you see rays of sunlight penetrating the forest canopy in the distance? This area is a blow-down area — a hole in the canopy caused by trees fallen by a storm in 2015. This "hole" allows new light to reach the forest floor, giving annual weeds, grasses and sedges a boost.



Downed trees will slowly decay into the soil while also providing homes for a multitude of beetles, insects, salamanders, and many other creatures.





# Upland Forestry Management

## Virginia Forest Industry



Forestry as an industry in Virginia, brings in more than \$21 billion in revenue and makes up more than 2.6% of Virginia's annual economy. According to the Department of Forestry (DOF), Loblolly pines are the most common commercially planted tree in Virginia. They are typically planted 7-10 feet apart and allowed to grow for 22-27 years before harvesting. The lumber is used for various items such as construction timber, fence posts, paper, and agricultural and consumer products. Economically, Virginia's sustainable forestry practices provide nearly \$6.6 billion in air and water quality services to the Commonwealth.



Scan the QR code to read the DOF pamphlet about economic impact of commercial forestry.

Commercial forestry is a vital part of the Virginia economy but is a very different land use than preserved natural forest ecosystems. Virginia forests tend to be mixed deciduous and coniferous trees. Both types of forests are incredibly important to the preservation of native Virginia plants and wildlife. Here in the Blackwater Park, while the goal is to preserve the Blackwater Swamp and its inhabitants, these upland hills will be managed for sustainable forestry through planting and harvesting loblolly pine trees.



Mature loblolly pine (*pinus taeda*) trees nearing the harvesting age.



Carefully planned controlled burns are one of several valuable forest management tools. They can reduce insect populations and remove invasive plants. Fire can also rejuvenate soils by returning nutrients that could otherwise take years.

◀ These young loblollies are maybe only a few years old, but still greatly aid in supporting Virginia's ecosystems.



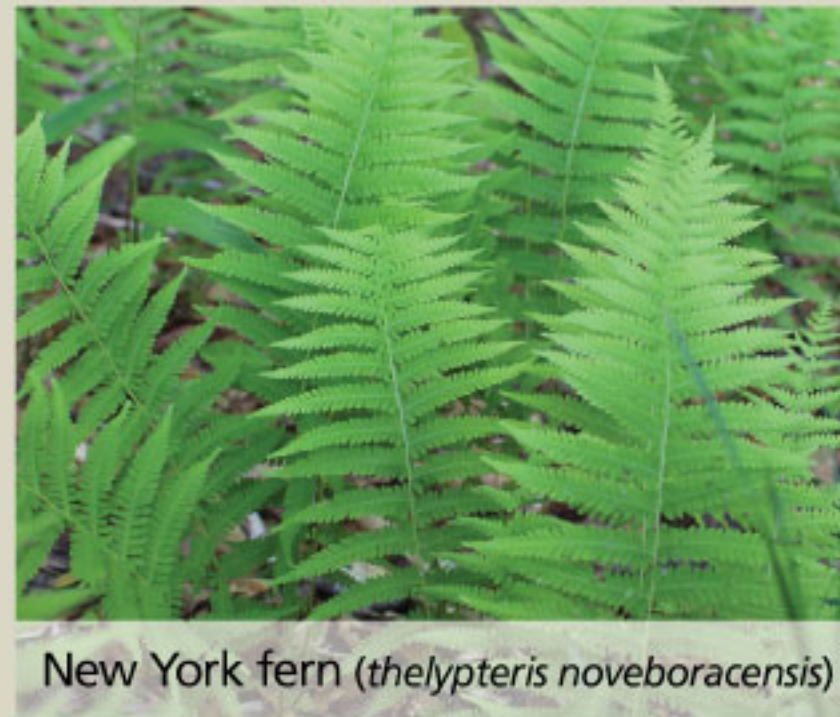
# Upland Forests

This upland trail highlights two very different forest systems: planted pine forest on the upper areas and a naturally occurring hardwood forest on the slope down to the lowland swamp areas. The pine forest allows for sustainable production of forestry products. Planting one single plant in abundance creates a mono-culture and allows for limited ecological diversity to occur and exist. These mono-culture pine plantation forests are more aligned to agricultural production systems than natural forest ecosystems.

The deciduous forest that occurs on the slope is a diverse mosaic of habitat. These forests are a vital Virginia ecosystem as they provide homes for thousands of species of plants, insects, birds, mammals, and other organisms.



Virginia heartleaf (*Hexastylis virginica*)



New York fern (*thelypteris noveboracensis*)



Eastern bluestar  
(*Amsonia tabernaemontana*)



Woolly ragwort  
(*packera tomentosa*)



Yellow star grass  
(*Hypoxis hirsuta*)



The American beech (*fagus grandifolia*) in the foreground looks as if it has been poured into its base with roots flowing out from the trunk.

A forest situated on a bluff like this provides stabilization of the hill side and offers a mass of root systems that filter water as it makes its way downhill into the swamp. Forest like these prevent uphill soil and sediment from draining into the bald cypress lowland. From the top of their canopies to the system of roots below, these naturally occurring forests support biodiversity and essential ecological functions all within a living and three dimensional framework. They are resilient in the face of storms and climate change.



# American Beech

On a bluff looking down the steep bank, you will be able to see a plentiful population of American beech (*fagus grandifolia*) trees. They are slow growing and live to be 300 to 400 years old, reaching heights of 50 to 120 feet!

## Trees

American beech trees have dark green leaves with toothed edges. Beech leaves are marcescent, meaning they hold onto their leaves throughout the winter.



Katja Schulz, (cc by 2.0) Flickr



Katja Schulz, (cc by 2.0) Flickr



Joe Blower, (cc by 2.0) Flickr

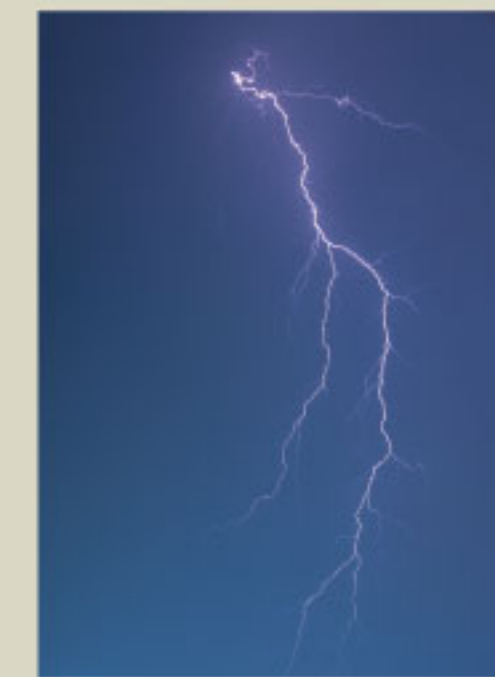
Beech leaves turn a brilliant copper color in autumn and stay on branches until spring.

## Bark

Most hardwood trees have smooth bark when they are young that gets rougher as they age. American beech tree's silver-gray bark, however, remains smooth throughout their life.



John Rutes University of Georgia, Bugwood.org



Old superstitions would say that hiding under beech trees during a thunderstorm will protect you from lightening. While lightening may strike a beech tree, its incredibly smooth bark and high-fat wood causes the electricity to pass uniformly through the tree to the ground. This explains why lightening strike scars are typically not found on beech trees.

## Fruit



Plant Image Library, (cc by 2.0) Flickr

Beech trees don't make much fruit (called called beech nuts) until they are at least 40 years old. Once mature, they make up for lost time by producing up to 50,000 nuts. Even then, only one may grow into a mature tree.

Beech nuts are tasty snacks to wildlife and play an important role in food chains. A nut contains roughly 50% fat and 20% protein making them a valuable winter food source for turkeys, white-tailed deer, squirrels and chipmunks.



# Sweet Gum

Another prominent tree in this forest community and all around Virginia is the sweetgum (*liquidambar styraciflua*). This fast-growing tree populates forest edges, blown-down areas, and other disturbed habitats. Sweetgums are considered pioneer species, meaning they are able to quickly move into disturbed areas. Sweetgums grow to be 100 to 150 years old and can reach heights of approximately 80 feet.

## Leaves

Sweetgum leaves are glossy and star-shaped. The tree will hold onto its leaves until late fall.



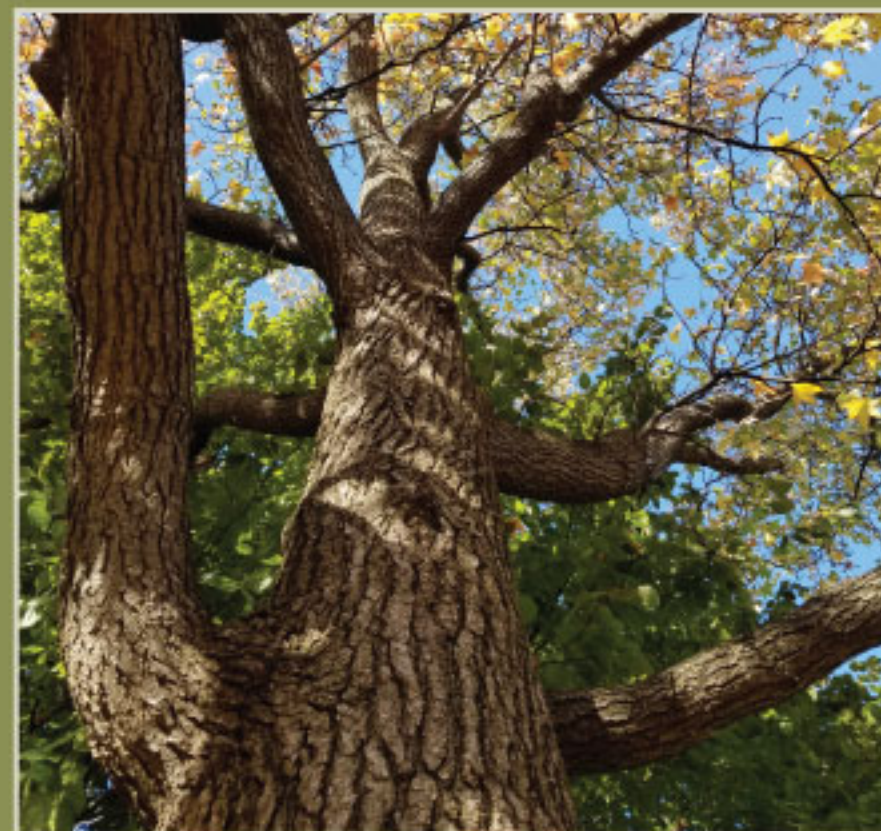
## Fruit



Another unique feature of sweetgums is their exotic-looking fruit. Colloquially called “gumballs”, these spiny fruits are hard and often plentiful. This abundance of fruits explains why these trees are not usually chosen for people’s yards.

## Bark

Sweetgum bark is light gray in color with deep, rounded ridges that are sometimes called “wings”.



Scan the QR codes above to learn more about Sweetgum

# White Oak

The white oak (*quercus alba*) plays an incredibly important role in Virginia’s forests. As a keystone species, the white oak supports hundreds of insects, birds, and animals alone. In fact, white oaks support over 500 species of butterflies and moths! Growing up to 100 feet tall, white oaks live to be around 200 to 300 years old. However, there are white oaks in Virginia that have grown to be almost 400 years

## Leaves

White oak leaves have 7 to 11 rounded lobes. They are leathery to the touch and can grow up to 8 inches long.



## Fruit



White oak acorns are a valuable food source for native mammals and birds. The caps of their acorns are “warty” and usually only cover a quarter of the long, oval-shaped nut.

## Bark

The bark of mature white oaks is light gray and scaly. These scales can sometimes look like narrow plates and will start to peel as the tree ages.



Scan the QR codes above to learn more about Sweetgum



# Mockernut Hickory

Mockernut hickories (*Carya tomentosa*) are strong and long-lived trees that commonly grow statewide. Reaching heights of up to 80 feet tall, these trees are a valuable food source for wildlife as well as a timber source for us.

## Leaves

Mockernut hickory trees have compound leaves, meaning all of these smaller leaflets combine to form one true leaf. Each leaf can have 5 to 11 leaflets, and the terminal leaflet is usually much larger than the rest. These leaves have a soft, hairy underside and are fragrant when crushed.



## Fruit



Hickory fruits, called "nuts", provide dense nutrition to native birds and mammals.

Did you know... it's thought that mockernut hickory got its name from how difficult it is to open their nuts, like the fruit is "mocking" whoever tries to eat it.

## Bark

Mockernut hickory bark is gray with non-flaking, shallow grooves.



# Tulip Poplar

Tulip Poplar (*Liriodendron tulipifera*) trees are a pioneer species, meaning it grows fast when it is young. They can grow to heights of up to 200 feet and live for 200 to 250 years. Indigenous Americans often used tulip poplar wood to craft dugout canoes, as the light wood dries without warping.

## Leaves

Tulip poplar leaves have four distinct lobes and smooth edges.



## Flowers



These trees get their common name from their flowers! The distinct, tulip-shaped flowers appear in late spring. The yellow flowers have a splash of bright orange in the center.

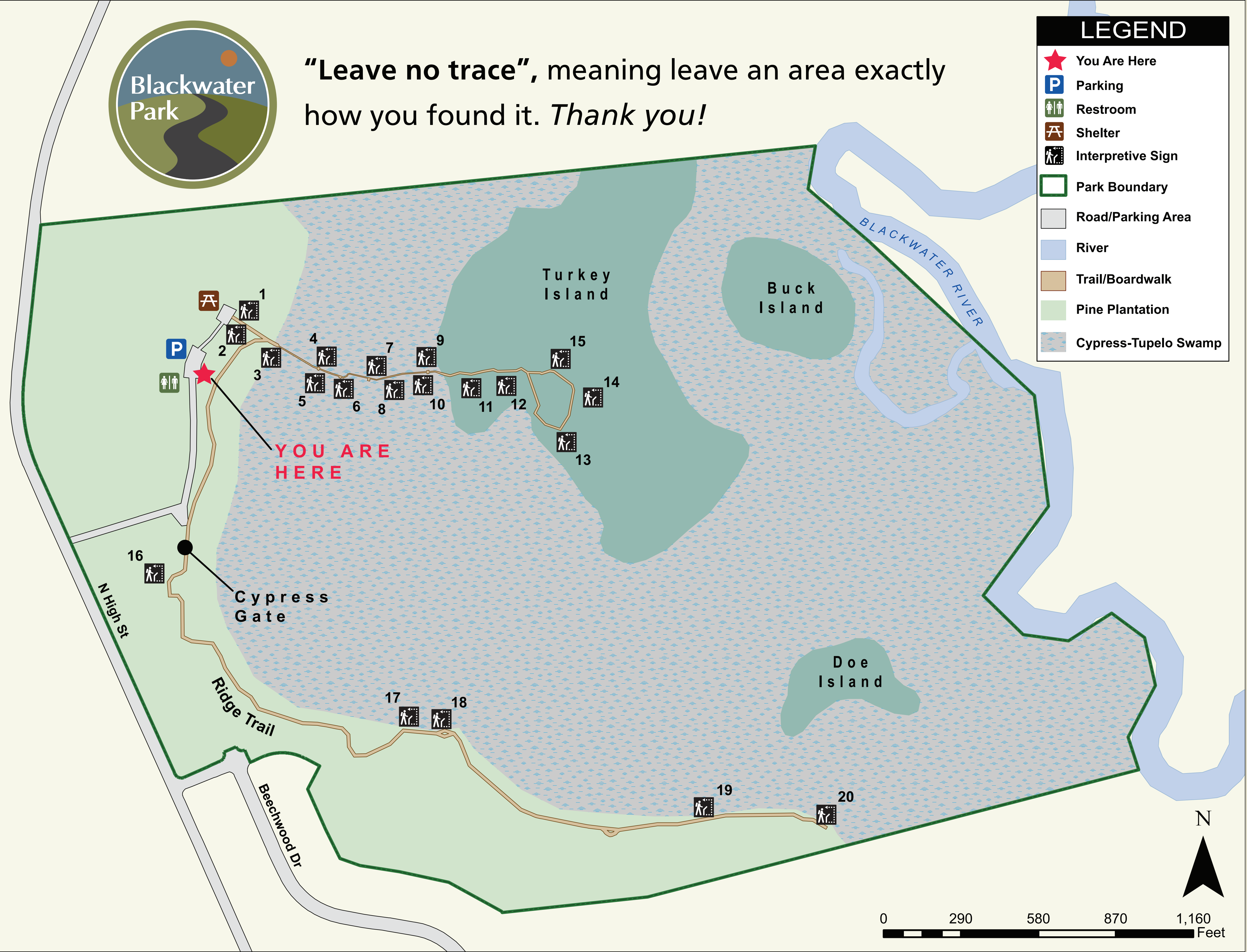
## Bark

On young trees, the bark is dark green and smooth. As the trees age, the bark develops into flat ridges.





# Welcome to Blackwater Park



## Trail Interpretive Signs

1. Blackwater Watershed
2. What is Blackwater?
3. Welcome to the Boardwalk
4. Knees and Buttresses
5. Bald Cypress and Water Tupelo
6. Remnants of the Past
7. Mary Oliver Poem
8. Swamp White Oak
9. Water's Edge
10. Take Care
11. Welcome to Turkey Island
12. Island Loblollies
13. Pin Oak
14. Woody Debris
15. Successional Growth
16. Upland Foresty
17. Upland Forests
18. American Beech
19. Sweet Gum / White Oak
20. Mockernut Hickory / Tulip Poplar