

A Noble Basin Educational Video Series

1-3 minute Video Shorts for the High School Classroom

1. Community Mobilization

Class Discussion: Residents all across Wyoming mobilized together to preserve public land in the Wyoming Range from oil and gas development. The people and groups who mobilized to fight to save land in the Noble Basin in the Wyoming Range included ranchers, hunters, fisherman, coal miners, oil rig workers, environmentalists, parents, outfitters, and students. The groups that organized were Citizens For The Wyoming Range, Stop The Drilling Save The Bridger Teton, The Wilderness Society, Trout Unlimited, Foundation For Sustainability and Innovation, Wyoming Outfitters and Guides Association, Greater Yellowstone Coalition, Rendezvous River Sports, American Rivers, and the Wyoming Outdoor Council. It takes a lot of perseverance, hard work, and communication to educate others about a cause, such as preserving public lands.

- Do you think it's important to preserve open space and wilderness? If yes, Why?
- How can young students educate and organize in order to help preserve open space?
- Have you ever worked with other people or a group with a specific goal?
- Do you think people with different views and mind sets can still come together in a common cause?

2. Public Land Preservation

Class Discussion: This video clip is about how people can be informed about land lease sales. Currently, 3x's more public land is used for development than conservation. Depending upon the state, every 3-6 months public land leases are auctioned off and sold for energy development. If you want to learn about your public land and what leases are up for sale, join a conservation or sportsman group.

- What is the public land that you live near?
- How are public lands sold?
- Do you have interest in what happens with your public lands?

3. Public Land Multiple-Use

Class Discussion: The Federal Land Policy and Management Act of 1976 requires multi-use on public lands. Public lands are for all of us, they are our lands. Cattle ranchers, sheep ranchers, hunters, fisherman, skiers, bikers, hikers, campers, and those who work in energy development all use public land.

- What does public land mean to you?
- What activities do you do on public land?
- How much time have you spent on public land?

4. Wyoming Energy

Class Discussion: The State of Wyoming is a leading exporter of energy for the United States. Wyoming produces coal, solar, wind, gas, and oil energy. The Jonah Field and Anticline outside of Pinedale, Wyoming are the largest oil and gas fields in Wyoming and the 6th largest in the United States. The National Environmental Policy Act of 1970 ensures that the public is informed and that government agencies, like the forest service, take into account environmental impacts on the land during energy development.

- What are the ways we produce energy?
- How do we decide what land is developed for energy and what land is preserved?
- Have you visited the Jonah Field or Anticline Fields?
- Do you know of anyone who works in energy development?
- How can we all conserve energy?

5. Hunting in the Wyoming Range

Class Discussion: The Wyoming Range is one of the most popular locations for hunting. Oil and gas development impacts wildlife habitat. Hunting depends upon healthy wildlife populations.

- Do you hunt or do you know someone who hunts?
- What animals do we hunt in Wyoming?
- How does oil and gas development impact wildlife?
- Are there hunting spots that we should preserve?

6. Herding Sheep

Class Discussion: There are very few four season sheep migration outfitters left in Wyoming, much less the United States. Julian Land and Livestock is sheep ranch outside the town of Kemmerer, Wyoming that moves their sheep on horse back all year long.

- What does sheep migration mean?
- How do dogs help the sheep migrate?
- Why does ranching create a strong connection to the land?
- Why are there only a few sheep migrating outfitters left in Wyoming?

7. Wyoming Range Moose Study

Class Discussion: Moose do not migrate like mule deer and antelope. There is a permanent moose population that lives in the Wyoming Range. Wildlife Biologist Gary Fralick has radio collared over 35 moose in the area. According to Gary's studies, 1/3 of moose population has declined in the region.

- Since moose populations are declining, why is their habitat so important?
- How does radio collaring wildlife, and moose specifically, help us learn about their behavior and health?
- At what time of year do you see moose the most and have you ever seen the same moose year after year?

8. Raptor Migration

Class Discussion: During migration seasons in the fall, HawkWatch International counts all the species of raptors flying over Commissary Ridge in Kemmerer, Wyoming. Commissary Ridge is a critical flyway and one of three known raptor migration corridors in Wyoming. Eagles, hawks and falcons migrating south tend to fly along Commissary Ridge in site of the observation station.

- What is the definition of a raptor versus a bird?
- Can you list different types of raptors?
- Why is land preservation important for raptors as well?
- How do raptors use the land and why do they need critical stop over points?

9. Sage Grouse and Mule Deer

Class Discussion: Sagebrush habitat is critical to the survival of sage grouse and mule deer. There is a sage grouse population in the Wyoming Range and they congregate on sagebrush leks in the spring during courtship. A lek is an open area where male sage grouse have the room to do their courtship dance. Currently 50% of sage habitats in North America, from Canada to Mexico, are now gone.

Mule Deer migrate into the Wyoming Range for their birthing grounds and summer habitat. The deer population has declined by 60%. Mule deer eat a broad range of plants found in sagebrush ecosystems and they rely almost exclusively on sagebrush in the winter.

- Why is sagebrush so important for the survival of sage grouse and mule deer?
- Why do you think the populations of sage grouse and mule deer are declining?
- Have you seen sage grouse and mule deer in sagebrush ecosystems?
- What are some reasons that sagebrush habitat is disappearing?

10. Wyoming Range Wildlife Corridor

Class Discussion: The Noble Basin in the Wyoming Range, is part of the longest intact over-land migration corridor in the United States. This 6,000 year old path for hundreds of mule deer and pronghorn, spans 150 miles from Rock Springs to the Greater Yellowstone ecosystem. It's one of the last long distance land animal migrations in the entire world. Other species that use this corridor are lynx, wolverine, grizzly bears, elk, and moose. Animals need the stop-over points along this corridor as a food source to replenish nutrients and as birthing areas.

- What is an intact over-land migration corridor?
- What animals use the Wyoming Range corridor?
- Have you seen the mule deer and pronghorn over passes near Daniel and Pinedale, Wyoming?
- Why do animals need to migrate?
- Why do animals need stop-over points while migrating?
- What time of year do animals migrate?
- Have you even seen animals migrate?
- Why is it important to keep wildlife migration corridors free from development?

11. Pavillon, Wyoming Water

Class Discussion: In the early 2000's, oil and gas development in Pavillon, Wyoming moved ahead too quickly without preliminary studies on surface area and ground water. Pavillon residents are not able drink their well water because it has been contaminated with chemicals found in oil and gas production. Pavillon is a reminder of the importance of production companies following certain regulations and stipulations when drilling for oil and gas.

- What regulations should be followed when drilling for oil and gas? For example, should there be certain depths and distances from people's homes and water sources?
- What would be examples of preliminary studies before drilling occurs?
- Do you think companies should take more time and spend more money to do preliminary studies?
- Once ground water is polluted, do you think it is easy to clean up? If no, why not?

12. The Hoback River

Class Discussion: The Hoback River is designated as Wild and Scenic due to its environmental and recreational values. A Wild and Scenic designation means the river needs to be preserved in its free flowing condition, including no dams or obstructions. The headwaters of the Hoback River comes off of the Wyoming Range and it's an important tributary into the Snake River and an important fishery for native cutthroat trout. Healthy cutthroat trout populations are indicative of healthy rivers. Cutthroat trout need clean gravel in the streambed to bury their eggs and clean water to carry oxygen to the incubating eggs. Less than 1% of rivers in the United States are protected as Wild and Scenic.

- Do you spend time on the Hoback River?
- What river activities do you like to do?
- Why do native cutthroat trout need clean rivers?
- Why is it important to keep healthy fish populations?
- Why is it important to preserve our rivers?
- How does one river impact another river?
- Do you know of any other Wild and Scenic Rivers?

13. Wyoming Ground Water Study

Class Discussion: Teton Conservation District Water Resource Specialist, Carlin Girard, studies streams and tributaries before and after oil and gas development to find out how surface water is impacted. Studies have indicated that spills have contributed to large mortalities of fish populations.

- What are streams and tributaries and do they lead into rivers?
- How does our ground water impact our drinking water?
- How does up stream impact down stream?
- How do we ascertain which water sources are used for oil and gas production?

14. Air Monitoring Station

Class Discussion: The Boulder, Wyoming air monitoring station measures ambient air quality standards. The Wyoming Department of Environmental Quality of EPA, requires certain clean air standards be met for the state. An air monitoring station measures for ozone, particulate matter, and VOCs or Volatile Organic Compounds, which are emitted chemicals from oil and gas production. It's important to have daily inspections to check for leaks at oil and gas production sites to ensure that VOCs aren't released into the air.

- Is it possible to see chemicals or VOCs in the air?
- Why is air quality important?
- Why are air monitoring stations near oil and gas fields important?
- Does air pollution in one area travel to another area?

15. Wyoming Ozone

Class Discussion: Ozone is a molecule composed of three oxygen atoms. We need natural ozone in the atmosphere to shield us from the sun's harmful ultraviolet rays. Bad ozone forms near the ground level when air pollutants, emitted by sources such as cars, power plants, and chemical

plants, react chemically in the presence of sunlight. Sublette County and the region outside the Wyoming Range, was designated in the early 2000's as a Non-Attainment Zone or an area considered to have air quality worse than the National Ambient Air Quality Standards. Sun and snowpack on the mountains chemically react with the air and trap the lower bad ozone layer and a smog forms.

- What is ozone and why do we need it?
- Why does bad ozone form?
- Can you see high levels of bad ozone?
- Have you seen high levels of bad ozone in other parts of the world?

16. Ozone Monitoring

Class Discussion: Astronomer Perry Walker uses an ozone monitor to study ozone levels in the atmosphere. Perry studied base line levels of ozone outside of Noble Basin in Sublette County, Wyoming before additional oil and gas production. In previous years, Sublette County has exceeded safe levels of ozone.

- Why is it important to study ozone levels before and after energy development?
- If air degradation occurs, how does this impact people?
- How can we improve air quality?