

## 1. WELCOME!

You are standing on the edge of three special habitats: wetlands, grass and shrub lands, and upland forests. The refuge is in a forested bowl between Canaan Mountain to the west and Cabin Mountain to the east. The surrounding public lands provide areas to bike, bird watch, hike, canoe, fish, and ski. **Look up!** Big birds are most likely soaring overhead: probably vultures or hawks, maybe an eagle, American kestrel or northern harrier.

*Walk straight ahead to the benches  
in an alcove on the right.*

## 2. THE LIMESTONE SPRING

**Why is the water boiling? NOT!** Look closely at the bottom of the pond for “boiling” silt. This is one of several bubbling springs in Canaan Valley where the water temperature is about 47 degrees year round. Springs like these appear only in areas underlain by limestone. The geologic layers, sloping from the mountains to the valley, cause pressure on the underground water, pushing the water up through cracks in the limestone, resulting in bubbles. Small invertebrates thrive in the clean, neutral pH water – amphipods (small shrimp-like creatures), crayfish, caddis fly and midge larvae. In the summer and fall, see bright dragonflies and damselflies – green darner, American emerald, Hudsonian whiteface, sedge sprite, dragon hunter, ebony jewelwing and whiteface meadowhawk. Why are they zipping in such a hurry?

*Continue to the end of the platform.*

## COME BACK SOON!

- Visit Freeland Trail in a **different season** or **different time** of day. (Animals are most active at dawn and dusk!)
- Walk **another trail** on the Refuge or nearby State Parks or National Forests.
- Browse the Refuge’s **Visitor Center and book store** on route 32 a little north of here.
- Join the **Friends of the 500th**, or other groups that work in Canaan Valley.
- Attend the numerous **educational and volunteer** events posted in the local papers, in the Friends of the 500th newsletter “Timberdoodle”, and on the Refuge’s website: [www.fws.gov/canaanvalley](http://www.fws.gov/canaanvalley)

*Please recycle this brochure by  
returning it to the kiosk.*

September 2011

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U.S. Fish and Wildlife Service

**Canaan Valley**  
National Wildlife Refuge

# Freeland Boardwalk

*Where Habitats  
Converge...*

The Canaan Valley National Wildlife Refuge was established in 1994 and is managed by the U.S. Fish and Wildlife Service to conserve and protect wetlands and wildlife resources in the Canaan Valley. The boardwalk in front of you was completed in 2010 by the Friends of the 500<sup>th</sup>, the Youth Conservation Corps, the American Hiking Club and others to allow visitors to enter the wetlands without walking on the fragile vegetation. From here, you can observe the unique plants and animals that live on the Refuge. Remember to protect the plants and animals by **staying on the boardwalk**.

*But before you begin walking...*

### 3. POND AND WETLANDS

#### Who would live in such a wet place?

Clearing land, building dams, and constructing a lodge in this swamp would be a miserable challenge for anything except a certain brown furry mammal with big teeth, a flat tail and webbed feet - the beaver! Look closely for signs of the beaver's old dam and lodge.

Many changes have occurred since the beavers moved out several years ago. The pond has filled in, becoming a mosaic of wet meadows, shrubby thickets and small pools. The lodge was quickly occupied by a family of muskrats, then a growing gaggle of Canada geese. Who might move in this year?

Canaan Valley contains 30 percent of West Virginia's wetlands. These wetlands include: swamps, bogs, fens, peatlands, and wet meadows. Look for the key plants of wetlands - impenetrable thickets of shrubby spirea, willow and alder. Listen for spring peepers' shrill chorus or the plucked banjo call of green frogs. See birds in the water or around the muddy edge, including mallard ducks (with bright green heads), sandpipers and great blue herons who stand as still as a statue. Are there signs of other animals - ripples in the water, tracks in the mud or even a snapping turtle sunning itself?

Besides wildlife habitat, wetlands provide other benefits including water filtration, absorption and flood prevention.

***Backtrack 20 yards, turn right at the intersection and continue 30 yards to...***

### 4. SONG BIRD HABITAT

**What happens to old farmlands and open fields?** This area was once a summer pasture for cattle and horses, but it has not been grazed for nearly two decades. Do you see differences between it and the active pasture across the road? If left undisturbed by grazing or mowing, this area would gradually grow into a forest.

Unfortunately, songbirds who live in this type of field are one of the fastest declining bird groups in eastern North America, partly because of habitat loss. This field and others are occasionally mowed to slow the succession of woody shrubs and trees and encourage grasses. Look for different types of grasses, including sweet vernal, orchard, velvet, Allegheny fly-back and timothy.

A wide variety of birds live in old fields - eastern phoebe, barn swallow, yellow warbler, eastern bluebird, eastern meadowlark, and savanna and field sparrows. Insects and seeds provide the main course for these birds. Watch as some catch their dinner "on the wing" and others sit on perches to dart out to grab a tasty treat flying by. Notice the thorny hawthorn trees. (There are 1500 different species of hawthorns in West Virginia!). If you are lucky, you will spy nests in trees, probably belonging to kingbirds or cedar waxwings.

Look for wildflowers. In spring you'll see stitchwort, chickweed, bluets, violets and blueberries, while summer brings blue gentians, black-eyed Susans, Queen Anne's lace, hawkweed, and spiny teasel. Later in the year, yellow blossoms of St. John's Wort, burr marigolds and goldenrod contrast with

the white of asters and ladies' tresses. Bracken fern and candlewick rushes open skyward.

***Take the right fork, heading to the dead trees...***

### 5. SNAGS

**What good are dead trees?** Many of the trees have died due to infestations of the balsam wooly adelgid and flooding by beaver dams. Like old beaver ponds and old farmlands, the dead and dying trees (or snags) are great habitats for many animals. Observe the large roots of trees that have fallen over. Who do you see using these trees for nests, perches, or as a grub buffet? Are the grubs eating or being eaten?

A branch of Freeland Run meanders in front of you --from the old beaver pond to the Blackwater River. The river starts in Canaan Valley Resort State Park, draining the valley on its way over the falls at Blackwater Falls State Park. Look down at sedges, rushes and grasses that spend part of the year with wet feet. Feel the stems of these plants and remember that...

Sedges have edges; rushes are round.  
Grasses have joints all around.

Listen for the many sounds around you: the high-pitched "konk-a-ree" of the redwing blackbird - one of the first migrants to return each spring, the "witchity, witchity, witch" of the common yellowthroat - a bright yellow bird with a black face mask; or the loud rattling cry of a kingfisher.

***Continue around the boardwalk Until you reach the fenced area.***

## 6. THE ENCLOSURE

### Do big chickens live inside this tall fence?

No, balsam fir trees do! The surrounding forested wetland is a re-growth of the forests which blanketed the valley before the extensive logging and fires of the late 1800 and early 1900's. These trees are mostly balsam fir interspersed with eastern hemlocks and red spruce. This pocket of forest is less than half the size it was 10 years ago. In a reforestation effort, over 50,000 spruce and fir trees have been planted in different areas around the Valley, and enclosures like this one have been built to protect seedlings from browsing deer. Compare the difference in the trees and wildflowers inside and outside of the fence. If you were a tasty fir tree or flower, where would you want to live?

Look at the different evergreens near the boardwalk for three species. You can remember the differences between them by noting that needles on red spruce are sharp, balsam firs are friendly (not sharp), and hemlock needles are just flat like a flat hem.

*Continue a few feet,  
and look to your right at .....*

## 7. SPHAGNUM

**Who made those mounds of moss?** The moss did! You are in an herbaceous wetland, dominated by sphagnum and hair-cap moss. The accumulation of mosses creates small mounds called hummocks. Hair-cap moss looks like tiny dark green pine trees. In wet spots, you may also see both light green and red mats of sphagnum moss, distinguished

by thick, full "heads" at the top of each stem and its capacity to hold 16-20 times its weight in water. The white dry looking ground cover is inaccurately called reindeer moss (it's actually a lichen). Also look for the long stalks of a plant with a group of flowers about halfway up the stem. This is called candlewick rush because early settlers used the pith inside the plant as candle wicks.

*Walk toward your car, stopping  
when you are out in the open.*

## 8. UPLAND FORESTS

**Look up at the hills.** They are covered by northern hardwoods and mixed forests famous for their vivid fall colors. The spruce/hemlock forest that was originally here was almost completely logged around the turn of the 20<sup>th</sup> century. Any remaining old forest was destroyed in the fires that followed logging. Current trees include red maple, sugar maple, American beech, yellow birch, black cherry, white ash, red spruce and eastern hemlock.

Canaan is often described as having trees and other plants "like Canada" but in reality, Canada's vegetation is descended from Canaan's. In ancient times glaciers covered much of Canada and northeastern United States, destroying much of the vegetation. The glaciers didn't reach south to Canaan Valley, where vegetation survived the ice age. As the glaciers receded north, our vegetation followed, so Canada's fir and spruce trees actually came from Canaan.

*Continue toward your car.*

## THE WAY BACK

**Walk quietly and listen!** In the summer, eastern meadowlarks with their yellow breasts and black necklaces are singing "spring of the year." Bobolinks sing a bubbling song as they do a crazy dance. Bobolinks are known as "upside-down birds" because the males are white on the top and black on the bottom during the breeding season. Imagine: they fly to Argentina each fall and return to Canaan each spring! On spring evenings, listen for the "peent" call of the shy American woodcock and the sound of his "wing twittering" as he does his aerial dance to impress the ladies. In winter, look for the rough-legged hawk soaring overhead or a red fox hunting for prey.

As you turn the corner and head for your car, notice on the right the gnarly beech tree with a metal fence around it. Think back to the furry mammal that dammed up the stream to make the old pond. Why did someone put a fence around this tree?

**Thanks for visiting!** Can you remember something special about each of the three habitats you have seen? (Remember the three habitats are: wetlands, grass and shrub lands, and upland forests.) Can you name 3 plants and/or animals from each? Use the following list to record your sightings.

## Checklist for Freeland Trail

Today's Date \_\_\_\_\_  
Time of Day \_\_\_\_\_  
Observers \_\_\_\_\_

### **BIRDS**

- American kestrel
- Barn swallow
- Bobolink
- Canada goose
- Cedar waxwing
- Common yellow-throat
- Eagle (bald and golden)
- Eastern bluebird
- Eastern meadowlark
- Eastern phoebe
- Field sparrow
- Great blue heron
- Hawk
- Kingbird
- Kingfisher
- Mallard
- Northern harrier
- Red-winged blackbird
- Sandpiper
- Savanna sparrow
- Vulture (Black and Turkey)
- American woodcock
- Yellow warbler



### **GRASSES, RUSHES, SEDGES, FERNS, AND MOSSES**

- Orchard grass
- Sweet vernal grass
- Timothy
- Velvet grass
- Candlewick rush
- Sedges
- Bracken fern
- Haircap moss
- Reindeer moss
- Sphagnum moss

### **WILDFLOWERS**

- Asters
- Black-eyed Susans
- Blue gentians
- Bluets
- Burr marigolds
- Chickweed
- Goldenrod
- Hawkweed
- Pink ladies slippers
- Ladies tresses
- Queen Anne's lace
- Stitchwort
- Teasel
- Violets

### **TREES AND SHRUBS**

- Alder
- Blueberries
- Spirea
- St. John's wort
- Willow
- American Beech
- Balsam Fir
- Black cherry
- Hawthorn trees
- Hemlock
- Red maple
- Red spruce
- Sugar Maple
- White Ash
- Yellow Birch

### **DRAGONFLIES AND DAMSELFLIES**

- American emerald
- Dragon hunter
- Ebony jewelwing
- Green darner
- Hudsonian whiteface
- Sedge sprite
- Whiteface meadowhawk

### **MAMMALS, AMPHIBIANS, REPTILES AND MACROINVERTIBRATES**

- Beaver
- Muskrat
- Green frog
- Spring peeper
- Snapping turtle
- Crayfish
- Caddis fly larvae
- Midge larvae