Coyote Ridge Ponds Restoration Project, Ponds CR1 and CR4- Year 3 Monitoring Report

Prepared for:

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List of Preparers

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Section A. General Project Information

The Coyote Ridge Ponds Restoration Project (Project) is a priority for the implementation of the Conservation Strategy of the Santa Clara Valley Habitat Plan (Habitat Plan) (ICF 2012). The Santa Clara Habitat Agency constructed the project in partnership with the Santa Clara Valley Open Space Authority and is currently in the third year of the 5-year post-construction monitoring and management period. The projects were constructed to restore and establish pond habitat at two locations (CR1 and CR4) in the Coyote Ridge Open Space Preserve, located in the eastern foothills of the Diablo Range in the Coyote Creek watershed (Section E, Figures 1 and 2). Project objectives and compensatory mitigation credits are described in the *Coyote Ridge Ponds Restoration Project (CR1 and CR4) Restoration and Monitoring Plan* (MMP) (Swaim Biological Inc. 2018). The project's objectives are as follows:

Pond Reestablishment Sites

Restore breeding habitat for the California red-legged frog (*Rana draytonii; CRLF*) and California tiger salamander (*Ambystoma californiense; CTS*) and for common amphibians such as the Sierran tree frog (*Pseudacris sierra*) and California toad (*Anaxyrus boreas halophilus*), and basking habitat for Western Pond Turtle (*Actinemys marmorata*; WPT), by performing the following actions:

Deepen a portion of the pond to restore a hydroperiod suitable for the successful breeding and metamorphosis of CTS and CRLF
Repair berm failure to restore ponding capacity, hydroperiod, and water retention
Plant wetland vegetation
Exclude cattle from a portion of the pond

Restore multiple wetland functions including sediment filtration, nutrient filtration, and erosion protection by performing the following actions. This Reestablishment will also provide aquatic refugia, foraging, and dispersal habitat for CRLF:

Exclude cattle from a portion of the pond
Plant native wetland vegetation

Restore aquatic habitat and establish functional basking habitat for WPT by performing the following actions:

Lengthen the pond's hydroperiod
Deepen the pond's open water portion
Install anchored basking logs in the pond's deepened open water

Improve climate change resiliency of pond habitat by performing the following actions:

Increase the water storage capacity and hydroperiod of the ponds
Establish a spring water source for cattle that graze the CROSP

Project construction commenced on August 6, 2019 and was completed on October 29, 2019. Sherwood Design Engineers provided a trip report, dated November 8, 2019, documenting the final walkthrough to assess that construction has been completed in accordance with the plans and specifications and that Best Management Practices (BMP's) are in place and stabilization has been achieved. An as-built survey was

conducted on December 17, 2019, and as-built designs were provided shortly thereafter. A Letter of Completion will be prepared after analysis of the pond's current function has been completed.

This report presents the results of the Year 3 monitoring in relation to the ecological performance standards outlined in the project's MMP. Monitoring results will also inform management activities to direct maintenance and potential remedial measures to ensure that the project's objectives are fulfilled. In accordance with the requirements of the MMP, this report was prepared in the format of the U.S. Army Corps of Engineers (USACE) South Pacific Division Mitigation Monitoring Report Form (USACE 2014).

A.1 Project Name

Coyote Ridge Ponds Restoration Project, Ponds CR1 and CR4.

A.2 DA File Number(s)

The project permit numbers are as follows:

USACE File No. 2019-00086S

Regional Water Quality Control Board, California Integrated Water Quality System (CIWQS) Place No. 855532 (bkw) and CIWQS Regulatory Measure No. 428417

California Department of Fish and Wildlife (CDFW) Lake and Streambed Alteration Agreement No. 1600-2019-0019-R3

CDFW Natural Community Conservation Plan Permit No. 2835-2012-002-03

U.S. Fish and Wildlife Service (USFWS) Federal Fish and Wildlife Permit No. TE94345A-0

A.3 Project Type

Permittee responsible mitigation

A.4 Permittee, Bank, or In-Lieu Fee Sponsor Name and Work Phone Number

Edmund Sullivan, Santa Clara Valley Habitat Agency
(408) 779-7261

A.5 Permittee, Bank, or In-Lieu Fee Sponsor Mailing Address

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A.7 Agent Name and Work Phone Number

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A.9 Agent E-Mail Address

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Section B. Notice of Commencement/Completion of Compensatory Mitigation Project

B.1 Commencement

Y: ☒ N: ☐

Project construction commenced on August 6, 2019.

B.2 Completion

Y: ☒ N: ☐

Project construction was completed on October 29, 2019. Sherwood Design Engineers provided a trip report, dated November 8, 2019, documenting the final walkthrough to assess that construction has been completed in accordance with the plans and specifications and that BMP's are in place and stabilization has been achieved (Sherwood Design Engineers 2019). An as-built survey was conducted on December 17, 2019, and as-built designs were provided shortly thereafter (Appendix D). Wetland plantings were installed during the week of January 14, 2022 (Go Native, letter to Kelli Camara, dated January 16, 2022). A Letter of Completion will be prepared after Sherwood Design Engineers has completed analysis of the pond's hydroperiod and determined if any adaptive management should be completed to improve pond function.

B.3 Financial Assurance Remains in Place

Y: ☒ N: ☐

B.4 Requesting Release of a Financial Assurance?

Y: ☐ N: ☒

B.5 Name of Contractor (If Any)

Go Native Inc. constructed the project and are performing ongoing infrastructure monitoring.

B.6 Phone Number of Contractor (If Any)

Dave Sands, Go Native Inc.
(650) 996-8996

Section C. Mitigation Monitoring Status

C.1 Final Monitoring Completed and Verification Requested?

Y: ☐ N: ☒

C.2 Date of Monitoring Reported

This monitoring report summarizes monitoring conducted during the calendar year 2022, Year 3 of the short-term (i.e., 5-year) post-construction ecological monitoring period set forth in the MMP.

C.3 Monitoring Report Number

Monitoring report number 2.

C.4 Management and Maintenance Activities Completed

Management and maintenance activities completed during Year 3 (2022) include the following:

On January 3 and 4, Go Native Inc. installed the wetland plants at CR1 and CR4, as follows:

Species	CR1	CR4
Narrowleaf milkweed	62	47
Baltic rush	46	62
Common rush	91	82
Iris leaf rush	40	44
California bulrush	10	10
Hardstem bulrush	41	38
Water smartweed	30	25

Hand pulled or weedwacked Italian/slender flowered thistle (*Carduus* sp.) and milk thistle (*Silybum marianum*), in CR4 project area. Pulled black mustard (*Brassica nig*ra) and early yellow star thistle (*Centaurea solstitialis*) on the northern pond bank in the CR4 project area. Pulled black mustard, early yellow star thistle and early goat grass (*Aegilops triuncialis*) in CR1 project area. All hand pulled materials were bagged and disposed of off-site properly (May 1, 2022).

Provided control treatment of artichoke thistle (*Cynara cardunculus*) and purple star thistle (*Centaurea calcitrapa)* within the project areas and to the top of the hill between CR1 and CR4 (May 1, 2022).

Provided oversight and assisted the crew to hand pull yellow star thistle and barbed goat grass within the CR1 project area. Weedwacked and raked goat grass on the hill between CR1 and CR4. Began hand pulling yellow star thistle and Italian thistle in the CR4 project area. All hand pulled materials were bagged and disposed of off-site properly (May 23, 2022).

Provided oversight and assisted the crew to weedwack yellow star thistle and barbed goat grass in the buffer zones and areas adjacent to the CR1 project area. Raked and bagged goat grass in the buffer zones. Hand pulled yellow star thistle, Italian/slender flowered thistle, black mustard and Canary grass (*Phalaris* sp.) within and adjacent to the CR4 project area. All hand pulled materials were bagged and disposed of off-site properly (May 24, 2022).

Provided oversight and assisted the crew to hand pull yellow star thistle and some Italian thistle in the CR1 project area. Handpulled yellow star thistle, purple star thistle, black mustard and Canary grass in the CR4 project area. Weedwacked yellow star thistle and goat grass between CR1 and CR4 from the top of the hill to the road. All hand pulled materials were bagged and disposed of properly (June 25, 2022).

Completed a 4th pass for yellow star thistle, Italian thistle and limited lesser weeds in and directly southeast of the CR4 project area. Completed a 4th pass for yellow star thistle in and directly adjacent to the CR1 project area. All hand pulled materials were bagged and disposed of off-site properly (July 27, 31, 2022).

Edited invasive plant species maps for CR1 and CR4 (July 29, 2022).

Inspected infrastructure at CR1 and CR4 (September 25, 2022).

Completed a fall site check for targeted invasive plant species and checked for native planting survival (September 25, 2022).

Completed a fall assessment with Kelli Camara prior to the first significant rainfall (September 27, 2022).

Inspected sites and infrastructure at CR1 and CR4, Removed remaining yellow star thistle within both project areas (October 6, 2022).

Inspected infrastructure at CR1 and CR4 (November 17, 2022). Go Native Inc. report completed.

C.5 Adaptive Management Activities Completed

The project team had a number of calls (March 9, June 21, August 15, and December 15), to discuss pond function and to identify and discuss adaptive management strategies that could be employed to achieve the objectives of this project. Robyn Cooper, Sherwood Design Engineers, looked at rainfall, evapotranspiration rates, and staff plate data to evaluate pond hydroperiod. However, given limited access during and immediately after rain events, the project team will meet again in 2023 to determine if data loggers or wildlife cameras will be installed to more accurately document pond level during and after rainfall events. Sherwood will also visit the ponds to evaluate a soil crack in the berm of CR4.

In addition, the area of invasive plant treatment was expanded beyond the original project footprint to assist in achieving project metrics and forestall the rate and likelihood of reinfestation of non-native species. With the current understanding of limited resources to maintain established thresholds and recognizing on-going sources of non-natives seed (i.e. cattle, wildlife, people) into the project area, the recommendations below aim

to reduce the pressures from the most aggressive weed species (i.e. yellow star thistle, purple star thistle and barbed goat grass), to ensure long-term pond function. The primary goal is to ensure continued access by cattle and wildlife to maintain open water habitat in support of amphibian breeding. Expanding treatment buffers to ridgelines and strategically placed locations based on current infestations outside the project treatment area may help to reduce the rate of re-infestation by human activities, wildlife and windblown seed. Additionally, changes to the timing of the initial control treatment and fence line mowing should prevent most of the movement of yellow and purple star thistle into the CR4 project area. Combination of the seasonal wetlands and the establishment of sufficient native diversity could allow the habitat to retain a sustainable level of value even with the anticipated degradation over time.

Purple star thistle is limited in its extent and could be eradicated or controlled to 99% through the proposed additional efforts.

Treatments in the expanded area will be for three (3) years and completed with all other items outlined in the short-term monitoring plan.

CR1 – Continue treatment for yellow star thistle (*Centaurea solstitialis*) on the western bank for approximately 60 meters to the north. Treatment could consist of one or a combination of weedwacking, hand removal and herbicide spot spraying.

CR1 – Continue maintenance of the buffer zone for yellow star thistle (*Centaurea solstitialis*) and barbed goat grass (*Aegilops triuncialis)* along the western fence to 10+ meters, directly west of the fence line. Treatment could consist of weedwacking and/or herbicide spot spray.

CR1 –Continue treatment for yellow star thistle and barbed goat grass to the south of the southern fence line. Treatment could consist of hand removal, weedwacking and/or herbicide spot spray.

Other- Continue treatment of purple star thistle along the dirt road at the hilltop between CR1 and CR4 and begin treatment of yellow and purple star thistle along the fence line to the east of CR4 to the next perpendicular fence.

CR1 & CR4 - One additional site check and handwork for yellow star thistle and late season artichoke thistle

C.6 Performance Standards

The project's MMP describes performance standards during the 5 years of short-term post-construction ecological monitoring. Table 1 contains the Year 3 performance standards and an evaluation of whether Year 3 monitoring results met them. Section C.7 contains further discussion of the Year 3 results relative to the performance standards.

Table 1. Year 3 Performance Standards and Results

Performance Standard	Year 3 Goal	Goal Met in Year 3?	Year 3 Results
Target Hydrologic Regime	Depth of inundation at least 6" through August 31 30 in average rainfall year[1].	NA	The maximum water depth was 4.6 and 3.0 feet at CR1 and CR4, respectively (January 14, 2022). CR1 fell to 0 feet by

[1] Date revised from September 30 to August 31

Performance Standard	Year 3 Goal	Goal Met in Year 3?	Year 3 Results
			March 3, 2022. The reason for this rapid decline is unknown. CR4 fell to 0 feet by May 23, 2022. However, 2021-2022 was a very dry water year with well below average precipitation. Therefore, the performance standard was not applicable in Year 3.
California Red-legged Frog/ California Tiger Salamander/ Western Pond Turtle	Successful breeding of CRLF and CTS and WPT presence in at least one average rainfall monitoring year.	NA	As 2021-2022 was a very dry water year, with well below average precipitation, no water was ponded at CR1 to support breeding. Water was observed in CR1 on January 14 but no CRLF/CTS egg masses or larvae and no WPT were observed. Water was also observed on April 18 (by others) but was dry when CEC conducted a site visit. No CRLF/CTS egg masses or larvae and no WPT were observed. Water was observed in CR4 on January 14 and March 3, but no CRLF/CTS egg masses or larvae and no WPT were observed. Therefore, the performance standard was not applicable in Year 3.
Aquatic Predator Presence/ Absence	No predator occurrences.	N/A	As 2021-2022 was a very dry water year, with well below average precipitation, CR1 did not have any ponded water during a site visit on March 3. As such, no predator survey was completed, and no management activities were recommended. At CR1, 1.1 ft of water was ponded on April 18, but the pond was dry again my May 1. CR4 had 2.1 feet of water during a site on March 3, so dipnetting occurred. No predators were observed. The pond was dry by May 23, so no further surveys were conducted.
Wetland Vegetation Percent Cover	25% wetland vegetation cover in planting zones; less than 50% in open water pond habitat; at least three wetland species will be present.	No	The average percent cover of wetland vegetation was 72.4% at CR1and 7.6% at CR4. CR1 had no open water; CR4 had 71% open water (April 2022.). Three wetland species were present at CR1 and four wetland species were present at CR4.
Invasive Plant Cover	Less than 5%	No	The Year 3 observations found cover by Italian/slender thistle, black mustard, and artichoke thistle to be greater than 5%, which exceeds the Year 3 performance standard. Four species, purple star thistle, bull thistle, canary grass, and milk thistle, had less than 5% cover, meeting the Year 3 performance standard. Goat grass and yellow star thistle have reduced their percent cover as mapped

Performance Standard	Year 3 Goal	Goal Met in Year 3?	Year 3 Results
			polygons have changed from moderate density (25-50% cover) to low density (6-25% cover) and the areal extent of the species has been reduced by at least 20%, thus meeting the Year 3 performance standard for these two species. Invasive cover is not impairing the establishment of wetland vegetation or impairing wetland function.
Wetland Delineation	NA	NA	A wetland delineation will be performed in Year 5.
Water for Cattle	Sufficient water to support the same grazing intensity of the CROSP lands as the existing conditions.	Yes	Water was temporarily available at both CR1 and CR4. As such, we have met the criteria by providing water longer into the year than before the berms were reconstructed.

C.7 Short Statement on Whether the Performance Standards Are Being Met (Monitoring Methods, Results and Discussion, and Management Recommendations)

Year 3 monitoring methods, results, discussion, and recommended management activities are provided below for each performance standard.

C.7.1 Methods

Year 3 monitoring methods are discussed below for each performance standard and are in accordance with the project's MMP (Swaim Biological 2018).

C.7.1.1 Target Hydrologic Regime

Hydrologic monitoring at the ponds was provided by Camara Environmental Consulting. Appendix B contains water depth records to document the Year 3 hydrologic regime.

C.7.1.2 California Red-legged Frog/California Tiger Salamander/Western Pond Turtle

CR1 did not retain water long enough to support amphibian breeding.

The hydroperiod was almost long enough to support breeding at CR4. As such, Camara Environmental Consulting conducted wildlife surveys for special-status species at CR4 to evaluate the performance standards for the California red-legged frog, California tiger salamander, the western pond turtle, and aquatic predators.

Kelli Camara conducted a California red-legged frog egg mass and larvae survey and dipnetted for California tiger salamander larvae at CR4 on March 3, 2022. Kelli did not visit both ponds again on May 23 as the ponds

were reported dry by others. Aquatic predator presence/absence and WPT presence was conducted with each visit and no predators were observed. Based on the lack of water and per conversations with SCVHA, no nighttime surveys were conducted in 2022.

Table 2. Level of Effort for Wildlife Surveys

Date	Survey Type	Observer	Pond CR1	Pond CR4
March 3, 2022	California red-legged frog and California tiger salamander egg mass and larvae and WPT survey;	Kelli Camara	Pond dry	Daytime egg mass survey and dip-netted
March 3, 2022	Predator survey	Kelli Camara	Pond dry	Visual observation and dip-netted

C.7.1.3 Aquatic Predator Abundance

The presence/absence of aquatic predators during each of the special-status wildlife surveys described above was recorded. No predators were encountered.

C.7.1.4 Wetland Vegetation Percent Cover

The 2018 MMP (Swaim Biological, Inc., December 2018) identified a wetland plant palette for the two constructed ponds. The plant palette contains a mix of short emergent wetland species and drought tolerant wetland species to provide a range of species that will provide cover throughout the year as the depth of inundation and soil saturation vary. The plant palette was also developed to increase plant species richness at the site. This planting was not completed in 2019/2020 due to lack of rainfall and again was postponed in 2020/2021. Planting occurred in January 2022.

Biotic Resources Group plant ecologist Kathleen Lyons conducted wetland vegetation monitoring at CR1 and CR4 on April 18, 2022. Percent cover of natural recruited vegetation was determined by species using the quadrat sampling method (Bonham 1989) along transects established within the un-grazed portions of CR1 and CR4 (see Figures A-1 and A-4 in Appendix A). The quadrats were placed along permanent transects within the wetland area (within the cattle exclusion fencing). Transect endpoints were marked with metal T-posts. Due to the small size of the ponds, quadrat sampling transects were established across each feature in alternating directions to capture all site conditions. The number of quadrats sampled was based on the variability of the site's vegetative cover and 12 1-meter^2 quadrats was determined to adequately capture plant cover at CR1; 10 quadrats were established at CR4. Cover was estimated to the nearest whole percent. Bare ground and open water were also recorded. All species in quadrats were identified using the Jepson Manual (Baldwin et al. 2012). Wetland species were defined as having a wetland indicator status of facultative (FAC), facultative wetland (FACW), or obligate (OBL) based on the *National Wetland Plant List for the Arid West Region* (Lichvar, et al. 2020), regardless of whether they were native or nonnative. Plant species were also distinguished as to plant guild, as follows: exotic annual forb (EAF), exotic annual grass (EAG), exotic perennial forb (EPF), exotic perennial grass (EPG), native annual forb (NAF), native annual grass (NAG), native perennial forb (NPF), or native

perennial grass (NPG). The average percent wetland vegetation cover and number of wetland species observed at each site were evaluated.

C.7.1.5 Invasive Plant Cover

Invasive, non-native plant species were documented on site during preparation of the 2018 MMP (Swaim Biological, Inc. 2018). Invasive species targeted for control were based on a California Invasive Plant Council (Cal-IPC) Inventory rating of moderate or high. At that time, a small number of artichoke thistle (*Cynara cardunculus*) individuals were present in the uplands around pond site CR1. Non-native annual species typically found in California annual grassland habitat were also documented in the project area grasslands, including black mustard (*Brassica nigra*), artichoke thistle (*Cynara cardunculus*), purple star thistle (*Centaurea calcitrapa*), yellow star thistle (*Centaurea solstitialis*), and barbed goat grass (*Aegilops triuncialis).* A small area of Himalayan blackberry (*Rubus armeniacus*) was documented on the banks of Pond CR4 (Swaim Biological, Inc. 2018).

2022 Year 3 Condition. Biotic Resources Group plant ecologist Kathleen Lyons conducted focused visual surveys for invasive plant species at both restoration sites. On April 18, 2022, Ms. Lyons documented invasive plant cover along the five transects previously established in 2019. Using the line intercept sampling method, plant species composition and cover was recorded at 1-meter intervals along 2 transects at CR1 and 3 transects at CR4. In addition, one-meter^2 quadrats were placed at 1-meter intervals to visually document cover of invasive, non-native plant occurrences, using the following metrics: low (6-25% cover), moderate (26-50% cover), and high (51 -100% cover). Data from the point intercept sampling was compiled into an Excel spreadsheet to determine plant cover by species, plant guild and invasive status for each transect. Data from the quadrat sampling was used to refine maps showing the distribution of invasive plant species at each restoration site.

On April 18th , Ms. Lyons visually assessed cover of invasive plant species throughout the two sites using the low, moderate, and high cover values. At those visits, cover by the following species were determined: black mustard, Italian and slender thistle (*Carduus ssp.)*, artichoke thistle, yellow star thistle, purple star thistle (*Centaurea calcitrapa)*, barbed goat grass, bull thistle (*Cirsium vulgare)*, canary grass (*Phalaris sp.*), and milk thistle (*Silybum marianum).* The results of the invasive plant cover surveys, quadrat sampling, and visual assessments were used to prepare maps depicting the extent and severity of invasive plant species at CR1 and CR4.

C.7.1.6 Wetland Delineation

In accordance with the MMP, a wetland delineation will be conducted at the end of the 5-year monitoring period; therefore, one was not conducted in Year 3. Biotic Resources Group performed a qualitative assessment of wetland conditions in Year 3 during monitoring and maintenance visits.

C.7.1.7 Water for Cattle

Water availability for cattle was determined on the basis of observations of water infrastructure.

C.7.1.8 Photo-documentation

Photo-documentation of the pond sites was conducted by Camara Environmental Consulting from permanent locations established with G. Haas on August 7, 2020. Photographs were taken documenting the wetland and invasive plant cover by Biotic Resources Group plant ecologist Kathleen Lyons during monitoring on April 18,

2022, from the beginning of each wetland transect and invasive plant transect. Additional photographs were taken throughout Year 3 to record observations and events that may affect the success of mitigation. Photographs are provided in Section D and the locations of the photo-documentation points are shown on Figures 3 and 4 in Section E.

C.7.2 Results and Discussion

Year 3 monitoring results are provided below for each performance standard. These results are also summarized in Table 1.

C.7.2.1 Target Hydrologic Regime

Pond Site CR1. The hydrologic regime performance standard calls for a depth of inundation of at least 6 inches through August 31 of each monitoring year that exhibits average or above average precipitation. This standard is intended to achieve the target hydrologic regime that supports high quality breeding habitat for the California red-legged frog and California tiger salamander. 2021-2022 was a below average water year. Therefore, the hydrologic regime performance standard was not applicable in Year 3.

Water was observed in CR1 temporarily on January 14 (4.6-ft) but was dry again (6 weeks later) by March 3. 1.1-ft was observed on April 18, but the pond was dry again by May 1.

Pond Site CR4. The hydrologic regime performance standard calls for a depth of inundation of at least 6 inches through August 31 of each monitoring year that exhibits average or above average precipitation This standard is intended to achieve the target hydrologic regime that supports high quality breeding habitat for the California red-legged frog and California tiger salamander. 2021-2022 was a below average water year. Therefore, the hydrologic regime performance standard was not applicable in Year 3.

Water levels at CR4 were documented at their highest on January 14 (3-ft). Water levels slowly declined and the pond was dry by March 23.

C.7.2.2 California Red-legged Frog/California Tiger Salamander/Western Pond Turtle

California Tiger Salamander. No California tiger salamanders (including larvae) were observed during the Year 3 monitoring at CR1 or CR4, due to a below average water year. A 2008 special-status amphibian aquatic survey by Biosearch Associates (2008) documented California tiger salamander larvae in Pond CR01 (Pond 2 in their report) and reported previous findings of larvae in 2005 and 2006. The same 2008 study documented California tiger salamander larvae in Pond CR04 (Pond 15 in their report) (Biosearch 2008).

California Red-legged Frog. No California red-legged frogs or egg masses were observed during the Year 3 monitoring at CR1 or CR4, due to a below average water year. Biosearch Associates (2008) reported an adult California red-legged frog at Pond CR01 in 2006 and a breeding pair at Pond CR04 in 2007.

Western Pond Turtle. Neither CR1 nor CR4 provided suitable western pond turtle habitat.

Additional Wildlife Observations. No wildlife were observed at or near the ponds during quarterly site visits.

Comparison to Performance Standards. The MMP performance standards call for CRLF and CTS breeding and WPT presence to be documented at CR1 and CR4 at least once during the five-year monitoring period,

assuming average rainfall year/s. Due to a below average water year, performance standard was not applicable in Year 3.

C.7.2.3 Aquatic Predator Abundance

Aquatic predators were not observed in CR1 or CR4 during the dipnet and visual encounter surveys for special-status species on February 1, 2021. For both ponds, the hydroperiod was too short to support aquatic predators and both ponds dried down completely. Therefore, neither pond needed to be drained in order to control aquatic predators.

The MMP performance standard for aquatic predators requires draining the pond(s) to control predators if annual monitoring determines that bullfrog or crayfish have located to one or both ponds. The ponds will be drained in mid-September of the current year and allowed to dry completely until winter rains refill the pond. Predators were not observed during Year 3; therefore, this criterion has been met.

C.7.2.4 Wetland Vegetation Percent Cover

The MMP requires the average percent cover of wetland vegetation will exhibit an increasing temporal trend across monitoring years at the pond sites; evaluated separately. Percent cover will be determined by species; at least three wetland species will be observed at each site during each monitoring year. For Year 3, wetland cover performance standard is 40%, with less than 50% open water and a minimum of three wetland plant species present.

In Year 3, average wetland vegetation cover ranged from 72.43% to 7.6% at ponds CR1 and CR4, respectively, during vegetation monitoring on April 18, 2022 (Table 3). At CR1, individual quadrat samples ranged from a low of 57% wetland cover to a high of 122% (absolute cover). At CR4, individual quadrat samples ranged from a low of 0% wetland cover to a high of 57%. Within the planting zone, wetland cover was recorded at 35%. Wetland cover data is presented in Appendix A, Table A-1. Appendix A, Figure A-15 presents wetland cover by wetland indicator status at CR1 and CR4 for 2022.

Table 3. Wetland Vegetation Percent Cover and Number of Wetland Species, Year 3 (2022)

Year	Site	Wetland Vegetation Cover (average) Year 3	Year 3 Wetland Vegetation Cover Performance Standard	Number of Wetland Species Year 3	Year 3 Wetland Species Number Performance Standard	Year 3 Performance Standards Met?
Year 3	CR1	72.4%	40% in planting zones; less than 50% in open water pond habitat	3	3	Yes
	CR4	7.6%		4		No

1 – Cover by OBL, FACW and FAC-designated species, as per Arid West 2020 Regional Wetland plant List, Lichvar, etal, 2020

Three wetland plant species were observed at CR1 and four wetland species were observed at CR4 (Table 4); knotweed (*Polygonum aviculare)* (FAC) provided the most cover, followed by rush (*Juncus sp.)* (FACW), bulrush (*Schoenplectus sp.)* (OBL), and sow thistle (*Sonchus asper)* (FAC). The rush and bulrush were planted on site in January 2022. Other wetland plant species observed include ryegrass *(Lolium perennis)* (FAC) and curly dock

(*Rumex crispus)* (FAC). Two additional wetland plant species, swamp prickle grass (*Crypsis schoenoides)* (FACW) and alkali heliotrope (*Heliotropium curassavicum*) (FACW) were observed at CR4 in summer 2022 (G. McMenamin, pers. com., 2022). Charts displaying the April 2022 monitoring results for each site, showing cover by plant guild, are provided in Appendix A, Table A-1 and Figures A-8 and A-13.

Table 4. Wetland Plant Species Observed at CR1 and CR4, Year 3 (2022)

Species Scientific Name	Species Common Name	Plant Guild	Wetland Indicator Status	Percent Cover CR1	Percent Cover CR4
Festuca (Lolium) perennis	Ryegrass	EAG	FAC	1.9	0
Polygonum aviculare	Knotweed	EPF	FAC	68.3	0.4
Sonchus asper	Sow thistle	EAF	FAC	2.2	0
Juncus sp.	Common rush	NPF	FACW	0	4.6
Schoenoplectus sp.	Bulrush	NPF	OBL	0	2.1
Rumex crispus	Curly dock	EPF	FAC	0	0.5

1 – Cover by OBL, FACW and FAC-designated species, as per Arid West 2020 Regional Wetland plant List, Lichvar, etal, 2020

As per the MMP, vegetation cover at the CR1 and CR4 ponds should not exceed 50% in the open water pond habitat during any monitoring year to ensure establishment of breeding habitat for CTS and CRLF. In Year 3, CR1 was dry during the April 2022 sampling and vegetation was recorded at the open water habitat quadrats; vegetation cover exceeded 50% (cattle-excluded area). At CR4, open water was present during the April 2022 sampling and vegetation cover within the cattle-excluded area was 0%. A visual assessment of the cattle-grazed areas at the two ponds found bare ground at less than 50%. If bare ground is assumed to have been open water earlier in the season, the open water performance criteria may have been met within these cattle-grazed areas during some portion of the winter/spring season. Where cattle grazing was excluded from the ponds, bare ground averaged 1% at CR1 and 11% at CR4 (all quadrats). This data is portrayed in Appendix A, Table A-1.

C.7.2.5 Invasive Plant Cover

As per the MMP, the average percent cover of non-native, invasive plant species at the pond sites is required to be less than 5% in each monitoring year. Using the visual metrics, the performance standard would equate to below the low-density metric (6-25% cover). All species with a Cal-IPC rating of moderate or high are to be considered non-native, invasive plant species.

At CR1, transect data documented invasive plant cover with a low of 0% (transect T-2) to a high of 2.2% (transect T-1). Quadrat sampling along each transect documented densities of low and moderate for black mustard and yellow star thistle. Quadrat sampling in April 2022 detected an absence of milk thistle, artichoke thistle, and French broom and a decline in cover by goat grass, compared to 2021, 2020, and 2019. Visual mapping of invasive plant polygons at CR1 showed a decrease in density of French broom, yet low density polygons were mapped for black mustard, artichoke thistle, yellow star thistle milk thistle, Italian / slender thistle, and goat grass. One moderate density polygon was mapped for artichoke thistle.

At CR4, transect data documented invasive plant cover with a low of 0% at transect T-2 and T-3 to a high of 1.9% at transect T-1 (decrease from 6.6% in 2021 and decrease from 15.5% in 2020). Quadrat sampling along each transect documented low densities of black mustard and Italian/slender thistle. Visual mapping in 2022 detected the same species as 2021, with low to moderate density polygons of Italian/slender thistle, black mustard, yellow star thistle, artichoke thistle, purple star thistle, bull thistle, canary grass, milk thistle, and goat grass. Goat grass is a new invasive species found at CR4 in 2022. The amount of goat grass found at CR4 was limited to a few plants. It was likely transported to the location during mowing along the fence line, as the seed is not windborne. The few goat grass plants were pulled and bagged prior to seed viability. This should prevent a significant infestation as long as it is monitored, and any germinated seed remaining is removed prior to seed and the fence line mowing is altered to prevent movement of goat grass seed from the west.

The Year 3 visual mapping of invasive plant polygons at each pond site is presented in Appendix A (Figures A-2, A-3, and A-5) and summarized in Table 5. Charts displaying the monitoring results for each site, including cover by plant guild and invasive plant status, are provided in Appendix A, Figures A-6, A-7, A-9, A-10. A-11, A-12, and A-14.

Table 5. Invasive Plant Polygons, Visual Assessment, Year 3 (2022)

Site	Species Scientific Name	Species Common Name	Cal IPC Rating	Low Density (6-25%)	Moderate Density (26-50%)	High Density (51-100%)
CR-1	*Carduus spp.*	Italian/slender flowered thistle	High	Yes	No	No
	Brassica nigra	Black mustard	Moderate	Yes	No	No
	Centaurea solstitialis	Yellow star thistle	High	Yes	No	No
	Cynara cardunculus	Artichoke thistle	Moderate	Yes	Yes	No
	Aegilops triuncialis	Barbed goat grass	High	Yes	No	No
	Silybum marianum	Milk thistle	Limited	Yes	No	No
CR-4	*Carduus spp.*	Italian/slender flowered thistle	High	Yes	Yes	Yes
	Centaurea solstitialis	Yellow star thistle	High	Yes	No	No
	Cynara cardunculus	Artichoke thistle	Moderate	Yes	No	No
	Brassica nigra	Black mustard	Moderate	Yes	Yes	No
	Centaurea calcitrapa	Purple star thistle	High	Yes	No	No
	Cirsium vulgare	Bull thistle	High	Yes	No	No

	Phalaris sp.	Canary grass	Moderate	Yes	No	No
	Silybum marianum	Milk thistle	Limited	Yes	No	No
	Aegilops triuncialis	Barbed goat grass	High	Yes	No	No
	Phalaris sp.	Canary grass	Moderate	Yes	No	No

The MMP identifies a performance standard threshold of 5% average percent cover each year for all invasive species, with 2019 being the baseline; however, during review of the work scope, this performance standard was deemed to be unattainable for some species. The 5% threshold, using 2019 as the baseline, was retained for Italian/slender thistle, black mustard, artichoke thistle, and poison hemlock; yet modified for two species, yellow star thistle and barbed goat grass. For barbed goat grass and yellow star thistle, the Year 1 (2020) distribution of these two species will be the baseline upon which future years will be compared as listed in Table 6 and portrayed on the Year 1 maps (see Year 1 Monitoring Report, Appendix A, Figures A-2, A-3 and A-6).

Table 6. Performance Standards for Invasive, Non-native Plant Species, Years 1-5[2]

Species Scientific Name	Species Common Name	Year 1 (2020)	Year 2 (2021)	Year 3 (2022)	Year 4 (2023)	Year 5 (2024)	Meets Year 3 Performance Standard?
Carduus spp.	Italian/slender flowered thistle	5% cover	5% cover	5% cover	5% cover	5% cover	No
Brassica nigra	Black mustard	5% cover	5% cover	5% cover	5% cover	5% cover	No
Cynara cardunculus	Artichoke thistle	5% cover	5% cover	5% cover	5% cover	5% cover	No[3]
Conium maculatum	Poison hemlock	5% cover	5% cover	5% cover	5% cover	5% cover	Yes, none observed in 2022
Aegilops triuncialis	Barbed goat grass	Establish baseline	10% reduction in percent cover; 10% reduction in area from 2020 baseline.	30% reduction in percent cover; 25% reduction in area from 2020 baseline.	50% reduction in percent cover; 40% reduction in area from 2020 baseline.	80% reduction in percent cover; 60% reduction in area from 2020 baseline.	Yes, species observed at CR1; density of cover has been reduced from moderate to low and aerial extent reduced by 10% at CR1. Two small (new) occurrences at CR4 removed in 2022.
Centaurea solstitialis	Yellow star thistle	Establish baseline	15% reduction in percent cover; 10% reduction in area from 2020 baseline.	30% reduction in percent cover; 20% reduction in area from 2020 baseline.	50% reduction in percent cover; 30% reduction in area from 2020 baseline.	70% reduction in percent cover; 50% reduction in area from 2020 baseline.	Yes, density reduced from moderate to low at CR1; areal extent increased at CR4, but the density of cover was reduced significantly.
Centaurea calcitrapa	Purple star thistle	5% cover	5% cover	5% cover	5% cover	5% cover	Yes, cover is limited to one patch at CR4
Cirsium vulgare	Bull thistle	5% cover	5% cover	5% cover	5% cover	5% cover	Yes, cover is limited to one patch at CR4

[2] 2020 is baseline for this species; reduction in cover in subsequent years will be compared to this baseline

[3] 5% cover threshold was met at CR4, yet was not met at CR1

Genista monspessulana	French broom	5% cover	5% cover	5% cover	5% cover	5% cover	Yes, none observed in 2022
Species Scientific Name	**Species Common Name**	**Year 1 (2020)**	**Year 2 (2021)**	**Year 3 (2022)**	**Year 4 (2023)**	**Year 5 (2024)**	**Meets Year 3 Performance Standard?**
Phalaris sp.	Canary grass	5% cover	5% cover	5% cover	5% cover	5% cover	Yes, cover is limited to one patch at CR4

The Year 3 observations found cover by Italian/slender thistle, black mustard, and artichoke thistle to be greater than 5%, which exceeds the Year 3 performance standard. Present control methods, including the landowner/ SCVHA field mowing of mustard, should continue to reduce the seedbanks of black mustard and Artichoke thistle and lead to reaching the performance standards. The main infestation of Italian thistle at CR1 is located in and beyond the very northwest corner of the project area. Most of this infestation is outside the project area. It may be controlled by a carefully timed weedwacking or herbicide application. Reducing the density and coverage of Italian thistle at CR4 to the performance standard is more problematic. There is a very large infestation of Italian thistle located outside the project area to the north and northeast. This likely leads to a yearly reintroduction of Italian thistle from windborne seed, cattle and wildlife. Some control efforts have been attempted each year for the portion closest to the project area. However, full control has not been attempted and may not be practical due to the size of the patch, the steepness of the slope, the windborne seed and the proximity of the thistle to desirable native species.

Four species, purple star thistle, bull thistle, canary grass and milk thistle, had less than 5% cover, meeting the Year 3 performance standard. Poison hemlock and French broom were absent in 2022. The remaining invasive plant species, goat grass and yellow star thistle have reduced their percent cover, as mapped polygons have changed from moderate density (25-50% cover) to low density (6-25% cover) and the areal extent of the species have been reduced by at least 20%, thus meeting the Year 3 performance standard for these two species.

At CR1, poison hemlock, and French broom were absent in 2022, showing a reduction in cover and density compared to 2021, 2020 and the 2019 baseline condition. For barbed goat grass and yellow star thistle, 2020 cover was the baseline condition. In 2022, yellow star thistle and goat grass were found at CR1 wherein all polygons were mapped as low, a decrease from low and moderate polygons in 2020. In addition, the areal extent has been reduced. Similarly, the densities of black mustard were all low in 2022, compared to low and moderate polygons in 2020, and the areal extent of the species has been reduced. The areal extent and density of artichoke thistle has increased since the 2020 baseline. While most polygons have low density, a new polygon with moderate density was documented in 2022. As artichoke thistle has large floral heads and windborne seed, a single floral head can create a new patch. In 2022, control of artichoke thistle was increased to areas well beyond the borders of the project area. This should reduce the potential for windborne seed. In 2023, an increase in monitoring should assist in the depletion of the seed bank.

At CR4, Italian/slender thistle polygons decreased in areal extent between the 2020 baseline and 2022; however there remain polygons mapped with low and moderate density. Polygons of black mustard decreased slightly in number and density; however, there remain polygons mapped with low and moderate densities. The areal

extent of yellow star thistle has increased since the 2020 baseline, with all polygons being mapped as low density (similar to the 2020 baseline). Despite the increase in the areal extent of yellow star thistle, the density of yellow star thistle has been reduced significantly from the 2020 numbers at CR4, excluding the south/southeast fence line area which was mowed and represents a new area infestation, in 2022. Five new species have invaded the CR4 area since the 2019 and 2020 baselines; these species are purple star thistle, bull thistle, canary grass, milk thistle, and goat grass. All occurrences have low density. Milk thistle was found directly northeast of the project area in previous years.

These maps are presented in Appendix A, Figures A-2, A-3 and A-5. This information is summarized in Table 7.

Table 7. Trends in Percent Cover and Area of Select Invasive, Non-native Plant Species, Year 3 (2022)

		CR-1		CR-4	
Species Scientific Name	**Species Common Name**	**Change in Density from 2020**	**Change in Area from 2020**	**Change in Density from 2020**	**Change in Area from 2020**
Carduus spp.	Italian/slender flowered thistle	Decrease	Increase	Decrease	Decrease
Brassica nigra	Black mustard	Decrease	Decrease	Decrease	Decrease
Cynara cardunculus	Artichoke thistle	Same	Increase	Same	Decrease
Conium maculatum	Poison hemlock	Decrease	Decrease	N/A[4]	N/A[4]
Silybum marianum	Milk thistle	Increase	Increase	Increase	Increase
Centaurea solstitialis	Yellow star thistle	Decrease	Same	Decrease	Same
Aegilops triuncialis	Barbed goat grass	Decrease	Decrease	Increase	Increase
Centaurea calcitrapa	Purple star thistle	N/A[4]	N/A[6]	Increase	Increase
Cirsium vulgare	Bull thistle	N/A[4]	N/A[4]	Increase	Increase
Genista monspessulana	French broom	N/A[4]	N/A[4]	N/A[4]	N/A[4]
Phalaris sp.	Canary grass	N/A[4]	N/A[4]	Increase	Increase

[4] Species not found on site.

C.7.2.6 Wetland Delineation

A wetland delineation will be conducted at the end of the 5-year monitoring period; therefore, no wetland delineation was conducted in Year 3. Wetland conditions were observed to be establishing in the target wetland areas even though the water years 2019-2020, 2020-2021, and 2021-2022 were below average precipitation. Wetland planting were installed at CR1 and CR4 in January 2022. The following species were installed: narrowleaf milkweed (*Asclepias fascicularis)*, Baltic rush (*Juncus balticus)*, common rush (*Juncus patens),* Iris-leaved rush (*Juncus xiphioides)*, California bulrush (*Schoenoplectus californicus)*, hardstem bulrush (*Schoenplectus acutus)*, and water smartweed (*Pericardial amphibia)* (Source: Go Native, Inc.), as listed on Table 4.

C.7.2.7 Water for Cattle

We have met the criteria for cattle water by providing water longer into the year than before the berms were reconstructed.

C.7.2.8 Photo-documentation

Photographs from established photo-documentation points and additional locations taken throughout Year 3 monitoring are provided in Section D. Photo-documentation points are shown on Figures 3 and 4 in Section E.

C.7.3 Recommended Management Activities

Management recommendations are provided below for relevant performance standards.

C.7.3.1 Target Hydrologic Regime

Camara Environmental Consulting prepared the following recommendations for target hydrologic regime:

- Continue to work with Sherwood to determine if the hydroperiods of the ponds are associated with on-going drought and/or other issues that could be addressed through adaptive management actions.

C.7.3.2 Aquatic Predator Abundance

Because both CR1 and CR4 were dry by May 23, 2022, no management activities such as pond draining were recommended.

C.7.3.3 Wetland Vegetation Percent Cover

In April 2022, CR1 met the Year 3 wetland plant cover performance standard of at least 40% cover in the planting zones as wetland cover was recorded at 72.4%. The wetland plant cover was provided by an exotic annual grass (EAG), an exotic annual forb (EAF) and one exotic perennial forb (EPF). At least three wetland plant species are required; and in 2022 this criterion was met. At CR4 wetland plant cover was 7.6% within the planting zone, which is below the Year 3 performance standard. Four wetland plant species were documented, two native perennial forbs (NPF) and two exotic perennial forbs (EPF). The NPF at CR4 were from the wetlands plantings that were installed on site in January 2022. Future monitoring is expected to capture

additional cover by these two species, as well as others that were installed, as listed on Table 4. Open water covered 71% of the sampled area.

For Year 3, the goal for the open water is less than 50% wetland vegetation during any monitoring year. This criterion was met at CR4, but not at CR1. Open water was prevalent (with no wetland vegetation) at CR4. At CR1, no open water habitat was observed, and all of the open water habitat area supported vegetation. Where cattle had access to the areas, bare ground was observed at both CR1 and CR4; which could suggest that the bare ground was open water earlier in the season. It is recommended that the visual assessment of open water be conducted earlier in the season (February or March) if 2023 is another drought year and plant cover be recorded later in the season (June) to capture plant growth in open water areas.

Invasive Plant Cover

The MMP describes that all plant species with a Cal-IPC rating of moderate or high be considered invasive plant species; however, with the exception of the species noted below, no additional invasive, non-native plant species with a moderate invasiveness rating were observed on site in 2022. These include species that have naturalized in California grasslands and wetlands and include moderately ranked species of Italian ryegrass, wild oat, and foxtail barley. It is recommended that these species not be targeted for control or removal because the associated ground disturbance may be substantial and negatively affect wetland habitat functions/performance standards. In addition, the current level of invasives is not significantly impairing the wetlands. Barbed goat grass is the highest concern in the wetlands and will continue to be monitored.

The April 2022 site visit, wherein transect data was collected and a visual estimate of invasive plant cover was conducted, was suitable for documenting the pre-treatment infestations of several species prior to Year 3 invasive removal activities. Invasive plant species control should continue in 2023, as per the scope of services.

Most previously targeted species had a decrease in density and areal extent in 2022, as compared to 2019, 2020 and 2021. In part, this can be directly attributed to the control actions implemented in 2020. Control actions in 2020 were implemented prior to flower/seed formation, which decreased the weed seed in the soil seedbank. This decrease in seed was reflected in the 2021 and 2022 observations of decreased plant density and aerial extent. However, the 2020/21 and 2021/2022 growing seasons had drought conditions; therefore, it is likely that some seed may not have germinated in these conditions and drought could have affected plant growth. Four new invasive species were detected on site in 2021: French broom (*Genista monspessulana*) at CR1 and Purple star thistle, bull thistle *(Cirsium vulgare),* and canary grass *(Phalaris sp.)* at CR4, which are described below. The occurrence of new invasive plant species on site underscores the importance of yearly monitoring such that control can be implemented quickly, preventing infestations from growing larger or creating new populations. As these new invasive plant species have seed viability of multiple years, it is critical to prevent them from establishing a significant seed bank. Therefore, monitoring will be required in future years.

There was a single occurrence of French broom (*Genista monspessulana*) at CR1, in 2021. This plant was removed prior to flower or seed. As French broom seed is not a windborne seed, the location where it was found is not subject to significant water flow and there is no known French broom in the area, the vector for the seed was likely humans or less likely cattle. There should be very limited French broom seeds in the project area. Control of French broom at this location should consist of monitoring and removal of any new seedlings prior to flowering.

The Purple star thistle found at CR4 is likely from two significant patches. One patch is located along the dirt road at the top of the hill, west of the CR4 project area. Although this patch was partially treated in 2021, full treatment did not occur as it was greater than 100 meters outside the project area. In 2022, a second established patch of purple star thistle was discovered outside the project area 80-100 meters to the east, along the fence line. This vector for purple star thistle at CR4 is likely due to the 2022 mowing regime along the fence line and to a lesser degree windborne seed, cattle or other wildlife. To control and prevent future infestations of purple star thistle at CR4, full treatment of the hilltop and eastern infestation prior to flowering and mowing is optimum. If full treatment is not possible, treatment should extend as far as allowed.

The increase in the areal extent of yellow star thistle at CR4 is likely due to the fence line mowing regime. In 2022, an established patch of yellow star thistle was found along the fence line 80-100 meters to the east of CR4, well outside the project area. It is likely that when the fence line mowing occurred seed was spread from that patch into the CR4 project area. Full treatment of this yellow star thistle patch prior to mowing may prevent establishment of a seedbank in the project area.

The limited infestation of Bull thistle was found in the CR4 project area. The vector for this seed was most likely windborne seed or transportation into the area by cattle or other wildlife. As Bull thistle prefers moist conditions, some of the seed may not have germinated this year due to the drought conditions. Control should consist of monitoring and removal (including all roots) of any rosettes that appear in the wetland areas.

A few small clumps of Canary grass *(Phalaris sp.)* were located along the northern CR4 pond edge. Although there was no previously observed canary grass in the project area, a few small plants could have existed and been missed during previous surveys, due to ongoing drought conditions. The vector for the few clumps is likely windborne seed, water or wildlife. Control of Canary grass at this location will consist of monitoring and removal of any new plants prior to flowering.

C.7.3.4 Water for Cattle

Water was not available year-round for cattle from CR1 and CR4. However, berm reconstruction increases the opportunity for the ponds to provide water when compared to pre-construction conditions.

C.8 Conclusions and Adaptive Management Activities Proposed

Given the below average rainfall year, monitoring results from Year 3 at CR1 and CR4 are inconclusive for ensuring the performance standard of 0.5 ft of standing water through August 31 and without adequate ponded water, amphibian breeding was not feasible. As 2021-2022 was (again) a below average rainfall year, the performance standard for target hydrologic regime and the presence of amphibian breeding in at least one monitoring year was not applicable in Year 3.

However, as previously noted, the project team has been re-evaluating the hydrologic budget and increased the frequency of monitoring to document pond dry down. The team is discussing the installation of hobo loggers or cameras, given limited access to monitor ponds during and between storm events. Upon conclusion of this year's monitoring efforts, the team will determine if adaptive management measures (ie. pond lining, berm repair, etc.) should be employed to meet the target hydrologic regime.

Future monitoring surveys will be conducted to determine if the California red-legged frog and/or California tiger salamander is present and successfully breeding during at least one of the first five monitoring years.

At CR1, the Year 3 monitoring shows positive trends in wetland plant cover meeting greater than 40% cover through both natural colonization and the 2022 wetland plantings. At CR4, the planting zone averaged 35% wetland plant cover; however, the remainder of the pond had low plant cover due to ponded water. The standard for at least 3 wetland species at each pond was met at both CR1 and CR4. Two native species that were planted on-site were recorded in the April 2022 sampling. The open water habitat at CR4 supported less than 50% cover by wetland plant species, which met the Year 3 performance criterion; however, no open water was recorded at CR1 and the open water habitat supported over 72% wetland plant cover. Wetland plant cover was documented in April 2022; this timing missed the occurrence of two wetland species, swamp pricklegrass (*Crypsis schoenoides*) (FACW) and alkali heliotrope (*Heliotropium curassavicum*) (FACW), which were observed at CR4 later in the season. The April 2022 sampling also missed cover by goat grass at CR1. It is recommended that wetland plant cover be monitored later in the growing season to capture additional plant species. The April 2022 sampling captured some plant cover by the wetland plants installed in January 2022; however, only a small area of the planting zone was captured in the quadrats. It is recommended that the number of quadrats be increased to capture additional areas in the planting zone. Invasive plant cover and areal extent for most species has decreased from 2020 due to active control efforts and possibly the past two years of drought conditions. At present, invasive plant species pose a minimal threat to wetland habitat establishment at the pond sites. Invasive plant cover will continue to be monitored to limit potential future threats.

Several factors are influencing plant density and coverage. This may have led to short-term fluctuations in density or coverage data. The ongoing drought is likely to have suppressed both the germination of seed and vigor of some native and non-native plant species. Other plant species may have increased their germination and growth due to loss of competition and differing environmental requirements. In addition, some of the targeted non-native invasive plant species exist in the habitats directly adjacent to the project areas. This can lead to the direct import of undesirable seed into the project areas, thereby reducing the depletion rate of the seed banks. CR4 has a significant patch of Italian thistle and a smaller patch of Milk thistle adjacent to the northeast border of the project area. A buffer at the border of the large Italian thistle patch northeast of CR4 was established in 2022 and the Milk thistle floral heads were removed. CR1 has patchy barbed goat grass to the south, west and east, and a large area of low to moderate density yellow star thistle to the east, west and northwest.

The Year 3 observations found cover by Italian/slender thistle, black mustard, and artichoke thistle to be greater than 5%, which exceeds the Year 3 performance standard. The areal extent and density of artichoke thistle has increased since the 2020 baseline. While most polygons have low density, a new polygon with moderate density was documented in 2022.

To meet the designated percentages for targeted invasive plant species and depletion of their corresponding seed banks, several adaptive management steps are intended to be implemented in 2022. Although narrow 10' to 15' buffer zones were created along the western and southern fence lines at CR1 to provide some protection from the invasive plants in adjacent habitat, the buffers were limited. We intend to expand the width of these buffer zones. However, if there is a significant increase in the percentage in yellow star thistle and goat grass germination due to the first wet winter since the project began, we may need to postpone widening the treatment buffer until future years and prioritize depleting the flush of yellow starthistle and goat grass seedbank in 2022.

The patch of yellow star thistle to the northwest of CR1 appears to be approximately one-half acre in size on a steep slope. Selective weedwacking and/or an application of appropriate, approved herbicide will be used following the previously established protocols (spot treatment with a backpack sprayer).

At CR4, the new yellow star thistle patch found along the mowed fence line to the top of the low ridge (Figure A-5, eastern most polygon) was handpulled and bagged.

In 2022, buffer zones were weedwacked on the south and southwest edge of the large patch of Italian thistle, northeast of the CR4 project area. The treatment of Italian thistle was expanded in 2022. However, this patch continues to the north and northeast for a significant unknown distance on very steep slopes. Full treatment is likely impractical, as discussed previously (page 18). There were very low levels of the three new invasive plants (French broom, Bull thistle and canary grass) found in the project areas. Monitoring and removal of the entire plant prior to seedbank establishment should provide a low resource cost solution to limit or prevent any substantial future infestation.

Several actions should assist in reducing the number of new yellow and purple star thistle plants within the project areas. Full treatment of purple star thistle along the hilltop road between in the vicinity of CR1 and CR4 will limit the potential movement of seed into the project areas. Coordination with and adjustments to the timing of mowing along the fence line to the east of CR4 and/or treatment of the existing patches to the east, will prevent the further introduction of new yellow and purple star thistle seed into CR4 and east of CR4 should limit the number of new plants that germinate within the project area (CR4). However, there are patches of purple star thistle and yellow star thistle along much of the length of the access road leading from Metcalf Road to the projects. Therefore, it is likely that new purple and yellow star thistle seedlings will periodically appear. Monitoring will allow for low-cost control, if the seedlings are found and removed early within the vicinity of the projects.

It is recommended that ongoing management and maintenance activities continue in 2023 to increase the likelihood that the pond sites fulfill the project's objectives and achieve the project's performance standards. These activities should include native re-planting per the project design and invasive and nonnative plant species control and removal.

Section D. Photodocumentation

Photo 1. Establishment of Photo Monitoring Point CR1_PPT1 (August 12, 2019)

Photo 2. Year 1 Conditions at Photo Monitoring Point CR1_PPT1 (January 28, 2020)

Photo 3. Year 2 Conditions at Photo Monitoring Point CR1_PPT1 (April 8, 2021)

Photo 4. Year 3 Conditions at Photo Monitoring Point CR1_PPT1 (March 3, 2022)

Photo 5. Establishment of Photo Monitoring Point CR1_PPT2_1 (August 12, 2019)

Photo 6. Year 1 Conditions at Photo Monitoring Point CR1_PPT2_1 (January 28, 2020)

Photo 7. Year 2 Conditions at Photo Monitoring Point CR1_PPT2_1 (April 8, 2021)

Photo 8. Year 3 Conditions at Photo Monitoring Point CR1_PPT2_1 (March 3, 2022)

Photo 9. Establishment of Photo Monitoring Point CR1_PPT2_2 (August 12, 2019)

Photo 10. Year 1 Conditions at Photo Monitoring Point CR1_PPT2_2 (January 28, 2020)

Photo 11. Year 2 Conditions at Photo Monitoring Point CR1_PPT2_2 (April 8, 2021)

Photo 12. Year 3 Conditions at Photo Monitoring Point CR1_PPT2_2 (March 3, 2022)

Photo 13. Establishment of Photo Monitoring Point CR1_PPT2_3 (August 12, 2019)

Photo 14. Year 1 Conditions at Photo Monitoring Point CR1_PPT2_3 (January 28, 2020)

Photo 15. Year 2 Conditions at Photo Monitoring Point CR1_PPT2_3 (April 8, 2021)

Photo 16. Year 3 Conditions at Photo Monitoring Point CR1_PPT2_3 (September 27, 2022)

Photo 17. Establishment of Photo Monitoring Point CR1_PPT3_1 (August 12, 2019)

Photo 18. Year 1 Conditions at Photo Monitoring Point CR1_PPT3_1 (January 28, 2020)

Photo 19. Year 2 Conditions at Photo Monitoring Point CR1_PPT3_1 (April 8, 2021)

Photo 20. Year 3 Conditions at Photo Monitoring Point CR1_PPT3_1 (March 3, 2022)

Photo 21. Establishment of Photo Monitoring Point CR1_PPT3_2 (August 12, 2019)

Photo 22. Year 1 Conditions at Photo Monitoring Point CR1_PPT3_2 (January 28, 2020)

Photo 23. Year 2 Conditions at Photo Monitoring Point CR1_PPT3_2 (April 8, 2021)

Photo 24. Year 3 Conditions at Photo Monitoring Point CR1_PPT3_2 (March 3, 2022

Photo 25. Establishment of Photo Monitoring Point CR1_PPT3_3 (August 12, 2019)

Photo 26. Year 1 Conditions at Photo Monitoring Point CR1_PPT3_3 (January 28, 2020)

Photo 27. Year 2 Conditions at Photo Monitoring Point CR1_PPT3_3 (April 8, 2021)

Photo 28. Year 3 Conditions at Photo Monitoring Point CR1_PPT3_3 (September 27, 2022)

Photo 29. Establishment of Photo Monitoring Point CR1_PPT3_3 (August 12, 2019)

Photo 30. Year 1 Conditions at Photo Monitoring Point CR4_PPT1 (January 28, 2020)

Photo 31. Year 2 Conditions at Photo Monitoring Point CR4_PPT1 (April 8, 2021)

Photo 32. Year 3 Conditions at Photo Monitoring Point CR4_PPT1 (March 3, 2022)

Photo 33. Establishment of Photo Monitoring Point CR4_PPT2 (August 12, 2019)

Photo 34. Year 1 Conditions at Photo Monitoring Point CR4_PPT2 (January 28, 2020)

Photo 35. Year 2 Conditions at Photo Monitoring Point CR4_PPT2 (April 8, 2021)

Photo 36. Year 3 Conditions at Photo Monitoring Point CR4_PPT2 (March 3, 2022)

Photo 37. Completely Dry Pond Bed at CR1 (December 29, 2020)

Photo 38. Completely Dry Pond Bed at CR1 (February 1, 2021)

Photo 39. 4.6 feet of water at CR1 (January 14, 2022)

Photo 40. Completely Dry Pond Bed at CR1 (March 3, 2022)

Photo 41. CR1 at water (1.1 ft) on April 18 (noted by others) but was completely dry by May 1 (noted by others) (June 16, 2022).

Photo 42. 3-ft of water at CR4 (January 14, 2022)

Photo 43. 2.1-ft of water at CR4 (March 3, 2022)

Photo 44. Completely Dry Pond Bed at CR1 (June 16, 2022)

Wetland Vegetation

CR1, Wetland Transect within Cattle Exclosure, April 2022

1m^2 Quadrat, CR1, April 2022

CR1, Wetland, 2022, Showing Grazed and Un-grazed Areas, April 2022

CR4, Transect Sampling; Open Water with No Wetland Vegetation, April 2022

CR4, 1m^2 Quadrat Quadrat within Wetland Planting Zone, April 2022

CR-4 1m^2 Quadrat in Wetland Planting Zone, April 2022

Invasive Plant Cover Photo-Documentation

CR1 Transect T-1, April 2022

CR1 Transect T-2, April 2022

CR4 Transect T-1, April 2022

CR4 Transect T-2, April 2022

CR4 Transect T-3, April 2022

Section E. Maps

Figures 1–4 are included below.

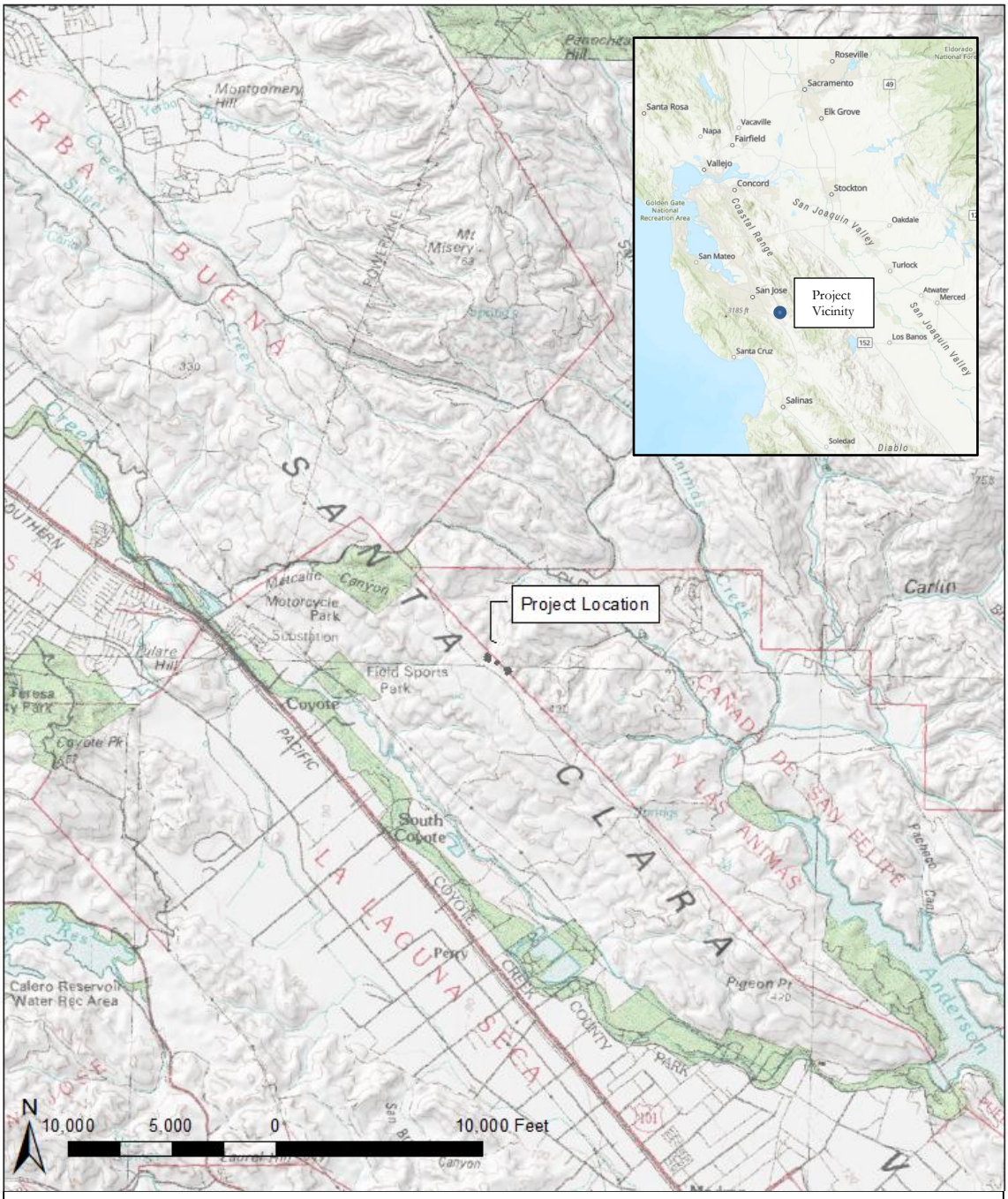

Figure 1. Coyote Ridge CR1 and CR4 Sites Vicinity Map
Coyote Ridge Ponds Restoration Project, Ponds CR1 and CR4
Year 2 Monitoring Report
October 2021

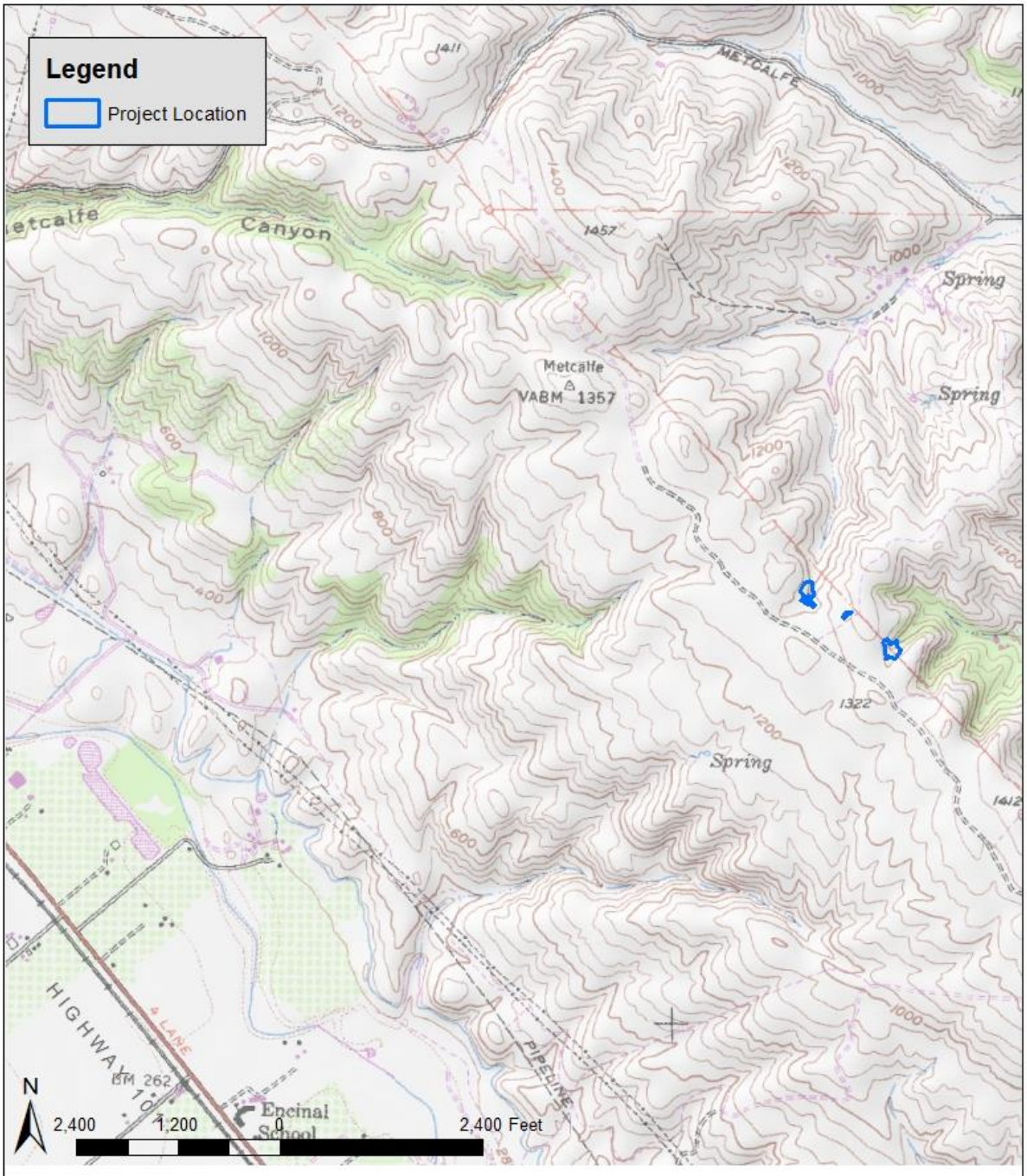

Figure 2. Coyote Ridge CR1 and CR4 Sites USGS Topographical Map
Coyote Ridge Ponds Restoration Project, Ponds CR1 and CR4
Year 2 Monitoring Report
October 2021

Figure 3. Coyote Ridge CR1 Photo Monitoring Locations
Coyote Ridge Ponds Restoration Project, Ponds CR1 and CR4
Year 2 Monitoring Report
October 2021

Figure 4. Coyote Ridge CR4 Photo Monitoring Locations
Coyote Ridge Ponds Restoration Project, Ponds CR1 and CR4
Year 2 Monitoring Report
October 2021

Section F. References

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[USFWS] U.S. Fish and Wildlife Service. 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog. August.

[USFWS and CDFW] U.S. Fish and Wildlife Service and California Department of Fish and Game. 2003. Interim Guidance on Conducting Site Assessments and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander.

Appendix A. Wetland Vegetation and Invasive Plant Cover Monitoring Results

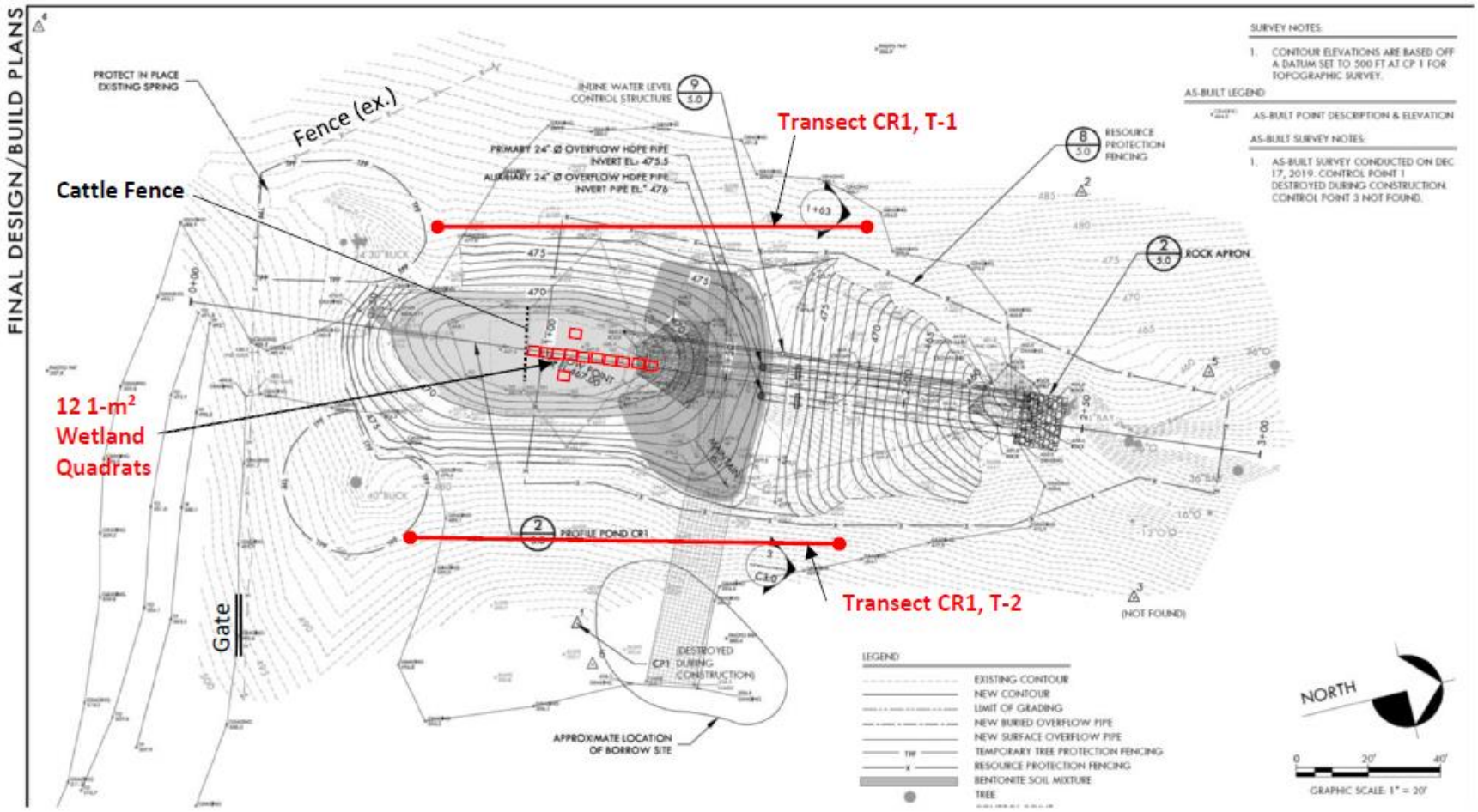


Figure A-1. Pond CR1 – Wetland and Invasive Plant Monitoring Transects, 2022

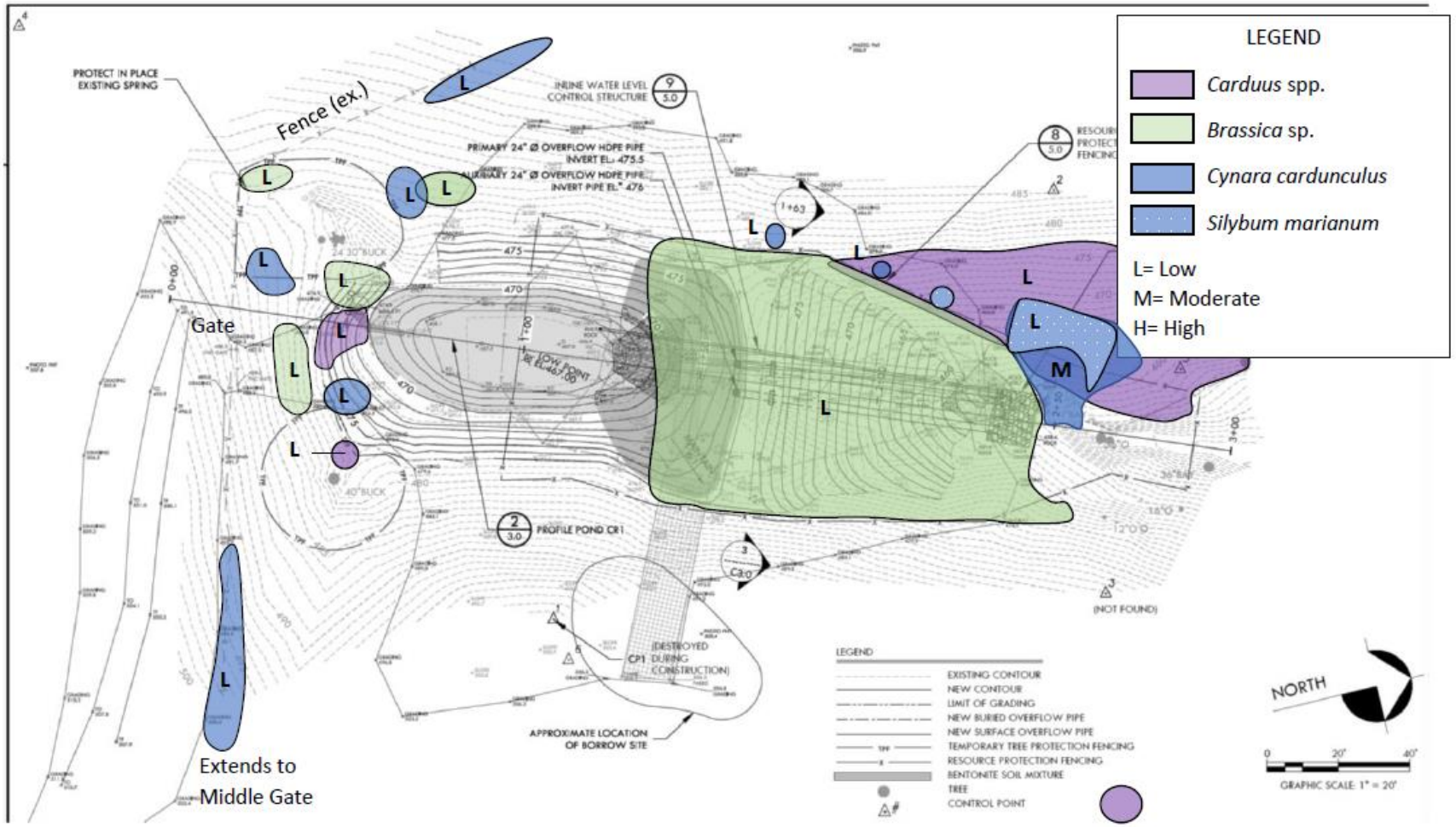


Figure A-2. Pond CR-1 – Distribution of Invasive Plant Species, 2022 (Sheet 1 of 2)

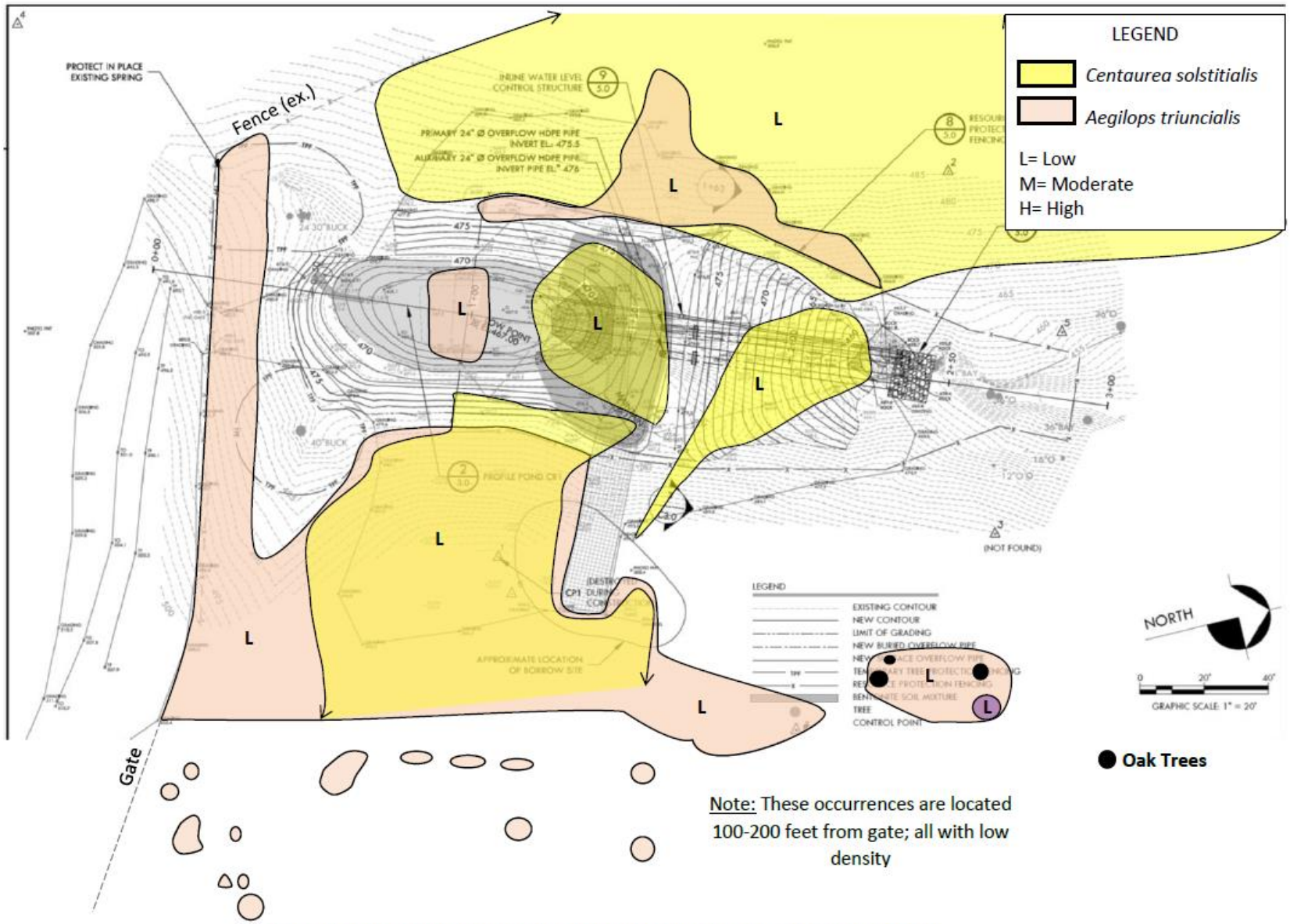


Figure A-3. Pond CR1 – Distribution of Invasive Plant Species, 2022 (Sheet 2 of 2)

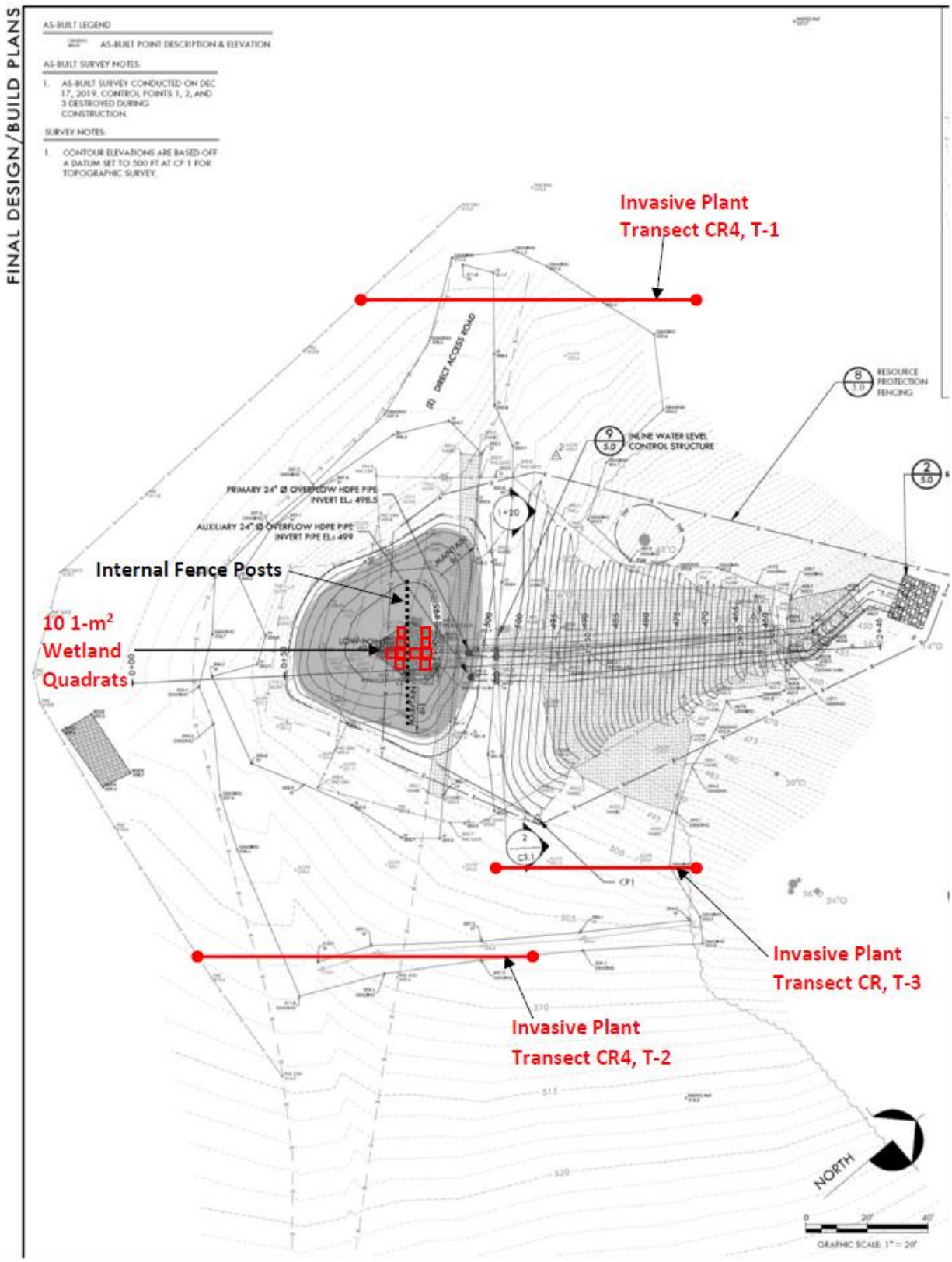


Figure A-4. Pond CR-4 – Wetland and Invasive Plant Monitoring Transects, 2022

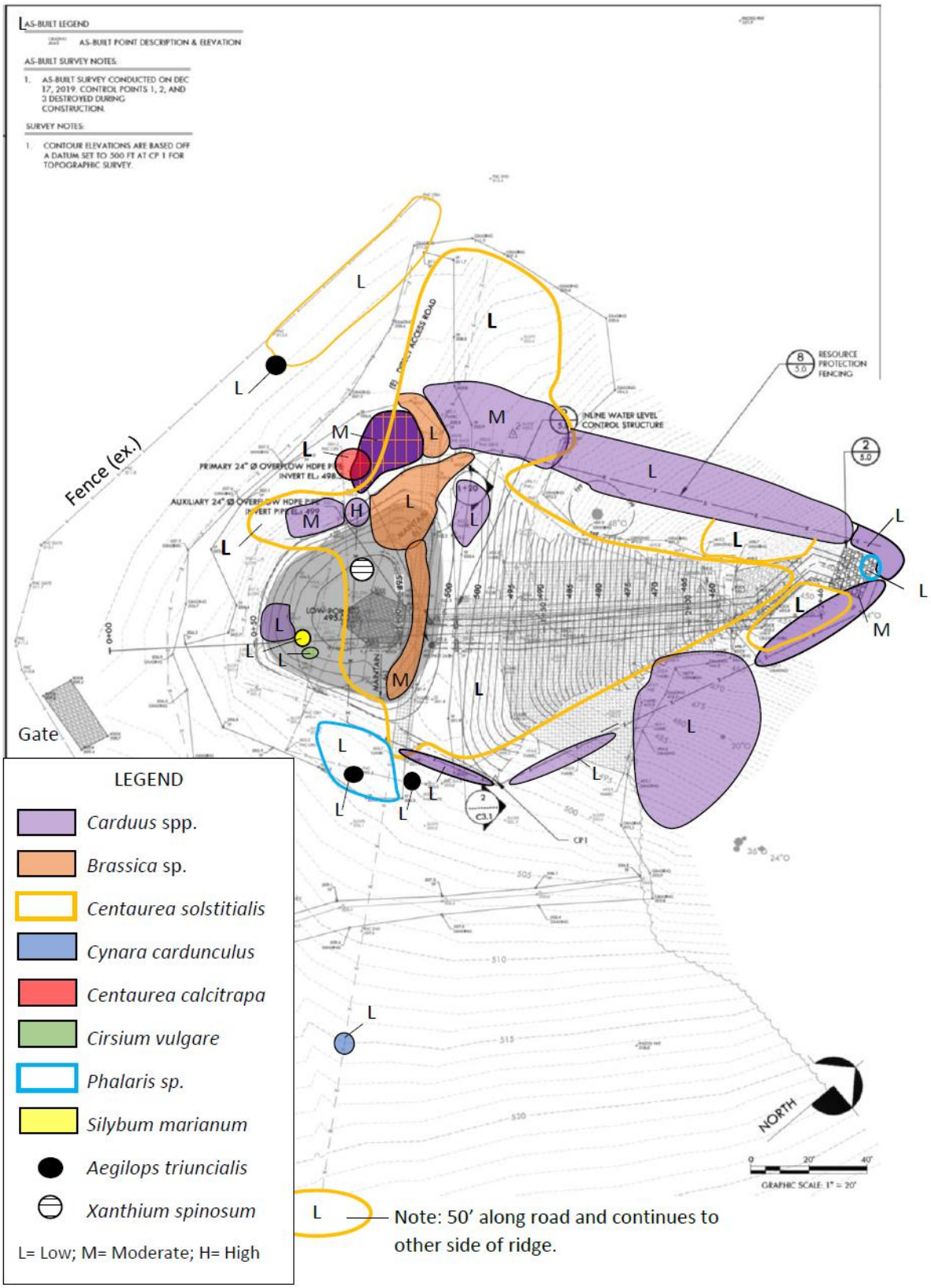


Figure A-5. Pond CR-4 – Distribution of Invasive Plant Species, 2022

Table A-1. Plant Species Observed within Wetland Monitoring Sites

				Average Percent Cover by Site	
Scientific Name	**Common Name**	**Plant Guild[2]**	**Wetland Indicator Status[1]**	**CR1**	**CR4**
Bromus hordeaceus	Soft brome	EAG	FACU	-	1.4
Festuca perennis	Italian ryegrass	EAG	FAC	1.9	-
Hordeum murinum	foxtail barley	EAG	FACU	14.1	8.2
Polypogon monspeliensis	Rabbitsfoot grass	EAG	FACW	-	-
Medicago polymorpha	Bur clover	EAF	FACU	-	0.4
Polygonum aviculare	Knotweed	EPF	FAC	68.3	0.4
Vicia sativa	Spring vetch	EAF	UPL	0.7	0.1
Aegilops triuncialis	Barbed goat grass	EAG	NI	-	-
Hordeum vulgare	Cereal barley	EAG	NI	0.3	-
Sonchus asper	Sow thistle	EAF	FAC	2.2	-
Juncus patens	Common rush	NPF	FACW	-	4.6
Schoenoplectus sp.	Bulrush	NPF	FACW	-	2.1
Rumex crispus	Curly dock	EPF	FAC	-	0.5
Hypochaeris glabra	Cat's ear	EAF	UPL	-	0.1
Bare	-	-	-	1.0	11.0

[1] Wetland vegetation cover is defined as the combined cover of native and nonnative species with a wetland indicator status of facultative (FAC), facultative wetland (FACW), or obligate (OBL) based on the Arid West Regional Wetland Plant List (Lichvar et al. 2020). Species with a facultative upland (FACU), upland (UPL), or no indicator (NI) wetland indicator status are not considered wetland species.

[2] Plant guilds are defined as: exotic annual grass (EAG), exotic annual forb (EAF), exotic perennial grass (EPG), exotic perennial forb (EPF), native annual grass (NAG), native annual forb (NAF), native perennial grass (NPG), and native perennial forb (NPF).

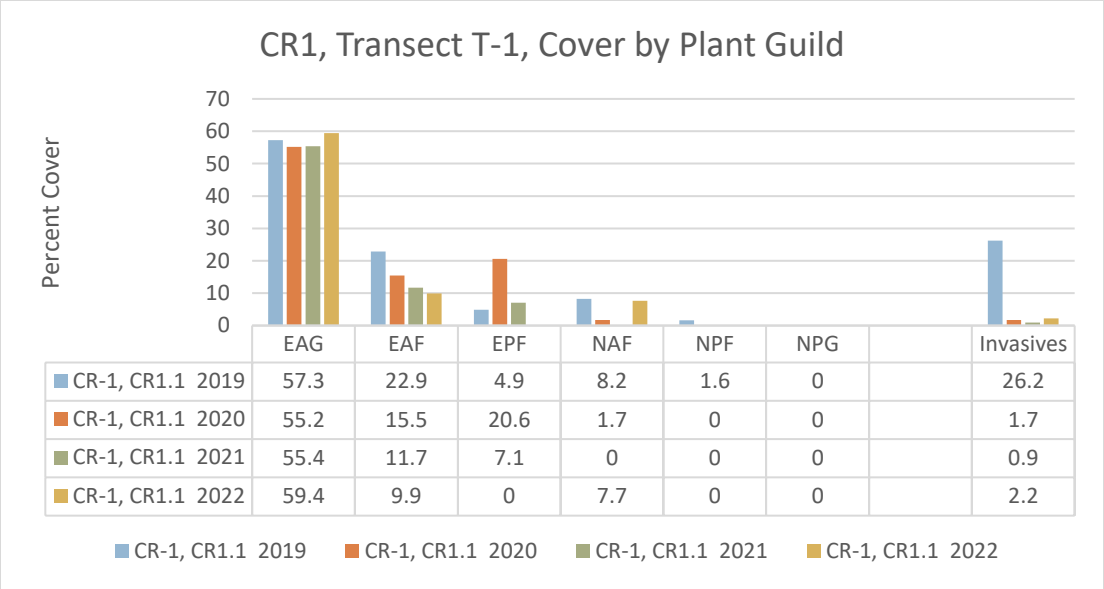


Figure A-6. CR1, Transect T-1, Plant Cover, by Guild, 2019 -2022

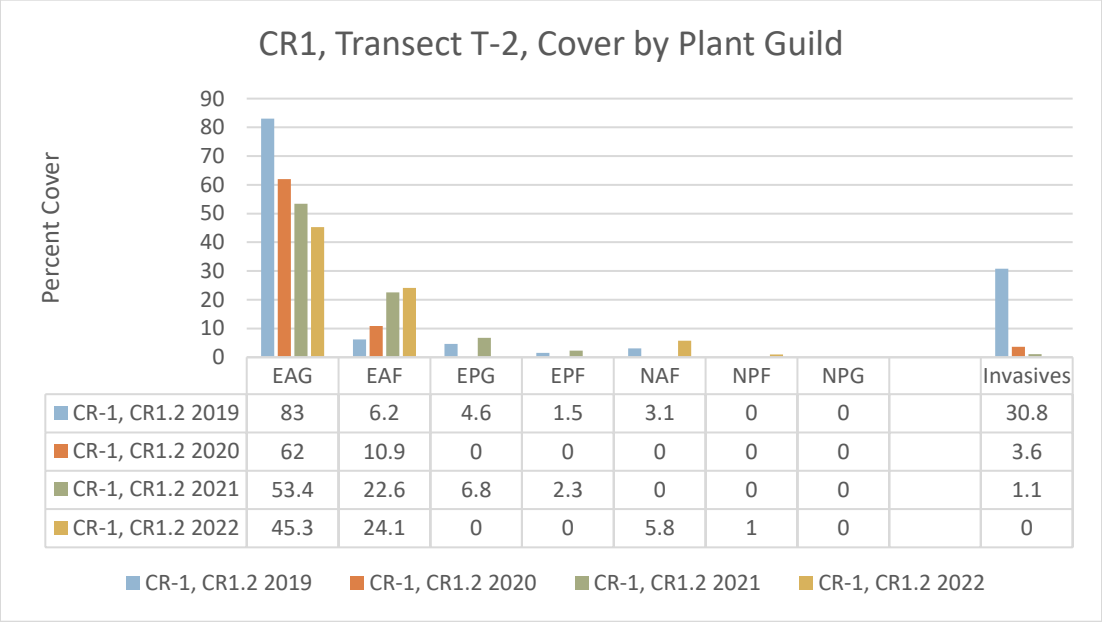


Figure A-7. CR1, Transect T-2, Plant Cover, by Guild, 2019-2022

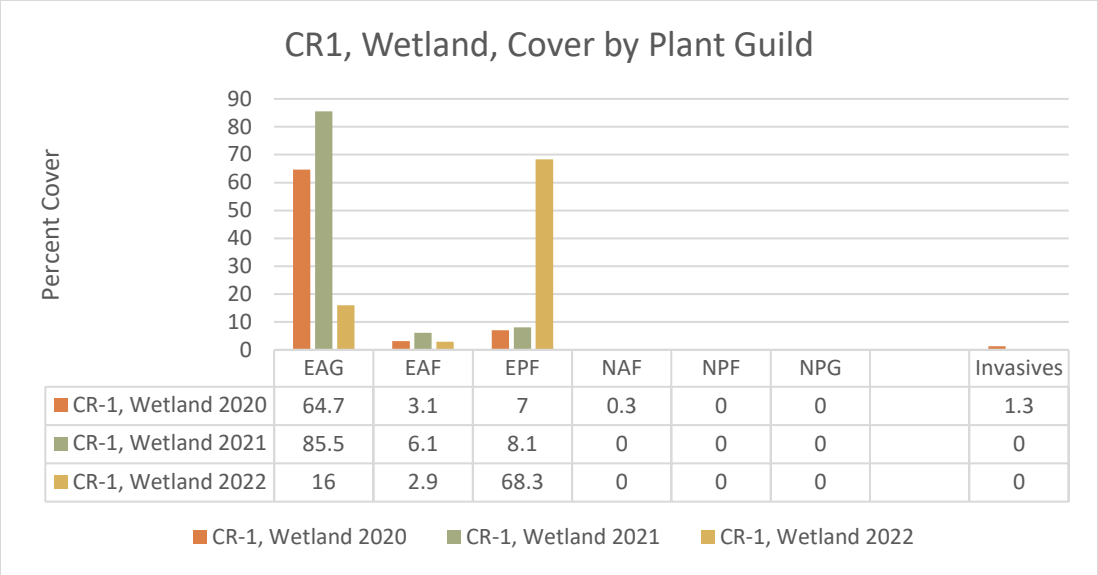


Figure A-8. CR1, Wetland Quadrats, Plant Cover, by Guild, 2020-2022

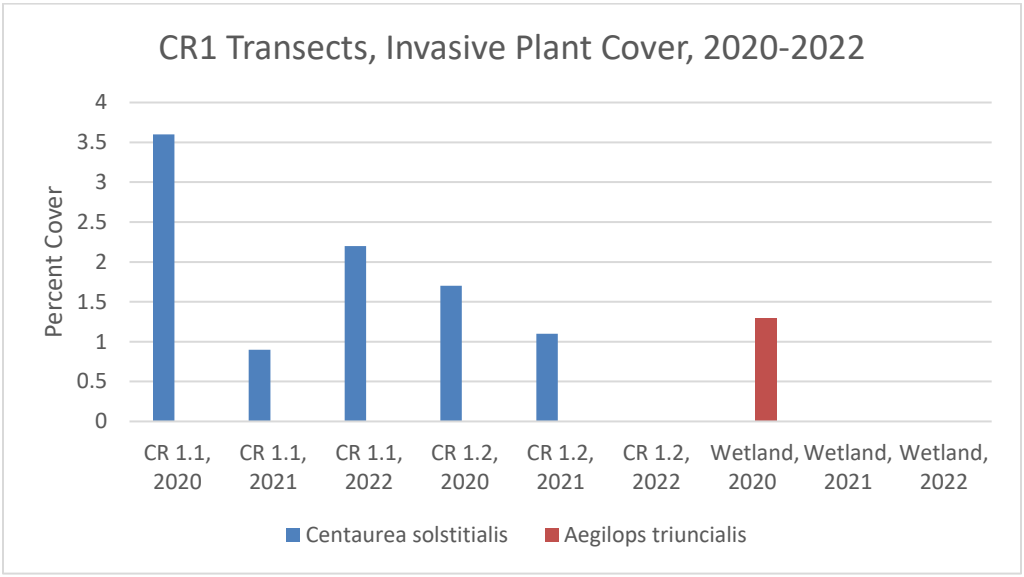


Figure A-9. CR1 Transects, Invasive Plant Cover, by Species, 2020-22

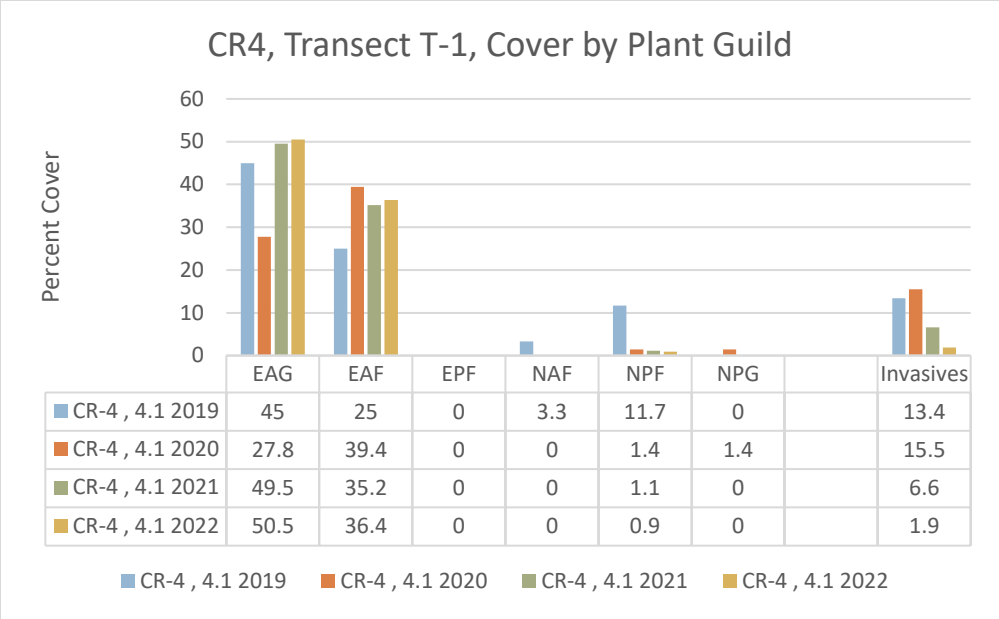


Figure A-10. CR4, Transect T-1, Plant Cover, by Guild, 2019 -2022

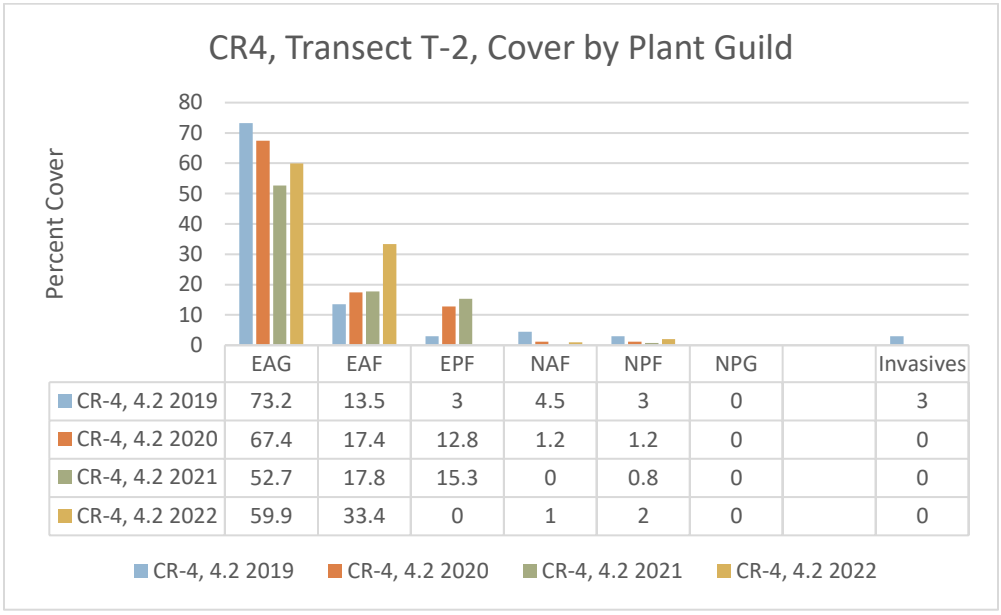


Figure A-11. CR4, Transect CR4.2, Plant Cover, by Guild, 2019 -2022

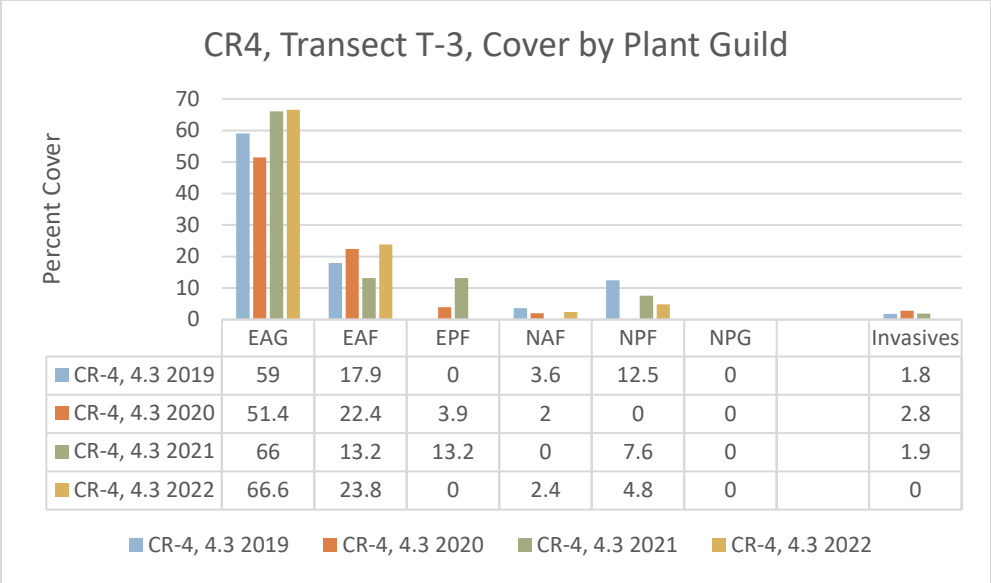


Figure A-12. CR4, Transect CR4.3, Plant Cover, by Guild, 2019-2022

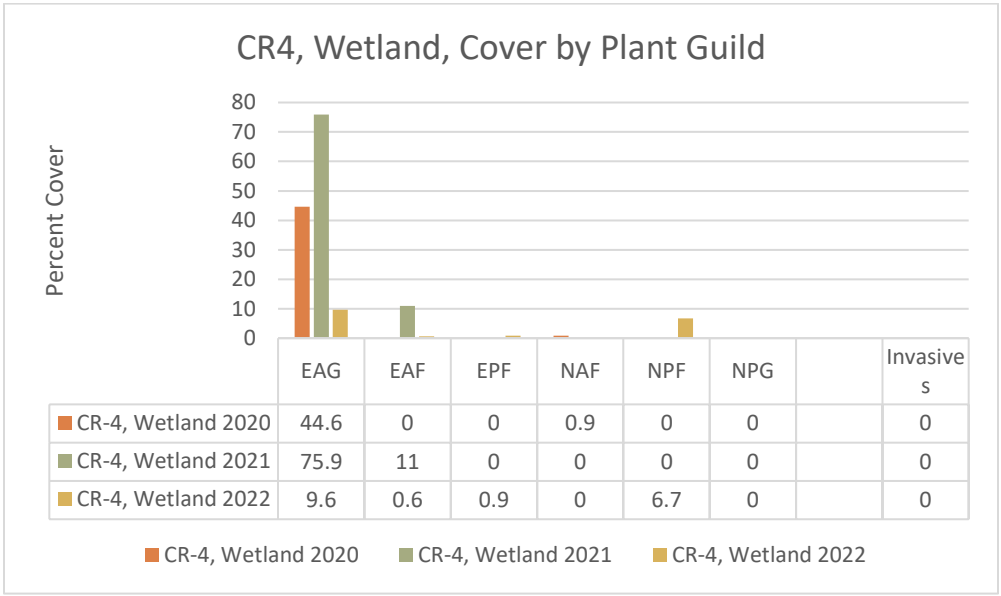


Figure A-13. CR4, Wetland Quadrats, Plant Cover, by Guild, 2020-2022

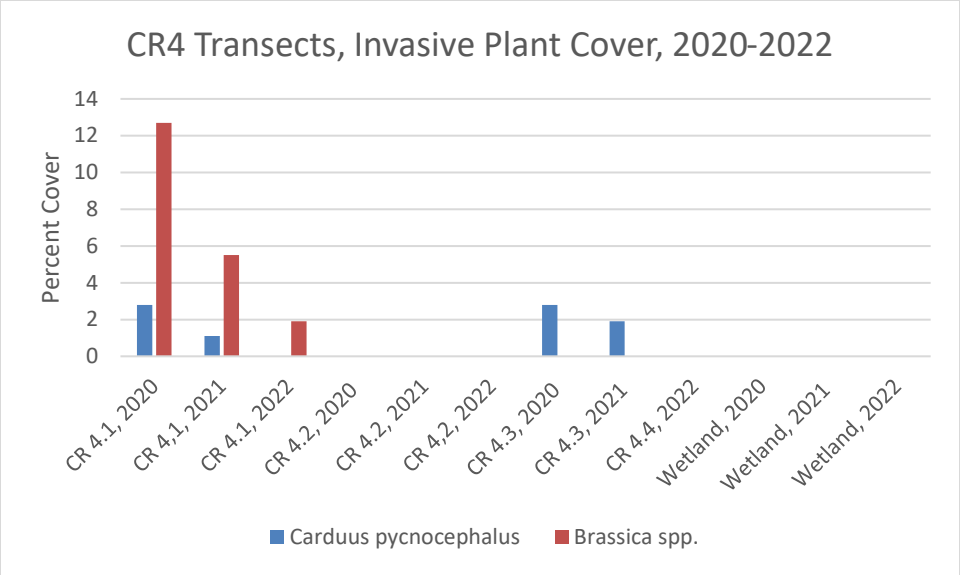


Figure A-14. CR4 Transects, Invasive Plant Cover, by Species, 2020-2022

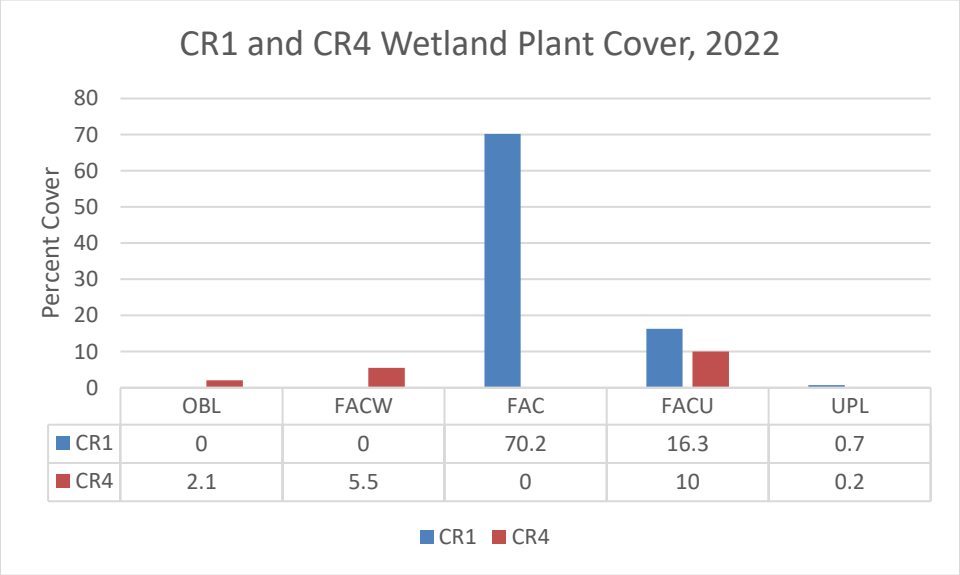


Figure A-15. CR1 and CR4 Wetlands, Plant Cover by Wetland Indicator Status, 2022 (Year 3)

Appendix B. Year 2 Hydrologic Data

Table B-1. Staff Plate Readings

Date	Water Depth (ft) CR1	Water Depth (ft) CR4	Notes
1/14/2022	4.6	3	
3/03/2022	0	2.1	
4/18/2022	1.1	1.5	
5/01/2022	0	1.1	
5/23/2022	0	0.7	
6/16/2022	0	0	
9/27/2022	0	0	

Appendix C. Infrastructure Monitoring Reports and Data

Coyote Ridge Property Stock Pond Habitat Restoration

Prepared for Camara Environmental

By David Sands, Go Native, Inc.

Inspection date: November 17, 2022 8:45 am

Metcalf Road Entry gate to Staging Area

The main gate and the next cattle gate were intact and operational. The road is rutted but drivable with no major issues. No wild boars were observed. No deer, elk, coyotes, or mountain lions were observed.

CR01

- UTC fence and gates have been replaced with cattle fences and gates. Nice to have a smooth wire along the bottom.
- Perimeter pond exclusion fences and gates – fences and gates intact, no obvious incursion by the cattle. Grazing evident outside the perimeter fence.
- Overflow pipes and debris guards – intact
- Berm conditions and integrity – good vegetation growth, no evidence of erosion
- Side slopes in and outside the perimeter fence – good vegetation growth, no evidence of erosion
- Water level and staff gauge – staff gauge intact, no measurable water
- Restoration pond vegetation – no planted pond vegetation observed
- Restoration hydroseed vegetation – good vegetation cover
- Observations, comments and recommendations – everything looked good, no problems except for the lack of sufficient rainfall. No recommendations.

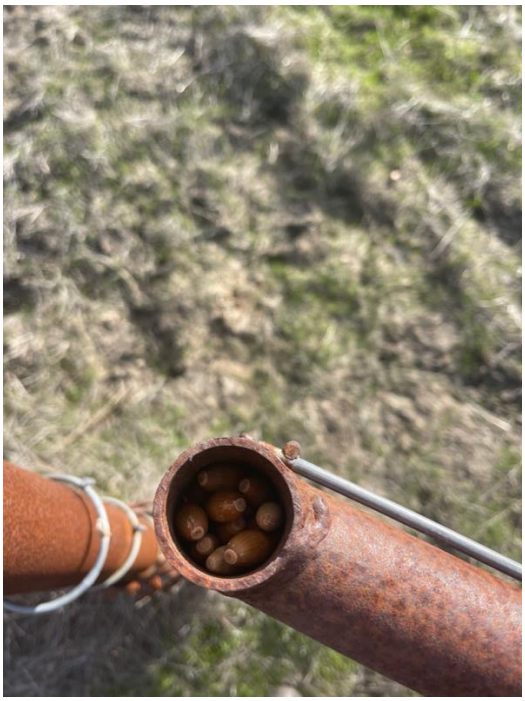
CR04

- UTC fence and gates have been replaced with cattle fences and gates. Nice to have a smooth wire along the bottom.

- Perimeter pond exclusion fences and gates - perimeter fences intact, no obvious incursion by the cattle. Grazing evident outside the perimeter fence.
- Overflow pipes and debris guards - intact
- Berm conditions and integrity - good vegetation growth, no evidence of erosion
- Side slopes in and outside the perimeter fence - good vegetation growth, no evidence of erosion
- Water level and staff gauge - staff gauge intact, no measurable water
- Restoration pond vegetation – about 30 Juncus balticus survived
- Restoration hydroseed vegetation - good vegetation cover
- Observations, comments, and recommendations –Everything looked good, no problems except for the lack of sufficient rainfall.

Several Interesting Observations

Acorns in pond gate post at Pond 4. Not sure what critter put them there, but I would have to assume jays or small woodpeckers. I found acorns in several open fence pipes but the sun was still low in the east and I couldn't a good pic.



Tracks that I assume are mountain lion. This was at Pond 1, near the gate. The tracks are coming from the direction of the road and go under the new cattle fence with smooth bottom wire toward Pond 1.

No evidence of any significant recent rain, no visible signs of overland flow. Some of the cracks in the clay soils were quite deep. The first set of pics are from Pond 1 area, the second from Pond 4

Both the caps on the drainpipes were intact and firmly in place. The first is Pond 1 and the second is Pond 4.

Appendix D. As-Built Survey

Not included here, provided in Year 1 report.