

January 4, 2023
2017-116.006

Mr. Wayne Lee
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 November 28, 2022*

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). The initial sediment removal in the reservoir was completed in 2021 and the annual maintenance removal phase will be initiated in September of 2022. The only Project activity currently being conducted is the habitat restoration 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 November 28, 2022. Field data collected during the monitoring event is provided as Attachment A. This report documents the seventh quarterly 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.

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
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 November 28, 2022 visit, all 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 most of these mitigation areas and most of the native annuals were observed to be dead for the season. Portions of DG-1 WOUS were noted as being scoured during the 2020 and 2021 wet seasons and had minimal plant growth. Native plants such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and common phacelia (*Phacelia distans*) were observed sprouting in the DG-1 and DG-1 WOUS mitigation areas. Native cover for the DG-1 and DG-1 WOUS mitigation areas was estimated to be approximately 65 percent with some areas having relatively dense cover and other areas being scoured and/or having minimal cover. Photos 1 through 4 in Attachment B document the status of the mitigation areas during the monitoring visit.

Nonnative weed cover in DG-1 and DG-1 WOUS was estimated at approximately less than one percent, which is approximately one percent less than the level of weed cover that was observed during the previous qualitative monitoring event. Nonnative species observed in DG-1 and DG-1 WOUS included nonnative grasses (*Bromus* spp.). All nonnative weeds were just starting to germinate and had not gone to flower or seed. In addition, many of the annual nonnative weeds were observed to be dead for the season.

2.3.2 DG-2A

The overall health of the container plants in DG-2A was noted as being good. Approximately less than five percent of the container plants in DG-2A were noted as showing varied levels of stress, which is approximately the same as the percentage of container plants that were showing stress during the previous qualitative monitoring event. Stress may be occurring as a result of 1) herbivory by rabbits or other wildlife, 2) competition from nonnative and invasive weeds, 3) misplaced emitters, or 4) recreational

traffic through the mitigation areas. There were no additional container plants noted as being missing or dead. Formal mortality counts were taken for DG-2A during the 2020, 2021, and 2022 quantitative monitoring events. Most of the willows (*Salix* sp.) and Fremont's cottonwoods (*Populus fremontii*) were starting to show signs of seasonal dieback. Some of the willows in this mitigation area were noted as having rust fungus (*Melampsora* spp.) on some of their foliage and should be monitored for any decline in health and vigor. 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 5 and 6 in Attachment B document the status of 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*), mugwort (*Artemisia douglasiana*), Canada horseweed (*Erigeron canadensis*), telegraph weed (*Heterotheca grandiflora*), Douglas' nightshade (*Solanum douglasii*), and stinging nettle (*Urtica dioica*) were observed sprouting in the DG-2A mitigation area. Native cover for the DG-2A mitigation area was estimated to be 80 percent.

Nonnative weed cover in DG-2A was estimated at approximately less than one percent, which is approximately the same as the level of weed cover that was observed during the previous qualitative monitoring event. This site appeared to have been recently weeded. Nonnative grasses were the only nonnative species observed in DG-2A during the monitoring visit. All nonnative weeds were just starting to germinate and had not gone to flower or seed. In addition, many of the annual nonnative weeds were observed to be dead for the season.

2.3.3 DG-2B

The overall health of the container plants in DG-2B was noted as being good. Approximately less than five percent of the container plants in DG-2B were noted as showing varied levels of stress, which is approximately the same percentage of container plants that were showing stress during the previous qualitative monitoring event. Stress was likely due to the same reasons as those described for DG-2A. In addition, insect galls were observed on several of the willow species. Formal mortality counts were taken for DG-2B during the 2020, 2021, and 2022 quantitative monitoring events. Similar to DG-2A, most of the willows and Fremont's cottonwoods were starting to show signs of seasonal dieback. 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 7 through 10 in Attachment B document the status of 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 annual bursage, mulefat (*Baccharis salicifolia*), Canada horseweed, and telegraph weed were observed sprouting in the DG-2B mitigation area. Native cover for the DG-2B mitigation area was estimated to be 80 percent.

Nonnative weed cover in DG-2B was estimated at approximately less than one percent, which is approximately the same percent that was observed during the previous qualitative monitoring event.

Nonnative grasses were the only nonnative species observed in DG-2B during the monitoring visit. All nonnative weeds were just starting to germinate and had not gone to flower or seed. In addition, many of the annual nonnative weeds were observed to be dead for the season.

2.3.4 DG-3A

The overall health of the container plants in DG-3A was noted as being good. Approximately five 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 approximately the same as the percentage of container plants that were showing stress during the previous qualitative monitoring event. During the monitoring visit, the planted coast live oak acorns were inspected for survivorship and health. Approximately 20 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. During the monitoring, it was noted that an existing coast live oak tree (Tree Tag #39) is continuing to experience branch failure for multiple branches. The cause of the branch failure was unclear.

Approximately less than five percent of the container plants in the Mulefat Thickets portions of DG-3A were noted as showing varied levels of stress, which is approximately the same percentage of container plants that were showing stress during the previous qualitative monitoring event. It should also be noted that the container plants and stakes installed near Altadena Drain were observed to be thriving. Formal mortality counts were taken for DG-3A during the 2020, 2021, and 2022 quantitative monitoring events. 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 Mulefat Thickets portions of DG-3A experienced approximately 18-days of inundation following heavy storm events in December of 2021. Most of the container plants appear to have fully recovered from the inundation. Some of the planting basins were observed to have varied levels of erosion and should be repaired. The willow and mulefat stakes were observed to be thriving in this mitigation area. 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 an effect on the continued growth of the plants in the mitigation area. Photos 11 through 15 in Attachment B document the status of 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 annual bursage, mugwort, mulefat, Jimson weed (*Datura wrightii*), California poppy (*Eschscholzia californica*), telegraph weed, and common phacelia were observed sprouting in the DG-3A mitigation area. Native cover for the DG-3A mitigation area was estimated to be approximately 65 percent in the coast live oak woodland portion of the mitigation area and 80 percent in the mulefat thickets portion of the mitigation area.

Nonnative weed cover in DG-3A was estimated at approximately less than one percent, which is approximately the same as the level of nonnative cover that was observed during the previous qualitative monitoring event. Nonnative species observed in DG-3A included perennial pepperweed (*Lepidium latifolium*) and nonnative grasses. All nonnative weeds were just starting to germinate and had not gone to flower or seed. In addition, most of the annual nonnative weeds were observed to be dead for the season.

2.3.5 DG-4

The overall health of the container plants in mitigation area DG-4 was noted as being good. Approximately five percent of container plants in the coastal sage scrub portions of DG-4 were showing varied levels of stress which is approximately five percent less than the percentage of plants showing stress during the previous qualitative monitoring event. Approximately 5 to 10 percent of container plants in most of the riparian portions of DG-4 were showing varied levels of stress, depending on the section of DG-4, which is approximately 5 to 15 percent less than the percentage of plants showing stress during the previous qualitative monitoring event. The causes of stress appear to be mostly due to the same reasons described in DG-2A. In addition, the southern portions of DG-4 experienced approximately 18-days of inundation following heavy storm events in December of 2021. Most of the container plants appear to have fully recovered from the inundation. For most portions of DG-4, only a negligible number of container plants were noted as being missing or dead. Formal mortality counts were taken for DG-4 during the 2020, 2021, and 2022 quantitative monitoring events. Similar to DG-2A, the willows and Fremont's cottonwoods were starting to show signs of seasonal dieback. Some of the planting basins were observed to have minor erosion and should be repaired. 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 19 in Attachment B document the status of 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 annual bursage, California sagebrush, mugwort, mulefat, tall flatsedge (*Cyperus eragrostis*), Canada horseweed, California buckwheat, telegraph weed, common phacelia, and stinging nettle were observed sprouting in the DG-4 mitigation area. Native cover for the DG-4 mitigation area was estimated to be approximately 75 to 85 percent in the riparian portion of the mitigation area and 65 percent in the coastal sage scrub portion.

Nonnative weed cover in DG-4 was estimated at approximately two percent, which is approximately the same as the percentage of nonnative cover that was observed during the previous qualitative monitoring event. Nonnative species observed in DG-4 included tree of heaven (*Ailanthus altissima*), black mustard (*Brassica nigra*), poison hemlock (*Conium maculatum*), perennial pepperweed, and nonnative grasses. Nonnative weed cover, especially perennial pepperweed, is a significant problem in portions of 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. Most nonnative weeds in the northern and middle sections of the mitigation area were just starting to germinate and had not gone to flower or seed; however, many of the weeds in the southern area were proliferating and had already produced seed.

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 less than five percent of container plants were showing signs of drought stress which is approximately 5 to 10 percent less than the percentage of plants that were stressed during the previous qualitative monitoring event. 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 2020, 2021, and 2022 quantitative monitoring events. Some of the planting basins were observed to have minor erosion and should be repaired. 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 20 and 21 in Attachment B document the current status of 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 mugwort, tarragon (*Artemisia dracunculus*), mulefat, and telegraph weed were observed sprouting in the DG-4B mitigation area. Native cover for the DG-4B mitigation area was estimated to be approximately 85 percent.

Nonnative weed cover in DG-4B was estimated to be approximately less than one percent, which is approximately the same as the percentage of nonnative cover that was observed during the previous qualitative monitoring event. Nonnative species observed in DG-4B included black mustard and perennial pepperweed. All nonnative weeds were just starting to germinate and had not gone to flower or seed. In addition, most of the annual nonnative weeds were observed to be dead for the season.

2.3.7 DG-4C

The overall health of the container plants in mitigation area DG-4C was noted as being good. Approximately 5 to 10 percent of all container plants were noted as showing minor levels of stress, which is approximately five percent less than percentage of plants that were showing stress during the previous qualitative monitoring event. 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-4C during the 2020, 2021, and 2022 quantitative monitoring events. Some of the planting basins were observed to have minor erosion and should be repaired. 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 22 to 24 in Attachment B document the status of 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 annual bursage, mulefat, Canada horseweed, and telegraph weed were observed sprouting in the DG-4C mitigation area. Native cover for the DG-4C mitigation area was estimated to be approximately 75 percent.

Nonnative weed cover in DG-4C was estimated at approximately less than one percent percent, which is approximately the same percentage of nonnative cover that was observed during the previous qualitative monitoring event. Black mustard and nonnative grasses were the only nonnative species observed in DG-4C during the monitoring visit. All nonnative weeds were just starting to germinate and had not gone to flower or seed. In addition, most of the annual nonnative weeds were observed to be dead for the season.

2.3.8 DG-5

The overall health of the container plants in the DG-5 mitigation area was noted as being good. Approximately less than five percent of all container plants were noted as showing varied levels of stress, which is approximately the same as the percentage of plants that were showing stress during the previous qualitative monitoring event. Formal mortality counts were taken for DG-5 during the 2020, 2021, and 2022 quantitative monitoring events. Some of the planting basins were observed to have minor erosion and should be repaired. Similar to DG-2A, the willows and Fremont's cottonwoods were starting to show signs of seasonal dieback. 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 25 and 26 in Attachment B document the status of 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, mulefat, telegraph weed, evening primrose (*Oenothera elata*), and stinging nettle were observed sprouting in the DG-5 mitigation area. Native cover for the DG-5 mitigation area was estimated to be approximately 85 percent and the site is thriving.

Nonnative weed cover in DG-5 was estimated at approximately less than one percent, which is approximately the same percentage of nonnative weed cover that was observed during the previous qualitative monitoring event. Nonnative species observed in DG-5 included black mustard and perennial pepperweed. All nonnative weeds were just starting to germinate and had not gone to flower or seed. In addition, most of the annual nonnative weeds were observed to be dead for the season.

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 the fall/winter of 2022/2023. Replacement of dead container plants will help to increase native cover and help the restoration sites move toward achieving their success criteria.

Container plant loss was most problematic in areas prone to erosion, areas with higher levels of herbivory, and areas within the least Bell's vireo nest buffer where nonnative weed proliferation occurred during the active nesting period in the spring of 2020. Special attention should be taken to replace the container plants that were lost in the least Bell's vireo nest buffer to enhance the habitat in this area.

3.2 Nonnative Plant Control

Nonnative weed cover ranged from approximately less than one percent to two percent in the various mitigation areas and evidence of recent weed abatement was present throughout the site. It should be noted that many of the nonnative weeds observed during the monitoring were just starting to germinate and had not gone to flower or seed and many of the annual nonnative weeds were observed to be dead for the season. 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; however, nonnative weeds just outside of the planting areas can migrate into the planting areas via seed dispersal. Outside of the nesting bird season, a focus should also be made to remove nonnative weeds in areas where least Bell's vireos are likely to nest during the breeding season (i.e., in the vicinity of the least Bell's vireo nest that was active in 2020). 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. Irrigation was not actively occurring during the monitoring visit, but the soil for most container plants was found to be moist at and 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. 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

Minor rabbit herbivory of container plants was observed in the Phase 1 mitigation areas. California rose, California buckwheat, and basket rush (*Juncus textilis*) appeared to be the most affected by herbivory. 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. As the plants become more established, they will be less susceptible to the effects of herbivory. If browsing by rabbits or other animals begins to worsen, caging around affected and/or favored container plants may be warranted.

3.5 Erosion

Minor erosion to planting basins was observed throughout the Phase 1 mitigation areas. The severe erosion noted in DG-3A near Altadena Drain during previous monitoring visits did not show any signs of worsening nor did the erosion to the upper slope in DG-3A. 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 Cadams@ecorpconsulting.com or (714) 648-0630.

Sincerely,

A handwritten signature in blue ink, appearing to read "Carley Adams".

Carley Adams
Senior Biologist

ATTACHMENT A

Field Notes

Devil's Gate Quail Phase 1 143

11/28/22

C. Adams

DG-1

- Most annuals dead for season
- Native germ: ERIFAS
PHADIS, ARTCAL
- Nonnative germ! Some nonnative grasses just starting to germinate < 1% cover
- Minimal change
- Many HESWHL starting to die out after sending up flower stalks

DG-2A

- Cont. plants are healthy & well est. ~ 5% stressed
- Native germ: ARTDOU, AMBAEA
URTDIO, HETCRA, SOLDOU
- Nonnative germ: grasses,
< 1% cover
- Site is thriving ~ 80% cover
- POPRE & willows starting to show seasonal dieback
- Rust fungus obs. on willows

DL-2B

- Cont. plants healthy & well est. ~ 5% stressed
- POPP & willows start to show seasonal die back
- Native germ: AMBACA, HETGRA, ERICAN, BALSAL
- Nonnative germ: some grasses 14% cover
- Site is thriving ~ 80% cover

DL-3A oak

- Remaining cont. plants healthy → need to install replacements ~ 5% stressed
- Native germ: AMBACA, HETGRA, ARTDOU, BALSAL, DATWRI, PHADIS, ESCCAL
- Nonnative germ: some nonnative grasses 14% cover
- Some recent erosion (minor rills) on slopes w/ minimal cover
- ~ 65% cover

Altadena drain

- Cont. plants healthy & thriving ~ 80% cover
- 45% stressed

- Native germ: AMBACA, BAESAL, HETGRA, ARTDOU
- Nonnative germ: LEPLAT

< 1% cover

DG-4 CSS

- Cont. plants healthy & well est. ~ 5%. stressed
 - Native germ: ERIFAS, ARTCAL, BAESAL, ERICAN, HETGRA
 - Nonnative germ: MARJUL, BRANIG, LEPLAT, CONMAC
- ~ 2% cover
- ~ 65% cover
 - overall site is doing well

DG-4 Riparian

- Cont. plants healthy & well est. ~ 5-10% stressed
- stakes thriving
- 80% FRE & willows starting to show seasonal dieback
- Native germ: HETGRA, ARTDOU, BAESAL, PHADIS, URVDIO, ERICAN, AMBACA, CYPERA
- Nonnative germ: LEPLAT, BRANIG, grasses ~ 2% cover
- ~ 85% cover in north
- ~ 80% cover in middle
- ~ 75% cover in south

DL-4C

- Cont. plants healthy & well est. ~5-10% stressed
- Native germ: HETGRA, ERICAN, AMBACA, BACSAL
- Nonnative: BRANIG & grasses < 1% cover
- Overall site is thriving ~75% cover

DL-4B

- Cont. plants healthy & well est. negligible stress
- Native germ: HETGRA, BACSAL, ARTDRA, ARTDOL
- Nonnative cover: BRANIG, LEPLAT < 1% cover
- Some POPFRE & willows showing seasonal dieback
- ~85% cover

DL-5

- Cont. plants healthy & well est. → negligible stress
- Native germ: AMBACA, OENELA, HETGRA, BACSAL, WRTDIO
- Nonnative germ: LEPLAT, BRANIG < 1% cover
- ~85% cover

ATTACHMENT B

Photo Documentation



Photo 1: Overview Mitigation Area DG-1



Photo 2: Overview Mitigation Area DG-1



Photo 3: Overview Mitigation Area DG-1



Photo 4: Overview Mitigation Area DG-1



Photo 5: Overview Mitigation Area DG-2A



Photo 6: Overview Mitigation Area DG-2A



Photo 7: Overview Mitigation Area DG-2B



Photo 8: Overview Mitigation Area DG-2B



Photo 9: Overview Mitigation Area DG-2B



Photo 10: Overview Mitigation Area DG-2B



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



Photo 12: Overview Mitigation Area DG-3A Altadena Drain



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-4B



Photo 21: Overview Mitigation Area DG-4B



Photo 22: Overview Mitigation Area DG-4C



Photo 23: Overview Mitigation Area DG-4C



Photo 24: Overview Mitigation Area DG-4C



Photo 25: Overview Mitigation Area DG-5



Photo 26: Overview Mitigation Area DG-5