

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

**Strategic Control of Invasive Weed Species
4th Quarter Report - FY 2020-21: Report #26 for Project**

April 1st, 2021 – June 30th, 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 April 1st to June 30th 2021.

A new agreement (contract #4) was completed between SANDAG and San Diego County AWM, this is the first work report under the new agreement.

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. 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, 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 and submitted.

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 plan for 2021 and 2022 was 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 carnation spurge) at three 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	0.7	1.2	1,200
<i>Euphorbia terracina</i>	Carnation spurge	2	1.0	3.0	1,272

Aegilops triuncialis (barbed goatgrass):

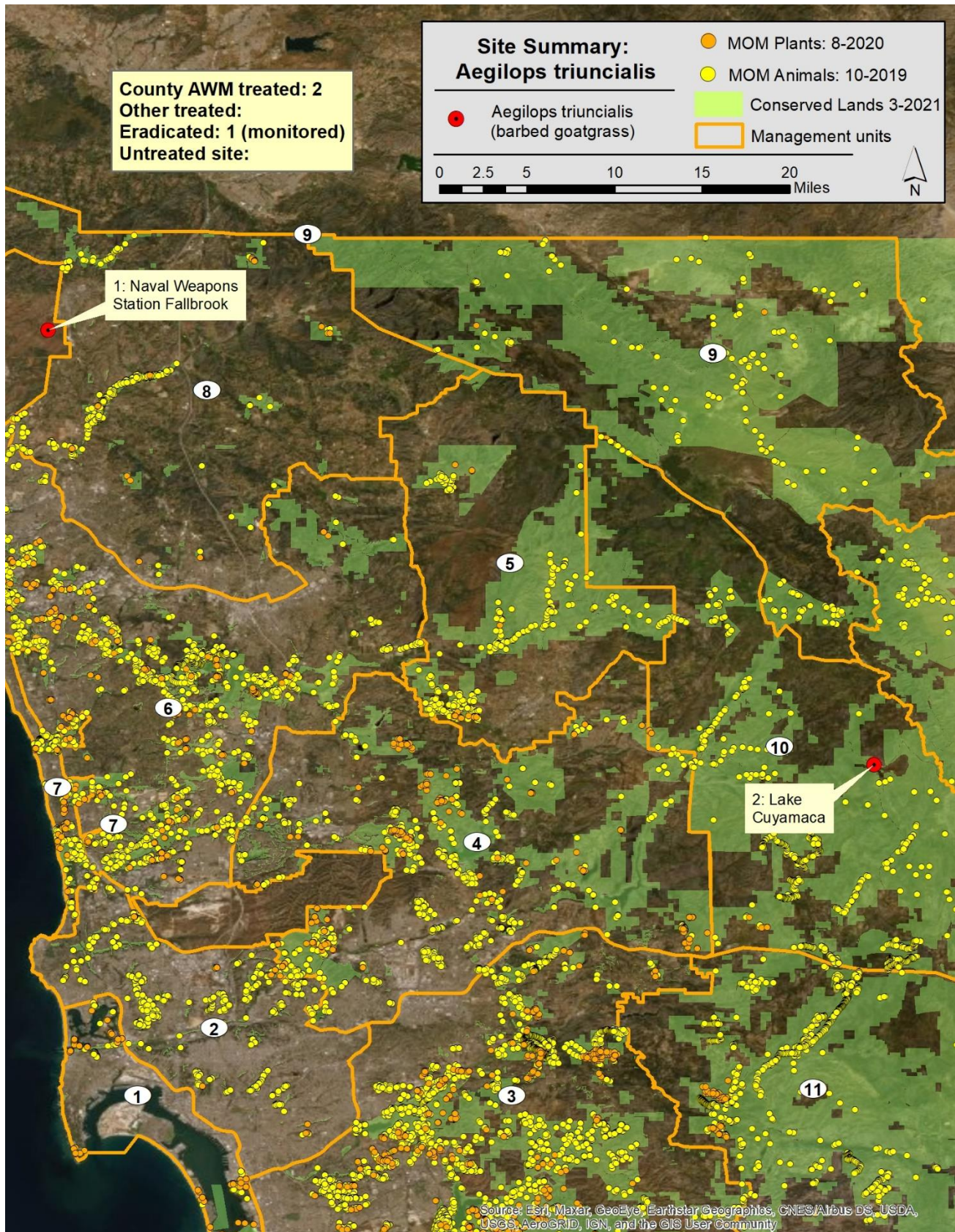


Table 2. Summary of treatments performed by AWM on *Aegilops triuncialis* (barbed goatgrass).

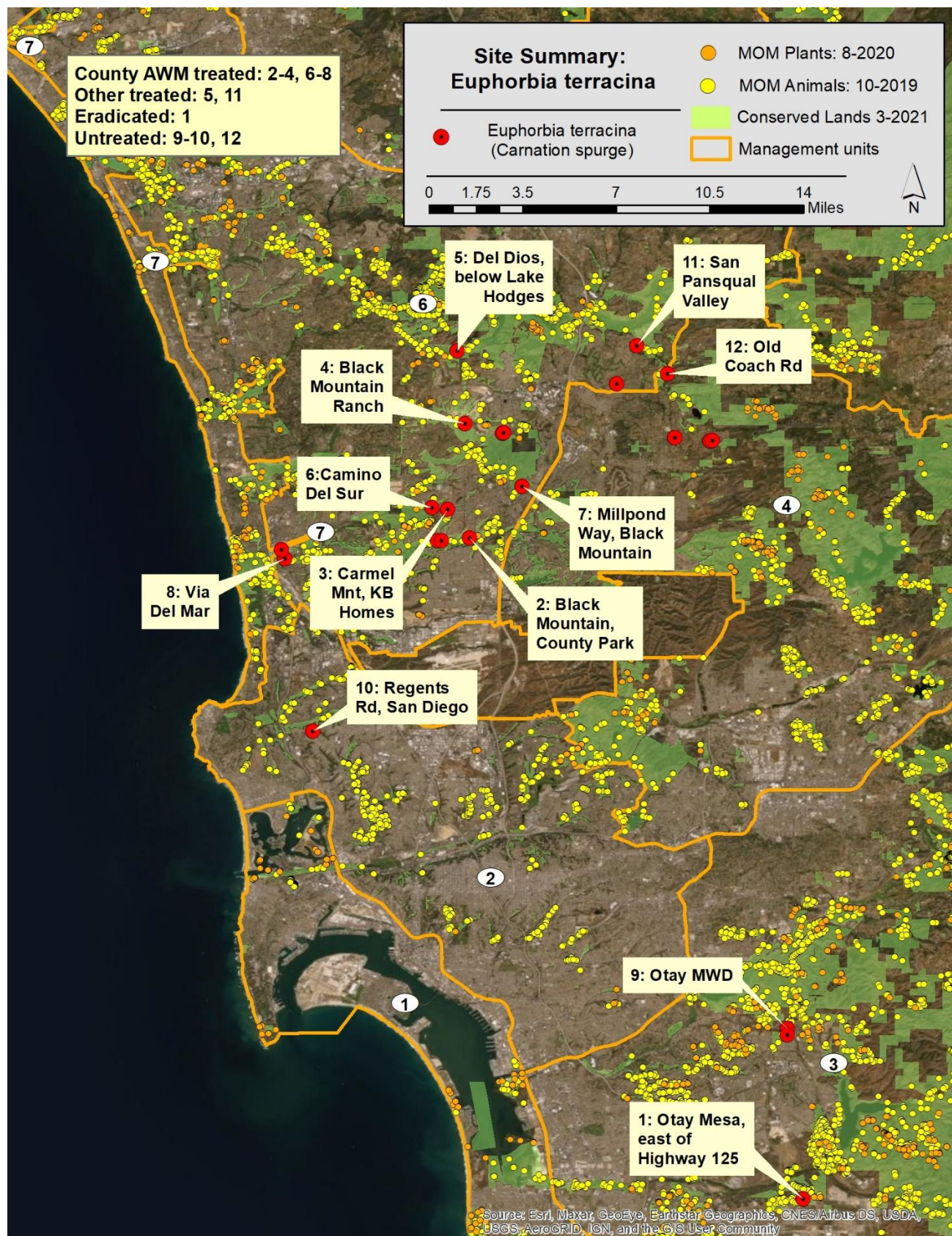
Work Site	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants Controlled
Site #2 Lake Cuyamaca	Barbed goatgrass	1	0.7	1.2	1,200

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

The County AWM crew completed spot treatments with post emergent, particularly in areas around woody vegetation. A crew of 3-5 worked 3 days, May 27-28 and June 2nd 2021. Areas treated in the November/January treatment had low cover. Around 1,200 plants were treated under trees and along shrubland edges. A few scattered patches were treated in open areas.



Euphorbia terracina (carnation spurge):



Euphorbia terracina (carnation spurge): Site #3 KB Homes, Carmel Mnt

Table 3. Summary of treatments performed by AWM on *Euphorbia terracina* (carnation spurge).

Work Site	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants Controlled
Site #3 KB Homes, Carmel Mnt	carnation spurge	1	0.8	2.6	1,112

Mature plants and many seedlings were treated with a post emergent, if plants had seed they were pulled. A crew of three to four individuals worked four days in June. There has been a reduction in cover (>90%), but there is an extensive seedbank that continues to generate new seedlings each spring.



***Euphorbia terracina* (carnation spurge): Site #7 Millpond Way**

Table 4. Summary of treatments performed by AWM on *Euphorbia terracina* (carnation spurge).

Work Site	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants Controlled
Site #7 Millpond Way	carnation spurge	1	0.2	0.4	160

Mature plants and many seedlings were treated with a post emergent, if plants had seed they were pulled. A crew of four individuals worked one day in June. There has been a reduction in cover (>90%), but there is an extensive seedbank that continues to generate new seedlings each spring.



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).

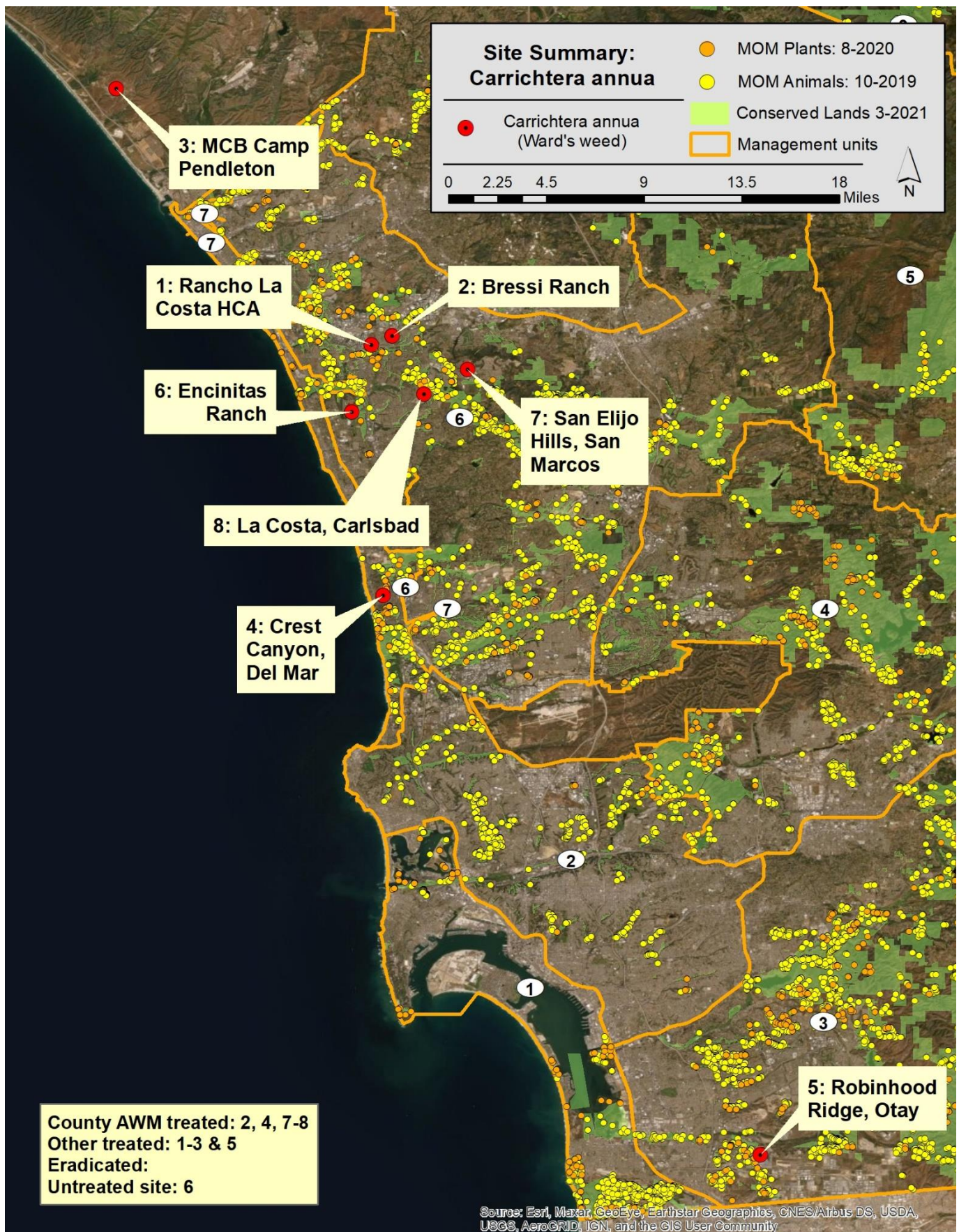
Crews surveyed and treated three invasive weed species (Ward's weed, Canary Island St John's wort, and yellow star thistle) at six sites this quarter. AWM IPC made optimal pesticide applications, protected the natural environment by preventing off-site movement of pesticides, and utilized Best Management 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 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>Carrichtera annua</i>	Ward's weed	2	1.7	7.1	6,480
<i>Centaurea solstitialis</i>	Yellow star thistle	1	0.1	1.5	28
<i>Hypericum canariense</i>	Canary Island St. John's wort	3	3.6	20.4	5,378

Carrichtera annua, Ward's Weed:



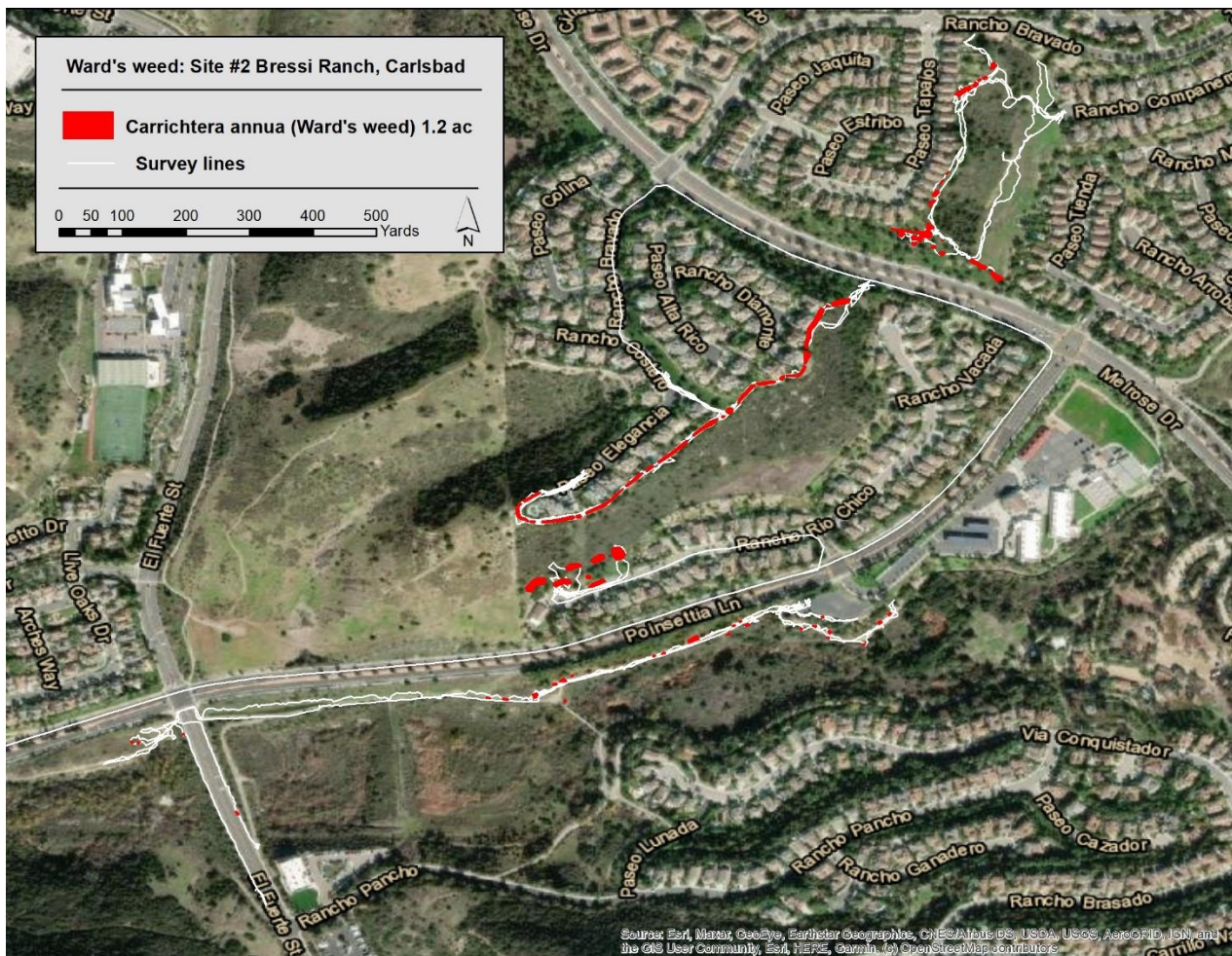
Carrichtera annua, Ward's Weed, Site #2 Bressi Ranch

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	1.2	4.1	5,280

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 in the winter.

AWM crews spot treated plants with a post emergent and a pre-emergent in addition to hand pulling where needed. These patches of plants were often where the soil was disturbed (human activities, erosion from rain, animal activity). Some patches were areas that were not effectively treated during application of the pre-emergent in the winter. This work occurred in April with a crew of 2 to 4 treating scattered areas over 9 days. This was mostly CDFA funded work. Overall control seems very good. Plants are not germinating where preemergent was applied, as long as soil was not disturbed. Areas with plants were areas with erosion or where coverage was incomplete



Carrichtera annua, Ward's Weed, Site #8 La Costa, Carlsbad

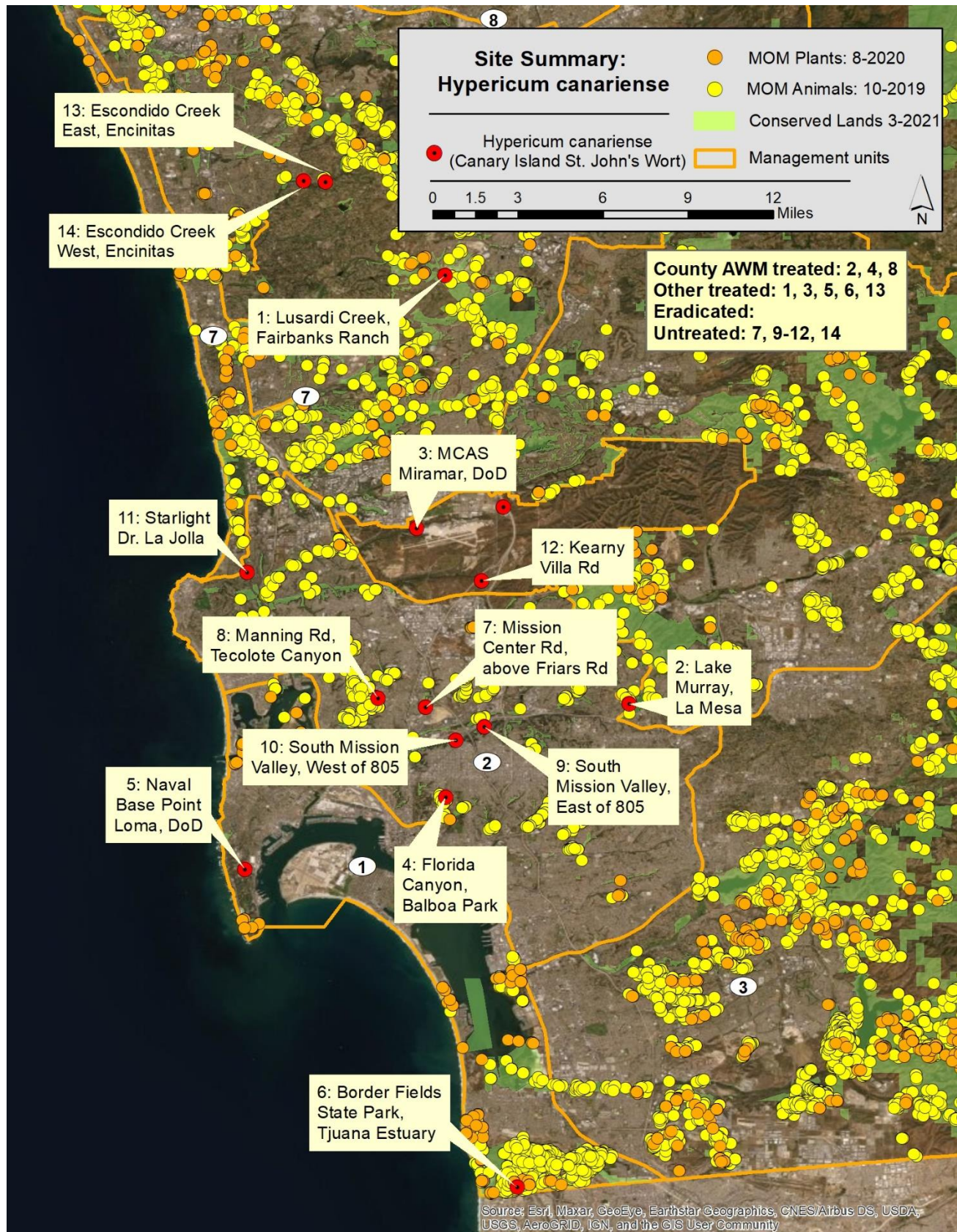
Table 7. Summary of treatments performed by AWM on *Carrichtera annua*, Ward's Weed.

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #8 La Costa, Carlsbad	Wards weed	1	0.5	3.0	1,200

This is a new site that was reported on iNaturalist. The coordinator visited the site, confirming the report and surveying the area. The invasion appears to be restricted to the SDG&E powerline area and slightly expanding into adjacent native vegetation. A ROE was obtained from the HOA management company and then crews treated the site. A crew of three treated the site with mix of pre and post emergent in one day in April.



Hypericum canariense, Canary Island St. John's wort

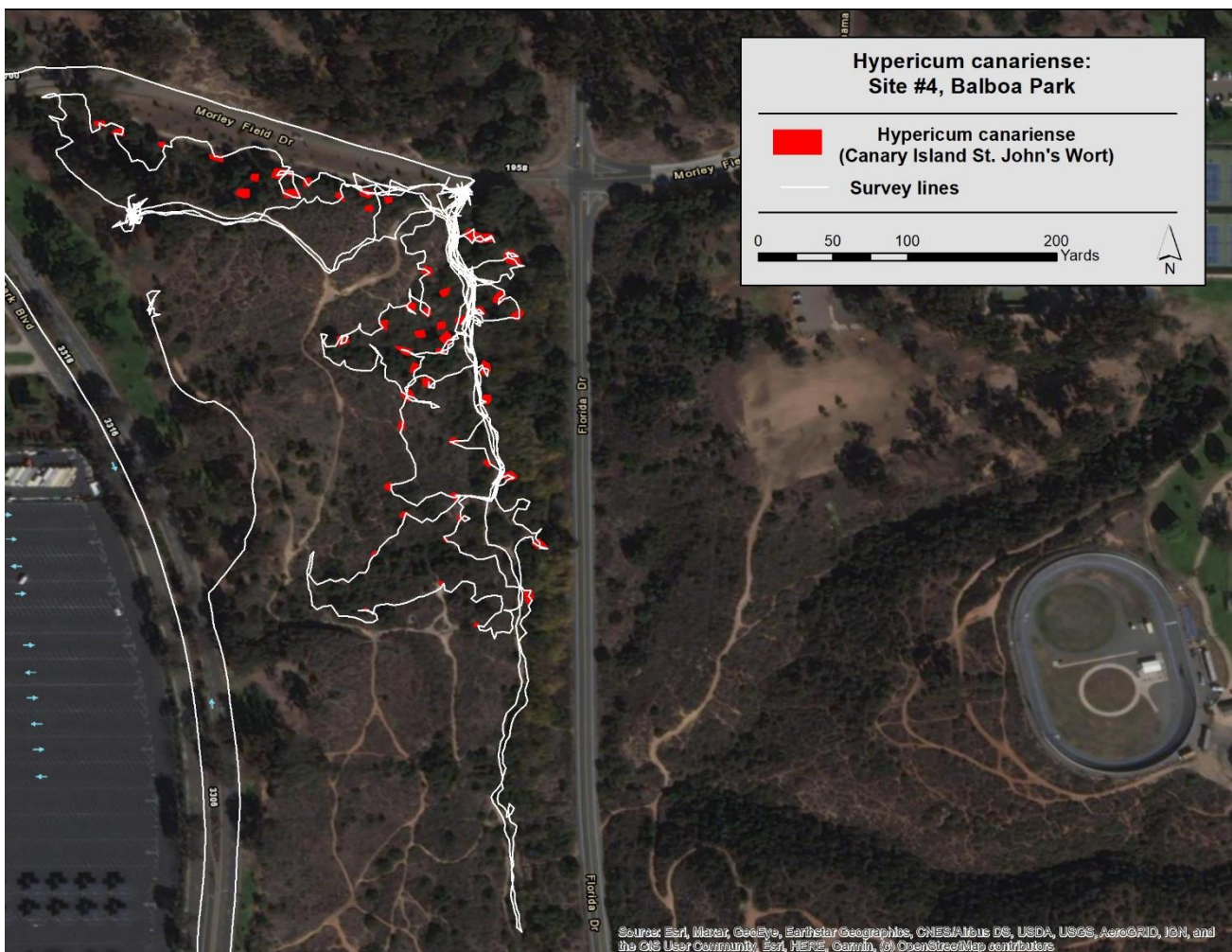


Hypericum canariense, Canary Island St. John's wort: Site #4 Balboa Park

Table 8. Summary of treatments performed by AWM on *Hypericum canariense*, Canary Island St. John's wort.

Site Name	Common Name	# of Visits	Acres Treated	Acres Surveyed	Plants treated
Site #4, Balboa Park	Canary Island St. John's Wort	1	1.0	4.7	1,598

Re-treatments of this site was completed, they were started last quarter. A crew of two to three worked four days in May. Small plants (40%) and seedlings (60%) were foliar treated with a post emergent herbicide mix with some pre-emergent efficacy (glyphosate/imazapyr), some plants were also treated with triclopyr. On one day with rain the crew hand pulled plants. Cover is greatly reduced (>95% cover reduction), but there are scattered seedlings and some resprouts still emerging.

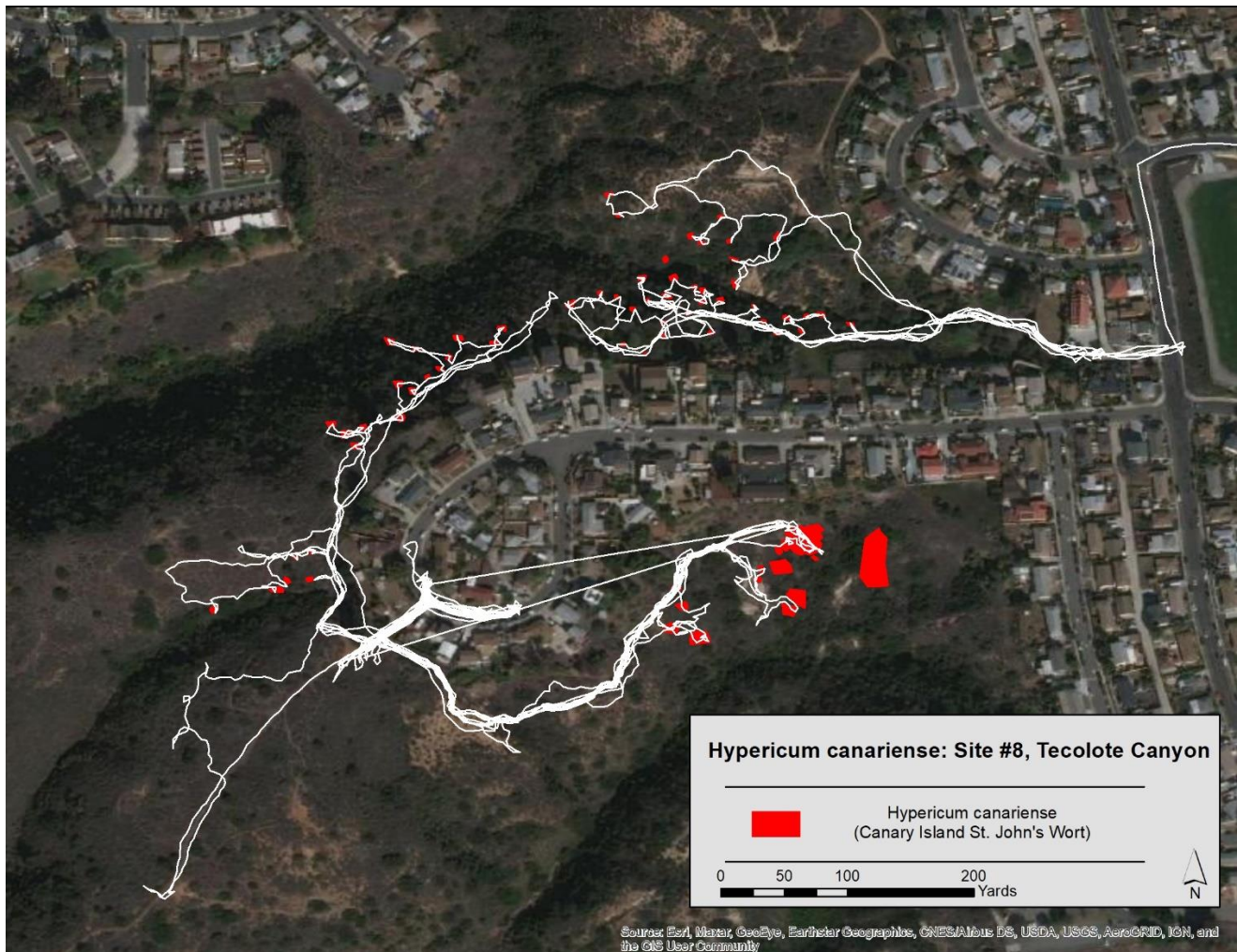


Hypericum canariense, Canary Island St. John's wort: Site #8 Tecolote Canyon

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

Site Name	Common Name	# of Visits	Acres Treated	Acres Surveyed	Plants treated
Site #8 Tecolote Canyon	Canary Island St. John's Wort	1	1.2	5.2	2,030

A crew of one to three worked six days in May. Small plants (40%) and seedlings (60%) were foliar treated with a post emergent herbicide mix with some pre-emergent efficacy (glyphosate/imazapyr), some plants were also treated with triclopyr. Cover is greatly reduced (>95% cover reduction), but there are scattered seedlings and some resprouts still emerging.



Hypericum canariense, Canary Island St. John's wort: Site #2 Lake Murray

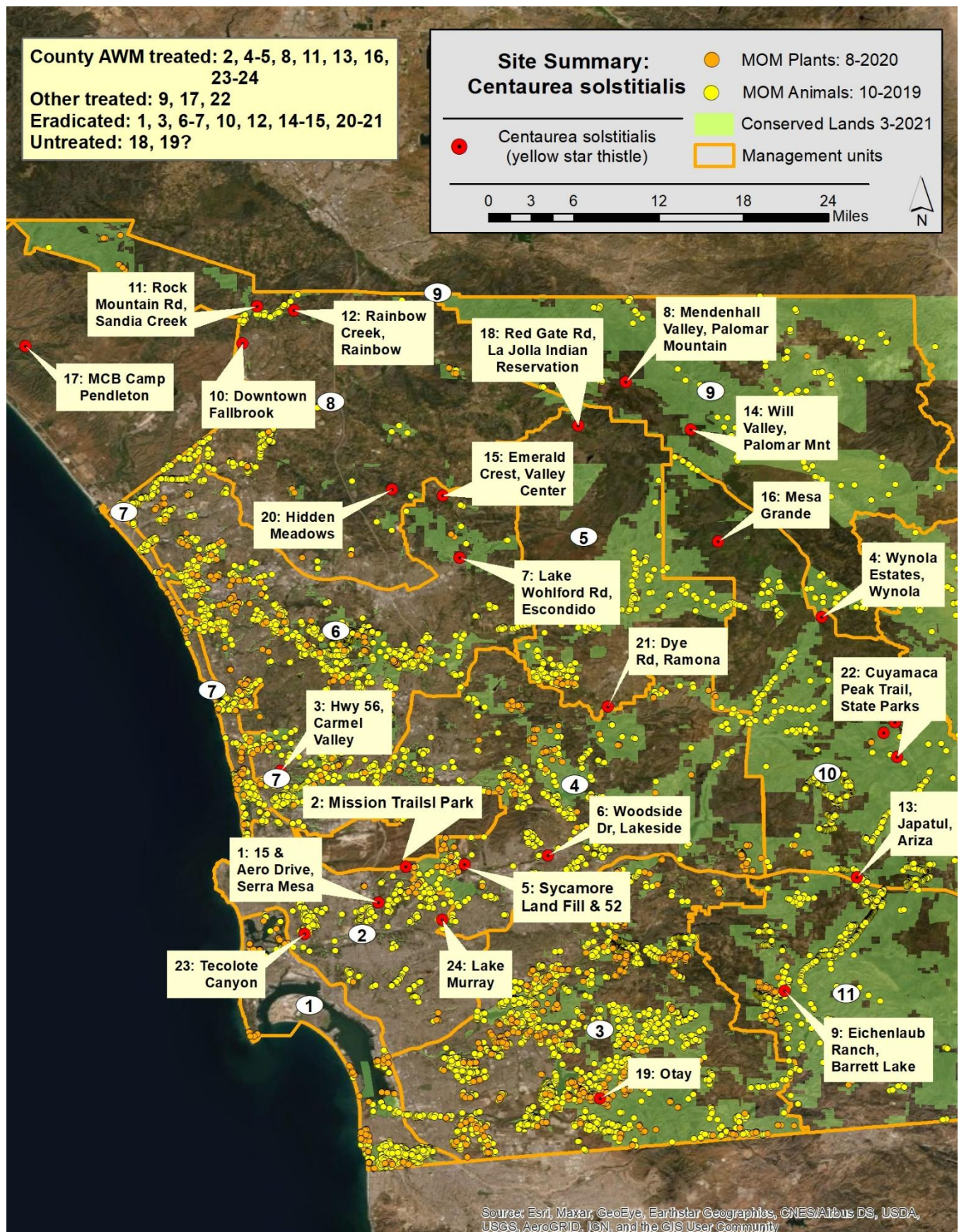
Table 10. Summary of treatments performed by AWM on *Hypericum canariense*, Canary Island St. John's wort.

Site Name	Common Name	# of Visits	Acres Treated	Acres Surveyed	Plants treated
Site #2 Lake Murray	Canary Island St. John's Wort	1	1.4	10.5	1,750

A crew of two to four worked nine days in June. Small plants (40%) and seedlings (60%) were foliar treated with a post emergent herbicide mix with some pre-emergent efficacy (glyphosate/imazapyr), some plants were also treated with triclopyr. Cover is greatly reduced (>95% cover reduction), but there are scattered seedlings and some resprouts still emerging.



Centaurea solstitialis, Yellow star thistle:



***Centaurea solstitialis*, yellow star thistle: Site #24 Lake Murray**

Table 11. Summary of treatments performed by AWM on *Centaurea solstitialis* (Yellow star thistle).

Site Name	Common Name	# of Work Cycles	Acres Treated	Acres Surveyed	Plants treated
Site #24 Lake Murray	Yellow star thistle	1	0.1	1.5	28

This was a new report from iNaturalist, 28 scattered plants were found and removed by hand. A crew of one individual visited the site on June 10th.



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), and regional Arundo re-treatment for watershed based programs.
- Co-ordination with State Parks and CDFA 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.
- Co-ordination to continue control of Oncosiphon in Chula Vista.
- Surveying of reports from iNaturalist.
- 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 1st Quarter Period, July 1st – September 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 2 plants: spotted knap weed, yellow star thistle, and Limonium.
- Re-treatment of sites: spotted knapweed, yellow star thistle, bridal broom, French broom, and Limonium.
- 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.