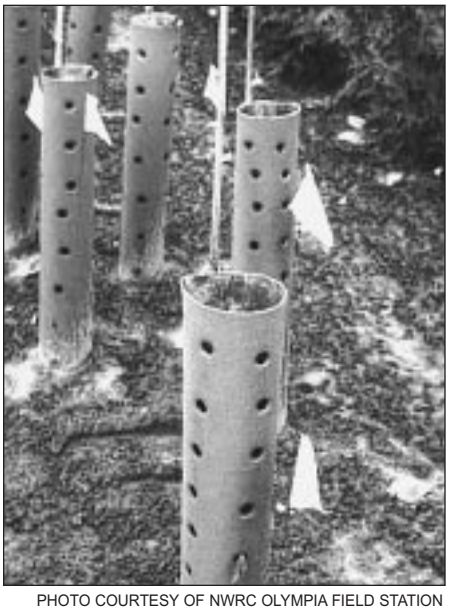
Managing Ungulates to Protect Trees

BY DALE L. NOLTE

Big game species, such as elk and deer, inflict the most widespread form of damage to forest resources. Elk may trample or pull seedlings without well-established root systems out of the ground. Browsing elk often splinter woody stems. During the spring, the stems may be stripped of bark below where they break the stem. Deer damage inflicted on seedlings is similar to elk damage. Woody stems are often splintered and the bark is stripped from twigs. New buds are generally clipped back to the previous year's growth. Deer do not pull seedlings as frequently as elk and their damage rarely occurs above six feet.

Planting seedlings immediately after harvest or other site disturbances before ungulates become accustomed to foraging in that area is the most economical and perhaps the better approach to reduce browsing. Unfortunately, this approach is not always feasible and ineffective where surrounding areas contain large ungulate populations. Hunting is the traditional means to suppress deer populations, but often impractical to solve specific problems. Fencing is the most effective method to impede ungulate movements. Fencing, however, can be cost prohibitive to install and to maintain. Although individual barriers also can be expensive, when properly installed, tubes can protect seedlings from most wildlife species. Where ungulate populations are high and consistent, individual barriers may be reasonable long-term alternatives to reduce browsing.



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Strategies to reduce damage on smaller plantations may include barriers like Vexar tubing.

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Elk can cause significant damage to seedlings.

Frightening devices, such as propane cannons and scarecrows, are generally ineffective. Some repellents will deter ungulates, but rarely for prolonged periods. Thus, repeated applications are generally necessary.

Traditional frightening devices are generally ineffective to deter ungulates for prolonged periods. However, devices activated by an animal's presence are generally more effective than permanent or routine displays. Further, a device affixed to an individual animal may generate greater responses from those individuals, and possibly from accompanying conspecific (others in the herd). For example, a device affixed to a matriarch elk that activates a signal (e.g., strobe and siren) and after a couple seconds delivers a mild shock to the matriarch, may be very effective to inhibit this animal from remaining in a protected site. Accompanying conspecifics pairing these signals with distress antics displayed by their leader may also avoid the area. Electric collars and ear tags have shown promise for deterring cattle from protected areas, such as riparian zones. Although effective, current technology prohibits operational use of these devices to deter ungulates from target areas. Technology more applicable for prolonged use with ungulates is being pursued by the NWRC Olympia Field Station.

An improved understanding of ungulate foraging ecology may provide insight to reduce negative impacts of browsing on establishing seedlings. All plants contain toxins, and the amount of toxin an animal can ingest depends on the kinds and amounts of nutrients and toxins in the forages. The NWRC Olympia Field Station is trying to determine if nutritional status of ungulates affects their preference for Douglas-fir seedlings. Supplemental energy and protein increases the ability of animals to eat foods that contain toxins. Thus, supplemental nutrients offer the potential to increase intake of plants habitually avoided or to decrease intake of plants habitually eaten. Other studies are investigating potential to select for western redcedar genotypes that may be less preferred by deer because of high terpene concentrations.

The NWRC Olympia Field Station is working to identify feasible approaches to exclude ungulates from target sites. Alternative fence designs have been investigated. In addition, scientists at the station routinely evaluate efficacy of marketed repellents. Concurrently, scientists are conducting parallel behavioral and chemical assays to identify potential natural aversive agents for new repellents. ◆

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