



Sagebrush Steppe Habitat Assessment

Grade Level: 3rd-8th (O.S.S 4th, & 6th) (C.S.S: 3rd, 4th, & 7th)

Overview

Students will learn about sagebrush steppe habitat and conduct an assessment.

California Science Standards

Grade 3: 3.b.c.d.-L.S.

Grade 4: 3.b.-L.S.

Grade 7: 7.c.-I&E

Oregon Science Standards

Grade 4: 2L.1

Grade 6: 2L.2

National Standards

Content Standard A:
Scientific Inquiry

Materials Include

- * Student Journal
- * Clipboard

Activity Time

Preparation: 20 min.
Activity Time: 35 min.

Best Season

All Season

Vocabulary

- * Habitat
- * Biodiversity
- * Bioregion
- * Sagebrush steppe

Learner Objectives

Students will:

- Learn about sagebrush steppe habitat
- Learn about management issues associated with this habitat
- Conduct a sagebrush steppe habitat assessment

Background Information

Habitat is the arrangement of food, water, shelter, and space suitable for the needs of an animal or plant. Different species have different habitat requirements. Sagebrush steppe habitat is found throughout eastern Oregon and northeastern California, east of the Cascade Mountains and Sierra Nevada and extends throughout the Basin and Range. This habitat is also referred to as shrub-steppe or sagebrush grasslands, and is found in arid environments. The dominant plant species include big sagebrush, low sagebrush, bitterbrush, and western juniper. Native grasses that are associated with this habitat are bluebunch wheatgrass, Idaho fescue, needle-and-thread grass and bottlebrush squirreltail grass.

Wildfire is an important disturbance for the ecosystems of the Basin and Range Region. Basin and Range sagebrush steppe habitats were maintained and enhanced by fires that burned every 10-50 years in many areas. Sagebrush vegetation has adapted to survive, reproduce, and establish following wildfire. Enhanced flowering, sprouting from underground tissues, and prolific seed production are fire related adaptations of the native grasses, herbs and shrubs associated with sagebrush steppe plant communities. Fire is also important because it can put vital nutrients back into an area and begin the regeneration of a habitat. Historically, wildfire restricted the growth of junipers to areas where wildfire could not spread, such as rocky outcrops, maintaining large expanses of sagebrush and native grasslands.

Western juniper is currently 10 times as abundant as it was 100 years ago. This has resulted in part from fire suppression, which has occurred during much of the 1900's. Without naturally occurring wildfire, juniper seedlings that would have been killed by fires survive. The introduction of livestock into sagebrush steppe and juniper woodland habitat has also played a role

Lesson Plan

Background Information Continued...

in increased juniper abundance. Livestock grazing can reduce the cover of native grasses and shrubs, opening space for junipers as well as non-native grasses and herbs.

While sagebrush steppe habitat supports fewer species of landbirds than many other habitat types, there are several species that are considered sagebrush steppe obligates. These obligate species are found only in sagebrush steppe and do not occur in any other habitat types in Oregon or California. Sagebrush steppe obligate species include: Sage Thrasher, Brewer's Sparrow, Sage Grouse (which is no longer found at Lava Beds National Monument). Due to these species specific habitat requirements, it is very important that healthy intact sagebrush steppe habitats are maintained to include large patches of juniper-free sagebrush, and juniper are restricted to areas where they occurred before the 1900s, when natural wildfires regularly burned the landscape.

Obligate bird species can serve as indicators of habitat quality as their occurrence and ability to successfully breed can be a sign of habitat health. During a habitat assessment scientists and citizens can measure habitat health by surveying for indicator bird species while looking for other features that also represent habitat integrity. Additional aspects include the occurrence of large unfragmented areas of sagebrush and other shrubs, large areas of native herbs and grasses, and scattered mature juniper trees, of over 100 years in age.

Getting Ready!

1. Read the background information.
2. Determine the site you plan to visit to conduct a habitat assessment.
3. Visit Lava Beds and choose several areas for exploring.
4. Make copies of the *Student Journal Sagebrush Steppe Habitat Assessment*.

Discuss!

1. Ask the students if they know what a habitat is.
2. Give the students some background information on sagebrush steppe habitat.
3. Review the vocabulary associated with this lesson.
4. Ask students why a healthy habitat is important to birds and people.

Teacher Tip

To learn more about the importance of fire to sagebrush steppe habitat, see the "Fire at Lava Beds National Monument" lesson



A thinning crew bikes to a stand of western junipers

Lesson Plan

Go Outside!

1. Go over the aspects of healthy sagebrush steppe habitats.
2. Assign students a location to explore.
3. Pass out copies of the *Student Journal: Sagebrush Steppe Habitat Assessment*.
4. Have the students make observations for 15–30 minutes of all habitat aspects in their location and record them on their student journal.
5. When they have finished their assessments, gather the students together and go over their findings.
6. If there's still time, assign students another area to assess and compare the finding from the two locations.

Follow-up!

1. Ask students 2-3 questions to re-cap the lesson (see right panel).

Suggested Questions

What are the four components of a habitat?

What are two plant species found in a sagebrush steppe habitat?

Why is fire important in maintaining a sagebrush steppe habitat?



Photo courtesy NPS

Sagebrush steppe habitat