

**San Diego Association of Governments (SANDAG)
Memorandum of Understanding (MOU) #5004552**

**Strategic Control of Invasive Weed Species
2nd Quarter Report - FY 2023-24: Report #36 for Project**

October 1st, 2023 – December 31st, 2023

Project: County of San Diego, Department of Agriculture, Weights & Measures –
Strategic Removal of Invasive Weed Species

To: Kim Smith
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Project:

Invasive plants are considered one of the biggest threats to endangered species and their habitats. A strategic plan for managing non-native invasive plant species in San Diego County was completed in 2012 through a SANDAG contract to the Conservation Biology Institute (CBI) (<http://sdmmp.com>). The Invasive Plant Strategic Plan (IPSP) is designed to develop a strategic approach towards the eradication and management of invasive plants in the San Diego region. The IPSP is meant to work in conjunction with the Management Strategic Plan for Conserved Lands in Western San Diego County (MSP) ([Management Strategic Plan](#)).

This Scope of Work will require the contractor to focus on the management of invasive plants identified in Levels 1, 2, and 3 of the IPSP. The following tasks have been identified as necessary to implement this effort:

This quarterly report covers work funded through the SANDAG Contract, which allowed work to occur from October 1st to December 31st 2023.

TASK 1 – Invasive Plant Species Coordinator:

Level of Effort: (25%) of overall contract

Right of Entry (ROE) work and coordination with property owners and crews:

Coordination with property owners, land managers and AWM crew occurred throughout the quarter. This supported work this quarter and preparation for the next quarter.

The coordinator worked on multiple species at sites across the county:

Current work sites were visited and assessed. These included: Limonium, Ward's Weed, Canary Island Saint John's Wort, Barbed Goatgrass, Arundo, and Stinknet.

Regulatory permits:

No new work.

Report preparation:

The quarterly report was prepared and submitted. Work on the contract completion report also occurred.

Mapping and occurrence data:

Reviewing iNaturalist EDRR observations (confirming and correcting IDs), as well as mapping and surveying for new populations occurred. GIS coverage of all sites was updated (points). GIS coverage of all work was updated (polygons).

Work plan:

Work crew species and sites to be treated was updated.

TASK 2 – AWM: Invasive Plant Level 1 Management

Level of Effort: (<10%) of overall contract.

Level 1 Management Species are EDRR targets that were **not known to occur** in the county when the IPSP was written (2012).

Crews surveyed and treated one level 1 species this quarter: Desert Knapweed. Maps for site show treated areas (red polygons) and surveyed areas as white lines which track pathways used by crews to survey and control plants. AWM IPC carried out optimal plant control, either hand pulling or using pesticide applications, protected the natural environment by preventing off-site movement of pesticides, and utilized Best Management Practices (BMPs) that prevented unintentional discharges to surface waters. For each site, AWM IPC followed the following procedures:

1. Identified the pest species to be treated.
2. Reviewed site conditions, such as soil texture, slope, standing water, irrigation or storm drains.
3. Identified and avoided streamside management areas and surface waters to prevent drift and application of pesticides not labeled for aquatic use onto surface waters.
4. Identified most appropriate method of control based on integrated pest management methods, designed to minimize the scale and number of pesticide applications.
5. Applied the least persistent and least toxic pesticide that effectively mitigates the target pest.

Table 1. Summary of treatments performed by AWM on Level 1 species this quarter.

Scientific Name	Common Name	# of Sites Worked	Acres Treated	Acres Surveyed	Plants Controlled
<i>Volutaria tubuliflora</i>	Desert Knapweed	3	0.3	1.75	90

Voluntaria tubuliflora, Voluntaria Knapweed:

Table 2. Summary of treatments performed by AWM on *Voluntaria tubuliflora* (Desert Knapweed).

Site Name	Common Name	# of Work Cycles	Acres Surveyed	Acres Treated	Plants treated
Site #1: Rice Canyon, Chula Vista	Desert Knapweed	2	0.1	1.0	50 pulled

The AWM crew (two workers) visited this site on October 25th 2023. Scattered seedlings (50) were hand pulled. Pre-emergent was applied. This site has nearly reached eradication, 99% of plants have been controlled.

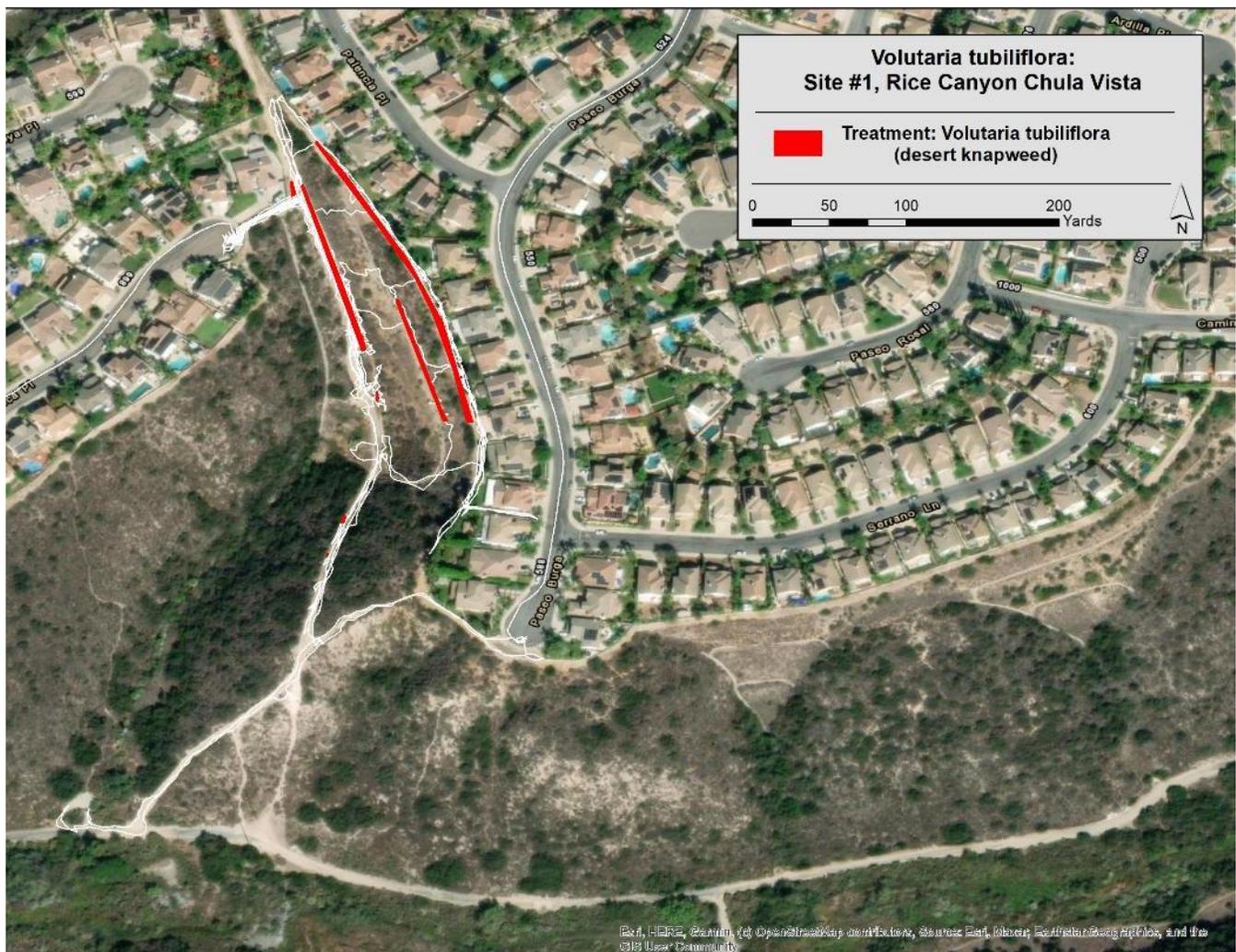


Table 3. Summary of treatments performed by AWM on *Volutaria tubuliflora* (Desert Knapweed).

Site Name	Common Name	# of Work Cycles	Acres Surveyed	Acres Treated	Plants treated
Site #3 Campo Road	Desert Knapweed	1	0.1	0.25	5 pulled

The AWM crew (two workers) visited this site on November 1st 2023. Scattered seedlings (5) were hand pulled. Pre-emergent was applied. This site has nearly reached eradication, 99% of plants have been controlled.



TASK 3 – AWM: Invasive Plant Level 2 Management.

Level of Effort: (>40%) of overall contract

Level 2 Management Species are EDRR targets that were of limited distribution in the county when the IPSP was written (2012).

Crews surveyed and treated six invasive weed species (Eupatory, Ward’s Weed, Bridal Broom, French Broom, Algerian Sea Lavender, and European Sea lavender) at eleven sites this quarter. AWM IPC made optimal pesticide applications, protected the natural environment by preventing off-site movement of pesticides, and utilized Best Management Practices (BMPs) that prevented unintentional discharges to surface waters. For each site, AWM IPC followed the following procedures:

1. Identified the pest species to be treated.
2. Reviewed site conditions, such as soil texture, slope, standing water, irrigation or storm drains.
3. Identified and avoided streamside management areas and surface waters to prevent drift and application of pesticides not labeled for aquatic use onto surface waters.
4. Identified most appropriate method of control based on integrated pest management methods, designed to minimize the scale and number of pesticide applications.
5. Applied the least persistent and least toxic pesticide that effectively mitigates the target pest.

Table 5. Summary of treatments performed by AWM on Level 2 species this quarter.

Scientific Name	Common Name	# of Sites Worked	Acres Treated	Acres Surveyed	Plants Controlled
<i>Ageratina adenophora</i>	Eupatory	2	0.8	4.9	2,450
<i>Carrichtera annua</i>	Ward’s Weed	1	1.2	2.7	Pre-emergent
<i>Genista monosperma</i>	Bridal Broom	1	0.1	2.0	125
<i>Genista monspessulana</i>	French Broom	2	0.9	4.8	3,050
<i>Limonium duriusculum</i>	European Sea Lavender	2	2.7	6.7	24,000
<i>Limonium ramosissimum</i>	Algerian Sea Lavender	2	0.4	2.7	1,400

Ageratina adenophora, Eupatory:

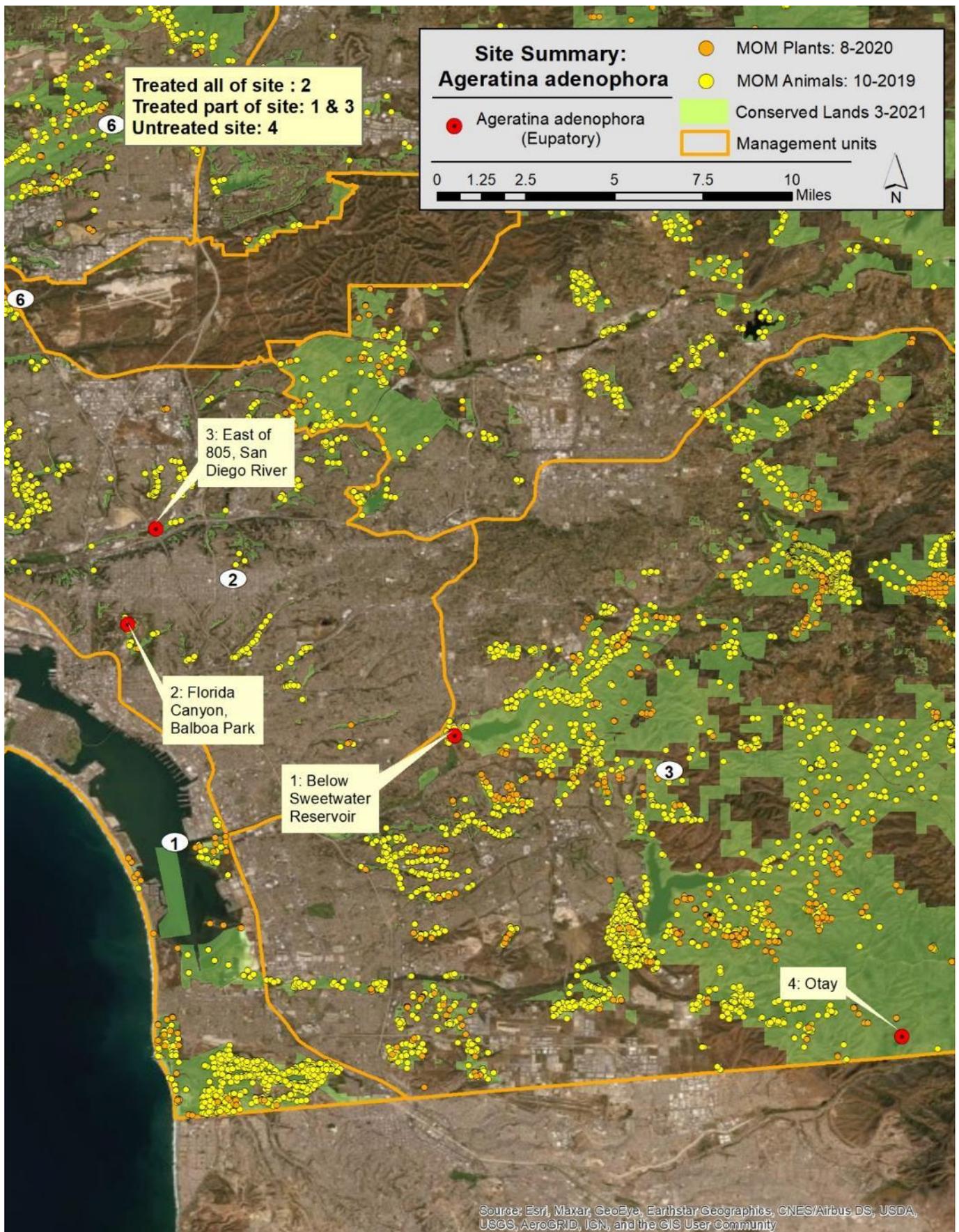


Table 6. Summary of treatments performed by AWM on *Ageratina adenophora*, Eupatory:

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #1: Sweetwater Reservoir	Eupatory	1	0.4	3.1	650

550 Eupatory plants were foliar treated in the reservoir area by a crew of two on November 12th and 13th, 2023 with glyphosate/imazapyr. Past treatment of the site: fall of 2015 (4,000 plants), 2016, 2018 (455 plants), 2019 (900 plants) and 2022 (700 plants). The population is smaller and less robust, but very persistent. A new downstream area with 100 plants was also treated by one crew member on November 14th 2023.



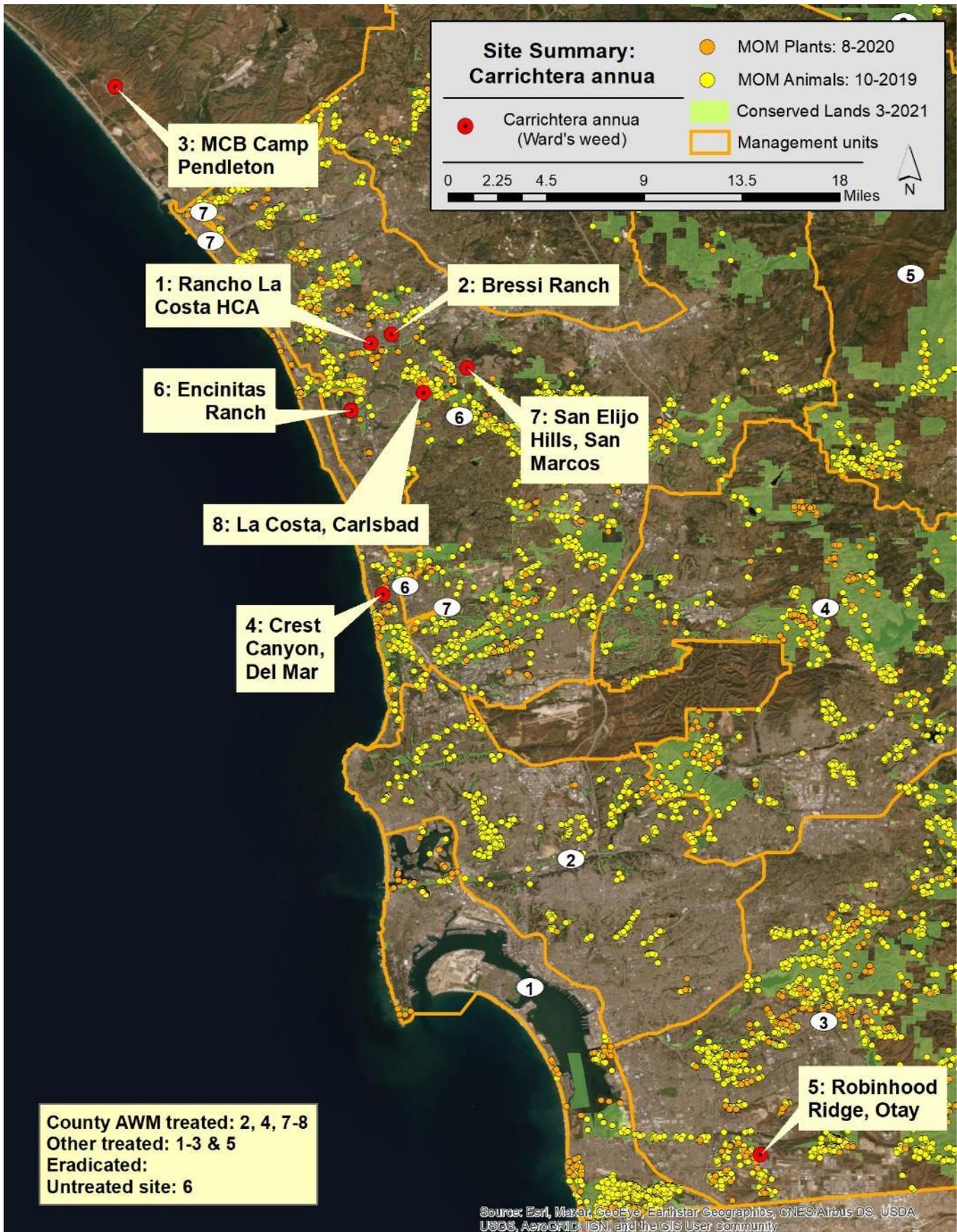
Table 7. Summary of treatments performed by AWM on *Ageratina adenophora*, Eupatory:

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #2: Balboa Park	Eupatory	1	0.4	2.0	1,800

1,500 Eupatory plants were foliar treated with glyphosate/imazapyr by a crew of one on October 6th. These plants were in a newly treated upstream area. 300 plants were treated in the downstream area by a crew of two on October 10th 2023. This population is smaller and less robust, but very persistent (past treatments: 250 in 2022, 250 in 2021, 520 in 2020, and 1,350 in 2019).



Carrichtera annua, Ward's Weed:



Carrichtera annua, Ward’s Weed, Site #2 Bressi Ranch

Table 8. Summary of treatments performed by AWM on *Carrichtera annua*, Ward’s Weed.

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #2 Bressi Ranch, Carlsbad	Wards Weed	1	1.2	2.7	Pre-emergent:

The Bressi Ranch (City of Carlsbad) Ward’s Weed site is a very large site (>200 acres) covering rolling hills with many property owners (city, open space, and private yards). A group collaboration has been working on the site since 2019: City of Carlsbad and The Nature Collective are working on the northern and western portions of the site and County AWM has worked on the southern and eastern portions of the site. CNLM is taking the lead on the eastern La Costa Greens site.

The County AWM crew (2 personnel) spent October 30th and 31st 2023 spreading granular pre-emergent. The seedbank is surprisingly persistent.



Genista monosperma, Bridal Broom:

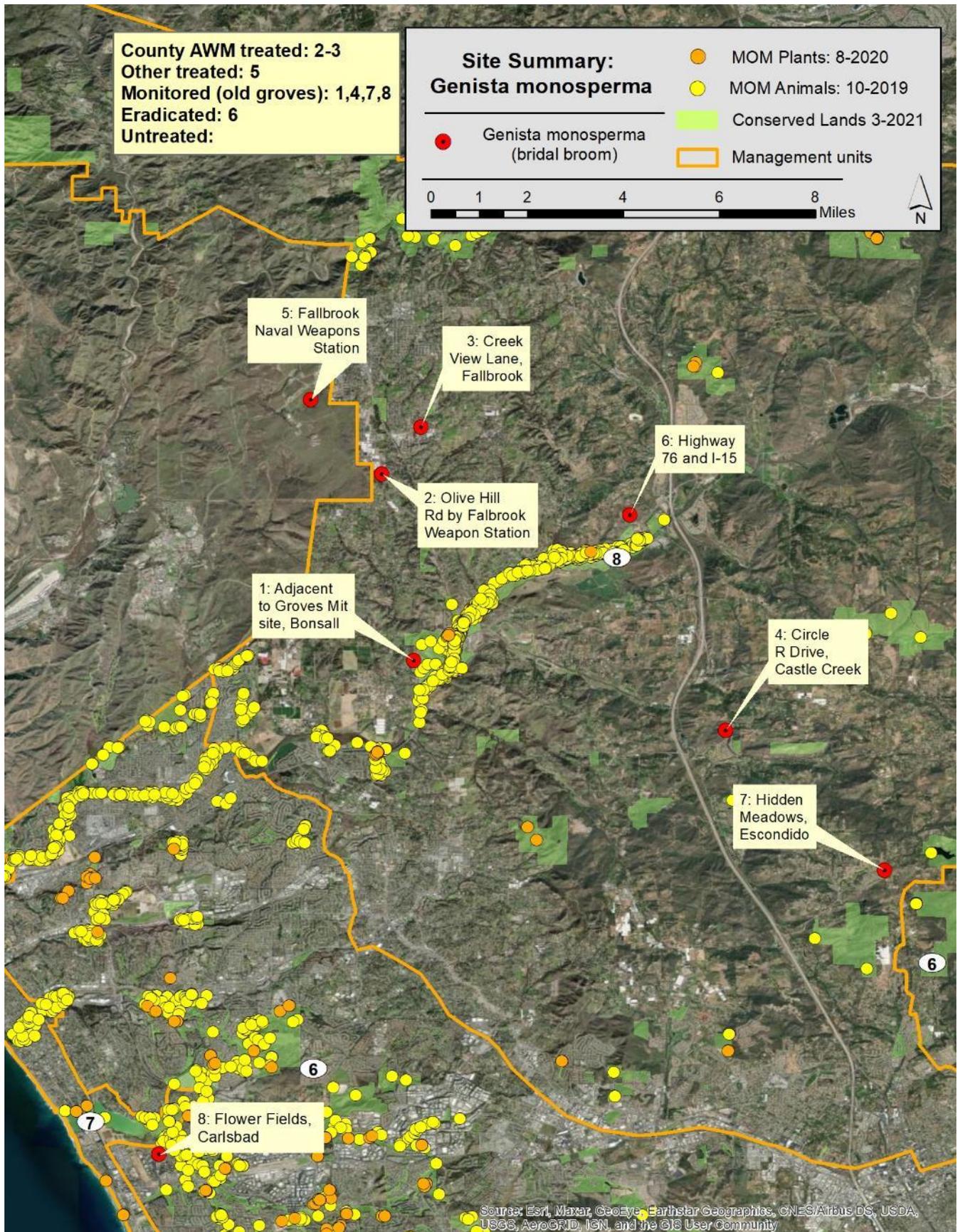
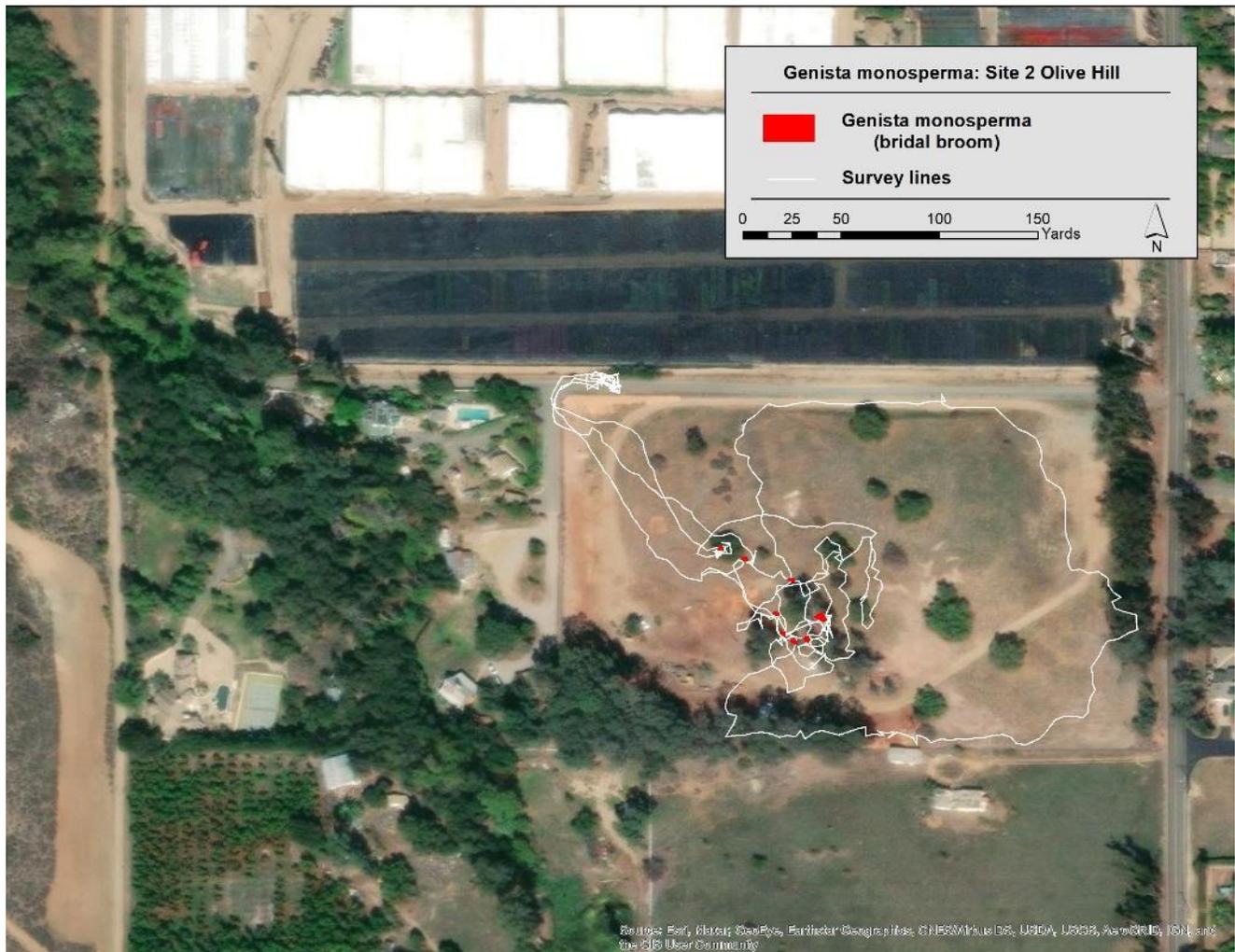


Table 9. Summary of treatments performed by AWM on *Genista monosperma*, Bridal Broom:

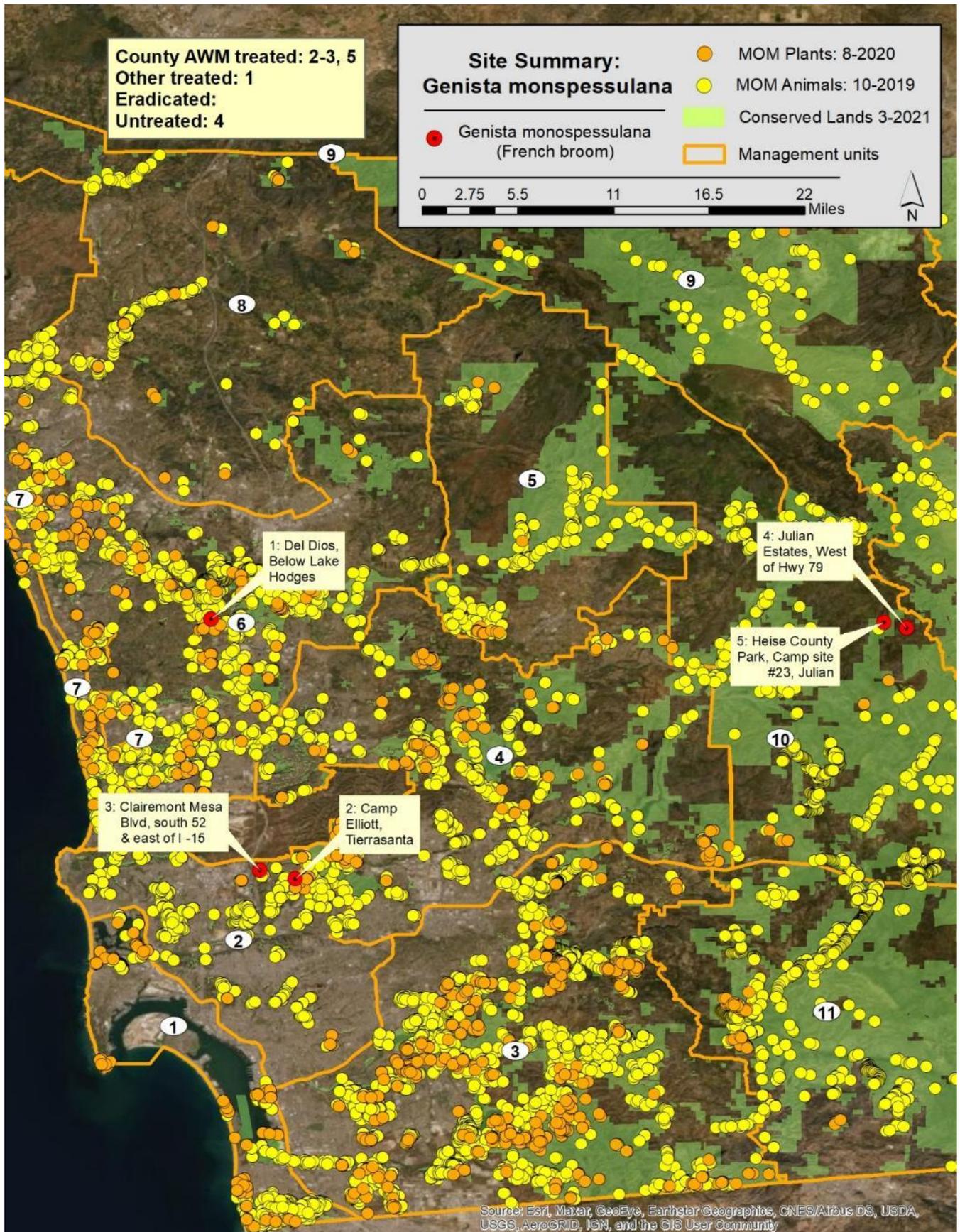
Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
<i>Site #2 Olive Hill Rd</i>	Bridal Broom	1	0.1	2.0	125

***Genista monosperma*, Bridal broom: Site #2 Olive Hill Rd**

125 seedlings were treated with post emergent herbicide. A crew of two individuals worked one day October 20th 2023. 80 seedlings were treated last year.



Genista monspessulana, French Broom:

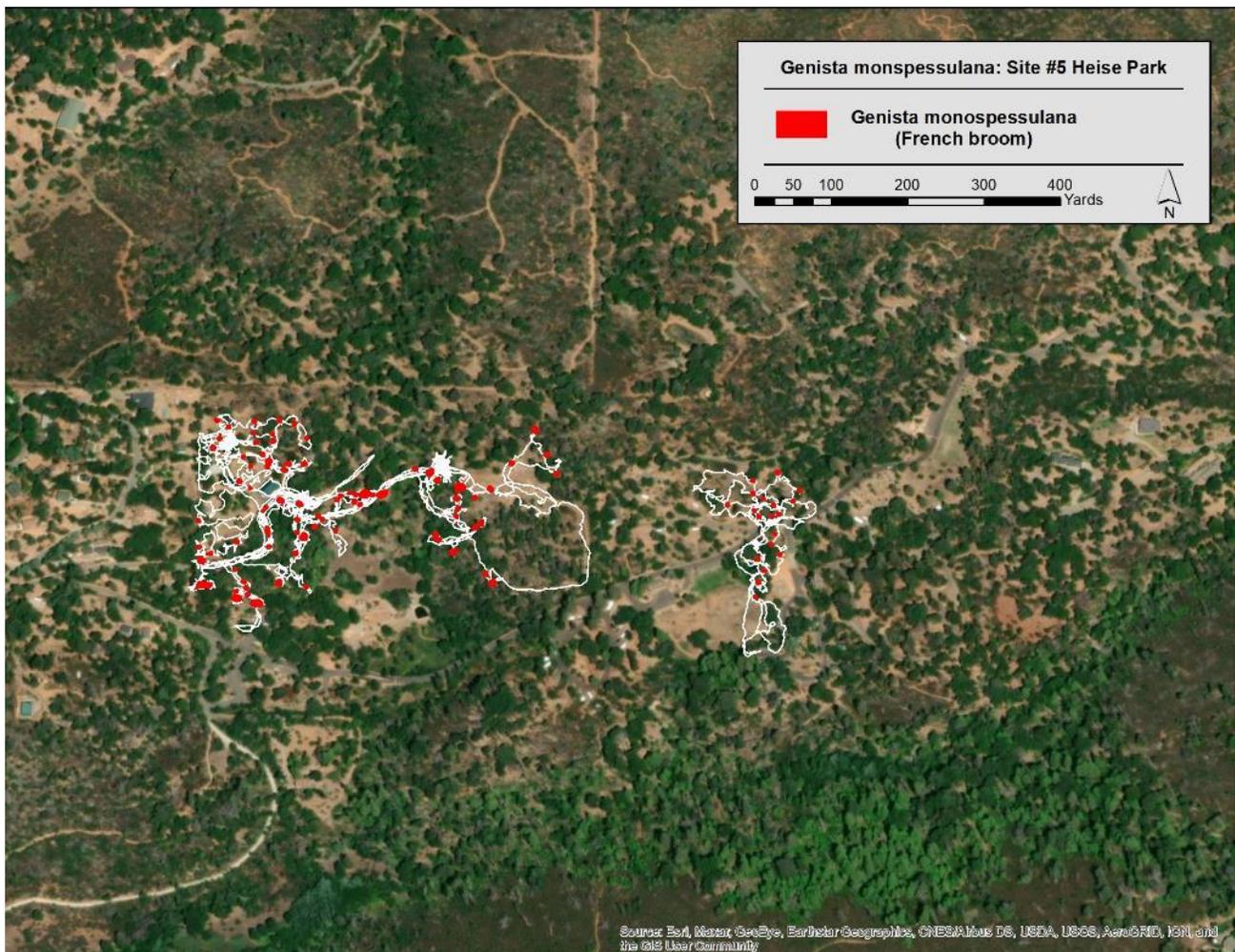


***Genista monspessulana*, French broom: Site #5 Heise County Park, Julian.**

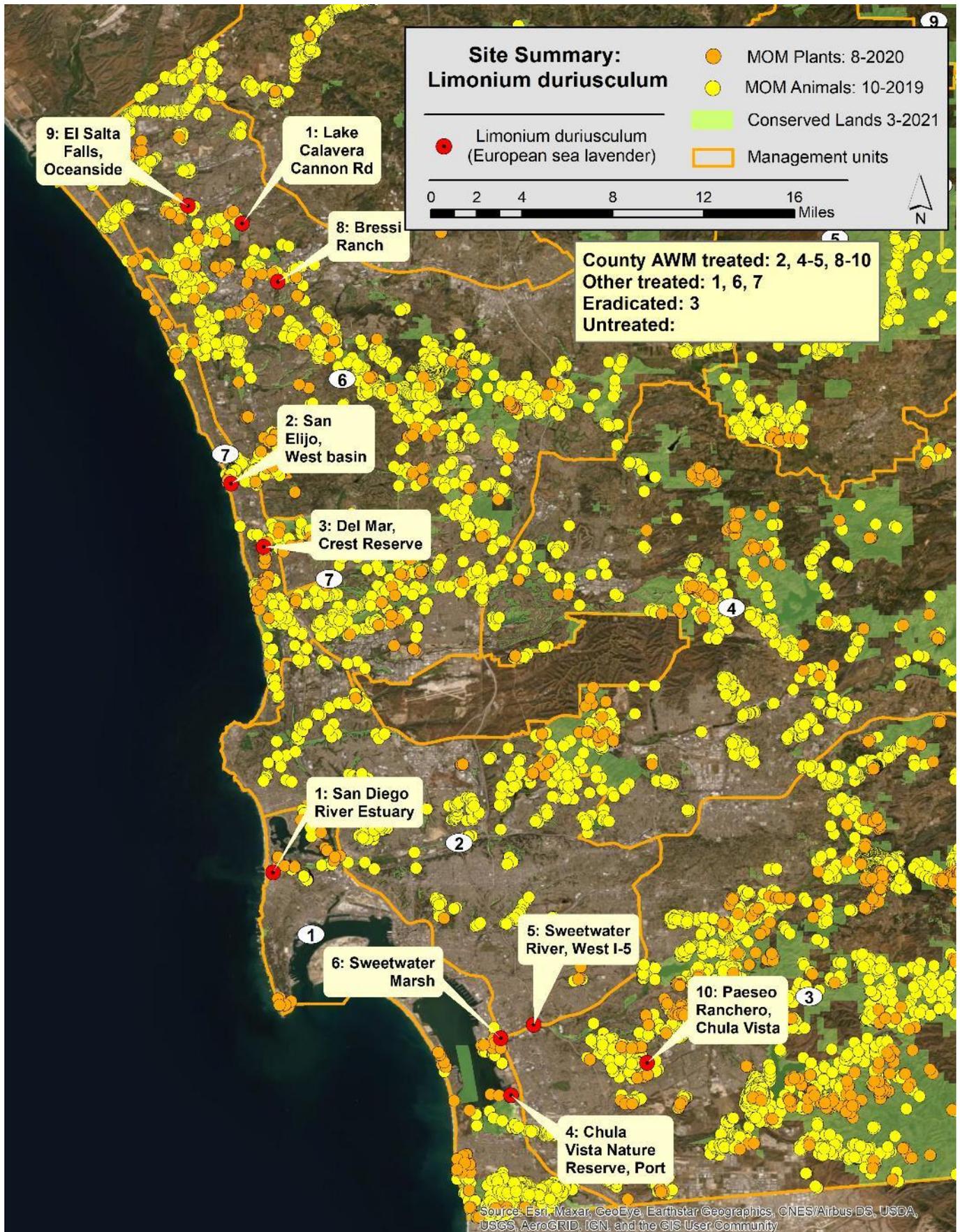
Table 10. Summary of treatments performed by AWM on *Genista monspessulana*, French Broom.

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #5 Heise County Park	French Broom	1	1.3	5.6	4,900

An additional 2,500 seedlings were foliar treated with triclopyr by a crew of two over 4 days between October 2nd and 9th 2023. 2,400 scattered seedlings and small plants were foliar treated with triclopyr in the previous quarter. 1,518 plants were controlled in 2022 and 2,335 plants were controlled in 2021.



Limonium duriusculum, European Sea Lavender:



Limonium duriusculum, European Sea Lavender: Site #5 Sweetwater River, Chula Vista

Table 11. Summary of treatments performed by AWM on *Limonium duriusculum* (European Sea Lavender).

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #5 Sweetwater River, Chula Vista	European Sea Lavender	1	0.6	1.5	5,000

5,000 plants were foliar treated by a crew of one individual over three days (November 3rd to 7th 2023) using a mix of post emergent herbicides.



Limonium duriusculum, European Sea Lavender: Site #6 Chula Vista Nature Reserve, Port SD

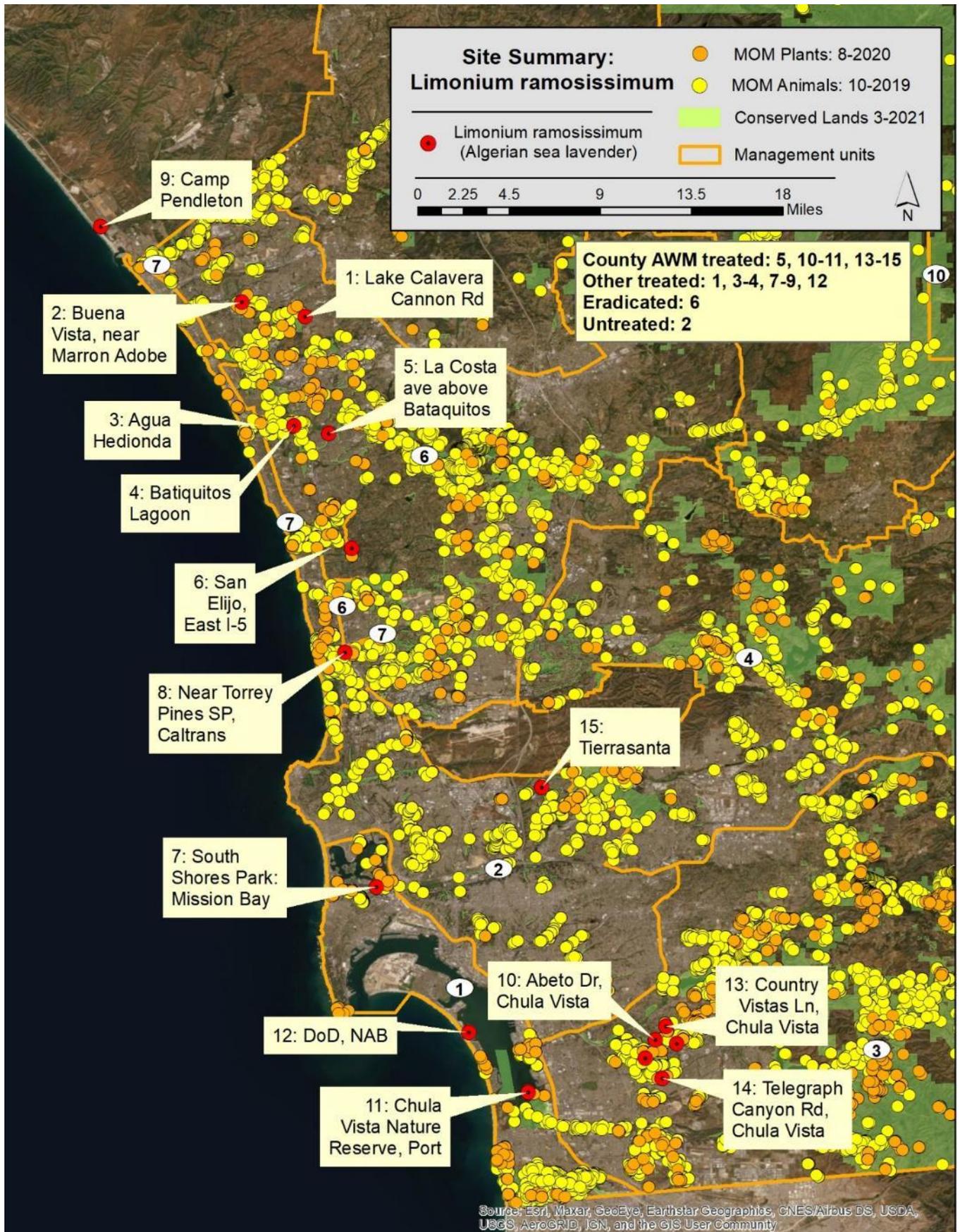
Table 12. Summary of treatments performed by AWM on *Limonium duriusculum* (European Sea Lavender).

Site Name	Common Name	# of Work Cycles	Acres Surveyed	Acres Treated	Plants treated
Site #6, CVNR, Port SD	European Sea Lavender	1	0.3	3.8	19,000

19,000 mature plants and seedlings were treated. These numbers are high as an area above the creek outfall was re-treated. There was dense cover of small plants on this bench. This area may not be developed when the larger upland site is modified, so it seemed good to treat it. A crew of two individuals worked 10 days from November 29th to December 7th 2023. The crew now uses an herbicide mix (glyphosate and imazapyr) to hopefully obtain better control, but the seedbank is very persistent. Some tarping is occurring on the west side of the distribution, but strong winds tend to lift the tarps.



Limonium ramosissimum, Algerian Sea Lavender:



Limonium ramosissimum, Algerian Sea Lavender: Site #11 Chula Vista Nature Reserve

Table 13. Summary of treatments performed by AWM on *Limonium ramosissimum* (Algerian Sea Lavender).

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #11 CVNR, Chula Vista	Algerian Sea Lavender	1	0.2	2.0	750

Treatments in 2023 were by a crew of three on one day December 8th 2023. Overall plant cover is definitely reduced, by over 90%, but ongoing treatments are needed to fully deplete the seedbank. 980 plants were treated in February 2022.

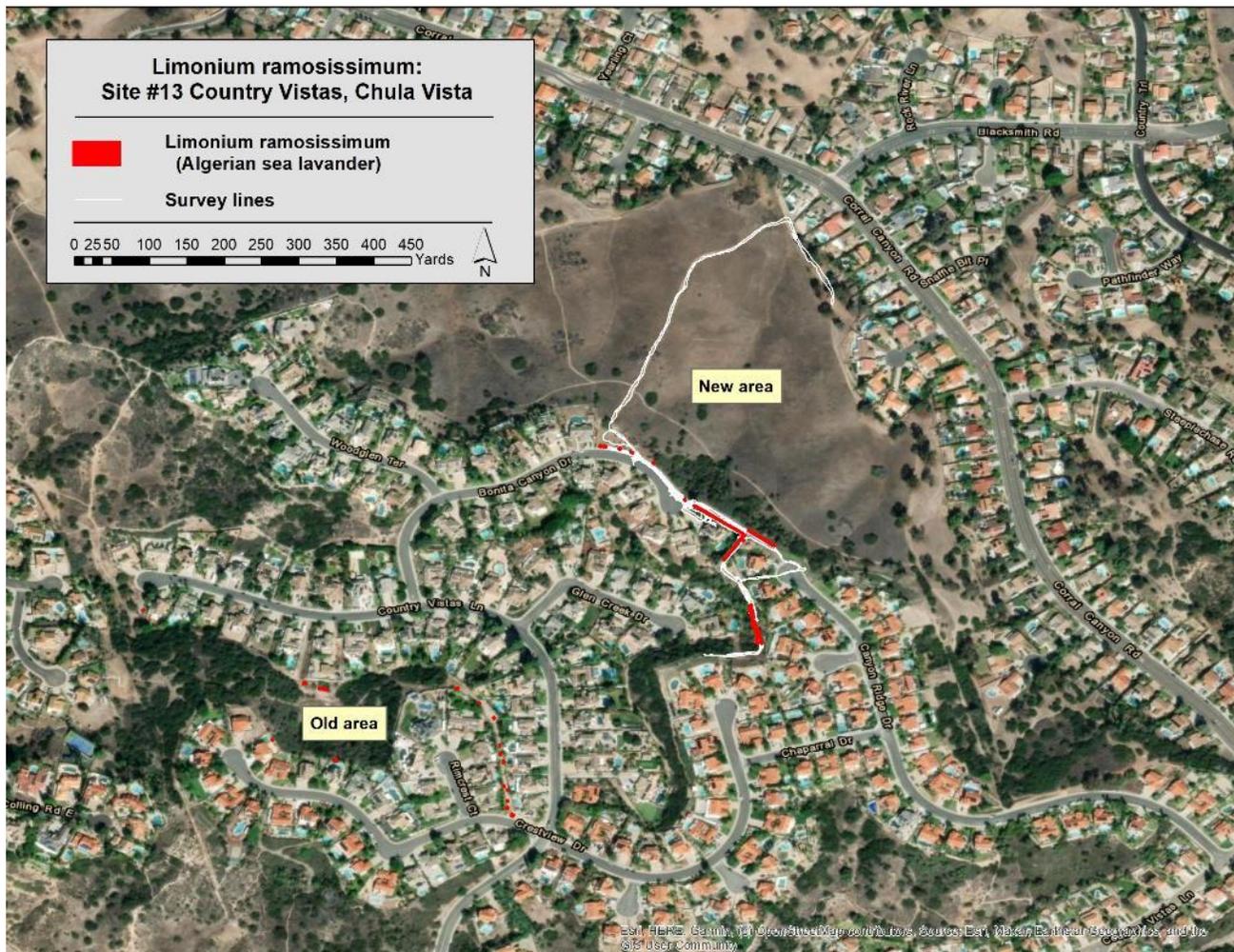


Limonium ramosissimum, Algerian Sea Lavender: Site #13 Country Vistas, Chula Vista

Table 14. Summary of treatments performed by AWM on *Limonium ramosissimum* (Algerian sea lavender).

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #13 Country Vistas, Chula Vista	Algerian Sea Lavender	1	0.2	0.7	550

This is a newly treated area, reported on iNaturalist. It is east of the older treatment site. Treatments in 2023 were by a crew of two on two days October 18th and 19th 2023.



TASK 4 – AWM: Invasive Plant Level 3 Management.

Level of Effort: (<20%) of overall contract

Level 3 Management Species are invasive non-native targets that of a wider distribution in the county (they cannot be eradicated), but still limited enough that they can be contained to portions of the county or they may be eradicated from watersheds or large landscape level units, when the IPSP was written (2012). These species may also be worked on to suppress them in high resource value areas.

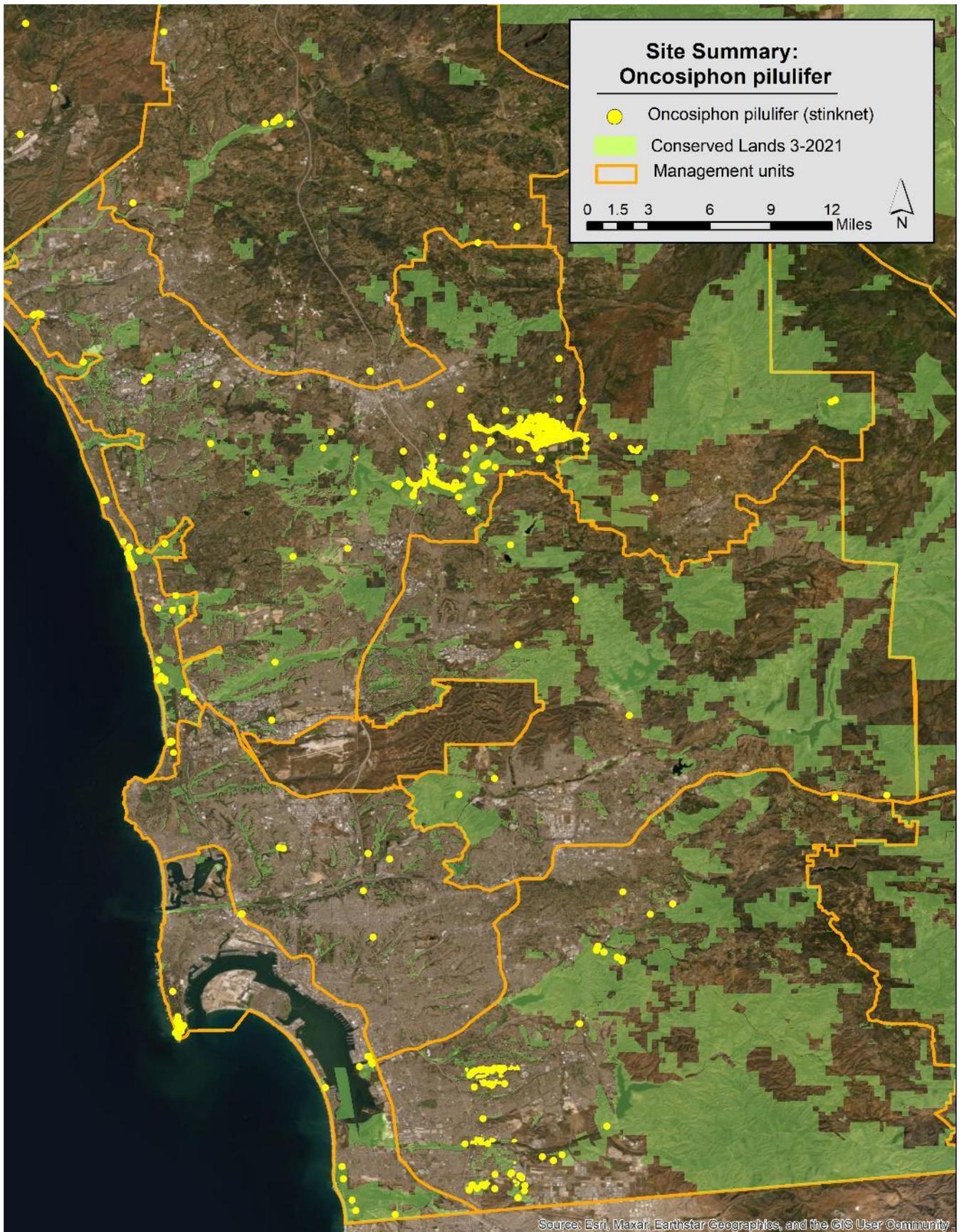
Crews surveyed and treated one invasive weed species (Stinknet) at one site this quarter. AWM IPC made optimal pesticide applications, protected the natural environment by preventing off-site movement of pesticides, and utilized Best Management Practices (BMPs) that prevented unintentional discharges to surface waters. For each site, AWM IPC followed the following procedures:

1. Identified the pest species to be treated.
2. Reviewed site conditions, such as soil texture, slope, standing water, irrigation or storm drains.
3. Identified and avoided streamside management areas and surface waters to prevent drift and application of pesticides not labeled for aquatic use onto surface waters.
4. Identified most appropriate method of control based on integrated pest management methods, designed to minimize the scale and number of pesticide applications.
5. Applied the least persistent and least toxic pesticide that effectively mitigates the target pest.

Table 15. Summary of treatments performed by AWM on Level 3 species this quarter.

Scientific Name	Common Name	# of Sites Worked	Acres Treated	Acres Surveyed	Plants Controlled
<i>Oncosiphon pilulifer</i>	Stinknet	1	1.0	1.0	None germinated

Oncosiphon pilulifer, Stinknet:



Oncosiphon pilulifer, Stinknet: Site #1 Furby-North, Otay West

Table 16. Summary of treatments performed by AWM on *Oncosiphon pilulifer* (Stinknet).

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #1 Furby-North, Otay West	Stinknet	1	0.5	0.5	2,000+

The County AWM crew completed treatments on an area below the communication towers at Furby-North County Preserve. This complimented work that occurred to the east on Caltrans and City of San Diego property. This effort is being initiated to suppress Stinknet in this portion of the county. The area is of high resource value with both vernal pools in the area (not part of this specific site) and occupied cactus wren habitat nearby. The crew foliar treated areas with pre and post emergent. Two crew members worked one day January 23rd 2022. Over 2,000 plants were treated.



TASK 5 – Coordinator: Tracking and Updating Invasive Species for Priority Removal.

Level of Effort: (5%) of overall contract

- Co-ordination to continue control of Ward’s Weed in Carlsbad.
- Co-ordination with the City of San Diego, considering control of Myoporum acuminatum.
- Surveying of reports from iNaturalist.
- Co-ordination with San Diego Weed Management Area at quarterly meeting.
- Co-ordination to survey and control European and Algerian Sea Lavender species in South San Diego Bay. Managers from FWS, DoD, SDMMP and CBI discussed expanded and coordinated surveying and treatment.

Work Anticipated for 2nd Quarter Period, October 1st – December 31st2023:

This work will be under a new Agreement.

Task 1 – Invasive Plant Species Coordinator:

- Coordinate ROE work with AWM, update database.
- Monitor and coordinate with AWM during implementation.
- Survey and map sites as needed.
- Prepare quarterly report.

Task 2 – AWM: Invasive Plant Level 1 Management.

- Survey, map, and treat any reported sightings of target Level 1 plants.
- Supervision of staff, provide training, guidance, and preparation for field work.
- Collect GIS treatment polygons and survey routes (lines) of targeted weeds.

Task 3 – AWM: Invasive Plant Level 2 Management.

- Survey, map, and treat any reported sightings of target Level 2 plants: spotted knap weed, yellow star thistle, and Limonium.
- Re-treatment of sites: Ward’s weed, Limonium, eupatory, and Volutaria.
- Supervision of staff, provide training, guidance, and preparation for field work.
- Coordinate and finalize tracking methods for work completed.
- Initiate and continue work outlined in work plan.
- Obtain signed ROEs.
- Collect GIS treatment polygons and survey routes (lines) of targeted weeds.

Task 4 – AWM: Invasive Plant Level 3 Management.

- No work planned.

Task 5 – Coordinator: Tracking and Updating Invasive Species for Priority Removal.

- Continue coordination with: Department of Defense, California State Parks, City Department of Parks and Recreation, San Diego Weed Management Area and County of Orange CNPS EDRR invasives group.
- Continue to aggregate data and track new prospective EDRR target species.
- Present at SDMMP land manager meeting, working group and other meetings as requested.
- Provide population status of EDRR regional targets to CDFA statewide assessment.