

CalTrans District 10 Weed Management Strategies: Got Russian Thistle, Marestalk and Fleabane?

William Nantt, Caltrans, District 10 Landscape Specialist, Caltrans, Stockton, CA
Bill_nantt@dot.ca.gov

Today I hope to clear up some misconceptions about how and why Caltrans performs vegetation management in general and how District 10 does it more specifically. I know there are misconceptions because I often hear what Caltrans is doing wrong and what we should be doing. Caltrans is a large, highly visible entity and it is natural that passing motorists will see what you are or aren't doing and have a better idea. Of course, most of these people don't have the slightest grasp of the restrictions, restraints, or goals that Caltrans has. Today, I hope to shed some light on these challenges and goals and give you a better appreciation of why things look the way they do as you are driving down a state highway.

District 10 is located in central California and consists of 20 highways and interstates in 8 counties. It is diverse in climate, elevation, and weed species. We have near desert conditions in the southwest and avalanche potential in the east. It's not a one size fits all district and we don't have one size fits all solutions to our vegetation management challenges.

First I'll cover the challenges and goals and later I'll contrast vegetation control methods in 2 very different parts of the district. Hopefully you'll understand why I cringe when well-meaning citizens make suggestions to me, usually around the theme of eliminating herbicide use and instead do things like mow, use biological control, solarization, replace annual grasses with perennial grasses, and my all time favorite.....just mulch everything!

Bureaucracy

How many people in this room work for a bureaucracy? My guess is that most of you do so I will not belabor the challenges and futilities of working in this environment. Of course, working for a bureaucracy in California is another story. Working for a large bureaucracy is not all bad. When you encounter a problem you can bring many resources to bear to overcome some otherwise insurmountable issues.....slowly of course. For example, you can purchase large toys and very specialized equipment that may otherwise be out of reach to a smaller organization. And to put things into context, I live in a house with four teenagers, three of them girls. Do you think I sweat coming to work on Monday mornings?

Caltrans = Safety First

Caltrans is regulated by volumes of safety regulations which have been established over the years mostly as a result of many deaths and injuries to both employees and the public. I can't overemphasize how dangerous it is both on the highway and adjacent to it. Any maintenance operation must follow strict guidelines therefore any vegetation operation will be first and foremost influenced by safety considerations. Any method, no

matter how appealing or popular, will not happen if it compromises safety. We prefer methods that keep maintenance personnel out of harms way as much as possible. That means methods that are proven, proactive, and that can be performed from the relative safety of a large piece of equipment.

Environmental

In district 10 there is a large staff of people whose job it is to identify and protect environmentally sensitive areas, or “ESA”s. ESA’s may include endangered species’ habitats, sensitive watershed sites, wetland areas, fossil locations and any number of other reasons one might want to protect a location. Environmental concerns can and do dictate what, if any, maintenance can be performed in these locations. There are 84 pages and several areas per page that we are not allowed to spray in. Some of these locations restrict even mechanical weed control. Identified bus stops are also listed and they restrict spraying within 100 feet.

The Environmental Impact Report of 1992

In 1992, Caltrans agreed to abide by the suggestions of an Environmental Impact Report which was done to address concerns that Caltrans was using too many herbicides and destroying the Earth. The EIR suggested we reduce herbicide usage by 50% by 2000 and 80% by 2012. The EIR also suggested we take a more sophisticated approach and institute Integrated Vegetation Management practices such as cultural, biological, mechanical, and other methods instead of relying on herbicide usage. In addition, we are required to submit a mitigation checklist and an annual vegetation control plan which lays out the vegetation management method we plan to use for every mile of every highway.

The 2000 goal of a 50% reduction has been accomplished and was done by reducing fire strips, reducing width of applications and using more sophisticated products with much lower use rates. It can be argued that the EIR was a success but I’d have to argue that it is only a partial success due to the fact that we have more and larger fires and an increased incidence of noxious weeds taking root on our shoulders and spreading to adjacent property.

Stormwater

Over the last 10 to 15 years, the importance of storm water runoff control has greatly increased. The result of this influence is manifested in the increased use of shoulder grasses as a biofilter to help control soil erosion and control toxic laden highway runoff. This has reduced the number and width of fire strips in District 10 and is considered effective if the mowing can be timed correctly. This is also political. Current management would like to see more fire strips. District 10 used to chemically mow its shoulders and medians but management decided to go in another direction.

Approved Chemical List

Another restriction we have is the Caltrans approved chemical list. If we choose to spray chemicals we can only use products that have gone through a detailed review

process. This list includes surfactants and adjuvants. Almost all the products on the list are category 3. Most of the adjuvants and surfactants are counted in the active ingredient totals so unfortunately this is a disincentive to use them. The review process also includes field trials of the various submitted products in roadside locations which are documented for efficacy.

Goals

I've mentioned many though not all of the restrictions and considerations we have to contend with before we can get to the business of controlling vegetation on our roadsides. As far as goals go I'd like to mention the following statement from headquarters concerning vegetation control. "The Department's goal is to maintain a safe, effective and economical vegetation control program which responds to public concerns in an open, flexible and professional manner." In addition to that, Caltrans' greater goal is to improve mobility across California. Caltrans specifically manages vegetation for the following reasons. Sight distance and fire-risk management, prevent pavement degradation, control noxious weeds, clear drainage facilities, and improve aesthetics. Keep in mind that the actual roadway receives most of the resources and the roadsides get what's left over.

State Highway 88

Highway 88 has its humble beginnings in Stockton at Highway 99 and ends more majestically in the High Sierra at the Nevada state line. It is considered an all weather highway which is in the foundation for our vegetation management challenges there. The route is used by gamblers going to Tahoe or Jackson, skiers going to and from Kirkwood, logging trucks, off road recreation lovers, and unfortunately out of state hay hauling trucks.

Because of this, we have the greatest concentration of "A" rated weeds in our district along this highway. To complicate matters, we also have some of the most sensitive areas in the district located here. The weed palate consists of the exotic Skeleton Weed, various Knapweeds, Oblong Spurge, Klamath Weed, and various Thistle species. In addition to those we have the usual suspects in abundance including Blackberry, Ailanthus, Poison Oak, Maretail, and Yellow starthistle. Currently we are very concerned about the spread of some of the broom species. At the lower elevations we have many orchards and vineyards adjacent to our right of way that we must be concerned with when making chemical choices. In the foothills we pass through large expanses of pastureland which requires being sensitive to fire concerns and containment of the Yellow star thistle. Where the highway enters the Mother Lode we start to see pressure from Ailanthus and blackberry. Just above Jackson the woody species and "A" rated weeds really become an issue especially due to the increased presence of sensitive areas such as State and National Forests, watersheds and State Parks. This is where an Integrated Vegetation Management approach becomes valuable. We employ techniques such as using an articulated arm brush mower to control blackberry and other woody species in sensitive areas. We also use California Conservation Corps labor for woody species control and we are exploring the use of weed mats under guardrail in sensitive

watershed locations. We also try to be diligent with mowing the roadside grasses and try to cooperate with landowners with fire strips.

From a chemical standpoint, we use products labeled in orchards and vineyards such as Goaltender™ for use anywhere near these locations. In the pasture locations we use Telar™ for pre emergent broadleaf weed control and Transline™ or Milestone VM™ for Yellowstar touchup post emergent. At the higher elevations we're starting to use MilestoneVM™ and Roundup and are excited with the results. This is a very strong tank mix for control of the Knapweeds, thistles, and broom. We are anticipating the approval of Milestone VM Plus™ which I have tested extensively. I anticipate we will be able to substantially reduce our labor efforts for woody species control in locations where we can use it and that means fewer man hours in harms way.

Merced County, Interstate 5, and State Highway 152

At the opposite end of the district we have conditions in stark contrast to what I just covered. This area gets little rainfall, is usually windy, is hotter and the water is at a ph of 8 or more. The roadways are broad and the rights of way broader still. Both I-5 and 152 have wide center medians and often equally wide rights of way on the shoulder. This is the land of Russian Thistle and other tumbleweeds. We are also blessed with an abundance of Prickly Lettuce, Marestail, Fleabane, Mustard, Filaree and Datura. These weeds give this area a survivor personality and traits like stubborn and difficult come to mind.

Due to the lack of rainfall, the grasses don't compete well and spot fires often clear out patches of what grass does grow exposing the soil to opportunities for Russian Thistle to take hold. We try to mow the accessible locations but usually we only have the resources to mow once and that is not enough. Chemically we are challenged by the fact that Roundup requires a buffering agent in the highest ph range we find in this area and we currently don't have one on the Caltrans list. For pre emergent control, we use Telar or Goaltender but can go only 25 feet from either side on a 100 foot median. The limited number of pre emergents available makes me concerned for resistance potential. In addition, weed carcasses make it difficult for good application of herbicides. On Highway 152 many of the medians are low lying and are often wet much of the year.

Due to the fact that most of our equipment is large, we are limited on where we can apply herbicides to flat, dry locations. We are currently looking at acquiring some smaller spray equipment which will allow us more flexibility. Also, our equipment is designed for the road and we could use the capability to do more off-road work. We have a tumbleweed mower available, but due to the scale of the problem it hasn't been proved effective. From an herbicide standpoint, we were not satisfied with the control we were getting from various tank mixes for broadleaf control on our off/onramps in this area. After some testing, we hit on a tank mix with Telar XP™ and Milestone VM™ we are excited about. We had season long control of Russian thistle from a December application. In addition to that we started adding Milestone VM™ to our post emergent Roundup™ applications and it looks like it is having suppressive results on the Russian thistle. I believe this will also help with resistance issues.

In conclusion, I hope that you can better appreciate the challenges and restrictions Caltrans faces as well as our goals. Physical resources are only part of the solution in the

environment that exists in California. There are a large number of concerned and knowledgeable people willing to assist in just about any vegetation management issue you may encounter. I count as resources the various County Agriculture Commissioners, UC extension agents, Weed Management Association members, chemical company reps., utility managers and many more. I thank CWSS for this opportunity to add my perspective to the California weed management challenge.