

CHAPTER 8

VEGETATION MANAGEMENT

DESCRIPTION

Roadside vegetation is managed to provide a safer roadway for the traveling public, maintain sight distance, remove hazard trees, manage non-native species and prevent or repair slides or slip-outs. Vegetation growth can be managed manually, mechanically, or chemically. Activities include: mowing; trimming; pruning; spraying, removal of brush; tree removal; chipping; and disposal of plant debris. Vegetation often needs to be planted after a maintenance project is complete (i.e. hydroseeding after a culvert repair).

These guidelines apply to any vegetation management that is done for any reason, with the exception of instream channel maintenance. For the purposes of this manual, that is considered a flood control activity (not covered here). See Flood Control Facility Maintenance Manual developed by the Bay Area Stormwater Management Agencies Association (BASMAA, June 2000).

ENVIRONMENTAL CONCERNS

- ✓ Discharge of sediment, plant material, or herbicides to streams or watercourses.
- ✓ Harm to aquatic habitat, riparian areas or rare plant populations.
- ✓ Loss of trees as shade canopy and a future source of large woody debris in stream systems.
- ✓ Water pollution from equipment operations.
- ✓ Water pollution from leachate in vegetation disposal areas.
- ✓ Damage to vegetation beneficial to erosion control on slopes or sediment filtering.
- ✓ Introduction of exotic or invasive plant species or spreading of plant diseases.
- ✓ Increasing water temperature due to loss of shade from riparian zone.

BMP OBJECTIVES

- ✓ Reduce potential for water pollution from sediment delivery, herbicides or equipment operations.
- ✓ Encourage healthy and native vegetation growth to stabilize slopes, filter sediments entering streams or watercourses and provide healthy riparian and aquatic habitat, including shade over streams.



BEST MANAGEMENT PRACTICES

- 1) Riparian vegetation is defined as “the vegetation growing in or near the banks of a stream or other body of water on soils that exhibit some wetness characteristics during some portion of the growing season”. The riparian area, includes “stream channels, wetlands and those portions of floodplains and valley bottoms that support riparian vegetation”.¹ These zones are of utmost value in protecting water quality and salmonid habitat. Therefore, it is extremely important that crews do not perform vegetation management in riparian areas unless under permit or in serious emergency conditions.
- 2) Vegetation management activities should be addressed by and comply with local vegetation management plans if they exist . These may include county vegetation management plans and chemical vegetation management guidelines issued by the county agricultural commissioner.
- 3) Mechanical vegetation control and/or integrated pest management methods are preferable to chemical methods when feasible.
- 4) Vegetation management and planting design should be conducted in a way that promotes native over non-native vegetation.

Mowing

- 5) Identify and protect drains and inlets from plant materials that may clog the inlets or disturb drainage patterns (i.e. grass clippings, branches, cuttings).
- 6) Minimize disturbance of ground cover or grass on the shoulder, near ditches and outside of the road right-of-way. If the ground is bladed clean during mowing, the exposed soil will be vulnerable to erosion and could run-off into a creek. Vegetation can also act as a pollution filter that traps sediment and other runoff before it gets into ditches or streams.
- 7) General guidelines for working within the road right-of-way:
 - Do not mow beyond 8 feet from the edge of the pavement unless that vegetation must be removed to retain existing drainage patterns or for safety reasons.
 - Do not remove brush more than 20 feet on either side of the road at bridge structures, unless additional removal is required to address safety concerns or to control noxious weeds.
 - Do not remove brush more than 10 feet on either side of a culvert, or 10 feet up and downstream from culverts that are 6-feet in diameter or larger, unless management is required for safety concerns or to control noxious weeds.

¹ Department of Fish and Game. (1998). California Salmonid Stream Habitat Restoration Manual.



- 8) County crews should receive specific training in vegetation management and proper cleaning of equipment to prevent passing contagious diseases to uninfected plant populations (e.g. Sudden Oak Death), and to prevent spreading seeds of invasive, non-native plant species.
- 9) When removing invasive plants and noxious weeds, use complete and thorough treatments. (Arundo is particularly difficult and requires at least two treatments to remove all underground root networks.)
- 10) Small quantities of cut brush and trees may be left in riparian areas, adjacent to streams, when cut vegetation:
 - Does not cause a safety concern or fire hazard;
 - Does not disturb existing drainage patterns.
 - Does not contain noxious weeds (consult with appropriate staff about types and locations of noxious weeds);
 - Is not stockpiled in concentrated areas that can release leachate to surface water;.
- 11) Dispose of larger amounts of vegetation and debris in approved upland disposal areas. Do not dispose of vegetation directly into waterbodies such as streams or wetlands. Do not permanently dispose of concentrated amounts of vegetation that can generate leachate that could affect surface or groundwater quality, unless disposal is at a location permitted for this purpose. (See *Chapter 7.3 Spoils Handling and Disposal*).
- 12) When feasible, chip removed vegetation and reuse as mulch.

Spraying

- 13) County crews using herbicides for vegetation management should receive specific training in their proper application, safe work practices and potential environmental hazards. Only personnel trained and certified in pesticide and herbicide use should be allowed to apply herbicides.
- 14) If using herbicides close to the “normal” start of the rainy season or in early springtime, use only aquatic approved formulations (e.g. Rodeo/Aquamaster with Agridex or LI-700 surfactant, not Round-Up). Timing, rate and volume of spraying should be included in a schedule for herbicide treatment. When in doubt, contact your County Agricultural Commissioner’s office.
- 15) A Federal Court ruling (2004) prohibits the application of 38 listed pesticides/herbicides within 20 feet of salmon bearing streams, lagoons or estuaries (manual application) and within 100 ft (aerial spray). Crews should be aware if their county uses these chemicals in vegetation management and be knowledgeable as to which streams have salmon in them. Your Agricultural Commissioner’s Office can give you advice on these rules and the use of these products.



Because of EPA's reviews and effects determinations on many of the 55 pesticides in question, the Court's Order effectively applies only to the following 38 pesticides. (February 2004 Federal Register)

1. 1,3-Dichloropropene	20. Fenbutatin-oxide
2. 2,4-D	21. Lindane (gamma-BHC and HCH)
3. Acephate	22. Linuron
4. Azinphos-methyl	23. Malathion
5. Bensulide	24. Methamidophos
6. Bromoxynil	25. Methidathion
7. Captan	26. Methomyl
8. Carbaryl	27. Methyl parathion
9. Carbofuran	28. Metolachlor
10. Chlorothalonil	29. Metribuzin
11. Chlorpyrifos	30. Naled
12. Coumaphos	31. Oxyfluorfen
13. Diazinon	32. Pendimethalin
14. Diflubenzuron	33. Phorate
15. Dimethoate	34. Prometryn
16. Disulfoton	35. Propargite
17. Diuron	36. Tebuthiuron
18. Ethoprop	37. Triclopyr BEE
19. Fenamiphos	38. Trifluralin

BMP TOOLBOX

Planning and Prevention BMPs

- ✓ Seasonal Planning
- ✓ Small Spill Kit

Erosion Control BMPs

- ✓ Mulching
- ✓ Planting

Sediment Control BMPs

- ✓ Storm Drain Inlet Protection

Valuable References

- ✓ County Vegetation Management Plan (if available)
- ✓ County Weed Management Areas (if available)
- ✓ County Integrated Pest Management Plan (if available)



PERMITS

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Activity or Condition	Required permit or limitation
<ul style="list-style-type: none"> Vegetation disposal sites that could impact surface or groundwater quality. 	<ul style="list-style-type: none"> Waste Discharge Requirements from the California Regional Water Quality Control Board
<ul style="list-style-type: none"> Application of herbicides or pesticides. 	<ul style="list-style-type: none"> Compliance with herbicide and pesticide restrictions and guidelines for application published by the County Agricultural Commissioner's office.
<ul style="list-style-type: none"> Removal of scenic resources, which may include large stands of trees; or healthy, mature, scenic trees. 	<ul style="list-style-type: none"> Comply with County Tree Ordinance or County Vegetation Management Plan; possible CEQA
<ul style="list-style-type: none"> Working within the riparian zone. 	<ul style="list-style-type: none"> DFG 1602 agreement may be needed
<ul style="list-style-type: none"> In Coastal Zone, Vegetation maintenance, including trimming and cutting by hand and mechanical means. 	<ul style="list-style-type: none"> Is exempt from a coastal development permit for maintenance treatment of all vegetative material growing native within the highway rights-of-way.
<ul style="list-style-type: none"> Removal of trees along designated <i>State Wild & Scenic Rivers</i> may require further permitting 	<ul style="list-style-type: none"> Check with the California Resources Agency Department of Conservation

