

STRATEGIC PLAN FOR THE CONTROL OF NOXIOUS AND INVASIVE WEEDS

SAN MATEO COUNTY WEED MANAGEMENT AREA 2023-2027

I. Introduction

The San Mateo County Weed Management Area (SMCWMA) is a regional network formed by state and local agencies, private landholders, the agricultural industry, and environmental organizations that have concerns about the proliferation of invasive plant species in San Mateo County. The SMCWMA has continuously met bimonthly since it was founded in December 2000.

Mission Statement

The San Mateo County Weed Management Area is committed to protecting human health and safety, while improving the economic, aesthetic, and environmental health of San Mateo County by using integrated management to minimize the negative effects of noxious weeds. The SMCWMA promotes, coordinates, and funds activities that remove and destroy noxious weeds, and prevents the introduction, establishment, and spread of invasive plants in San Mateo County.

In this document, State of California designated noxious weeds and invasive plants are hereafter called “weeds.”

The Problem

Weeds are a serious threat to San Mateo County's natural resources. These non-desirable plants are classified as noxious and invasive weeds due to their aggressive competitive behavior. Weeds crowd out native plants, disrupt ecosystem processes, degrade animal habitats, create fire danger, exacerbate erosion, and are a costly problem for farmers, ranchers, and landowners.

San Mateo County has many areas where dense urban development is adjacent to agricultural and wild lands. This proximity provides a direct conduit for the establishment of invasive ornamental plants, and results in the degradation of already dwindling habitat in wildland areas. San Mateo County is also host to several endangered plant and animal species. When weeds take over native habitat, important native species have a greatly diminished chance of survival. Additionally, some invasive weeds are highly flammable, adding to wildland fuel load.

SMCWMA Strategic Plan Goals

Below are the goals of the Strategic Plan for coordinated weed management in San Mateo County:

- Increase the effectiveness of weed control in roadsides, parks, open spaces, and waterways

- Protect and enhance cropland and rangeland productivity
- Protect and enhance ecosystem biodiversity
- Reduce fire hazard and fire control costs
- Ensure that weeds are not the primary cause of the loss of rare and/or endangered plant and animal species, or sensitive habitat

The Strategic Plan

To accomplish these goals the SMCWMA will coordinate and promote the sustained detection, eradication, and control efforts of land managers countywide. The SMCWMA will also make the public aware of the degradation of San Mateo County lands by the uncontrolled spread of weeds. We will also inform the public of the benefits of weed management and how they can participate in weed management efforts.

The Strategic Plan is made up of six elements critical to building a successful regional weed management program.

- A. Education and outreach
- B. Prevention
- C. Detection, surveying and mapping
- D. Eradication, control, and monitoring
- E. Site restoration
- F. Funding and in-kind services

Full implementation of the Strategic Plan, which emphasizes proven integrated weed management practices, will halt the spread of weeds in San Mateo County. SMCWMA cooperators will combine resources, align priorities, and share strategies to create a viable active Strategic Plan. The plan will be revised as needed to reflect program successes and challenges old and new.

II. Program Description

A. General Overview

The weed management program in San Mateo County is a cooperative effort between county, state, and local agencies, and other interested non-governmental organizations, individuals and landowners. It is directed at preventing, suppressing, and eradicating non-native, invasive, noxious weeds. Participants in the SMCWMA cooperate to procure grants and aid, and may supply money, personnel (volunteers and/or staff), or equipment.

Whether a certain weed is eradicated, prevented from introduction, suppressed, or otherwise managed is usually determined by:

- State rating
- Pest potential in San Mateo County
- Size of infestation in the county
- Available control methods
- Interest and capacity among participating weed management entities

Integrated weed management is a system used to plan and recommend selected methods to prevent, contain or control the spread of undesirable plant species or groups of species. Strategic use of all available tools and techniques is economically and environmentally more effective than depending on any single option. The elements of integrated management include:

- Education and outreach, to encourage public awareness and participation
- Prevention and early detection of incipient infestations
- Mapping and inventory of existing populations
- Control (physical/mechanical, biological, chemical, cultural) of existing infestations
- Monitoring and evaluation of completed control projects
- Land Stewardship

Several regulated weeds warranting control are found in San Mateo County. An integrated strategy to manage these populations could minimize their negative effects and prevent future infestations of undesirable plant species.

B. Prioritization

The SMCWMA uses recommendations from CDFA as well as from California Invasive Plant Council's (Cal-IPC) inventory and tools, as sources for information and prioritization on invasive plants.

In October 2021, Cal-IPC and CDFA published the Regional Invasive Plant EDRR Targets compilation. EDRR stands for early detection and rapid response, an approach of addressing new problem species before they become widespread. Working on EDRR target species is one of the most effective ways to reduce the impact of invasive plants. EDRR addresses invasive plants "early on the invasion curve" during the window of opportunity when containment, even eradication, remain viable and cost-effective options. For this report Cal-IPC surveyed County Agricultural Commissioners (CACs) and collaborative Weed Management Areas (WMAs) in regions across the state to find out what EDRR target species they are working on, and then focused on weed species that are present in less than 10% of the region as the most likely targets for an EDRR approach.

The results are broken down by region and county. San Mateo County falls within the Bay Area region along with Santa Clara, Alameda, Contra Costa, Marin, Napa, San Francisco, Solano and Sonoma counties.

The Target species that CDFA and Cal-IPC have listed for the Bay Area Region includes: stinknet (*Oncosiphon pilulifer*), spotted knapweed (*Centaurea stoebe ssp. Micranthos*), Jerusalem artichoke (*Helianthus tuberosus*), Illyrian thistle (*Onopordum illyricum*), European sea lavender (*Limonium duriusculum*), Iberian starthistle (*Centaurea iberica*), Japanese dodder (*Cuscuta japonica*), diffuse knapweed (*Centaurea diffusa*), South American spongeplant (*Limnobiium spongia*), Japanese knotweed (*Fallopia japonica*), rush skeletonweed (*Chondrilla juncea*), fertile capeweed (*Arctotheca calendula*), dalmatian toadflax (*Linaria dalmatica*), common crupina (*Crupina vulgaris*), common cordgrass (*Spartina anglica*), green cestrum (*Cestrum parqui*), and bridal broom (*Genista monosperma*).

State ratings: In California, biologists of the CDFA recommend plants for listing after consultation with outside experts and California's County Agricultural Commissioners (CACs).

If a plant is found to probably be “troublesome, aggressive, intrusive, detrimental or destructive to agriculture or silviculture, or to an important native species and is difficult to control or eradicate,” CDFA will designate the plant as a noxious weed and will assign the weed a rating of A, B, C, D, Q, or W. These ratings reflect CDFA’s view of statewide importance of the pest, the likelihood that eradication or control efforts would be successful and the present distribution of the pest within the state. These ratings are law, and discretion regarding management is the responsibility of the local CAC as local conditions may dictate more stringent action, and the rating is subject to change.

Definitions of ratings:

“A” – A pest of known economic or environmental detriment and is either not known to be established in California, or it is present in a limited distribution that allows for the possibility of eradication or successful containment. A rated pests are prohibited from entering the state with limited exceptions due to research purposes.

“B”- A pest of known economic or environmental detriment and, if present in California, it is of limited distribution. B-rated pests are eligible to enter the state if the receiving county agrees to accept them. At the discretion of the local CAC, they are subject to eradication, containment, suppression, control or other holding action.

“C”- A pest of known economic or environmental detriment, and if present in California, it is usually widespread. C-rated organisms are eligible to enter the state as long as the commodities with which they are associated conform to pest cleanliness standards when found in nursery stock shipments. If found in the state they are subject to regulations to retard spread or suppress at the discretion of the local CAC.

“D”- A pest known to be of little or no economic or environmental detriment, to have an extremely low likelihood of weediness, or is known to be a parasite or predator.

“Q”- An organism or disorder suspected to be of economic or environmental detriment, but whose status is uncertain because of incomplete identification or inadequate information.

“W”- This notation indicates that the plant is included in the CCR Section 4500 list of California State Noxious Weeds.

Priority Species

San Mateo County has unique natural and cultural areas with serious pest plant problems. The following list of weeds is built upon the accumulated experience and knowledge of many people who work and conduct research in the county. We recognize that many weeds of statewide concern show up in San Mateo County, but we took a fresh look at weeds based on criteria that address conditions here. In particular, every weed on this list meets one or more of the following criteria.

- **Control feasibility:** the species must be manageable within the scope of foreseeable available resources

- **Economic impact:** weeds may degrade rangeland, pose a threat to livestock or crops, or have significant potential to fuel wildland fires, in particular in the interface zones
- **Threat to biodiversity:** may suppress or crowd out native species
- **Ability to spread:** exhibits significant seed generation, widespread dispersion potential, aggressive growth, and may require rapid response to prevent establishment
- **Soil alteration:** alters the chemistry and composition of the soil. Contributes to erosion, reduces the soil’s capacity to support native plants and other economically valuable plants
- **Groundwater reduction:** uses water for growth, thereby reducing groundwater level

Treatment Approach Analysis

Prioritized species were evaluated for the most effective approach for regional control. Each species was categorized into one of five different treatment approaches: Watchlist, Eradicate, Contain, Control, and Sensitive Habitat Only. Each approach was based on species presence within county and feedback from stakeholders.

Eradicate – Species is present within less than 10% of 7.5-minute quadrats within County. Prioritize county-wide eradication, if feasible.

Containment/Control – Species is present within 20 – 50% of 7.5-minute quadrats within County. Prioritize mass reduction in species range or outlying populations.

Sensitive Habitat Only– Species is ubiquitous within the county. Prioritize control within sensitive habitat as defined by WMA members.

Watchlist – Not within county but found nearby.

This list is non-binding and is subject to change.

Eradication:

The following are the top 13 species that should be considered for county-wide EDRR projects, which includes eradication and surveillance actions. Species are present within less than 10% of 7.5-minute quadrats within San Mateo County.

- | | |
|---|-----------------|
| • Fertile capeweed (<i>Arctotheca calendula</i>) | CDFR Rated A |
| • Mexican/Tropical Pokeweed (<i>Phytolacca heterotepala, icosandra</i>) | CDFR Rated A, Q |
| • Barb goatgrass (<i>Aegilops triuncialis</i>) | CDFR Rated B |
| • Jointed goatgrass (<i>Aegilops cylindrica</i>) | CDFR Rated B |
| • Purple loosestrife (<i>Lythrum salicaria</i>) | CDFR Rated B |
| • European sea lavender (<i>Limonium duriusculum</i>) | CDFR Rated B |
| • Dense-flowered cordgrass (<i>Spartina densiflora</i>) | CDFR Rated B |
| • Yellowflag iris (<i>Iris pseudacorus</i>) | CDFR Rated B |
| • Sunwort (Euphorbia helioscopia) | CDFR Rated B |
| • Hairy whitetop (<i>Lepidium appelianum</i>) | CDFR Rated B |
| • Parrotfeather (<i>Myriophyllum aquaticum</i>) | CDFR Rated C |

- Silverleaf nightshade (*Solanum elaeagnifolium*) CDFA Rated B
- Vasey's grass (*Paspalum urvillei*) Not Rated

CONTAINMENT/CONTROL:

Species under this list have a limited range within San Mateo County (present within 20 – 30% of 7.5-minute quadrats within County). Potential approaches for species under this list should consider increased surveillance, control of outlying populations, and control of the whole population, where feasible.

- Canary Island hypericum (*Hypericum canariense*) CDFA Rated B
- Portuguese broom (*Cytisus striatus*) CDFA Rated B
- Woolly distaff thistle (*Carthamus lanatus*) CDFA Rated B
- Lens-podded whitetop (*Lepidium chalepense*) CDFA Rated B
- Downy brome, cheatgrass (*Bromus tectorum*) CDFA Rated C
- Albanian spurge (*Euphorbia characias*)* CDFA Rated Q
- Hanging sedge (*Carex pendula*) Not Rated

* Through project surveys, infestations of Albanian spurge were determined to be limited. However, it is a widely popular ornamental within San Mateo County. Any control efforts for this species should take the potential of re-introduction into consideration.

CONTROL: Species under this list have a distributed range within San Mateo County (present within 30 – 50% of 7.5-minute quadrats within County). Potential approaches for this species should prioritize increased surveillance, control of outlying populations, and control within sensitive habitat.

- Rush skeletonweed (*Chondrilla juncea*) CDFA Rated A
- Slender false brome (*Brachypodium sylvaticum*) CDFA Rated A
- Common St. John's wort, klamathweed (*Hypericum perforatum*) CDFA Rated C-W
- Russian-thistle (*Salsola tragus*) CDFA Rated C-W
- Medusahead (*Elymus caput-medusae*) CDFA Rated C-W
- Algerian sea lavender (*Limonium ramosissimum*) CDFA Rated B
- Smooth cordgrass and hybrids (*Spartina alterniflora* hybrids) CDFA Rated B
- Gorse (*Ulex europaeus*) CDFA Rated B
- Perennial pepperweed (*Lepidium latifolium*) CDFA Rated B
- Spanish broom (*Spartium junceum*) CDFA Rated C-W

SENSITIVE HABITAT ONLY:

Species under this list are ubiquitous throughout the county and state. Potential approaches for these species should prioritize control within sensitive habitat.

- Broom, French (*Genista monspessulana*) CDFA Rated C
- Tree of heaven (*Ailanthus altissima*) CDFA Rated C
- Arundo (*Arundo donax*) CCR 4500 List
- Broom, Scotch (*Cytisus scoparius*) CCR 4500 List
- Broom, Spanish (*Spartium junceum*) CCR 4500 List

• Cape ivy (<i>Delairea odorata</i>)	CCR 4500 List
• Grass, jubata (<i>Cortaderia jubata</i>)	CCR 4500 List
• Yellow starthistle (<i>Centaurea solstitialis</i>)	CCR 4500 List
• Italian thistle (<i>Carduus pycnocephalus</i>)	CCR 4500 List
• Purple starthistle (<i>Centaurea calcitrapa</i>)	CCR 4500 List
• Stinkwort (<i>Dittrichia graveolens</i>)	CCR 4500 List
• Tocalote, or Malta star thistle (<i>Centaurea melitensis</i>)	CCR 4500 List
• Blue gum eucalyptus (<i>Eucalyptus globulus</i>)	Not Rated
• Ehrharta (<i>Ehrharta erecta</i>)	Not Rated
• English ivy (<i>Hedera helix</i>)	Not Rated
• Algerian ivy (<i>Hedera canariensis</i>)	Not Rated
• Harding grass (<i>Phalaris aquatica</i>)	Not Rated
• Little robin (<i>Geranium purpureum</i>)	Not Rated
• Poison hemlock (<i>Conium maculatum</i>)	Not Rated
• Purple false brome (<i>Brachypodium distachyon</i>)	Not Rated
• Grass, pampas (<i>Cortaderia selloana</i>)	Not Rated

WATCHLIST:

Species under this list are not present within the county but are found nearby. Preventing introduction of these species are high priority for the county. 37 potential CDFA rated species have been categorized as a “watchlist” species, the following is a list of the top 17.

• Spotted knapweed (<i>Centaurea stoebe ssp. micranthos</i>)	CDFA Rated A
• Diffuse knapweed (<i>Centaurea diffusa</i>)	CDFA Rated A
• Bidly bidly (<i>Acaena novae-zelandiae</i>)	CDFA Rated A
• Leafy spurge (<i>Euphorbia virgata</i>)	CDFA Rated A
• Japanese knotweed (<i>Fallopia japonica</i>)	CDFA Rated A
• Illyiran thistle (<i>Onopordum illyricum</i>)	CDFA Rated A
• Kangaroo acacia (<i>Acacia paradoxa</i>)	CDFA Rated B
• Iberian starthistle/Iberian knapweed (<i>Centaurea iberica</i>)	CDFA Rated A
• Old man's beard (<i>Clematis vitalba</i>)	CDFA Rated A
• Patterson's curse (<i>Echium plantagineum</i>)	CDFA Rated A
• False yellowhead (<i>Dittrichia viscosa</i>)	CDFA Rated A
• Russian knapweed (<i>Acroptilon repens</i>)	CCR 4500 List
• Jerusalem artichoke (<i>Helianthus tuberosus</i>)	Not Rated
• Stinknet (<i>Oncosiphon pilulifer</i>)	Not Rated
• Dalmation toadflax (<i>Linardia dalmatica</i>)	Not Rated
• Seashore paspalum (<i>Paspalum vaginiatum</i>)	Not Rated
• Japanese dodder (<i>Cuscuta japonica</i>)	Not Rated

III. Program Elements

A. Education: Awareness and Outreach

History shows us that people inadvertently spread weeds to new environments when they don't know about the harmful effects of weeds. On the other hand, an informed public is instrumental in reducing the spread of weeds. People who know and care have contributed in many ways, including locating new and remote weed populations, manually pulling, and destroying weeds, and rallying support for controlling and eradicating weeds in infested sites. Raising public awareness and understanding requires a well-planned and well-funded long-term program.

Listed below are SMCWMA education projects that have been completed:

- a. Produced the brochure *Invasive Weeds – A Serious Threat to San Mateo County's Natural Resources* featuring six priority weeds in the county with control and contact information. The brochure was distributed to large landowners and public agencies, at the San Mateo County Fair, and via the Agricultural Commissioner's Office.
- b. Produced a portable display describing the SMCWMA, local weeds of concern, and control projects of groups in San Mateo County. SMCWMA participants and other interested parties are using the display to educate the public about the effect of weeds on San Mateo County's ecosystems and agricultural lands.
- c. Organized and publicized workshops on weed identification, mapping and control. Workshops included Weed Mapping, Managing Yellow Starthistle, and Wildland Weeds.
- d. Created a logo for the San Mateo County Weed Management Area to use for brochures, displays and presentations.

The SMCWMA will implement or continue the following education tasks during the plan period:

- Produce, update, and distribute the Invasive Weeds brochure, and extend distribution to include public libraries, nurseries, and to private landowners.
- Produce, update and distribute the Guide Book to Invasive Plants of San Mateo County
- Promote weed management education, including early detection and rapid response, at public events using the SMCWMA display when appropriate. Update the display to describe new projects, and to address relevant issues in weed management.
- Sponsor workshops on how to use volunteers in weed management and weed mapping.
- Work with San Mateo County nurseries and other partners to reduce and discourage the sale of invasive plants.

- Work with San Mateo County Public Works to improve the control of roadside weeds.
- Work with San Francisco Public Utilities to control invasive weeds on PUC property within the County.
- Partner with the media and others to promote the control of invasive plants.
- Encourage the use of Calflora to document observations and early detection of invasive weed species
- Maintain current descriptions of ongoing projects and CDFA grant recipients on the California Invasive Plant Council (Cal-IPC) website
- Send members of the San Mateo County WMA to Sacramento to help Cal-IPC on-going lobby efforts to increase funding for invasive weed management

B. Prevention: Weed exclusion, detection, monitoring, eradication, and management.

Prevention is any activity that keeps a non-native noxious or invasive species from entering and becoming established in a new range. Preventing establishment of a weed avoids future control costs. Public outreach and education are key to preventing the spread of new weeds. Effective outreach includes the distribution of brochures, setting up informative displays in public places, and presenting SMCWMA-sponsored workshops.

Weed exclusion is any action that prevents a weed from entering a region. While border inspections are effective at the national and state level, at the county level, we rely in part on the San Mateo County Agricultural Commission's regulatory activities. These activities include plant quarantines, inspections of incoming plant product shipments for regulated weeds and nursery inspections. Other weed exclusion programs could include promotional and certification of weed-free-forage. To support weed exclusion, it is also important to educate the public on activities that are known to spread invasive weeds.

Detection, monitoring, and eradication of early-stage, small infestations remove weeds that elude the exclusion system. Detection includes all activities that locate new and unusual weed infestations. When new weeds are introduced into a region and found before wide-spread establishment, eradication costs are lower, and chances of eradication are higher. When unknown weeds are encountered, farmers, land management organizations, and any concerned individuals are encouraged to bring weeds for identification to the San Mateo County Agriculture Department offices in Redwood City, Half Moon Bay, and San Bruno. Weed monitoring by member groups for weeds rated "Q," "A," and "B," or on the Cal-IPC inventory will help detect noxious weed infestations at an early stage, making eradication or control more cost effective and feasible.

Management. The SMCWMA uses Integrated Weed Management (IWM), a systems approach to managing undesirable plants. IWM is defined in the Federal Noxious Weeds Act as a "system for the planning and implementation of a program, using an interdisciplinary approach, to select

a method for controlling undesirable plant species or group of species using all available methods, including education, prevention, physical or mechanical methods, biological control agents, herbicide methods, cultural methods, and general land management practices." Integrated pest management programs emphasize ecosystem-based strategies that provide economical, long-term solutions to pest problems.

The SMCWMA will implement the following exclusion, detection, management, monitoring, and eradication activities during the plan period:

Join with statewide efforts to encourage the nursery industry to discontinue selling invasive plants.

Create and maintain a list of newly detected weed species and provide relevant identification and control information for the new infestations.

Stay informed on ecological impacts of modified plants and organisms especially regarding herbicide-resistance. Invite speakers to present to the SMCWMA.

Petition the State of California when necessary or appropriate to add or modify a classification regarding state-rated noxious weeds.

Collaborate with Cal-IPC or other early detection resource agencies to identify and work on early detection weed management opportunities in our county.

C. Surveying and Mapping

The members of the SMCWMA believe that a strategic long-term approach to noxious and invasive weed control is based on a growing knowledge of weed distribution. Mapping should be conducted at an appropriate scale. Areas without known infestations, and areas not previously surveyed should also be identified and mapped. Knowing the location of the priority weed species through mapping and weed inventory will allow the SMCWMA to implement appropriate control strategies.

The SMCWMA will implement the following surveying and mapping activities:

- a. The SMCWMA will promote the use of mapping tools for early detection and management.
- b. Continue sharing mapping data with statewide WMAs and other agencies through Calflora.
- c. Promote geographic and organizational cross-boundary alliances and partnerships for improved mapping and surveying.

D. Eradication, Control, and Monitoring

The SMCWMA uses Integrated Weed Management (IWM), which is a systems approach to managing undesirable plants. IWM is defined in the Federal Noxious Weeds Act as a "system for the planning and implementation of a program, using an interdisciplinary approach, to select a method for controlling undesirable plant species or group of species using all available methods, including education, prevention, physical or mechanical methods, biological control agents, herbicide methods, cultural methods, and general land management practices." Integrated pest management programs emphasize ecosystem-based strategies that provide economical, long-term solutions to pest problems.

The SMCWMA will implement the following eradication, control, and monitoring projects:

- a. The SMCWMA will continue to work with California Department of Food and Agriculture (CDFA) to locate sites and share information leading to the eradication or control of "A-, B-, and Q-rated" weeds, such as Slender False Brome, Canary Island Hypericum, Purple Loosestrife, Fertile Cape Weed, and Pampas Grass, and share information about locations and effects of newly discovered weeds.
- b. SMCWMA members will share their experiences with weed control, project monitoring, and revegetation strategies through presentations by group members at meetings, such as those of the Mid-peninsula Regional Open Space District, the California Native Plant Society, San Mateo County Parks Department, Resource Conservation District, and Friends of Edgewood Natural Preserve.
- c. SMCWMA members will continue to participate in annual weed management area statewide meetings and CAL-IPC events.
- d. The SMCWMA will review the Strategic Plan as needed.

E. Site Restoration:

When practical, the SMCWMA will support the efforts of all agencies to restore disturbed sites to a more native habitat, thereby lessening the possibilities of new infestations of ruderal plants.

Agency cooperation and sharing of education and resources will be used towards site remediation to improve access roads, increase native plantings, and protect sensitive resources such as habitat for special-status species.

F. Funding and In-kind Services:

It is important to find and efficiently use funds and in-kind services to support the Strategic Plan. The SMCWMA has received four grants that were used successfully to fund workshops, educational materials, weed eradication, and weed mapping. Participating members have contributed significant in-kind services, including weed mapping, staff time, coordinating volunteers, writing and designing publications and websites, data collection, supplies and equipment.

The SMCWMA will implement the following activities during the plan period.

- a. SMCWMA members will work together to obtain funding and provide in-kind services to support the Strategic Plan. (In-kind services include, but are not limited to mapping, staff time, procuring supplies and equipment, recruiting volunteers and coordinating volunteer efforts, producing publications and websites, and data collection.)
- b. The SMCWMA will investigate coordinating contracts, schedules, and resources among members to optimize efficiency of weed management work.
- c. The SMCWMA will support lobbying efforts by Cal-IPC to increase funding and support for all necessary invasive species plant projects.

IV. Conclusion

Every acre of our county has been touched by people who live, work, and play here, and by the people that came before us. It is our hope that the Plan outlined above, created by the individuals and organizations that are members of the SMCWMA will prove to be effective at protecting the health and safety of all who live here, as well as improve the economic, environmental, and aesthetic health of our county. The strength of this plan lies in part in its flexibility and calls for cooperation. Weeds are living adversaries in changing ecosystems. We need to match the adaptability of invasive plants with our own adaptive creativity focused on the control and eradication of weeds.