

Integrated Vegetation Management

Electric transmission right-of-ways (ROW's) are vital infrastructure to the State of California. Active vegetation management of these ROW's is essential for the maintenance of a safe and reliable transmission system, by reducing the number of potential outages due to wildfire transmission system damages and conductor contacts with vegetation. In addition, vegetation management can establish a vegetative cover that provides benefits to firefighting suppression tactics while also maintaining native biotic diversity and wildlife habitat. In order to reduce the potential severity of Impact F-4, "Active vegetation management for facility protection, maintenance and operation may adversely affect public trust natural resources of the state".

_____ should adopt a wire zone/ border zone ROW management concept. This concept recognizes the ROW as a valuable economic and ecological resource. Key to this concept is the management of the ROW from two perspectives, the wire zone and the border zone. The wire zone concept should include the required ROW width plus any additional width required by design to allow for conductor sag and or sway between towers. The border zone is the remainder of the ROW on both sides of the wire zone or where the re-growth and/or decay of vegetation may present a future outage cause to the transmission system. The goal is to have a low shrub-forb-grass cover type in the wire zone and a tall shrub-forb-grass cover type in the border zone. There should be no threats to the line from trees adjacent to the ROW.

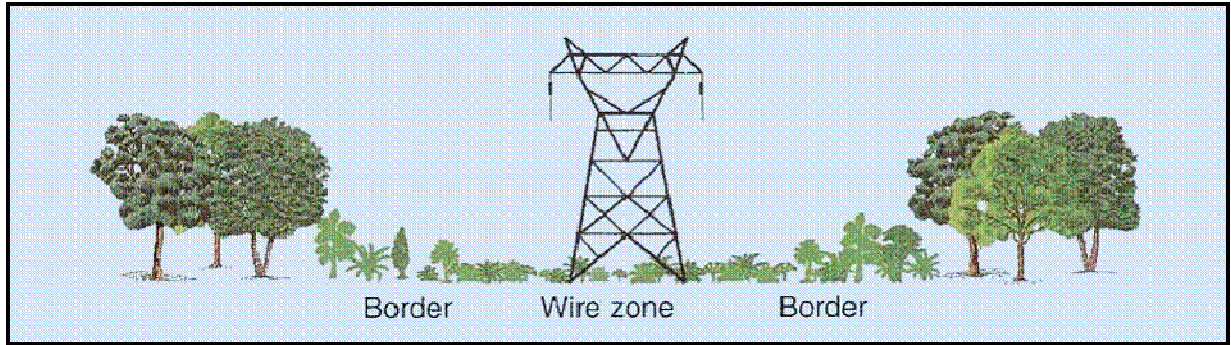
Integrated vegetation management (IVM) is a practice of managing undesirable vegetation in which action thresholds are considered, then all possible control options are evaluated and finally a management program is selected, developed and implemented. Control options are based on worker/public safety, environmental impact, effectiveness, site characteristics and economics. Initially, a vegetation association within the ROW is established to a desired and prescribed vegetation, fuel load, structure, and species composition through the removal of undesirable vegetation. The ROW is then maintained and enhanced via various management techniques to promote the desired vegetative mosaic into perpetuity.

The wire zone / border zone concept is the direct result of extensive research into the effects of ROW vegetation management on wildlife and wildlife habitat. The wire zone is the 200 foot minimum ROW easement width for a 500 kV transmission line and 120 foot minimum ROW per specifications provided for in the 2003 _____ Guide for Encroachment (Appendix 3X). Two noted researchers, Dr. Bramble and Dr. Byrnes, have been studying the impacts of various vegetation management strategies along transmission corridors since 1952. (Reference Journal of Arboriculture Article, March 2004 "*Wildlife responses to more than 50 years of vegetation management on a Pennsylvania, Right of Way by Yahner, Richard H.*") Their research indicates that an IVM program developed within the parameters of the wire zone/border zone management concept actually increases habitat value and the wildlife diversity of the ROW.

The adoption of the wire zone / border zone management concept by the utility will result in the creation of an IVM program that will protect facilities, reduce the potential for wildfire escapes from within the ROW, and provide beneficial habitat for wildlife and a variety of plant species. Economic benefits to the utility will be realized by a reduction in the number and duration of costly outages and the minimization of fire related liability exposure. The comprehensive IVM program would also be expected to lower vegetation treatment costs over time as costly initial treatments evolve towards less costly maintenance practices within sustainable landscapes of the

ROW. The following is a conceptual photograph of the desired appearance of a ROW subject to a wire zone / border zone management practice.

Figure D.15-xx. Wire Zone – Border Zone

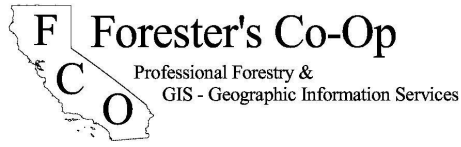


The Proposed Project will be a critical component of _____'s electric transmission system. Its importance is based on the size of the system, the number and type of customers on the system, the surrounding geography and environment, the accessibility, and the impact of system failure on the transmission grid. As discussed in Section D15.3, _____ will be required to manage vegetation that presents a risk to its electric transmission facilities. Various federal and state laws clarify the requirements including FERC license articles, FERC Safety Inspection, California Public Resource Code, and Public Utilities Commission guidelines including General Order No. 95. Specifically, an effective program for managing vegetation is needed within the ROW for _____ transmission lines for the following reasons:

- To maintain the highest standard of reliability.
- Reduce the risk of vegetation contact that could lead to a catastrophic fire.
- Promote a change of vegetation structure within the ROW to maintain low-growing plant species that pose lower risk of conflicts with the transmission line.
- Maintain worker and public safety, reduce costs to ratepayers [explain why IVM would reduce costs], and reduce the potential for economic losses to public land and private property that can result from wildfires.

Use of herbicides will be a key component in the IVM program. The appropriate herbicides applied judiciously per site specific recommendation will result in the most environmentally compatible, effective program. All herbicide applications should adhere to all appropriate laws and regulations governing the use of pesticides, as required by the appropriate agency. Including, U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, California EPA regulations and safety regulations, and Forest Service policy pertaining to herbicide-use. Herbicide label directions for application rates and methods, mixing, and container disposal will be followed. Coordination with County Agricultural Commissioners is encouraged, and all required licenses and permits shall be obtained prior to any herbicide application.

Chemical application will be restricted to ground-based applications. Additives in the form of colorants and surfactants will be added to the herbicide mixture. A colorant or dye will be added



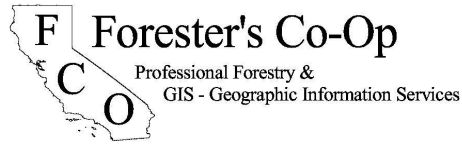
to determine location of coverage. A surfactant helps the herbicide mixture to be absorbed into the plant. The application rates for each of the herbicides proposed for use will be in accordance with each material's label instructions. Manual methods will mostly consist of chainsaw and chippers. Once established, mechanical maintenance should be minimal. Track laying masticator, excavators and skid steers versions, will be necessary from time to time in locations where routine maintenance is not possible or practical.

Wire Zone: Prior to the start of construction, _____ shall define the minimum allowable widths considering two key elements; 1) Project design allowances (Conductor sag and sway, tower placement, topography, etc) and 2) Transmission facility regulatory clearance standards for all obstructions. The combination of these two key elements will establish the wire zone for the project on a segment specific basis for the proposed transmission corridor.

- During the construction phase trees and brush impediments within the corridor shall be removed. Manual and mechanical means of vegetation removal will be required to establish the wire zone portion of the ROW. Immediate treatments of removed vegetation shall be required by means of disposal off site or chipping and spreading as designated in the IVM program yet to be developed. All vegetation being post processed (chipping or mastication) on site must be mulched and spread in a practice such that remaining debris would not interfere with construction activities or create fuel for fires.
- Once established, the corridor will need to be maintained. ROW Ownership and language within the license shall direct and specify any limitations to the applicable vegetation management tools for use on the ROW ownership. Within the wire zone, undesirable woody species will be treated with a low volume basal and foliar application of herbicides. These applications target individual plants while avoiding off target or non-intended vegetation injury. The goal is to select for the retention of those species that are most conducive to line management based on the following criteria; fuels reduction, personnel and equipment access and reliability. Alternative and or additional herbicide applications and formulations shall be defined on site specific basis.
- In conjunction with herbicides or on segments where herbicide is not possible, manual means of control will be employed. This will include the use of chain saws and hand tools. Grazing should be considered and will have some application. It should be considered in the context of the integrated approach and not considered as a replacement for other methods of vegetation management.

Border Zone: _____'s IVM shall define ROW safety and maintenance requirements for the Border Zone. Maintenance here will be concurrent with management activities within the wire zone.

- Seedling and small conifers (less than 4 inch DBH) and select tree species will be removed and treated by cut stump applications, brush species will be encouraged but limited to a appropriate density. This will vary with fireshed. Border zone management allows for a greater presence of brush and small trees. Larger populations of brush, for example, greater than 1000 square feet and greater than 5 feet tall will be thinned or removed by hand to create more of a mosaic effect. In addition to brush and small trees, larger trees adjacent to the line and designated ROW will be inspected. Those trees



expected to be a hazard within 5 years shall be removed. Debris will be lopped to 18 inches or less. Chipped and spread onsite where appropriate or removed. Herbicide applications will be used as necessary to facilitate border zone management

Towers: All woody species and forbs shall be removed around the towers, only grass will remain (approximately 2500 sq.ft. per tower). Stumps of re-sprouting species will be treated with prescribed herbicides to prevent re-growth.

Noxious Weeds: Noxious weeds will be targeted in the wire zone, border zone, and along the access roads. Herbicides such as Transline and Vista will be used to eliminate and further mitigate the spread and control of fire prone noxious weeds such as rip gut and cheat grass (*Bromus diandrus* & *Bromus tectorium*), wild oats (*Avena fatua*), and yellow star thistle (*Centaurea solstitialis*) along with the control of other noxious weeds.

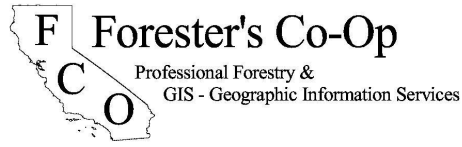
Best Management Practices:

Best Management Practices (BMP) shall be employed during vegetation treatments and are intended to protect water quality, desirable vegetation, wildlife, property and other resources. The IVM shall include Best Management Practices (BMPs) that shall be employed during prescribed vegetation treatments. BMPs shall be site-specific to each corridor segment, and shall include manual, mechanical, chemical, and grazing methods.

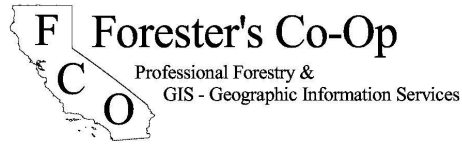
Mitigation Measure

Implementation of Integrated Vegetation Management (IVM) Plan. SDG&E shall create and implement a comprehensive IVM program utilizing the full range of adaptive strategies discussed here to manage vegetation along the projects route. _____ IVM Program shall have the following goals:

- To exclude undesirable woody species within the wire zone and around tower sets along the ROW.
- To maintain a low shrub-forbs-grass cover within the wire zone of the ROW.
- To maintain a tall shrub-forbs-grass mosaic cover within the border zone of the ROW.
- To maintain grasses only within a 2500 sq. ft. area (50x50 feet) around each tower in the ROW.
- To prevent noxious weed establishment within the wire zone, border zone, and along the access roads to the ROW.
- To implement Best Management Practices (BMP's) during vegetation treatments to protect water quality, desirable vegetation, wildlife, property, and other resources. The IVM shall include BMPs for each prescribed vegetation treatment. BMPs shall be site-specific to each corridor segment and shall encompass manual, mechanical, chemical, and grazing methods.
- The IVM shall address both Wire Zone and Border Zone initial clearance and maintenance requirements, and shall include the following components:
 - 1) Pre-fire Vegetation Management Requirements



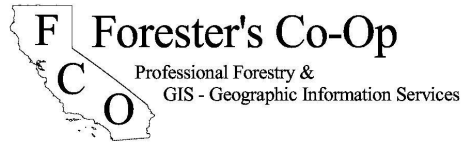
- A. Construction Phase -
 - i. Impediment elimination
 - ii. State and Federal standards compliance
 - iii. Facilities construction/design consideration
 - iv. Facility and ROW span specific requirements
 - 1. Wire Zone Specifications
 - 2. Border Zone Specifications
 - 3. Access Roads
 - 4. Tower Specifications
 - v. Wire/Border Zone Vegetation Prescriptions to initiate desired future condition
 - 1. Native Species Restoration
 - 2. Noxious Weed Abatement
 - 3. Vegetation Mosaic & Structure
 - 4. Fuel load thresholds
 - vi. Initial Treatments – Fuel Load Reduction
 - 1. Adaptive Practices
 - 2. Follow Establish BMPs for treatment method
 - 3. Reduce Fuels Loads below established thresholds
 - 4. Removal/Disposal Methods
 - vii. Restoration
 - 1. Erosion control
 - 2. Bank Stabilization
 - 3. Native Planting per prescription
- b. Operational Phase – Vegetation Maintenance
 - i. Comprehensive Annual Inspection and Reporting Program
 - 1. Routine Inspections Protocol
 - 2. Aerial Inspections Protocol
 - 3. Emergency Inspections Protocol
 - ii. Impediment elimination
 - iii. State and Federal standards compliance
 - 1. Annual Fire Agency Compliance Reporting
 - 2. Coordination of Joint Inspections
 - iv. Facilities construction/design consideration
 - v. Facility and ROW span specific requirements
 - 1. Wire Zone Specifications
 - 2. Border Zone Specifications
 - 3. Access Roads
 - 4. Tower Specifications
 - vi. Wire/Border Zone Vegetation Prescriptions to establish and maintain desired future conditions
 - 1. Native Species Restoration
 - 2. Noxious Weed Abatement
 - 3. Treatment frequency
 - 4. Vegetation Mosaic & Structure



5. Fuel load thresholds
 - vii. Maintenance Treatments – Fuel Load Reduction
 1. Adaptive Practices
 - a. ROW Ownership
 - i. Environmental considerations
 - b. Water
 - c. Listed Species
 - d. Public use
 - e. Topography
 - f. Manual
 - g. Mechanical
 - h. Chemical
 - i. Pre-treatment
 - ii. Interface with Mechanical
 - i. Thermal
 - j. Biological
 2. Follow Establish BMPs for treatment method
 3. Reduce Fuels Loads below established thresholds
 4. Removal/Disposal Methods
 - viii. Restoration
 1. Erosion control
 2. Bank Stabilization
 3. Native Planting per prescription
- 2) Post Fire Vegetation Management Requirements
 - c. Reconstruction Phase
 - i. Debris and Hazard removal
 - ii. Site Stabilization
 - iii. Post fire Inspections and Vegetation Inventories
 1. Damage assessment
 2. Species
 3. Structure
 4. Down woody tons/acre
 - iv. Native Plant Restoration
 - v. Re-growth rate and density
 1. Pre-emergence Treatments
 - vi. Facilities construction/design consideration
 - vii. Environmental constraint modifications
 - viii. Future Fire behavior modification to IVM Program

Mitigation Measure

Annual timing of IVM - The IVM shall define the annual timing of ROW maintenance activities and shall avoid work in saturated season conditions. One year after completion of construction, the ROW shall be inspected and a report shall be submitted to the CPUC.



The ROW shall be monitored annually, with a report submitted to the CPUC documenting each of the following documents:

- Measures taken to reduce wildfire fuels or eliminate line hazards
- Inventory of forbs, grasses and wildflowers in the ROW
- Vegetative mosaic and structure of the wire zone and border zone
- Control and/or absence of noxious weeds in the ROW and along access roads
- IVM work order status report on completed and non completed vegetation management projects