

# Linear Restoration in OHV Multiple-use Areas

Bureau of Land Management – Ridgecrest Resource Area





04/12/2002



12/07/2002



12/19/2002





## **Accelerated Revegetation**

**Effects of Mechanical Ripping?**

**Which Plants do Best?**

**How Much Irrigation Needed?**

**Which Techniques Work Best?**

**Effects on Compliance?**



**Pre-monitoring:**

**Trail attributes**

**Slope, Width**

**Line of Sight**

**Azimuth**

**Dominant Species**

**Type of OHV use**



**01/01/2001**





SOUTH  
04/16/2003

04/16/2003

# Other Monitoring: Type of Trail

**Cross-country level**  
**Cross-country hilly**  
**Hillclimb nearby**  
**Hillclimb distant**  
**Parallel**  
**Corner cut**  
**Wash**  
**Severely Denuded Area**

**Crosstrail?**  
**Continues Straight?**  
**Past Management**  
**Past Vandalism**

01/01/2001



**COMPLIANCE!**

**Motorcycle riding is fun, you have to try it!**



**But, how do we preserve habitat AND allow for multiple use?**



**And other associated problems...**

**05/12/2003**

**Persistent vandalism**



10/31/2002





07/02/2003

# West Rand Mountains ACEC Restoration Sites

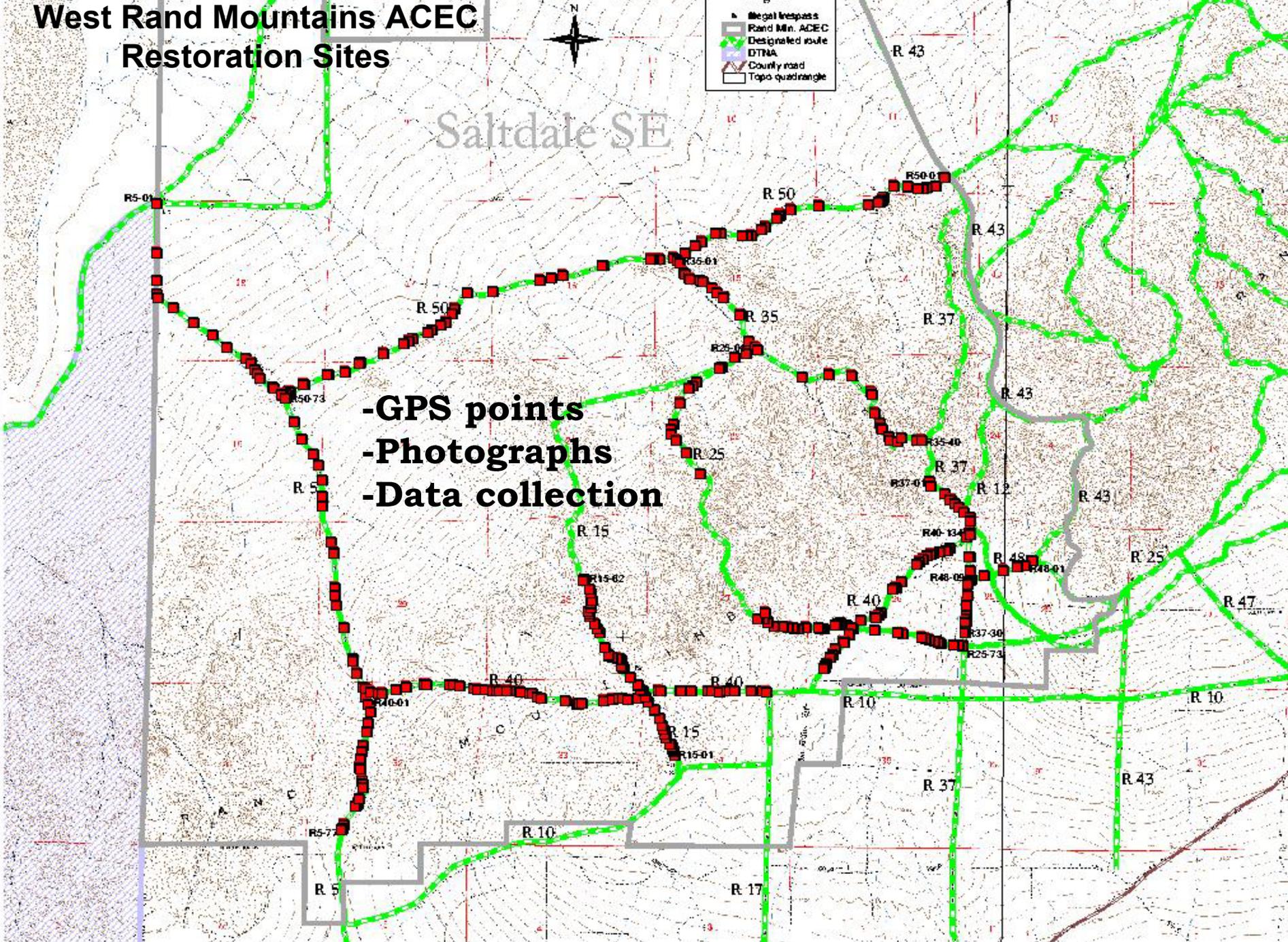


**Legend**

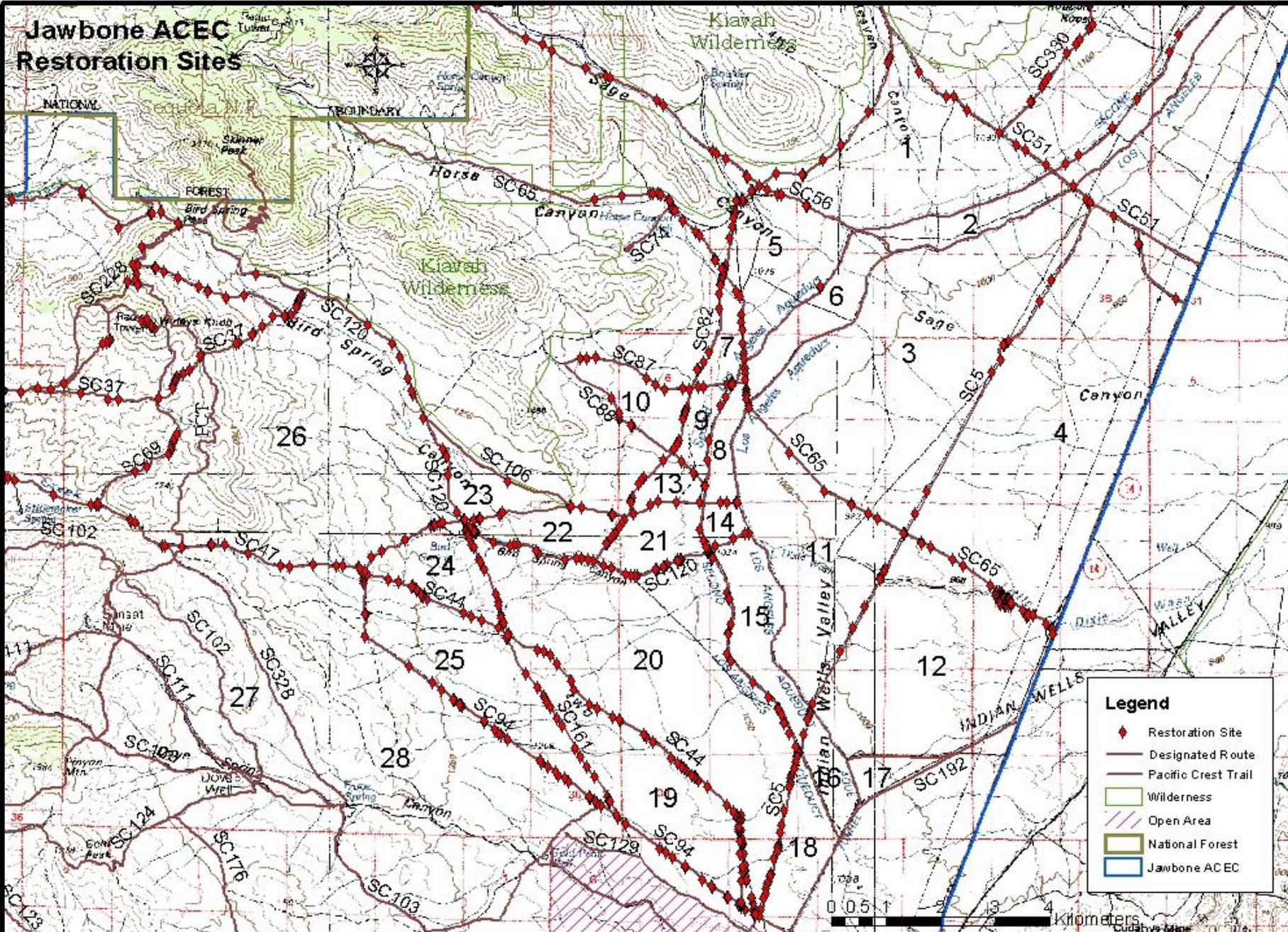
- Legal trespass (black triangle symbol)
- Rand Min. ACEC (shaded area)
- Designated route (green dashed line)
- DTNA (green solid line)
- County road (grey solid line)
- Topo quadrangle (white square symbol)

Saltdale SE

**-GPS points**  
**-Photographs**  
**-Data collection**



# Jawbone ACEC Restoration Sites



- Legend**
- ♦ Restoration Site
  - Designated Route
  - - - Pacific Crest Trail
  - ▭ Wilderness
  - ▨ Open Area
  - ▨ National Forest
  - ▭ Jawbone ACEC

0 0.5 1 2 3 4 Kilometers



**The Student  
Conservation  
Association  
(SCA)**



04/23/2003



10/29/2002

**California  
Conservation Corps  
(CCC)**



**Mechanical Ripping**

**Decompaction**

**12/11/2002**





**Vegetation Monitoring**

**04/23/2003**

**Randomly selected quadrats  
Cover and Density  
Ripped v. Nonripped v. Natural**

**04/23/2003**

The image shows two green, bushy plants of Encelia Virginensis growing in a sandy, arid environment. The plants have thick, succulent-like leaves and are surrounded by sparse, dry vegetation and small rocks. The ground is light-colored and textured. The plants are positioned in the center-left and center-right of the frame.

*Encelia Virginensis*

04/23/2003



*Hymenoclea salsola*

04/23/2003

A photograph of a desert landscape. The foreground and middle ground are filled with low-lying, green and brownish vegetation, including small shrubs and grasses. The ground is rocky and sandy. In the background, a hillside rises, covered with similar sparse vegetation. The sky is clear and blue. The text is overlaid on the right side of the image.

Desert Tortoise forage

*Mirabilis bigelovii*  
*Chorizanthe brevicornu*  
*Astragalus spp.*

05/09/2003



**Invasive species?**

**06/25/2003**

# Certified Weed-Free Rice-Straw Bales



10/15/2003

# Effective Barricades?



10/31/2002



**Maybe not?**

10/31/2002

**Check Dams**

10/29/2002



01/01/2001



04/16/2003

**Rocks?**

05/09/2003



**Check Dams**

**Water Bars**

**Barricades**

**10/31/2002**



01/01/2001



**Maybe not too many rocks...**

**We ARE trying to erase  
linear features...**



04/16/2003

**Early attempts at vertical mulch...**



**05/09/2003**

**Live Creosote...trust me**



**05/16/2003**

**Now, this is vertical mulch!**



**04/23/2003**

**Dead Shrubs supplement  
the “Mock Creosotes”**



**04/23/2003**

**Nurse Plants**  
**...finally a use for**  
**Russian Thistle**



05/12/2003

A photograph showing a soil pit dug into the ground next to a large, dry, tangled shrub. The soil is light brown and sandy. The shrub has many thin, white, brittle-looking branches. The ground around the pit is uneven and has some small rocks and sparse vegetation.

**Soil Pitting &  
Seedbank Transfer**

04/23/2003



**Additional Restoration Techniques:**

**Broadcast Seeding**

**Raking**

**Catchments**

**Cholla Propagation**

04/23/2003

**Future Techniques?**

**Hydroseeding  
Geotextile netting  
Permeon**

**04/23/2003**





04/23/2003

**Slow-growing  
Climax species:**

- Creosote Bush
- Joshua Tree
- Paperbag bush
- Spiny Hopsage
- White Bursage
- Bladderpod
- Saltbush
- Indigo Bush
- Lycium spp.*

**Fast-growing  
Herbaceous Perennials**

- Goldenhead
- Goldenbush
- Brittlebush
- Cheesebush
- Winterfat
- Wishbone bush



**1 year old  
18" root depth  
3-5 gallons H<sub>2</sub>O**



**12/08/2003**

## GPS points

Species

Seed source

Amount H2O

Height, width

Irrigation regime

Plant condition



12/08/2003



12/08/2003



Protective cages

Allow light  
Prevent herbivory

1 ½' diameter  
wells for water  
collection



12/08/2003

A young bladderpod plant is shown in a dry, sandy, and rocky environment. The plant has a thin, light-colored stem and small green leaves. A red pencil is placed vertically next to the plant to provide a sense of scale. The ground is composed of light-colored sand and small rocks, with some sparse, dry vegetation scattered around. The overall scene suggests a harsh, arid habitat.

**This  
Bladderpod  
made it  
through  
its first year  
WITHOUT  
water!**



01/01/2001



04/16/2003





04/12/2002



12/19/2002

A wide-angle photograph of a desert landscape. In the foreground, a light-colored dirt path winds through sparse, dry, brownish shrubs. The middle ground shows a flat, sandy area with more scattered vegetation. In the background, a range of low, brown mountains stretches across the horizon under a clear blue sky. The overall scene is arid and open.

**Follow-up monitoring:**

**OHV activity (status)**

**-restoring, persistent**

**Type of offending OHV**

**Sub/Shrub density**

**Vandalism**



12/17/2002



12/19/2002

**Any Advice?**

**Questions are okay too...**

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