



Ecological Relationships Lesson #5: WOLF REINTRODUCTION

Overview: This lesson introduces youth to thinking critically about wolves in Yellowstone National Park (YNP) while looking to resources to build their understanding of ecological and conservation issues.

Learner Outcomes

Youth will:

1. Learn about the wolf reintroduction and background on wolves.
2. Explore their personal perspective on wolf presence in YNP.
3. Be able to articulate their thoughts on wolf presence in YNP.

Getting Ready

Materials: Youth need journals and writing utensils; staff need a dry erase board with markers, and handouts.

Lesson at a Glance

Personal Opinion about Wolves (20 minutes)

Explore personal opinions about wolves and the reintroduction of wolves.

WOLF Jigsaw (38 minutes)

Delve further into the culture of wolves using a jigsaw approach: Create groups that develop expertise on one topic; divide them into new groups to share their expert topics, and then have youth return to their original groups.

Concluding the Lesson (10 minutes)

Present an optical illusion to the group and relate the illusion to different perspectives. Reflect on how information presented in the lesson changed, challenged, or made them feel indifferent about their personal perspective towards wolves.

In 1991, Congress provided funds to the USFWS to prepare, in consultation with the NPS and the U.S. Forest Service, an environmental impact statement (EIS) on restoration of wolves. In June 1994, after several years and a near-record number of public comments, the Secretary of the Interior signed the Record of Decision for the final EIS for reintroduction of gray wolves to Yellowstone National Park and central Idaho.

Staff from Yellowstone, the USFWS, and participating states prepared for wolf restoration to the park and central Idaho. The USFWS prepared special regulations outlining how wolves would be managed as an experimental population.

Park staff completed site planning and archeological and sensitive plant surveys for the release sites. Each site was approximately one acre enclosed with 9-gauge chain-link fence in 10x10 foot panels. The fences had a two-foot overhang and a four-foot skirt at the bottom to discourage climbing over or digging under the enclosure. Each pen had a small holding area attached to allow a wolf to be separated from the group if necessary (i.e., for medical treatment). Plywood boxes provided shelter if the wolves wanted isolation from each other.

Legal Status of a Recovered Wolf Population

“The biological requirements for removing the wolf from the endangered species list have been achieved: at least 300 wolves and three consecutive years of a least 30 breeding pairs across three recovery areas.” The USFWS approved wolf management plans in Idaho and Montana, and in 2008 it delisted wolves in these two states and in Yellowstone and Grand Teton National Parks. Several environmental groups sued to stop the delisting, however. They successfully argued that the Wyoming wolf management plan was flawed and that genetic connectivity had not been established between the Greater Yellowstone Ecosystem and the other recovery areas. A court decision required the wolf to be listed again as an endangered species. In 2009, the USFWS again delisted wolf populations in Montana and Idaho, but not in Wyoming. A legal challenge resulted in the Northern Rocky Mountain wolf population being returned to the federal endangered species list.

Background

The following material is supplemental information. Adapted from Yellowstone Resources and Issues Handbook: 2013 (2013).

Wolf Restoration

The gray wolf (*Canis lupus*) was present in Yellowstone when the park was established in 1872. Predator control, including poisoning, was practiced within the park in the late 1800s and early 1900s. Between 1914 and 1926, at least 136 wolves were killed in the park; by the 1940s, wolf packs were rarely reported. An intensive survey in the 1970s found no evidence of a wolf population in Yellowstone, although an occasional wolf probably wandered into the area. A wolf-like canine was filmed in Hayden Valley in August 1992, and a wolf was shot just outside the park's southern boundary in September 1992. However, no verifiable evidence of a breeding pair of wolves existed in Yellowstone.

Restoration Proposed

NPS policy calls for restoring native species when: a) sufficient habitat exists to support a self-perpetuating population, b) management can prevent serious threats to outside interests, c) the restored subspecies most nearly resembles the extirpated subspecies, and d) extirpation resulted from human activities.

The U.S. Fish & Wildlife Service (USFWS) 1987 Northern Rocky Mountain Wolf Recovery Plan proposed reintroduction of an "experimental population" of wolves into Yellowstone. (An experimental population, under section 10(j) of the Endangered Species Act, is considered nonessential and allows more management flexibility.) Most scientists believed that wolves would not greatly reduce populations of mule deer, pronghorns, bighorn sheep, white-tailed deer, or bison; they might have minor effects on grizzly bears and cougars; and their presence might cause the decline of coyotes and increase of red foxes.

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As of May 2011, wolf populations had again been delisted in Montana and Idaho by action of Congress within the previous year, and an August 2012 proposal by the USFWS to delist wolves in Wyoming was passed.

Currently within the greater Yellowstone ecosystem, there are roughly 480 wolves occurring in 75 packs, distributed throughout eastern Idaho, southwestern Montana, northern Wyoming, and Yellowstone. Of those, in 2011 approximately 18 packs spend some or all of their time within Yellowstone National Park. Within the park, no hunting of wolves is allowed. Outside the park, regulated hunting is allowed and managed by the respective states where wolves occur. Because wolves do not recognize political boundaries, and often move between different jurisdictions, the harvest of some wolves that live within the park for most of the year, but at times move outside the park, occurs. Wolf numbers remained stable from 2009 through 2011, following a decline from earlier years. The population has declined approximately 20% in 2012 from recent years. These fluctuations are natural and primarily in response to fewer elk, their primary prey. The number of wolves in the northern portion of Yellowstone decreased from 94 in December 2007 to 34 by December 14, 2012 due to wolves killing each other, food stress, disease, and human-caused mortality inside and outside the park. Park-wide, the number of wolves in Yellowstone declined from 171 in December 2007 to 82 in December 2012 due to the same reasons. There are currently 4 packs of wolves in northern Yellowstone and 6 packs in the rest of the park that use the park for the majority of the year, but occasionally move into surrounding states.

As of late March 2013, 12 wolves, or about 12% of the total number that primarily live in Yellowstone, have been legally harvested outside the park. All wolf hunting and trapping units managed by the States surrounding YNP are now closed for the 2012/2013 season. The population could probably sustain higher losses per year from human-caused mortality without experiencing a significant decline. However, one NPS goal for managing biological resources is to minimize human intervention, which in this case is to reduce any kind of human-caused mortality within the park. Previously, about 3-4% of the wolves that use Yellowstone and the surrounding areas were lost each year to human-caused mortality (i.e., vehicle strikes; culling of habituated individuals). Human-caused wolf mortality in trans-boundary packs at the levels seen during the 2012/2013 season is not expected to substantially influence wolf numbers in the park over the long term.

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At least three of the wolves from Yellowstone that were harvested in 2012/2013 season were of high social rank (e.g., alpha female or beta male), which could affect reproduction, hunting behavior, and territory defense for the respective packs over the short term. 7 of 10 (70%) packs living primarily in the park had at least one wolf harvested from them. Thus, harvests of wolves in states surrounding Yellowstone have affected the function of packs in the park as do natural forms of mortality. Wolves often quickly fill vacant biological and social niches that are a result of wolf losses from any cause.

Suggested Procedure

Creating a Safe Environment

Explain to youth that discussion of the wolf reintroduction in Yellowstone could create some heated exchanges due to strong feelings.

Ask: How might we create a safe environment for our group to express their thoughts and ideas about wolves?

- Respect all opinions, put yourself in their shoes, listen actively, etc.

Personal Opinion about Wolves (20 minutes)

Explore personal opinions about wolf reintroduction.

Staff will:

1. Explain the importance of being respectful and creating a safe environment in sharing their thoughts and ideas. Begin the lesson by reading a passage from Little Red Riding Hood. Do not reveal the name of the story.

She was surprised to find the cottage-door standing open, and when she went into the room, she had such a strange feeling that she said to herself: 'oh dear! How uneasy I feel today, and at other times I like being with grandmother so much.' She called out: 'Good morning,' but received no answer; so she went to the bed and drew back the curtains. There lay her grandmother with her cap pulled far over her face, and looking very strange.

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WOLF Jigsaw (38 minutes)

Delve further into the culture of wolves in Yellowstone with the jigsaw approach.

1. Explain that they will be in topic groups as “experts” to become familiar with one area (i.e. wolves and livestock). Then the groups will “jigsaw” and split into mixed groups consisting of one representative from each of the topic groups.
2. Ask youth to focus on their thought processes when reviewing the handouts, while staff present the following on the dry erase board:
 - a. How can I put these ideas into my own words?
 - b. What connections do I see between this material and things we have already learned, or from my own life?
 - c. How will I tell the members of my jigsaw group about this material?
3. Divide youth into four expert groups, each group will have an article in the handouts:
 1. Wolves and Economics
 2. Wolves and Ungulates
 3. Wolves and Livestock
 4. Ecological Benefits of Wolves
4. They should read their respective articles and make sure everyone in their expert group has a strong enough understanding to share with their jigsaw groups. Encourage them to produce a short list of ideas they plan to share.
5. Re-organize into jigsaw groups (so that one representative from each expert group makes up a jigsaw group).
6. Ask them to share their expertise with one another in their jigsaw group. Ask them to monitor their communication by asking themselves: **(F1)**
 - a. Is what I am saying helping the others learn the material?
 - b. Do others understand what I am saying and making connections between their reading and mine?
 - c. How can I check to see if I am being clear?

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'Oh! Grandmother,' she said, 'what big ears you have!' 'All the better to hear you with, my child,' was the reply 'But, grandmother, what big eyes you have!' she said. 'All the better to see you with, my dear.' 'But, grandmother, what large hands you have!' 'All the better to hug you with.' 'Oh! But, grandmother, what a terrible big mouth you have!' 'All the better to eat you with!' And scarcely had the wolf said this, than with one bound he was out of bed and swallowed up the girl. (Brothers Grimm: Little Red Riding Hood, 2010).

2. Ask whether or not this story is new to any of the youth. If necessary, have someone who knows it well explain the storyline, once the story is identified.
3. Explain that sometimes our perceptions of wolves can be greatly influenced by cultural history such as fairytales. (If they were unable to guess the story, reveal that it was Little Red Riding Hood.)
4. Ask them to reflect (and write in their journals) on their current perceptions about wolves and what factors may have influenced these perceptions. **(D1)**
5. In partners, have them share their current perceptions. Instruct them to record similarities and differences of their perceptions with their partners on a T-Chart in their journal. **(D1)**

- T-Chart: A T-Chart is used for listing two separate viewpoints of a topic

Similarities	Differences



7. Throughout the jigsaw process, circulate the room and observe the groups as they read and discuss. When you notice difficulties, try to put the responsibility for finding a solution back on the youth to enhance the cooperative benefits of jigsawing.
8. Reconvene the entire group back together and ask: In what ways was your expert knowledge changed or enhanced by listening to your peers?
9. Ask one person from each group to present one important idea from their jigsaw discussion.

Conclusion: (10 minutes) **(S1)**

Present the group with the optical illusion picture. Instruct them to observe it carefully before asking what they see.

1. Have them work in partners to relate the optical illusion to different perspectives. Ask them to share what they think about the following quote with their partners:
 - “Everything we hear is an opinion, not a fact. Everything we see is a perspective, not the truth” - Marcus Aurelius
2. Ask: How did the information that was presented in the lesson affect your personal perspective towards wolves in YNP?
3. Wrap up with a discussion about the importance of having an informed knowledge base and the importance of being open to different perspectives when resolving ecological and conservation issues.

Assessment Check Ins:

(D1): This information will assist the staff in understanding the prior knowledge that youth have about wolves.

(F1): This assessment will provide insight into the degree and depth of their understanding to guide and adjust the conclusion of the lesson.

(S1): Assesses what youth have learned and transfers it into their lives and experiences.



Staff Notes:

- Set high expectations about respecting the safe environment that the group creates.
- The jigsaw approach is supported by research (Aronson & Patnoe, 1997) that demonstrated improved attitudes in students towards school and each other and positive interdependence in the classroom.

References:

Aronson, E. & Patnoe, S. (1997). *The Jigsaw Classroom: Building Cooperation in the Classroom*. 2nd ed. New York, NY: Longman.

Grimm. (n.d.). *Little red riding hood*. Retrieved from: <http://www.eastoftheweb.com/short-stories/UBooks/LittRed.shtml>

Incorporates the 'Little Red Riding Hood' story. It was modified in the following way: Instructional language was changed to match the REC.

Filkins, S. (2013). Strategy Guide: Using Jigsaw Cooperative Learning Technique. Retrieved from National Council of Teachers of English:
<http://www.readwritethink.org/professional-development/strategy-guides/using-jigsaw-cooperative-learning-30599.html>

Incorporates Jigsaw Cooperative Learning Technique. It was modified in the following way: Instructional language was changed to match the REC.

Wolf Fact Sheets. (2009). *In Jackson Hole Conservation Alliance Library Reports*. Retrieved from <http://www.jhalliance.org/Library/Reports/WolfFactSheets.11-09.pdf>

“10 Images of Optical Illusion”. (2012). Retrieved March 22, 2013, from Swick:
<http://swick.co.uk/index.php/2012/11/10-images-of-optical-illusions>/<http://swick.co.uk/index.php/2012/11/10-images-of-optical-illusions/>

Handouts:

- Wolves and Economics
- Wolves and Ungulates
- Wolves and Livestock
- Ecological Benefits of Wolves

The handouts above can be found at: <http://www.jhalliance.org/Library/Reports/WolfFactSheets.11-09.pdf>



Optical Illusion



(Reprinted from "10 Images of Optical Illusion", 2012)