



Rabbits, Hares, and Pikas

ORDER LAGOMORPHA

The Lagomorpha is a small group that first appeared in the fossil record of Asia about 60 million years ago. Mammalogists currently recognize about 95 living species, 11 genera, and just 2 families, the Leporidae and Ochotonidae. Members of the Leporidae typically have huge hind feet and long ears and include the familiar rabbits and hares. Humans have introduced this family into Australia, and it occurs naturally on the other continents, except Antarctica. In contrast, the Ochotonidae, or pikas, inhabit only part of Asia and mountainous regions of western North America. They are plump-looking, incredibly cute animals, more similar in appearance to guinea pigs than rabbits; pikas have an inconspicuous tail, and their ears are not as greatly elongated.

This order is superficially similar to rodents in that the incisors are well developed and separated from other teeth by a long gap or diastema. In both groups, incisors continue to grow throughout an animal's life, keeping pace with constant wear resulting from its gnawing habits. Lagomorphs differ, however, in having two pairs of upper incisors, unlike the single pair in rodents. One might easily overlook this second pair because these teeth are quite small, peg-like, and located directly behind the first pair, an arrangement unique among mammals (fig. 9).

These mammals have a number of other interesting characteristics. For example, the scrotum hangs in front of the penis and not behind it; only the marsupials share this anatomical trait. Lagomorphs also have extremely thin skin, and unlike most mammals, hair covers the soles of the feet. In addition, many small openings, or fenestrations, occur in the skull, particularly in the Leporidae; note, for instance, the area in front of the orbit in figure 9.

Lagomorphs also possess an intriguing digestive adaptation. These herbivorous mammals come equipped with an extensive cecum, an out-pocketing of the large intestine. Here, a multitude of symbiotic bacteria break down tough plant material that the animal could not digest in its stomach or small intestine. Although bacterial action releases nutrients



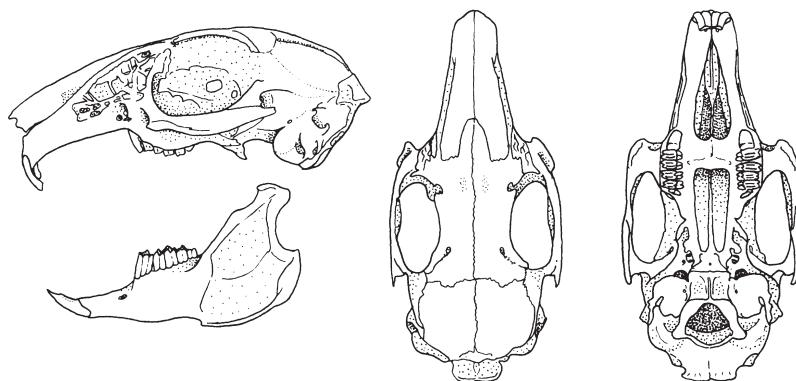


Fig. 9. Skull of an eastern cottontail, family Leporidae

into the cecum, neither the cecum nor large intestine can absorb these useful molecules. A lagomorph solves this problem by practicing coprophagy. After the cecum packages the material into soft greenish pellets, the animal defecates; it then reingests the feces, and the small intestine easily absorbs the nutrients during their second pass through the system. The animal always reingests green pellets but ignores hard brownish ones that contain mostly indigestible material.

RABBITS AND HARES FAMILY LEPORIDAE

About 70% of lagomorphs are in this family. Their long ears, large hindfeet, and fluffy tail are known to all. Around the globe, humans have domesticated a few species and hunt many others for their soft fur and edible meat. Some rabbits and hares that escaped captivity now flourish in areas far from their native range, and humans have intentionally transplanted others to provide additional game animals. Leporids occupy habitats ranging from deserts to moist tropical forests and from sea level to alpine meadows. Two species of rabbit and two hares occur naturally in or near the Great Lakes region, and another species of hare lives here only through human intervention.

What is the difference between a rabbit and hare? In terms of physical characteristics, the two are quite similar. They differ somewhat in size; for instance, hares are generally larger, weighing 1.3–7.0 kg (3–15 lb) compared to only 0.25–2.50 kg (0.5–5.5 lb) for rabbits. In addition, hares always have black-tipped ears, but rabbits often do not.

The most significant differences, though, concern development and



94 | Mammals of the Great Lakes Region

care of the young. Rabbits are relatively altricial; they are born naked or lightly furred, blind, and helpless. Hares, in contrast, are more precocial; neonates are well furred, can see quite well, and run about soon after birth. In addition, mother rabbits always build a comfortable nest to shelter their offspring, but hares never do. Although biologists generally agree on these distinctions, the common names of some species lead to confusion. As an example, the white-tailed jackrabbit of the Great Plains is actually a hare and not a rabbit.

Eastern Cottontail *Sylvilagus floridanus*

Name: *Silva* means “forest” or “woods” in Latin, whereas *lagos* is the Greek word for “hare,” even though this rabbit is not a hare. The type specimen was captured in Florida.

Measurements: Total length: 375–475 mm (15–19 in); tail length: 35–70 mm (1.4–2.8 in); hindfoot length: 80–110 mm (3.1–4.3 in); ear height: 50–65 mm (2.0–2.6 in); weight: 0.9–1.8 kg (2–4 lb).

Description: Hairs along the back are yellowish brown tipped with dark brown to black, whereas ventral hairs appear white with a dark gray base. A large, rusty brown patch covers the back of the neck, and a white forehead blaze may be present. Although the Appalachian cottontail is similar, it usually has a black spot between the ears and is slightly smaller than the eastern cottontail. Hares are heavier, have considerably larger feet, and lack the rusty brown coloring on the neck.

Natural History: This cottontail is widespread across the United States east of the Rocky Mountains, and it has been introduced into Europe, where it is considered an invasive species. The eastern cottontail is common in sites with abundant herbaceous vegetation and potential shelter in the form of brush piles, shrubby thickets, or weedy fencerows. It avoids extensive grasslands without suitable hiding places and deep forests with sparse groundcover. Consequently, the eastern cottontail is common in the southern Great Lakes region, where a mosaic of croplands, pastures, meadows, and woodlots exists. This rabbit, however, is scarce in northern Minnesota, Wisconsin, and Michigan and absent from Ontario north of lakes Huron and Superior, where large forested tracts dominate the landscape.

Home range is usually less than 2 ha (5 acres), is larger for males than





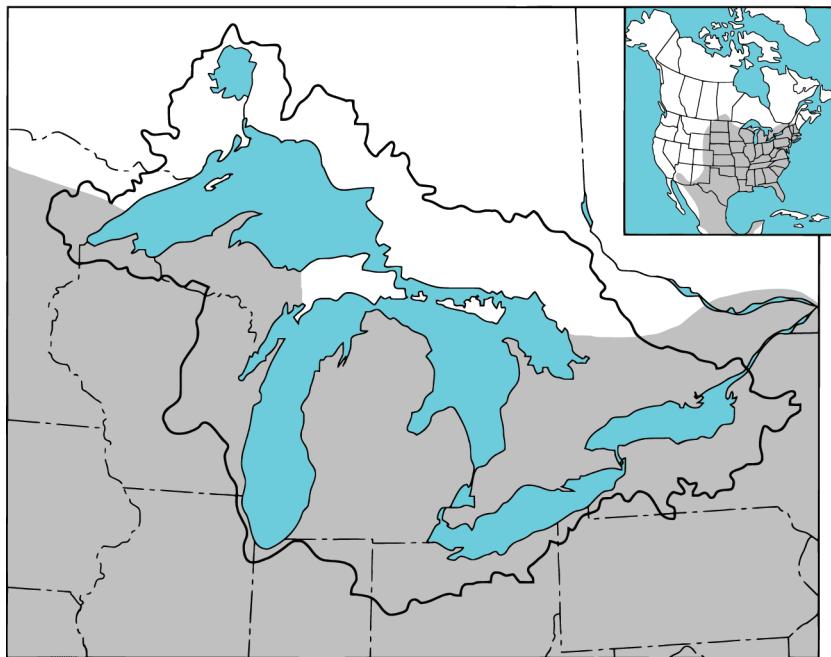
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Eastern cottontail. (Photo by Robin Slider.)





females, and increases in size during the breeding season. These solitary animals forage at any time of day or night but perhaps more commonly just after sunrise and near sunset. Despite our childhood memories of Alice in Wonderland, rabbits native to the Great Lakes region do not dig burrows or live in warrens. Instead, a cottontail generally rests in a "form." This is nothing more than a shallow depression in the ground that is hidden beneath a pile of brush or a clump of long grass. During winter, eastern cottontails may occupy a hollow log or a den abandoned by a badger or woodchuck.

The eastern cottontail is a strict vegetarian that feeds from an extensive menu. In summer, grasses form the bulk of its diet, but it also eats clover, plantain, dandelion, goldenrod, and wild carrot. To the dismay of many gardeners, this mammal relishes beans, peas, lettuce, and other delights intended for the human dinner table. When autumn frosts reduce the availability of herbaceous vegetation, the eastern cottontail switches to woody plants for food. It readily consumes the buds, twigs, and bark of raspberry, apple, red maple, honey locust, staghorn sumac, black cherry, and dozens of other native species and ornamental shrubs. This rabbit visits my bird feeder throughout the year and munches on the smaller items shoveled out by blue jays during their quest for sunflower seeds.

Mating occurs from late March into September, and many adult females produce three litters each year. Courtship is an entertaining affair, sure to bring a smile to the most-hardened human. During much of the time, the female continues to eat, while the male repeatedly sniffs the air and attempts to get closer. She may slap him on the nose before running away with the male in pursuit, but they often stop, with one rabbit perpendicular to the other. The female then suddenly charges the male, and he jumps vertically, 60–90 cm (2–3 ft) into the air, while she runs beneath her airborne suitor; three to five charges and jumps by either sex occur within less than a minute.

Before giving birth, a female prepares a nest in a natural depression or in a shallow hole that she digs herself and lines with grass and with fur plucked from her body. Nests are about 18 cm (7 in) long, 13 cm (5 in) wide, and 12 cm (5 in) deep. Gestation takes 28 days, and litter size varies from 3 to 8. Each altricial newborn weighs 25–30 g (1 oz) and grows at the rate of 2.5 g/day (0.1 oz/day), despite receiving little attention from the mother, which visits the nest only once or twice every 24 hours. The young opens its eyes toward the end of the first week and is fully furred by the end of the second week, when it finally ventures from the nest. Weaning takes place about one week later. Eastern cottontails become sexually mature at 2–3 months, and about half the youngsters reproduce in the summer of their





birth. Large and frequent litters mean that subadults may outnumber adults by more than 10 to 1 by mid-autumn of favorable years.

Predators are numerous and include coyotes, foxes, domestic dogs, bobcats, hawks, and owls, and this rabbit is probably the most important game animal in the southern Great Lakes basin. Winter is particularly difficult for cottontails in the north, where persistent snow cover makes the brownish animal highly visible to predators and simultaneously makes escape more difficult. In addition, some rabbits and hares suffer from tularemia, a fatal bacterial disease that humans also occasionally contract while handling an infected carcass. Finally, continued urbanization and intensification of agriculture is decreasing available habitat and inexorably leading to smaller populations. Although some eastern cottontails live up to four years in the wild, average lifespan is less than one year; captives may survive more than nine years.

Suggested References: Chapman and Litvaitis 2003; Abu Baker, Emerson, and Brown 2015.

Appalachian Cottontail *Sylvilagus obscurus*

Name: The generic name comes from the Latin word for “woods” (*silva*) and the Greek word for “hare” (*lagos*). *Obscurus* is Latin and means “secretive” or “obscure” and refers to the secretive habits of this lagomorph and to its physical similarity to the New England cottontail, with which it was long confused.

Measurements: Total length: 386–430 mm (15–17 in); tail length: 22–65 mm (0.9–2.6 in); hindfoot length: 87–96 mm (3.4–3.8 in); ear height: 54–63 mm (2.1–2.5 in); weight: 0.8–1.3 kg (1.8–2.9 lb).

Description: Dorsal fur is yellowish brown washed with black, except a reddish brown patch over the neck. The sides are lighter in color, and the belly is white; its short, fluffy tail is dark above and white below. This rabbit is quite similar to the more common eastern cottontail, but most Appalachian cottontails have an indistinct black patch between the ears and usually lack the white forehead blaze seen on many (but not all) eastern cottontails. Unfortunately, these traits are not absolute, and positive identification may require examining the boundary between the frontal and nasal bones on a cleaned skull. This border is smooth in an eastern cottontail but very jagged in its mountain cousin (see fig. 37 in the Key to Skulls).