

Solving the Challenge: Horses of the West and Bighorn Sheep

Objectives:

Students will understand what a thriving natural ecological balance is and the complex situations of managing wildlife such as bighorn and feral (wild) horses that occupy the same range by writing a proposal on how both wildlife and feral horses can prosper.

Grade level: 3rd to high school

Duration: 2-3 class sessions

- 1 session for research
- 1 session for group collaboration
- 1 session for assessment

Next Generation Science Standards:

- 3-LS2-1 Construct an argument that some animals form groups that help members survive.
- 3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survived less well, and some cannot survive at all.
- 3-LS4-4 Make a claim about the merits of a solution to a problem cause when the environment changes and the types of plants and animals that live there may change.
- 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- 5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the earth's resources and environment.
- MS-LS2-1 Analyze and interpret data to provide evidence for the effects or resource available on organisms and populations of organisms in an ecosystem.

- MS-LS2-5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services. Examples of design solution constraints could include scientific, economic, and social considerations.
- HS-LS2-6 Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

Background:

Congress directed the Bureau of Land Management and U.S. Forest Service in 1971 to manage and protect America's wild horses and burros as part of a **thriving natural ecological balance** on public lands. Since receiving federal protection, the wild horse and burro population on the public lands has soared, affecting the ecological balance.

The solution of how best to solve this problem is controversial on both sides. Many believe that rounding up horses off of the range should not occur. Another side believes managing horses on the range should be done like it is for other wildlife, by sustaining healthy herds.

No one action or tool can adequately address this urgent situation. The BLM continues to seek a variety of new management tools and effective partners who can help put the wild horse and burro program back on a sustainable track.



Materials:

- BLM Wild Horse and Bureau Program poster
https://www.blm.gov/sites/blm.gov/files/wildhorse_2019infographic_2.27.19.pdf
- YouTube video *Horse Rich & Dirt Poor* 16 minute video
https://www.youtube.com/watch?v=q6h242vy_q8
- Information on BLM website about the horse and burro program
<https://www.blm.gov/programs/wild-horse-and-burro/about-the-program>
- *Concepts in Nature Animal Predators and the Balance of Nature* video found at
<https://www.youtube.com/watch?v=0-lju7KvseM>

Procedures:

1. Discuss and define ecological balance for students. This may involve watching the video in the materials list online, or doing it another way. Concepts students need to understand is that when a population gets too high naturally it balances out either through the animal starving and the population decreasing or predators coming in and decreasing that population. it may be important to discuss carrying capacity, and that it explains the size of a population that a particular ecosystem can carry, or handle.
2. Hand out copies of the Wild Horse and Bureau Program poster, or project it for students to see. read through the poster with students to help them understand the issue.
3. Watch the 16-minute YouTube video called *Horse Rich & Dirt Poor*. Perhaps encourage students to focus on taking notes on the inter connectivity between species that live in the same ecosystem.
4. Perhaps allow students time to search through the BLM Wild Horse and Bureau Program website to research more information on the program and the impacts overpopulation of horse populations have on the land and other

animals. Depending on the grade level, the teacher may specifically collect and print out information to focus the students on specific items.

4. After research in class discussions on the issue and possible solutions, small groups collaborate to come up with the best possible solutions so that wildlife, wild lands, and feral horses all prosper and are healthy. It is very important for students to understand that this is a very, very complex problem and that expert adults cannot agree on what is best. A main component of this lesson is for students to understand there are complex issues in our society that are not easily solved and that humans must come together to understand all points of view in a situation to better try to resolve these problems. Students should try to put aside their emotions in managing wildlife, and instead utilize the science to help manage healthy populations.

Assessment:

Students will use their notes from the collaboration small group discussion to either write an individual, or group essay (younger grades perhaps a poster) Which defines the problem and explains the best possible solutions (scientific claim). They will then back up there claim with evidence and explanation, taking out any opinion and using scientific fact as their evidence.



