

# Restoration, Seed Use, and Seed Needs at a Nevada Environmental Nonprofit

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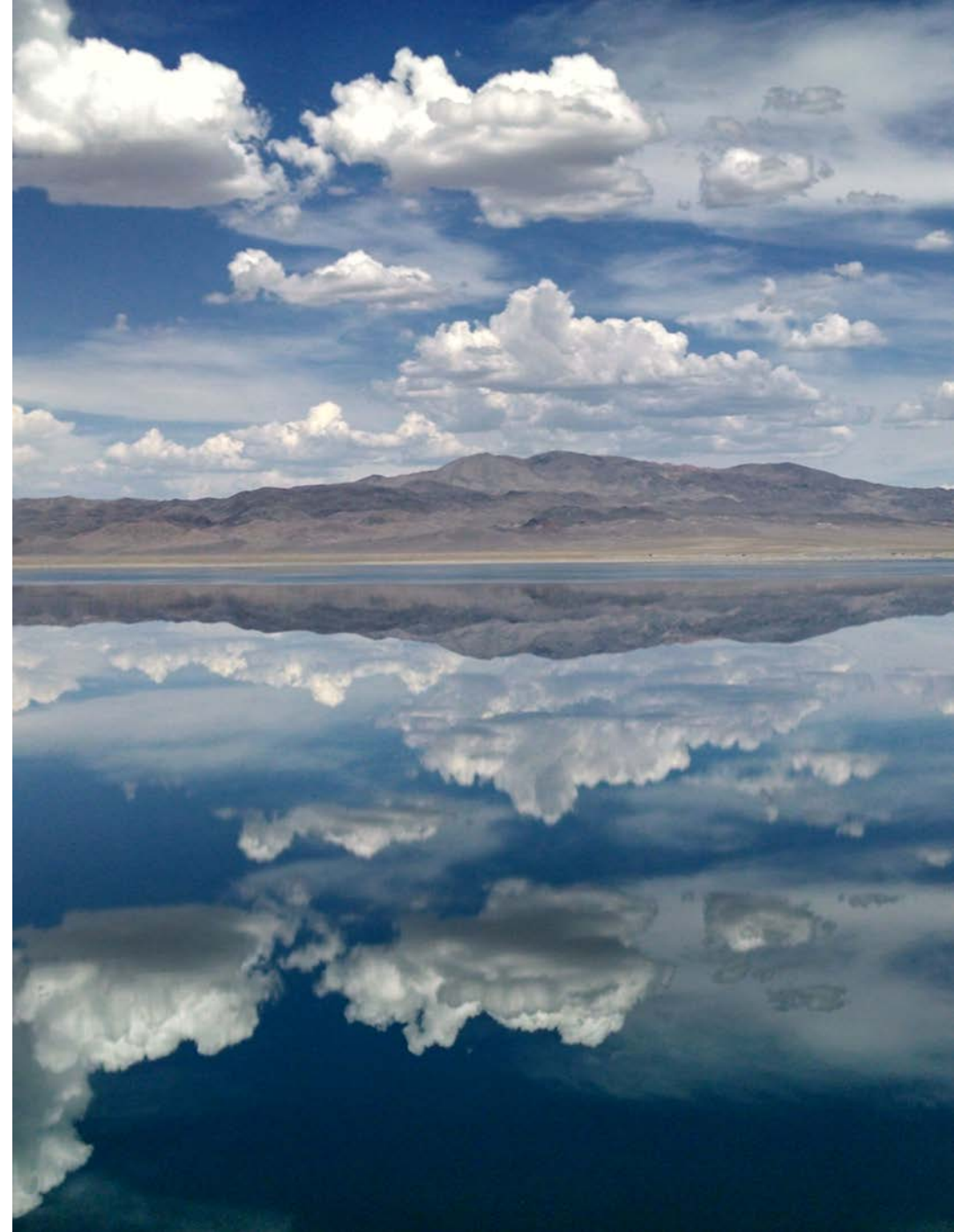
Walker  
Basin  
Conservancy



## Who Are We and What Do We Do?

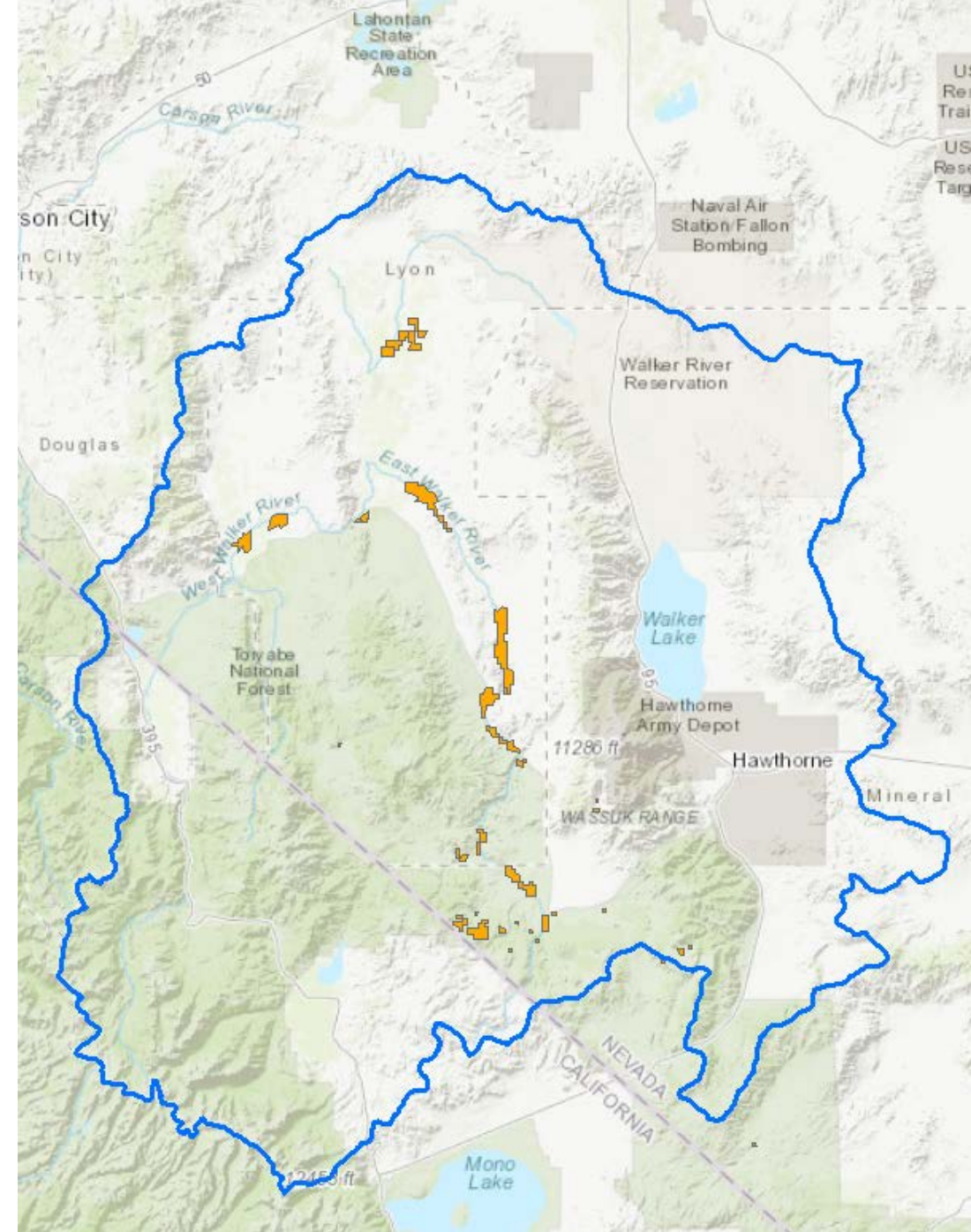
Walker Basin Conservancy is leading the effort to restore and maintain Walker Lake while protecting agricultural, environmental, and recreational interests in the Walker Basin.

- Purchase water rights from willing sellers
- Protect those rights instream to Walker Lake
- Revegetation/restoration of lands associated with those water rights
- Advancing recreational opportunities in the Basin



# Where Do We Do Restoration?

- The Conservancy is/has been responsible for the shared stewardship of roughly 16,000 acres of land in the Basin, about 5,000 acres of old fields and is responsible for revegetation activities and habitat enhancement.
- Public land
  - Walker River State Recreation Area
  - Mason Valley Wildlife Management Area
- Private land
  - WBC land
  - Private landowners in the Walker Basin



## Where Do We Do Restoration?

- Some of the driest areas of the Great Basin at under 5 inches of precipitation annually
- Naturally would be low elevation salt desert communities
- Former floodplains and transitions into low elevation salt desert shrublands
- Naturally low resistance and resilience
- Long history of disturbance



# Where Do We Do Restoration?

- Old fields in various states based on past usage
- Usually have irrigation infrastructure, in various conditions
- Atypical for Nevada, but many similar challenges



# Restoration/Revegetation/Rehabilitation Goals

- Dependent based on partner needs
- At least:
  - Soil stabilization
  - Fugitive dust abatement
  - Noxious weed control
- On most projects
  - Establish appropriate native plant communities
  - Initiate “restoration trajectory” by seeding and outplanting native species



# WBC Restoration-A Few Workhorse Species



## Restoration Challenges-Soils

- Soils are usually highly disturbed from years of agricultural activity
- Almost always a hardpan a few inches deep from repeated plowing and irrigation activity
- Nitrogen levels can be very high from past alfalfa crops
- Irrigation history can concentrate salts in certain layers of the soil
- Native seedbank is often highly depleted and few adjacent native seed sources





## Restoration Challenges-Water

- On our sites, we cannot reasonably expect the plant materials currently available to establish without irrigation
- We are fortunate to have water to irrigate and infrastructure to bring that water to bear
- But when we do irrigate highly disturbed, often fallowed, often high nitrogen soils, we are inundated with weeds, so there is a balance.



## Restoration Challenges-Weeds

- We deal with both noxious and agricultural weeds
- Agricultural weeds, combined with water and increased soil nutrients, have been a major threat to success of both seeded grasses and planted shrubs
- Necessary to have a weed control plan that allows flexibility



# How To Overcome These?

- Seeds vs. Plugs?



## Outplanting Plugs vs. Seeding



- Dependable
- Overcomes early establishment barriers
- Not very scalable
- Higher chance of failure
- Greater dependence on climate conditions
- Can work well with certain species of right origin
- \*Currently



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- Seeds vs. Plugs?
- Separate grasses from shrubs and wildflowers in establishment phase



# Spatial Separation of Grasses and Shrubs



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- Minimize irrigation of weeds





# Drip Irrigation Projects



## How To Overcome These?

- Seeds vs. Plugs?
- Separate grasses from shrubs and wildflowers in establishment phase
- Minimize irrigation of weeds
- Use more appropriate plant materials



# What Do I Want As A Restorationist?

- Species Diversity
- Functional Diversity
- Genetic Diversity
- Locally Adapted Traits



# Things We Can Do To Help Get Us There

- Collect seed
  - Partnerships with NDOW and UNR
  - WBC restoration collection



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  - Seed orchards-Partnerships with BLM, NDOW, and Community Foundation of Western Nevada
  - Field seed increase



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  - Seed orchards-Partnerships with BLM, NDOW, and Community Foundation of Western Nevada
  - Field seed increase
- Share results



# Thank You!

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## Social Media

Facebook.com/walkerbasinconservancy @walkerbasinconservancy

