

THE PORCUPINE IN THE PACIFIC NORTHWEST

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ABSTRACT

Porcupines have been a problem in western pine forests since the early 1900's and in the coastal forests of Washington, Oregon, and California since the 1960's. This paper presents information on porcupine biology, behavior, tree damage, and control in the Pacific Northwest.

INTRODUCTION

The western or yellow-haired porcupine (Erethizon dorsatum epixanthum) occurs throughout much of western United States, Canada, and Alaska. It is a New World porcupine in the family Erethizontidae. Unlike the terrestrial Old World porcupines of Africa and Asia, the western and other New World porcupines are generally quite arboreal.

In the Pacific Northwest, porcupines are most abundant in the drier forests and desert-rangeland areas east of the Cascade Mountains. However, in recent years, they have become locally common in high rainfall areas of coastal Washington, Oregon, and California.

GENERAL BIOLOGY

Porcupines are large, heavy bodied rodents with a stout tail, short legs, and small head. Adults weigh 25 pounds or more. Head-body length is about 34 inches; tail length is about 12 inches. Eyes are black, small, and beady. Ears are small and covered by hair and quills. Quills--up to 30,000 on some individuals--cover the upper parts of the head, body, and tail; only the face, nose, and underparts of the body, legs, and tail are quill-free. Guard hairs "cover" the quills and vary in color from black to tawny-gold. Young porcupines are generally blackish; older ones are generally yellowish. Porcupines do not "throw" their quills as some people believe; however, some quills are lost when they flick their tails when cornered.

Also contrary to some beliefs, females give birth to only a single young porcupette; multiple births have not been documented. Males and females breed in their second year when about 18 months old. The breeding season goes from September into late January and peaks in October. Gestation is 7 months. Young are born in April to June and are "ready to go" with eyes open. They weigh a pound or more at birth. Their quills harden within 1-2 hours after parturition. Porcupettes may nurse for 3 months or more but are capable of being on their own within a few days after birth. In prime habitat, it is not too uncommon to see one female nursing several young in addition to her own, thus giving rise to the multiple-birth conjecture.

Porcupines possess 20 teeth. Incisors are large, rodent-like, and orange on the outside. Droppings are oval-bean shape up to about 1 inch long; they are abundant under roost trees, at den sites, or at feeding locations. Some porcupines live 10 to 15 years or more. Predators include the fisher, bobcat, coyote, and mountain lion.

#### BEHAVIOR

Although several individuals may be found in the same tree or den, porcupines tend to be solitary except during the breeding and rearing season. They are essentially nocturnal and are active all year round. Porcupines east of the Cascades generally spend the day resting in trees or in dens. Those in coastal forests are seldom found above ground during the daytime. In western Washington, they have been found inside old hollow logs, in abandoned log piles, in rock piles, under road beds, and in abandoned beaver lodges.

Porcupines are herbivorous, feeding mainly on herbaceous plants, low growing woody plants, and trees. On trees, they clip some foliage and limbs but generally strip off bark and eat the softer inner cambium.

Home range may be 30 or more acres. Accurate densities (animals per unit area) are lacking. East of the Cascades, porcupines appear to have well defined areas of use such as dens, meadows, or particular stands of trees. West of the Cascades they are more nomadic, seldom spending more than 1 or 2 days at the same location.

#### DAMAGE

Problems with porcupines damaging pines in interior forests date back to the early 1900's. In coastal forests, porcupines became a problem in the early 1960's although there were earlier reports of their occurrence. A variety of conifers are damaged. Some porcupines seem to prefer pines over fir, others seem to prefer fir over pines. The same holds true for Douglas-fir and hemlock.

In general, porcupine damage is found in conifer stands that are 5 to 30 years or more old. In interior forests and drier forests of southwestern Oregon, porcupines occasionally do extensive damage to young, 3- to 5-year-old pine or fir plantations. In coastal forests, 3- to 5-year-old Douglas-fir and hemlock plantations are rarely damaged by porcupines.

Greatest damage throughout the range of porcupines results when trees are girdled--i.e., complete removal of the bark from around the bole of a tree. This usually occurs in the upper bole of conifers resulting in dead tops, multiple tops, and loss of potential height growth. In pines and other species such as western hemlock, it commonly decreases the quality of the tree and reduces saw log productivity.

Girdling is generally most common during the winter time although "hot spots" can crop up during any time of the year. Incidental bark peeling--a bit here and a bit there on a tree--normally does not adversely affect the growth or quality of conifers. Occurrence of these "injuries" should, however, alert timber growers that porcupines are in the area and that future loss of productivity may occur.

Quite often, particularly in the Douglas-fir region, porcupine damage to a plantation can be very severe one year and not a problem in succeeding years. Conversely, porcupine damage east of the Cascades can be a chronic problem for decades. Reasons for this variation are unknown.

In addition to trees, porcupines can cause extensive damage to wooden structures such as signs, outhouses, picnic tables, sheds, and cabins. They can also inflict injury to pets and livestock, and be a general nuisance.

#### CONTROL

Population reduction is the most common way of controlling porcupines. However, there is not quantitative information relating population reduction to damage reduction.

Shooting is undoubtedly the most effective method of killing porcupines. It is best done on snow by following fresh tracks or by locating fresh sign such as droppings, peeled bark, etc. Dogs are very useful anytime for tracking, denning, or treeing porcupines and they are invaluable during summer hunts and in the Douglas-fir region. East of the Cascades and in southwestern Oregon, shooting can be very productive because porcupines are commonly found in trees. In the Douglas-fir region where porcupines tend to be more terrestrial, finding porcupines with dogs may be easy but getting them out of their hiding spots is generally quite tedious or impossible.

Steel-spring, leg-hold traps (Sizes #2 & #3) set in front of dens, at scent posts near damaged trees, or in openings of log corral trap sites are effective in catching porcupines but should be scrutinized because of adverse public reaction to their use. Effectiveness of other kill traps--i.e., conibears--is lacking. Live traps (10" x 12" x 32" or larger), snares, and hand-capture techniques (bare hands or fish nets) have also been used to remove individual porkies from certain locals. In some areas, such as alfalfa fields and along forest roads, large numbers of porcupines can be netted at night. Cut apples, salt, coyote urine, and dead porcupines have been used to attract porcupines to traps or capture areas.

There is no repellent registered for porcupine control. The only poison currently registered for porcupines is a 5.79 percent active strychnine salt block that has to be placed at least 10 feet above ground in a tree. Regardless of where it is placed, the strychnine salt block has not been effective for controlling porcupines in western forests.

Various sign materials, metal and plastic flashing, and wire screening or hardware cloth are available for alleviating damage to signs and wooden structures. However, there is an obvious need to develop and prescribe chemical, mechanical, biological, and cultural methods and materials to control porcupine damage to trees.

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