

Elk Basics



THIS IS THE LESSON THAT WE WILL PROVIDE VIA SKYPE

Summary:

In this hands-on interactive program students will learn about the history of elk in Pennsylvania. Students will be introduced to aspects of elk physiology and behavior.

Grade: K+

Est. Time: 30 minutes

Objectives:

- 1) Students will be able to recite various facts about the history of elk in Pennsylvania.
- 2) Students will be able to explain the functions of a ruminant stomach.
- 3) Students will be able to differentiate between antlers and horns.
- 4) Students will be able to define the following terms: herbivore, mammal, and ruminant.

Key Terms:

Antler: a bony outgrowth on the head of members of the cervidae (deer) family which shed and grows back each year

Bull: an adult male elk

Browser: an animal that feeds on the leaves, buds, soft stems, or fruits of woody plants.

Calf: a baby elk

Carnivore: an animal that primarily eats meat

Cow: an adult female elk

Cud: a portion of food that returns from a ruminant's stomach to the mouth to be chewed for the second time

Grazer: an animal that feeds on forages such as grasses and hays

Harem: a group of female elk and their calves

Herbivore: an animal that primarily eats plants

Horn: a permanent outgrowth on the head of many members of the bovine (cattle, sheep) family which is comprised of a bony core protected by a sheath of keratin.

Ruminant: are mammals with a four chambered stomach that allows them to consume plant based materials by fermenting it in a specialized compartment called the rumen.

Rut: the term for elk mating season

Resources:

Wild About Elk: Activity Book and Curriculum Guide

Project Wild: Activity Book and Curriculum Guide

<http://www.pgc.pa.gov/wildlife/wildlifespecies/elk/pages/default.aspx>

Equipment Needed:

Picture of European Red Deer, Picture of Rocky Mt. Elk, Picture of Ruminant Stomach, Elk Antler, Bison Horn, Radio Tracking Collar

Guidelines For Teaching:**1) Introduction**

Hi my name is _____ and I am the/a _____ for the Keystone Elk Country Alliance. The Keystone Elk Country Alliance is a non-profit wildlife conservation organization that operates the elk country visitor center. Today I am going to talk to you about elk.

2) Elk History

First let us start with how elk got to Pennsylvania (show picture of European Red Deer). European Red Deer are a large species of deer native to Europe and Asia. Approximately 10,000 years ago the European Red Deer crossed the Bering Strait Land Bridge into North America. Sometime after this the Bering Strait Land bridge became un-crossable due to sea-level rise. As the European Red Deer dispersed through North America they adapted to a variety of different habitat types (mountains, plains, wetlands, forests, tundra) which led to 6 different subspecies of elk in North America. Unfortunately two of these six subspecies are now extinct, one of which was the Eastern Woodland Elk, a subspecies native to Pennsylvania. In the 1600-1700s these elk were plentiful in Pennsylvania and occupied every county. In the early 1800s their population numbers started to decline with European settlement. The last Eastern Woodland Elk was shot in 1867. The Pennsylvania Game Commission was established in the late 1800s/early 1900s and one of their first acts was to reintroduce elk to Pennsylvania. In 1913 the PGC brought a total of 50 elk from Yellowstone National Park and released them into 8 different counties in Pennsylvania. From 1913-1926 a total of 177 Rocky Mt. Elk were reintroduced to the state.

3) Radio Telemetry

Currently we have somewhere around 1,000 elk in Pennsylvania and they span across 5-6 counties (Elk, Cameron, Clinton, Clearfield, McKean, Potter). We know this number from these (hold up radio collars). Do you know what these are? These are radio tracking collars. At any given time there are approximately 70 collars on elk in the state. These collars work similar to the radio in your car. A radio station sends music on a specific wave frequency; you then turn your radio in your car to that specific wave frequency and hear the music. These work in a similar fashion except instead of hearing music I hear a beep (from the receiver). The closer I get to the collar the louder the beep, the farther away I am from the collar the quieter the beep. Now I said we have approximately 1,000 elk in PA but only 70 collars- so how does that work? PGC randomly selects elk to place collars on in hopes of getting a collar in each herd of elk. In late winter when the elk are pretty set in their herds the biologist will go out and find each of these collars and count every individual in each herd to get a live minimum count.

4) Elk Physiology

Elk are really big but they are not the biggest members of the Cervidae family. The largest member of the Cervidae family is moose, then elk, then caribou, then deer. Bulls

or males can weigh anywhere from 700-900 lbs, with females or cows weighing 500-600 lbs. Calves are typically born around 35 lbs which is a lot larger than deer fawns which are born at about 7 lbs.

One of the questions we commonly get here at the center is “where are the elk?” And the answer to that question depends on the time of day (and time of year). Elk are crepuscular meaning they are most active at dawn and dusk. There are probably two main reasons for this behavior. The first is an adaptation to avoid predators. Most predators primarily feed during the day or at night, which reduces predation pressure on prey that are active during twilight. The second is to avoid the heat (pass around pelt). Elk have a 2 layered winter coat that they sport for 10 months out of the year. If you had to wear your winter coat in August would you get hot? Probably and so do the elk, therefore during the warmest part of the day the elk take to the woods for shade to help remain cool, and forage in fields during the cooler parts of the day.

Elk are herbivores. What is a herbivore? An animal that eats primarily plants. More specifically elk are grazers which means they prefer to consume grasses and legumes. Elk are able to digest these plant-based foods because they are ruminants. Ruminants are animals with a four chambered stomach that ferments plant based materials in a specialized storage compartment. This stomach allows elk to digest cellulose and lignin that we as humans are not able to fully digest.

As I said before elk are members of the Cervidae family, all members of the cervidae family have similar characteristics. One of those characteristics is antlers! Did you notice how I said antlers and not horns? That is because antlers and horns are similar but two different things. Horns are made out of an interior bone core surrounded by a keratin sheath (hold up bison horn). Keratin is the same thing your fingernails and your hair is made out of. Horns are also permanent meaning they don't shed or fall off every year. Of species that have horns both the male and the female sport horns. Do both male and female elk have antlers? No. Antlers are made out of bone, it is actually one of the fastest growing bone tissues in the world and can grow up ½ inch to an inch a day (hold up elk antler)! Antlers shed every year, for elk that typically happens in March. Once the antlers fall off they begin to grow a new set immediately. When antlers are growing they are covered in a layer of velvet. Velvet is a soft fuzzy skin that supplies the growing antler with blood (and in turn nutrients) without this blood supply the antler cannot grow. In August, this velvet will begin to dry up and fall off and at this time the antlers are fully grown. (If you have time go over the three things that determine antler size: age, nutrition, and genetics).

5) Rut

Antler size is extremely important during the rut or breeding season which occurs from September to October. The primary purposes of antlers are for male vs male competition during rut and to attract females. Males with large antlers are more likely to gain dominance over other males during rut as well as attract females. Scientific studies have shown that females choose mates based on the shape, size, and function of male antlers. During this time bulls will gather a harem (group of females with calves) of which the bull is claiming sole breeding rights. Harems can be anywhere from 3-50 females. Let's talk about fights, during rut it is true that males will sometimes get into physical fights over their harems (groups of females with their calves) however this is not honestly a last resort so to speak. The only time elk will fight is if both males have an equal chance at winning. This is because the energy expenditure required for rut is extremely high, bulls can lose approximately 10% of their body weight in this 6 week period. That can be anywhere from 70-100 lbs! And this all happens right before winter when food is scarce. So it is vital during this time that bulls are not wasting energy on unnecessary things. Therefore if one bull is much larger than another,

usually the smaller bull will stand down before a fight occurs. When bulls do fight it is important to mention it is not a fight to the death, the goal is not to hurt one another. It is simply a display of strength (kind of like sumo wrestling).

6) Review and Questions

- How many elk are there currently in PA?
- How do we track the elk?
- What is a herbivore? Grazer? Ruminant?
- Name one difference between antlers and horns?
- What is rut and when is rut?

PA Education Standards

3.1.3.A1., 3.1.K.A5., 3.1.4.B2., 3.1.K.C2.