



Comprehensive Ecologically Sensitive Vegetation Management Report

2022-23

ANNUAL PROGRAM REPORTS TO THE BOARD OF DIRECTORS
CONSERVATION GRAZING
INTEGRATED PEST MANAGEMENT
WILDLAND FIRE RESILIENCE
NATURAL RESOURCES AND LAND & FACILITIES

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2022-23 Comprehensive Ecologically Sensitive Vegetation Management

MIDPENINSULA REGIONAL OPEN SPACE DISTRICT

CONSERVATION GRAZING PROGRAM

INTEGRATED PEST MANAGEMENT ANNUAL REPORT

WILDLAND FIRE RESILIENCY PROGRAM ANNUAL REPORT

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CONTENTS

Acronyms and Abbreviations.....	5
Introduction	- 6 -
Midpen Programs and Projects Covered in this Report.....	- 6 -
Resource Management Policies.....	- 8 - - 7 -
Summary of Vegetation Management	- 10 -
Ecologically Sensitive Vegetation Management Practices.....	- 8 -
Major Accomplishments	- 10 -
Public Notifications and Inquiries.....	- 10 -
Experimental Vegetation Management Projects.....	- 15 -
Conservation Grazing Program.....	- 17 - - 16 -
Summary of Parameters Monitored.....	- 17 - - 16 -
Monitoring Results and Qualitative Assessment for 2022	- 18 - - 16 -
Successes and Difficulties in Reaching Treatment Objectives	- 18 - - 17 -
IPM Annual Report	- 20 - - 19 -
Early Detection / Rapid Response.....	- 20 - - 19 -
Summary of Pest Problems.....	- 21 - - 20 -
Summary of Pest Control Treatments	- 25 - - 24 -
Summary of Pesticide Use.....	- 37 - - 36 -
Changes to Guidance Manual	- 38 - - 36 -
Updating the List of Approved Pesticides	- 38 - - 36 -
Wildland Fire Resiliency Program Report	- 40 - - 38 -
Introduction.....	- 40 - - 38 -
Projects Implemented During THE Calendar Year.....	- 42 - - 40 -
Summary of On-Going or Cyclical Monitoring Activities and Results	- 43 - - 42 -
Summary of Herbicide Use.....	- 43 - - 42 -
Successes in Reaching Treatment Objectives and Meeting Requirements	- 44 - - 42 -
Difficulties in Reaching Treatment Objectives and Meeting Requirements.....	- 44 - - 43 -
Miscellaneous Projects Not Covered Under Programs.....	- 46 - - 44 -
Summary of Weeding Activities.....	- 46 - - 44 -
Mitigation for Capital Projects (Public Access).....	- 47 - - 44 -
List of Preparers	- 49 - - 47 -

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Acronyms and Abbreviations

Acronym/Abbreviation	Meaning
CEQA	California Environmental Quality Act
Board	Board of Directors
District or Midpen	Midpeninsula Regional Open Space District
FRA	Fuel Reduction Area
IPM	Integrated Pest Management
RMP	Resource Management Policies
VMA	Vegetation Management Area
WFRP	Wildland Fire Resiliency Program

INTRODUCTION

The Midpeninsula Regional Open Space District (District or Midpen) is a public agency that owns and manages 27 open space preserves, protecting more than 70,000 acres of diverse landscapes across the San Francisco Peninsula ~~as of 2023~~. Established by a voter initiative in 1972, Midpen's mission is:

To acquire and preserve a regional greenbelt of open space land in perpetuity; protect and restore the natural environment; and provide opportunities for ecologically sensitive public enjoyment and education.

On the Coastsides, Midpen's mission expands to include the acquisition and preservation of agricultural lands of regional significance, the protection of rural character, and the encouragement of viable agricultural uses that help maintain the area's working landscapes:

To acquire and preserve agricultural land of regional significance, protect and restore the natural environment, preserve rural character, encourage viable agricultural use of land resources and provide opportunities for ecologically sensitive public enjoyment and education.

Midpen's boundary spans approximately 227,900 acres across northern Santa Clara, southern San Mateo, and a small portion of Santa Cruz counties. From Montara's coastal headlands in the north to the Lexington Hills in the south, the District's open space network serves more than 25 communities and a combined population exceeding 760,000 residents. The preserves range in size from the 55-acre Stevens Creek Nature Study Area to the 19,000-acre Sierra Azul Open Space Preserve, with elevations stretching from sea level in the baylands to 3,486 feet atop Mount Umunhum in the Santa Cruz Mountains.

Midpen manages its lands primarily to maintain a regional greenbelt of open space, emphasizing natural resource protection and low-intensity recreation. Beyond unimproved trails, unpaved roads, trailheads, and informational kiosks, development is minimal. More than 250 miles of public trails provide opportunities for hiking, running, horseback riding, bicycling, and dog walking (where permitted). Open daily and free of charge, these preserves offer a nearby retreat for residents and visitors seeking nature, solitude, and renewal.

The landscapes under Midpen's care encompass a remarkable variety of ecosystems and support an abundance of native wildlife. Along the baylands, tidal salt marsh shelters endangered species such as the Ridgway's rail and salt marsh harvest mouse, along with other special-status wildlife, as well as thousands of migratory shorebirds and waterfowl. The heart of Midpen's preserves lies along the eastern and western slopes of the Santa Cruz Mountains, where oak woodlands, grasslands, chaparral, coastal scrub, and evergreen and coniferous forests form the scenic backdrop for the Bay Area and Central Coast. The creeks and streams that weave through these landscapes provide critical habitat for endangered coho salmon and threatened steelhead trout, sustaining both ecological diversity and watershed health.

Through its Vegetation Management Program, Midpen works to sustain and promote diverse, resilient native plant communities that reflect the natural character of the region. This stewardship helps safeguard biodiversity, reduce wildfire risk, and maintain the ecological integrity of the open space lands entrusted to public care.

MIDPEN PROGRAMS AND PROJECTS COVERED IN THIS REPORT

This report documents implementation outcomes, monitoring results, and adaptive management insights from calendar years 2022 and 2023. The scope includes Board-approved vegetation programs and selected non-programmatic projects that support the District's broader land stewardship goals. The following sections describe the programs and projects that guide and implement this work across District lands.

CONSERVATION GRAZING PROGRAM

Where appropriate, Midpen manages land through conservation grazing, using livestock as a natural tool to maintain and enhance the diversity of native plant and animal communities. Grazing operations are designed to be protective of natural resources and compatible with public access, while also contributing to vegetation fuel management for fire protection, supporting the local agricultural economy, and preserving the region's rural agricultural heritage.

The Conservation Grazing Program is included in this report because it represents an integral part of Midpen's broader work to manage and maintain grassland ecosystems and other open vegetation communities. California Environmental Quality Act (CEQA) compliance is completed on a case-by-case basis for each ranching operation under the program.

INTEGRATED PEST MANAGEMENT PROGRAM

Midpen manages pests using Integrated Pest Management (IPM) principles that prioritize ecological protection, human safety, and long-term environmental health across District lands.

The Board certified the Final Program Environmental Impact Report (FEIR) and approved the IPM Program on December 10, 2014 (Resolution R-14-148). An addendum to the FEIR and related minor program modifications were approved on February 27, 2019 (Resolution R-19-11).

This report presents results from the eighth (8th) and ninth (9th) years of pest management activities prescribed under the IPM Program. Prior to the adoption of the Wildland Fire Resiliency Program (WFRP), all fire-related vegetation management was conducted under the IPM framework.

WILDLAND FIRE RESILIENCY PROGRAM

Midpen's Wildland Fire Resiliency Program (WFRP) applies the principles of ecological resiliency to reduce wildfire severity, mitigate the impacts of fire suppression, and support fire as a natural ecological process on the landscape. The program also seeks to maintain diverse and dynamic forest conditions, enhance forest and aquatic habitats, encourage late-seral conifer development, and provide for safe, high-quality visitor experiences within fire-adapted ecosystems.

The Board certified the Final Program Environmental Impact Report (FEIR) and approved the WFRP on May 12, 2021 (Resolution R-21-58). An addendum and related program modifications were adopted on December 14, 2022 (Resolution R-22-145).

This report presents the results from the first (1st) and second (2nd) years of implementation under the WFRP. Prior to its adoption, fire management activities were conducted within the IPM Program.

PROJECTS NOT COVERED UNDER MIDPEN APPROVED PROGRAMS

The three programs described above represent the majority of vegetation management activities conducted under Midpen's direction. However, certain vegetation-related projects fall outside of these program frameworks. For example, restoration or mitigation efforts associated with capital improvements or public access projects (such as the Mount Umunhum Summit Restoration).

These non-programmatic projects are discussed in this report at a high level for context, but are otherwise documented in project-specific monitoring reports prepared for each effort.

Together, these programs and projects form an integrated framework that supports Midpen's long-term goals for ecosystem resilience, wildfire safety, and biodiversity conservation.

RESOURCE MANAGEMENT POLICIES

The ecosystems that make up Midpen's open space preserves are complex, dynamic, and interdependent, encompassing a wide variety of natural resources that sometimes have competing needs for protection and management. Land managers must continually balance these priorities to sustain ecological integrity and public access.

Compounding these inherent challenges are the ongoing growth of Midpen's landholdings, evolving stewardship practices and priorities, and changes in public values, use patterns, and funding sources. Increasing visitation across the preserves can also place additional pressure on sensitive natural systems. In this context, a well-defined set of guiding policies is essential to ensure that resource management decisions remain consistent, transparent, and aligned with Midpen's mission.

Midpen's Board-adopted Resource Management Policies (RMPs) provide this framework. The RMPs form a living document that evolves as new science, data, and field experience emerge. The policies are reviewed and updated approximately every five to ten years, and individual chapters may be amended as needed to address changing resource conditions, such as insect or disease outbreaks, wildfires, or the effects of climate change. The Board may also adopt amendments for specific management needs at any time. The most recent update to the RMPs was completed in spring 2022.

The full Resource Management Policies document is available on Midpen's website:
https://www.openspace.org/sites/default/files/Resource_Management_Policies.pdf

At this time, **no changes to the adopted Resource Management Policies are recommended.**

These guiding policies are applied through Midpen's day-to-day vegetation management practices, described below.

ECOLOGICALLY SENSITIVE VEGETATION MANAGEMENT PRACTICES

Midpen's vegetation management is guided by the principles of ecological sensitivity, adaptive management, and long-term biodiversity conservation. These practices are designed to maintain and enhance the ecological health of open space preserves while ensuring public safety, access, and wildfire resilience.

Vegetation management activities are implemented across a range of objectives, including improving native species habitat, maintaining patrol routes and recreational facilities such as parking lots and trails, and reducing wildland fire risk consistent with the goals of the District's approved programs.

Consistent with the Board-adopted Resource Management Policies (RMPs), staff evaluate each vegetation management project to minimize potential impacts and maximize ecological benefits. These practices are reviewed and refined regularly to incorporate emerging science, on-the-ground learning, and changing environmental conditions.

Per the Board of Directors' approved RMPs, Midpen staff consider the following practices at each project site to minimize impacts and maximize benefits to natural resources when performing vegetation management in Midpen preserves. ~~Staff review and update these guidelines on an ongoing basis. At this time, staff recommend only minor and non-substantial (grammatical) changes to the Ecologically Sensitive Vegetation Management Guidelines. These minor grammatical changes are shown below in strikethrough and underline.~~

- Conducting pre-management surveys for special status species and nesting birds
- Providing a biological monitor during work when needed
- Designating refugia for wildlife
- Leaving tree canopies at the landscape-level intact
- Leaving buffers around special-status species' habitat
- Leaving buffers around bodies of water

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

- Seasonally timing work to avoid or decrease potential impacts to birds, bats, other wildlife, and botanical resources designed for retention
- Prioritizing the treatment of invasive species
- Minimizing ground disturbance
- Minimizing the presence of people and mechanized/motorized equipment in wildlands during vegetation management
- Matching source material for nursery plants and seed to the site-specific requirements for maintaining genetic diversity while taking climate change into account
- Considering the changing climate and its impacts on habitats
- Mowing in patterns that allow any wildlife present to easily and safely move away
- Mimicking natural disturbance processes to maintain rare habitats
- Avoiding the spread of invasive non-native species and disease with cultural controls such as cleaning boots and equipment prior to and after work
- Trimming trees designated for retention using basic ANSI Standards to minimize disease infection and progression of decay thus decreasing itstheir vulnerability to fire in long term

~~At this time, staff recommend only minor and non-substantial changes to the Ecologically Sensitive Vegetation Management Guidelines.~~

SUMMARY OF VEGETATION MANAGEMENT

MAJOR ACCOMPLISHMENTS

- Completed approximately 234.8 acres of Ecosystem Resiliency work across three preserves.
- Completed approximately 268.8 acres of Enhanced Fire Management work across ten preserves.

PUBLIC NOTIFICATIONS AND INQUIRIES

Midpen provides multiple avenues for public communication, transparency, and engagement regarding vegetation management activities. Public notification ensures that proposed projects are disclosed early in the decision-making process, while direct inquiries and feedback help inform adaptive management and community outreach.

The following subsections summarize public notifications and inquiries received during calendar years 2022 and 2023.

PUBLIC NOTIFICATIONS

Midpen notifies the public of plans for vegetation management projects as part of Board meeting notification processes. During these public meetings, staff describe the notices that were sent for each agenda item and any required California Environmental Quality Act (CEQA) compliance.

Table 1 [and 2](#) summarizes public Board meetings held in 2022 and 2023 that included vegetation-related actions, authorizations, or informational items.

Table 1: Public Notification for 2022

Date	Agenda Item	Board Action	Scope
1/26/22	Grant Awards for the 2021 Grantmaking Program	Approved	Engagement of This project engages students in the Department of Environmental Studies (DES) at San José State University (SJSU) with planning, implementing, and monitoring habitat restoration sites at Miramontes Ridge and Sierra Azul.
2/9/2022	Award of Contract for Botanical Services in Support of the Fire Safe San Mateo County-Highway 35 Evacuation Route Shaded Fuel Break Partnership	Approved	Botanical services in support of a collaborative partnership for fuel reduction work with Fire Safe San Mateo County. Avila and Associates provided botanical services in support of a collaborative partnership for fuel reduction work with Fire Safe San Mateo County.
2/23/2022	Award of Contract for Botanical Services for Multiple Projects within the Skyline Area	Approved	Botanical services to support multiple projects. AECOM Technical Services, Inc., provided botanical services to support multiple projects.
2/23/2022	Award of Contract with Vollmar Natural Land Consulting for the Preparation of Habitat Restoration Plans for the Irish Ridge Area of Purisima Creek Redwoods Open Space Preserve	Approved	Ecological surveys, analysis, planning, and permitting assistance for land restoration work at Purisima Creek Redwoods Open Space Preserve. Vollmar Natural Lands Consulting is providing ecological surveys, analysis, planning, and permitting assistance for land restoration work at Purisima Creek Redwoods Open Space Preserve.
	Mindego Hill Grazing Lease Amendment Adding 98 Acres	Approved	The grazing lease amendment allowed the addition of 98 acres of grazing land, referred to as the South

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Date	Agenda Item	Board Action	Scope
	of Grazing Land and Extending the Term of the Lease for Five Years		Pasture, to be incorporated into the current grazing lease with Bar DX Livestock, owned by Ronnie and Bartley Seever. The addition of 98 acres of grazing land, referred to as the South Pasture, into the current grazing lease with Bar DX Livestock, owned by Ronnie and Bartley Seever. The amendment also exercised the option of a five-year extension to the previous five-year grazing lease term.
	Grant Award to the University of California for Forest Health and Resiliency Services	Approved	University of California, Berkeley coordinates the annual Sudden Oak Death Blitz events and provides forest health and resiliency peer-review services.
3/9/2022	Grazing Tenant Selection and Lease for Big Dipper Ranch in Skyline Ridge Open Space Preserve	Rejected	Provide a conservation grazing lease with RC Bar Ranch, LLC., for the Big Dipper Ranch Grazing Unit in Skyline Ridge Open Space Preserve.
5/25/2022	Agreement with Woodside Fire Protection District/Fire Safe San Mateo County to Implement Fuel Reduction/Vegetation Management Work on District Lands Utilizing Two State Grants	Approved	Woodside Fire Protection District/Firesafe San Mateo County is using State Coastal Conservancy Forest Health and Wildfire Resilience Program funds and the CAL FIRE Early Action Fire Prevention Grant to conduct fuel reduction and ecologically sensitive vegetation management work at Thornewood Open Space Preserve and within multiple preserves fronting the Highway 35 corridor.
6/22/2022	Award of a New Four-Year Partnership Agreement with Grassroots Ecology for Community Engagement and Native Plant Landscape Maintenance at Cooley Landing Park and Ravenswood Open Space Preserve	Approved	Grassroots Ecology provides service-learning events and native landscape maintenance.
	Informational Report on the Outcomes of Six Years of Native Planting and Interpretive Work at Cooley Landing Park and Ravenswood Open Space Preserve	No Action	Received an informational report on the six years of Measure AA-funded native planting and interpretive efforts completed by Grassroots Ecology related to the Cooley Landing Park project located adjacent to and within Ravenswood Open Space Preserve.
8/10/2022	Two-year extensions and/or two-year leases of four conservation grazing units in properties located in Purisima Creek Redwoods and La Honda Creek Open Space Preserves	Approved	In support of the District's Coastside mission of protecting and restoring the natural environment, preserving rural character, and encouraging viable agricultural use of land resources, the District manages several conservation grazing leases with ranchers. Four of these conservation grazing leases expire in calendar year 2022 or 2023. These leases were extended for two years, with an option for a one-year extension, with the current tenant of each property upon expiration of each respective lease.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Date	Agenda Item	Board Action	Scope
9/28/2022	Grant Agreement with the State Coastal Conservancy through their Wildfire Resilience Program	Approved	The District entered into a grant funding agreement with the State Coastal Conservancy for their Wildfire Resilience Program.
10/12/2022	Award of Contract to Confluence Restoration, Inc., for Alma Cultural Landscape Plant Installation & Maintenance	Approved	Install and maintain approximately 1,100 nursery plants, 11 direct-seeded tree basins, and up to 60,000 groundcover plugs (sedge, grass, and rush species) to revegetate the Alma Cultural Landscape in Bear Creek Redwoods Open Space Preserve.
	La Honda Creek Preserve Forest Health and Management Plan - Next Steps	Approved	Solicitation of restoration forestry and engineering services to develop a Timber Harvest Plan and forest management prescriptions consistent with existing Resource Management Policies and the findings of the La Honda Forest Health and Management Plan to improve forest health conditions.
10/26/2022	Wildland Fire Resiliency Program: Prescribed Fire Plan	Approved	Conduct a Pile burning workshop for staff and authorization to prepare three burn plans. Staff incorporated Board feedback into the Prescribed Fire Plan.
12/14/2022	Santa Cruz Kangaroo Rat Habitat Assessment and Botanical Surveys	Approved	Habitat assessment and botanical surveys to allow a better understanding of the habitat characteristics that supports a species of narrow-faced kangaroo rat.
	Approval of Addendum to the Final Program Environmental Impact Report for the Wildland Fire Resiliency Program and Related Minor Project Modifications	Approved	CEQA Certification of the complete Wildland Fire Resiliency Program, including the Prescribed Fire Plan. Staff will implement the full Wildland Fire Resiliency Program, including the Prescribed Fire Plan.

Table 2: Public Notification for 2023

Date	Agenda Item	Board Action	Scope
1/11/2023	Contract Amendment for Cultural Resources Support to Implement the Bear Creek Redwoods Vegetation Treatment Project	Approved	Cultural Resource surveys required under the WFRP to conduct fuels management work. Provide Cultural Resource surveys required under the WFRP to conduct fuels management work.
2/22/2023	Reclassification of the vacant and new Property Management Specialist II position to Resource Management Specialist III to Manage the Conservation Grazing Program and Agricultural Land Management Projects.	Approved	Approved a position reclassification from Property Management Specialist II to Resource Management Specialist III to recruit qualified applicants with specialized expertise, training, and credentials to manage the Conservation Grazing Program and agricultural land projects.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Date	Agenda Item	Board Action	Scope
5/10/2023	Calendar Year Vegetation Management Annual Reports for 2020 and 2021, and Proposed Updates to the Integrated Pest Management and Wildland Fire Resiliency Programs	Approved	Reviewed the 2020 and 2021 Calendar Year Vegetation Management Annual Reports and approved proposed minor modifications to the Integrated Pest Management Program and additional criteria for prioritizing Fuel Reduction Areas for ecosystem resiliency.
5/24/2023	Award of Contract to Bay Area Tree Specialists for Wildland Fire Fuel Treatments and Tree Maintenance Services	Approved	District-wide wildland fire fuel treatments and tree maintenance services. Authorized the General Manager to execute a contract with Bay Area Tree Specialists of San Jose, California for District-wide wildland fire fuel treatments and tree maintenance services.
6/28/2023	Award of Contract with Grassroots Ecology to Conduct Service-Learning Natural Resource Stewardship Activities that Engage the Public	Approved	Agreement with Grassroots Ecology of Palo Alto, California to provide service-learning events. Authorized the General Manager to enter into an agreement with Grassroots Ecology of Palo Alto, California to provide service-learning events.
7/12/2023	Award Two Contracts to Salinas Valley Barb Wire for Construction of Wildlife-Friendly Livestock Fencing for the Elkus/Lobitos Conservation Grazing Unit at Purisima Creek Redwoods Open Space Preserve and the Lone Madrone Conservation Grazing Unit at La Honda Creek Open Space Preserve.	Approved	Construct wildlife friendly livestock fencing for the Elkus/Lobitos conservation grazing unit in Purisima Creek Redwoods Open Space Preserve and Lone Madrone conservation grazing unit at La Honda Creek Open Space Preserve. Authorized the General Manager to execute a contract with Salinas Valley Barb Wire to construct wildlife friendly livestock fencing for the Elkus/Lobitos conservation grazing unit in Purisima Creek Redwoods Open Space Preserve and Lone Madrone conservation grazing unit at La Honda Creek Open Space Preserve.
7/26/2023	La Honda Creek Open Space Preserve - Forest Health Project	None	Received the Woodruff Creek-Folger Parcel Addendum to the La Honda Forest Health Assessment and Management Plan and discussed the Project Description for the La Honda Forest Health Project.
8/9/2023	Grant Agreement for Federal Emergency Management Agency Pre-Disaster Mitigation Program Funding to Support the Wildland Fire Resiliency Program	Approved	Grant funding agreement with the Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation Program funding (Wildfire). Authorized the General Manager to enter into a grant funding agreement with the Federal Emergency Management Agency (FEMA) PreDisaster Mitigation Program funding (Wildfire).
8/9/2023	Reject All Bids for the Ecologically Sensitive Wildland Fire Vegetation Management Contract	Approved	Rejected all bids received for the Ecologically Sensitive Wildland Fire Vegetation Management contract.
9/13/2023	Award of Contract to Julian Tree Care, Inc., for Removal of a Former Cultivar Tree Farm at	Approved	Overgrown cultivar tree farm removal and biomass disposal services. Authorized the General Manager to enter into a contract with Julian Tree Care, Inc., of Richmond, California to provide overgrown

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Date	Agenda Item	Board Action	Scope
	Bear Creek Redwoods Open Space Preserve		cultivar tree farm removal and biomass disposal services.
10/11/2023	Award of Contract to Ecological Concerns for Alpine (Road) Trail Plant Installation & Maintenance	Approved	Plant installation and maintenance to address permit conditions for the Alpine (Road) Regional Trail Improvement Project. Authorized the General Manager to execute a contract with Ecological Concerns of Santa Cruz, for plant installation and maintenance to address permit conditions for the Alpine (Road) Regional Trail Improvement Project.
10/25/2023	Award of Contract to Confluence Restoration for Plant Installation & Maintenance at Bear Creek Redwoods Open Space Preserve to Address Permit Conditions and Mitigation Requirements for the Phase II Trails Work	Approved	Bear Creek Redwoods plant installation & maintenance work. Awarded a contract to Confluence Restoration for work on the Bear Creek Redwoods Plant Installation & Maintenance Project.

NOTIFICATIONS OF PESTICIDE APPLICATIONS

In addition to formal Board notifications, Midpen provides operational notifications for specific vegetation management activities conducted under the Integrated Pest Management (IPM) Program.

Per the IPM Best Management Practices (BMPs), Midpen employees and/or contractors post signs at treatment areas notifying the public, employees, and contractors of a planned use of a pesticide (including herbicides, insecticides, or other types of pesticides) prior to, during, and after the application on District preserves.

The posting periods described below are the minimum requirements; signs may be posted earlier and left in place longer if they serve a public purpose or provide staff flexibility in accessing remote locations.

BMP#	Best Management Practice
8	Notification of Pesticide Application Signs shall be posted notifying the public, employees, and contractors of the District's use of pesticides. The signs shall consist of the following information: product name, signal word, and manufacturer, active ingredient, and EPA registration number; target pest; preserve name; treatment location in preserve; date and time of application; date which notification sign may be removed; and contact person with telephone number. Signs shall generally be posted 24 hours before the start of treatment and notification shall remain in place for 72 hours after treatment ceases. In no event shall a sign be in place longer than 14 days without dates being updated. See the IPM Guidance Manual for details on posting locations, posting for pesticide use in buildings, and for exceptions.

NOTIFICATIONS OF PROJECTS USING OTHER COMMUNICATION CHANNELS

Midpen also provides public notifications for vegetation management projects through external regulatory and communication platforms when required.

In partnership with the Los Gatos Creek Watershed Collaborative (LGCWC), Midpen planned a wildland fire protection and fuels management project at Bear Creek Redwoods Open Space Preserve. Using the California Vegetation Treatment Program (CalVTP), the District created a Project-Specific Analysis (PSA) to satisfy CEQA and approve the project. The project was posted on the CalVTP Online Viewer under the *Proposed Projects* section for public notification and viewing on October 5, 2020.

PUBLIC INQUIRIES

In addition to formal public notices, the District receives questions, comments, and requests from community members through email, phone calls, and direct correspondence. Table 32 summarizes inquiries received during 2022 and 2023 related to the Integrated Pest Management and Wildland Fire Resiliency Programs. No inquiries were received regarding the Conservation Grazing Program outside of public meetings.

Table 3: Public Inquiries into the IPM and Wildland Fire Resiliency Program

Inquirer	Contact Method	Request/Comment	Response
Dave Hildebrandt	Email	Requested Midpen remove vegetation near private property.	Declined request to perform work. Referenced defensible space permit process to allow public to perform vegetation clearing work on Midpen lands to protect their adjacent private structures.
Pam McReynolds	Board Contact Form	Requested Midpen remove vegetation near private property.	Declined request to perform work. Referenced defensible space permit process to allow public to perform vegetation clearing work on Midpen lands to protect their adjacent private structures.
Joi Desai	Email	Concerned with coyote brush removal in Rogue Valley.	Explained why Midpen manages coyote brush encroachment and how wildland fuel reduction allows for safer evacuation routes.
Rancho San Antonio OSP Neighbor	Email	Requested increase focus on invasive weed removal in Rancho San Antonio	Coordinated a volunteer project for invasive weed removal. Continued weed removal in areas where fuel reduction is performed.
Gary Stephen (Delphire)	Email	Requested the District consider the purchase of Delphire Wildfire Detection System and HeloPod Dip Source and Remote Water Sources	Referred them to CalFire as the District does not have any helicopters.
Craig Dremann	Email	Encouraged the District to join an initiative to restore flammable weedlands into fire-resilient native grasslands that improve carbon storage and watershed health.	<u>Acknowledged receipt, No no additional</u> response required.
Andrea Libelo	Email	A visitor to Rancho San Antonio Preserve expressed concern about the use of glyphosate near Rogue Valley Trail, questioning its ecological and health impacts and requesting an explanation of why it was applied and who authorized its use.	Staff responded by explaining that Midpen's Integrated Pest Management Program uses herbicides like Roundup only when necessary based on the target invasive weed species and is applied only on the target plant to minimize environmental disturbance, emphasizing that their use is limited, science-based, and guided by best management practices.

In summary: Public engagement and notification remain central to Midpen's transparent approach to vegetation management. Staff will continue to refine outreach tools and explore opportunities to improve the clarity and accessibility of project information in future reporting cycles.

EXPERIMENTAL VEGETATION MANAGEMENT PROJECTS

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

No Experimental Vegetation Management was conducted in 2022 or 2023.

CONSERVATION GRAZING PROGRAM

Midpen's Conservation Grazing Program manages approximately 9,000 acres of coastal property as rangeland (Table 4³). On these lands, grazing is used as a broad land-management tool to achieve outcomes for both biodiversity conservation and wildfire fuel reduction, while also supporting local sustainable agriculture.

Grazing reduces the height and thatch buildup of non-native annual grasses, benefiting native bunchgrasses and forbs. Because grasslands generally support more plant diversity than adjacent wooded or shrubby habitats, controlling non-native annual grasses remains one of the most effective actions for promoting native plant diversity. Several special-status wildlife species also benefit from the vegetation structure created by well-managed grazing. As the program continues to evolve, Midpen works closely with grazing tenants to develop and refine site-specific strategies that target priority invasive plant species.

Grazing is also an effective tool for fuel load reduction. Mechanical fuel management at comparable scales can be prohibitively expensive, whereas grazing achieves fuel reduction across large areas in a cost-efficient and ecologically compatible manner. Brush removal for rangeland improvement likewise contributes to District-wide fuel management objectives.

Table 4: Properties currently in the Conservation Grazing Program as of December 31, 2023

Preserve	Property	Total Acres ¹
La Honda Creek	Apple Orchard	302
	Driscoll Ranch	2,693
	Event Center	3
	Lone Madrone ²	631
Miramontes Ridge	Johnston Ranch	412
Purisima Creek Redwoods	Bluebrush Canyon	273
	Elkus-Lobitos	837
	October Farms	280
	South Cowell	363
Russian Ridge	Mindego Hill	1,148
Tunitas Creek	Gordon Ridge	545
	Toto Ranch	756
	Tunitas Creek Ranch	703
Total		8,303

SUMMARY OF PARAMETERS MONITORED

Each year, staff survey Midpen rangelands to document conditions and detect changes in natural resource status. Monitoring tracks general attributes such as livestock use patterns, native and non-native species presence, soil and surface-water conditions, infrastructure integrity, and human use impacts. Emphasis is placed on identifying trends or changes that inform future management decisions.

Monitoring occurs through several site visits across the grazing season and concludes each fall with Residual Dry Matter (RDM) surveys that assess forage utilization and fuel levels.

¹ The acreage accounts for grazing leases, and may include ungrazed land (e.g., drainages, brush patches, etc.).

² Formerly known as McDonald Ranch.

MONITORING RESULTS AND QUALITATIVE ASSESSMENT FOR 2022 AND 2023

Rangeland conditions across Midpen's grazing properties improved substantially between 2022 and 2023, reflecting both effective drought-year adaptation and a strong rebound following an exceptionally wet winter.

- 2022: After two consecutive dry seasons, most properties maintained or recovered to within RDM targets through reduced stocking rates, careful water management, and responsive tenant coordination.
- 2023: Record rainfall (~50 inches) produced abundant forage, with all monitored sites meeting or exceeding RDM targets. Native grasslands—particularly *Stipa pulchra*, *Danthonia californica*, and *Elymus triticoides*—expanded and served as seed sources for restoration. Wildlife use, especially by grassland birds and large mammals, continued as a strong indicator of ecosystem health.

Persistent management needs included controlling invasive thistles (*Carthamus lanatus*, *Centaurea spp.*) and medusahead grass, mitigating brush encroachment, and addressing storm-related infrastructure damage. Riparian corridors and soil conditions remained stable despite heavy rains, and cooperative grazing management successfully balanced forage utilization with habitat protection.

Collectively, the 2022–2023 results demonstrate effective drought recovery, maintenance of biodiversity, and the overall resilience of Midpen's Conservation Grazing Program in sustaining ecological function across roughly 10,000 acres of rangeland.

SUCCESSSES AND DIFFICULTIES IN REACHING TREATMENT OBJECTIVES

Across both monitoring years, Midpen achieved measurable progress toward rangeland treatment objectives while addressing structural, climatic, and invasive-species challenges.

Successes

- **RDM Compliance:** Nearly all sites maintained or exceeded target RDM levels despite drought in 2022 and rapid growth in 2023.
- **Adaptive Practices:** Flexible stocking rates, early livestock movement in response to drying water sources, and targeted mowing for brush control helped stabilize grassland health.
- **Native Recovery:** Sites such as Driscoll, Mindogo, and Tunitas Ranches exhibited improved forage distribution and increased native grass cover (*Stipa pulchra*, *Elymus triticoides*), signaling strong ecosystem recovery under adaptive grazing regimes.

Difficulties

- **Water and Infrastructure:** Limited or seasonally dry water sources at properties such as Elkus-Lobitos and South Cowell caused uneven grazing pressure, highlighting the need for improved water distribution systems.
- **Storm Damage:** Winter 2023 storms hindered access and infrastructure maintenance, especially along Lobitos and Purisima Creeks.
- **Invasive Species:** Despite repeated herbicide and mechanical treatments, distaff thistle, yellow starthistle, and medusahead grass persisted in localized areas, requiring continued coordination with the Integrated Pest Management Program.
- **Brush Encroachment:** Coastal ranches such as Tunitas and Toto continued to experience expansion of coyote brush, necessitating ongoing mechanical and grazing-based control.

Overall, the 2022–2023 period reflects a pattern of steady ecological improvement tempered by logistical constraints. Infrastructure upgrades and sustained invasive-species control remain the primary needs to fully realize grazing program objectives.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Note: Management of invasive plant species and brush encroachment occurring within grazing properties is conducted in coordination with the Integrated Pest Management (IPM) Program to ensure consistency with District-wide vegetation management goals, treatment prioritization, and monitoring standards.

IPM ANNUAL REPORT

Integrated Pest Management (IPM) is a science-based approach for efficiently managing plant and animal pests while protecting human health and the environment. Midpen adopted an IPM Guidance Manual to direct the management of harmful invasive plants and animals within preserves, as well as the control of rodents and insects in Midpen-owned facilities.

Midpen biologists develop multi-year IPM plans for specific pests based on the biology of the target species, ecological conditions at the treatment site, and potential secondary impacts, such as soil erosion or non-target disturbance. Whenever feasible, non-chemical control methods—including prevention, pulling, cutting, digging, mowing, or trapping—are prioritized before chemical treatment is considered.

The IPM Guidance Manual specifies that Midpen will prepare an Annual IPM Report each year to describe pest control activities—both chemical and non-chemical—conducted on lands managed by the District.

The draft Annual IPM Report is prepared by the IPM Coordinator and reviewed by the IPM Coordination Team. Upon approval by the team, the final report is presented to the General Manager for review and then forwarded to the Board of Directors for approval.

Each Annual IPM Report (including this one, which spans two years: 2022 and 2023) includes the following components:

1. A summary of pest problems encountered during the year, and a comparison to past years.
2. A summary of pest control treatments, presented by type of control (e.g., mowing, herbicide use). Wherever possible, a comparison of units treated (e.g., acres, square feet, linear feet or miles) in the current year and previous years are provided for comparison purposes. A cost per acre is provided for major pest control treatment types.
3. A qualitative assessment of the effectiveness of the pest control program, and suggestions for increasing future effectiveness.
4. A summary of pesticide use, presented by category (e.g., herbicide, insecticide), active ingredient or pesticide formulation.
5. A brief summary of public notifications and public inquiries about IPM on Midpen lands;
6. Assessment of compliance with the Guidance Manual, including:
 - a. An evaluation of the effectiveness of any changes in practices that were implemented in the past 12 months.
 - b. A description of any experimental pest control projects (test studies) and the results, including a cost/benefits analysis.
 - c. Suggested changes to the IPM program or the Guidance Manual's pest control practices proposed for adoption within the next 12 months including:
 - i. Any substitute pesticides to replace phased out pesticides (additions to the List of Approved Pesticides).
 - ii. Any proposed alternative pesticides (additions to the List of Approved Pesticides) or pest control methods proposed for adoption.

EARLY DETECTION / RAPID RESPONSE

Early Detection and Rapid Response (EDRR) emphasizes preventing the establishment of new pest populations on Midpen lands through increased field surveys and timely management actions. When new pest populations are discovered, EDRR protocols call for rapid response measures to contain or eradicate infestations before they can spread.

This proactive approach greatly increases the likelihood that pest invasions are addressed successfully—before population sizes or distribution extents exceed what can be practically or economically controlled. Midpen currently

treats several species considered early detection targets (e.g., *Centaurea stoebe* [spotted knapweed] and *Carex pendula* [hanging sedge]); however, the establishment of a dedicated early detection surveillance program would enhance the District’s capacity to identify and respond to emerging threats in a timely and coordinated manner.

Increased pest surveys enable Midpen staff and contractors to identify and prevent infestations before establishment, thereby reducing the need for large-scale treatments over time. While the IPM Guidance Manual includes EDRR strategies and response procedures, current staffing levels and resource commitments limit the District’s ability to fully implement a comprehensive EDRR program.

Midpen is actively evaluating the long-term resource and funding needs—including staff capacity, volunteer participation, and contractor support—necessary to implement EDRR strategies, which include:

- Identifying potential threats early to enable timely control or mitigation measures.
- Detecting new invasive species while still feasible for safe and effective eradication or containment.
- Taking preventive actions, such as providing facilities to clean vehicles and tools, to prevent the spread of invasive plant seeds.
- Responding to invasions rapidly and efficiently to prevent permanent establishment.
- Providing timely information to decision-makers, the public, and partner agencies about the status of invasive species across District lands.
- Adaptively refining detection and response strategies based on monitoring results and evolving best practices.

In summary, EDRR serves as a cornerstone of Midpen’s proactive IPM approach, ensuring that new pest introductions are detected early and addressed efficiently. The following subsections present the 2022–2023 IPM results and analyses, which include monitoring data, treatment summaries, and program effectiveness assessments.

SUMMARY OF PEST PROBLEMS

PRE-TREATMENT SURVEYS

Midpen’s Best Management Practices (BMPs), established under the Final Environmental Impact Report (FEIR) for the Integrated Pest Management (IPM) Program (Board-certified and approved in December 2014, with an addendum in February 2019), outline the use of pre-treatment biological surveys prior to vegetation management.

Specifically, the FEIR states:

A District-approved biologist shall survey all selected treatment sites shortly before work to determine site conditions and develop any necessary site-specific measures. Treatment sites are defined as areas where IPM activity, including manual, mechanical, and chemical treatment, is expected to occur. In addition, on a repeating basis, grassland treatment sites shall be surveyed by a District-approved biologist once every five years and brushy and wooded sites shall be surveyed once every five years. Brush removal on rangelands will require biological surveys before work is conducted in any year. Site inspections shall evaluate existing conditions at a given treatment site including the presence, population size, growth stage, and percent cover of target weeds and pests relative to native plant cover and the presence of special-status species and their habitat, or sensitive natural communities.

Survey results are entered into Calflora, an online database used for statewide tracking of plant observations and management activities.

In 2022 and 2023, Midpen-approved biologists conducted 1,091 pre-treatment site surveys across District preserves (Table 54).

Table 5: Number of Pre-Treatment Site Surveys Per Preserve

Preserve	Surveys Completed
Bear Creek Redwoods	16
Cloverdale Ranch	14
Coal Creek	42
El Corte de Madera	22
El Sereno	1
Foothills	1
Fremont Older	10
La Honda Creek	229
Long Ridge	15
Los Trancos	60
Miramontes Ridge	27
Monte Bello	28
Picchetti Ranch	4
Pulgas Ridge	14
Purisima Creek Redwoods	47
Rancho San Antonio	31
Ravenswood	34
Russian Ridge	95
Saratoga Gap	1
Sierra Azul	31
Skyline Ridge	65
Teague Hill	74
Thornewood	55
Tunitas Creek	15
Windy Hill	160
Grand Total	1,091

ONGOING AND GENERAL MAINTENANCE

VEGETATIVE PEST SPECIES

Midpen manages 98 plant pest species on an ongoing basis to protect natural resource assets and maintain ecological function. These species have the potential to invade natural areas, displace native plant and wildlife species, and reduce biodiversity.

Of these, 21 species treated in recent years are classified as noxious weeds by the California Department of Food and Agriculture (CDFA) (Table 65).

Table 6: Species Treated

Year	Species Treated	Cal-IPC Rating				CDFA Rated	Alert	State Noxious Weed
		Watch	Limited	Moderate	High			
Since 2015*	98	5	17	30	14	6	4	21
2015	15	0	2	6	5	1	2	9
2016	34	1	3	13	12	1	2	17
2017	40	2	5	15	10	1	2	15
2018	45	3	7	16	12	2	2	17
2019	47	2	5	19	11	3	2	17
2020	46	1	5	21	12	2	3	16
2021	52	4	9	18	13	2	3	19
2022	91	4	16	26	11	3	4	16
2023	78	1	8	10	9	2	3	12

* Summary line identifies total number of individual plant species that apply to each category listed in this table. Note – this is not a total of all lines below since the same species is often treated or monitored over many years.

Since the inception of the IPM Program, Midpen has treated a total of 98 different plant species, representing approximately 2.7% of all plant species known from the Santa Cruz Mountains region. For 2022, treated species represented less than 2% of the region's flora.

FAUNA PEST SPECIES

In 2022 and 2023, Midpen monitored or treated eight (8) invasive animal species across multiple preserves (Table 76). These species include introduced mammals, reptiles, and amphibians that threaten native wildlife, habitat integrity, or human health and safety.

Table 7: Fauna Pest Species Monitored or Treated in 2022

Scientific Name	Common Name	Preserve	Location	Activity
<i>Felis catus</i>	Cat, feral	Rancho San Antonio, Stevens Creek Nature Study Area	Preserve-wide	Monitoring
<i>Lithobates catesbeianus</i>	Bullfrog	Russian Ridge	Mindego Lake	Monitoring (all sites) and removal (Rodeo Pond)
		Bear Creek Redwoods	Upper Lake	
		La Honda Creek	Rodeo Pond	
		Skyline Ridge	Alpine Lake	
<i>Mus musculus</i>	House mouse	Multiple – see below	Deer Hollow Farm; Residential	Monitoring, Trapping
<i>Otospermophilus beecheyi</i>	California ground squirrel	Rancho San Antonio	Deer Hollow Farm	Exclusion
		Bear Creek Redwoods	Bear Creek Stables	Monitoring
<i>Rattus norvegicus</i>	Norway rat	Multiple – see below	Deer Hollow Farm; Residential	Monitoring, Trapping

Scientific Name	Common Name	Preserve	Location	Activity
<i>Rattus rattus</i>	Black rat	Multiple – see below	Deer Hollow Farm; Residential	Monitoring, Trapping
<i>Sus scrofa</i>	Pig, feral	Russian Ridge	Mindego Ranch	Monitoring (all sites), Trapping, and removal (Sierra Azul)
		Sierra Azul	Preserve wide	
<i>Trachemys scripta elegans</i>	Red-eared slider	Bear Creek Redwoods	Mud Lake, Upper Lake	Monitoring
		Windy Hill	Sausal Pond	

PEST CONTROL IN BUILDINGS

Midpen also manages structural pest issues within District facilities to ensure safe working and residential conditions while adhering to IPM principles.

In 2022 and 2023, the District contracted with Complete Pest Control to perform rodent control at selected Open Space Preserve facilities, including 17 residences and three additional structures (Table 87).

All rodent control since 2013 has been conducted without rodenticides, using trapping and exclusion methods only, in compliance with Midpen’s commitment to non-toxic and ecologically sensitive pest management.

Table 8: Pest Control in Buildings

Preserve	# of Buildings in 2022	# of Buildings in 2023
Cloverdale	0	1
El Corte de Madera	4 + 1 (garage)	4 + 1 (garage)
Fremont Older	1	1
La Honda	2	2
Purisima Creek Redwoods	1	1
Rancho San Antonio	2	2
Russian Ridge	3 + 1 (garage/laundry room)	3 + 1 (garage/laundry room)
Saratoga Gap	1	1
Skyline Ridge	1	1
Thornewood	1 + 1 (water cistern)	1 + 1 (water cistern)
Total	16 + 3 (other)	17 + 3 (other)

NEW PEST CONTROL PROJECTS

Potential pest control projects are submitted to the IPM Coordinator using Midpen’s standardized New Pest Control Project Form. Each proposal is evaluated by the IPM Coordination Team using a Project Ranking System that scores projects across five categories:

- **Safety:** Human health and environmental protection.
- **Ecological Benefit:** Prevention or control of the most destructive pest species.
- **Biodiversity Protection:** Direct contribution to the conservation of native habitats and species.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

- **Public Engagement:** Opportunities for outreach, volunteer participation, or community benefit.
- **Feasibility and Effectiveness:** Likelihood of success given available tools, resources, and site conditions.

In 2022, one new pest control project was determined to have high treatment priority under the IPM Program (Table 28).

Table 9: New Pest Control Project for 2022

Scientific Name	Common Name	Preserve	Cal-IPC Rating	CDFA Rating	Alert	Gross Acres	Person Hours
<i>Genista monspessulana</i>	French broom	Sierra Azul	High	C*	N/A	4.5	24
CDFA Rating: 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. B – A pest of known economic or environmental detriment and, if present in California, it is of limited distribution. C – A pest of known economic or environmental detriment and, if present in California, it is usually widespread. D – An organism 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. * – An asterisk next to the rating indicates that a plant is included in the CCR Section 4500 list of California State Noxious Weeds. -* – This plant is included in the CCR Section 4500 list of California State Noxious Weeds, but is otherwise not rated.							

The following sections summarize treatment results, pesticide use metrics, and program effectiveness assessments for 2022 and 2023, including both quantitative outcomes and qualitative evaluations of IPM implementation across Midpen preserves.

SUMMARY OF PEST CONTROL TREATMENTS

INVASIVE PLANT CONTROL

The following data reflect natural area vegetation management and do not include **regular** brushing or mowing of roads, trails, defensible space, or emergency landing zones. These activities are not presented here because they occur annually with minimal variation.

Manual weed pulling remains the most common treatment method, accounting for approximately 66% of all labor hours in 2022–2023. Herbicide application represented about 9% of total hours over the same period. In a typical year, herbicide use accounts for roughly 10% of annual labor hours, with temporary increases occurring when new projects are initiated.

For example, herbicide treatments increased in 2022 prior to implementation of the Los Gatos Creek Watershed Forest Health Project at Bear Creek Redwoods Open Space Preserve, where targeted herbicide use was necessary to control disturbance-adapted weed populations that regrow aggressively after mechanical treatment.

Each year, during development of the IPM Annual Plan, treatment methods are evaluated using the best available science in weed management. The Annual Plan—finalized each January—establishes the work program for the new calendar year and integrates lessons learned from prior monitoring and treatment results.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Over the lifetime of the IPM Program (since 2015), treatment methods have shifted substantially. The most significant change has been a reduction in herbicide use, which has declined from 61% to 9% of total treatment hours, paired with a corresponding increase in manual hand-pulling, which has risen from 36% to 66%.

The total number of hours for IPM-related work (Table 109) increased by approximately 35% in 2022 and 9% in 2023 compared to 2015 levels. Field staff hours have fluctuated from year to year depending on competing operational priorities, including the number of active Measure AA capital improvement projects under construction.

Volunteer and contractor hours have risen substantially since 2015. The addition of a second Volunteer Program Lead in 2018 expanded volunteer capacity for IPM projects. Although volunteer activities declined during the COVID-19 pandemic, participation rebounded after restrictions were lifted in 2021.

Increased contractor involvement reflects a growing number of large-scale Measure AA restoration and mitigation projects, such as the Mount Umunhum Summit Restoration, Bear Creek Redwoods Parking Lot Mitigation, and Madonna Creek Landfill Removal. In addition, a five-year Memorandum of Understanding (MOU) with the Santa Clara Valley Water District (Valley Water) (Resolution R-17-79) has provided substantial funding for IPM-related work at Bear Creek Redwoods Open Space Preserve since 2017.

Table 10: Annual IPM-related field work hours by crew type

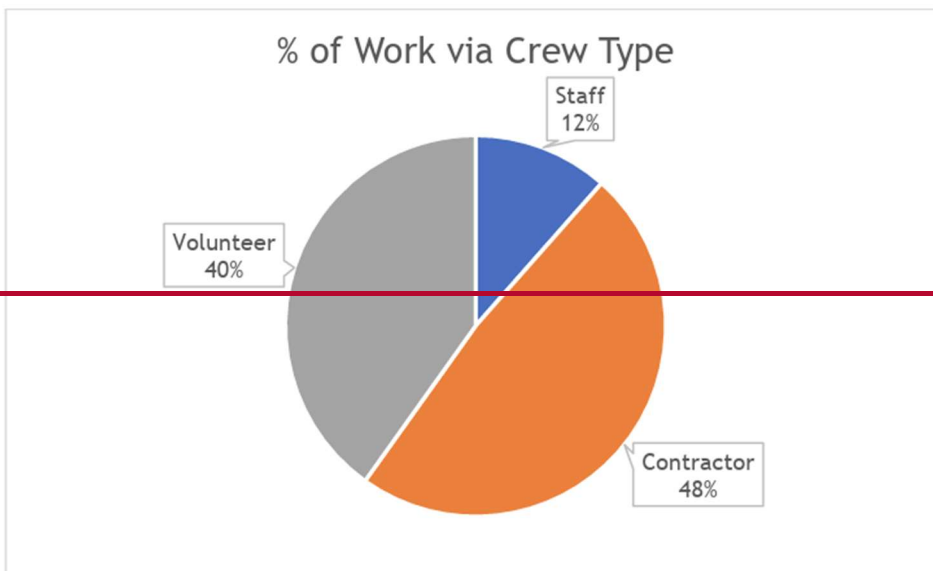
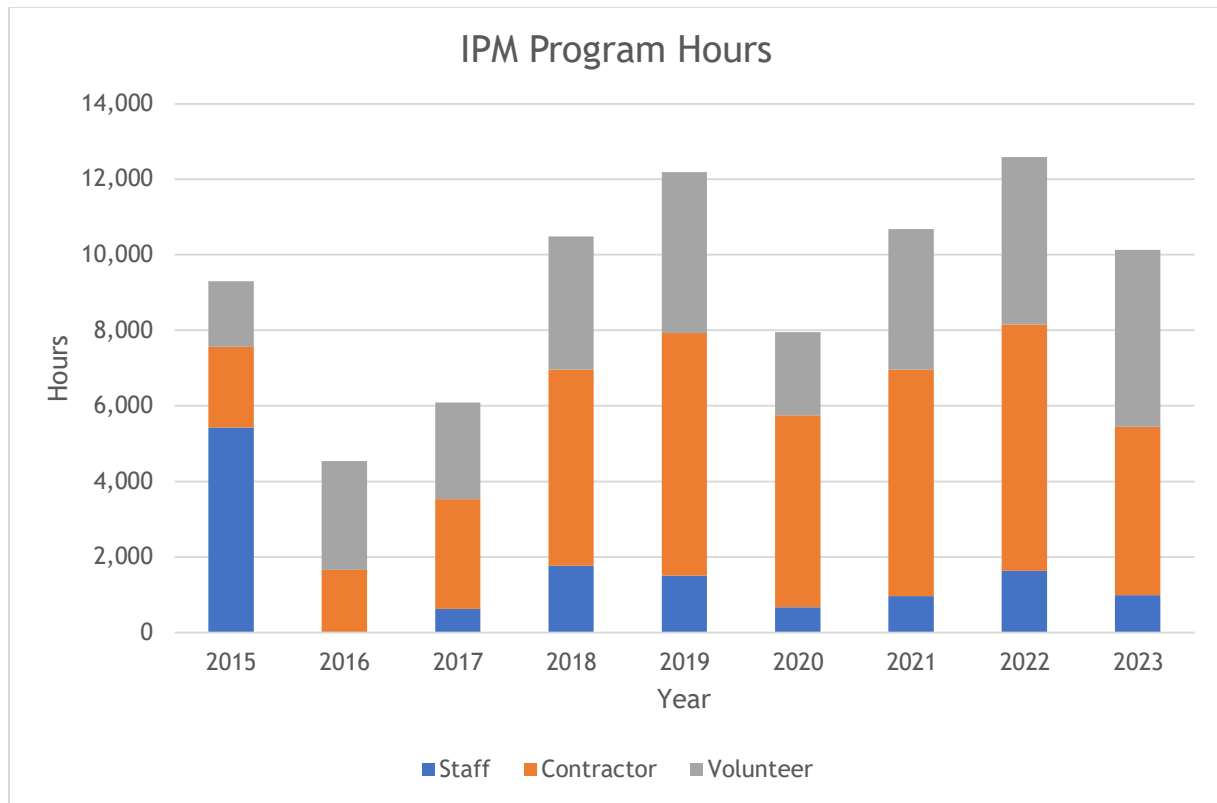
Year	Staff	Contractor	Volunteer	Total
2015	5,431	2,132	1,736	9,299
2016	Unknown ³	1,659	2,883	4,542
2017	623	2,907	2,559	6,089
2018	1,767	5,197	3,520	10,484
2019	1,502	6,421	4,261	12,184
2020	667	5,082	2,203	7,952
2021	960	5,999	3,722	10,681
2022	1,630 ≈	6,526 ↑	4,431 ↑	12,587 ↑
2023	989 ↓	4,455 ≈	4,683 ↑	10,127 ↑
Average per Year	1,696	4,486	3,444	9,327

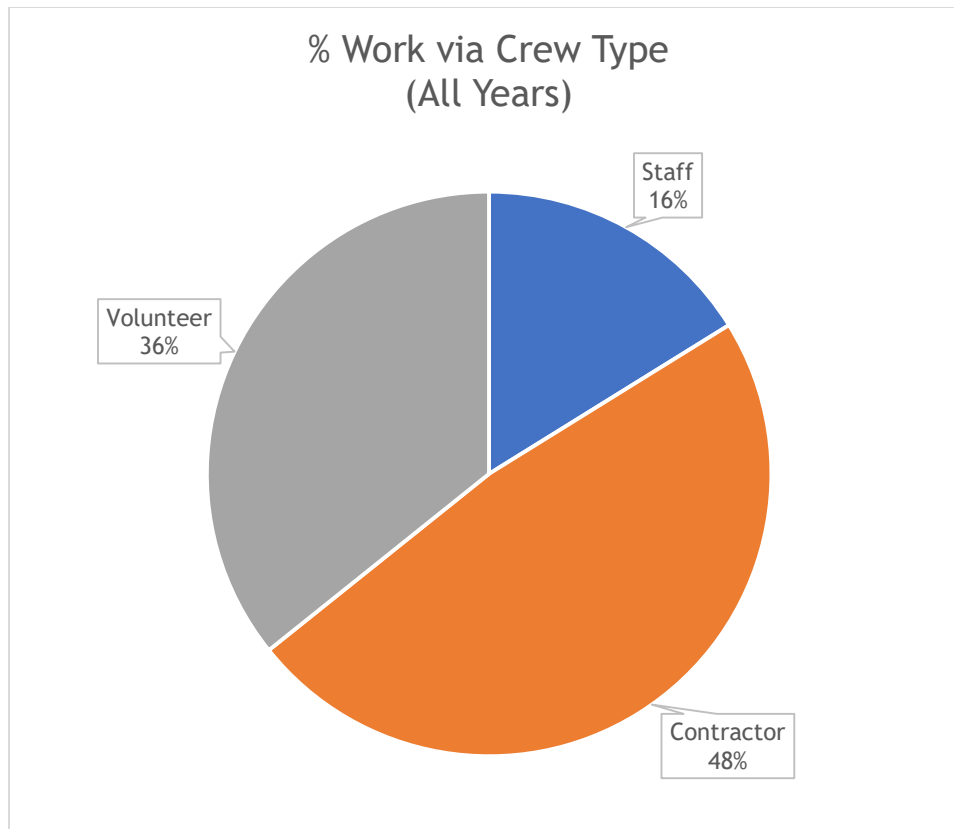
(↑ = Above average ↓ = Below average ≈ = Approximately equal to average (±5%))

Compared to the nine-year average, 2022 and 2023 show above-average total IPM labor, driven primarily by increased contractor and volunteer hours. Staff hours were below average in 2023, reflecting ongoing workload distribution across capital improvement and fire-resiliency projects.

³ Staff hours were not recorded into the Weed Database or Calflora as this was a transitional year from one database to another.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management





TREATMENT

Table 11: 2022 Hours By Treatment Method

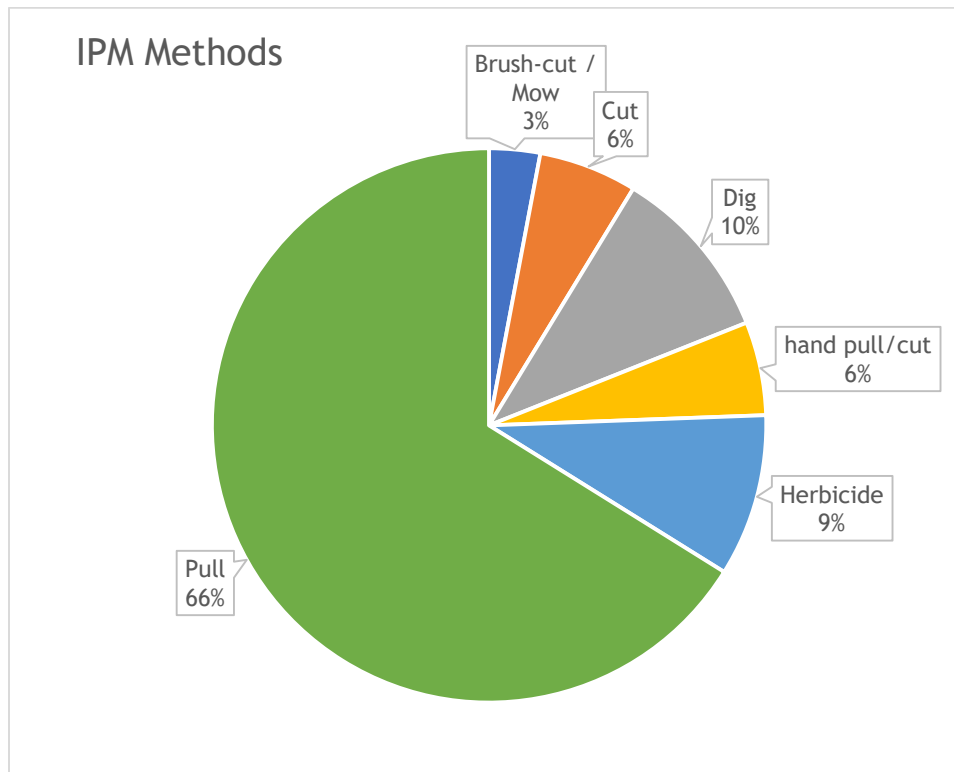
Method	Staff	Contractor	Volunteer	Total Hours
Brush-cut / Mow	41	94	--	135
Cut	174	80	761	1,014
Dig	201	213	560	974
Hand pull/cut	--	1,089	--	1,089
Herbicide	59	930	--	988
Pull	1,151	2,719	3,087	6,957
Grand Total	1,624	5,125	4,408	11,157

Table 12: 2023 Hours by Treatment Method

Method	Staff	Contractor	Volunteer	Total Hours
Brush-cut / Mow	81	407	7	495
Cut	44	--	157	201
Dig	127	448	629	1,204

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Method	Staff	Contractor	Volunteer	Total Hours
Hand pull/cut	--	71	--	71
Herbicide	81	936	--	1,017
Pull	650	2,567	3,858	7,074
Grand Total	984	4,429	4,650	10,063



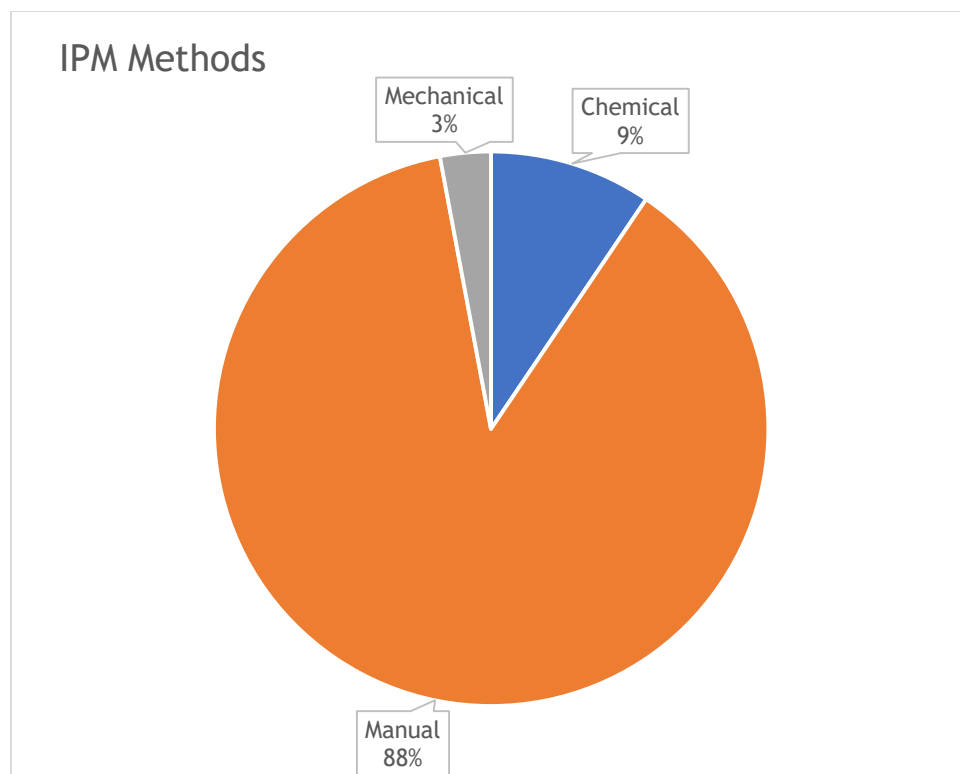


Table 13 and 14 (below) shows the comparative cost for different crews for 2022 and 2023. Midpen uses the following hourly costs estimates for comparative cost analysis purposes only:

Table 13: Hourly Average Costs Per Labor Type

Crew Type	2022	2023
Contractor ⁴	\$66.67	\$70.71
Staff ⁵	\$47.69	\$49.12
Volunteers ⁶	\$37.32	\$38.61

Table 14: Total "Costs" Per Labor Type

Crew Type	2022	2023
Contractor	\$341,684	\$313,175
Staff	\$77,449	\$48,334
Volunteer	\$164,507	\$179,536

⁴ Average hourly costs are derived from a selection of invoices from work performed by contractors.

⁵ Average hourly costs were provided by the Finance Department.

⁶ Signifies the estimated value of volunteer work and not true cost, as this is pro bono, volunteer work. This value is used for analysis purposes only. Refer to: <https://independentsector.org/research/value-of-volunteer-time/>.

<u>Crew Type</u>	<u>2022</u>	<u>2023</u>
<u>Total</u>	<u>\$583,639</u>	<u>\$541,045</u>

EFFECTIVENESS OF PEST CONTROL PROGRAM

The IPM Program identifies the following criteria for assessing the effectiveness of the Program every year:

- Work health/exposure in buildings;
- Reduction of pesticide use in buildings;
- Per-acre herbicide use;
- Preservation of biodiversity and natural resource values;
- Public participation in pest control (e.g., volunteer invasive weed pulling projects); and
- Staff training, public outreach, and educational activities.

WORKER HEALTH/EXPOSURE IN BUILDINGS

Midpen remains committed to minimizing worker exposure and health risks associated with pesticide use in and around District facilities. Only specific low-toxicity pesticides approved in the 2014 Integrated Pest Management Program Environmental Impact Report (EIR) are authorized for use in building environments (Table 15).

All approved products carry a “Caution” signal word, indicating a reduced risk classification for workers and occupants of treated buildings. These products are used only as necessary and in accordance with Integrated Pest Management (IPM) principles that emphasize prevention, exclusion, and non-chemical control methods first.

A restricted rodenticide bait formulation containing cholecalciferol is technically approved for use under strict, limited conditions; however, it was not used during 2022 or 2023. Instead, all rodent management relied exclusively on prevention measures and trapping, consistent with Midpen’s ongoing goal of maintaining pesticide-free rodent control in District buildings.

Table 15: Approved pesticides used in buildings

Pesticide Category	Active Ingredient	Product Formulation	Purpose	Signal Word
Rodenticide	Cholecalciferol	Cholecalciferol baits	Rodent control	Caution
Insecticide⁷	Indoxacarb	Advion Gel baits	Structural pest control	Caution
	Hydroprone	Gentrol Point Source	Structural pest control	Caution
	Fipronil	Maxforce Bait Station	Structural pest control	Caution
	Sodium tetraborate	Terro Ant Killer II	Structural pest control	Caution

⁷ Employees, contractors, and tenants may install approved ant and roach bait stations inside buildings in tamperproof containers without review by a Qualified Applicator License/Certificate holder.

Pesticide Category	Active Ingredient	Product Formulation	Purpose	Signal Word
	Diatomaceous earth	Diatomaceous earth	Structural pest control	Caution

REDUCTION OF PESTICIDE USE IN BUILDINGS

Midpen is committed to comprehensively overseeing all pesticide use in and around District buildings, including applications by tenants. This oversight is intended to achieve a continued reduction in overall pesticide use within built environments and, in particular, to eliminate applications in areas occupied by people or visitors and prevent unintended chemical drift or runoff into adjacent wildland habitats.

PEST CONTROL NOT COVERED BY IPM PROGRAM

Structural pests that inhabit soil or wood components of buildings—such as termites, wood-boring beetles, and wood-decaying fungi—are not included in Midpen’s Integrated Pest Management (IPM) Program. Occurrences of these species are addressed on a case-by-case basis, following consultation with qualified professionals and in accordance with applicable building maintenance and safety protocols.

WASP CONTROL FOR PUBLIC SAFETY

Many social wasps, such as yellowjackets, are native species that play important ecological roles and are only considered pests when their nests conflict with human use of an area. For example, nests built under building eaves, near trailheads, or along frequently used paths can lead to defensive behavior that poses a risk of painful stings, which may trigger allergic reactions in sensitive individuals.

When multiple stinging incidents occur or when public safety is at risk, Midpen staff manage these nests using physical removal or targeted chemical control methods, balancing visitor safety with the ecological value of native wasp populations. All treatments are conducted in accordance with Integrated Pest Management principles, emphasizing least-toxic methods and avoiding intervention unless necessary to protect human health.

PER-ACRE HERBICIDE USE

Midpen aims to reduce herbicide use per acre over time at individual treatment sites, recognizing that short-term increases may occur when new infestations are first addressed. In many cases, an initial period of intensive chemical or mechanical control is required to suppress well-established pest populations. Once infestations are reduced and the seedbank depleted, treatments typically transition to low-intensity manual methods, resulting in a long-term decline in herbicide use.

Most projects employ an integrated treatment approach, combining multiple methods—such as hand removal, mowing, targeted herbicide applications, and revegetation with native species—to achieve lasting ecological restoration. Temporary pulses of increased herbicide use are anticipated in future years as Midpen acquires new lands with priority infestations or initiates management at previously untreated sites.

This adaptive management approach enables the District to respond efficiently to changing site conditions while maintaining its commitment to minimizing chemical inputs and protecting ecological integrity across the preserve system.

To evaluate long-term progress toward reducing herbicide use, Midpen began conducting trend analyses at representative treatment sites. In 2018, after compiling a minimum of four consecutive years of data, staff selected six (6) herbicide treatment projects for statistical trend analysis: Bear Creek Redwoods, Big Dipper Ranch, La Honda, Mindego Hill, the Slender False Brome Program, and Stinkwort.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Trend assessments used the Mann-Kendall statistical test, a non-parametric method commonly applied to identify monotonic trends in time-series data. Consistent with other land management agencies, the confidence interval was set at 80%.

Impacts of the COVID-19 Emergency Declaration

Interpretation of these herbicide-use trends must be made with caution. The COVID-19 emergency declaration in 2020 caused a severe and prolonged disruption in vegetation management activities across Midpen's preserves. Fieldwork was largely suspended for much of the year, with only limited essential operations continuing under public health restrictions. As a result, the sharp decrease in herbicide use observed during and immediately following 2020 likely reflects this operational disruption rather than a true ecological reduction in invasive species populations.

Because of this interruption, the statistical power and reliability of the current trend analysis are limited. Additional years of consistent post-pandemic data will be required before drawing definitive conclusions regarding long-term reductions in herbicide use.

Trends Analysis and Findings

Despite these constraints, four (4) of the six (6) treatment sites exhibited apparent downward trends in herbicide use, several of which have since transitioned entirely to manual or mechanical control methods. The remaining sites currently show no discernible trend, but are expected to follow similar patterns as infestations continue to decline.

Trend analysis for Stinkwort is no longer being conducted, as management has fully transitioned to manual removal methods. If herbicide treatment is reinitiated in the future, a new trend analysis will be established to track changes from the updated baseline.

Overall, these findings demonstrate that, even under extraordinary program interruptions, Midpen's integrated and adaptive approach continues to advance the long-term goal of reducing chemical inputs while maintaining effective, science-based invasive species control across the preserve system.

PRESERVATION OF BIODIVERSITY AND NATURAL RESOURCE VALUES

As part of this section, Midpen staff provides an annual qualitative assessment of natural resource conditions within Integrated Pest Management (IPM) projects across the District's natural areas. These lands include grasslands, woodlands, and riparian corridors where vegetation management supports the preservation of biodiversity, sensitive habitats, and ecosystem resilience.

NATURAL AREAS

Monitoring Summary and Scope

Between 2022 and 2023, staff and volunteers conducted over 5,500 vegetation management and monitoring activities across 27 open space preserves, representing the broadest coverage to date under the IPM Program. The majority of activity occurred in Sierra Azul, Bear Creek Redwoods, Windy Hill, La Honda Creek, and Los Trancos Preserves—areas that collectively account for nearly half of all natural area work recorded.

Efforts primarily targeted high-priority invasive plant species such as French broom (*Genista monspessulana*), Spanish broom (*Spartium junceum*), Italian thistle (*Carduus pycnocephalus*), and stinkwort (*Dittrichia graveolens*). These species continue to pose threats to native grasslands, oak woodlands, and riparian zones by outcompeting native vegetation and altering habitat structure.

Treatment and Methods

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Manual removal remains the primary management method across natural areas, complemented by targeted mowing and selective herbicide application when required for initial control. Most projects have now transitioned to low-intensity maintenance phases, reflecting the District's long-term success in suppressing established infestations.

The reduction in chemical use over this reporting period reflects a deliberate strategy rather than a decline in treatment effort. The shift toward manual, volunteer-supported control—particularly at Bear Creek Redwoods, Skyline Ridge, and Windy Hill—has allowed continued coverage without increasing staff workload.

Resource Conditions and Trends

Overall, monitoring indicates that vegetation structure and species composition have stabilized or improved in most treated areas. Sites with repeated manual control show increasing native herbaceous cover and decreasing densities of invasive woody shrubs. In a few localized areas—particularly in coastal grasslands—recolonization by broom and thistle was observed, indicating a need for more regular cyclical maintenance every 2–4 years.

The breadth of activity across 27 preserves demonstrates strong systemwide implementation of IPM principles. Continued volunteer participation remains essential to maintaining gains and preventing reestablishment of invasive species across such a large and diverse landscape.

Successes and Difficulties in Reaching Treatment Objectives

Across the 2022–2023 reporting period, natural area management continued to achieve measurable progress toward District treatment objectives. The expansion of manual control and volunteer-based projects allowed Midpen to maintain or improve habitat conditions across a record 27 open space preserves, despite persistent challenges associated with terrain, species persistence, and climatic variability.

Successes included the effective suppression of broom species (*Genista monspessulana* and *Spartium junceum*) in several long-standing treatment areas, where infestations have now transitioned into maintenance phases requiring only limited follow-up work. Enhanced volunteer coordination through the Land Steward Program provided a significant labor force for hand-pulling and monitoring, especially at Bear Creek Redwoods, Windy Hill, and Sierra Azul, where community participation contributed thousands of hours to invasive plant removal. Additionally, early detection of isolated infestations—such as *Dittrichia graveolens* (stinkwort) and *Foeniculum vulgare* (fennel)—prevented broader spread into adjacent sensitive habitats.

Difficulties largely centered on steep terrain, limited seasonal access, and seedbank persistence in long-invaded sites. Some species, particularly Italian thistle (*Carduus pycnocephalus*) and purple starthistle (*Centaurea calcitrapa*), exhibited aggressive regrowth following wet conditions in 2023, requiring repeat treatments within a single growing season. In several preserves, particularly along the coast and in the southern region of Sierra Azul, storm damage and soil saturation delayed access and reduced the window for safe management activities.

Despite these constraints, the overall trend remains positive: native herbaceous cover continues to expand, and invasive species are being held at or below manageable thresholds. Continued emphasis on early detection, cyclic maintenance, and community partnership will be essential to sustain progress across the natural areas program.

RANGELAND

Within rangeland areas, Midpen used a combination of herbicide and non-herbicide methods to control high-priority invasive plants with the dual goals of enhancing native biodiversity and maintaining wildfire resilience. Management actions also support the local agricultural economy and the region's rural heritage by sustaining open, functional rangeland landscapes. For additional information, refer to the Conservation Grazing Program section of this report.

Across all conservation grazing units monitored in 2022 and 2023, vegetation data indicate a continued positive ecological response to integrated management.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

- La Honda Creek and Russian Ridge recorded the greatest extent of invasive-plant treatment, encompassing more than 500 acres combined with average invasive cover between 16–21%.
- Tunitas Creek exhibited the highest number of individual invasive plants observed (~1 million plants), reflecting intensive survey coverage and the large size of the active grazing area, while invasive cover remained below 10% on average.
- Purisima Creek Redwoods and Skyline Ridge showed localized infestations managed through targeted herbicide and mechanical treatments totaling less than 50 acres each, with low overall percent cover (<5%).

Contractor and staff investment was highest at La Honda Creek, where approximately 645 labor hours (511 contractor + 134 staff) were dedicated to invasive control, followed by Russian Ridge ($\approx$ 300 hours total). Volunteer participation was concentrated at La Honda Creek and Tunitas Creek, together contributing over 230 hours of additional labor.

Management priorities continued to focus on thistle control (*Centaurea solstitialis*, *C. calcitrapa*, *Carthamus lanatus*), brush suppression (*Baccharis pilularis*), and annual grass management (*Elymus caput-medusae*, *Bromus tectorum*). In 2022, staff collaborated with grazing tenants to map and treat newly emerging medusahead at Driscoll Ranch, while follow-up treatments at October Farm addressed Italian thistle (*P. pycnocephalus*) and St. John's wort (*Hypericum perforatum*) populations through timed mowing and manual removal.

Collectively, these results demonstrate that coordinated grazing and vegetation management are maintaining low to moderate invasive cover, enhancing native herbaceous composition, and sustaining the fire-resilient grassland structure that underpins Midpen's rangeland stewardship goals.

PUBLIC PARTICIPATION AND VOLUNTEER CONTRIBUTIONS

The public continues to play an integral role in the success of Midpen's Integrated Pest Management (IPM) Program. Volunteers contribute significantly to invasive plant control, early detection, and overall resource stewardship. Their efforts extend the District's capacity to manage vegetation effectively while fostering community involvement in open space preservation.

Land Steward Volunteers

In 2022 and 2023, Land Steward volunteers (formerly known as *Preserve Partners*) contributed a combined 4,537 hours to resource management through 131 organized group projects. These projects supported IPM objectives across multiple preserves, focusing on the removal and monitoring of 28 invasive plant species, including several of regional ecological concern (Table 165).

Table 165: Invasive Species treated by volunteers

Scientific Name	Common Name
<i>Aegilops cylindrica</i>	Jointed goatgrass
<i>Aegilops triuncialis</i>	Barbed goatgrass
<i>Brachypodium sylvaticum</i>	False brome
<i>Carduus pycnocephalus</i>	Italian thistle
<i>Carduus tenuiflorus</i>	Slender-flowered thistle
<i>Carthamus lanatus</i>	Woolly distaff thistle
<i>Centaurea calcitrapa</i>	Purple starthistle
<i>Centaurea melitensis</i>	Maltese starthistle
<i>Centaurea solstitialis</i>	Yellow starthistle

Scientific Name	Common Name
<i>Cirsium vulgare</i>	Bull thistle
<i>Crocsmia crocosmiflora</i>	Montbretia
<i>Cytisus scoparius</i>	Scotch broom
<i>Delairea odorata</i>	Cape ivy
<i>Dipsacus fullonum</i>	Common teasel / Wild teasel
<i>Dittrichia graveolens</i>	Stinkwort
<i>Euphorbia characias</i>	Mediterranean spurge
<i>Foeniculum vulgare</i>	Fennel
<i>Genista monspessulana</i>	French broom
<i>Hedera helix</i>	English ivy
<i>Hirschfeldia incana</i>	Shortpod mustard / Hoary mustard
<i>Hypericum perforatum</i>	St. John's wort
<i>Lunaria annua</i>	Money plant / Honesty
<i>Myosotis latifolia</i>	Broadleaf forget-me-not
<i>Silybum marianum</i>	Milk thistle
<i>Spartium junceum</i>	Spanish broom
<i>Stipa miliacea</i>	Graceful needlegrass
<i>Vinca major</i>	Greater periwinkle

These volunteer-driven projects provide measurable benefits by reducing invasive cover, supporting native plant regeneration, and enhancing wildlife habitat. Many Land Steward teams also assist with data collection to support early detection/rapid response (EDRR) monitoring, improving the District's ability to address emerging invasive species efficiently.

Advanced Resource Management Stewards (ARMS)

In addition to group-based projects, Midpen supported 23 active Advanced Resource Management Stewards (ARMS) during 2022 and 2023. These volunteers work independently on resource management activities within designated preserves, conducting site-specific invasive control, habitat restoration, and monitoring on their own time under District guidance.

Over the two-year reporting period, ARMS volunteers contributed 1,855 hours across 14 open space preserves, providing consistent stewardship presence and on-the-ground ecological monitoring. Their efforts are a vital extension of the IPM Program's capacity and contribute directly to maintaining ecological resilience across Midpen lands.

Together, Land Steward and ARMS volunteers contributed over 6,390 hours to vegetation management in 2022–2023, representing an essential component of Midpen's integrated approach to invasive species control, biodiversity protection, and community-supported land stewardship.

STAFF TRAINING, PUBLIC OUTREACH, AND EDUCATIONAL ACTIVITIES

STAFF TRAINING

Ongoing training is a critical component of Midpen's Integrated Pest Management (IPM) Program and ensures that all field operations are conducted safely, effectively, and in full compliance with environmental regulations.

Pesticide Safety Training

The mandatory annual Pesticide Safety Training was conducted virtually for all field staff, biological monitors, and contractors in May 2022 and again in June 2023. These sessions provided instruction on safe handling, application, storage, and disposal of pesticides, as well as requirements under state and federal law.

Rangers whose duties are limited to wasp control using Wasp Freeze participated in an abbreviated training module focused specifically on wasp identification, nest management, and product safety.

Botanical Identification and Habitat Awareness Training

Due to restrictions and scheduling impacts related to the COVID-19 pandemic, the traditional annual wildflower training sessions were suspended through the end of 2023. These field-based trainings (typically led by qualified botanists) are designed to familiarize District staff with native and non-native plant identification in grasslands with high biodiversity. The District resumed these trainings in 2024 once normal operations allowed, as they are an important opportunity for field staff to build practical botanical knowledge.

Special Status Species and Habitat Awareness Training

In-person Special Status Species and Habitat Awareness trainings were conducted in 2022 and 2023. These sessions provided staff with an overview of state and federally listed species, their habitat requirements, and regulatory protections, including updates on laws, best management practices, and field identification protocols. A dedicated section focused on the California red-legged frog (*Rana draytonii*) and San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), emphasizing species-specific avoidance measures for staff working in areas where these species occur.

Together, these trainings ensure that Midpen's staff and contractors remain knowledgeable, compliant, and equipped to implement ecologically sensitive land management practices that support both public safety and biodiversity conservation.

REGIONAL COOPERATION

Invasive species do not recognize jurisdictional boundaries, making regional coordination essential to effective management. Midpen actively collaborates with neighboring land management agencies to target invasive species at a landscape scale, ensuring treatments are ecologically meaningful and mutually reinforcing across property lines.

Midpen participates in several regional cooperatives, including the San Mateo and Santa Clara County Weed Management Areas (WMAs). These groups, coordinated through the County Agricultural Commissioners' offices, foster interagency communication and cooperation on high-priority invasive species. Participation in WMAs also provides opportunities for joint grant applications, enabling Midpen to secure funding for cross-jurisdictional weed control and restoration projects.

In addition, Midpen is an active member of the Santa Cruz Mountains Stewardship Network (SCMSN), a coalition of organizations working to align land stewardship efforts across San Mateo, Santa Clara, and Santa Cruz counties. Through this partnership, Midpen is collaborating with Cal-IPC and Calflora to develop a regional Invasive Species Atlas—a shared GIS platform designed to improve data exchange and coordination of management actions across agency boundaries.

These cooperative efforts strengthen the collective capacity of regional partners to detect, control, and prevent the spread of invasive species, supporting a more resilient and interconnected Santa Cruz Mountains ecosystem.

SUMMARY OF PESTICIDE USE

Table 17 summarizes the combined use of pesticides on Midpen lands. This data excludes Pacific Gas and Electric (PG&E), which is not covered under Midpen's Integrated Pest Management Program. PG&E is required to report pesticide use to each County Agricultural Department separately.

Table 176: Pesticide Use on Midpen Lands in 2022 and 2023

Pesticide Type	Trade Name	Active Ingredient	Amount Used (ounces)	Gross Acre Treated (acres)	Ounces/Acre
Fungicide	Reliant	Potassium salts of phosphorus acid	0.0	0.0	-
	Milestone	Aminopyralid	395.9	8.36	47.4
	Envoy Plus	Clethodim	9	1.142	7.9
	Transline	Clopyralid	0	0	-
Herbicide	Roundup Custom	Glyphosate	637.8	24.61	25.9
	Roundup ProMax	Glyphosate	513.5	33.22	15.5
	Polaris	Imazapyr	0.25	1.43	0.17
	Capstone	Triclopyr + aminopyralid	16	0.32	50
	Garlon 4 Ultra	Triclopyr	20.65	9.21	2.24
Insecticide	Wasp Freeze II	Prallethrin ⁸			
Rodenticide		Cholecalciferol	0.0	0.0	-
Virucide⁹	Virex II 256	Didecyl dimethyl ammonium chloride	0.0	-	N/A
	Waxie 730	Hydrogen peroxide	768	-	N/A

CHANGES TO GUIDANCE MANUAL

UPDATING THE LIST OF APPROVED PESTICIDES

The List of Approved Pesticides is intended to change over time as the science of pest control advances and more effective, safer, and less harmful pesticides are developed; as manufacturers update, discontinue, or substitute products; and as target pests change over time.

In instances where new products with new active ingredients are found to be safer, more effective, and/or less costly than products on the List of Approved Pesticides, Midpen may elect to add new pesticides. This type of change typically requires additional toxicological review, and depending on the results, may also require additional environmental review.

At this time, staff does not recommend any changes to the Approved Pesticide List.

10-YEAR REVIEW OF IPM PROGRAM

⁸ Prallethrin is used only to treat stinging insects when they pose a direct threat to public safety (i.e., nests adjacent to trails, restrooms, and parking lots).

⁹ Both virucides were used under Governor Newsom's declaration of a State of Emergency on March 3, 2020, until July 14, 2021, when the Board adopted a Resolution terminating a local Midpeninsula Regional Open Space District emergency in response to the COVID-19 Pandemic. Since then, the Board has approved the regular use of Waxie 730.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

The IPM Program adopted in December 2014 was intended to be reviewed after 10 years. Starting in 2023, Midpen has begun this 10-year detailed review to assess the program's strengths and weaknesses and determine what changes need to be made. One current change to the program that Midpen is considering, is to center the program on the goal of restoring sites rather than controlling specific species. This way, Midpen can take a more holistic approach to restoring habitats and prioritize work areas around specific ecosystems in need of enhancement. The goal is to make changes to the program for implementation in 2026. Recommendations are being finalized and will be presented to the Board for review and consideration in 2026.

WILDLAND FIRE RESILIENCY PROGRAM REPORT

The WFRP specifies that Midpen will prepare an Annual Program Report each year that describes actions conducted in the previous year. The report is presented to the General Manager for initial approval. The report is then forwarded to the Board of Directors for review and acceptance/approval. Annual reports, including this one (which is prepared as a two-year report covering 2022 and 2023), include the following basic information:

1. Introduction
2. Projects Implemented During Calendar Year
3. Summary of On-Going or Cyclical Monitoring Activities and Results
4. Successes in Reaching Treatment Objectives and Meeting Requirements
5. Difficulties in Reaching Treatment Objectives and Meeting Requirements
6. Recommendations for Changes in Future Efforts to Increase Success

INTRODUCTION

The Wildland Fire Resiliency Program (WFRP), adopted in 2021 and first implemented in 2022, provides a comprehensive framework for reducing wildfire risk while restoring ecological processes and enhancing the resilience of Midpen's forest and chaparral ecosystems. The program emphasizes ecologically sensitive fuel management, integration of forest health and habitat objectives, and regional collaboration with partner fire agencies.

Vegetation management under the WFRP includes the removal or modification of live and dead vegetation to reduce potential fire spread, flame lengths, and severity, while also addressing ecological stressors such as forest disease and invasive species. These activities further Midpen's mission to protect the natural environment through proactive stewardship and adaptive management.

Vegetation management may also achieve the following:

- Reduction of ecological resource impacts from forest disease, invasive species, and wildland fire;
- Maintenance of emergency response and evacuation access roads;
- Minimization of rehabilitation needs following fire suppression; and
- Strategic support for safe, effective firefighting operations.

Since its adoption, the WFRP has focused on identifying, prioritizing, and implementing Vegetation Management Areas (VMAs) that provide the greatest ecological and safety benefits. Each new area is designed through a science-based methodology approved by the Board of Directors, integrating resource conditions, fire behavior modeling, and input from partner agencies.

METHOD OF PRIORITIZING THE ESTABLISHMENT OF NEW VEGETATION MANAGEMENT AREAS

The creation of new Vegetation Management Areas is based on the prioritization of selected locations within District-managed lands. The methodology for locating and prioritizing areas for management was developed by staff with extensive outreach to partner fire agencies and approved by the Board.

ECOSYSTEM RESILIENCY (FOREST HEALTH/FUEL REDUCTION AREAS)

Fuel Reduction Area (FRA) treatments are typically implemented to achieve a combination of habitat enhancement and wildland fire risk reduction. Fuel ladders and surface fuels are greatly reduced in FRAs, and overstory and understory vegetation is spatially separated so that a ground fire will not, under normal fire conditions, burn too hot and/or climb into the canopy and turn into a crown fire.

METHODOLOGY FOR LOCATING POTENTIAL FUEL REDUCTION AREAS FOR ECOSYSTEM RESILIENCY

The location of new FRAs on Midpen lands are confined to native forests or woodland areas of at least 1 acre in size. Areas classified as “water” or “wetland” are excluded from treatment. Ecosystem health and condition factor into the location of new FRAs. FRAs are identified by Midpen or other professional fire management or vegetation management staff as important areas for ecosystem health and resiliency.

METHODOLOGY FOR PRIORITIZING FUEL REDUCTION AREAS

To determine where fuel reduction treatments will provide the greatest ecological and safety benefits, Midpen uses a point-based prioritization system that considers a range of environmental and management factors. Areas earning the highest cumulative scores are given top priority for implementation.

In practice, priority is given to locations near sensitive natural resources—such as habitats supporting rare, threatened, or endangered species—or areas degraded by invasive plants that would respond favorably to treatment. Sites located within zones of elevated wildfire risk or near forest stands affected by disease, such as sudden oak death (SOD), are also ranked highly.

Midpen staff and partner agency professionals further identify areas that contribute to overall ecosystem resiliency, including forested slopes, box canyons, and areas with dense road networks where fuelbreaks can improve both habitat health and fire management access. Forests that have grown unnaturally dense due to historic land use, such as former timber harvest areas, also receive emphasis, as treatments here can help restore natural structure and reduce competition among trees.

Other high-priority sites include those proposed for prescribed fire to enhance ecological function, habitats that support the development of late-seral forest conditions, and grasslands or scrublands where brush encroachment is altering the fuel regime or leading to type conversion. Finally, areas within or adjacent to identified climate refugia—zones expected to provide ecological stability amid climate change—are prioritized to maintain habitat integrity and adaptive capacity across the landscape.

ENHANCED FIRE MANAGEMENT

Enhanced fire management treatment allows for the safer passage of the public out of and responding emergency agency into active emergency areas. Treatment is done at a higher level of fuel reduction than that of natural area treatment for forest health.

Fuelbreaks are linear strips of land where trees, vegetation, and dead material have been reduced or removed. These areas can slow the spread of a wildland fire. Fuelbreaks also provide firefighters with zones to take a stand against or control the spread of a wildland fire, or retreat from fire if the need arises. Typically, fuelbreaks are strategically located based on many factors including terrain, existing roads, at risk communities, critical infrastructure, presence of potential ignition sources, fire management logistics areas, evacuation routes, target hazards, and sensitive resources.

Fuelbreaks function as potential anchor points to control lower intensity fires, flank higher intensity fires, and provide firefighter safety. Vegetation is managed to reduce the continuity of live and dead fuels both horizontally and vertically in fuelbreaks. It should be noted that fuelbreaks typically do not stop fires without fire department response and fires may still jump a fuelbreak regardless of fuelbreak size during extreme fire weather, intense fire behavior, or other confounding scenarios.

METHODOLOGY FOR LOCATING POTENTIAL VMAS FOR ENHANCED FIRE MANAGEMENT

To strategically reduce wildfire risk and improve firefighter safety, Midpen identifies Vegetation Management Areas (VMAs) for enhanced fire management using a set of spatial and operational criteria. These areas are designed to

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

strengthen ecosystem resiliency while providing defensible zones that support emergency response and protect critical infrastructure.

Priority locations are those that enhance and facilitate fire suppression activities—such as providing safe ingress and egress routes, access for fire engines, or operational space for firefighting personnel and equipment. VMAs are often situated adjacent to or near existing or planned fuel treatment zones, creating continuous areas of reduced fuel where firefighters can more effectively manage fire behavior.

In coordination with state and local fire agencies, professional fire management staff help identify additional sites where vegetation treatments would most improve suppression capacity or protect key assets. Typical VMA locations include areas within 10 to 25 feet of primary emergency access roads used by Wildland Type 3 fire engines, within 100 feet of Midpen structures, and within 200 feet of essential emergency infrastructure such as communications towers, fire stations, medivac sites, or water tanks.

VMAs may also be established near designated fire response zones—such as parking areas, staging sites, or landing zones—to ensure operational readiness and safety during wildfire events. Similarly, areas within 200 feet of known evacuation routes or sensitive natural resources that would benefit from fuel reduction may be prioritized. Finally, sites within 300 feet of high-value community assets, including schools, hospitals, and nursing homes, are identified to reduce risk to life and property during wildfire emergencies.

METHODOLOGY FOR PRIORITIZING VMAS

Once potential Vegetation Management Areas (VMAs) are identified, Midpen prioritizes them using a point-based ranking system designed to focus resources where vegetation management will most effectively reduce wildfire risk and protect both ecological and human assets. Areas that meet multiple criteria receive higher scores and are scheduled earlier for treatment.

Highest priority is given to locations that directly reduce risk to people and property—such as those within 100 feet of Midpen structures, or within 300 feet of critical emergency response infrastructure like communication towers, water tanks, medivac sites, or fire stations. Areas adjacent to schools, hospitals, or nursing homes are also weighted heavily to enhance community safety and provide buffer zones around vulnerable populations.

Sites within 300 feet of designated evacuation routes or fire response zones—such as parking areas, staging zones, and helicopter landing sites—are prioritized for their role in improving firefighter access and public evacuation safety. Similarly, areas identified as high fire-risk zones (including those mapped by CAL FIRE as “Very High Fire Hazard Severity Zones”) receive additional emphasis.

From an ecological perspective, priority is also given to areas near forest disease outbreaks, particularly those within 200 feet of stands affected by sudden oak death, and to locations where sensitive natural resources could benefit from treatment. Proximity to existing or planned fuel treatments, both within Midpen lands and on adjacent properties, further increases a site’s ranking by supporting landscape-scale continuity in fuel reduction efforts.

Finally, professional fire management staff may elevate sites based on field observations and operational experience, ensuring that local knowledge and changing environmental conditions are incorporated into the prioritization process. This integrated approach allows Midpen to strategically align fire resilience, ecological restoration, and public safety objectives across the preserve system.

PROJECTS IMPLEMENTED DURING THE CALENDAR YEAR

This section identifies the projects under the Wildland Fire Resiliency Program that were implemented in 2022 and 2023, including location, open space preserve, methods used, work force, equipment used, herbicide used, acreage treated, etc.

Table 187: Major Projects Implemented

Preserve	Location	Methods Used	Work Force	Equipment Used	Herbicides Used	Acreage Treated
Saratoga Gap	Steve's Canyon Ranch Orchard	Manual, Mechanical	Crew	Boom flail, Chainsaws, Pole Saws, Brush Bandit Chipper, and Mower.	N/A	6.04
Foothills, Los Trancos, Monte Bello	Page Mill Rd	Manual, Mechanical	Crew & Contractors	Track chippers, remote slope mower, compact loader with masticator, excavators with masticators and grapple boom flail, chainsaws, power pole saws, aerial lift, chipper truck with grapple.	NA	51
Monte Bello	Hwy 35 - Sherrill House	Manual & Mechanical	Crew	Track chippers, remote slope mower, compact loader with masticator, chainsaws, power pole saws.	NA	11
Thornewood	Hwy 84 – Water Cistern	Manual & Mechanical	Crew & Contractor	Remote slope mower, compact loader with masticator, chainsaws, power pole saws.	NA	5

SUMMARY OF ON-GOING OR CYCLICAL MONITORING ACTIVITIES AND RESULTS

This section describes any additional long-term, regional, district-wide, or other monitoring effort or program not related to a specific activity or project.

SUDDEN OAK DEATH

Midpen's work to address Sudden Oak Death (SOD) is completed through collaborations with the SODMAP Project, which is a partnership of scientists and citizens, working together to create the most complete distribution map of a forest disease ever produced in North America. SODMAP incorporates laboratory-confirmed collections of plant and water samples from 2005 to the present. It includes both SOD-positive as well as SOD-negative specimens to better illustrate the range and distribution of the disease.

SODMAP is the result of a collaboration between hundreds of community scientists participating each year in the [SOD Blitzes](#) organized by the U.C. Berkeley Forest Pathology and Mycology Laboratory, other research organizations, and government facilities.

SUMMARY OF HERBICIDE USE

Table 198 summarizes what herbicides were used and is provided to document per acreage usage for the reporting period.

Table 1649: Summary of Herbicide Used for the Wildland Fire Resiliency Program

Trade Name	Active Ingredient	Amount Used (ounces)	Gross Acre Treated (acres)	Ounces/Acre
Roundup ProMax	Glyphosate	132	2.91	45.4

SUCCESSIONS IN REACHING TREATMENT OBJECTIVES AND MEETING REQUIREMENTS

On-the-ground fuel reduction work on the portion of the Los Altos Hills Strategic Community FuelBreak that crosses through the Rancho San Antonio Preserve commenced in 2025 after the completion of botanical reports and biological surveys. This work consisted of removing vegetation along the Chamise and Black Mountain trails.

Difficulties in Reaching Treatment Objectives and Meeting Requirements

Midpen has an opportunity to improve “ecological sensitivity” protection measures by refining the granularity of onsite flagging to mark areas of concern in concert with greater oversight of the contracted labor force to further protect sensitive resources. In the summer of 2022, Midpen developed a standard operating procedure for the flagging of resource management concerns as a resource protection measure. Implementation can also be improved by addressing invasive plant species concerns far in advance of fuel reduction implementation work. Most fuel vegetation treatment sites need significant follow-up maintenance work to manage the anticipated regrowth of native plant communities and control invasive plant growth in the long run. In addition, increased efficiencies are anticipated as Midpen streamlines the contracting procedures for forest health and wildfire treatment services.

Coordinating fuel reduction that is initiated by other agencies brought challenges with maintaining a high level of communication and managing the work details. The Field Resource Specialist position, which was vacant for approximately a year and refilled in 2024 is helping improve communication of work plans and Midpen requirements with other agencies.~~The addition of a Field Resource Specialist position should help in communicating work plans and Midpen requirements with other agencies.~~

RECOMMENDATIONS FOR CHANGES IN FUTURE EFFORTS TO INCREASE SUCCESS

Future efforts to increase program success include identifying and incorporating new equipment. In 2023, two critical pieces of equipment are planned, a Robomax remote controlled masticator, and a track mounted chipper. These pieces of equipment will increase efficiency and allow staff to implement program work in terrain that has been traditionally difficult to access. However, sharing this equipment between two field offices limits how much either crew can accomplish.

Use of mechanized equipment (including the planned Robomax remote controlled masticator) will be evaluated site-by-site and will be limited, consistent with Midpen’s ecologically sensitive vegetation management guidelines, including pre-work surveys/monitoring as needed, seasonal timing, and adherence to established buffers and flagged avoidance areas for special-status species habitat and water resources.

The number of Land and Facilities staff who are designated to conduct vegetation management increased in 2022 and 2023.~~Land and Facilities staff who are designated to conduct vegetation management have increased in the last two years.~~ However, as program work also increases and treated sites enter the maintenance phase, there will be a need for additional Land and Facilities staffing to ensure continued program success and achieve annual target goals.

~~A future comprehensive plan will be developed to identify strategies and multiple treatment options for new projects and retreatment/maintenance of areas where work has been completed. This plan will need to include correctly timed schedules for treating perennials and effectively using herbicides, as well as ongoing project tracking in Cityworks. Developing comprehensive plan that will identify strategies and multiple treatment options for new projects and retreatment/maintenance of areas where work has been completed. This plan should include correct timed schedule to treat perennials, effective use of herbicide and updated project tracking in Cityworks.~~

~~Prescribed fire also need to be expanded as a management tool, utilizing a multi department approach and fire agency collaboration to identify areas for prescribed burning. Grant funding options and collaborations with other entities should continue to be explored. Expand the use of prescribe fire as a management tool. Multi department approach and fire agency collaboration to identify areas for prescribed burning. Continue to seek grant funding options and collaborations with other entities.~~

MISCELLANEOUS PROJECTS NOT COVERED UNDER PROGRAMS

The three programs discussed above account for most of the vegetation work District-wide. Other projects that require vegetation work are scoped and approved by other plans and require separate CEQA documentation. They are discussed here to provide a fuller picture of the District's work to protect and restore the natural environment.

SUMMARY OF WEEDING ACTIVITIES

Table 1720: Summary of methods to treat weeds (2022)

Method	Hours
Brush-cut / Mow	28
Cut	1
Dig	106
Herbicide	16
Pull	400
Grand Total	551

Table 1824: Summary of methods to treat weeds (2023)

Method	Contractor	Staff	Total Hours
Brush-cut / Mow	66	--	66
Cut	1	--	1
Dig	163.25	--	163.25
Herbicide	64	48	112
Pull	1,023.5	--	1,023.5
Grand Total	1,317.75	48	1,365.75

Table 1922: Status of species treated

Year	Species Treated	Cal-IPC Rating				CDFA	Alert	Noxious Weed
		Watch	Limited	Moderate	High			
2022	31	0	8	11	2	1	0	4
2023	36	0	9	10	3	1	0	4

MITIGATION FOR CAPITAL PROJECTS (PUBLIC ACCESS)

BEAR CREEK REDWOODS TREE FARM MITIGATION SITE, BEAR CREEK REDWOODS, 2019

Direct-seeded tree basins were planted to mitigate tree removals associated with the Bear Creek Redwoods parking lot. Performance criteria for the county mitigation requirements have been met. Performance criteria for CDFW mitigation requirements were ongoing and completed by 2024.

MUD LAKE MITIGATION SITE, BEAR CREEK REDWOODS, 2019-2020

Nursery grown shrubs, vines, and direct-seeded tree basins were planted at two locations adjacent to Upper Lake at Bear Creek Redwoods Preserve to mitigate impacts to vegetation associated with the Mud Lake Improvements Project. Additional direct-seeded tree basins were installed offsite at the Bear Creek Redwoods Tree Farm Mitigation Site. Performance criteria for permit mitigation requirements were ongoing and completed by 2024.

UPPER LAKE MITIGATION SITE, BEAR CREEK REDWOODS, 2022

Nursery grown vines and wetland plugs were planted at Upper Lake to mitigate impacts to vegetation associated with the Upper Lake Enhancement Project. Performance criteria for permit mitigation requirements are ongoing and slated to be completed by 2027.

WEBB CREEK BRIDGE REPLACEMENT MITIGATION SITE, BEAR CREEK REDWOODS, 2018

Nursery grown perennials, shrubs, and trees were planted at the Webb Creek Bridge Replacement Project Site to mitigate impacts to vegetation associated with the project. Performance criteria for permit mitigation requirements were completed by 2023.

MADONNA CREEK RANCH RESTORATION MITIGATION SITE, MIRAMONTES RIDGE, 2021

Willow stakes were planted to restore vegetation at the Madonna Creek Ranch Dump Clean-Up Site. Performance criteria for permit mitigation requirements were completed by 2023.

STEVENS CREEK NATURE TRAIL BRIDGES MITIGATION SITE, MONTE BELLO, 2020

Nursery grown perennials, shrubs, and trees were planted to mitigate impacts to vegetation that occurred during the construction of two bridges along the Stevens Creek Nature Trail. Performance criteria for permit mitigation requirements are ongoing and slated to be completed by 2028.

HARKINS BRIDGE MITIGATION SITE, PURISIMA CREEK REDWOODS, 2019

Willow stakes and nursery grown perennials, shrubs, and trees were planted at the Harkins Bridge Replacement Project Site to mitigate impacts to vegetation that occurred during bridge removal and replacement activities. Performance criteria for permit mitigation requirements were completed by 2024.

RAVENSWOOD BAY TRAIL CONNECTION PROJECT MITIGATION SITE, RAVENSWOOD, 2019

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

Nursery grown grasses, perennials, and shrubs were planted along the Ravenswood Bay Trail to mitigate impacts that occurred during implementation of the Ravenswood Bay Trail Connection Project. Performance criteria for permit mitigation requirements were completed by 2024.

 MINDEGO PONDS ENHANCEMENT MITIGATION SITE, RUSSIAN RIDGE, 2020

Salvaged wetland plugs were planted to restore vegetation at the Mindego Ponds Enhancement Project at Kneudler Lake. Performance criteria for permit mitigation requirements were completed by 2023.

 HENDRYS CREEK MITIGATION SITE, SIERRA AZUL, 2018-2019

Nursery grown perennials, shrubs, and trees were planted to mitigate shrub and tree removal during site restoration activities. Permit mitigation requirements were completed by 2023.

 MT. UMUNHUM TRAIL BRIDGES MITIGATION, SIERRA AZUL, 2016-2017

Direct-seeded tree basins and nursery grown perennials and shrubs were planted along the Mt. Umunhum Trail and at an offsite mitigation site along the Woods Trail to mitigate the removal of trees during the installation of three bridges along the Mt. Umunhum Trail. Performance criteria for permit mitigation requirements were not achieved in Year 5, 2022, therefore mitigation monitoring and reporting was extended for 3 additional years through 2025.

 MT. UMUNHUM SUMMIT, SIERRA AZUL, 2017-2020

Nursery grown perennials, shrubs, and trees were planted to restore the vegetation at Mt. Umunhum Summit. Performance criteria outlined in the Mt. Umunhum Summit Vegetation Restoration Plan is ongoing and is slated to be completed by 2027.

2022-23 Comprehensive Ecologically Sensitive Vegetation Management

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