

COMPOSITION AND INCIDENT OF ROADSIDE LITTER
IN THE MEDICINE BOW MOUNTAINS, WYOMING
Mark L. Mason

Prior to the establishment of a litter survey or control program, it is useful to estimate the density and composition of existing litter and the rate at which it accumulates. Litter composition and accumulation rates were established on both roadside plots and truck turnouts in the Medicine Bow Mountains of Wyoming. The study revealed that the litter composition at truck turnouts was different from that along the roadside; litter density decreased linearly with distance from a human settlement; highest litter accumulations occurred during the highest traffic volumes; and maintained areas had significantly lower litter accumulation rates; there were approximately three times more pop-top tabs than aluminum containers. Variables affecting study plot location were (a) locations vulnerable to wind, (b) higher elevations with early and late season snow cover, (c) distance from a human settlement, and (d) high-use recreation areas.

Preliminary studies also provide time-travel factors that allow management to design litter survey or control programs. Some of the factors that were found to affect plots/day/team were (a) quantity of litter on plot; (b) plot size; (c) counting versus counting and collecting litter; (d) distance between plots; (e) vegetation density, height, and type; (f) road width; (g) slope of roadside; and (h) available vehicle and manpower. Management considerations for litter studies should focus on a flexible statistical design to contend with missing data and adjusted sampling dates.

Since litter control programs are subject to budget limitations, litter collection crews may be best used after peak litter accumulation periods. If most managed areas do in fact receive substantially lower litter accumulation rates, then it may be to the taxpayers' advantage to have roadside vegetation managed to conceal litter.

INTEGRATED VEGETATION MANAGEMENT ON
LOS ANGELES COUNTY ROADS
Martin Pruett

Since the advent in the late 1940s of modern hormone-type herbicides, we have seen highway mileage increase to nearly 4 million miles. A major part of this growth has been in the form of high-speed turnpikes, the Interstate system, as well as extensive improvements and upgrading of state and county highways. This tremendous mileage growth along with increasing travel speeds and a more sensitive public eye have placed great demands on the shoulders of the landscape architect and the highway maintenance engineer.

The County of Los Angeles is one of extremes, and there is a variety of climatic and geographical conditions. On the coastal plain near the ocean, the vegetation grows year-round. In the nearby mountains, the weeds grow very fast in the late winter and spring due to the heavy rains and warm weather. In the desert area, the rainfall is relatively light and the growth of weeds is not as great as in the coastal areas.

The County is divided into road divisions, and we have 28 crews that use five 100-gal and ten 500-gal spray rigs. For special problems like tumble weed, we have three grinders that reduce the tumble weed

hauling to 1/10 of what it used to be.

We continue to use nearly every implement that has ever been developed to control vegetation and are experimenting through the Agricultural Commission with several types of biological control. Our Agricultural Commission provides a training officer for our spray crews each year to fulfill legal requirements.

On some stands of Russian thistle, we have released a moth that tunnels in the stem of the plant. The impact of this insect is not yet clear. We have noticed a build-up of larva and heavy tunneling and what we thought were dead and dying plants, but we are having trouble relating the amount of insect damage to the actual harm to the plant. We should know in a few years just what value it might have. We have also been experimenting with a weevil for the control of puncture vine. In years of good rainfall and good plant growth conditions, weevils sometimes cannot suppress plants and then outbreaks of puncture vine occur. However, the weevils catch up later and suppress the plant growth. The objectives of the roadside maintenance program are to control unwanted growth along the roadsides, to reduce roadside fires, to eliminate the unsightly appearance of unwanted growth, to prevent pavement breakage from plant roots, and to improve visibility for greater driver safety and to improve drainage.

Areas to be kept free of vegetation range from 18 in to 14 ft wide along the road shoulders. Clear visibility is important for vehicle safety and vegetation control and is an important fire protection measure.

In prior years, the County either denuded the system through mechanical means or a surface application of oil; however, increasing costs have led to the adoption of longer-lasting chemical treatments. The use of the highly efficient herbicides in roadside vegetation control has greatly reduced our time commitment to this discipline. The chemicals used in the past season include Hyvar X and Korvar I in the coastal plains. Lorox was used in areas requiring short-term control, Fenamine used for Russian thistle control, Princep 80 used in the mountain areas near pine trees, and Phytar 560 used for spot treatment in the spring. Economics is a key reason for the use of chemicals in a vegetation control program. The development of herbicides has made it possible for many maintenance units to virtually eliminate hand cutting of brush and weeds. Weed-free highway rights-of-way can be an important part of any district's good neighbor policy.

PENNSYLVANIA'S ROADSIDE MANAGEMENT PROGRAM
Robert Ross

In Pennsylvania, we think of the state's 90 000 miles of roadside as the front yard for its 12 000 000 residents and the untold millions who travel through the Keystone state to other points in the Northeast. However, there is no attempt to maintain these yards in the manner normally attributed to yard or lawn type maintenance as highways are commercial arteries and the roadside treatment must be attuned to this priority with roadside amenities managed as a secondary consideration.

The Pennsylvania roadside management program is fundamentally based on the two ingredients common to most highway problems, i.e., need and resources. An individual, educated in the biological sciences, is employed in each of the 11 engineering districts.