

September 9, 2020

Mr. Mark Gim
Los Angeles County Public Works
900 South Fremont Avenue, 9th Floor
Alhambra, California 91803

Re: *Devil's Gate Reservoir Restoration Project – Phase 1 Restoration Qualitative Monitoring Conducted on August 13, 2020*

1.0 INTRODUCTION

The purpose of this letter report is to document the results of qualitative monitoring conducted for the Devil's Gate Reservoir Restoration Project (Project), located in the City of Pasadena, Los Angeles County, California. The qualitative monitoring was conducted in the planted and or seeded portions of the Phase 1 mitigation areas including DG-1, DG-1 WOUS, DG-2A, DG-2B, DG-3A, DG-3B, DG-4, DG-4B, DG-4C, and DG-5. The monitoring is being conducted in accordance with the Final Habitat Restoration Plan for the Project (HRP). Active sediment removal is still occurring within the sediment removal areas for the Project and habitat restoration is being conducted onsite around the perimeter of the sediment removal areas.

ECORP is responsible for conducting qualitative monitoring and compliance review of restoration efforts in each of the mitigation areas. ECORP is also responsible for preparing monitoring reports, which typically include the following information:

- Overall health of container plants
- Observations and recommendations related to container plant establishment
- Germination of native plant species from seed application and natural recruitment
- Level of germination of nonnative plant species
- Soil condition
- Other observations and recommendations as appropriate

Qualitative monitoring was conducted by Carley Lancaster on August 13, 2020. Field data collected during the monitoring event is provided as Attachment A. This report documents the second monthly qualitative monitoring visit for the Phase 1 mitigation areas.

2.0 QUALITATIVE MONITORING IN THE PHASE 1 MITIGATION AREAS

2.1 Brief Summary of Plant Installation

During the Phase I Installation effort, which was completed on February 13, 2020, a total of 10,276 one-gallon container plants, 52 five-gallon container plants, 18 fifteen-gallon container plants, 300 acorns, and 3,000 cuttings were installed in the DG-2A, DG-2B, DG-3A, DG-3B, DG-4, DG-4B, DG-4C, and DG-5 mitigation areas. Container plants were not installed in the DG-1 or DG-1 WOUS mitigation areas, but these areas were seeded with native plant species. Table 1 lists container plant species and the numbers installed in each of the Phase 1 mitigation areas.

Species Name	2A	2B	3A (Oak Woodland)	3A (Mule-fat Thickets)	4 (CSS*)	4 (Mulefat-Willow**)	4B	4C	5	TOTAL
Mulefat (Baccharis salicifolia)	25	95	—	—	—	1113	135	114	64	1546
Mulefat [cuttings] (Baccharis salicifolia)	—	—	—	84	—	916	—	—	—	1000
Fremont's cottonwood (Populus fremontii)	10	38	—	33	—	479	54	45	27	686
California blackberry (Rubus ursinus)	10	38	—	33	—	619	54	45	26	825
California rose (Rosa californica)	10	38	44	33	—	725	54	45	26	975
Black willow (Salix gooddingii)	20	76	—	—	—	876	108	90	52	1222
Black willow [cuttings] (Salix gooddingii)	—	—	—	67	—	933	—	—	—	1000
Red willow (Salix laevigata)	10	38	—	33	—	439	54	45	26	645
Arroyo willow (Salix lasiolepis)	10	38	—	—	—	438	54	45	26	611
Arroyo willow [cuttings] (Salix lasiolepis)	—	—	—	33	—	967	—	—	—	1000
Black elderberry (Sambucus nigra ssp. caerulea)	5	19	—	17	—	594	27	23	13	698
California melic (Melica imperfecta)	—	—	20	—	—	—	—	—	—	20
Coast live oak (Quercus agrifolia)	—	—	174	—	—	—	—	—	—	174

Table 1. Phase 1 Container Plant Species and Numbers (DG-)										
Species Name	2A	2B	3A (Oak Wood- land)	3A (Mule-fat Thickets)	4 (CSS*)	4 (Mulefat- Willow**)	4B	4C	5	TOTAL
Coast live oak [acorns] (<i>Quercus agrifolia</i>)	25	—	275	—	—	—	—	—	—	300
California gooseberry (<i>Ribes californicum</i>)	—	—	50	—	—	—	—	—	—	50
Mugwort (<i>Artemisia douglasiana</i>)	—	—	—	33	—	617	54	45	26	775
Wrinkled rush (<i>Juncus rugulosus</i>)	—	—	—	—	—	200	—	—	—	200
Basket rush (<i>Juncus textilis</i>)	—	—	—	—	—	100	—	—	—	100
California Sagebrush (<i>Artemisia californica</i>)	10	38	—	—	306	—	—	—	—	354
Coyote brush (<i>Baccharis pilularis</i>)	10	38	—	33	—	504	54	45	26	710
California brittlebush (<i>Encelia californica</i>)	—	—	—	—	102	—	—	—	—	102
California buckwheat (<i>Eriogonum fasciculatum</i>)	—	—	—	—	306	—	—	—	—	306
Menzies goldenbush (<i>Isocoma menziesii</i>)	—	—	—	—	41	—	—	—	—	41
Deerweed (<i>Acmispon glaber</i>)	—	—	—	—	102	—	—	—	—	102
Laurel sumac (<i>Malosma laurina</i>)	—	—	—	—	61	—	—	—	—	61
Coastal prickly pear (<i>Opuntia littoralis</i>)	—	—	—	—	41	—	—	—	—	41
Black sage (<i>Salvia mellifera</i>)	—	—	—	—	102	—	—	—	—	102
TOTAL	145	456	563	399	1061	9520	648	542	312	13646

*CSS = California Sagebrush – California Buckwheat Scrub

**Mulefat-Willow = Mulefat Thickets and Black Willow Thickets

All plants were installed according to the methods described in Section 4.11 of the HRP. Planting holes for all container plants, except oak trees, were dug to a width twice the size of the root ball and to a depth slightly deeper than the depth of the root ball so that the root crown was one inch below grade following installation. Oak trees were planted with the root crown 0.5 to one inch above grade following installation. Prior to installation, all plants were thoroughly watered in their containers and the soil in planting holes was wetted with at least one gallon of water. Planting holes were backfilled with native soil and irrigation

basins, approximately two feet in width, were formed around the base of each plant. Rocks greater than two inches in diameter were removed to the extent possible from the backfill soil. All container plants were irrigated with at least one gallon of water immediately following installation and basin creation.

2.2 Qualitative Monitoring Methods

Qualitative monitoring occurs monthly following the 120-day Plant Establishment Period (PEP) for the remainder of Year 1 (8 months). Following Year 1, qualitative monitoring will occur quarterly during Years 2 and 3 and twice per year during Years 4 through 10. The purpose of the qualitative monitoring is to assess container plant health and vigor and monitor the success of the mitigation areas.

During the August 13, 2020 visit, all of the Phase 1 mitigation areas were walked, the health and vigor of container plants were documented, germination from seeding and natural recruitment was noted, and the irrigation lines were inspected for functionality. In addition, the level of nonnative and invasive weed cover was estimated for each of the Phase 1 mitigation areas.

2.3 Qualitative Monitoring Results

2.3.1 DG-1 & DG-1 WOUS

Container plants were not installed in the DG-1 or DG-1 WOUS mitigation areas, but these areas were seeded with native plant species. Native plant growth was noted throughout the DG-1 and DG-1 WOUS mitigation areas, likely both from natural recruitment and from seeding; however, germination was observed to be very minimal in the majority of these mitigation areas. Native germination was found to be higher closer to the reservoir in DG-1 where seed likely dispersed due to water flow. Portions of DG-1 WOUS were noted as being scoured during the wet season and had minimal plant growth. Native plants such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), grape-soda lupine (*Lupinus excubitus*), caterpillar phacelia (*Phacelia cicutaria*), California everlasting (*Pseudognaphalium californicum*), and poison oak (*Toxicodendron diversilobum*) were observed sprouting in the DG-1 and DG-1 WOUS mitigation areas. In addition, dodder (*Cuscuta sp.*) was observed growing on some of the shrubs in this mitigation area which could lead to future decline of these shrubs. Photos 1 and 2 in Attachment B document the mitigation area during the monitoring visit.

Nonnative weed cover in DG-1 and DG-1 WOUS was estimated at approximately <10 percent, which is the same level of weed cover that was observed during the first qualitative monitoring event. Nonnative species observed in DG-1 and DG-1 WOUS included black mustard (*Brassica nigra*), red brome (*Bromus madritensis ssp. rubens*), tocalote (*Centaurea melitensis*), and Indian plantain (*Plantago arenaria*).

2.3.2 DG-2A

The overall health of the container plants in DG-2A was noted as being good. Approximately 10 percent of all container plants were showing varied levels of stress, which is 5 percent higher than the percentage of plants that were showing stress during the first qualitative monitoring event. Stress may be occurring as a result of 1) drought stress from recent high temperatures, 2) herbivory by rabbits or other wildlife, or 3) competition from nonnative and invasive weeds. A negligible number of container plants were noted as

being missing or dead. Formal mortality counts were taken for DG-2A during the quantitative monitoring and will be included in the annual reporting. The willow species (*Salix sp.*) and mulefat (*Baccharis salicifolia*) planted in the mitigation areas were showing signs of vigorous growth. The installation of plants in the DG-2A mitigation area appears to have been completed successfully. The current issues identified during the monitoring visit are not expected to have an effect on the continued growth of the plants in the mitigation area. Photos 3 through 5 in Attachment B document the mitigation area during the monitoring visit.

Native plant growth was noted throughout the DG-2A mitigation area, likely both from natural recruitment and from seeding. Native plants such as common yarrow (*Achillea millefolium*), annual bursage (*Ambrosia acanthicarpa*), mulefat, miniature suncup (*Camissoniopsis micrantha*), cobweb thistle (*Cirsium occidentale*), Canada horseweed (*Erigeron canadensis*), telegraph weed (*Heterotheca grandiflora*), caterpillar phacelia, and California bluebells (*Phacelia minor*) were observed sprouting in the DG-2A mitigation area.

Nonnative weed cover in DG-2A was estimated at approximately <5 percent, which is the same level of weed cover that was observed during the first qualitative monitoring event. Nonnative species observed in DG-2A included black mustard, prickly lettuce (*Lactuca serriola*), perennial pepperweed (*Lepidium latifolium*) horehound (*Marrubium vulgare*), and prickly sow-thistle (*Sonchus asper*).

2.3.3 DG-2B

The overall health of the container plants in DG-2B was noted as being good. Approximately 15 percent of all container plants were showing varied levels of stress, which is 10 percent more than the percentage of plants that were showing stress during the first qualitative monitoring event. Stress was likely due to the same reasons as those described for DG-2A; however, recent high temperatures appeared to be the most common cause of stress. In addition, insect galls were observed on several of the willow species. Approximately 5 percent of container plants were noted as being missing or dead, which appears to be the result of the heavy flows that were documented in the first qualitative monitoring event memo. Formal mortality counts were taken for DG-2B during the quantitative monitoring and will be included in the annual reporting. Similar to DG-2A, the willow species and mulefat in the mitigation areas were exhibiting vigorous growth. The installation of the plants in the DG-2B mitigation area appears to have been successfully completed. The current issues identified during the monitoring visit are not expected to have an effect on the continued growth of plants in the mitigation area. Photos 6 through 8 in Attachment B document the mitigation area during the monitoring visit.

Native plant growth was noted throughout the DG-2B mitigation area, likely both from natural recruitment and from seeding. Native plants such as Spanish lotus (*Acmispon americanus*), annual bursage, miniature suncup, cobweb thistle, Canada horseweed, caterpillar phacelia, California bluebells, and stinging nettle (*Urtica dioica*) were observed sprouting in the DG-2B mitigation area. In addition, dodder was observed growing on some of the shrub and tree species in this mitigation area which could lead to future decline of these shrubs.

Nonnative weed cover in DG-2B was estimated at approximately <10 percent, which is approximately 5 percent more than what was observed during the first qualitative monitoring event. Nonnative species

observed in DG-2B included black mustard, poison hemlock (*Conium maculatum*), perennial pepperweed, scarlet pimpernel (*Lysimachia arvensis*), and horehound.

2.3.4 DG-3A

The overall health of the container plants in DG-3A was noted as being good. Approximately 20 percent of the container plants in the Coast Live Oak Woodland portions of DG-3A were noted as showing varied levels of stress, which is the same number of plants that were showing stress during the first qualitative monitoring event. Approximately 15 percent of the container plants in the Mulefat Thickets portions of DG-3A were noted as showing varied levels of stress, which is the same as the percent of container plants that were showing stress during the first qualitative monitoring event. Approximately 10 percent of container plants were noted as being dead or missing from the heavy flows that were noted during the PEP monitoring. Formal mortality counts were taken for DG-3A during the quantitative monitoring and will be included in the annual reporting. The types of stress the plants were exhibiting are the same as those described for the plants in DG-2A. However, erosion is also a problem in some areas of DG-3A. In addition, the heavy water and debris flows noted during previous monitoring visits have contributed to plant mortality and stress in this mitigation area. Similar to DG-2A, the container planted willow species and mulefat were exhibiting vigorous growth. Additionally, the recently planted willow and mulefat cuttings were observed to be sprouting vigorously. During the monitoring visit, the planted coast live oak (*Quercus agrifolia*) acorns were inspected for survivorship and health. Approximately 25 germinated coast live oak acorns appear to still be present in DG-3A. The majority of the germinated acorns appear to be in good health; however, several appeared to be showing signs of drought stress. The installation of the plants in the DG-3A mitigation area appears to have been completed successfully. The current issues noted during the monitoring are not expected to have a negative effect on the continued growth of the plants in the mitigation area. Photos 9 through 15 in Attachment B document the mitigation area during the monitoring visit.

Native plant growth was noted throughout the DG-3A mitigation area, likely both from natural recruitment and from seeding. Native plants such as deerweed (*Acmispon glaber*), annual bursage, mugwort (*Artemisia douglasiana*), mulefat, California brome (*Bromus carinatus*), cobweb thistle, Canada horseweed, jimsonweed (*Datura wrightii*), beardless wild rye (*Elymus triticoides*), California poppy (*Eschscholzia californica*), telegraph weed, caterpillar phacelia, California bluebells, California everlasting, coast live oak, poison oak, stinging nettle, and rough cocklebur (*Xanthium strumarium*) were observed sprouting in the DG-3A mitigation area.

Nonnative weed cover in DG-3A was estimated at approximately 10 to 15 percent, which is approximately 5 to 10 percent more than what was observed during the first qualitative monitoring event. Nonnative species observed in DG-3A included black mustard, lamb's quarters (*Chenopodium album*), prostrate knotweed, prickly lettuce, perennial pepperweed, sweet alyssum (*Lobularia maritima*), wild radish (*Raphanus sativus*), and black nightshade (*Solanum nigrum*). In addition, new growth was observed sprouting from the stumps of the eucalyptus trees (*Eucalyptus sp.*).

2.3.5 DG-4

The overall health of the container plants in mitigation area DG-4 was noted as being good. Approximately 30 to 35 percent of container plants in the coastal sage scrub portions of DG-4 were showing varied levels of stress from irrigation line malfunction that appeared to be the result of both wildlife damage and vandalism. Approximately 25 percent of container plants in the riparian portions of DG-4 were showing varied levels of stress, which is approximately 10 to 15 percent more than the percentage of plants that were showing stress during the first qualitative monitoring visit. The increase appears to be mostly due to drought stress from recent high temperatures and irrigation line malfunction that appeared to be the result of both wildlife damage and vandalism. In addition, the 300-foot buffer around a least Bell's vireo (*Vireo bellii pusillus*) nest that affected middle portions of DG-4 has been removed; however, weed proliferation in this area prior to buffer removal likely contributed to plant stress and mortality. For most portions of DG-4, only a negligible number of container plants were noted as being missing or dead. However, in portions of DG-4 that are infested with perennial pepperweed, container plant mortality was found to be higher. In addition, approximately 20 percent of container plants in the southern portion of DG-4 appeared to be dead or missing. A small number of container plants also appeared to be missing in the northern and middle portions of this mitigation area due to heavy water flow. Formal mortality counts were taken for DG-4 during the quantitative monitoring and will be included in the annual reporting. The container planted willow species and mulefat were showing signs of vigorous growth. In addition, the recently planted willow and mulefat cuttings were also observed to be sprouting vigorously. The installation of plants in the DG-4 mitigation area appears to have been completed successfully and the issues noted during the monitoring are not expected to have an impact on the continued growth of the plants. Photos 16 through 22 in Attachment B document the mitigation area during the monitoring visit.

Native plant growth was noted throughout the DG-4 mitigation area, likely both from natural recruitment and from seeding. Native plants such as common yarrow, Spanish lotus, annual bursage, mugwort, mulefat, cobweb thistle, tall flatsedge (*Cyperus eragrostis*), Canada horseweed, California buckwheat, California poppy, jimsonweed, telegraph weed, caterpillar phacelia, California bluebells, California everlasting, and stinging nettle were observed sprouting in the DG-4 mitigation area.

Nonnative weed cover in DG-4 was estimated at approximately 5-10 percent, which is approximately 5 percent higher than what was observed during the first qualitative monitoring event; however, portions of DG-4 where weed abatement had been delayed, due to the least Bell's vireo nest, showed significant reductions to the level nonnative weed cover following weed abatement in these areas. Nonnative species observed in DG-4 included black mustard, poison hemlock, perennial pepperweed, horehound, Indian plantain, and curly dock (*Rumex crispus*). Nonnative weed cover, especially perennial pepperweed, is a significant problem in the DG-4 mitigation area. Because perennial pepperweed can produce dense colonies through seed germination and underground rhizomes (rhizomatous roots), removal of this species without the use of systemic herbicide is very difficult.

2.3.6 DG-4B

The overall health of the container plants in mitigation area DG-4B was noted as being good and this mitigation area is becoming well established. Approximately 10 percent of all container plants were noted as showing varied levels of stress, which is 5 percent higher than the percentage of plants that were showing stress during the first qualitative monitoring visit. The types of stress the plants were exhibiting are the same as those described for the plants in DG-2A. A negligible number of container plants were noted as being missing or dead. Formal mortality counts were taken for DG-4B during the quantitative monitoring and will be included in the annual reporting. Similar to DG-4, the container planted willow species and mulefat were showing signs of vigorous growth. The installation of plants in the DG-4B mitigation area appears to have been completed successfully and the issues noted during the monitoring are not expected to have an impact on the continued growth of the plants. Photos 23 through 25 in Attachment B document the mitigation area during the monitoring visit.

Native plant growth was noted throughout the DG-4B mitigation area, likely both from natural recruitment and from seeding. Native plants such as annual bursage, mugwort, cobweb thistle, tall flatsedge, jimsonweed, Canada horseweed, California poppy, caterpillar phacelia, California bluebells, and stinging nettle were observed sprouting in the DG-4B mitigation area.

Nonnative weed cover in DG-4B was estimated at approximately <5 percent, which is the same percentage of nonnative cover that was observed during the first qualitative monitoring event. Nonnative species observed in DG-4B included black mustard, lamb's quarters, horehound, and perennial pepperweed.

2.3.7 DG-4C

The overall health of the container plants in mitigation area DG-4C was noted as being good. Approximately 15 percent of all container plants were noted as showing varied levels of stress, which is approximately 10 percent higher than the percentage of plants that were showing stress during the first qualitative monitoring event. The types of stress the plants were exhibiting are the same as those described for the plants in DG-2A; however, recent high temperatures have likely contributed the most to the increase in stress. A negligible number of container plants were noted as being missing or dead. Formal mortality counts were taken for DG-4C during the quantitative monitoring and will be included in the annual reporting. Similar to DG-4, the container planted willow species and mulefat in the mitigation areas were showing signs of vigorous growth. The installation of plants in the DG-4C mitigation area appears to have been completed successfully and the issues noted during the monitoring are not expected to have an impact on the continued growth of the plants. Photos 26 through 28 in Attachment B document the mitigation area during the monitoring visit.

Native plant growth was noted throughout the DG-4C mitigation area, likely both from natural recruitment and from seeding. Native plants such as mulefat, common yarrow, mugwort, annual bursage, jimsonweed, Canada horseweed, telegraph weed, caterpillar phacelia, and stinging nettle were observed sprouting in the DG-4C mitigation area.

Nonnative weed cover in DG-4C was estimated at approximately <5 percent, which is the same percentage of nonnative cover that was observed during the first qualitative monitoring event. Nonnative species observed in DG-4C included black mustard and red brome.

2.3.8 DG-5

The overall health of the container plants in the DG-5 mitigation area was noted as being good. Approximately 15 to 20 percent of all container plants were noted as showing varied levels of stress, which is approximately 5 percent higher than the percentage of plants that were showing stress during the first qualitative monitoring event. The increase appears to be mostly due to drought stress from recent high temperatures. In addition, the 300-foot buffer around a least Bell's vireo nest that affected all of DG-5 has been removed; however, weed proliferation in this area prior to buffer removal likely contributed to plant stress and mortality. Gopher herbivory is also a significant problem in DG-5 and accounts for the majority of the missing container plants. Formal mortality counts were taken for DG-5 during the quantitative monitoring and will be included in the annual reporting. Similar to DG-4, the container planted willow species and mulefat were exhibiting vigorous growth. The installation of plants in the DG-5 mitigation area appears to have been completed successfully and the issues noted during the monitoring are not expected to have a negative impact on the continued growth of the plants. Photos 29 and 30 in Attachment B document the mitigation area during the monitoring visit.

Native plant growth was noted throughout the DG-5 mitigation area, likely both from natural recruitment and from seeding. Native plants such as common yarrow, annual bursage, tall flatsedge, Canada horseweed, California poppy, evening primrose (*Oenothera elata*), and caterpillar phacelia were observed sprouting in the DG-5 mitigation area.

Nonnative weed cover in DG-5 was estimated at approximately 30 to 35 percent, which is approximately 5 percent less than what was observed during the first qualitative monitoring event. The decrease in weed cover appears to be attributed to several species of annual nonnative grasses being dead for the season. Nonnative species observed in DG-5 included black mustard, Italian thistle (*Carduus pycnocephalus*), and dead nonnative grasses. Nonnative weed cover, especially nonnative grasses and perennial pepperweed, is a major problem in the DG-5 mitigation area.

3.0 RECOMMENDATIONS

3.1 Container Plant Replacement

Container Plants that were noted as being dead during both the qualitative and quantitative monitoring events should be replaced during Phase 2 of planting activities. This should occur during the fall/winter of 2020/2021. Replacement of dead container plants will help to increase native cover and help the restoration sites move toward achieving their success criteria.

3.2 Nonnative Plant Control

Nonnative weed cover ranged from approximately <5 percent to 15 percent in the various mitigation areas. Weed abatement activities, including hand pulling and removal of material, were observed in

mitigation area DG-4 during the monitoring visit and weed cover was observed to be greatly reduced in those areas. Regular maintenance and removal of nonnative weeds is of the highest priority for all of the mitigation areas to reduce competition between native and nonnative plants. In addition, eucalyptus stumps that are starting to re-sprout should be trimmed back frequently. A focus should be placed on removing the weeds and nonnatives from the basins of each of the container plants and cuttings. Nonnative plants and weeds that have gone to seed should be bagged and removed from the mitigation area. Without the use of herbicides, control of the nonnatives will be extremely difficult so the frequency and level of effort will need to be increased to provide control until the native plants and seedlings have a chance to grow and outcompete the nonnatives. In particular, it is important to maintain long-term perennial pepperweed management to reduce competition and allow for native plants to germinate. In addition, dodder should be removed from container plants in the mitigation areas. Although many species of dodder are native, this parasitic plant can be harmful to younger shrubs and trees that are not yet established and can even cause mortality.

3.3 Irrigation

The irrigation system was inspected for functionality and appeared to be properly installed. The soil around the container plants was inspected and was found to be saturated for the container plants on both sides of the reservoir. Irrigation was not actively occurring during the monitoring visit; however, the soil for most container plants was found to be moist below the surface. Some of the emitters were observed to be outside of the container plant basins, likely due to erosion, water flow, and/or public interference. Wildlife damage to irrigation lines was observed in the norther portions of DG-4 and this issue was discussed with the Landscape Contractor. Twice weekly watering events should be conducted for the container plants, unless adequate rainfall occurs. After watering, the container plant basins should have at least 0.5 inch of saturation depth. Continual maintenance of the irrigation system should be conducted to ensure all plants are evenly watered and the tube emitters are placed at the base of the container plants. Watering of the seeded only areas is not recommended.

3.4 Herbivory

Rabbit herbivory of container plants was observed in the Phase 1 mitigation areas. California rose and California buckwheat appeared to be the most affected by herbivory. In addition, gopher herbivory of container plants was observed in DG-5. Minor herbivory generally will not kill the plants, but continued monitoring should be conducted during future visits to determine the level of the herbivory isn't such that plants are dying. If browsing by rabbits or other animals begins to worsen, caging around affected and/or favored container plants may be warranted.

3.5 Erosion

Erosion in the Phase 1 mitigation areas was only observed in DG-3A and was minor in severity. Due to the steepness of the slope in the Coast Live Oak Woodland portion of the DG-3A mitigation area, erosion will likely continue to be somewhat of an issue in this area; however, jute nettings are currently in place on the slope and will help to lessen the severity of erosion issues. As native cover increases in this area, erosion

issues should lessen. The severity of the erosion should continue to be monitored in all planted areas and if warranted, erosion Best Management Practices (BMPs) should be installed in appropriate areas. This may only require the installation of straw wattles at select sites to prevent existing rills from becoming larger. However, until more native perennial plants become established in these areas, there is the potential that intense rainfall may create additional erosion problems.

If you have any questions about the information presented in this letter, please contact me at CLancaster@ecorpconsulting.com or (714) 648-0630.

Sincerely,

A handwritten signature in black ink, appearing to read 'Carley Lancaster', with a long horizontal flourish extending to the right.

Carley Lancaster
Staff Biologist

ATTACHMENT A

Field Notes

DG1 Qualitative Monitoring

8/13/2020

Carley Lancaster

DG-1

- Very little new native germination including PHACIC, TOXDN, PSECAL, ARTCAL, PHAMIN, LUPEXC → higher level of germ closer to reservoir. Cuscuta taking over some shrubs.
- Nonnative cover <10%. CENMEL, BRANIG, PLAPRE, BROMAD → some dead for season

DG-1 wows

- Very little new native germination → area scoured from heavy flows during rainy season.
- Nonnative cover <5%. BRANIG, BROMAD

DG-2A

- Container plants doing very well
- mortality counts taken during quantitative monitoring ~ 8 container plants
- ~10% of container plants showing signs of stress → likely due to recent high temps.
- Native germ: ERICAN, BAESAL, PHACIC, PHAMIN, CIROCC, ACHMIL, CAMMIC, HETGRA

• DG-2A cont.

- Nonnative cover < 5%. BRANICK, LEPLAT, SONASP, MARVUL, LACSER

DG-2B

- Container plants mostly doing well → some lost due to heavy flows documented during previous visits → no additional mortality obs. • Insect galls on willows

• Approx 15-20% of container plants showing signs of stress from recent high temps and insect galls (on Salix)

- Nonnative germ: LEPLAT, MARVUL, CONMAC, BRANICK, ANAARV, < 10%. ALMAME
- Native germ: CAMMIC, ERICAN, URTDIO, AMBA, PHACIL, PHAMIN, Cuscuta sp → causing some minor damage to container plants

DG-3A ADD

- Most container plants doing well ~ 15%. Stressed likely from recent high temperatures ~ 19 dead as noted during quan monitoring
- Willow stakes w/ vigorous growth.

06-3A ADD cont.

- Native germ: ERICAN, ELYTRI, XANSTR, AMBACA, CYPERA, ARTDOU
- Nonnative germ: LOBMAR, BRANIG, LEPLAT, SOLNIG, RAPSAT, 10% COVER

06-3A oak woodland

- Container plants mostly doing well
some ~~dead~~ missing from heavy flows documented during previous monitoring events
- ~25 germinated acorns still present and living → many lost to drought stress and herbivory

- ~20% of container plants stressed

Native germ: ESCCAL, PHACIL, PHAMW, CIROCC, AMBACA, ERKAN, ARTDOU, DATWRI, BACSAL, URTURE, BROCAR

Nonnative germ: LACSER, CHEALB, SOLNIG, CONARU, BRANIG, Knotweed,
~10-15%

06-4 CSS

- Container plants doing ok → ~30-35%
stressed mostly due to damage to irrigation lines → ~124 cont.
plants dead during quadrat mortality count

DG-4 CSS cont.

- Native germ: BACSAL, ERIFAS, SARMEL, ERICAN, HETGRA, ARTCAL, ACMAME, PHACIC, AMBACA, ACHMIL,
- Nonnative germ: LEPLAT, BRANTLY, MARVUL, EROIC, ANAARU < 10%.

DG-4 Riparian

- Most container plants doing well
 - Some willows and SAMNIG w/ *Cuscuta* infestation negatively affecting plants
 - Some drought stress obs → especially in north where wildlife damage / vandalism to irrigation lines were obs.
 - ~ 25% of container plants stressed
 - Mortality documented during quad monitoring
 - Some vandalism to cont. plants obs including broken branches, mts placed emitters, trampled line
- Native germ: BACSAL, ERICAN, ESCCAL, PHACIC, PHAMIN, ARTDOL, AMBACA, HETGRA, WRIDLO, *Cuscuta* sp., CYPERA, ACHMIL, CIROLL

DE-4 Riparian Cont.

- Nonnative germ: LEPLAT, BRANIG, CONMAC, NICOLA, PLAARE, SOLNIG, ZUMER, RICCOM, ~5-10% → area inside UBV1 buffer recently weeded

DE-4B

- Container plants doing very well
- Negligible # of mortalities
- ~10% of plants w/ minor stress
- This site becoming very well est.
- Native germ: ESCCAL, ERICAN, PHACIC, PHAMW, URTDIO, ARTDOU, ACHMIL, CIRACC, AMBACA
- Nonnative germ: BRANIG, LEPLAT, CHEAUB, MARVUL < 5%

DE-4C

- Container plants doing very well
- Negligible # of mortalities
- ~15% of container plants stressed → likely from recent high temps.
- Native germ: PHACIC, ERICAN, URTDIO, HETCRA, AMBACA, ARTDOU, BAESAL, ACHMIL
- Nonnative germ: Erigeron, ~~HIZINE~~ BRANIG, ~~BRAMA~~ BRAMAD < 5%

DG-5

- Container plants mostly doing well → some lost to gopher herbivory documented in queen monitoring
- ~ 46 dead or missing
- ~ 15-20% stressed → likely from recent high temps
- Native germ: PHACIA, CYPERA, AMBACA, BASAL, ERICAN, ESCCAL, ACTMIL, OENELA
- Nonnative germ: CARPYC, BRAWLE, dead grasses < 5% → recently weeded in LBVI buffer

ATTACHMENT B

Photo Documentation



Photo 1: Overview Mitigation Area DG-1



Photo 2: Overview Mitigation Area DG-1



Photo 3: Overview Mitigation Area DG-2A



Photo 4: Overview Mitigation Area DG-2A



Photo 5: Overview Mitigation Area DG-2A



Photo 6: Overview Mitigation Area DG-2B



Photo 7: Overview Mitigation Area DG-2B



Photo 8: Overview Mitigation Area DG-2B



Photo 9: Overview Mitigation Area DG-3A Alta Dena Drain



Photo 10: Overview Mitigation Area DG-3A Alta Dena Drain



Photo 11: Overview Mitigation Area DG-3A Alta Dean Drain



Photo 12: Overview Mitigation Area DG-3A Oak Woodland



Photo 13: Overview Mitigation Area DG-3A Oak Woodland



Photo 14: Overview Mitigation Area DG-3A Oak Woodland



Photo 15: Overview Mitigation Area DG-3A Oak Woodland



Photo 16: Overview Mitigation Area DG-4



Photo 17: Overview Mitigation Area DG-4



Photo 18: Overview Mitigation Area DG-4



Photo 19: Overview Mitigation Area DG-4



Photo 20: Overview Mitigation Area DG-4



Photo 21: Overview Mitigation Area DG-4



Photo 22: Overview Mitigation Area DG-4



Photo 23: Overview Mitigation Area DG-4B



Photo 24: Overview Mitigation Area DG-4B



Photo 25: Overview Mitigation Area DG-4B



Photo 26: Overview Mitigation Area DG-4C



Photo 27: Overview Mitigation Area DG-4C



Photo 28: Overview Mitigation Area DG-4C



Photo 29: Overview Mitigation Area DG-5



Photo 30: Overview Mitigation Area DG-5