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The Pennsylvania Game Commission is the State Wildlife Management Agency whose mission is to manage and protect wildlife and their habitats while promoting hunting and trapping for current and future generations. This presentation is all about Pennsylvania's State mammal, the white-tailed deer.

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Many of you may have seen a white-tailed deer. White-tailed deer are a member of the Cervidae (deer) family. The deer family includes moose, elk, caribou, mule deer, and white-tailed deer. Only white-tailed deer and elk live in Pennsylvania.

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Cervids are a group of animals that have split hooves and no incisor teeth in the front of their upper jaw. They are a part of a larger group of animals called ungulates. Ungulates are mammals with hooves.

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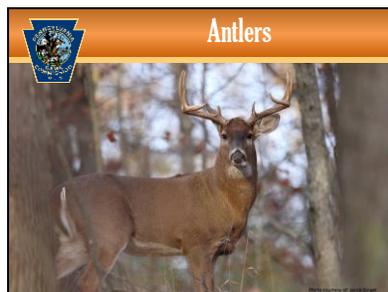
Deer are prey animals that are most active during twilight hours (crepuscular). A mature male deer, called a buck, weighs about 140 pounds and stands just under 3 feet tall at the shoulder. Females are called does and tend to be smaller than males of the same age. Newborn deer are called fawns and weigh 6 to 8 pounds at birth. Males grow and shed antlers each year. On rare occasions, females also grow antlers.

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Once a buck is about 10 months old it begins to grow its first set of antlers. Antler growth is triggered by lengthening days; testosterone production is low during this time period. Antlers begin growing out of two bony bumps on their head called pedicles. Antlers start out as layer upon layer of cartilage. Soft furry skin, called velvet, covers the growing antlers. The velvet contains blood vessels and veins that supply nutrients to the growing bones.

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Antlers are the fastest growing tissue in any mammal and can grow up to an inch a day- in some species like elk and moose, but not deer. As the summer progresses, decreasing daylight and increasing testosterone levels stops antler growth. It takes 160 to 170 days to complete antler growth. By Mid-August, antlers are typically fully developed. They have mineralized into solid bone and the blood supply has stopped flowing to the velvet. The velvet dries up and is rubbed off, exposing the bone antlers.

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Decreasing testosterone levels and general health dictate when a buck sheds his antlers. The antler cycle will begin again in the spring with lengthening daylight.

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Deer are well-equipped with adaptations to outsmart predators. The eyes of deer are located on the sides of their head, giving them a larger field of view to see predators. A closer look into their eyes reveals that deer have a higher number of rods (help to see in dim light) than cones (help to see in bright light and color) in their retina. They also have a membrane called the tapetum lucidum, which reflects light back through the retina, improving their vision in low-light conditions. In addition, deer lack a UV filter. All of this means that deer see better in low-light conditions and can distinguish some colors such as red from blue, but they are essentially red-green color blind (red, orange, or green all look the same to a deer). The high density of rods also allows deer to key in on movement, making them great motion detectors.

Deer have other keen senses including smell and hearing. All these senses work together to help deer detect and escape predators.

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Deer are excellent runners and can travel at a top speed of 30 mph for short distances to flee from danger. They are good jumpers, too, capable of clearing obstacles up to 8 feet high. Deer also have air-filled guard hairs that help keep them afloat in water and allow them to swim well.

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Adult male and female deer are colored the same. The belly, throat, areas around the eyes, mouth, nose and inner ears are white. The underside of their tail is also white. During summer, their fur is short, thin and reddish brown in color which helps keep them cool and camouflaged. They have no underfur.

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Summer coats are shed in August and September and replaced with a warm, winter coat. The winter coat is grayish-brown and consists of two layers—long, hollow guard hairs that lie on top of soft, thick underfur. This thick winter coat helps keep them warm and allows them to blend into their surroundings. They shed their winter coat in April or May.

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Fawns have a reddish coat and are dappled in white spots which helps them hide on the forest floor. By the fall they have the same fur as the adults.

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Rare deer may be albino (no color) or melanistic (dark color). Some deer may also be piebald (partially white), but makeup less than 1% of the population.

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Deer communicate with each other in several ways. One way deer communicate is through visual communication. Probably the most well-known example of this is when a deer is alarmed and flees it will raise its tail to reveal the white fur underneath ("flagging"). This signals to other deer that danger may be nearby. The white tail also makes it easier for deer to follow each other by looking for the white tails. This behavior give the white-tailed deer its name.

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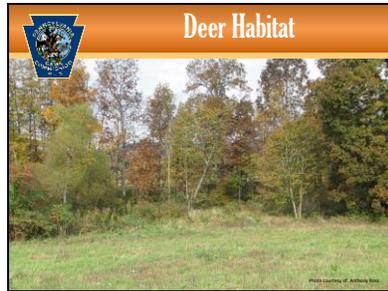
Vocal communication is not as common as other forms of communication, but white-tailed deer will make a variety of sounds. They may bleat, grunt, whine, and when alarmed or suspicious, blow or snort by forcefully blowing air through their nostrils. Blows are repeated several times and snorts are single and very short. Fawns may bleat or mew to call their mothers, probably when they are hungry. Does will whine or use a low-intensity grunt to call their fawns.

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Whitetails also communicate using scent. "They have many scent-producing glands: two tarsal, one inside each hind leg at the hock joint; two metatarsal, one on the outside of each hind leg between the hock and the foot; four interdigital, one between the toes of each foot; and two preorbital, one below the inside corners of each eye. The tarsal and metatarsal glands release scents conveying excitement or fear; while the interdigital glands produce odors that let deer trail each other by smell. The preorbital glands are used to personalize the prominent overhanging branch at "scrapes“..."

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White-tailed deer are found throughout Pennsylvania and live in a variety of habitats. Deer habitat provides deer with food, water, shelter (cover) and space they need to survive. Deer are at home in a forest, but they thrive as an “edge species”. An edge is where two different habitats come together such as a forest and field. Edge areas tend to have more plant and animal species associated with them. Deer take advantage of forest/clearing edges that offer a greater variety of foods (plants). Shelter is important in all seasons to provide protection from weather and predators; winter protection within extensive hardwood forests is the most essential component. Foods near good winter cover is the ideal winter habitat.

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White-tailed deer are herbivores. An herbivore is an animal that only eats plants. Deer are primarily browsers, eating mostly woody plants (twigs, fruit, nuts, buds and bark of trees). They also eat field plants such as grasses and clovers. Deer have a four-chambered stomach classifying them as a ruminant animal. Their multi-chambered stomach allows them to eat their food quickly and store it for later chewing (cud) and digestion.

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White-tailed deer breed in the fall; it begins as early as September and can last into late January. The peak is mid-November. The breeding season is called the rut.

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As the breeding season gets closer, communication between males and females becomes more important. Bucks create signposts in the form of rubs and scrapes. They will use their antlers to scrape away bark from trees and shrubs and then rub the exposed wood with the scent gland on their forehead. Other deer will then smell and lick these rubs to gain information about the buck.

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Bucks also make scrapes prior to rut and more intense just before the peak of the rut. Bucks use their hooves to scrape away leaves and grass from the ground. Then they will put their hind legs together and urinate. The urine will run down over their tarsal glands and deposit their scent into the soil. After they make the scrape, they bite a branch overhanging the scrape and then place scent on it from a gland near their eye. Scrapes are used to communicate with other deer.

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During the rut, bucks become aggressive and use their antlers to establish dominance over another buck by sparring or fighting.

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After the breeding season, white-tailed deer focus on surviving the winter. Deer survive the winter by using fat reserves and conserving energy. Beginning in late-fall and continuing through the winter, deer eat less. They conserve energy by reducing their travel and sheltering in cover that helps protect against the winter weather.

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As spring arrives, so do the fawns. Most fawns are born in May or June. The majority of adult does give birth to twins, some may have triplets (less than 5%). Fawns that were bred when they were 7 or 8 months of age usually give birth to a single fawn. Fawns hide themselves from predators by bedding in plants. The mothers typically only nurse their fawns in the mornings and evenings. Fawns are capable of foraging on plants within the first week of life. Fawns are completely weaned from their mothers by 10 weeks of age but will continue to nurse longer if permitted.

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The most notable natural predators of white-tailed deer are coyotes, bears, and bobcats. According to a Game Commission study, 84% of the predation occurs when the deer is less than 9 weeks old. Hunters are also predators of deer and play an important role in their management.

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Deer are a valuable part of our wildlife heritage and are important natural resource. Deer provide recreational opportunities through wildlife watching and lawful hunting. The Game Commission's goal is to manage deer in a manner that ensures a healthy and sustainable deer population and habitat while keeping human-deer conflicts at acceptable levels. Hunting is the primary method used to manage deer populations.

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For more lessons and activities on white-tailed deer and other wildlife, please visit:

[pgc.pa.gov/Education/VirtualLearning](https://www.pgc.pa.gov/Education/VirtualLearning)  
References Accessed December 2021:

1. Pennsylvania Game Commission White-tailed Deer Wildlife Note

2. Whitetails Unlimited, Deer Talk A Field Guide to Whitetail Communication, [https://www.whitetailsunlimited.com/i/p/bk\\_deertalk.pdf](https://www.whitetailsunlimited.com/i/p/bk_deertalk.pdf)

3. Pennsylvania Game Commission, Predation on Pennsylvania's deer, <https://www.pgc.pa.gov/Wildlife/WildlifeSpecies/White-tailedDeer/Pages/PredationDeerPopulation.aspx>

4. Pennsylvania Game Commission, Please Don't Feed the Deer,  
[https://www.pgc.pa.gov/Wildlife/WildlifeSpecies/White-tailedDeer/Documents/feeding\\_deer.pdf](https://www.pgc.pa.gov/Wildlife/WildlifeSpecies/White-tailedDeer/Documents/feeding_deer.pdf)
5. Pennsylvania Game Commission, Ask a Biologist a Question,  
<https://www.pgc.pa.gov/Wildlife/WildlifeSpecies/White-tailedDeer/Pages/AskaDeerQuestion.aspx>
6. Penn State, Deer Forest Blog, The eyes have it!, <https://www.deer.psu.edu/the-eyes-have-it/>
7. Penn State, Deer Forest Blog, Run Forest Run, <https://www.deer.psu.edu/run-forest-run/>
8. Jeannine Fleegle, Biologist, Deer and Elk Section