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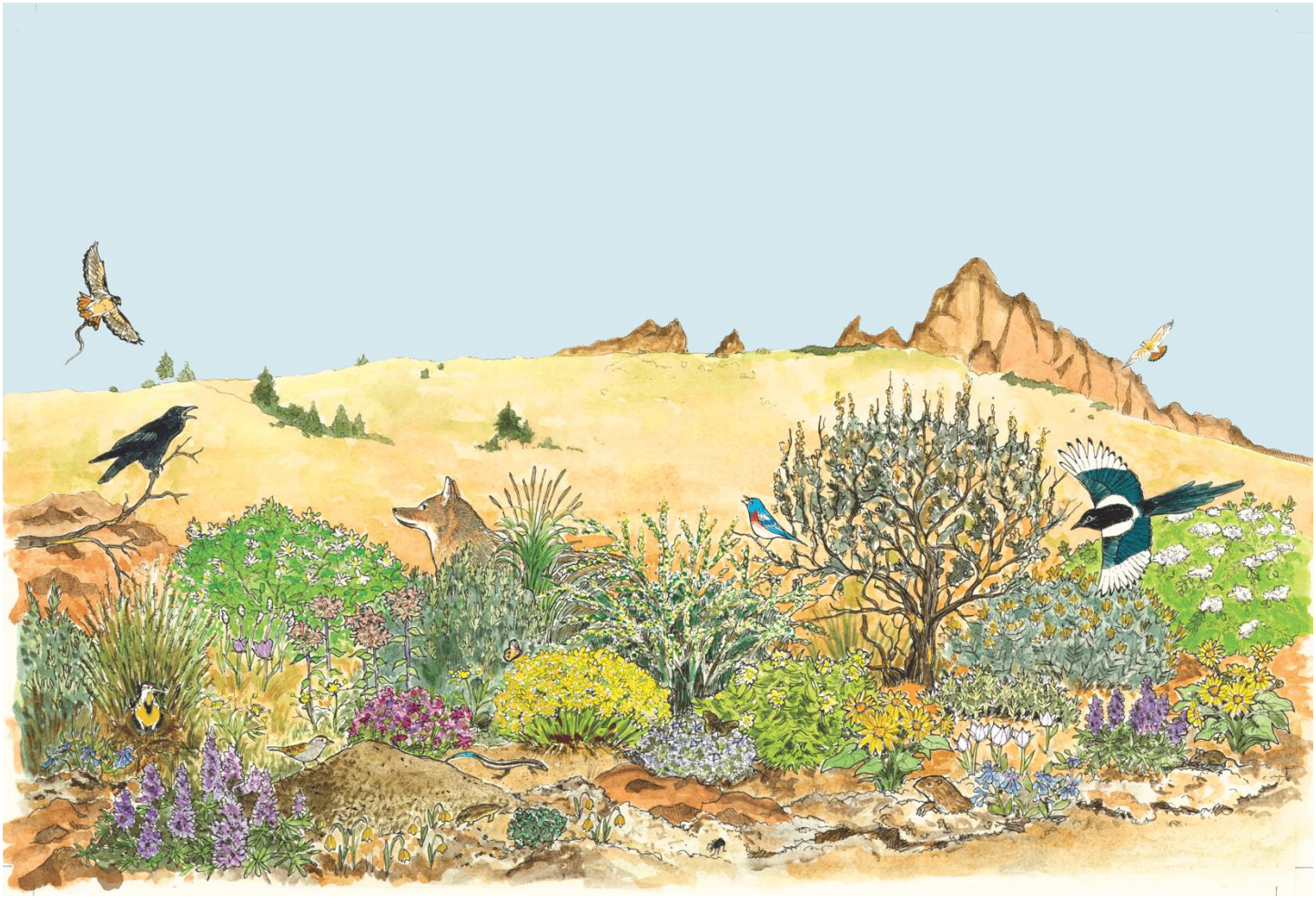
Kids In the Forest and Out of the Classroom

https://cascadiacd.org/kids-in-the-forest_368.html

Step Into the Shrub-steppe: Introductory Video



Video created and hosted by Susan Ballinger

Biography: Susan Ballinger works at Chelan-Douglas Land Trust as a Conservation Fellow. She holds Bachelor and Master degrees in both Biology and Education. She has worked as a field biologist, public school science teacher, curriculum writer, and college instructor. Susan founded and teaches a 50-hour Master Naturalist course each fall at Wenatchee Valley College and has trained over 225 *Wenatchee Naturalists* since 2012. Susan serves on the board for the Wenatchee Chapter Washington Native Plant Society. As a member of North Central Washington Audubon Society, she serves on the Friends of Horan Conservation Committee. As a community scientist volunteer, she is involved in on-going field projects that utilize eBird for Chelan-Douglas Land Trust, Upper Basin Birders, and Washington State Audubon.

VIDEO SCRIPT, Hello! My name is Susan Ballinger.

a. I am a biologist and I especially like to study the plants and animals that live in the Wenatchee Valley.
b. Here, the land is covered with bunchgrasses with scattered woody shrubs, mostly sagebrush. Biologists call these sagebrush grasslands, or the shrub-steppe.
c. Many native plants and animals are at home in the shrub-steppe.

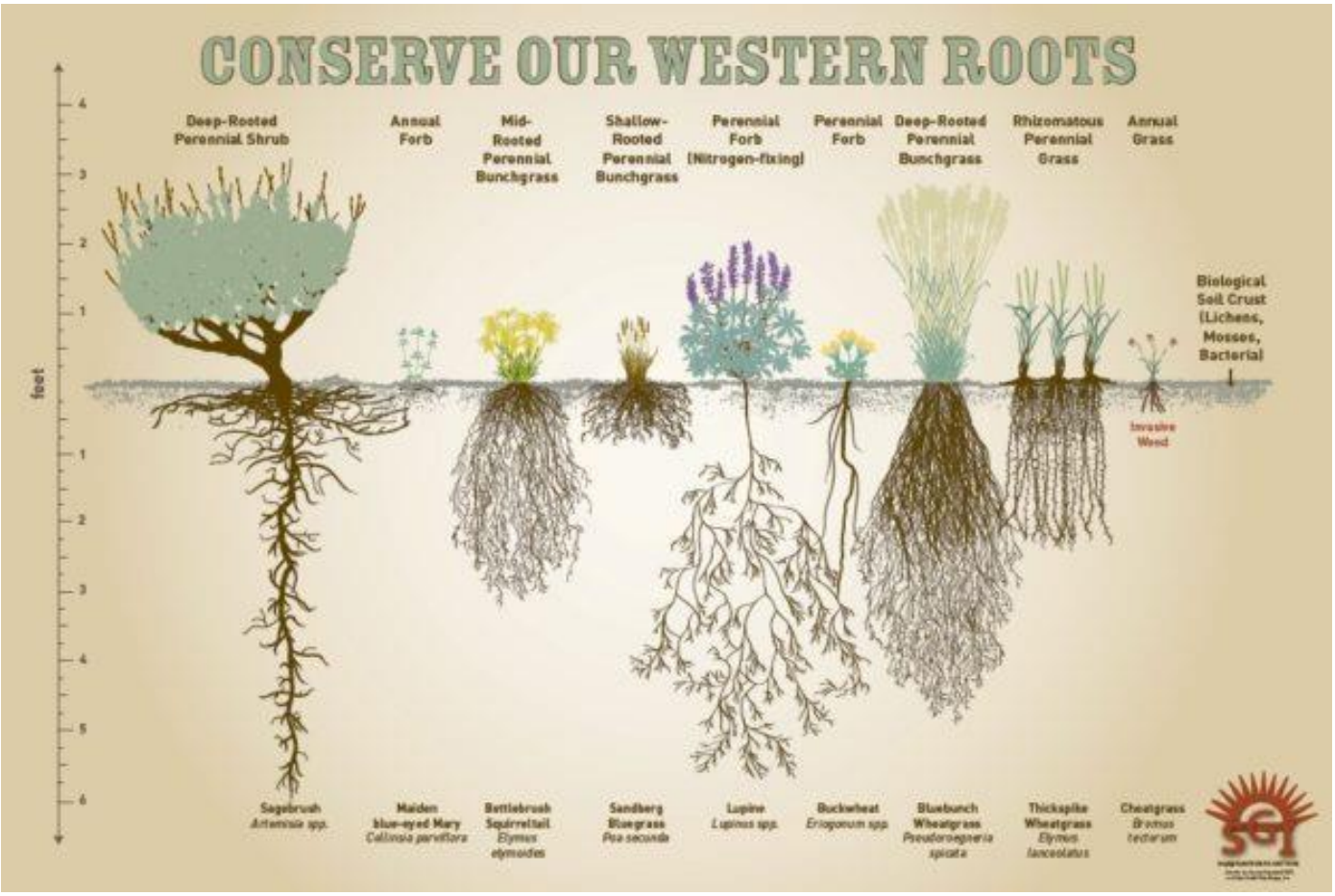
d. If you travel to Yakima, to Spokane, or to Omak, you are driving through shrub-steppe. In the Wenatchee Valley, we are surrounded by shrub-steppe on the hills above our town.
e. You might wonder, why don't trees grow in the shrub-steppe? The answer has to do rain and snowmelt. In one year, We get less than 11 inches of precipitation: enough the grow shrubs, but not enough to grow trees.
f. Let's start exploring up to trail and I'll introduce you to some interesting plants we see along the trail in the Wenatchee Foothills.

1. Here is Big sagebrush.
    a. She the thick woody truck with shaggy strips of bark?
    b. The evergreen leaves are gray-green. If you look closely, you can see short hairs covering each leaf.
    c. The hairs protect the leaf tissues just as wearing sunscreen protects our skin from damage by Ultraviolet radiation from the sun.
    d. Just as I wear a hat to keep my head and face cool, the hairs reflect away heat from the leaf.
    e. And, the hairs slow down the rate of water that evaporates from the leaf, keep the plant from drying

2. Antelope bitterbrush is another important woody shrub in the shrub-steppe
    a. It's trunk looks almost black and the branches grow in many directions.
    b. The leaves are gray on the back, and shinier green on the top. That gray color is from dense wooly hairs on the leaf that help the plant just like the hairs do on sagebrush.
    c. See these large seeds? They are important food for small rodents like voles, pocket gophers, and mice. The animals collect the seeds and store then in underground holes, so they can have food all winter long.
    d. Sometimes, the rodent don't eat the seed caches, and these are the way new bitterbrush sprout and grow.
    e. In the winter, mule deer browse and eat the tips of bitterbrush branches, the nutritious inner cambium tissue is their preferred food.

3. Bunchgrasses are the main ground cover in shrub-steppe.
    a. They are flowering right now, relying on the wind to blow the pollen from one flower into a nearby flower, to fertilize it and begin growing seeds.

    b. Underground, the bunch grass roots are twice as big as the above ground part of the plant. The bare ground surrounding a bunchgrass allows snowmelt and rain to get to the roots and into the plant.



4. Our hills are hot and dry by early June and most of large colorful flowering plants have finished blooming. After bees or flies pollinate flowers, seeds grow and ripen.
    a. You can shake out seeds of arrowleaf balsamroot into your palm. They look like tiny sunflower seeds. Many insects and small mammals eat them.
    b. Balsamroot have one long taproot, 12-15 feet long. Plants are old, often over 100 years!
    c. Here are ripening pods of lupine seeds. As they ripen, they swell up, eventually bursting open so the seeds fly out.

5. A few wildflowers are partial parasites on big sagebrush. Let's find a few now
    a. Thompson's paintbrush: This plant is green and makes its own food, but it steals extra food and water from a neighboring shrub. Its roots penetrate into the roots of sagebrush to get extra energy.
    b. Toadflax uses the sage strategy as Thompson's paintbrush, stealing nutrients and water to supplement its own photosynthesis, and grows large round fruits with tiny seeds inside.
6. I'd like to show you Biological Soil
    a. See this crust onto of the soil? It made up of tiny simple plants like mosses and by fungi and lichens. It is like icing on a cake- a thin layer between all of the plants.
    b. Biological soil stores and collects water, and produces nitrogen fertilizer that all plants need.
    c. It keeps soils from blowing away in the wind, and it is where many native seeds germinate and grow.
    d. One reason we try to stay on trails is to protect this fragile and important layer.

7. Every season of the year, the shrub-steppe is full of life
    a. We can all help protect shrub-steppe habitat by staying on trails, and not hurting animals and plants we find along the way.
    b. I hope you'll be curious and observant the next time you can talk a walk in the shrub-steppe!

SHRUB-STEPPE RESOURCE FOR TEACHERS, PARENTS, and STUDENTS

CDLT Land Trust Website Illustration of Shrub-steppe:
https://www.cdlandtrust.org/sites/default/files/pdf/Ecosystem%20Key_v2.pdf
https://www.cdlandtrust.org/sites/default/files/pdf/Ecosystem%20illo%20wo%20labels.pdf

Links for Teachers: https://www.wenatcheenaturalist.com/teachers/teacher-resources-citizen-science-nature-journaling-project-based-learning-field-experiences/

Conserve our Western Roots poster https://www.sagegrouseinitiative.com/roots/
Conserve our Western Roots postcard: https://www.wenatcheenaturalist.com/teachers/teacher-resources-citizen-science-nature-journaling-project-based-learning-field-experiences/

Animals and Plants of the Shrub-steppe flashcards: https://www.wenatcheenaturalist.com/wp-content/uploads/2016/07/BLM_ID_SagebrushSteppeCards_2017_lowres.pdf

https://www.wenatcheenaturalist.com/wp-content/uploads/2016/07/Shrub-steppe_Habitat_Cards.pdf

Resources for Teachers and Families on the CDLT Website:

A English and Spanish Hiking Challenge Brochure Map for population trails in the Wenatchee Foothills, by Chelan-Douglas Land Trust.

Let's Take Care of Our Foothills Poster (using Leave No Trace principles)
https://www.cdlandtrust.org/sites/default/files/publications/LNT%20Poster.pdf

Wenatchee Foothills Wildflower Guide
https://www.cdlandtrust.org/sites/default/files/publications/Wenatchee%20Foothills%20Wildflowers%202018.pdf