



August 10, 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 June 18, 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 June 18, 2020. Field data collected during the monitoring event is provided as Attachment A. This report documents the first 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 Wood- land)	3A (Mule-fat Thickets)	4 (CSS*)	4 (Mulefat- Willow**)	4B	4C	5	TOTAL
Mulefat (<i>Baccharis salicifolia</i>)	25	95	—	—	—	1113	135	114	64	1546
Mulefat [cuttings] (<i>Baccharis salicifolia</i>)	—	—	—	84	—	916	—	—	—	1000
Fremont's cottonwood (<i>Populus fremontii</i>)	10	38	—	33	—	479	54	45	27	686
California blackberry (<i>Rubus ursinus</i>)	10	38	—	33	—	619	54	45	26	825
California rose (<i>Rosa californica</i>)	10	38	44	33	—	725	54	45	26	975
Black willow (<i>Salix gooddingii</i>)	20	76	—	—	—	876	108	90	52	1222
Black willow [cuttings] (<i>Salix gooddingii</i>)	—	—	—	67	—	933	—	—	—	1000
Red willow (<i>Salix laevigata</i>)	10	38	—	33	—	439	54	45	26	645
Arroyo willow (<i>Salix lasiolepis</i>)	10	38	—	—	—	438	54	45	26	611
Arroyo willow [cuttings] (<i>Salix lasiolepis</i>)	—	—	—	33	—	967	—	—	—	1000
Black elderberry (<i>Sambucus nigra</i> ssp. <i>caerulea</i>)	5	19	—	17	—	594	27	23	13	698
California melic (<i>Melica imperfecta</i>)	—	—	20	—	—	—	—	—	—	20
Coast live oak (<i>Quercus agrifolia</i>)	—	—	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 June 18, 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. Native plants such as deerweed (*Acmispon glaber*), California sagebrush (*Artemisia californica*), mugwort (*Artemisia douglasiana*), California buckwheat (*Eriogonum fasciculatum*), grape-soda lupine (*Lupinus excubitus*), caterpillar phacelia (*Phacelia cicutaria*), and California everlasting (*Pseudognaphalium californicum*) were observed sprouting in the DG-1 and DG-1 WOUS mitigation areas. 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 approximately 10 percent less than the level of weed cover that was observed during the final PEP monitoring event. Nonnative species observed in DG-1 and DG-1 WOUS included black mustard (*Brassica nigra*), red-stemmed filaree (*Erodium cicutarium*), 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 5 percent of all container plants were showing varied levels of stress, which is the same percentage of plants that were showing stress during the final PEP monitoring. 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. 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 annual bursage (*Ambrosia acanthicarpa*), 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 approximately 10 percent less than the level of cover that was observed during the final PEP monitoring. Nonnative species observed in DG-2A included black mustard and prostrate knotweed (*Polygonum aviculare*).

2.3.3 DG-2B

The overall health of the container plants in DG-2B was noted as being good. Approximately 5 percent of all container plants were showing varied levels of stress, which is 5 percent less than the percentage of plants that were showing stress during the final PEP monitoring. Stress was likely due to the same reasons as those described for DG-2A, including drought stress, herbivory, or competition with nonnatives. 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 final PEP monitoring memo. 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, cobweb thistle, Canada horseweed, caterpillar phacelia, and California bluebells were observed sprouting in the DG-2B mitigation area.

Nonnative weed cover in DG-2B was estimated at approximately <5 percent, which is approximately 10 percent less than what was observed during the final PEP monitoring. Nonnative species observed in DG-2B included black mustard and black nightshade (*Solanum nigrum*).

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 5 percent more than the number plants that were showing stress during the final PEP monitoring. 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 final PEP monitoring. Approximately 10 percent of container plants were

noted as being dead or missing from the heavy flows that were noted during the PEP monitoring. 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 the previous PEP monitoring visit 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 30 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 Spanish lotus, deerweed, annual bursage, mugwort, 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 (*Toxicodendron diversilobum*), and stinging nettle (*Urtica dioica*) were observed sprouting in the DG-3A mitigation area.

Nonnative weed cover in DG-3A was estimated at approximately <5 percent, which is approximately 10 to 45 percent less than what was observed during the final PEP monitoring. Nonnative species observed in DG-3A included black mustard, Italian thistle (*Carduus pycnocephalus*), prostrate knotweed, 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 10 to 15 percent of all container plants were showing varied levels of stress, which is approximately 5 to 10 percent less than the percentage of plants that were showing stress during the final PEP monitoring; however, the middle portions of DG-4, where weeds have been an issue in the past, are being overrun with weed cover due to the presence of a 300 foot buffer around a least Bell's vireo (*Vireo bellii pusillus*) nest and these areas could not be properly assessed during the first qualitative monitoring event. Weed abatement activities have been temporarily suspended in this area until the nest fledges, or becomes inactive, as determined by an approved least Bell's vireo monitor and it is confirmed by the appropriate agencies that the buffer can be removed. These portions of DG-4 were monitored from a distance using binoculars; however, the abundant weed growth made it difficult to determine the level of stress to container plants in these areas. The types of stress the plants were exhibiting are the same as those described for the plants in DG-2A. 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 (*Lepidium latifolium*), 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. Wildlife damage to irrigation lines in the northern portion of DG-4 appeared to have been fixed and no additional mortalities were noted. 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 (*Achillea millefolium*), annual bursage, mugwort, cobweb thistle, tall flatsedge (*Cyperus eragrostis*), Canada horseweed, California poppy, jimsonweed, telegraph weed, pineapple weed (*Matricaria discoidea*), caterpillar phacelia, California bluebells, California everlasting, coast live oak, and stinging nettle were observed sprouting in the DG-4 mitigation area.

Nonnative weed cover in DG-4 was estimated at approximately <5 percent, which is approximately 5 to 70 percent less than what was observed during the final PEP monitoring; however, portions of DG-4 where weed abatement has been delayed, due to the least Bell's vireo nest, are being overrun with nonnative weed cover. Nonnative species observed in DG-4 included pigweed (*Amaranthus albus*), dog fennel (*Anthemis cotula*), black mustard, poison hemlock (*Conium maculatum*), tocalote (*Centaurea melitensis*), red-stemmed filaree, perennial pepperweed, horehound (*Marrubium vulgare*), annual yellow sweetclover (*Melilotus indicus*), 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. Approximately 5 percent of all container plants were noted as showing varied levels of stress, which is the same percentage of plants that were showing stress during the final PEP monitoring. 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. 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, 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 final PEP monitoring. Nonnative species observed in DG-4B included poison hemlock, prickly lettuce (*Lactuca serriola*), annual yellow sweetclover, 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 <5 percent of all container plants were noted as showing varied levels of stress, which is the same percentage of plants that were showing stress during the final PEP monitoring. 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. 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 common yarrow, mugwort, annual bursage, jimsonweed, Canada horseweed, California poppy, 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 final PEP monitoring. Nonnative species observed in DG-4C included black mustard, red-stemmed filaree, and prickly lettuce.

2.3.8 DG-5

The overall health of the container plants in the DG-5 mitigation area was noted as being good; however, due to this mitigation area being located within the least Bell's vireo buffer, DG-5 was monitored with binoculars from the trail. Approximately 15 percent of all container plants were noted as showing varied levels of stress, which is the same percentage of plants that were showing stress during the final PEP monitoring. No additional mortalities were observed; however, due to the level of nonnative cover and inaccessibility, this could not be confirmed. The types of stress the plants were exhibiting are the same as those described for the plants in DG-2A. In addition, gopher herbivory is a significant problem in DG-5 and accounts for the majority of the missing container plants. 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 annual bursage, 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 final PEP monitoring. The decrease in weed cover appears to be attributed to several species of annual nonnative grasses being dead for the season. The presence of the least Bell's vireo nest buffer is currently preventing weed abatement in this area and weeds will likely continue to proliferate until the buffer has been removed. Nonnative species observed in DG-5 included black mustard, Italian thistle, curly dock, and perennial pepperweed. Nonnative weed cover, especially nonnative grasses and perennial pepperweed, is a major problem in the DG-5 mitigation area.

3.0 RECOMMENDATIONS

3.1 Nonnative Plant Control

Nonnative weed cover ranged from approximately <5 percent to <10 percent in the various mitigation areas that are outside of the least Bell's vireo nest buffer; however, portions of the Phase 1 mitigation areas where weed abatement has been suspended due to the nest buffer were noted as having significant weed proliferation, including from perennial pepperweed. Once this nest buffer has been removed, these areas should be weeded immediately to minimize competition with native plants. Weed abatement activities, including hand pulling and removal of material, were observed in mitigation area DG-4B 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. 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.

3.2 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 that was noted during the final PEP monitoring appeared to have been repaired and additional damage was not observed. 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.

3.3 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.

3.4 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,



Carley Lancaster
Staff Biologist

ATTACHMENT A

Field Notes

Devil's Gate

Qualitative monitoring
6/18/2020
C. Lancaster

DG1 / DG-1 wows

- Minimal germ from seed / natural recruitment → higher near wash
- Native species obs: PHACIC, ARTDOU, PSECAL, ERIFAS, ARTICAE, LUPEXC
- Nonnative cover PLAARE, BRANIG, EROCK 210%.
- Not much change from last visit

DG-2A

- Container plants doing very well & becoming well est.
- ~5% of all cont. plants showing varied stress → mostly minor
- Some drought stress from recent ↑ temps
- Salix & BASAL showing vigorous growth

- Native germ: AMBACA, CAMMIC, CIROCC, PHACC, PITAMIN, HETGRT ERICAN
- Nonnative germ: BRANIG, POLAVI < 5%
- Site is looking good & recently weeded
- DE-2B

- Most cont. plants healthy & becoming well est ~ 5%. stressed → drought
- Several cont. missing → likely from heavy flows noted during PEP
- Native germ: AMBACA, ERICAN, ACUMAMB, CIROCC, PHAMIN, PHACC 9/1 level of native germ
- Nonnative germ: BRANIG, SOLNIG < 5%. → recently weeded

- DE-3A oak woodland
 - Some cont. plants (~20%) showing stress from drought, debris flow, erosion

• DC7-3A Alta Deena Drain
- Most cont. plants doing well

- ~10% of cont plants missing from heavy flows noted during HEP

• Native growth: URTDIO, ARTDOR, ESCCAL, HETGKA, ELYTRI, BROCAR, CIROCC, DATWRI, PHACIC, PHAMIN, TOXDIV, PSECAL, GUEAER

• Nonnative growth CAPPAL, BRANIG, Knotweed, SOLNIG
- Eucalyptus re-sprouting 25% cover

DC7-4

• Container plants in most areas doing well ~10-15%. Stressed

• Middle sections where U3V1 nest is located could not be accessed → viewed w/ binos → over run w/ weeds can't see cont. plants

- No additional mortalities obs in north → irrigation looks fixed
- Native germ: AMBACA, ESCCAL, PHACIC, CYPERA, ACUMIL, DATWRI, HETGRA, ERICAN, PHAMIN, WRTDIO, PSECAL, QUEAGIK, HETGRA
- Nonnative: CONMAC, LEPLAT, MARVUL, CENMEL, AMAAUB, RUMCRI, EROIC, ANTCOT, Plantago, MELIND, BRANK, <5% cover outside of CBV1 nest buffer

• DL7-4B

- Container plants look good and well est.
- This site is looking very good
- ~ 5% of cont. plants stressed → mostly drought
- Native germ: ARTDOU, CIROCC, AMBACA, DATWRI, WRTDIO, ESCCAL, PHACIC, PHAMIN, ERICAN

- Nonnative germ: LACSER, CONMAC, LEPLAT, MELINB < 5%.

DG-4C

- Most cont. plants doing well and becoming well est. < 5% stressed

- Native germ: ACHMIL, PHACIC, PHAMIN, AMBACA, WRTDIO, ERICAN, DATWRI

- Nonnative germ: ERODIA, BRANIG, LACSER < 5%.

DG-5

- Monitored using bins → ~ 15% of plants appear stressed, but difficult to get accurate count

- Native germ: ESCCAC, ERICAN, OENELA, PHACIC, AMBACA

- Nonnative germ: BRANIG, LEPLAT, RUMGRI, CARPYC
~ 35% if not including dead grasses → 75-80% if including dead grass

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 Altadena Drain



Photo 10: Overview Mitigation Area DG-3A Altadena Drain



Photo 11: Overview Mitigation Area DG-3A Altadena Drain



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



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

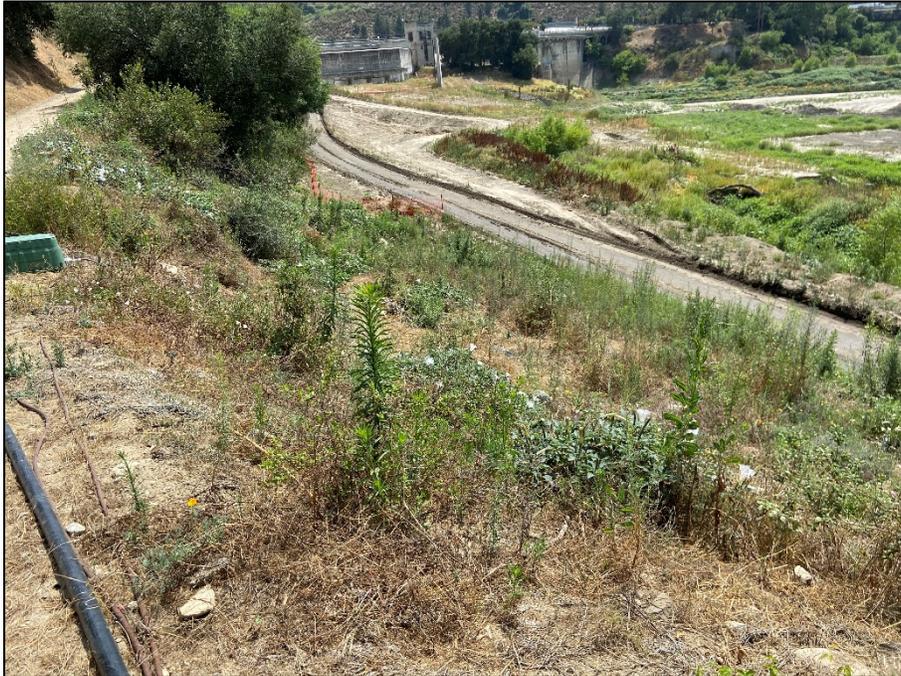


Photo 14: Overview Mitigation Area DG-3A Oak Woodland



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



Photo 16: Overview Mitigation Area DG-4



Photo 17: Overview Mitigation Area DG-3A



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