Ecological Restoration at the Las Vegas Springs Preserve

Von K. Winkel, Ph.D.
The Las Vegas Springs Before Disturbance
“The springs are very large. A small creek flows from each of 3 or 4 springs and joining they make a good stream. The water is warm, 73 degrees and is good, pure water. We caught a lot of very bright green frogs, the greenest I ever saw. There are lots of little fish in the springs and streams. There are large meadows along the stream. Groves of cottonwoods have been set out and are now large trees. Mesquites of both kinds of species are abundant, also catclaw and Atriplex confertifolia and canescens grow over the flat bottoms”

Vernon O. Bailey, Death Valley Survey March 8, 1891
• Three cauldron pools springs producing 6 cfs. Headwaters of the six-mile long Las Vegas Creek.
• Riparian corridor
• Meadows (saltgrass and alkali sacaton)
• Mesquite bosque
• Upland plant communities (Creosotebush/bursage, saltbush)
• Wildlife
• Endemic wildlife (Las Vegas dace and Las Vegas Valley Leopard frog
Cauldron Pool Springs
Ash Meadows
Las Vegas Creek
Riparian Corridor along Las Vegas Creek
CA 1910
Riparian Corridor along Las Vegas Creek

2001
Las Vegas Valley Leopard Frog (extirpated)

Las Vegas Dace (extinct)
Land Disturbances on the Springs Preserve
Land Disturbances

- Dewatered springs and creek, lowered water table - 1960
- Soil removed: 36 acres
- Debris dump: 6 acres
- Water production facilities
- Roads and staging areas
- Utility corridors
- Weeds: 5 acres
- 25-acre weed-infested flood detention basin
Roads
Utility Corridors
Construction Debris Areas
Weed Areas
Water Production Facilities
The Springs Preserve
A new vision for the property

In the late 1990s, the Las Vegas Valley Water District with public input decided to:

(1) Preserve the rich cultural and biological resources of the property

(2) Restore the damaged native landscapes on the property

(3) Build a facility “that builds culture and community, inspires environmental stewardship and celebrates the vibrant history of the Las Vegas Valley.”
Ecological Restoration Goals

• Restore disturbances to functioning ecosystems
• Recreate the beauty of the landscapes on the Preserve
• Provide a setting to educate the public about the biological diversity of the Mojave Desert
Implementation of Ecological Restoration at the Springs Preserve
Identifying Areas That Need Restoration
Ecological Restoration Sites

- 96 acres requiring restoration
- 50 restoration sites
Restoration Planning
Restoration Planning

- Cleanup
- Grading
- Topsoiling
- Relieving compaction
- Plant Material Procurement
- Revegetation
- Irrigation
- Monitoring
Restoration Constraints
Utilities
Cultural Resources
Sensitive Plants
Sensitive Wildlife

Desert Pocket Mouse Distribution

[Map showing distribution of Desert Pocket Mouse]
Restoration Implementation
Cleanup
Grading
Soil Importation
Relieving Soil Compaction
Plant Material Procurement
Seed Collection
Propagation
Plant Salvaging
Revegetation
Seeding
Planting
Irrigation
Monitoring Success
Success!!
Results After 15 Years of Restoration
Creosotebush/Bursage
Mesquite Bosque/Saltbush
Saltbush
Old Road - Saltbush
Old Road - Saltbush
Bear Poppy Habitat
Educational Landscape
Educational Landscape
Volunteers!!
Hurray for Volunteers!
Eagle Scout Projects 2000-2010

**FUN FACTS**
- Number of projects: 160
- Number of volunteers: 3,500
- Number of volunteer hours: 17,500
- Cost savings to the Springs Preserve: $306,000
- Plants installed: 43,000
- Cacti rescued: 800
- Plants potted: 12,000
- Irrigation systems installed: 1 1/2 miles
- Plant nursery benches constructed: 165
- Litter and debris picked up: 14 dump truck loads
- Donuts consumed: 7,500
- Pizza slices devoured: 11,000
- Bottles of water enjoyed: 6,500
Volunteer Facts

• Total projects: >200
• Number of volunteers: >4000
• Total hours: >20,000
• Cost savings to the Springs Preserve: >$350,000
• Plants installed: >50,000
• Cacti rescued: >1000
• Plants potted: >15,000
• Irrigation installed: >1.5 miles
• Litter and debris removed: >15 dump truck loads
Restoration Program Facts

- 87 acres restored or revegetated
- 7 acres new wetland created
- >100,000 plants installed
- 70 native plant species represented
- 35,000 cubic yards of soil imported
- Over 20,000 volunteer hours
Acknowledgements

• Management (Springs Preserve, Las Vegas Valley Water District, Southern Nevada Water Authority)
• Grant funding (BLM, City of Las Vegas, Clark County)
• Staff
• Contractors
• Volunteers
Tour of Springs Preserve
Ecological Restoration Sites

Meet at the Trail Head/Train loading area today at 3:20 PM.