

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

**Strategic Control of Invasive Weed Species
*3rd Quarter Report - FY 2020-21: Report #25 for Project***

January 1st, 2021 – March 31st, 2021

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 January 1st to March 31st 2021.

Covid 19: The outbreak has modified work procedures. Small crews are continuing field work following County and State guidelines. County AWM is following these procedures as they complete work.

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.

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

Current work sites were visited and assessed. These included: Limonium, Volutaria, barbed goat grass, Canary Island St. John's wort, and Ward's weed sites.

Regulatory permits:

No new work.

Report preparation:

The quarterly report and contract completion #3 report were prepared.

Mapping and occurrence data:

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

Work plan:

Work plan for 2021 and 2022 is included in the Contract #3 final report.

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 two invasive weed species (barbed goatgrass and desert knapweed) at two sites this quarter. 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>Aegilops triuncialis</i>	Barbed goatgrass	1	6	6	>10,000
<i>Volutaria tubuliflora</i>	Desert knapweed	1	4.5	4.5	17 hand pull, Pre-emergent

Aegilops triuncialis (barbed goatgrass):

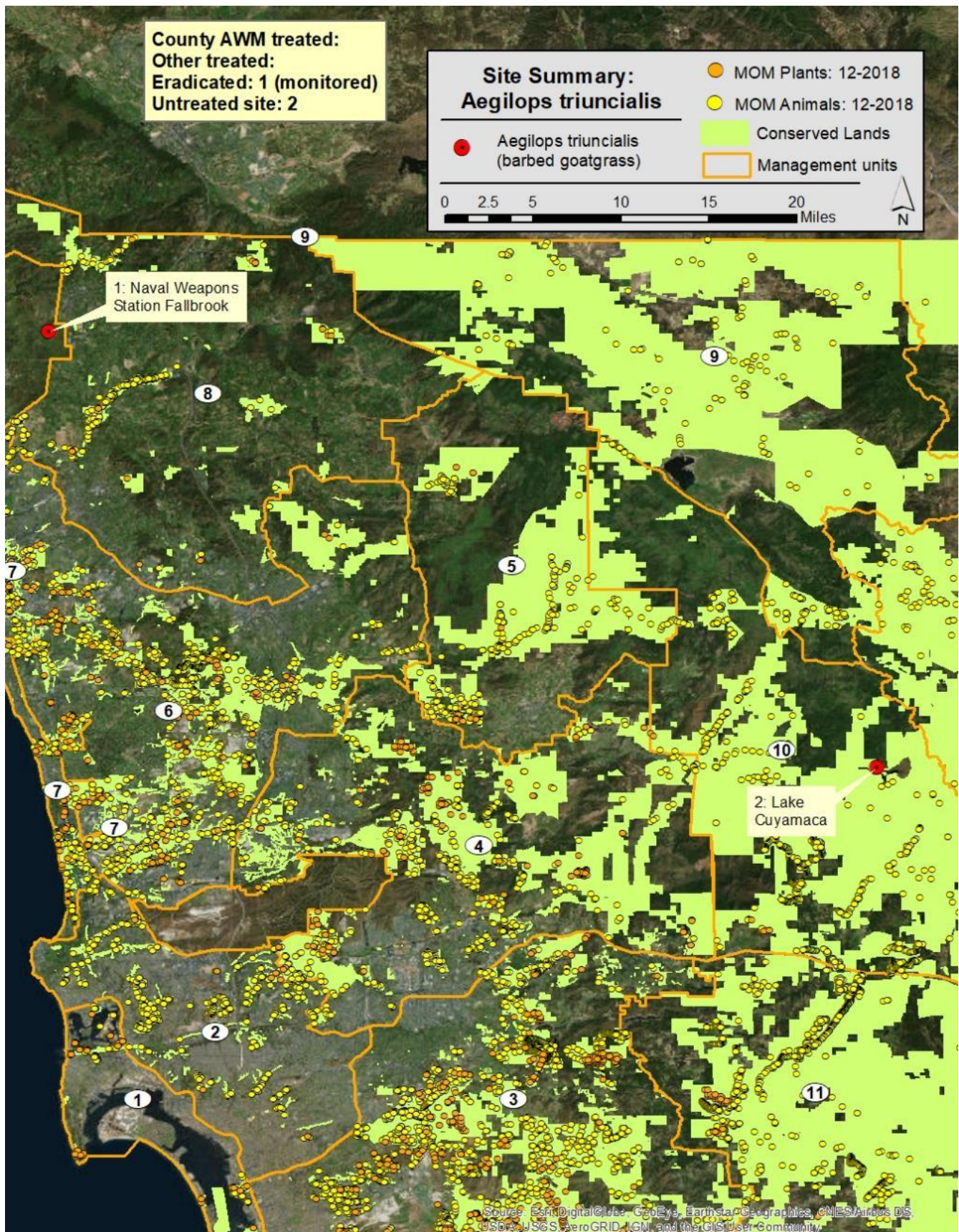


Table 2. Summary of treatments performed by AWM on *Aegilops triuncialis* (barbed goatgrass).

Work Site	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants Controlled
Site #2 Lake Cuyamaca	Barbed goatgrass	2	6	6	>10,000

***Aegilops triuncialis* (barbed goatgrass): Site #2 Lake Cuyamaca**

The County AWM crew completed the second treatment with Method herbicide using the split application method (first treatment was completed 11-2020). A crew of 3-4 worked 4 days, February 17, 19, 23 and 24th 2021. Barbed goat grass was observed in untreated areas at basal growth stage. Most areas treated in the November treatment had low cover.

A crew of 3-4 returned for three days on March 24-25-26th 2021 to carryout spot treatments using post emergent herbicide on observed plants and where Method could not be used (around woody plants). Approximately 470 plants were found and treated. This work was the final CDFA WMA funded effort. This site will have further SANDAG funded re-treatments in April or May.



***Volutaria tubuliflora*, *Volutaria knapweed*:**

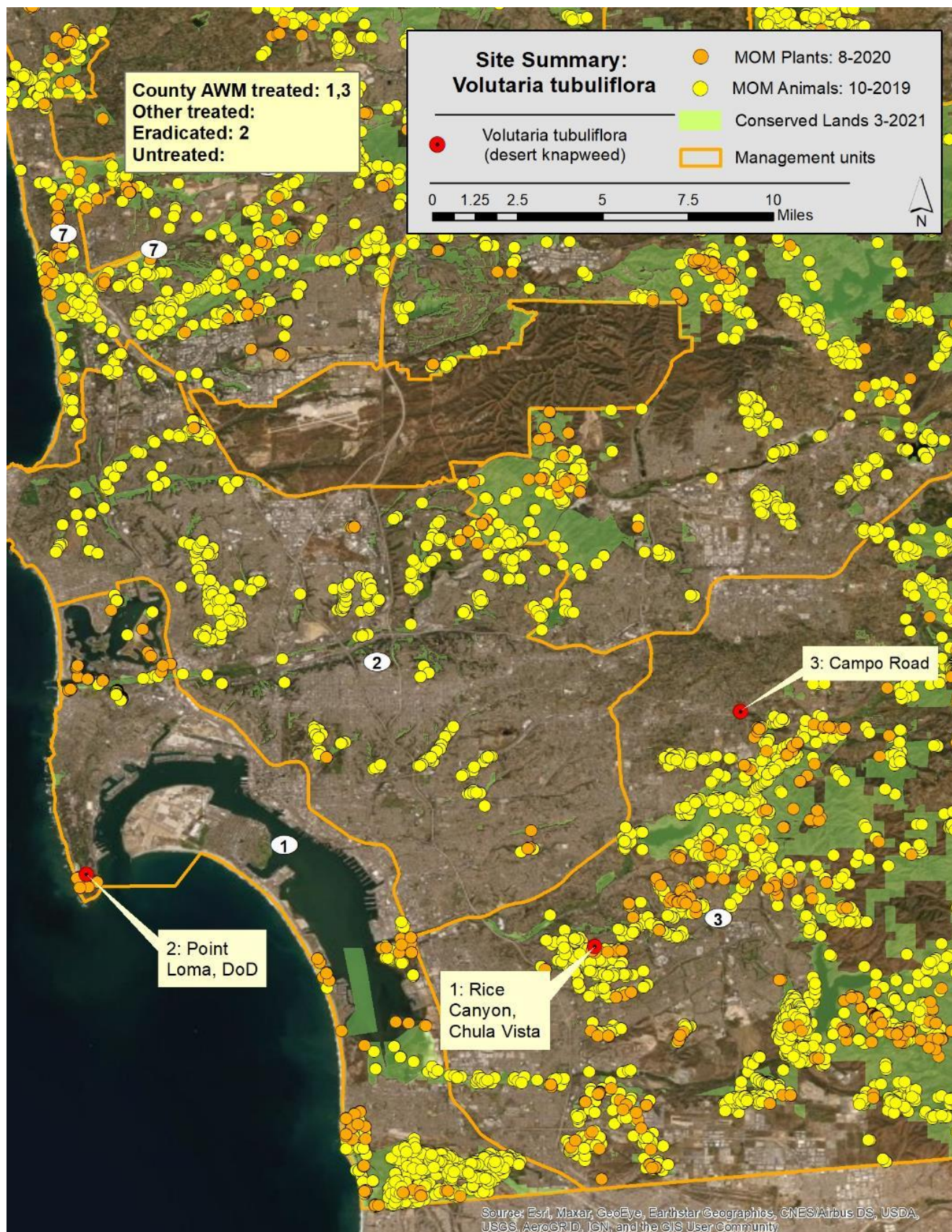


Table 3. Summary of treatments performed by AWM on Volutaria tubuliflora (Volutaria knapweed).

Site Name	Common Name	# of Work Cycles	Acres Surveyed	Acres Treated	Plants treated
Site #1: Rice Canyon, Chula Vista	Volutaria desert knapweed	1	2.0	0.1	17 pulled
Site #1: Rice Canyon, Chula Vista	Volutaria desert knapweed	1	4.5	4.5	Pre/post emergent

This was the fifth year of treating this site and the fourth year of applying preemergent. Rains were light and late in winter 2020-21. A first site visit over two days by a crew of one to two on February 19 & 22nd 2021 found 17 plants, these were pulled and bagged. A second round of pre/post emergent (Milestone) was applied in early spring on treatment areas by a crew of 2-3 individuals over six days March 12,15-19th 2021. This treatment controlled any late emerging seedlings in the second flush of plants. No Volutaria plants were specifically identified.

A new site was discovered in May 2021, this site is on Campo Road (site #3). 20 plants were pulled and bagged.



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 five invasive weed species (Ward's weed, French broom, Canary Island St John's wort, eupatory, and European sea lavender) at six 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 4. 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>Ageritina adenophora</i>	Eupatory	1	0.3	1.4	520
<i>Carrichtera annua</i>	Ward's weed	2	19.9	24.2	>50,000
<i>Genista monspessulana</i>	French broom	1	0.5	1.8	880
<i>Hypericum canariense</i>	Canary Island St. John's wort	1	0.9	4.5	1,725
<i>Limonium duriusculum</i>	European sea lavender	1	0.1	0.5	20

Ageratina adenophora, Eupatory:

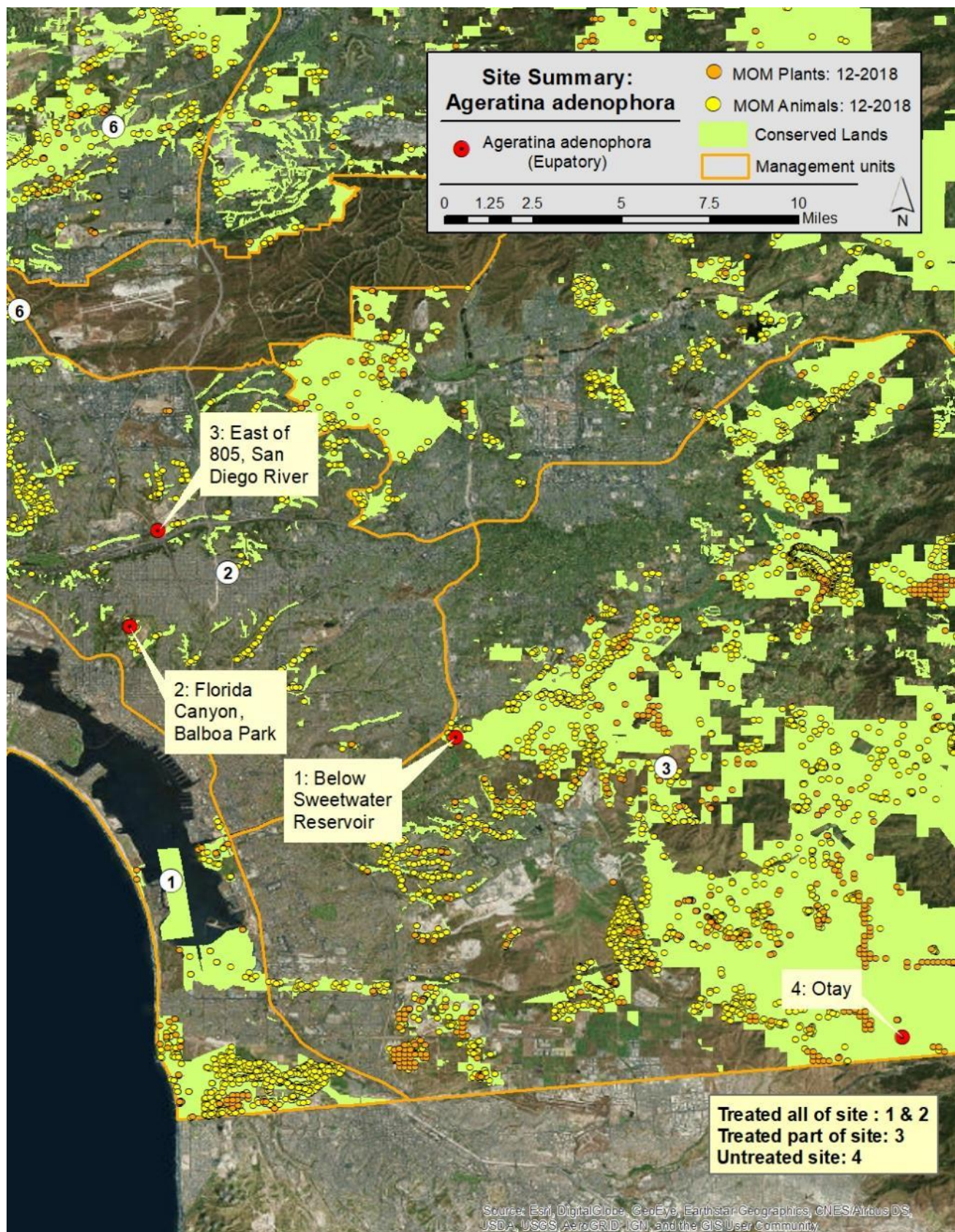
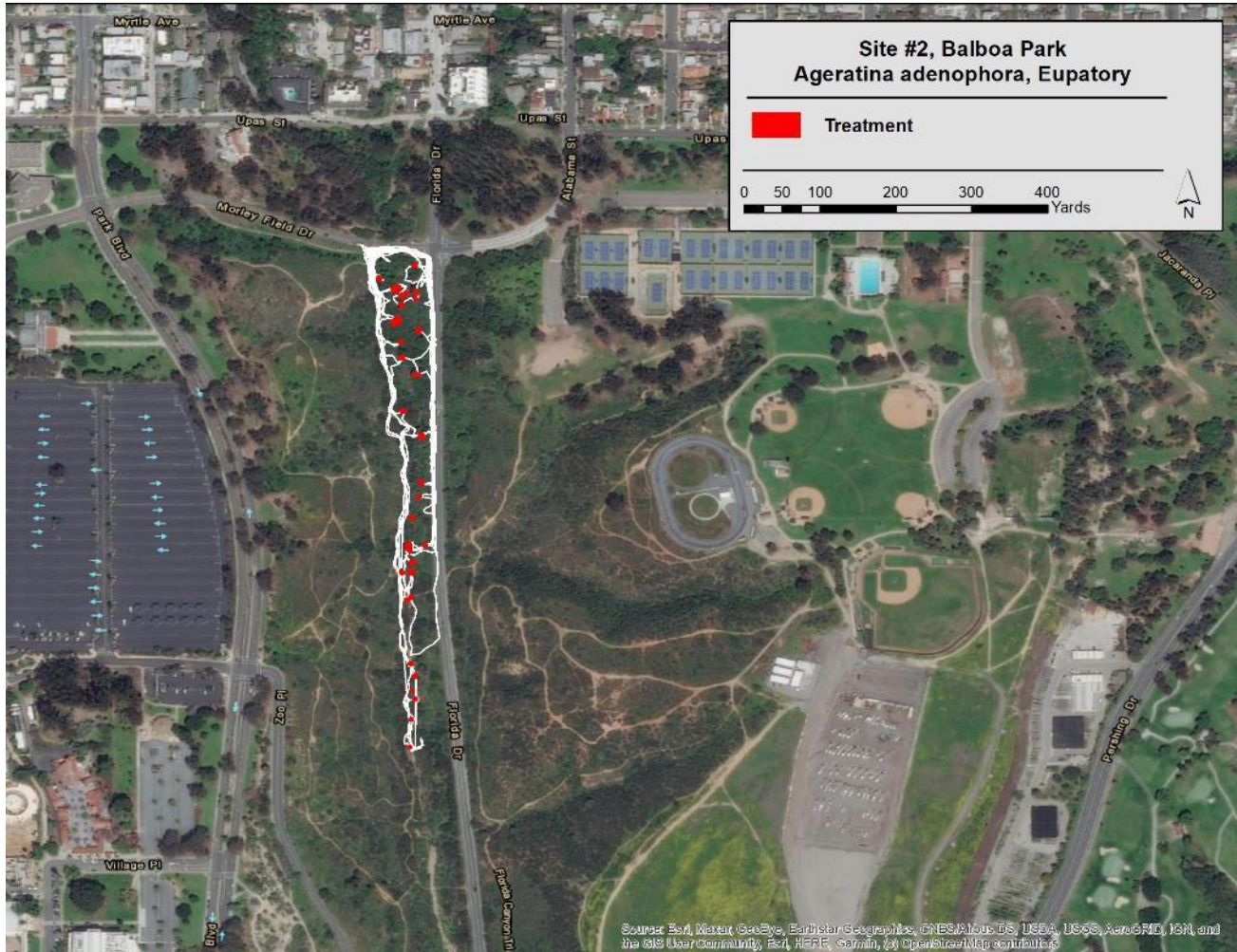


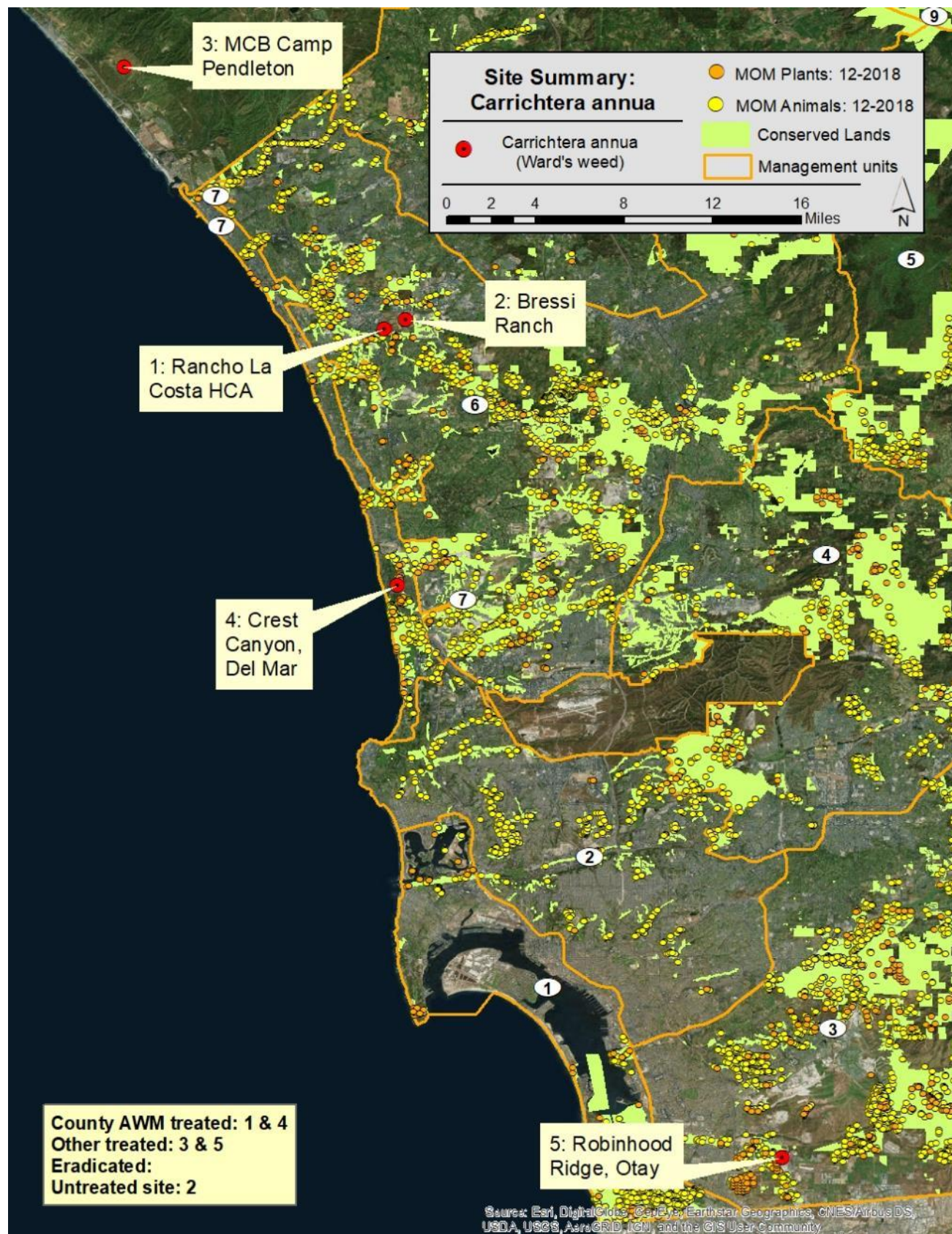
Table 5. Summary of treatments performed by AWM on *Ageratina adenophora*, Eupatory:

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #2: Balboa Park	Eupatory	1	0.3	1.4	520

520 eupatory plants were foliar treated with glyphosate/imazapyr (1,350 were treated the year before). A crew of three individuals worked two days on February 26th and March 2nd 2021.



Carrichtera annua, Ward's Weed:



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

Table 6. 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	19.1	23.4	Pre-emergent: >50,000

The Bressi Ranch in the City of Carlsbad Ward's weed site is a very large site (>100 acres) covering rolling hillsides with multiple property owners. A collaboration has started work on the site: City of Carlsbad and The Nature Collective are working on the northern and western portions of the site and County AWM has started on the southern and eastern portions of the site. CNLM is taking the lead on the western La Costa Greens site. A pre-emergent herbicide (Gallery) was applied to the sites.

Last quarter county AWM crews spent 13 days in December applying pre-emergent in two areas. This work continued in January and February with a crew of 2 to 5 treating two areas over 21 days. An additional day of spot treatments occurred on March 1st using post emergent herbicide. This CDFA funded work continued into April with additional post emergent spot treatments. Overall control seems very good. Plants are not germinating where preemergent was applied. Areas with plants were areas with erosion or where coverage was incomplete. Low rainfall this year allowed treatments longer in the season, but may also be hiding seedbank expression.



Carrichtera annua, Ward's Weed, Site #4 Crest Canyon, Del Mar

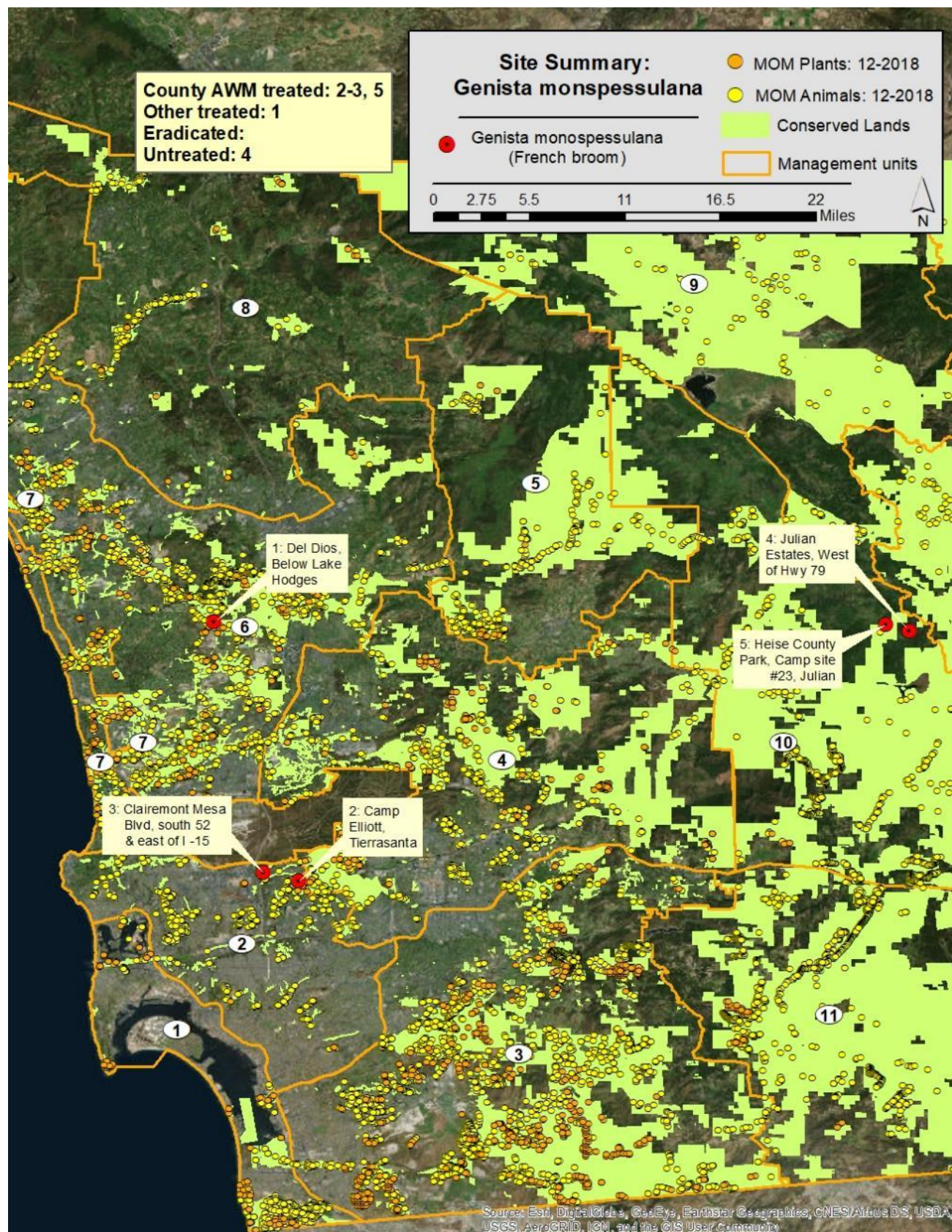
Table 7. Summary of treatments performed by AWM on *Carrichtera annua*, Ward's Weed.

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #4, Crest Canyon, Del Mar	Wards weed	1	-	0.8	-

This site footprint was surveyed following the second Gallery pre-emergent herbicide February 25th 2021 by a crew of 4. No plants were observed.



Genista monspessulana, French broom:

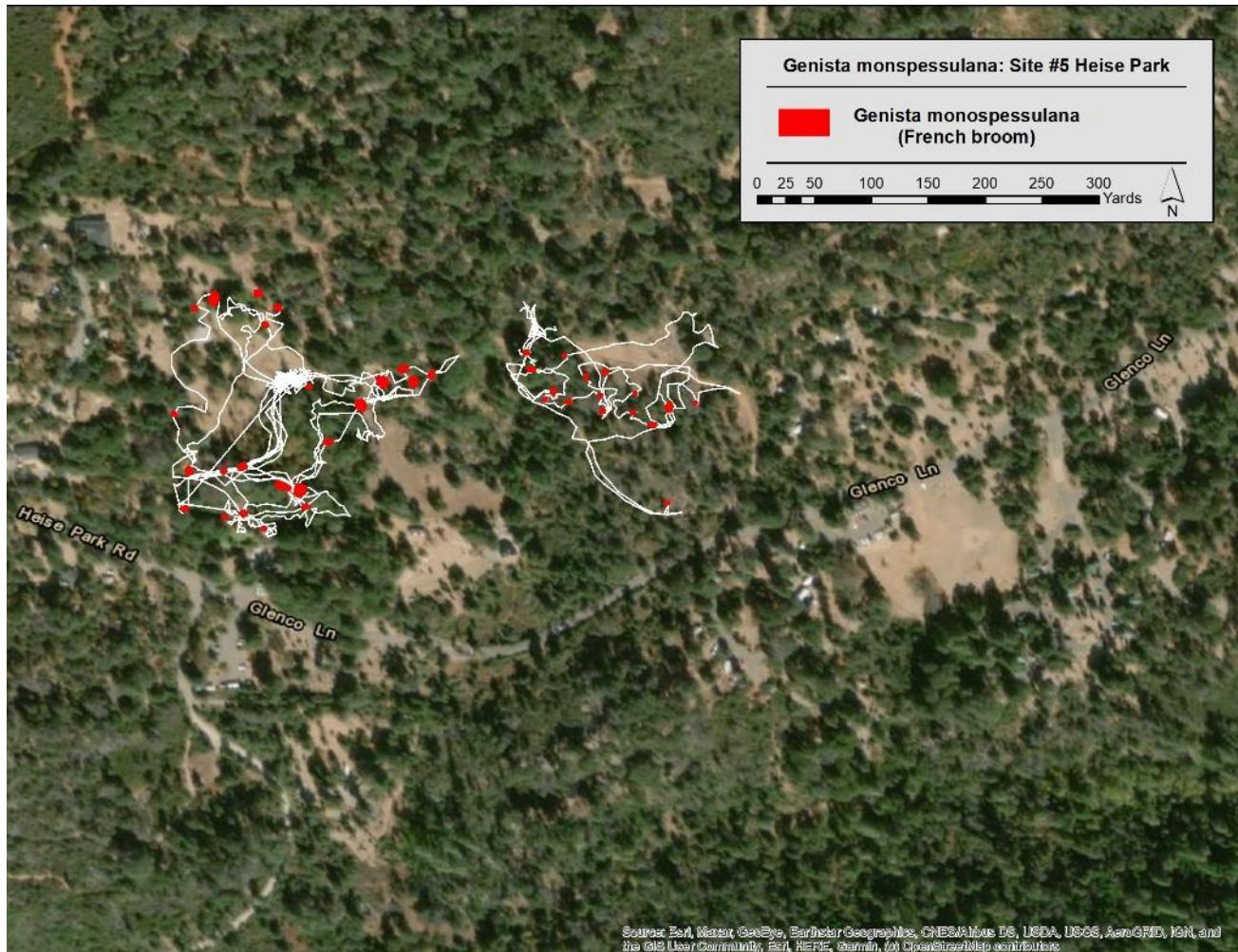


***Genista monspessulana*, French broom: Site #5 Heise County Park**

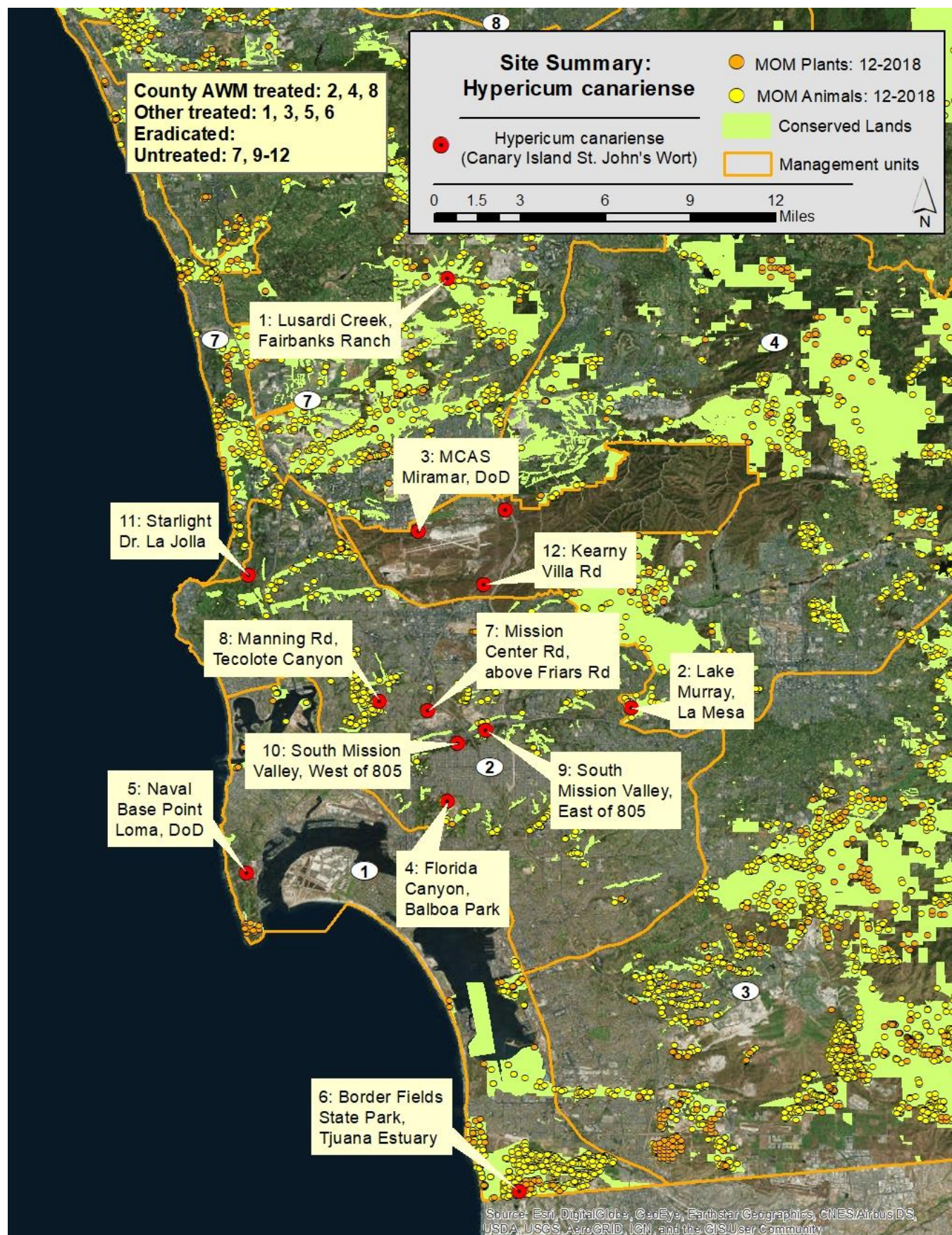
Table 8. Summary of treatments performed by AWM on *Genista monspessulana*, French broom.

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #5 Heise County Park	French broom	1	0.5	1.8	880

880 scattered seedlings and small plants were foliar treated with Triclopyr. A crew of 2-4 individuals worked two days January 5-6 2021.



Hypericum canariense, Canary Island St. John's wort

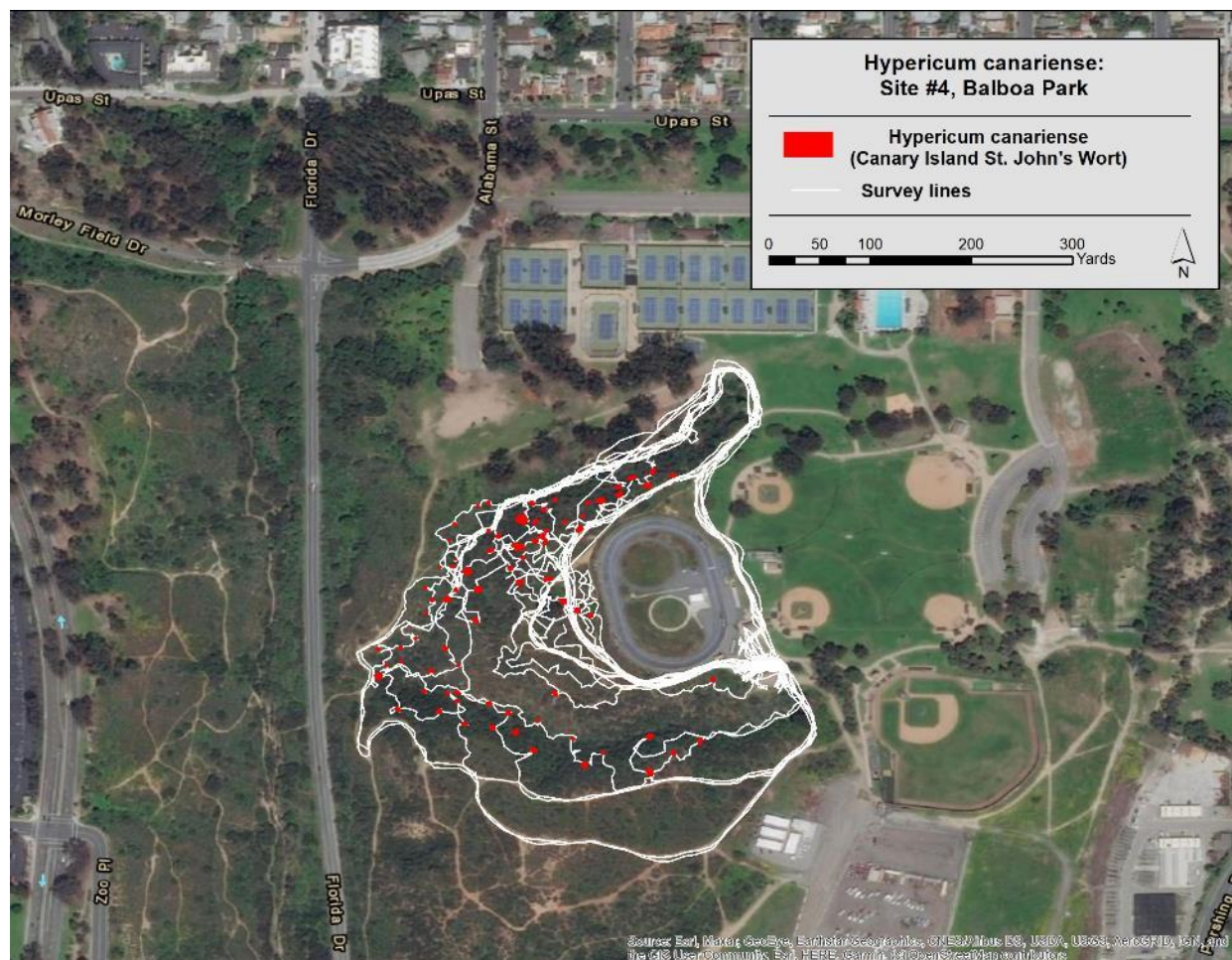


Hypericum canariense, Canary Island St. John's wort: Site #4 Balboa Park

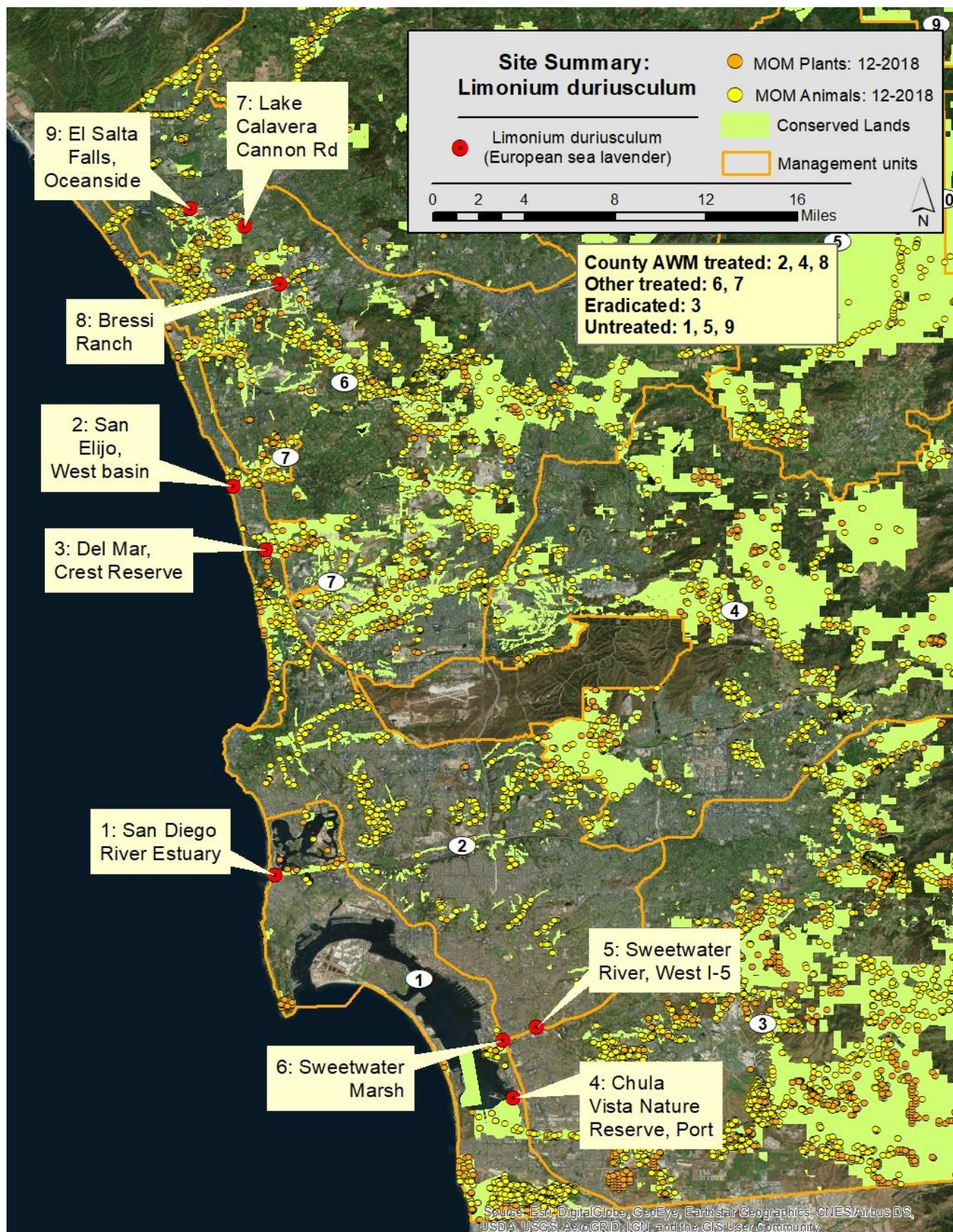
Table 9. Summary of treatments performed by AWM on *Hypericum canariense*, Canary Island St. John's wort.

Site Name	Common Name	# of Visits	Acres Surveyed	Acres Treated	Plants treated
Site #4, Balboa Park	Canary Island St. John's Wort	1	4.5	0.9	1,725

Re-treatment of this site was started but not completed this quarter. Small plants (40%) and seedlings (60%) were foliar treated with herbicide (Garlon). A crew of two to four individuals visited the site over three days on March 4-5-9th 2021. Cover is greatly reduced (>90% cover reduction), but there are scattered seedlings still emerging.



***Limonium duriusculum*, European sea lavender:**



Limonium duriusculum, European sea lavender: Site #2 San Elijo, Solana Beach

Table 10. 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 #2 San Elijo, Solana Beach	European sea lavender	1	0.1	0.6	20

20 seedlings were hand pulled and bagged. A crew of four individuals worked one day February 25th 2021. Cover is greatly reduced in past treatment areas (>90% cover reduction), but there are seedlings sprouting. This site is almost eradicated for the species.



TASK 4 – AWM: Invasive Plant Level 3 Management.

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

- No charges during this quarter.

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

Level of Effort: (5%) of overall contract

- Assistance in Regional EDRR co-ordination with Nature Collective to address Oncosiphon, difficult EDRR sites (heavy cover of woody species, poison oak, complex property owner requirements/authorizations).
- Co-ordination with State Parks and CDFG to continue control on the only known population of barbed goat grass in San Diego County at Lake Cuyamaca occurred.
- Co-ordination to continue control of Ward's Weed in Carlsbad. New site discovered in Carlsbad, was treated in April 2021.
- Co-ordination to continue control of Oncosiphon in Chula Vista.
- 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. Existing location data will be aggregated, new surveying in summer 2021 should occur, treatments in some areas will also occur.

Work Anticipated for 4th Quarter Period, April 1st – June 30th 2021:

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 1 plants. There are multiple new plant locations for Level 2 species including Ward's Weed, yellow star thistle, sea lavender, and euphorbia.
- Re-treatment of sites.
- 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 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.
- Attend SDMMP land manager, working group and other meetings as requested.
- Provide population status of EDRR regional targets to CDFA statewide assessment.