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NORTHWEST WILDLIFE PRESERVATION SOCIETY

North American Porcupine

Erithizon dorsatum



Porcupines are rodents with sharp quills that protect them from predators. They are the third largest species of rodent behind the capybara and beaver. Its family consists of Old World and New World porcupines. New World porcupines are found in North America and part of South America, while Old World porcupines reside in Southern Europe, most of Africa, and parts of Asia.

Characteristics

The porcupine is the second largest rodent in North America. Their length is from 600 to 900mm, and they weigh between 5 to 14kg. Their coat ranges from dark brown to black. Porcupines' spines are yellow. Each one is 7.5cm long and 2mm wide. Spines, also known as quills, extend from head to tail on the animal's back, sides, legs, and tail. A porcupine has around 30,000 quills. When attacked, the quills can be driven into the flesh of the attacker. Predators have been known to die due to quill penetration and infection. The porcupine's thick, fine, and dark underfur provides warmth. The porcupine's skull lacks canine teeth. The teeth and chewing muscles are designed for gnawing. Their long, curved claws enable porcupines to climb onto tree trunks and small tree branches. Their palms and soles have a pebbly surface which allow for better friction when in contact with branches. A highly developed sense of touch helps the porcupine in nocturnal navigation. Another function of quills is to stabilize the animal's position in trees, so that sliding does not occur.

Compared to its Central and South American relatives, North American porcupines can withstand high variances in temperatures. Males are larger than females. Males grow faster and experience longer periods of growth. Sexual selection favours increased size in males, since larger males have higher reproductive success.

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Life Cycle

October and November is the typical mating season for porcupines. Porcupines breed once a year. The mating system is classified as female defense polygyny. Males defend females for a 1-4 day period before copulation. Females attract males through secretions, urine markings, and by making high pitched noises. Males will compete for access to females. A dominant male will breed with several females. Mating only occurs when a female has selected a male. Mating lasts for several hours until females form a plug that prevents further copulation with a male. The courtship ritual involves males spraying females with urine.

Gestation lasts for 210 days. A female will give birth to a single offspring which weighs between 400 and 530g. The nursing period for offspring is about 127 days. They will become independent of their mothers after 5 months. Sexual maturity is at 25 months for females and 29 months for males. The mother raises her offspring independently. Males have little or no contact with offspring. As the mother gathers food, she is able to follow scent trails to find the location of her offspring. Porcupines can live up to 18 years in the wild.

Habitat

North American porcupines reside in much of North America. They are found throughout Alaska, Canada, and the west and Northeastern parts of the U.S. They inhabit various climates like open tundra, desert, and deciduous forests. The time that porcupines spend on the ground depends on the opportunities for foraging and protection offered from predators. In winter, porcupines will rest in dens. Trees are often used as protection when none is offered on the ground.

Porcupines are herbivores. Their diets and rate of feeding vary throughout the year. When high protein food sources are available in spring and summer feeding rates are reduced. In the Fall, the amount of feeding increases in preparation for winter. In the Rocky Mountains area, porcupines feed on ponderosa pine phloem. They feed on number several species of trees in eastern deciduous forests. The main nutritional element that porcupines require from food is nitrogen. Studies on porcupines in eastern deciduous forests revealed their diet contained sugar maple tree buds, cambium from aspen, beech tree saplings, acorns, and other types of nuts. Winter foraging is mostly on sugar maple and hemlock phloem. Other foods in the porcupine diet include stems, grasses, herbs, and apples. Trees fed on by porcupines tend to be stunted in growth. They are usually unsuitable for converting into lumber.

Behaviour

Porcupines spend most of their time alone. Solitary behaviour is possible due to the porcupines' quills as a defense mechanism against predators. In winter, sharing of dens may occur and group foraging is another defense against predators. Males and females are protective of their territory. Males have no contact with their offspring, so adult males are unable to recognize offspring. Male offspring require several years to reach a high enough social rank to be able to guard a female. When threatened, porcupines produce an odor and chatter their teeth as a warning for predators. Males will use loud vocalizations when competing. Tactile communication is used when aggressive disputes occur between porcupines. Scent marks, pheromones, and vocalizations are used to communicate readiness to mate. A porcupine's first defense mechanism against predators is to climb up a tree. Porcupines resort to using quills if escape is not possible. Because it is very costly to lose quills, warning signs are given before using them. The white-tipped quills against the dark colour of the porcupine will stand out for predators. If the visual warning is not effective, teeth chattering and the release of a nasty scent will occur as the porcupine erects its quills.

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Threats

The porcupine's conservation status is of least concern. Porcupines are preyed upon by several predators. Bobcats, coyotes, wolves, lynx, wolverines, and great horned owls, fishers, and cougars have been known to prey on porcupines. Porcupines are more vulnerable to predators in open habitats. One strategy of killing porcupines is by flipping porcupines on their back and attacking the unprotected belly. The decline of a species led to increased predation of porcupines in some cases. Some examples include areas with low populations of mule deer and snowshoe hare. In one case, fishers that were reintroduced into an area to limit porcupine populations nearly eliminated porcupines in the area. Human activity in the form of logging has destroyed habitat that porcupines require for survival. With fewer trees available, porcupines are left with fewer den sites which would increase exposure to predators. Because they move slowly and have poor eyesight, porcupines are often killed by cars and trucks.

What We Can Do To Help

-Use paper and other products responsibly. Waste and/or over use of paper products will lead to more demand for lumber. The lumber industry presents the greatest threat to porcupine habitats.

-Reuse and recycle. This would also alleviate demand for paper products to some extent.

-Engage in practices like buying organic produce and responsible disposal of toxic substances. These practices lessen our release of chemical pollutants into the environment, which will benefit porcupines as well as other organisms that depend on wild, forested areas for habitat.

-Take time to learn about wildlife and understand the porcupine's role in ecosystems across North America. There has been a great deal of information collected from studies on porcupines in North America.

-Fences and signs may need to be erected to prevent porcupines from getting hit by vehicles.

Other Interesting Facts

-Upon contact with a predator, the porcupine must quickly remove its body from its quills, so that they can get away from the predator. Erect quills release more easily from the porcupine's body. The quill's design facilitates further movement into the predator's body. Quills also present a danger to porcupines. Falling out of trees is quite common, and can lead to self-impalement of porcupines. After quills are driven into the attacker, the porcupine may not have the strength to separate from an attacker's large body.

-Porcupines have been used as a food source and their quills were used for decoration by many Native American cultures.

-Porcupines have cravings for salt. They have chewed on buildings, and anything made with plywood. Salt put on roads to prevent ice buildup is also attractive to porcupines for consumption.

-Porcupines are slow moving creatures whose behaviour can be studied easily. As a result, they have been the subject of numerous scientific studies.

-Porcupines molt every summer, but the quills do not all fall out at once.

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Where & When to view the animal.

Porcupines are common in Western and Northern North America. They prefer to live in forests. Wooded areas with trees like pine and spruce are good areas to view porcupines. They sleep during the day on trees, caves, or any other place that provides shelter from predators. It is common for people to see them resting on a tree.

Bibliography

Web Resources:

Weber, C. 2004. North American porcupine. *Animal Diversity Web*. Accessed from:
http://animaldiversity.org/accounts/Erethizon_dorsatum/

Graham, D. 1997. Porcupine. Accessed from:
<http://www3.northern.edu/natsource/MAMMALS/Porcup1.htm>

<http://www.aitc.sk.ca/saskschools/animals/porcupine.html>

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