Guide for Content Requirements for Invasive Species Management Plans

County of Ventura • Resource Management Agency • Planning Division
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www.vcrma.org/divisions/planning

An Invasive Species Management Plan - hereafter referred to as the "Plan", provides a road map to control invasive species infestations. Eliminating the presence of invasive species in an area over the long term is a lot more complicated than simply clearing weeds – it requires understanding on how the species got there, how it spreads, the level of the infestation, and the best ways to eliminate or contain it to ensure the labor and cost invested in its removal are not wasted.

The Invasive Species Management Plan is required by the County in order to provide a process for the applicant to clarify their goals for invasive species removal to ensure that the treatments selected are most effective and minimize unintended impacts within a sensitive biological resource area. It will also provide the base information necessary for other agencies to issue required permits/agreements (i.e., California Department of Pesticide Regulation, US Army Corps, California Department of Fish and Wildlife, Regional Water Quality Control Board, US Fish and Wildlife Service) for vegetation removal within a Surface Water Feature.

Numerous sensitive species are found within a Surface Water Feature and the potential to injure or kill these species is extremely high when removing vegetation in these areas. Section 8109-4.8.3.5 (b) of the County's Non-Coastal Zoning Ordinance prohibits the removal or damage to native vegetation when removing invasive species within a Surface Water Feature. To ensure this does not occur, specific measures shall also be developed within the Plan to guide work taking place within a Surface Water Feature.

Requested information for the Plan is within the Ministerial Application Form for Invasive Species Removal (link to form) and must be approved by the County prior to any vegetation disturbance or removal. If invasive species removal will take place in areas known to contain any federally, state, or locally listed species or support such species, the Plan shall **require documentation that a County-approved *qualified biologist* was present to identify and protect any sensitive biological resources** that may be present in the treatment area and within a 100-foot buffer area (outside the bird nesting season) or 300-foot buffer area (during bird nesting season). In addition, if any tree alterations or removal are proposed within these areas, please see this page for **tree permit requirements**.

Upon decision of the Planning Department, a previously developed habitat management plan for the project area that incorporates an integrated management approach may be accepted in lieu of this requirement (or have certain components referenced), provided the required plan content detailed below is contained in the alternative document.

Supplemental Information for Ministerial Invasive Species Removal Permit Application

Section 6: Other Required Permits

Any project that might alter streams, wetlands, rivers or habitats adjacent to them may trigger the need for one or more permits from federal, state and local agencies that have regulatory jurisdiction. It is very important that you check with the agencies early in the planning process – long before work begins.

The key agencies are listed below with associated permit triggers:

- **Federal**
  - **Agency: U.S. Army Corps of Engineers**

    Ventura Field Office, (805) 585-2140
    District Office, (213) 452-3333
    Trigger: The movement or placement of materials such as dirt, rock, geotextiles, concrete or culverts – into or within USACE jurisdictional areas.

  - **Agency: US Fish and Wildlife Service**

    Ventura Field Office, (805) 644-1766
    Trigger: The presence of a federally protected plant or animal species, or USFWS Designated Critical Habitat.
- **State**
  - **Agency: California Department of Fish and Wildlife**

    South Coast Region 5, (858) 636-3160
    Trigger: When project will alter a stream or disturb any riparian vegetation, or the presence of a protected state species.

- **Regional**
  - **Agency: Regional Water Quality Control Board**

    Board representing Los Angeles County and most of Ventura County:
    Los Angeles Regional Water Quality Control District, (213) 576-6600

    Board representing northwest Ventura County (Rincon Creek watershed):
    Central Coast Regional Water Quality Control District, (805) 549-3147
    Trigger: The application of an herbicide in or adjacent to a waterbody.

- **Ventura County**
  - **Agency: Agricultural Commissioner's Office**

    Ventura County
    815 E. Santa Barbara St., Santa Paula
    (805) 933-3165
    https://www.ventura.org/agricultural-commissioner/
    Trigger: Application of pesticide. Must be a registered applicator.

  - **Public Works Agency - Watershed Protection District**

    Watershed Planning and Permits Division
    800 S. Victoria Avenue, Ventura
    (805) 654-2061
    https://www.vcpublicworks.org/wpd/watershedplanningandpermits/

Trigger: Removal or planting of vegetation within a jurisdictional channel; Development or activity affecting the floodplain associated with a jurisdictional channel (i.e., alteration of flow or runoff characteristics through modification of sediment or vegetation).

For further details about permitting requirements in wetlands, streams, rivers, and their associated habitats, please see the Wetland Project Permitting Guide: Permitting Stream and Wetland Projects in Ventura County & along the Santa Clara River in Los Angeles County. Available at http://pwaportal.ventura.org/ONESTOP/ESD/Wetland_Project_Permitting_Guide_in_Ventura_County.pdf

Section 7: Goals and Purpose of the Invasive Species Removal

Background Information:

When describing the purpose for removing invasive species in these sensitive areas, it is important to focus on what you are managing for and clearly state what you want on the site. For example, you may be managing for multiple reasons such as:

- Reducing wildfire or flood risk;
- Improving water availability;
- Recreational uses (e.g., trail construction/maintenance);
- Aesthetics;
- A species or suite of species that are rare or otherwise valued; or
- A functioning ecosystem that restores the biological community and the processes that maintain it.

Management goals developed for the Plan shall also address the improvement of wildlife habitat and the restoration of native plant communities in the Surface Water Feature. If any federal, state, or locally listed species is present, the management goals shall also address its habitat needs.

Section 8: Description of Management Area

Background Information:

Include the following information in the description of the management area:

- Description of land use history and current level of human disturbance within and adjacent to surface water feature;
- Description of areas that invasive species may be introduced (e.g., roadways, trails, waterway, adjacent land use activities, etc.).
- Describe frequency of wildfires (e.g., length of time since last burn and fire impacts on habitat);
- Property ownership and management
- Description of any important cultural resources

Section 9: Site Plan and Mapping

Background Information:

If you are unable to accurately identify different plant species, it is important to enlist the help of a technical expert or consultant, so you are not removing or impacting sensitive plant communities and you are targeting the right treatment to the weeds you are trying to control. Places such as the Ventura County Cooperative Extension http://ceventura.ucanr.edu/Staff/?facultyid=560 or the Ventura County Resource Conservation District http://www.vcrcd.org/ can help you locate a technical expert. The Ventura County Planning Division maintains a list of approved *qualified biologists* that can be contracted to identify the various plant and animal species on your property. See www.ventura.org/rma/planning . **A great resource for conducting an inventory and mapping your property** can be found at https://cvc.ca/wp-content/uploads/2012/09/cvc-landowners-guide-to-invasives.pdf in Section 4.1.

If the treatment area is within habitat that is known to support or potentially support a federal, state, or locally listed species, then a biological survey of the treatment area **must** be conducted by a County approved *qualified biologist*. If you answered Yes to Questions 6 (e) or (f) on the application, you will need a qualified biologist to survey the treatment areas. If the area **does not contain** any known sensitive species, then fill in the section as requested in the application. A sample map that can be done by the landowner through the County's RMA GIS website is below:

If the area **does** contain sensitive species, then the qualified biologist must submit the following information in accordance with the County's Initial Biological Assessment (ISBA) standards within Sections 2.3, 3.1, and 3.2 (as applicable) in this section of the application.

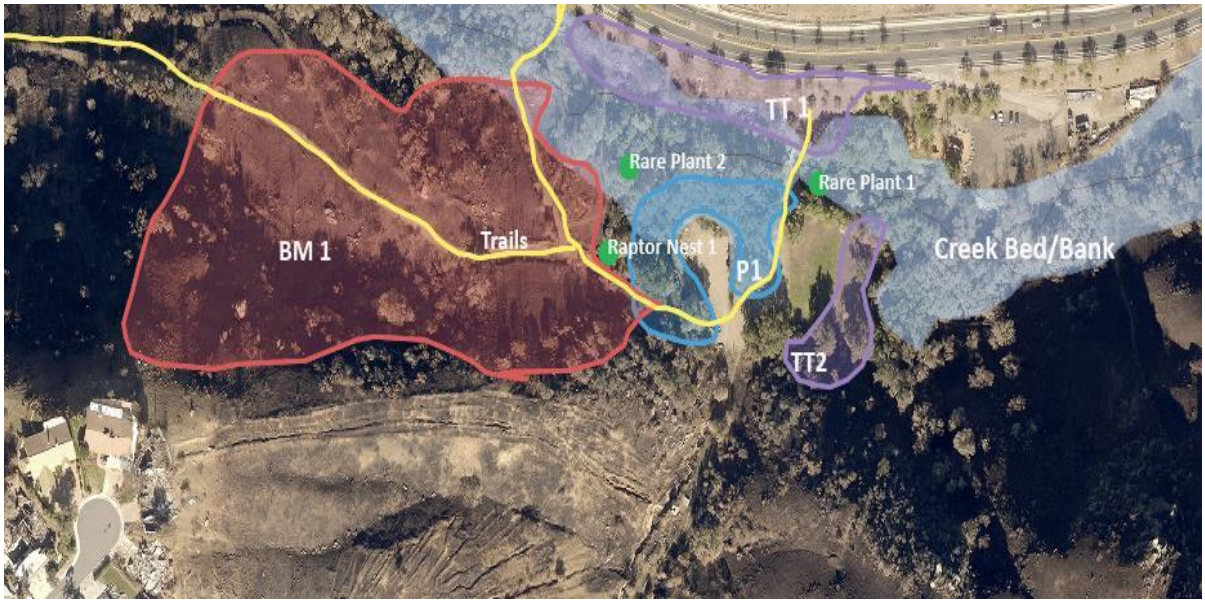
- Provide information requested on the Cover Page and Methodology (Complete ISBA Cover Page and Section 2.3).
- Maps, table and description of "Major Plant Communities" present in treatment area (Complete ISBA, Section 3.1- "Plant Communities"). For invasive species present on site, collect and format data as described in subsection 2.A below for the Invasive Species Inventory section of this management plan.
- Map and table of any physical features that may be important to the site's biological resources (e.g., rock outcrop, riprap, caves, cliff faces).
- Maps, table, and description of hydrological features and other areas (Complete ISBA, Section 3.1 – "Waters and Wetlands Table" and "Other Areas/Observations").
- Table of all biologically sensitive species inventoried in the treatment area (all federal, state, and locally listed rare or imperiled species). (Complete ISBA- Section 3.2- "Special Status Species and Nests").
- If trees (living or dead) are proposed to be altered or removed, identify and map tree community and specimens selected for alteration or removal (Complete ISBA- Section 3.2- "Protected Trees").

Section 10: Invasive Species Inventory

Background Information:

Provide a table of invasive species types, acreages, and densities with accompanying maps. Note whether populations are increasing, stable or decreasing. You can use these maps as you develop specific control strategies for high-priority species (See 2.B. below). Invasive plant community information collected through qualified biologist's or technical expert's site-specific survey in Section 1B of this document should be provided in this section.

Example Map and Table:



Sub Area	Species	Acreage	Density	Comments
BM 1	Black Mustard	20	>1000 Plants	Significant increase in weed population after fire. Might take a few years to eliminate. May need to hire contractor or get volunteers. Not many native plants have grown back.
P1	Periwinkle	2.5	60 Plants	Stable population. Good manageable hand pulling summer chore for kids.
TT1	Tree Tobacco	2.2	60 Plants	Increasing.
TT2	Tree Tobacco	1.5	10 Plants	Only a few plants. Damaged by fire. Appear stable.

Section 11: Prioritizing Invasive Species Removal

Background Information:

It is impossible for most landowners or managers to control every weed that occurs on their property or management area. Therefore, it makes sense to focus control efforts on those weed species that have the greatest impact to the management goal and those that can be controlled and eliminated before they become widespread to screen out the worst weeds. There are four criteria used to determine which species are best to focus management efforts upon[1]. Information on the species of interest is available from the California Invasive Plant

[1] Prioritization was modified from a paper published by Ellen Jacquart, Indiana Chapter of The Nature

Council website at https://www.cal-ipc.org/plants/profiles/ and the Department of Defense Legacy Resource Management Plan Individual Plant Assessments by Species. The four categories are as follows:

I. Current Extent of the Species

Under this category, priorities are assigned based on how big of an area the species infestation is and how quickly it is spreading. To do this, weed species are prioritized in the following order:

1) **New Species**. It is easiest to stop the spread of small patches of a new weed species. These are species that may be new to the site or are outliers from a larger infestation spreading onto the site. It is important to pay attention to species not yet on the site, but which are present nearby. If there is more than one new patch of weeds present on the site and resources are limited, species that are spreading the quickest (or have the potential to spread quicker (see species profile information)) should be prioritized over other smaller patches of new weed species. Point Values: Small Infestation, Quickly Spreading= 4; Small Infestation, Slow-Spreading=3.

2) **Existing Species.** Species on the site that are present in large infestations that are expanding should be prioritized over infestations that are not expanding. Point Values: Large Infestation, Quickly Spreading= 2; Large Infestation, Slow-Spreading=3.

II. Current and Potential Impacts of the Species

The elimination of weeds that would contribute the most to meeting management goals of the project should be prioritized over others as follows:

1) 4 point - It is so aggressive that it changes the area so much that few other species survive. These are weeds that alter ecosystem processes such as fire frequency, sedimentation, nutrient cycling, etc. These are weeds that alter conditions so radically that few native plants and animals can persist.

2) 3 points - It invades undisturbed areas and outcompetes native species. These are weeds that overtake and exclude natives following natural disturbances such as fires, floods, or that hinder restoration of natural communities- should be assigned higher priority in areas subject to repeated disturbances.

3) 2 points - It doesn't out-compete native species, but natives don't regenerate. These are weeds that do not outcompete dominant natives but either inhibit recruitment or regeneration of native species; or reduce food, cover, nesting sites used by native animals; or promote populations of invasive non-native animals by providing them with resources otherwise unavailable in the area.

Conservancy. October 26, 2009 and A Landowner's Guide to Managing and Controlling Invasive Plants, Credit Valley Conservation Group.

4) 1 point - It only invades disturbed areas such as edges.

Alternatively, the applicant may use the California Invasive Plant Council Rankings of A,B,C,D under the plant profile impact rating, worksheet values: Species ranked A=4, B=3, C=2, D=1.

III. Habitat Value of Infestation Area

Are there features within the area I want to protect?

1) 3 point - There are many rare plants or community types in the area.
2) 2 points- There are a few rare plants or community types in the area
3) 1 points - The invasion is happening near disturbed edges or areas I don't really care about.

IV. Species Control Methods

How difficult it is to control a weed species is an important factor in how it is managed. If available control efforts have a low probability of success or they will not give an adequate result relative to the time and resources invested, then such efforts should be invested elsewhere.

1) 4 point - Fairy easy, one treatment and it's pretty much gone.
2) 3 points - Takes multiple treatments, but eventually it's gone and native species will replace it
3) 2 points - Takes multiple treatments, but native plants won't regenerate, and will need replanting.
4) 1 point - No effective treatment has been found for this species.

When you are done, total the points from all categories for each project. The higher the score, the higher the priority rating the project should receive.

12. Invasive Species Control Plans

I. Development of Specific Control Plans for High Priority Weed Species. Create a control plan for each high-priority species and include the following information:

1) Scientific and common name of the species with its priority score.

2) Description of Species. In 2-3 lines list life history, native range, and other outstanding characteristics of the species.

3) Current Distribution on the Site. Refer to Inventory Maps.

4) Damage and Threats. Outline the damage caused and threats posed by the species.

5) Goals. Outline long-term goals for this species. Refer to Section 1.A.

6) Strategies. Determining what is a reasonable weed management strategy to control a weed species is critical. For example, some weeds infestations may realistically be only contained rather than eliminated given the resources, weed species, size of infestation, difficulty of control, etc. There are online resources that can help you narrow down what strategy is most appropriate for the site. For example, the Invasive Plant Management Decision Analysis Tool https://www.imapinvasives.org/decision-analysis-tool is an online decision support tool for evaluating different approaches to managing particular species. In general, there are four strategies for effectively managing invasive plants over the long-term:

i. Prevention- Determine the likely means of introduction and transport of invasive plants is key to develop prevention measures or strategies for future re-infestation. Some additional resources for identifying prevention techniques are:
   - Preventing the Spread of Invasive Plants: Best Management Practices for Land Managers (3rd Edition). (California Invasive Plant Council. 2012). Web link: https://www.cal-ipc.org/resources/library/publications/developingplan/
   - Guide to Noxious Weed Prevention Practices (USDA Forest Service 2001). Web link: https://www.fs.fed.us/invasivespecies/documents/FS_WeedBMP_2001.pdf

ii. Eradication -Eradication is the complete removal of an invasive plant species from a defined area. Determine if the eradication of the infestation is achievable as an objective (most feasible for small areas). Factors in decision should include: size of infestation, resources and commitment to see project through, understanding biology of species, ability to detect species at low densities, capacity to restore system when eradicated.

iii. Containment
Containment is any action taken to prevent establishment or control a plant species beyond a defined area. Containment is typically used for species with large infestation areas, small dispersal distances, or long-lived seed banks. If containment is a desired approach, clearly define the containment strategy, including what species will be contained, how, under what conditions, and where. Some additional resources for identifying control techniques for eradication or containment of different species:
   - The US Department of Agriculture (USDA) National Invasive Species Information Center – https://www.invasivespeciesinfo.gov/plants/main.shtml
   - Weed Research and Information Center - http://wric.ucdavis.edu

iv. Conservation Protection (Asset-Based Protection)
Conservation protection or asset-based protection means limiting invasive plant control activities to areas that directly threaten high-value conservation targets. Conservation protection is often used when species is widespread and abundant with little hope of eradication.

7) Treatment Objectives. Establish measurable objectives for the control activities. An objective is a statement detailing the desired outcome or result of the actions taken to manage the removal of the invasive species-what success looks like. It helps determine if the management program is working and if not, why not? A well-crafted objective meets the following criteria:

   i. Specific - What is the expected change and where are clearly defined so that all people involved in the project have the same understanding of what the terms in the objective mean.

   ii. Measurable - How much change do you want to see, and in what direction? Definable in relation to some standard scale (numbers, percentage, fractions, or all/nothing states).

   iii. Achievable - Is the objective achievable and appropriate within the context of the project site and available resources. Considerations may include: people, technical capacity, funding, and political, economic, and other constraints.

   iv. Results-oriented – focuses on the result of management actions, not the actions themselves (such as how many gallons of herbicide used in a given year).

   v. Time Period- Over what time period is change expected to occur?

   Examples could include: “Eradicate cape ivy from Area D by 2020, defined as finding no evidence of plants for a period of six growing seasons” or “Reduce cover of Arundo in Area C to 10% by 2025”.

8) Treatment Options**.** Viable control options are: (1) No treatment; (2) (Treatment alternative 1); (Treatment alternative n); etc. Briefly discuss the alternatives, indicate which are preferred and the conditions (size of area treated, location, phenology, total anticipated cost, etc.) under which they may be used. Conditions in the field may differ from those you anticipated, so build in flexibility. State who the field-staff should contact when none of the listed alternatives can be carried out. Developing a good strategy requires evaluating the impact and feasibility of different combinations of approaches and treatment techniques. In addition, it is important to avoid unintended impacts that may occur in these highly sensitive areas and take steps to reduce the likelihood of damage to the ecosystem.

   - Manual
     Physical removal of invasive plants using non-mechanical tools such as hands, shovels, picks, axes, hand-saws, or machetes.
   - Mechanical
     Physical removal of invasive plants using mechanized tools such as mowers, brush-cutters, chainsaws, mechanized vehicles, earth-moving equipment, etc.
   - Chemical

Application of herbicides to kill invasive plants.

- Biological
  Introduction of predators, parasites, pathogens to attack invasive plant species
- Cultural
  Land management practices such as prescribed fire, irrigation/flooding, grazing, etc.

Training videos on various weed control methods can be found at http://dev.cal-ipc.org/resources/library/videos/ . More information on various control methods can also be found at https://www.coastalisc.com/how-to-control-invasive-plants The Center of Invasive Species and Ecosystem Health has a tool review of many tools used to eliminate invasive species at https://www.invasive.org/gist/tools.html And The Weed Control Methods Handbook, TNC's Wildland Invasive Species Program online publication, contains "what every natural areas manager should know about weed control methods." Consisting of seven chapters and six appendices, it reviews manual, grazing, fire, biocontrol, and herbicide techniques. There are in-depth discussions of eleven different herbicides, plus a great deal of supporting information on herbicide use.
https://www.invasive.org/gist/products/handbook/methods-handbook.pdf

9) Treatment Timing. Briefly describe the locations to be treated (by Sub Area ID),, and an approximate schedule for control and monitoring activities (See Table 6). If several methods are to be tested, outline the design of the planned experiment or demonstration.

10) Resource Needs. Provide costs of planning, mapping, materials (e.g., herbicide applied, gas for chainsaw), labor, travel, recurrence intervals, etc.

13. Protection of Sensitive Species

Background Information:

Additional resources are available to develop BMP's outside of the Performance Standards associated with the permit. They are:

- Prevention BMPs for Land Managers. (California Invasive Plant Council. 2012). Web link: http://dev.cal-ipc.org/resources/library/publications/landmanagers/

- Best Management Practices (BMPs) for Wildland Stewardship: Protecting Wildlife When Using Herbicides for Invasive Plant Management California Invasive Plant Council and Pesticide Research Institute. Web Link: http://dev.cal-ipc.org/resources/library/publications/herbicidesandwildlife/

- Methods for Disposing Non-Native Invasive Plants (https://extension.unh.edu/resource/methods-disposing-non-native-invasive-plants)

14. Monitoring Methods

Outline the methods that will be used to monitor control activities and the criteria that will be used to evaluate success or failure of the program. The criteria for success should be based on the objectives and goals. If you develop forms to be used when collecting monitoring data, include copies as Section F. An additional resource that may be adapted for a project can be found at Monitoring Your Wetland: A primer to site-level monitoring activities for volunteer coordinators. Web Link: http://clean-water.uwex.edu/pubs/pdf/InvasivePlants.pdf

15. Protocols

List any protocols or Best Management Practices (BMP's) adopted for the project. Additional resources on protocols include:

- Guidelines for Herbicide Use https://www.invasive.org/gist/products/handbook/07.herbicideguidelines.pdf
- Data Recording Protocols for Invasive Species Management (USFS). https://www.fs.fed.us/r5/rsl/projects/gis/data/calcovs/NRIS_InvasivePlants_FieldGuide.pdf
- Best Management Practices for Preventing the Spread of Invasive Species in Wetlands. https://dnr.wi.gov/topic/Wetlands/documents/WetlandInvasiveBMP.pdf
- Best Management Practices (BMPs) for Wildland Stewardship: Protecting Wildlife When Using Herbicides for Invasive Plant Management (Cal-IPC 2015). https://www.cal-ipc.org/docs/bmps/dd9jwo1ml8vttq9527zjhek99qr/BMPHerbicide.pdf
- Measures to Prevent the Spread of Noxious and Invasive Weeds During Construction Activities. University of Nevada Cooperative Extension. http://www.weedcenter.org/prevention/nv_prev_fact_sheet1.pdf