DEVIL'S GATE RESERVOIR RESTORATION PROJECT

PRESENTATION TO THE HAHAMONGNA WATERSHED PARK ADVISORY COMMITTEE

MAY 23, 2023

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Devil's Gate Restoration Project Update

- Presentation Topics
  - Introduction
  - Restoration Project Goals
  - Restoration Project Timeline
  - Status of Restoration Areas
  - Nesting Birds and Special-Status Species
  - Adaptive Management

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Restoration Project Goals

- Satisfy Onsite Mitigation Required by Project Permits
- Create, Restore, and Enhance Habitats in Devil's Gate Reservoir
- Eliminate or Control Non-Native and Invasive Plant Species
- Improve Wildlife Habitat
- Create Multi-Structured Nesting Habitat for Least Bell's Vireo

Creation and Restoration of Habitat

Johnson Field Prior to Habitat Creation

Mining Pit Prior to Habitat Restoration

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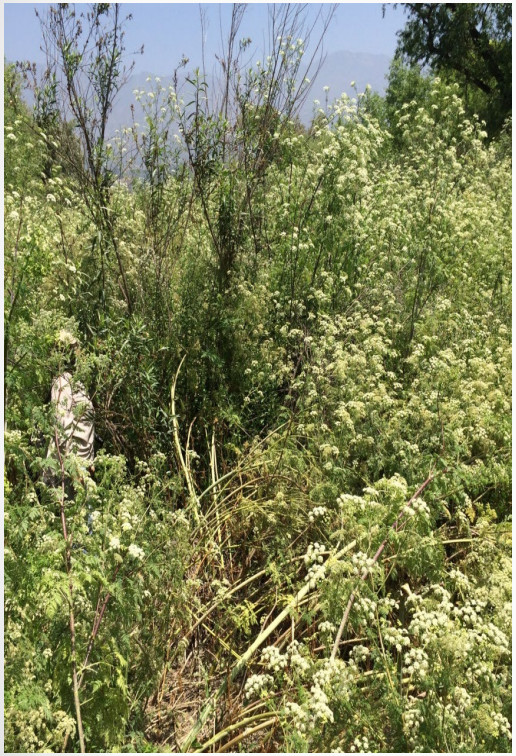
Non-Native and Invasive Species

Poison Hemlock



Non-Native Grasses/Weeds

Perennial Pepper Weed

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Multi-Structured Vireo Nesting Habitat

Poor Vireo Nesting Habitat Before Restoration

Multi-Structured Vireo Nesting Habitat

Restoration Project Timeline

- Initial Non-Native Plant Removals Completed in February 2019
- Phase 1 Restoration
  - Implementation Initiated April 2019
  - Installation Completed February 2020
  - Irrigation Terminated February 2023
- Phase 2 Restoration
  - Implementation Initiated January 2021
  - Installation Completed May 2021
- Phase 3 Restoration
  - Implementation Initiated January 2023
  - Container Plant Installation Completed April 2023
  - Seeding Planned for Fall/Winter of 2023/2024

Status of Restoration Areas - Monitoring

- Qualitative Monitoring Conducted Monthly/Quarterly
  - Visual Assessment of Conditions in Restoration Areas
- Quantitative Monitoring Conducted Annually
  - Field Measurements of Several Variables in Restoration Areas
    - Percent Cover of Native Plant Species
    - Percent Cover of Non-Native Plant Species
    - Species Richness or Number of Different Plant Species
  - Results are Compared to Success Standards

Status of Restoration Areas (Cont.)

Quantitative Monitoring Uses a Measuring Tape as a Transect Line

Status of Restoration Areas – Phase 1

- Third Year Success Standards
  - Percent Cover of Native Plants – 40%
  - Percent Cover of Non-Native Plants – Less than 5% to 10%
- 2022 Quantitative Measurements
  - Percent Cover of Native Plants – 54 to 88%
  - Percent Cover of Non-Native Plants – 0% to 5%
- 2023 Annual Quantitative Monitoring – June 2023

Status of Restoration Areas – Phase 1 (DG-2B)

January 2019

July 2022

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Status of Restoration Areas – Phase 1 (DG-5)

August 2020

July 2022

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Status of Restoration Areas – Phase 2

- Second Year Success Standards
  - Percent Cover of Native Plants – 30%
  - Percent Cover of Non-Native Plants – Less than 5% to 10%
- 2022 Quantitative Measurements
  - Percent Cover of Native Plants – 53 to 98%
  - Percent Cover of Non-Native Plants – 0% to 4%
- 2023 Annual Quantitative Monitoring – June 2023

Status of Restoration Areas – Phase 2 (Johnson Field)

May 2021

August – September 2022

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Status of Restoration Areas – Phase 2 (Johnson Field)

May 2021

July 2022

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Status of Restoration Areas – Phase 2 (DG-2)

May 2021

August-September 2022

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Status of Restoration Areas – Phase 2 (DG-2)

May 2021

July 2022

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Status of Restoration Areas – Mining Pit Challenges

- Presence of a Historic Pond
- Multiple Years of Drought
- Management of Willow Mortality from the Invasive Shot Hole Borer
- Modification of the Project to Adhere to the Settlement Agreement
  - Deepening of Arroyo Seco Channel
  - Elevation Change at DG-4 WOUS

Status of Restoration Areas – Mining Pit

- Purposefully Modified Flow to Create a Meandering Channel
- Increased Vegetation Coverage and Structure
- Provides Opportunities for Nesting Vireos and Other Sensitive Birds

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Status of Restoration Areas – Mining Pit

January 2022

August-September 2022

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Status of Restoration Areas – Mining Pit

January 2022

August – September 2022

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Nesting Birds and Special-Status Species - 2023

- Vegetation Cover and Structure Provide Nesting Opportunities
  - Tall Willows, Dense Shrubby Cover, Multi-Structured Habitat
- Current Active Nests in the Restoration Areas – 70
- Observations of Special-Status Species 2023
  - Least Bell's Vireo – 2 Male Vireos at Four Different Locations
  - Yellow Warbler - 33
  - Yellow-Breasted Chat - 3

Nesting Bird Locations 2023

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Special-Status Species Observations 2023

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Adaptive Management

- Invasive Shot Hole Borer
- Non-Native and Invasive Plant Species Control
- Supplemental Irrigation
- Reservoir Inundation and Impacts to Restoration Areas
- Inflow from Arroyo Seco to Mining Pit through DG-4 WOUS

Adaptive Management – Reservoir Inundation

West Side Reservoir Inundation 2022

Adaptive Management – DG-4 WOUS Inflow

DG-4 WOUS Inlets

January 2022

August – September 2022

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Devil's Gate Reservoir Restoration Project

QUESTIONS?

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