

TECHNICAL NOTES

United States Department of Agriculture

Natural Resources Conservation Service

WOOD-19

Spokane, Washington

January 1986

Dennis J. Robinson, State Staff Forester

Revised by Carri Gaines: August 2013

Greg Fisher, Area Forester, Olympia AO

Jerry Smith, Forester, Chehalis FO

WOODLAND ANIMAL DAMAGE CONTROL

Damage to timber crops by a variety of animals is a well-documented fact. There are few things more disheartening to a woodland owner than seeing time and money invested in a timber stand destroyed by animals. Preventing the damage or eliminating the animal(s) causing the damage can be very costly. Some treatments can exceed \$160 per acre. A one-time application may be all that is required in some cases while others may need a number of different practices to be installed over a longer period of time. If applied improperly or at the wrong time, the treatment can cause more damage than the original problem. Woodland planners must be able to recognize that there is an animal damage problem, the causal agent, the severity of the problem, the possibility of potential problems, and what solutions are feasible, i.e. cost-effective and practical.

During the inventory process, the woodland planner can identify existing animal damage by site-specific evidence, discussions with the landowner, and use of the guide to WILDLIFE FEED INJURIES ON CONIFERS IN THE PACIFIC NORTHWEST.*

Existing problems could be indicated by browse damage on terminal leaders or branches of young seedlings which might indicate activity by deer, elk, or livestock; the girdling of the lower stem of young tree seedlings which could indicate mice activity; the clipping of tree seedlings which could indicate activity of rabbits, mountain beaver or pocket gophers; lower stem damage to saplings and older trees which might be evidence of black bear; the girdling of the upper stem of saplings and older trees which might be caused by porcupines. Potential animal damage can be anticipated by knowing future vegetative conditions of an area and what animal species reside in the area. The red flags that a planner should be on the lookout for include heavily-used big game trails and bedding sites, a high concentration of tracks and animal feces, numerous runways in grassy situations, and extensive burrow systems as evidenced by soil-mounding and holes. In the case of big game and livestock, it is helpful to know the time of the year that the specific species might frequent the area and the pattern of their movement in addition to their numbers. In some cases, habitat manipulation or hunting/trapping can reduce populations of the offending animal to acceptable levels. In other

instances, protection of the tree may be the only practical alternative. To adequately address some problems, both alternatives may be necessary.

Most of the following information was gathered by the authors at an animal damage control workshop held at Oregon State University:

MICE

The damage caused by the common field mouse and his cousins consists of eating the bark of a seedling near the ground surface. This damage usually occurs during the winter months when the critter is protected from predators by a dense cover of dead grass foliage. If the entire stem is girdled, the tree will die. Mouse damage seems to occur primarily on flat to gently sloping ground at low elevations. Mechanical means of control in these areas can be relatively easy. Preparation of the site prior to planting by plowing and disking when the erosion hazard is slight or returning to the plantation after establishment and hoeing around individual trees are accepted practices. Grazing sheep in a plantation under close supervision until the grass is one to two inches in height is also a feasible alternative.

The most effective means of control seems to be habitat manipulation. This consists of removing the cover around in close proximity to the newly planted tree. Experience has shown that tree farmers who destroy the native or planted grasses and then come back with an application of hay or straw mulch to individual trees have suffered an increased occurrence of damage to seedlings. Destruction of the grass cover habitat can be accomplished by application of an appropriate herbicide; either by hand, spray booms pulled by tractors, or by helicopter. The thing to watch out for with herbicide application is the timing. To eliminate grass, herbicides are generally applied in the spring about late March. If trees have not been planted, application of publically available herbicides--at the proper time will accomplish the job. Consultation with a licensed pesticide consultant is recommended. If the tree seedlings are present, herbicides should be applied prior to the trees breaking bud. Generally, **herbicides should not be applied directly to or be allowed to drift onto the seedlings.** Eliminating grass only in the tree rows is not as effective as treating the entire unit. The grassy areas between the trees can still harbor large mouse populations.

Alternatives to site preparation and habitat manipulation are direct control methods using barriers around seedlings. Such items as aluminum foil crapped around the base of the tree from just below ground level to six inches up the stem can foil girdling attempts. The main concern with the foil wrapping is to assure a tight wrap. Solid walled tree shelters or tubes have also shown to have a significant level of effectiveness against rodent damage.

POCKET GOPHER

The pocket gopher-reforestation problem is similar to the other wildlife-forest situations discussed in this document. These critters are widely distributed throughout timber stands, but are primarily concentrated in mesic or warm sites, such as river banks, spring areas, meadows, and other breaks in the forest canopy. Some tree damage attributed to

porcupines has since been reevaluated and is considered to have been caused by the pocket gopher. Gopher densities tend to be highest when seedlings are young and thus vulnerable, and seen to decline in density as the trees grow and brush species come into occupy the site.

The most common forms of damage are actual eating of the root system and a combination of stem girdling and clipping. Seedlings are often clipped at or near the ground surface and the roots or stems taken. Root damage and girdling can occur year-round but are most frequent in the winter.

Control methods used to prevent or eliminate damage by this pest are direct methods of trapping and poisoning. Other methods which have been used on site-specific cases are flooding, fumigation, shooting and enclosures and caging. Habitat manipulation of gopher forage is another alternative. The primary method of control in level and open areas is with the use of a piece of equipment called a burrow-builder. This machine creates an artificial burrow beneath the soil surface and deposits poisoned baits at preset quantities.

Forage is one of the most critical factors in the determination of gopher population levels. As has been shown, when forage growth, such as forbs, has been limited by overstory growth of trees or brush, gopher populations have declined. Some studies are being conducted to develop a specific reproduction inhibitor for use on gopher populations.

MOUNTAIN BEAVER

One of the more voracious damaging agents to young trees is the mountain beaver or boomer. This animal has been known to literally wipe out an entire plantation within one growing season. Methods of eradication or prevention of damage are to trap, reduce habitat, or provide protection to individual trees.

As with the mouse problem, preplanning inventories must also look at existing or potential boomer damage. This is a must, given the fact that a population of boomers living in an area adjacent to a stand which has been recently harvest can migrate to the open area. Winter trapping by professional trappers using CONABEAR 110-2 trap has proven most effective and efficient. The best method seems to be to set two traps per boomer system, check the set-up in two days and continue to check until the catch begins to decline. Trap from November to March, since populations are low and it will minimize the non-target animal catch. Winter trapping resulted in a non-target animal catch of 5% while a non-target animal catch of 20% was experienced during a summer trap program. Refer to the WA DNR and WDFW as to the current legal status of these types of traps.

Reduction of habitat by broadcast burning of slash has shown promise in reducing boomer numbers. A dramatic increase in trapping costs was noted if areas were not burned prior to trapping, or if the areas came back to heavy brush growth prior to the trapping program. Refer to WA DNR for burning plans and permits.

U.S. Forest Service work on the Alsea Range District in Oregon has tried a practice of encasing the seeding in a 15-inch VEXAR tub supported by two wood dowels. When supports were not used, a minimum of five inches of tube was buried in the soil around the stem.

The most effective control scenario seems to be harvest, broadcast burn, trap right before planting, plant, and tube high-risk areas at the time of planting or immediately after planting. The planting of large 2-1 stock should be a general recommendation in areas of identified recent boomer activity,

Use of poison baits has not proven to be an effective measure for control. Costs associated with various control practices and eradication have a wide range along with their effectiveness.

PORCUPINE

Damage caused by porcupines occurs primarily in eastern Washington. The method of control is to eliminate slash piles after and then hunt out the area at least one mile in radius beyond the point of damage incident. The most opportune time to hunt is in the winter after a snowfall noting quills, droppings, tracks etc.

DEER AND ELK

Deer and elk along with mountain beaver are probably the best known animal agents causing damage to young plantations. Deer damage occurs primarily when the animal eats the new leader growth thus retarding the height growth of the tree. Elk will often clip off the upper portion of the stem or uproot the entire seedling. Minor damage is also done during antler growth then the animals rub antlers against young saplings to remove the velvet from the antler.

Method of control consists of applying big game repellent (BGR), installing VEXAR tubes on the terminal leader, installation of RITE-IN-THE-RAIN bud caps, applying a heavy gauge netting, and working with the Game Department to manipulate hunting areas during the hunting season. Installation of VEXAR tubes is more expensive than other methods but has shown to be effective. Extra costs arise with the use of rigid VEXAR tubes and the use of lathe for support. The paper bud caps are much less expensive, but also less effective for some species and experience has proven that installing them the second growing-season provides the best results. Paper bud caps must be moved up the terminal leader as it elongates to provide maximum protection. BGR is a liquid and should be applied when the leaders are from one to three inches long. In wetter climates, BGR will be effective for only about four to six weeks before it is washed off. If deer or elk continue to use an area into late spring, a second application may be necessary. Netting has shown poor to fair results primarily because of the leader deformities caused by the weight of the material on the leader.

BEAR

Bear damage is a significant problem in localized areas. Damage can result in tree deformity, significant volume loss at the time of harvest and death. The most significant damage is on pole to small sawlog sized trees (about 5" DBH to 15"). Control methods include hunting pressures and live trapping by professional trappers on contract with the State Department of Fish and Wildlife. Industry will install and maintain bear feeding stations to pull bears away from feeding high value plantations.

CATTLE

Cattle cause damage primarily by trampling or leaning/rubbing against a stem. The best control method seems to be to restrict access in the early life of the plantation. In grazing conditions, in high-value plantations, fencing has provided limited success for managing the movement of animals.

SUMMARY

The key to avoiding potential animal damage problems is in being able to recognize a potential problem and informing the woodland owner of the options. Not all situations are going to be avoidable, but with time will come experience.

The information on the pocket gopher was obtained from two references, POCKET GOPHERS AND REFORESTATION IN THE PACIFIC NORTHWEST: A Problem Analysis USDI, Fish and Wildlife Service, Special Scientific Report-Wildlife No. 155, 1973 by Victor G. Barnes and POCKET GOPHER CONTROL Cooperative Extension Bulletin E.M. 3799, Nov. 1973. The guide to WILDLIFE FEEDING INJURIES ON CONIFERS IN THE PACIFIC NORTHWEST, published by Western Forestry and Conservation Association may be found in many field offices.