

WaterLife Discovery Center



Self-Guided Field Trip



How to use this guide

- Images, additional information, and questions in this guide will assist you in getting the most from your self-guided tour
- Reading interpretive signs add to your knowledge and appreciation of the natural features and displays at the WDC

Note:

- *WDC grounds and trails are open for self-guided field trips year-round*
- *[Want access to Cabin Displays?](#) Volunteer Naturalists are present Wednesday, Friday & Saturday from 10am-2pm from the 2nd week in May through the first week in September (Contact Heidi Knapp at IDFG to let us know your field trip dates)*

Comments in red italics give directions to the next location

Plan your own field trip

Note: Master Naturalist volunteers are not available to lead field trips

- **Outdoor trails with interpretive signs are free and open to the public**
- **A Port-a-Potty is available May-September**
- **The Displays inside the Cabin are available if a Master Naturalist Volunteer is present**



Recommendations:

- **Divide students into small groups of 6-8**
- **Follow this presentation to plan & follow the Self-Guided Field Trip**
- **Have chaperoned small groups begin at different stations, then rotate until each group has experienced each station**

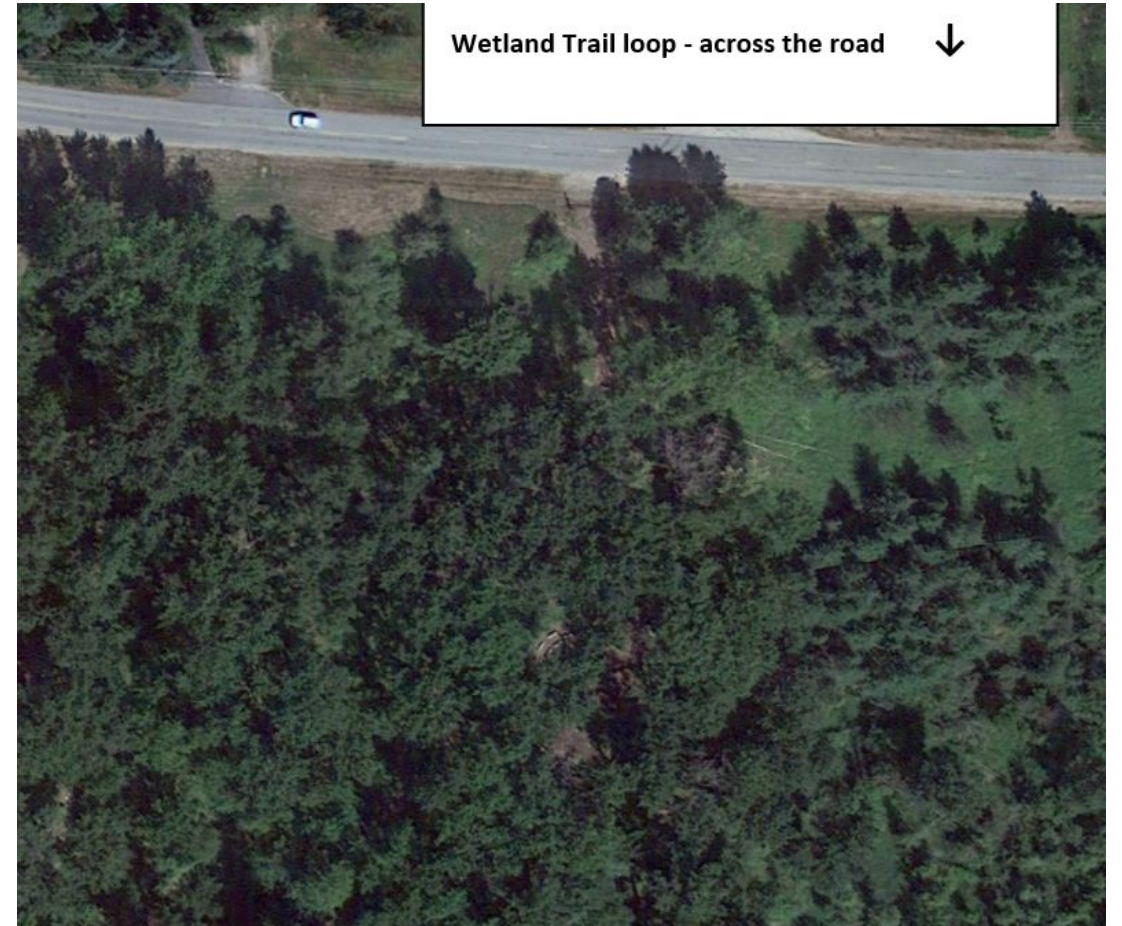
The WDC Includes:

- Amphitheatre with fish viewing windows
- Spring fed stream & pond surrounded by many native plants
- Milkweed and native plant gardens
- Wetland Trail with interpretive signs



- Poster exhibits
- Fish identification information
- Threatened species information highlighting Bull Trout and Monarch Butterflies
- Landscaping for wildlife

WDC - Map



Amphitheatre - Large Group Instructions

- A great place to gather at the beginning and at the end of your self-guided field trip
- Give instructions regarding how small groups are to rotate through stations (timing & signals)
- Have small groups (6-8 members) sit together & stay together as they rotate through the field trip stations
- Discuss expectations for learning & how to rotate from one station to the next



Ready, Set, Go

Assign small groups to different **START** stations:

Example:

- Group 1 begins at Station 1
- Group 2 begins at Station 2
- Group 3 begins at Station 3
- Group 4 begins at Station 4
 - And so on...
- After 15 minutes, each group rotates to the next station:
- Example: Group 1 goes from station 1 to Station 2; Group 2 goes from station 2 to station 3
 - And so on...

Timing

- Depending on your students ages and abilities, 15 minutes at each station is recommended (with the exception of Station #4 Wetland Forest Trail)

The Wetland Forest Trail takes about 30 minutes so stagger the start times at the trailhead, allowing for at least 15 minutes between groups.

5 Field Trip Stations

#1 Amphitheatre & Fish Viewing Windows

#2 Monarch Way Station and Native Plant walk around the Pond

#3 Monarch Butterfly Propagation Garden & Native Plant path to the IDFG dock

#4 Wetland Forest Trail

#5 (If a Naturalist is on duty) Cabin History & Wildlife Displays

Station #1 Amphitheatre & Fish Viewing Windows

- The Rainbow Trout in the pond are sterile* (not able to reproduce) raised by Idaho Fish & Game
- Fertilized eggs are treated with heat at specific times during cell division resulting in sterile, *triploid offspring with 3 sets of chromosomes



Station #1 continued...

What to do at Station #1?

- Try to count the trout that visit the viewing windows or that you see in the pond
- Estimate the weight of a trout in pounds*
- Observe & List differences among the individual trout
- Learn more about these trout by reading the next slides
- If a naturalist is present, ask for fish food – hungry trout will put on a show!

MATH

*Trout Weight Estimation Formula

$$\text{Weight (in pounds)} = (\text{Length} \times \text{Height} \times \text{Height}) / 180$$

Where:

- **Length** in inches.
- **Height** is in inches (the maximum vertical depth of the fish).

Example: If a trout is **20 inches** long and **10 inches** high:

Approximate Weight =
 $(20\text{in} \times 10\text{in} \times 10\text{in}) = 2000 / 180 \approx 11$
pounds

History of Non-Native Girard Rainbow Trout in Lake Pend Oreille

What are they and where did they come from?

- The Girard strain of Rainbow trout grow larger than standard rainbow trout
- Introduced into Lake Pend Oreille in 1941 from Kootenay Lake in British Columbia, Canada
- Their population grew by feeding on Kokanee salmon which were introduced accidentally in 1933

Trophy Fishery Development:

- The introduction of Girard Rainbows led to the development of what became a trophy fishery, with reports of large fish caught, including a **37-pounder** recorded in **1947**.
- This world record helped popularize Lake Pend Oreille as a premier fishing destination.



Common Names & Scientific Names

Common Names – there can be many!

Girard Rainbow Trout are also called Kamloops.

- The name “**Kamloops**” originates from the Kamloops region in British Columbia, Canada.
- The name “**Girard**” pays homage to Dr. Charles Girard, a French-American naturalist who played an important role in early study & classification of North American fish species.

Scientific Name: These names are specific!

Oncorhynchus mykiss

Oncorhynchus is the Genus

- ***Oncorhynchus***: is Greek. "onkos" means "**hook**" and "rhynchos" means "**snout.**" which translates to "hooked snout"

***mykiss** is the species*

- ***mykiss*** is Native American (from the Salish speaking people) for rainbow trout. It is often interpreted as "to die" which could refer to their life cycle or fishing practices.

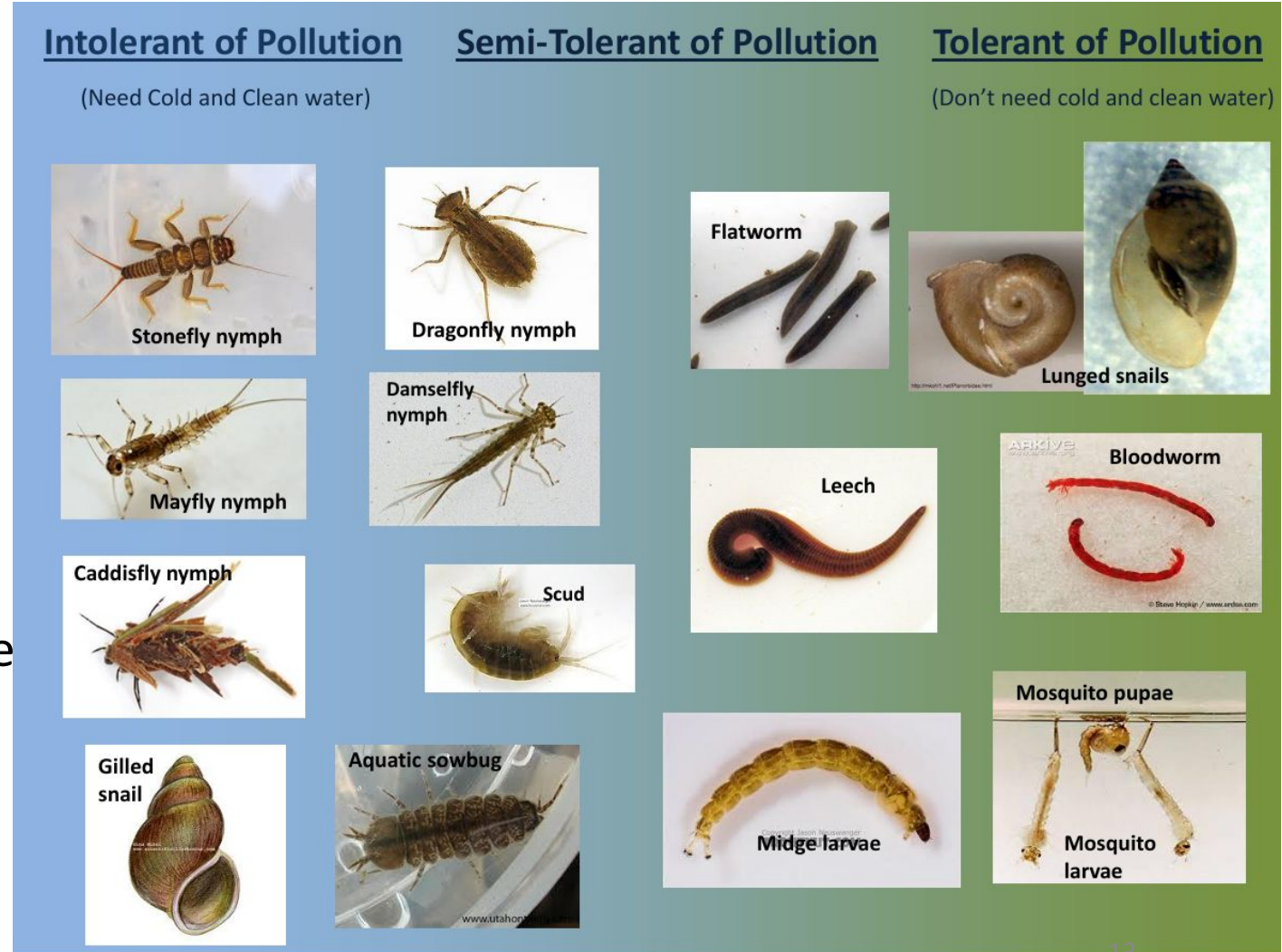
Station #1 continued...

(Bonner County Library's Citizen Science/STEM activities are at the WDC on some Wednesdays, May – August)

- The pond is fed by spring water
- Find the stream that enters the pond
- If you have macroinvertebrate measurement & collection tools:
 - Measure and record the stream water temperature
 - Collect and identify macroinvertebrates found in the stream

Note: The chart shows only a few of the species you may find

If not collecting macroinvertebrates continue to the next station #1 sign - Walk to the driveway and find the sign: How Does a Fish Cross the Road?



Station #1 continued...

How Does a Fish Cross the Road?

- How can a bad culvert affect fish populations?

Walk to the next sign in the grassy area by the big dead tree across the driveway

How Does a Fish Cross the Road?



Roads over rivers and streams can block fish from moving upstream and downstream.

- Bridges are a fish-friendly solution
- A pipe, called a culvert, can be good or bad

Good Culvert

This is a fish-friendly culvert

- Fish can easily enter the culvert
- Water flow is slower
- No waterfall
- Rocks inside provide habitat
- Large enough to handle spring runoff



Bad Culvert

- Too steep makes the water flow too fast for fish
- Small size cannot handle maximum stream flows
- Creates a waterfall fish cannot jump



How can a bad culvert affect fish populations?

Station #1 continued..

- What happens when a Snag (dead tree) falls down?



Station #1 continued...

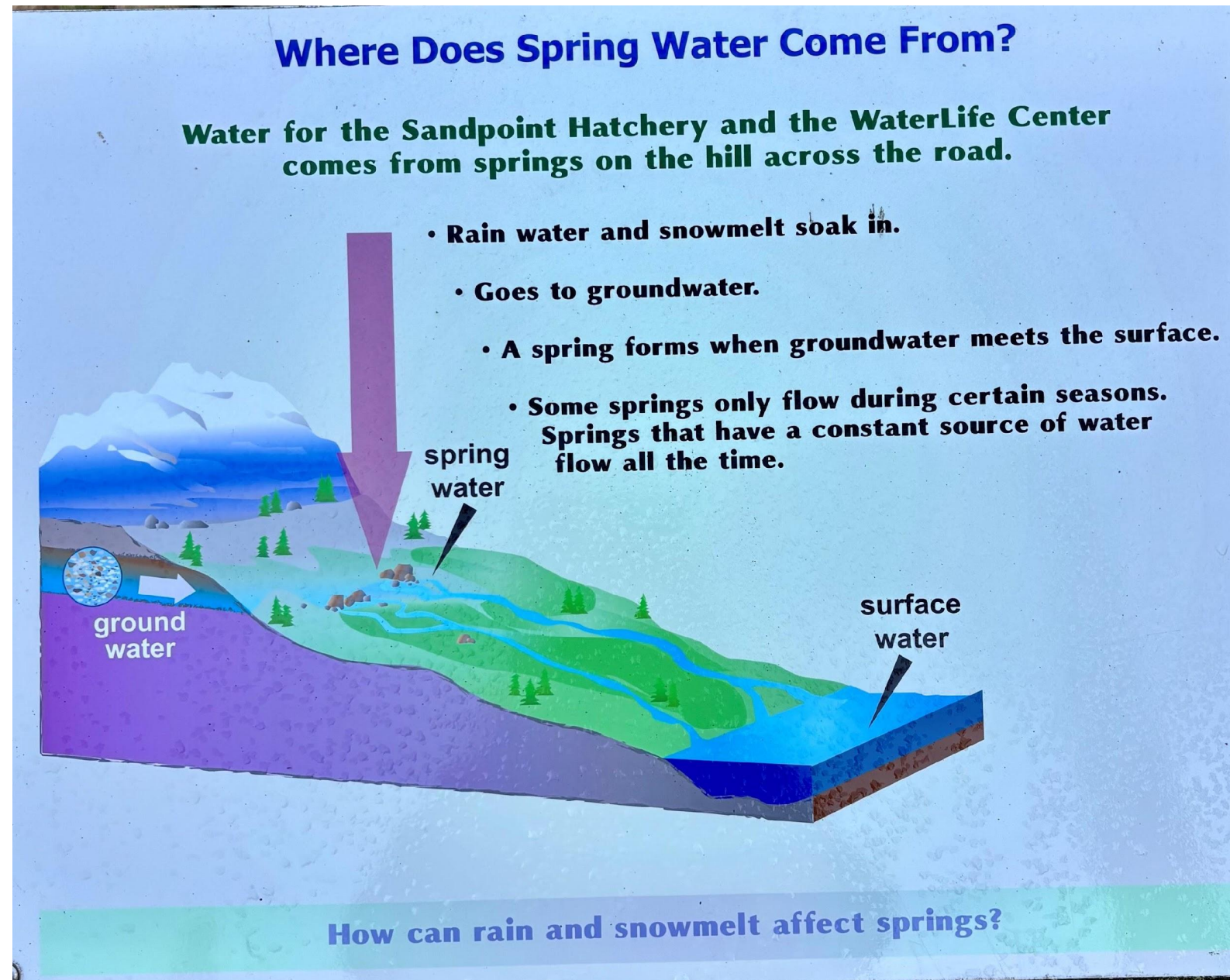
Where Does Spring Water Come From?

- How can rain and snowmelt affect springs?

*This is the end of Station #1.
Find Station #2*

*by returning to the driveway by
the stream*

*and find the Monarch Way
Station sign.*



Station #2 Monarch Way Station & Native Plant Walk around the Pond

- Station #2 is on the west side of the Pond at the Monarch Waystation Sign
- You will see milkweed growing here in mid-spring through late fall
- Milkweed is the only plant Monarch Butterflies can use for reproduction. No milkweed = No Monarchs



Station #2 continued...

Follow the path around the pond

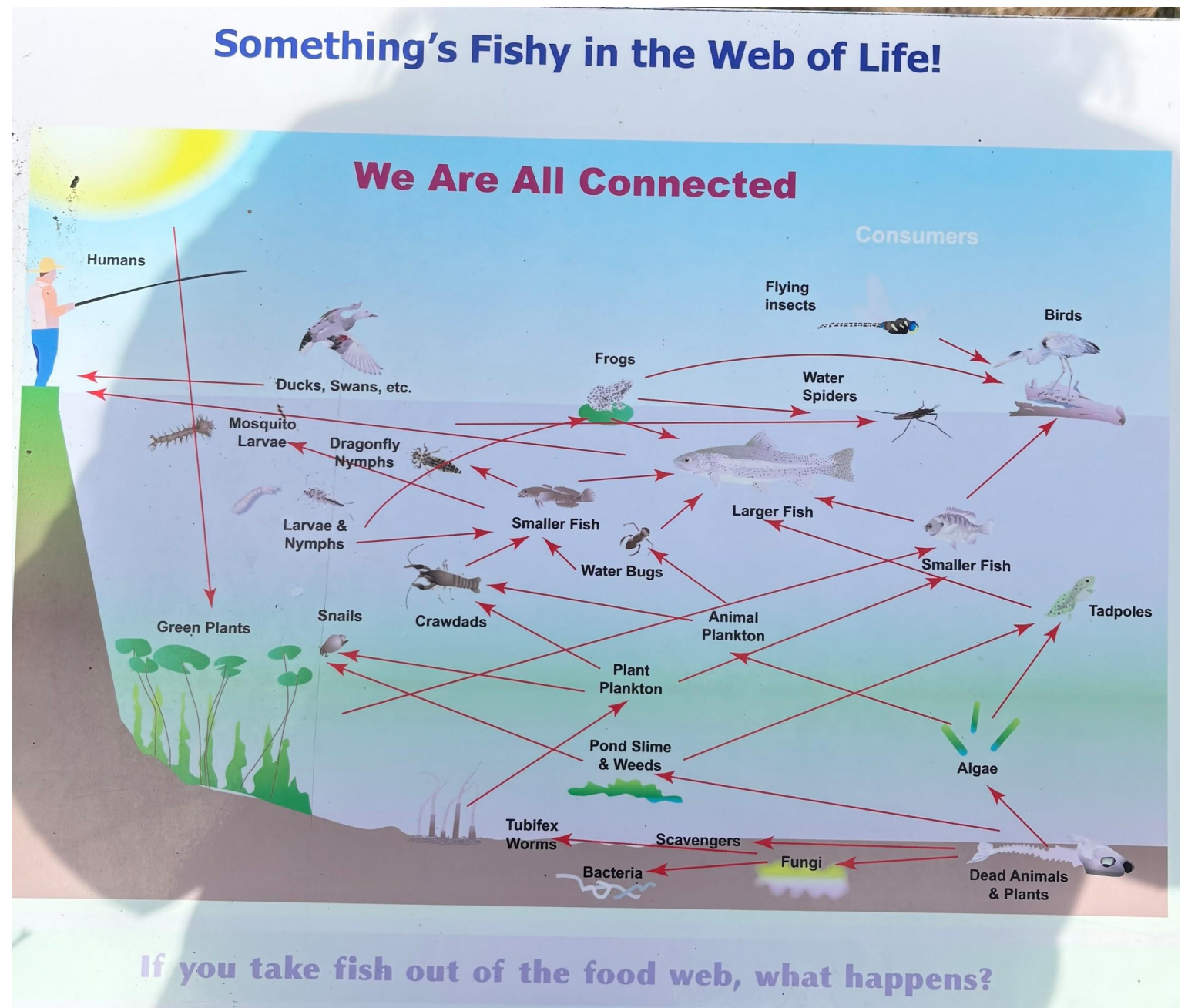
- How many native plants can you find?
- As you walk, stop, listen and look.
 - Can you spot any birds? What kind?
 - Did you find any insects?
 - Do you see any mammals?



Station #2
continued...

**We are all
connected**

If you take fish
out of the food
web, what
happens?



Station #2 continued..

- Follow the path around the pond



Station #2 continued...

Have a seat

- Listen
- Look for things you haven't noticed yet
- What did you find?



Station #2 Continued...



- Do you see signs that beaver have visited the pond?



Station #2 continued...

**What birds might
live here?**



End of Station #2



- Walk to the sidewalk to the west of the WDC to find Station #3

Station #3 Monarch Butterfly Propagation Garden and path to the dock



Station #3 Monarch Butterfly Propagation Garden and Native Plant Path to the Dock

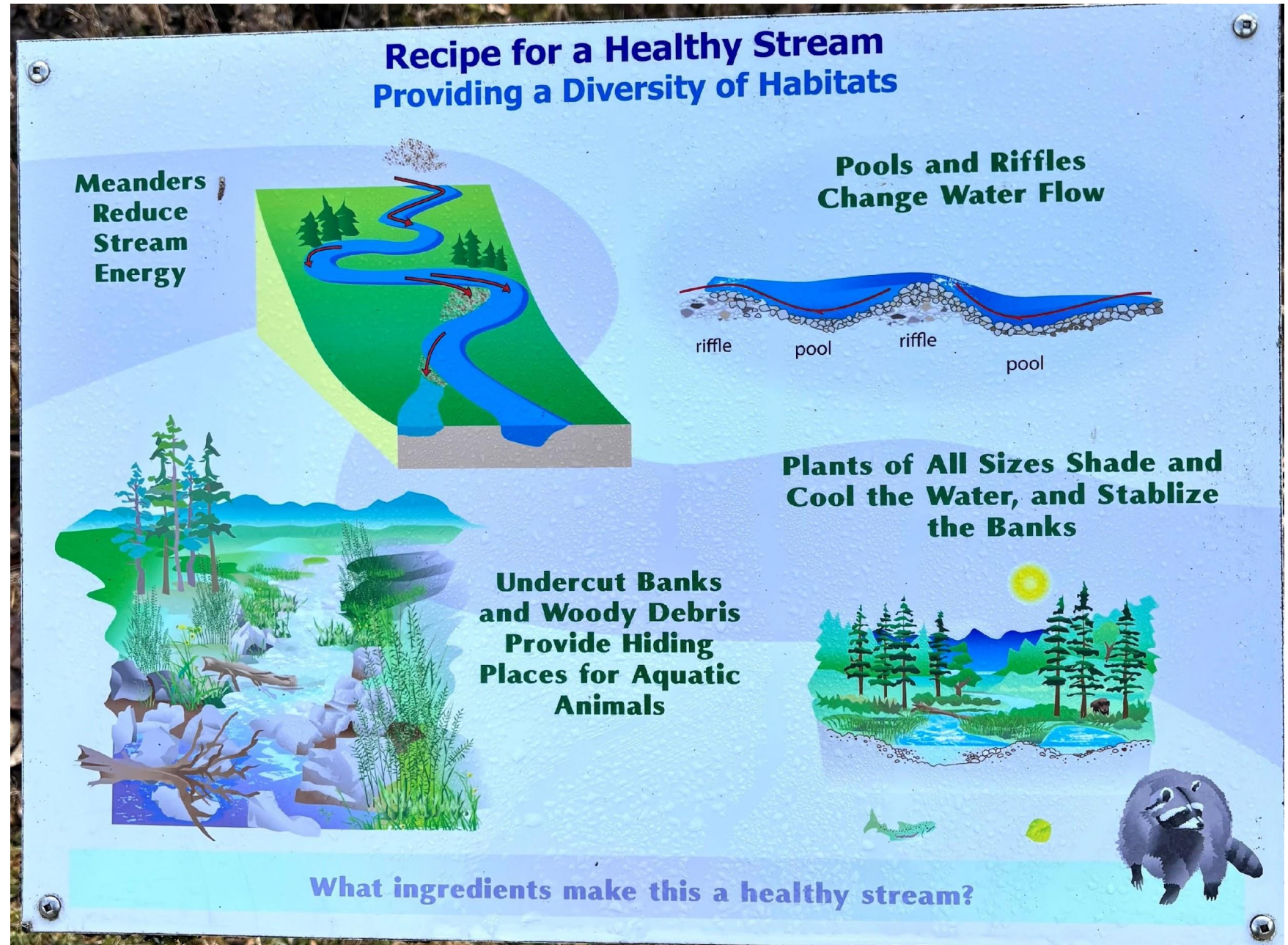
- Use the QR codes on the signs for more information about Milkweed and Monarch Butterfly reproduction
- Follow the path to the dock but stop to learn from the signs along the way



Station #3 continued...

Recipe for a Healthy Stream

- What ingredients make this a healthy stream?



Station #3 continued...

Stream Health

- List a few ways we could help improve stream health



Station #3 continued...

- What are Noxious Weeds?
- Why should we be concerned about them?
- Name some Noxious Weeds

Why Should We be Concerned About Noxious Weeds?

NOXIOUS WEEDS: Non-native plants which out compete native species and/or are poisonous to humans or animals.

Noxious weeds are very invasive. Some weeds even produce chemicals that prevent all surrounding plants from growing.

By reducing the diversity of native plants, noxious weeds also reduce the number of animals that can live in an area.

Some of the weed species in this area include **common tansy** (*Tanacetum vulgare*) and **Canada thistle** (*Cirsium arvense*).

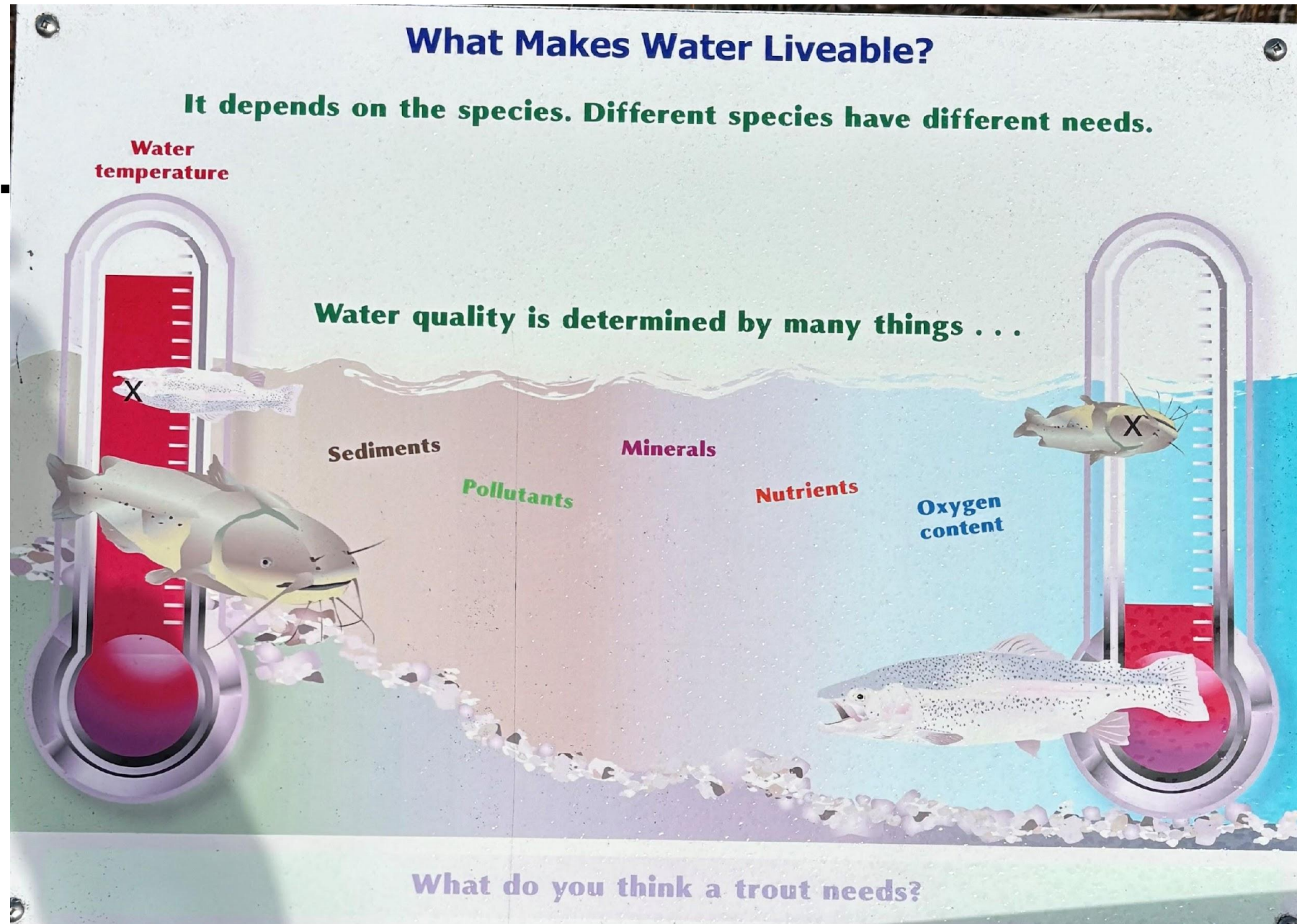
Labels for weeds shown: meadow hawkweed, spotted knapweed, orange hawkweed, common tansy, Canada thistle, dalmatian toadflax.

Logos: IDAHO, Idaho Fish & Wildlife Foundation, Idaho Department of Fish and Wildlife.

How Can Humans Control the Spread of Noxious Weeds?

Station #3 continued..

- Water quality is determined by many things. Can you name a few?
- Different species have different needs. What do you think a Trout needs?



Station #3 continued

...

- What is a Riparian Zone?
- What happens when riparian vegetation is removed?

What is a Riparian Zone?



The area along the edges of rivers and streams is called the riparian zone.

Riparian zones have important functions:

- Stabilize banks
- Filter pollutants
- Help prevent erosion
- Keep water cool
- Provide important wildlife habitat

What happens when riparian vegetation is removed?

Station #3 Continued...

Idaho Fish & Game Dock

The Corps of Engineers at Albeni Dam drop the lake level 11 feet in the winter compared to its highest level in the summertime.

- Estimate the depth of the water at the end of the dock
- Why do you think the water level is dropped for the winter?

After seeing the dock, head back up the path towards the hatchery building



Station #3 continued...



IDFG Sandpoint Fish Hatchery building

- Spring water supplying the hatchery is too cold for raising fish efficiently.
- Rainbow trout and other species are now raised in IDFG hatcheries in Nampa and Clark Fork

- The fish runs (on the west of the hatchery building) are used in the spring for redistributing trout into local lakes to improve public fishing opportunities



This is the end of Station #3. Station #4 is found to the south of the parking lot, across Lakeshore Drive

Station #4 Wetland Forest Trail

- Located across Lakeshore Drive to the South of the parking lot
- **Be careful crossing the road!**
- 1/4th mile loop – level, trail through the wetland forest
- Learn from Interpretive signs along the path



Station #4 Wetland Forest Trail

**Welcome to
the Wetland
Forest Trail**



Station #4

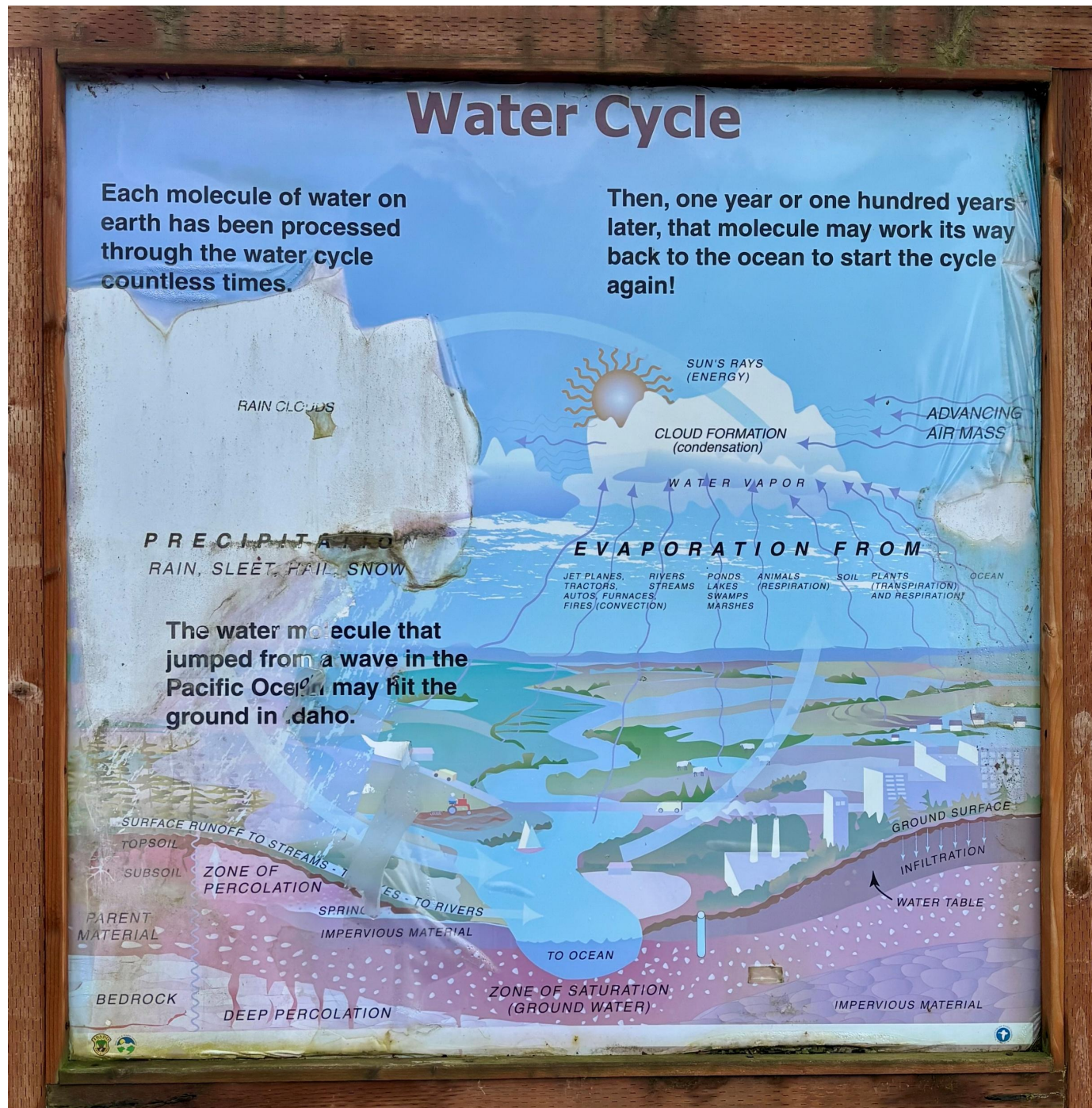
Wetland Forest Trail

- What are some benefits of wetlands?
- Name a few types of Wetlands



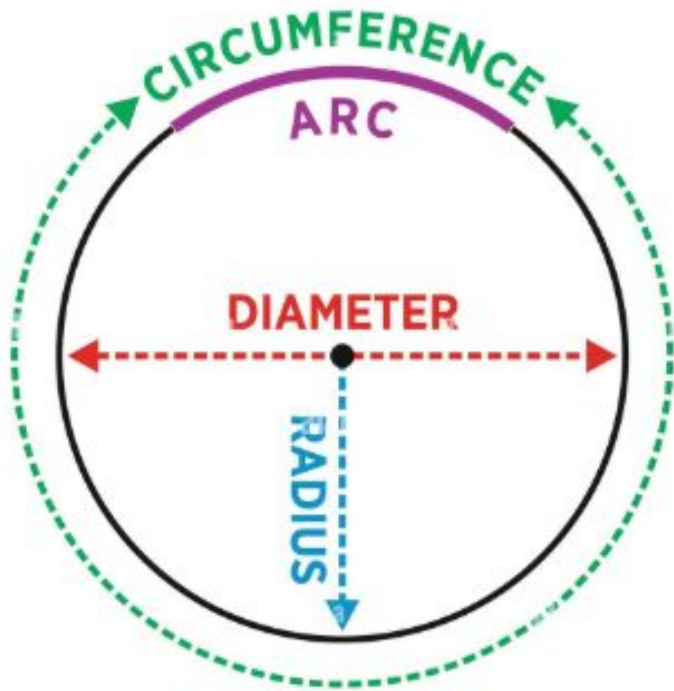
Station #4 continued...

- Can you list three forms (phases) of water?



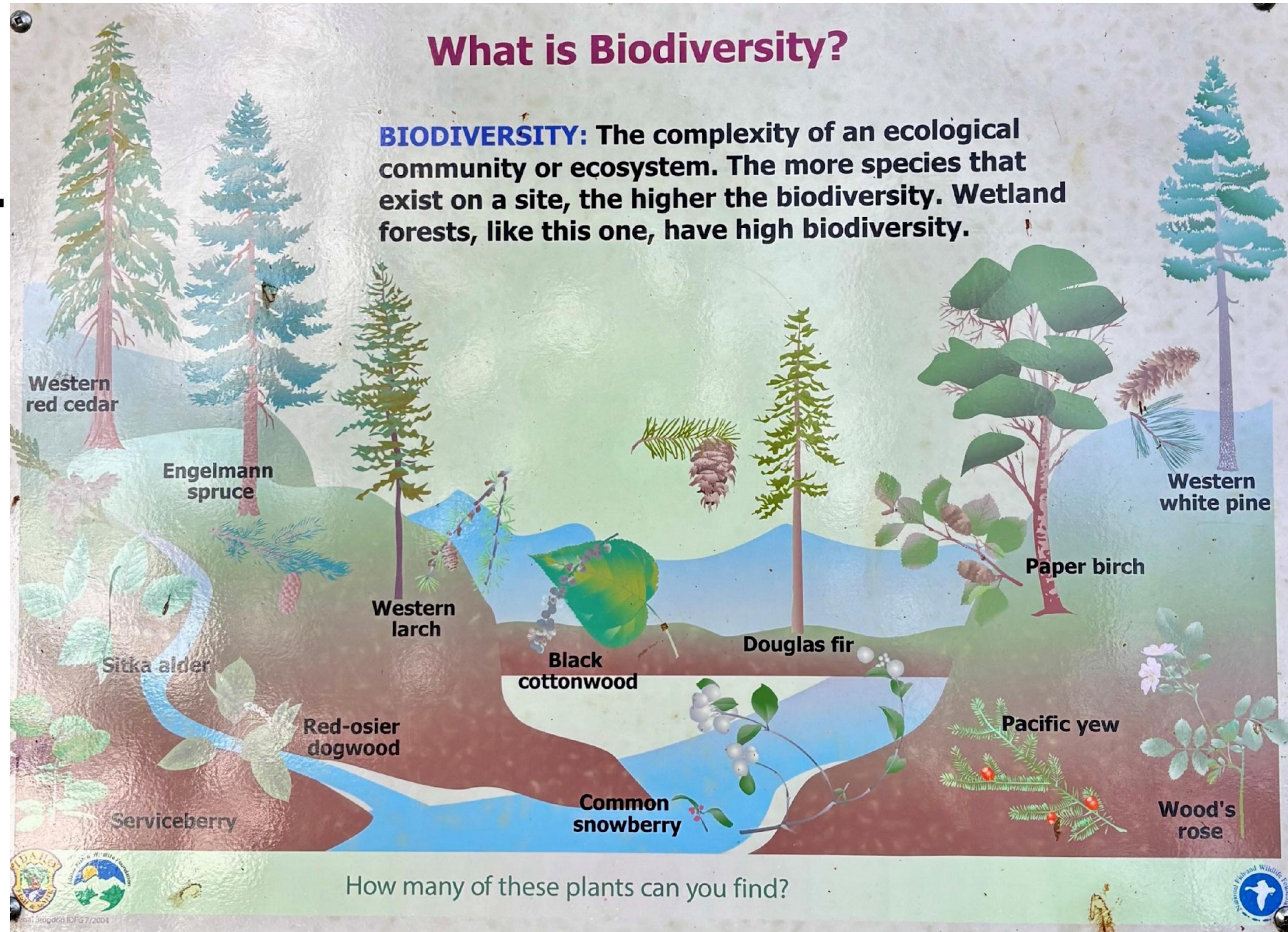
Station #4 continued...

Estimate the diameter of the Black Cottonwood Log



Station #4 continued..

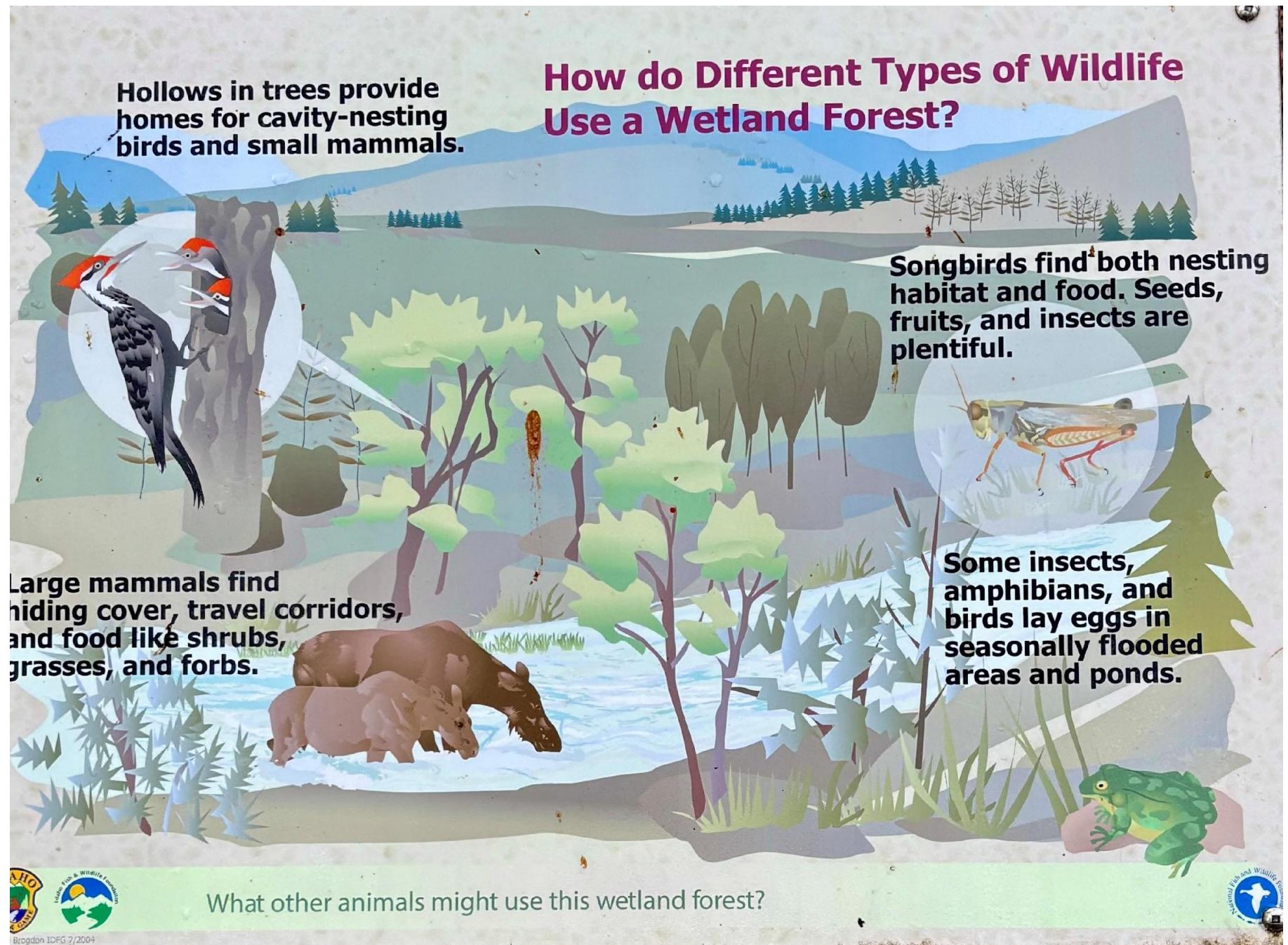
- What is Biodiversity?
- Explain why places with high biodiversity are more stable than places with low biodiversity?



Station #4 continued

How do different types of wildlife use a wetland forest?

- Give at least two examples



Station #4 continued...

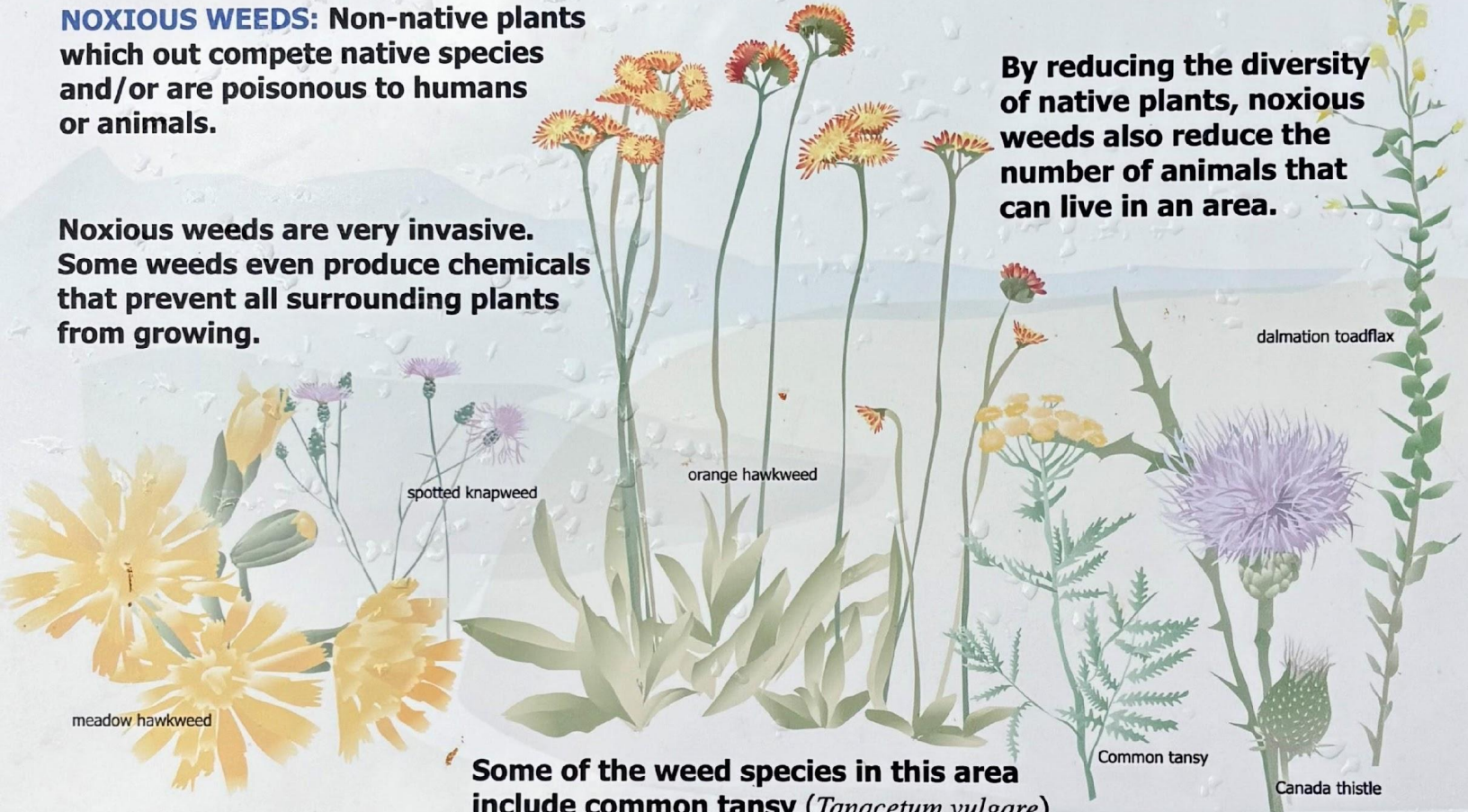
- What are Native Plants?
- What are Noxious Weeds?
- Why should we be concerned about Noxious Weeds?

Why should we be concerned about noxious weeds?

NOXIOUS WEEDS: Non-native plants which out compete native species and/or are poisonous to humans or animals.

Noxious weeds are very invasive. Some weeds even produce chemicals that prevent all surrounding plants from growing.

By reducing the diversity of native plants, noxious weeds also reduce the number of animals that can live in an area.



meadow hawkweed

spotted knapweed

orange hawkweed

common tansy

Canada thistle

dalmatian toadflax

Some of the weed species in this area include common tansy (*Tanacetum vulgare*) and Canada thistle (*Cirsium arvense*).

How can humans control the spread of noxious weeds?

IDAHO FISH & WILDLIFE FOUNDATION

NFWF

Station #4 continued...

Openings in the Forest

- Why are openings in the forest important?



Openings in the Forest . . . Why Do We Need Them?

Forest openings are critical for many plant communities. Many plants like western larch and ponderosa pine need lots of light to germinate and grow. Without openings, these species cannot thrive.

Openings can be natural (fire, disease, windthrow, fungal or insect outbreaks, etc.) or man-made (logging, fire breaks, utility cuts).

Pine Life Cycle

A Tree is Born!

What do you think made this forest opening?

IDAHO Department of Fish and Wildlife

© Brian Brogdon IDFG 7/2004

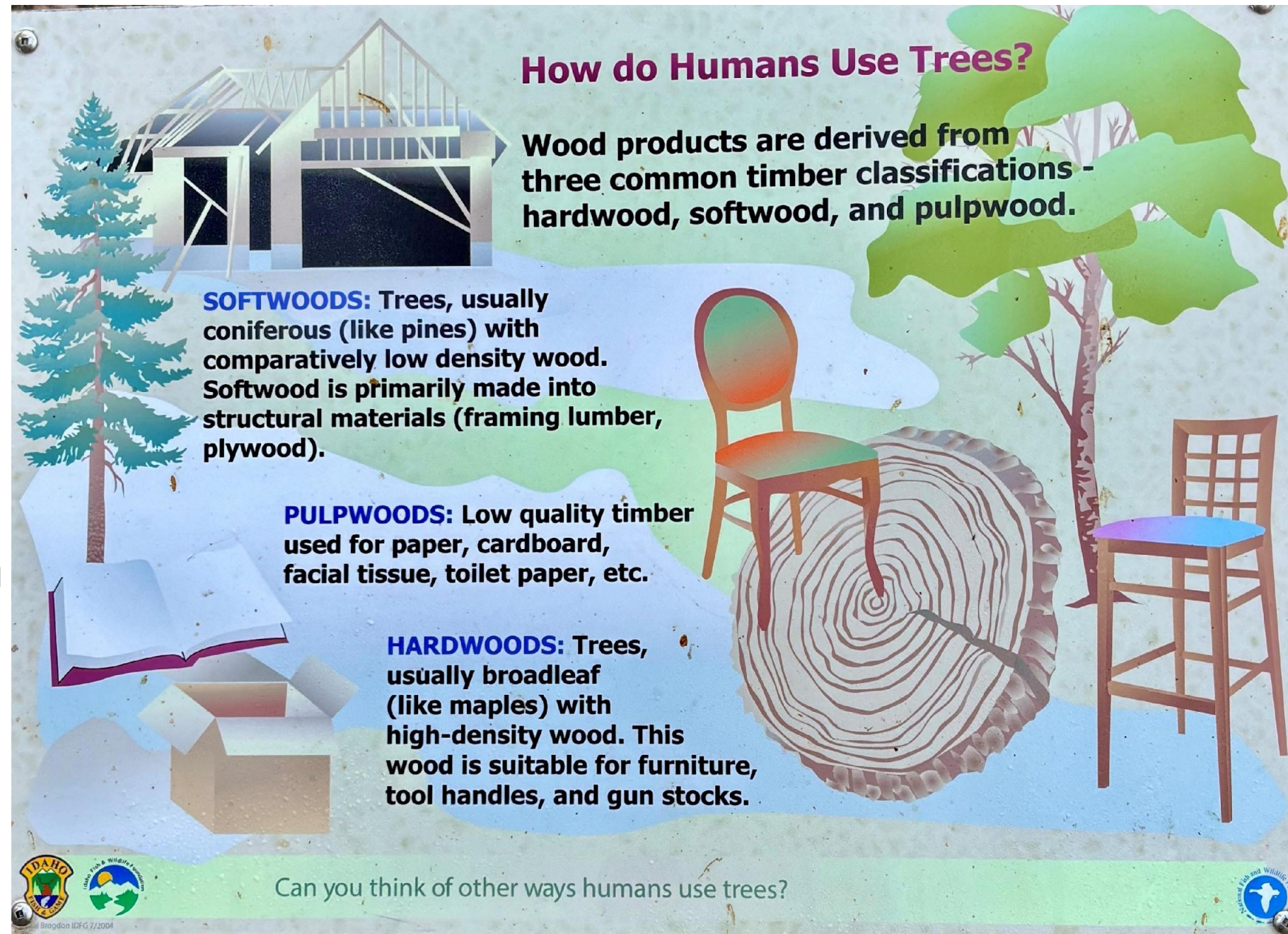
National Fish and Wildlife Foundation

The composite image includes a top illustration of a forest fire with flames and smoke among evergreen trees. Below this, on the left, is a red log truck carrying several large logs. On the right is a circular diagram of the pine life cycle. The diagram shows a mature sporophyte (a pine tree) producing a pollen cone and an ovulate cone. A single scale is shown sectioned through an ovule, revealing the nucellus, megaspore mother cell, integuments, and micropyle. Pollination occurs when pollen from the pollen cone reaches the ovule. The pollen tube grows down the micropyle, discharging a sperm nucleus that fertilizes the egg. This results in a germinating pollen, which develops into a female gametophyte (archegonium) containing an egg. The fertilized egg develops into a megaspore, which then becomes an embryo (new sporophyte) within a seed coat (derived from the parent sporophyte) and food reserves (gametophyte tissue). The seed coat is shown attached to the mature sporophyte.

Station #4 continued...

How Do Humans Use Trees?

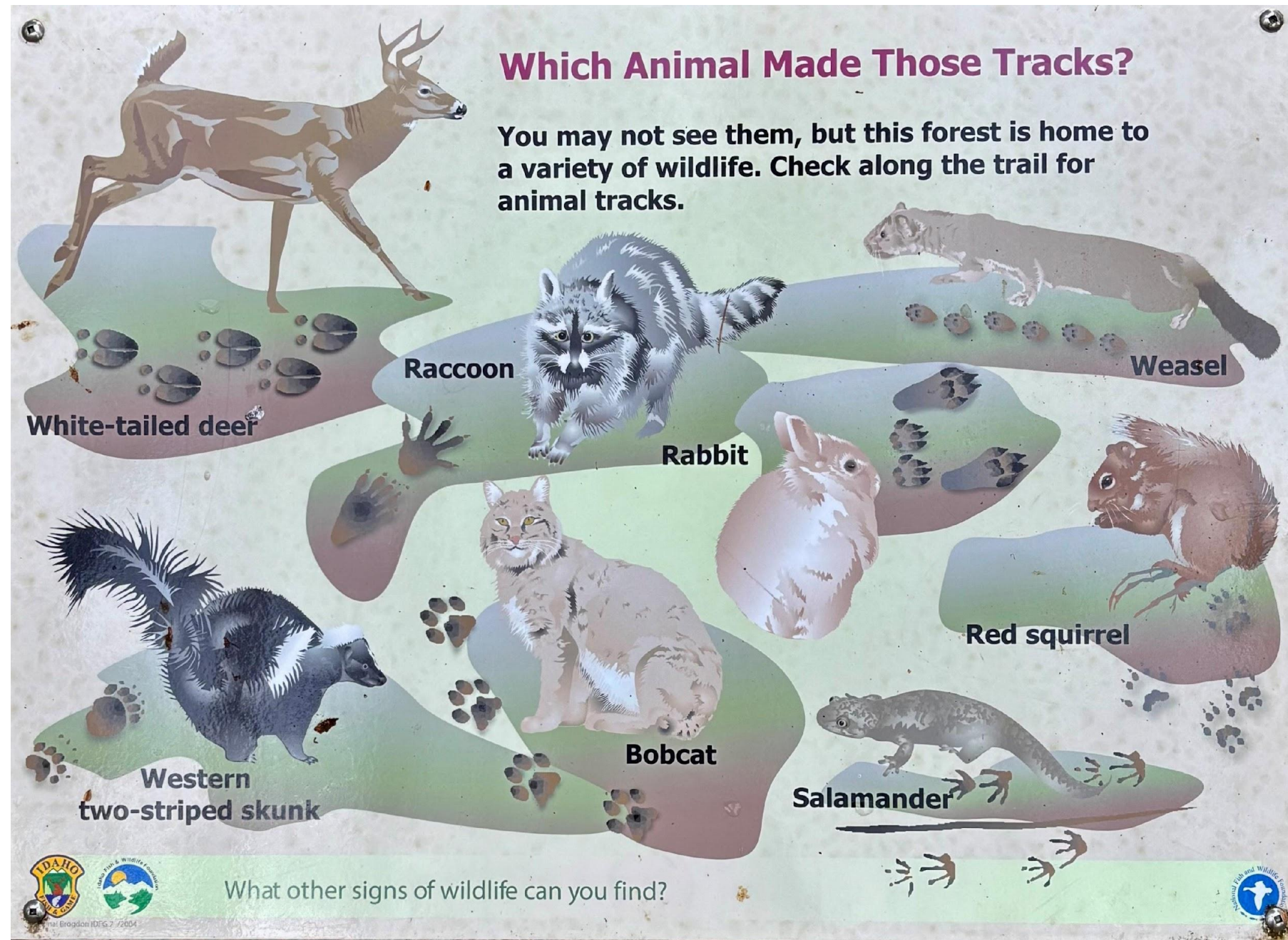
- Can you find an example of a softwood tree in this forest?
- How are softwoods typically used?



Station #4 continued...

Which Animals Made Those Tracks?

- Can you give 2 differences between bobcat tracks and skunk tracks?



Station #4 continued...

Western White Pine Disease

- This species is threatened by white pine blister rust caused by the fungus ***Cronartium ribicola***
- The disease affects all species of white pine and has ecological and economic impacts

Continue, then take the trail to the right

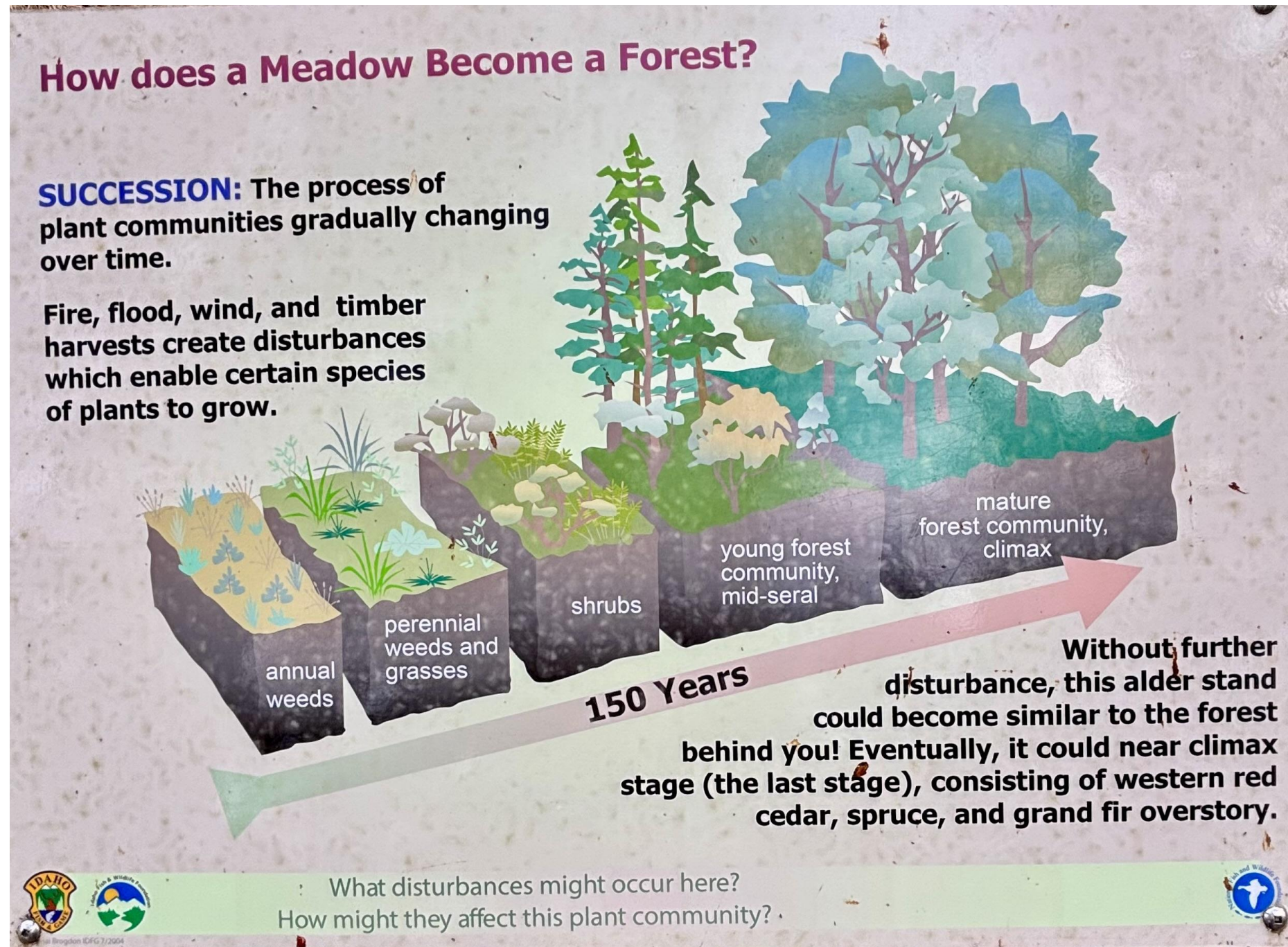


Dead Western White Pine

Station #4 continued...

How Does a Meadow Become a Forest?

- In your own words, what is succession in a plant community?
- Give one example of succession from the image on the sign



Station #4 continued...

- Growth rings on a fallen Black Cottonwood tree



- What do you think made holes in this tree trunk?

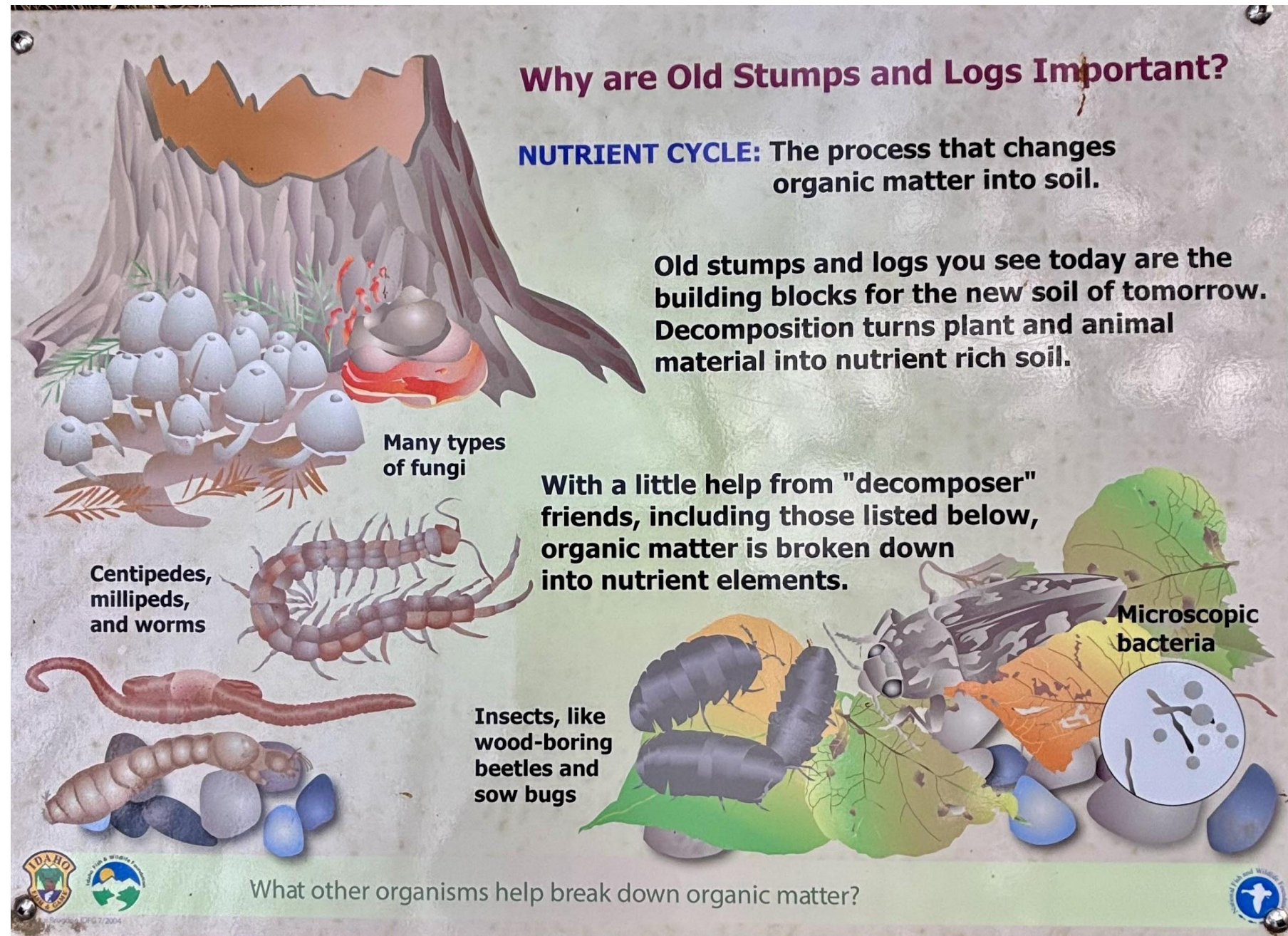


Station #4

continued...

Why are Old Stumps and Logs Important?

- Why are dead plants and animals beneficial to ecosystems?
- How does organic matter break down?
- What is a **nutrient**?



End of Station #4

- Be careful crossing the road as you return to **Station #1 Amphitheatre**
- Go to slide # 9 of this presentation if you haven't completed station #1 yet.



Station #5

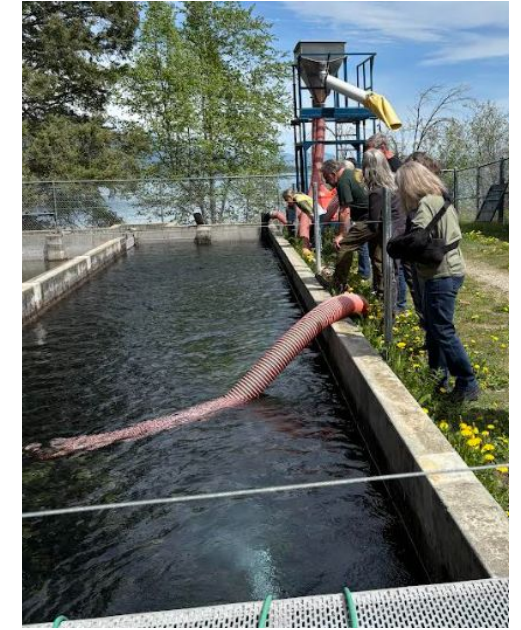
Cabin with WDC history & wildlife displays



History of Idaho Fish & Game's WaterLife Discovery Center and Sandpoint Fish Hatchery



- The Hatchery was founded in 1909 by Idaho Fish and Game (IDFG). The original hatchery was replaced by the current metal building
- The WaterLife Discovery Center (WDC) was developed by community volunteers & businesses between the late 1990's and 2011.
- The WDC's educational displays, programs, and events help young & old understand the role water plays in shaping our environment & in promoting stewardship of water resources.



- Since 2011, a partnership between IDFG, the Idaho Fish & Wildlife Foundation and ID Master Naturalists created, & now maintain, the WDC
- Spring water supplies the hatchery; fish runs and pond. The water is too cold to efficiently raise hatchery fish.
- The fish runs now function as part of the summer redistribution of rainbow trout from other IDFG hatcheries to our local lakes.

Station #5 continued...

WDC Cabin

The cabin was originally the home of the hatchery manager and his family.

Renovation of the cabin and grounds surrounding the WaterLife Discovery Center, took place between the late 1990's and 2011

Plans for continued improvements are ongoing with the fundraising help of the nonprofit organization - Friends of the WaterLife Discovery Center, Inc.

<https://friendsofwdc.org>



The original WDC cabin. So much labor and love was put into it! Let's not let it revert to this. Photos courtesy of Mark Taylor. Donate at: <https://friendsofwdc.org/>



 **Friends of the WaterLife Discovery Ce...** 3w
Check out the construction of the pond!

Station #5 continued...View the Beaver lodge and Poster



North American Beaver: The Ultimate Keystone Species

- What does keystone species mean?
- What do keystone species populations tell us about an ecosystem?

Station #5
continued

...

The Beaver

a keystone species



Station #5 continued...View the Fish Displays & Ask for Coloring Pages



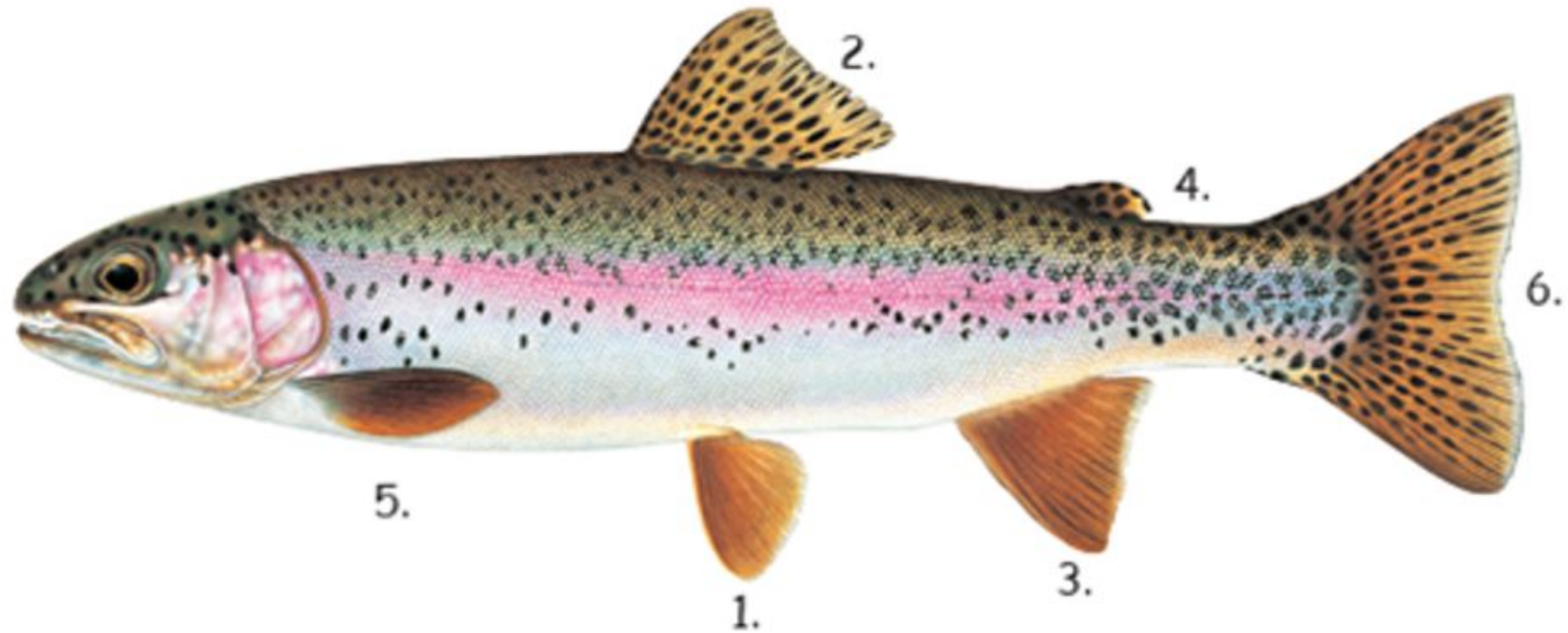
- Rainbow Trout Coloring Page



RAINBOW TROUT

Frost
© Mark Frost

Fish Fins



Fish Fin Labels - Word Bank: Adipose, Anal, Caudal, Dorsal, Pectoral, Pelvic

Thank you for visiting the WaterLife Discovery Center

- If you haven't been to Station #1 yet scroll to slide 9 and continue your field trip
- **Station #1 Amphitheatre & Fish Viewing Window**
 - **Go to page 9 of this document**