

BLACK BEAR DAMAGE MANAGEMENT IN WASHINGTON STATE

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ABSTRACT: Black bears (*Ursus americanus*) foraging on trees can be extremely detrimental to the health and economic value of a timber stand. A supplemental feeding program to reduce bear damage is coordinated by the Washington Forest Protection Association's Animal Damage Control Program (ADCP). A brief overview of the ADCP is provided along with a description of bear damage and the supplemental feeding program. Success of the feeding program is demonstrated by an increasing participation and its general acceptance by the public. Timber producers placed over 400 thousand pounds of pellets in 700 feeding stations this past year.

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Black bears (*Ursus americanus*) commonly forage on Douglas-fir (*Pseudotsuga menziesii*) trees during the spring. Damage inflicted through this behavior can be extremely detrimental to the health and economic value of a timber stand. Complete girdling is lethal, while partial girdling reduces growth rates and provides avenues for subsequent insect and disease infestations (Kanaskie et al. 1990). The severity of timber loss is compounded because bears tend to select the most vigorous trees within the most productive stands or where stand improvements (e.g., thinning, fertilizer) have been implemented (Schmidt and Gourley 1992, Mason and Adams 1989, Kanaskie et al. 1990).

Bear foraging on sapwood occurs almost exclusively in the spring, presumably, because alternative forages are limited and the spring sapwood is high in carbohydrates (Radwan 1969). Damage generally declines during early July as berries and other alternative foods become more readily available.

Bears feed on the sapwood by removing the bark with their claws and scraping the sapwood away from the heartwood with their incisors. Bears generally feed on the lower bole of trees in stands between 15 and 30 years of age. Any age tree, however, is vulnerable to bear damage and bears occasionally strip an entire tree. Damage within a stand can be extensive as a single foraging bear may

peel bark from 50 to 70 trees per day (Schmidt and Gourley 1992).

WFPA ANIMAL DAMAGE CONTROL PROGRAM

The Washington Forest Protection Association's (WFPA) Animal Damage Control Program (ADCP) was founded in 1959 to address problems with wildlife on private land. At present, the ADCP consists of 37 member companies. Participants include small private land owners, large industrial forest management companies, Indian Nations, forestry consulting firms, and city watersheds. The membership represents 3.4 million acres of timber of which 750,000 are considered vulnerable to bear damage. Focus of the ADCP is to reduce bear damage to timber. It supports members in identifying problem areas and conducting damage control activities. This collaborative approach enhances communication among ADCP members, regulatory agencies, the Washington Fish and Wildlife Commission and public interest groups. The ADCP also addresses policy issues and provides input in developing legislation and regulations.

Recognizing public interest in wildlife, the ADCP works to educate the public on problems encountered with animals and on available means to alleviate these problems. Presentations are given to

interested groups and media coverage of activities is encouraged. The ADCP also prepares materials on the program for dissemination through print, radio and television. The ADCP collaborates with state and federal agencies, as well as universities, to improve existing technologies and to develop alternative preventive measures.

PROBLEM IDENTIFICATION

Timber stands with girdled trees are readily identified through aerial surveys in the spring. Trees completely girdled the previous year appear red as they begin to decline and their needles become discolored. Needles on physiologically stressed trees are light green to yellow. This generally indicates partial girdling. Dead trees that have lost needles appear gray. Areas suspected of bear damage are mapped in the aircraft and later ground proofed to confirm the cause. Ground proofing generally reveals greater numbers of damaged trees than are detected from the air.

Damage induced by bears is easily identified (Figure 1). Stripped bark is on the ground around the tree and vertical tooth and claw marks are generally visible on the bole. Further, other wildlife species that girdle larger trees leave their own characteristic signs. For example, conical shaped stumps and large wood chips are good indicators of beaver (*Castor canadensis*) activity. Mountain beaver (*Aplodontia rufa*) inflict damage lower on the bole and their tooth marks are horizontal with irregular claw marks. Prime indicators of porcupine (*Erethizon dorsatum*) are small bark chips, clipped needles, quills, and fecal material at the base of the tree.

SUPPLEMENTAL BEAR FEEDING PROGRAM

A common concern among ADCP members is the need for a socially acceptable means to prevent bear damage to forest resources. Historically, lethal removal was commonly used to eliminate bears that damaged timber. Professional agents were hired to identify and remove problem animals. The ADCP began investigating non-lethal approaches during

the early 1980s. Providing bears with an alternative food source appeared feasible and a supplemental feeding program utilizing 10 feeders was implemented during the spring of 1985.

The supplemental feeding program proved to be an effective tool to reduce bear damage to timber. Within the first year, damage on timber stands that had been extensive in previous years was reduced to an acceptable level. Interest and participation in the program has increased dramatically over the past 10 years (Table 1). Participants in the supplemental feeding program placed over 400,000 pounds of pellets this past year in 700 feeding stations established across western Washington and Oregon.

Supplemental feed is provided only in the spring and early summer when bears are foraging on trees. Feeding stations are installed in sites, as close as possible, to current or anticipated damage. Preferred sites are close to roads to facilitate stocking feeders with pellets, but hidden from public view to avoid poaching and away from high public use areas to avoid bear-human conflicts.

The supplemental pellets are produced by the Washington Forest Protection Association. Sugars are considered the most important ingredients to alleviate damage to trees. Pellets also contain fats, proteins, vitamins and minerals to provide a balanced diet for bears. A low moisture content (<10%) enhances bear acceptance and increases the viable shelf life of pellets. Individual pellets resemble a greenish colored dry dog food and are 0.25 inches in diameter and about 0.5 inches long.

Bear feeders are securely fastened to trees approximately 10 inches off the ground to avoid water and rodent problems. Bait (e.g., beaver carcass) may be used to initially attract bears to stations, but is not necessary once bears begin feeding. Each station holds approximately 200 pounds of pellets and active stations need to be restocked once a week. Wet or powdery feed is removed before a station is restocked with new

pellets. At the end of the damage season all feeding stations are removed from the forests.

Self-feeders are constructed from 55 gallon drums (Figure 2). Bears can obtain pellets from an opening cut in the lower front portion of the barrel. The feeding plate is separated from the storage compartment by a metal sheet inserted diagonally within the barrel. Pellets taken from the feeding plate are automatically replaced as pellets fall through a narrow gap beneath the metal sheet. This self-feeding mechanism permits a continuous supply of pellets, but prohibits bears from spilling or playing with the food. A heavy roof insulated with foam keeps the pellets dry and limits bears to feeding from the front entrance.

BENEFITS OF THE SUPPLEMENTAL FEEDING PROGRAM

The supplemental feeding program has been an effective means to reduce bear damage to timber stands. Bears generally stop peeling trees once they begin eating at a feed station. Occasionally, a bear fails to adjust to feeding at the stations or continues to strip trees. When this occurs these specific bears are identified for removal. Some evidence also suggests that the success of the feeding program declines as bear population densities increase. Competition among bears or efforts to avoid antagonistic encounters force some bears to resort to foraging on trees. Initial concerns that bears might become dependent on the feeders have been unfounded. A natural weaning from the supplemental feed occurs as bears revert to natural forage (e.g., berries) as it becomes available.

A non-lethal approach to resolve conflicts between wildlife and humans is well received by the public in Washington. Public attitudes towards the ADCP are generally favorable, largely because of the supplemental feeding program. The supplemental feeding effort to feed bears makes the occasional necessary lethal removal of problem bears more acceptable to the public. The WFPA's wildlife damage program is frequently reported as a

positive strategy in newspaper articles, radio interviews and television reports.

LITERATURE CITED

- Kanaskie, A., J. Chetock, G. Irwin, and D. Overhulser. 1990. Black bear damage to forest trees in Northwest Oregon 1988-1989. Pest Management Report 90-1. Oregon Department of Forestry, Salem, OR.
- Mason, A. C., and D. L. Adams. 1989. Black bear damage to thinned timber stands in Northwest Montana. *West. J. Appl. For.* 4:10-13.
- Radwan, M. A. 1969. Chemical composition of the sapwood of four tree species in relation to feeding by the black bear. *For. Sci.* 15:11-16.
- Schmidt, W. C., and M. Gourley. 1992. Black bear. pp. 309-331, *in*: (H.C. Black, ed.) *Silvicultural Approaches to Animal Damage Management in Pacific Northwest Forests*. USDA Technical Report PNW-GTR-287.

Table 1. Number of feeding stations and amounts of pellets used in the supplemental feeding program from its inception in 1985 through 1995.

Year	Washington		Oregon	
	Stations	Pellets (lbs)	Stations	Pellets (lbs)
1985	10	5,000	---	---
1986	22	10,000	---	---
1987	52	20,000	---	---
1988	152	40,000	---	---
1989	260	80,000	---	---
1990	280	99,000	---	---
1991	320	159,000	---	---
1992	350	210,250	20	21,000
1993	500	308,000	70	45,000
1994	600	310,000	90	62,000
1995	610	357,150	90	60,850



Figure 1. Tree peeled by a black bear foraging for sapwood.

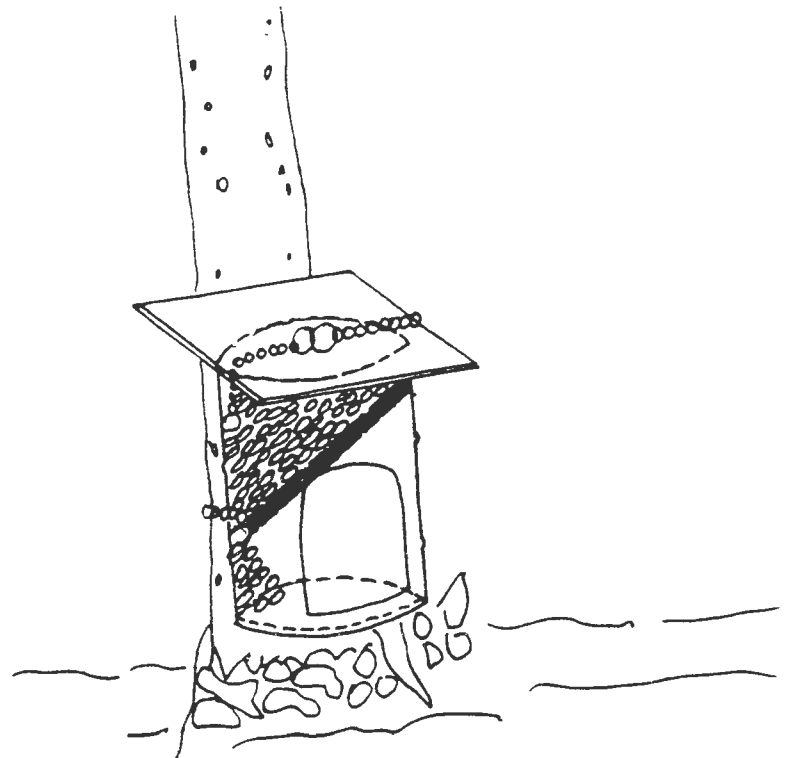


Figure 2. Feeding station to provide an alternative food source for bears during the spring.