

● ALTERNATIVES

# MANAGING ROADSIDE VEGETATION WITHOUT HERBICIDES

BY YOKO SILK

Roadsides are public places where people jog, walk their dogs, or ride bicycles. Children play along roadsides and wait for the school bus. However, large amounts of pesticides are sprayed along many roadways. Drivers, passersby, or people spending time in their yards can be exposed to the chemicals sprayed on roadsides. In addition, runoff into roadside drainage ditches can contaminate rivers, streams, and lakes, sometimes endangering wildlife and our sources of clean water.

Vegetation management along roadsides is designed to increase safety by reducing fire hazards and increasing visibility, to insure proper drainage, to protect pavement, and to keep roads visually attractive.<sup>1</sup> However, all of these goals can be effectively accomplished without the use of herbicides, and the results are beautiful, chemical-free roadsides.

## Examples of Successful Nonchemical Approaches

Several counties in the Northwest have successfully developed policies for their roadside maintenance that either allow only minimal herbicide use, or have completely banned the use of herbicides.<sup>2</sup> Marin County, California, and Jefferson and San Juan Counties in Washington have complete bans on roadside herbicide use; Yamhill County, Oregon, manages their roadsides using pesticides only as a last resort; Clallam County, Washington, does not use herbicides on existing roads; and Thurston County, Washington, has an almost complete ban on



Caltrans

pesticide use, allowing only case-by-case exceptions. All of these counties have developed techniques for effectively managing roadside vegetation without herbicides, and some have maintained functional roadsides without the use of herbicides for over twenty-five years. In addition, the California Department of Transportation (Caltrans) uses an integrated vegetation management program. Although the agency still sprays herbicides, it has significantly reduced their use along state highways in California.

## Preventing Roadside Vegetation Problems

The most effective vegetation management techniques are focused on weed prevention rather than weed control. Prevention techniques identify the conditions that encourage unwanted roadside plants, and then modify these conditions so that the unwanted plants no longer thrive.

Planting desirable vegetation and encouraging native plants can

effectively prevent the spread of weeds. Sometimes using native or other desirable vegetation as ground cover is sufficient to keep unwanted plants under control. Darold Heikens, roadside vegetation management designer for Caltrans, explains that, depending on the area, desirable species are plants that have low fire danger, are short enough that they do not have to be mowed, and compete well with invasive plants. Lane McCallister, crew chief of Thurston County Roads and Transportation, trains his operators to recognize native and desirable plants and to leave them untouched. Jefferson County employs a similar practice; the road crews mow around some of the desired native vegetation like salal and rhododendrons. These native plants help to beautify the roadsides, slow the spread of weeds, and prevent erosion.

Caltrans has found that using barriers to prevent weed growth is the most effective nonchemical weed control technique. Barriers are usually made of fabric, cement, or rubber. They keep



Bureau of Land Management

Native plants like this blooming rhododendron add beauty to roadsides at the same time as they reduce maintenance requirements.

Yoko Silk is an intern at NCAP and a student at the University of Oregon.

water and sunlight from reaching the weeds, or to reduce the rooting ability of these plants. In urban areas where there are small groups of trees or shrubs, Caltrans uses either a wood or gravel mulch as a barrier against weeds.

To reach Caltrans's goal of reducing its 1992 herbicide use 80 percent by 2012, the agency is also actively involved in planting native grasses and studying conversion to desirable species. They will continue to research and implement new methods of nonchemical vegetation control.

Hydroseeders are used by San Juan, Thurston, and Clallam Counties in Washington, and by Caltrans. Typically, these machines spray a slurry of cellulose fiber mulch, fertilizer, water, and seeds. When soil is exposed (during construction, etc.) the agencies use a hydroseeder to replant the area with desired vegetation. Clallam County uses a mix of annual and perennial grasses because the annual grasses help the perennial grasses establish. When re-seeding a steep bank, this county sometimes adds clover to the seed mix. Yamhill County uses a hydromulcher which sprays a mix of water, a fiber source (wood, recycled paper), sometimes fertilizer, guar gum, and a mix of seeds.

### Treating Problem Vegetation

**Pulling:** In some situations hand-pulling unwanted roadside plants is a useful technique. For example, Russ Harvey, road operations manager for San Juan County Public Works, makes sure that one problem weed, tansy ragwort, is pulled and bagged. Clallam County uses county jail crews when it is necessary to pull large numbers of weeds.

**Mowing:** Mowing is a common vegetation management technique, and an effective alternative to herbicides. Mowers are used to control brush and grasses and can slow the spread of

unwanted plants by preventing seeding. Species managed by mowing in the Northwest include annual grasses, alder, Himalayan blackberry, Scotch broom, and starthistle.

Special techniques can make mowing effective and economical. Lane McCallister, crew chief of Thurston County Roads and Transportation Services, believes that it is a good practice to keep operators in the same area for about five years. This extended time allows the operators to become



Mowing is a common nonchemical roadside vegetation management tool.

familiar with the area's different vegetation needs.

According to McCallister, raising the height of the mower is also important because it keeps the mower from digging into the soil. (Some counties suggest a six-inch minimum.) Raising the mowing height also reduces the likelihood that the mower will scatter rocks that can hit the operator or people in passing cars. Tim Stieber, district manager of Yamhill Soil and Water Conservation District, agrees that avoiding a low mowing height is important in order to encourage grasses that prevent establishment of taller weeds.

San Juan County Public Works Department washes its mowers often to stop the spread of weed seeds that may have gotten onto the mower.

Mowers with an adjustable arm can

be effective for controlling weeds on slopes where standard mowers are difficult to use.

All of these counties mow at least once a year, and sometimes up to six times a year depending on traffic and vegetation. Mowing frequency depends on the traffic count of the road and the part of the roadside being mowed. For example, Thurston County mows road shoulders of arterial roads (roads with heavy traffic) two to three times a year, while the ditches and backslopes are mowed only one to two times a year.

### Conclusion

We should all be concerned with the amount of herbicides used for roadside vegetation management. With patience, nonchemical methods can be as, if not more, effective than herbicide use. Alternative controls like mowing and mulching have been used effectively by a number of counties and jurisdictions in the Northwest. Their practices show us that prevention rather than treatment is the most effective tool. According to the Washington State Department of Transportation, "Roadside vegetation, if managed properly, can

become more naturally self-sustaining over time and require less control from maintenance as it grows and matures." This should be the goal of all effective and efficient roadside vegetation management programs. ♣

### References

1. Calif. Dept. of Transportation. 2000. Roadside maintenance. [www.dot.ca.gov/hq/maint/roadsides.htm](http://www.dot.ca.gov/hq/maint/roadsides.htm).
2. Information in the rest of this article is based on interviews with Russ Harvey, San Juan County (Washington) Public Works Dept.; Mark Lopeman Jefferson County (Washington) Public Works Dept.; Lane McCallister, Thurston County (Washington) Roads and Transportation Services; Craig Jacobs, Clallam County (Washington) Public Works Dept.; George Buckle, Marin County (California) Public Works Dept.; Darold Heikens, California Dept. of Transportation Roadside Vegetation Management Design; and Tim Stieber, Yamhill County Soil and Water Conservation District. Interviews conducted by Yoko Silk during May, 2003.