## Lesson Plan: Greater Sage Grouse Habitat

**Standards: 5th grade Science Standards: (ST) 8.1.3, .4. 5. 6**

**Objectives: Students will:**

* Learn about greater sage grouse, their behavior and habitat
* Learn what endangered species means
* Answer questions regarding the greater sage grouse
* Draw a picture of the greater sage grouse’s habitat

**Vocabulary:** Greater sage grouse, lek, endangered, habitat, population, extinction, sagebrush steppe, forbs, hen, broods, migration

**Materials:** Access to Internet, *Greater Sage Grouse Fact* sheet (attached) student worksheet (attached) color pencils

**Procedure:**

1. Watch the YouTube video from the *Discover the Wild* on the sage grouse of the Great Basin of the Western U S, a bird that many biologists feel is an indicator species of the health of the sagebrush ecosystem. In this preview, expert Matt Holloran, talks about the mating behavior of the grouse, and biologists capture and release of sage grouse in the wild. [**http://www.youtube.com/watch?v=nDnLHpaDxxo**](http://www.youtube.com/watch?v=nDnLHpaDxxo)
2. Read through the *Greater Sage Grouse Fact* sheet and teacher background to the class.
3. Have the students answer work sheet questions and draw a sage grouse habitat picture on the back of the worksheet.

**Vocabulary:** Greater Sage Grouse, lek, endangered, habitat, population, extinction, sagebrush steppe, forbs, hen, broods, migrate,

**Field Trip Enrichment:** Take students to the Werner Wildlife Museum to see the Sage Grouse Diorama

**Follow-up Lesson: Umbrella Species: Greater Sage Grouse**

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**Sage Grouse Teacher Background Information:** From the National Wildlife Federation website: <http://www.nwf.org/News-and-Magazines/Media-Center/News-by-Topic/Wildlife/2010/03-05-10-Sage-Grouse-Decision-a-Wake-Up-Call.aspx>

Sagebrush grows slowly. Dense stands of sagebrush -- which take 25 or perhaps even 100 years to recover from fires -- can be the most important to sage-grouse.

Though more than 170 species of birds and mammals live in sagebrush steppe grasslands, sage-grouse are one of the only bird species that extensively eat sagebrush.

**Voice:** When flushed, a coarse "wut" or "kak, kak, kak" call. Males also coo and make popping vocalizations by expelling air through esophageal pouches during courtship.

**Diet:** Sagebrush almost exclusively during winter, and forbs (small flowering plants) in other seasons, while chicks eat insects and forbs. Unlike many other birds, sage-grouse are not adapted to digest seeds, and do not eat wheat, corn or other agricultural grains. They will, however, eat alfalfa, dandelion and other introduced forbs.

**Habitat Type:** Sage grouse are found on prairies and mountain foothills, primarily in areas dominated by sagebrush, forbs and grasses, in habitats known as sagebrush steppes. The best sage-grouse habitats are in mature sagebrush stands, often 30-100 years old, with a dense under story of native perennial grasses and flowering plants. These arid lands are characterized by a blanket of sagebrush and scant rainfall and snow. These birds require various types of sagebrush, ranging from tall, well developed sage for shelter and food during deep winter snows, to dense sage thickets with lush native grasses beneath for nesting. Sage grouse chicks need healthy, wet meadows and creek areas rich in insects, forbs and other plants.

**Range:** The greater sage-grouse are found in parts of 11 western states and two Canadian provinces: California, Nevada, Oregon, Washington, Idaho, Montana, North Dakota, South Dakota, Wyoming, Colorado, Utah, Alberta and Saskatchewan.

**Breeding:** Each spring the males gather on a traditional display ground, called a lek, to court the females. They have ornate and competitive springtime mating rituals. Up to 100 males may be seen performing on a single lek, a true spectacle of nature. After mating, females nest and raise up to a dozen chicks without further help from the male. Sage grouse reproduce slowly for an upland bird, often not breeding until they are two years old, and seldom nest again the same year if they lose eggs or chicks to predators or bad weather. Eggs are olive-green, lightly spotted with brown, in a well-concealed grass-lined bowl shaped depression. Sage-grouse have the greatest nesting success in sagebrush stands with 15-25 percent canopy densities, and seven or more inches of grass and forbs under story.

**Winter Lifestyle:** In the fall and winter the leathery leaves of sagebrush are one of its only foods, and during the rest of the year sagebrush provides it with shelter from extreme weather and predators.

**Migration:** Sage-grouse are strong flyers and are often migratory but not always. They can travel across prairies and even over mountain ranges. Along the way, they require sagebrush steppe grasslands.

**Voice:** When flushed, a coarse "wut" or "kak, kak, kak" call. Males also coo and make popping vocalizations by expelling air through esophageal pouches during courtship.

## Greater Sage Grouse Work Sheet Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What are leks?
2. When are leks used?
3. Name a reason why male sage grouse choose a certain lek?
4. Who gets to the leks first; males or females?
5. What are female sage grouse called?
6. What color surrounds the adult male sage grouse’s eyes?
7. What are sagebrush steppes?
8. What do sage grouse nests look like?
9. Where do the hens and their broods go after nesting?
10. Do all sage grouse migrate?
11. What does endangered mean?
12. Are greater sage grouse on the endangered list?
13. On the back of this sheet draw a picture of the greater sage grouse in their natural habitat.

## Greater Sage Grouse Work Sheet -Answer Sheet

1. What are leks? A gathering of certain animal species for the purposes of competitive [mating](http://en.wikipedia.org/wiki/Mating) [display](http://en.wikipedia.org/wiki/Display_(zoology))s and breeding.
2. When are leks used? March through May
3. Name a reason why male sage grouse choose a certain lek? The broadcast of the sound he makes with his air sacs is louder and stronger to attract the female.
4. Who gets to the leks first; males or females? males
5. What are female sage grouse called? Hens
6. What color surrounds the adult male sage grouse’s eyes? Yellow
7. What are sagebrush steppes? Large treeless, dry, level grassland filled with sagebrush.
8. What do sage grouse nests look like? A bowl-shaped depression in the ground made of dead grasses.
9. Where do the hens and their broods go after nesting? They follow forbs, sagebrush and insects to a new habitat. They often go to a higher elevation that is wetter or to an area where water collects.
10. Do all sage-grouse migrate? No
11. What does endangered species mean? A population of organisms which is facing a high risk of becoming [extinct](http://en.wikipedia.org/wiki/Extinct) because it is either few in numbers or threatened by changing environmental or predation.
12. Are greater sage grouse on the endangered list? Not yet but are being closely watched.
13. On the back of this sheet draw a picture of the greater sage grouse in their natural habitat.[](http://www.google.com/imgres?q=sage+grouse+habitat+drawing&um=1&hl=en&sa=N&biw=1093&bih=435&tbm=isch&tbnid=ACe3yVZfVa-1HM:&imgrefurl=http://www.blm.gov/co/st/en/BLM_Resources/environmental_education/activities_for_kids/Sage-Grouse_Worksheet_Key.print.html&docid=Mg45axufvCCt2M&imgurl=http://www.blm.gov/co/st/en/BLM_Resources/environmental_education/activities_for_kids/Sage-Grouse_Worksheet_Key.-WidePar-43692-Image.WideParimage.1.2.gif&w=465&h=640&ei=jEl7UL2aEYHUygGxhYHIAQ&zoom=1&iact=hc&vpx=441&vpy=60&dur=2491&hovh=263&hovw=191&tx=105&ty=166&sig=100106226461778598374&page=1&tbnh=139&tbnw=101&start=0&ndsp=12&ved=1t:429,r:2,s:0,i:77)