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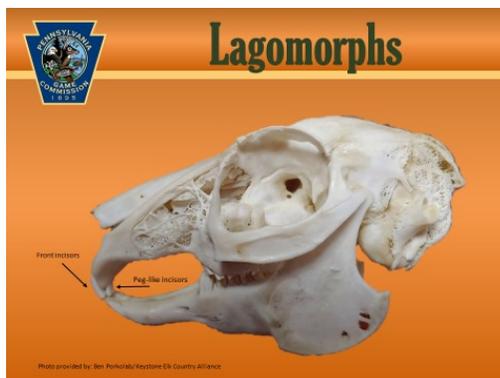
The Pennsylvania Game Commission is the State Wildlife Management Agency. Our mission is to manage and protect wildlife and their habitats while promoting hunting and trapping for current and future generations.

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If you think hares and rabbits are the same, you are “jumping” to the wrong conclusion. Hares and rabbits are related, but hares are hares and rabbits are rabbits. Let’s sort out the differences. Pennsylvania is home to two rabbits and one hare: Appalachian cottontail rabbit, the eastern cottontail rabbit, and the snowshoe hare. They belong to the order of mammals called lagomorpha.

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The lagomorpha order comprises two families, the Leporidae (rabbits and hares) and the Ochotonidae (pikas). Lagomorphs are **herbivores** (plant eaters). They have two pairs of ever-growing upper **incisor teeth** (front teeth) used for cutting and chewing plants. The front pair is bigger and rodent-like with a groove on the front surface. The second pair is peg-like and sits behind the front pair; they are smaller and lack a cutting edge.

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Lagomorphs have two types of droppings. The first is soft and partially digested. The second is firmer. Lagomorphs are known to eat the soft droppings to obtain nutrients, this method of feeding is called coprophagy. They do this so they can quickly eat in open areas where they may be exposed to predators and then return to cover to reingest their soft droppings in area that may be safer. The rest of this presentation will focus on the eastern cottontail and the snowshoe hare.

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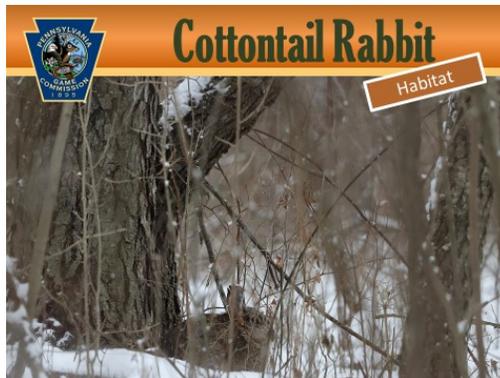
The eastern cottontail rabbit is a common rabbit that most Pennsylvanians are familiar with. It is found living throughout Pennsylvania, often seen hopping through neighborhoods. Males are called bucks and females are called does. They have soft fur that is brownish or grayish above and white below. Some cottontails have a white mark on their forehead. They have a short tail with a fluffy white underside giving it its name. Their feet are furred on the bottom. Their ears are long and have little fur on the inside. They have excellent hearing and can move their ears to detect sounds. Their eyes are set on the side of their head allowing them to see all around them. They “hop” because their hind legs are longer than their front legs.

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Cottontails are a small to medium sized mammal with a length between 15 to 18 inches and weighing about 2 to 3 pounds. Females are slightly larger than males.

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Cottontails live in various habitats including neighborhoods but their preferred habitat includes swamps, thickets, briar patches, weedy fields, brush piles, overgrown fencerows and brushy gullies. They feed close to cover.

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Cottontails consume a wide variety of plants with their diet varying throughout the year. During spring and summer, they feed mainly on herbaceous plants such as clovers and grasses. They may also eat garden crops. During the winter they feed on buds, twigs, and bark.

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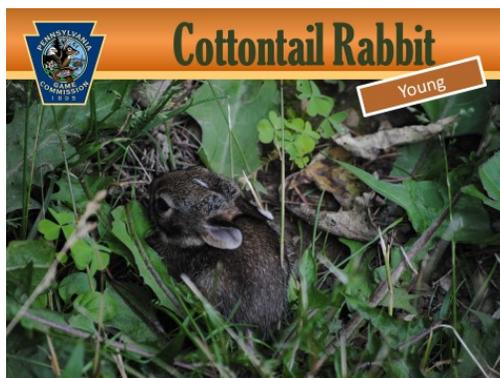
Cottontails live alone and are both **crepuscular** (active at dawn and dusk) and **nocturnal** (active at night), feeding in the evening, at night, and early morning. They spend their days hidden from predators in cover such as brush piles and groundhog burrows. To escape predators, they may freeze in place and rely on their camouflage coloration or dart away in a fast zig-zagging pattern.

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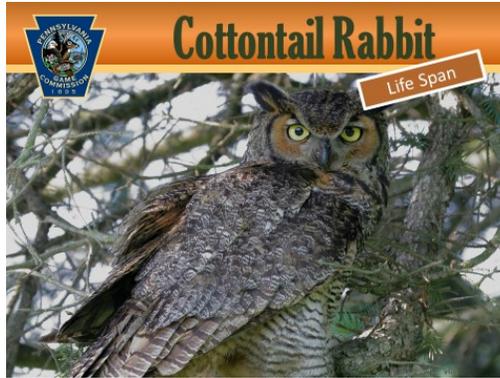
Each year female cottontails produce several litters, with the average of four litters. The first litter usually arrives in March, following a gestation period of about 28 days. Litters are typically born between March and September. Juvenile females born in the early spring may breed by late summer of the same year. Litter size ranges from two to nine young, averaging five. Young are born in a 4 to 6 inch deep cup-shaped nest, lined with grasses and fur, which the female plucks from her chest and belly.

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Newborn cottontails are born blind, without fur, and helpless. Biologists use the word **altricial** to describe newborns that are born with their eyes closed, naked, and helpless. Females typically nurse their young at dawn and dusk and keep them covered in the nest. The young develop rapidly and are fully furred, weaned, and on their own by 16 days old. Males do not take part in raising the young.

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A cottontail's potential life span is 3 to 4 years old, but few survive one year in the wild. Rabbits are major food source for many types of wildlife. Some of the natural predators of cottontails are foxes, hawks, owls, snakes, raccoons and skunks. Domestic dogs and cats are also predators. The cottontail rabbit is one of Pennsylvania's most popular small game animals, too.

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Cottontail populations are not as large as they were in the past primarily due to the loss of brushy early successional habitat. Populations fluctuate from year to year. Their high potential rate of reproduction helps to offset losses from predation, disease, parasites, hunting, and other forms of mortality. Habitat has more impact on their population than any other factor. Good habitat provides rabbits both abundant food and protective cover. The key to a larger rabbit population is habitat improvements, especially on private land.

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Snowshoe hares are not “winter rabbits” they are true hares and live in Pennsylvania all year. Although they look similar to a rabbit their longer ears and large feet help distinguish them from rabbits. Snowshoes are about 19” long and weigh 3 to 5 pounds. Males, called bucks tend to be about 10% heavier than females, called does.

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Snowshoe hares molt from brown to white in the winter and then back to brown again in the spring. Their new “hare” do allows them to camouflage into their snowy or earthy environments all year round. As the days get shorter in the fall, their eyes receive less daylight; this stimulates the pituitary gland at the base of the brain to shut off pigment production in the fur. The fur changes from brown fur to white fur. This process is known as phototropism and has nothing to do with cold temperatures or ground color. Their molt is gradual, as dark hairs fall out, white hairs replace them. Molting occurs irregularly and may appear patchy, but it usually starts on the feet and ears and works upwards and to the rear until the entire pelt is white (the ear tips stay black). It takes about 10 weeks for an entire molt. In the spring, the white hairs are replaced with brown hairs, starting with the head and back and ending with the ears and feet. Snowshoes are directly affected by climate change, if their camouflage becomes mismatched they will stick out and become vulnerable to predation.

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Their name comes from their huge, furry hind feet, which helps them travel over deep snow. Snowshoes have four large toes that are spaced widely apart. In winter, the bottoms of the toes and soles of the big feet are covered with long hair, which forms “snowshoes” that support the hare in deep snow and provide traction on icy crusts.

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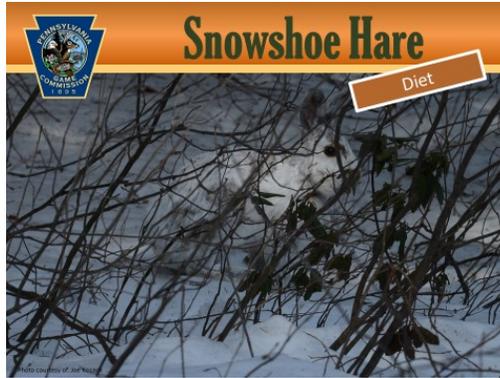
Snowshoes have excellent hearing and big ears to catch sounds. Their eyes are located on the sides of their head giving them a good view of their surroundings. If a hare feels threatened by a predator, it can burst into a fast run. It can race up to 30 mph over ground or snow, leap 10 feet in one jump, and swim if it is forced into water. Hares will circle when they are being chased. Hares sleep during the day in a form usually under a branch, in tall weeds, or shrubs hidden from predators.

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Snowshoe hares inhabit early- successional and mixed deciduous forests with conifers and escape cover, such as rhododendron and mountain laurel. Hares also live in swamps where cedar, spruce or tamarack grow. Most hares are found in high country such as ridge tops, mountains, high swamps and plateaus. Hares spend their days in small depressions in the leaf litter or ground, called forms. Their forms are typically found under overhanging branches, in a clump of shrubs or tall weeds, or at the base of a tree or stump where protection from predators is provided.

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Snowshoes are primarily nocturnal. They feed at dusk, night, or early in the morning. During the summer, snowshoes eat leaves, clover, jewelweed, dandelions, tender buds, and young woody plants. Snowshoes feed primarily on both deciduous and conifer trees and shrubs in winter, eating twigs, needles, and bark as high as they can reach by standing on their hind legs. Deep snow helps snowshoes reach higher plants. Snowshoe hares are also known to eat carrion (the decaying flesh of dead animals).

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The breeding season begins in March, with males fighting furiously for females. They fight by kicking each other with their powerful hind feet. Females do not build nests; they have their young in their form or wherever they are. They may have up to six newborns but typically have only two or three.

The young are called leverets. They are born with their eyes open, fine brown fur on their bodies, and are capable of hopping and walking within hours of being born. Biologists use the term precocial to describe them. They immediately nurse, but then are only fed in the evenings. Leverets start eating plants by the time they are 10 days old and are usually weaned and on their own by six or seven weeks of age.

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Snowshoe hares may live eight or nine years, but only 30 percent survive one year and only 15 percent reach age two. Snowshoe hares fall victim to parasites, disease, hunting, and natural predation. They are preyed upon by hunters, foxes, coyotes, bobcats, weasels and some hawks and owls.

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The snowshoe hare population has declined due to habitat changes and competition with white-tailed deer for food resources. They thrived in years after the state's forests were logged off in the 1800s and early 1900s; the years following the logging created the perfect habitat of brushy areas and early-successional habitat. Today the combination of maturing forests and white-tailed deer have inhibited their population growth. Pennsylvania is in the southern portion of the hare's range and even with perfect habitat they will likely never be as abundant as they are in the northern part of their range. Maintaining hares and their habitats in Pennsylvania is important as Pennsylvania hares are valuable to maintaining genetic flow of snowshoe hares between West Virginia and New York through our higher elevation habitats in the Laurel Mountains.

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The reduced duration of snow cover caused by a warming climate is a concern for hare populations. Research in Pennsylvania hare populations has documented a range contraction to the northern counties and to higher elevations. However, research in PA has also shown that hares have coat characteristics that are more brown in the winter. The advantage and prevalence of these more brown coats is unknown, but the focus of current and future research. Hemlock woolly adelgid is also a concern as it is causing a significant decline in hemlock trees; these trees are valuable food and cover resources for snowshoe hares. Recently (2020) the virus that causes Rabbit Hemorrhagic Disease was detected in wild hares and rabbits for the first time in the United States. The disease has not been detected in Pennsylvania yet, but it is a threat to the Commonwealth's cottontail and snowshoe hare populations.

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As you saw in today's presentation hares are different from rabbits; the biggest difference between hares and rabbits is their development and care of their young. However, hares and rabbits have more similarities than differences. Can you name two ways hare and rabbits are similar? Answers will vary. Possibilities include: both eat plants, eat their (soft) droppings for nutrition, have an extra pair of peg-like teeth, have ever-growing incisors, have same predators, are active at evenings, night, and early mornings, have furred feet, hop, etc.