

Eastern Sierra Weed Management Area Strategic Plan

I. Introduction and Summary

Mission Statement

The Eastern Sierra Weed Management Area (ESWMA) will cooperate and coordinate activities necessary for the prevention and control of noxious and invasive weeds within the boundaries of the ESWMA in Inyo and Mono Counties. The emphasis of these activities shall be focused on prevention, detection, and eradication of noxious and invasive weeds, through education and integrated pest management.

The Problem

Non-native, noxious and invasive weeds, such as Perennial Pepperweed and Canada Thistle, in addition to being an economic threat, are robbing Inyo and Mono Counties of their biological diversity. Because Inyo and Mono Counties share a significant boundary with Nevada, the many routes of entry pose a constant threat for the introduction of noxious weeds.

The Solution

Goals of this strategic plan for the coordinated management of noxious and invasive weeds are:

- 1) Protect and enhance the profitability and value of cropland and rangeland.
- 2) Protect and enhance the biodiversity of Inyo and Mono Counties ecosystems.
- 3) Rehabilitate and enhance watersheds and waterway maintenance.

To accomplish these goals it will be necessary to:

- 1) Instill agency and private rancher/grower coordination, cooperation, and action to successfully halt the introduction and spread of noxious weeds and help restore weed-infested lands to a healthy and productive status.
- 2) Heighten all citizens' awareness of the potential degradation brought to the Eastern Sierra by the introduction and spread of noxious and invasive weeds.

The plan will enlist four major elements critical to building a strong and successful regional weed management program.

- 1) Education, Awareness, Outreach
- 2) Prevention: Exclusion, Detection
- 3) Survey, Inventory and Mapping
- 4) a. Eradication, Control, Monitoring
b. Revegetation and Reclamation

The strategic plan outlines actions designed to control the spread of noxious weeds utilizing integrated pest management practices. To accomplish this, the ESWMA members will integrate resources, priorities, and strategies into a unified action. The plan will be updated and revised on a continual basis to reflect program successes and new challenges. Unified action is the best method

for reducing the extensive economic, ecological and social impacts of noxious weeds on Inyo and Mono Counties' resources and people.

II. Program Description

General Overview

The noxious weed management program in Inyo and Mono Counties is a cooperative effort of all of the participating agencies and organizations in the Eastern Sierra Weed Management Area (ESWMA) Memorandum of Understanding. The program is directed at suppressing and eradicating non-native, noxious and invasive weeds. Most of the control efforts are under the general direction of the County Agricultural Commissioner. Educating the public to assist in the fight against noxious weeds is an important component. The different organizations and individuals supply money, personnel, and equipment, and cooperate in procuring grants and aid. Whether a particular species of weed is eradicated, suppressed, or otherwise managed is usually determined by: 1) state rating, 2) size of infestation, 3) available control methods, 4) economic and ecological impact.

Prioritization

Not all noxious and invasive weeds are equal in their abundance, potential destructiveness, or rate of spread. Therefore, a priority list was made, based on several factors, including the following: economic impact, ecological impact, California Department of Food and Agriculture's Noxious Weed rating list, California Exotic Pest Plant Council's list of exotic pest plants, historical occurrence and eradication efforts.

The following list is a result of this prioritization process. These weeds should be viewed as top priority species for the counties as a whole, but are not necessarily equally problematic in every part of both counties. Some weeds may have been eradicated in an area of the two counties while being managed and/or not treated in another area. Weed control activities are not limited to species on the list. The list will be used to help prioritize weed projects and may be modified or amended as needed.

Priority Weed Species (order does not denote importance)

Perennial Pepperweed
Scotch Thistle
Canada Thistle
Puncturevine
Russian Knapweed
Spotted Knapweed
Halogeton
Dalmatian Toadflax
Camelthorn
Salt Cedar
Yellow Starthistle

III. Program Elements

Education, Awareness, Outreach

In general, citizens and landowners have limited understanding of the negative impact of noxious and invasive weeds on the economy, environment, and local natural resources. Weed management still tends to be viewed as an issue specific to more traditional row crop management and front lawns, rather than an integral part of natural resource management activities, such as: outdoor recreation, fire, wildlife, wilderness, grazing, maintenance of transportation corridors, and urban area management. Greater awareness and understanding from citizens and landowners will lead to increased actions from local, state, and federal officials in making noxious and invasive species a priority.

Education is one of the best tools in preventing the further spread of noxious and invasive weed species, locating previously unknown and remote weed populations, and in garnering support in controlling and eradicating infested sites. Raising public awareness and understanding requires a well-planned, well-funded, long-term program.

Action: The ESWMA will establish an education and outreach program. In order to more effectively educate citizens and landowners, we will initiate the following projects:

- 1) **ESWMA Weed Identification Handbook.** The ESWMA has and will, produce and distribute 500 weed identification handbooks with photos and descriptions of the listed weeds. We will continue to upgrade and distribute these handbooks as needed.
- 2) **Weed booth.** The ESWMA has put together an informational booth, with posters, handouts, brochures and a video display. This booth has been displayed at several local events, ie: Tri-county Fair, Mule Days Celebration, Home Show, etc. Volunteers of the ESWMA members have manned this booth at these events and will continue to do so to answer questions, discuss available control methods, special projects, and goals of the partnership.
- 3) **Advertisement.** The ESWMA will place advertisements and articles which explain the WMA and also feature various weeds and their descriptions. These ads will be placed in various periodicals throughout the two counties.
- 4) **Speakers.** Members of the ESWMA will volunteer to speak to various public and private land managers, service groups, student classes, or anyone wishing to find out about the noxious weed program.

Prevention: Exclusion and Detection

The prevention of a weed from becoming established avoids all associated losses and costs for control of that weed, into the indefinite future. The components of prevention commonly include exclusion, detection, and eradication. In addition, public outreach affects all components of prevention.

Exclusion includes all activities to keep a non-native noxious and invasive species from crossing

the border of a region or area. At the national or state level, it often depends on border inspections. At the county level, it often depends heavily on appeals to the public to use caution in activities that can intentionally or unintentionally move species. It may also depend on regulatory activities such as nursery inspections, weed-free forage programs, and other weed abatement activities.

Detection and eradication of early infestations deal with weeds that have bypassed the exclusion system. Detection includes all activities to find new infestations of weeds that normally do not exist in a region. Eradication includes all activities to completely remove an infestation. A perfect exclusion system would find and eradicate every pest individual before it could enter a new region. Currently, such a system can only be applied to the weeds that pose the greatest economic and environmental threat due to the numerous resources required to conduct an eradication program. Weed populations increase rapidly when they are in a new, hospitable environment, and costs of control increase in proportion with the size of the population. The assumption can be made that it is only a matter of time before many new weeds will appear in a region. However, when new infestations are found early through a good detection system, costs of eradication are lower and chances of successful eradication are higher.

Exclusion action:

- 1) The County Agriculture Department will continue with current exclusion programs, ie: nursery inspections, receiving-point inspections, weed-free forage certification.
- 2) Request that Cal Trans include requirements in their contracts to minimize the spread of noxious weeds. Major requirements may include cleaning of equipment before moving between job sites, use of weed-free mulch and erosion control materials, local use only of excavated materials.
- 3) Implementation of weed-free forage programs on BLM and USFS lands. Encourage voluntary participation prior to policy enactment, and institute compliance/enforcement actions in the future.
- 4) Provide lists of plants on CDFA and CalEPPC lists to nurseries and landscapers. Distribute brochures and posters to nurseries and request display of same.

Detection Action:

- 1) Distribution of weed identification handbook to local land managers, both public and private.
- 2) Training of agency personnel. Participating agency representatives will train their respective agencies' personnel in the identification and detection of noxious weeds.
- 3) Renewal of the grant from the National Fish and Wildlife Foundation (NFWF) will provide funding for two seasonal college students who will, as part of their duties, implement a detection and mapping program, utilizing GPS equipment.

Survey, Inventory and Mapping

The ESWMA believes that a strategic and long-term approach to noxious and invasive weed control is based on a solid knowledge of the areawide distribution of the weeds. The choice of control objective (eradication, suppression, or containment) and control technique will depend on how the weed is dispersed over the landscape. Because funding for cooperative weed

management is very limited, resources must be allocated in a highly strategic manner. Weed populations that occur in otherwise uninfested areas should be prioritized for aggressive eradication, whereas cooperative control projects in heavily infested areas need to have clear long-term justifications.

Weed mapping detail and intensity should be adjusted according to the level of infestation in a given area of the region and should be adjusted for weed population density. That is to say large population and density sites can be mapped on a larger scale, whereas smaller populations or isolated plants can be mapped individually with more detail. Mapping weeds intensively and accurately at the leading edge of a containment zone is also critical to successfully stopping their spread.

Action:

- 1) Hire two summer college students to utilize GPS equipment to map weed populations throughout the region.
- 2) Inyo County Water Department will coordinate with other agencies for data input into GIS program and develop maps and overlays.
- 3) Member(s) of the ESWMA will attend the annual statewide WMA meetings as well as other GPS/GIS trainings.
- 4) Create an ESWMA weed mapping handbook.

Eradication, Control, and Monitoring

Noxious weeds pose a threat to Inyo and Mono Counties' crops, rangelands, pastures, irrigation and water conveyance systems, wildlands, recreational areas, and biologically diverse ecosystems. Weed control is best achieved using a long-term, integrated approach. Weed management is an effort to eradicate, suppress, or contain a weed infestation from a particular area. Integrated weed management is a multi-systems approach to weed control. IWM involves developing a planned, strategic program that will take several factors into consideration to maximize weed control. These considerations include the control objectives for the land (eradication, suppression, or containment), the effectiveness of the control technique on the target species, biological and environmental factors, land use, economics, policy and legal restrictions, practicality, and the extent and nature of the weed. When implementing weed control techniques, this approach considers using all available control methods known for a weed species. These include: chemical methods (herbicides), physical or mechanical methods, cultural methods, and general land management practices. Biological control may also be utilized for containment and/or suppression control objectives, but eradication is unlikely.

One important consideration that must be a part of any weed control project is the control objectives. These objectives can be described by the following terms: eradication, suppression, and containment. Considerable overlap may occur among all three objectives within any one management/weed control plan.

- 1) Eradication is a type of control objective aimed at eliminating all individuals of a particular species within a specified area. This objective is the goal when the weed is of considerable economic and environmental concern (noxious) and the weed population size and/or density is small.

- 2) Suppression is a weed management objective aimed at reducing the current infestation density, but not necessarily reducing the total area or boundary of the infestation. This applies to many widely distributed, high-density weeds where eradication is not feasible.
- 3) Containment is a weed management objective aimed at preventing the spread of an infestation and may be conducted with or without any attempt to reduce infestation density. This objective is an alternate to eradication or suppression. Containment focuses on halting spread until suppression or eradication can be implemented.

In order to ensure the success of a weed control project, specific project goals must be made. These project goals should be made for both the short- and long-term as persistent weeds take several years to achieve the desired level of control. Management plans should be revised annually and modifications made as needed. Mapping infested sites should be continually used to develop priority weed control projects, measure baseline vegetation data, biological control agent population information, and project success.

Monitoring and evaluation indicate the degree of success and impacts to target and non-target species resulting from weed management activities. Other than personal observation and professional judgement, there is seldom any baseline information available on which to make evaluations. Since success will depend on achieving the objectives in the strategic plan and Integrated Weed Management plan, monitoring data must be collected to determine changes and trends. ESWMA will collect baseline data prior to treatment (pooled from existing knowledge and data by cooperators); develop evaluation methods; collect reduction in cover data to evaluate control success; evaluate the effectiveness of treatment and management measures at six months, one year, and two years after treatment; take photos of each project site on three occasions: just before treatment, six months after treatment, and one year after treatment; and compile and present data annually.

In addition to many different leading edge, breakout, and isolated population control efforts, different participants of the ESWMA have lead responsibility for various control projects based on geographic location, species of weed targeted, or other agency management protocols and agendas. The following summaries outline the management plan for each of these larger projects:

- 1) Perennial Pepperweed eradication/control in Hammil Valley and the Tri-Valley area of South Eastern Mono County. This project is under the jurisdiction and leadership of the Inyo/Mono Counties Department of Agriculture.
 - a) The Agriculture Department will coordinate with landowners, both private and public, prior to treatment
 - b) Approximately 100 acres of Perennial Pepperweed will be treated using telar and/or telar-2,4-D in combination with emphasis initially on the leading edge and outbreak populations, followed by treatments on the main populations.
 - c) The Agriculture Department will coordinate with Cal Trans for treatment along the State Highway corridor right-of-way.
 - d) The Agriculture Department will coordinate with local growers for educational and assistance with treatments on growers sites.

- 2) **Scotch Thistle control project in Coleville along the Walker River flood plain from Walker Canyon to Topaz Lake. This project is a coordinated effort between the Agriculture Department and the California Department of Food and Agriculture Integrated Pest Management.**
 - a) **The Agriculture Department will coordinate with landowners, both private and public, prior to treatment.**
 - b) **Outbreak populations are scattered over a wide floodplain for five to ten miles of river. This area will be surveyed and treated on a continual basis utilizing quad-type vehicle-mounted sprayers with Tordon or other suitable materials.**
 - c) **ESWMA will post an educational ad in the local newspaper to inform the public about Scotch Thistle and seek their assistance in identification and location.**
 - c) **The Agriculture Department will coordinate with local ranchers and growers for education and possible assistance with treatments on private sites.**

- 3) **Dalmatian Toadflax control project at Sunnyslopes area of Mono County near Toms Place/Highway 395. This project will be a coordinated effort between the Agriculture Department and CDFA, IPM.**
 - a) **Area will be initially surveyed and mapped using GPS/GIS equipment.**
 - b) **Treatment will be both chemical and mechanical (hand pulling).**
 - c) **Area will be surveyed and monitored for new populations on a quarterly basis and re-treated at those times.**
 - d) **Photos will be taken at the time of survey/treatments.**

- 4) **Salt Cedar eradication/control project. This project is under the jurisdiction of the Inyo County Water Department, Salt Cedar Project.**
 - a) **This project involves the removal of Salt Cedar from the historic Owens River channel and surrounding floodplain. The City of Los Angeles will be re-watering the now dry river, thus necessitating the removal of dense populations of Salt Cedar.**
 - b) **Treatment will be a combination of mechanical removal and chemical application.**
 - c) **In cooperation with the United States Department of Agriculture, Agriculture Research Service, a biological control agent is being tested at a location along the Owens River in Inyo County, just north of Tinnemaha Reservoir. Following this test period, a general release of the biocontrol agent will be conducted.**
 - d) **Survey, mapping, monitoring and evaluation will be under current Inyo County Water Department Salt Cedar Project protocols and data will be made available to the ESWMA for inclusion in future reports.**

- 5) **Areawide rangeland management under the jurisdiction and coordination of the City of Los Angeles Department of Water and Power.**
 - a) **Coordination with private lessees (ranchers and growers), and coordination with the Agriculture Department.**
 - b) **Treatment of listed weeds by chemical methods.**
 - c) **Management of test plot program for Perennial Pepperweed including monitoring and recording of results of various methods of treatment including chemical, mechanical and combinations of both.**

- 6) Areawide management of lands under the jurisdiction of the Bureau of Land Management.
 - a) Coordination with the Agriculture Department and various land users.
 - b) Management of re-seeding and re-vegetation programs on treated and/or otherwise disturbed sites.

Funding and Finance

While continuing to improve, funding for all phases of noxious and invasive weed management has historically been inadequate. The current rate of spread of major weeds and the introduction of new species is outcompeting our ability to contain them. The problem is most acute in counties, such as Inyo and Mono, with sparse populations and small private land holdings resulting in a low tax base. Furthermore, federal funding is still far from sufficient to deal with the problem on the vast holdings of federal land within Inyo and Mono Counties. Beyond state-appropriated funds, a pool of available grant monies exists. In addition to a few grants targeted specifically for noxious and invasive weed projects, other grants can be tapped into by encompassing weed control into larger watershed and restoration level projects.

Another source of funding comes from ESWMA cooperating members. Many partners have in-kind support in the form of equipment, educational materials, computer and printing capabilities, and a variety of expertise. While larger scale projects require a considerable funding base, ESWMA can accomplish many educational, inventory and mapping, and limited control objectives by drawing on resources within the ESWMA group.

Action: The ESWMA will be responsible for:

- 1) Grants. In addition to funding from AB1168 and SB1740, the group will submit proposals for National Fish and Wildlife Foundation grants, as well as other grants that become available.
- 2) Assessment of in-kind resources. To continually recognize resources available within the ESWMA, a survey of ESWMA partners will be conducted, as new projects arise, as to what in-kind contributions could be made to further the project.
- 3) Record Keeping. The ESWMA will designate a lead agency (Inyo/Mono Counties Department of Agriculture) to keep records of budget expenditures and revenues, record minutes of meetings, and coordinate with the county purchasing agent for bids on equipment, herbicide purchases, and educational materials. An expense report will be prepared and made available to ESWMA members presented at group meetings at least twice per year.

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