

February 7, 2011

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**Subject:** Quarterly Report for project entitled: "Coastal Cactus Wren Habitat Enhancement In San Pasqual Valley.

**Dates of Report:** 10/10/2010 through 1/2/2011.

**Project Summary.** Project continues to proceed according to plan in an efficient and effective manner. No major changes or adjustments have been needed. A total 15 acres of degraded habitat have been enhanced, one-third of our target of 45 acres over 3 years.

### **Progress by task for this Quarter**

#### **Task #:1: Creating a Cacti Propagation and Salvage Center**

The Cacti Propagation and Salvage center is now fully operational. During this quarter, plant benches were installed, weed cloth was laid down, a drip irrigation system installed, and a plant propagation area was created. This facility provides enough space to house salvaged cacti and succulents while simultaneously propagation cacti and other coastal sage scrub species for habitat enhancement activities. Additional minor work is still needed, but we are up and running.

#### *Deliverables for Task 1:*

- Cacti Propagation and Salvage Center is fully operational.
- We continue to care for salvaged succulents and cacti.



Figure 1. Some of the salvaged cacti and succulents currently in our care.



Figure 2. Interior of Cacti Propagation and Salvage Center.

### **Task #: 2: Cacti Propagation**

During this quarter, an additional 750 cacti pads were collected for propagation for planting next winter (see Figure 2 above). Since the beginning of the grant, we have now propagated 3,000 *Opuntia* plants.



*Deliverables:*

- 750 pads collected and in propagation for restoration activities in San Pasqual Valley.

**Task #3: Restoration and Enhancement Planting**

Most of this quarter was dedicated to restoration and enhancement planting of 15 acres of degraded habitat. Planting took place throughout the month of December. In all a total of 2,250 cacti were planted across 15 one-acre areas. At each of the 15 sites we planted 50 propagated cacti (these were raised in 2 gallon pots), 50 pads with roots (~ 6 months old), and another 50 fresh pads (collected 2 weeks prior to planting). This resulted in 150 cacti planted per acre. Our design also allows us to run a cost-benefit analysis evaluating the optimal age of cacti (1 year old, 6 month old, or 2 week old) for restoration.

*Deliverables:*

- 15 acres enhanced with 2,250 cacti.



Direct planting of cacti in degraded areas.



Volunteers from the Safari Park's Conservation Corps assisted with the restoration activities

#### **Task # 4: Monitoring and Applied Research**

Additionally, as part of our enhancement activities, we caged a subset of cacti in five of the 15 1-acre enhancement plots in order to evaluate the role of herbivory on survival and establishment. Previous work indicated that small mammals (wood rats, rabbits, etc.) can negatively impact survival, and this research will enable us to quantify this damage and provide recommendations for restoration techniques. A total of 300 cacti were caged, 100 in each of the 3 age classes (1 year old, 6 month old, and 2 week old plants).

Cactus Wren surveys were conducted from November 15 through December 2. A total of 153 Cactus Wren detections were made from 3 visits to 55 separate points. Our survey effort was 128.6 person-hours. Using the program Distance we estimate that we have approximately 35 Cactus Wrens on our management unit. (density of 35-40/km<sup>2</sup>).

#### *Deliverables:*

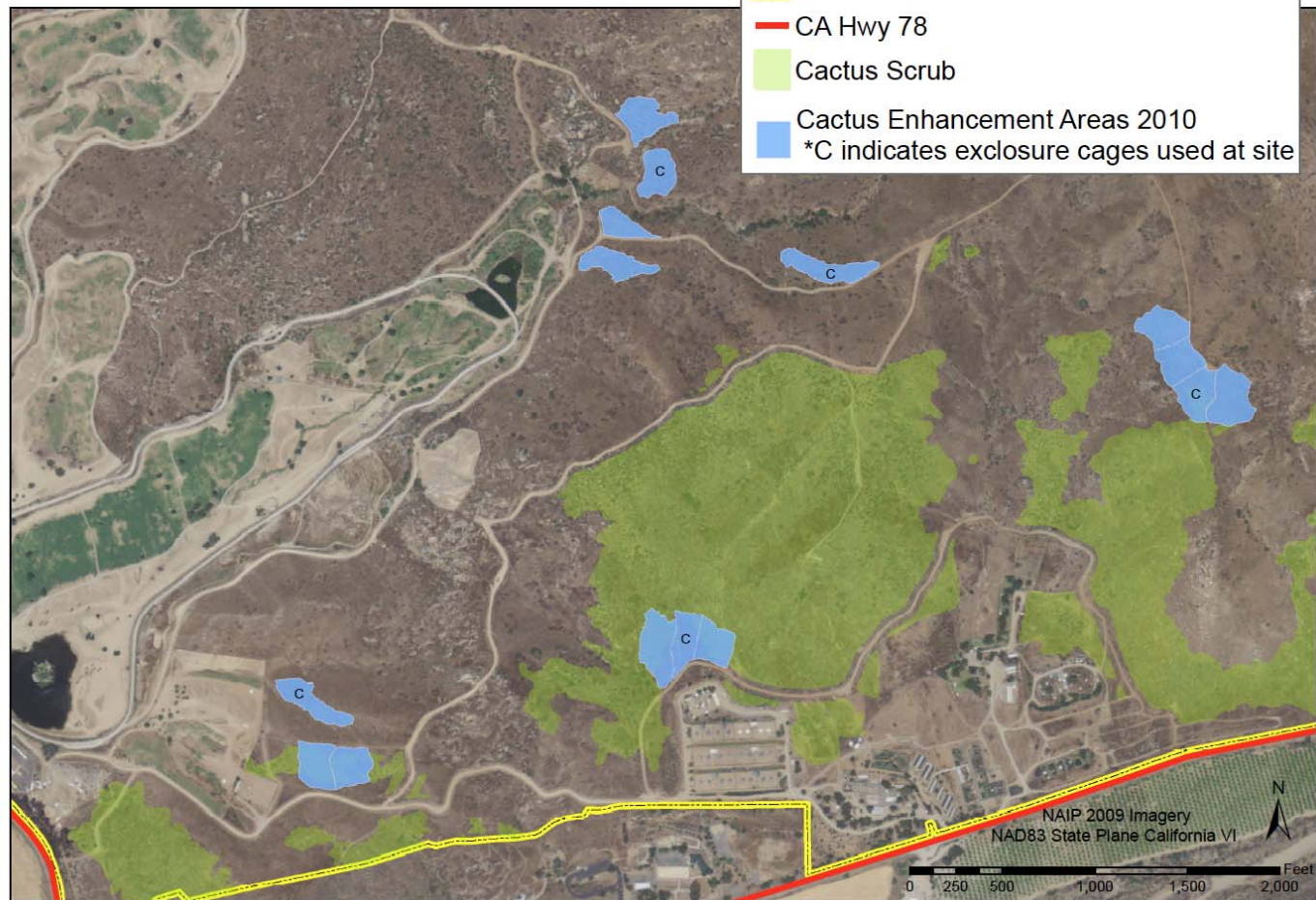
- Cactus wren monitoring and identification on property.
- Estimate of 35 Coastal Cactus Wren's on site.
- Initiation of study to determine best size of plants for restoration activities.



Plot showing a subset of cacti caged to protect them from herbivory. Also see figure on next page with map showing locations of the caged study.

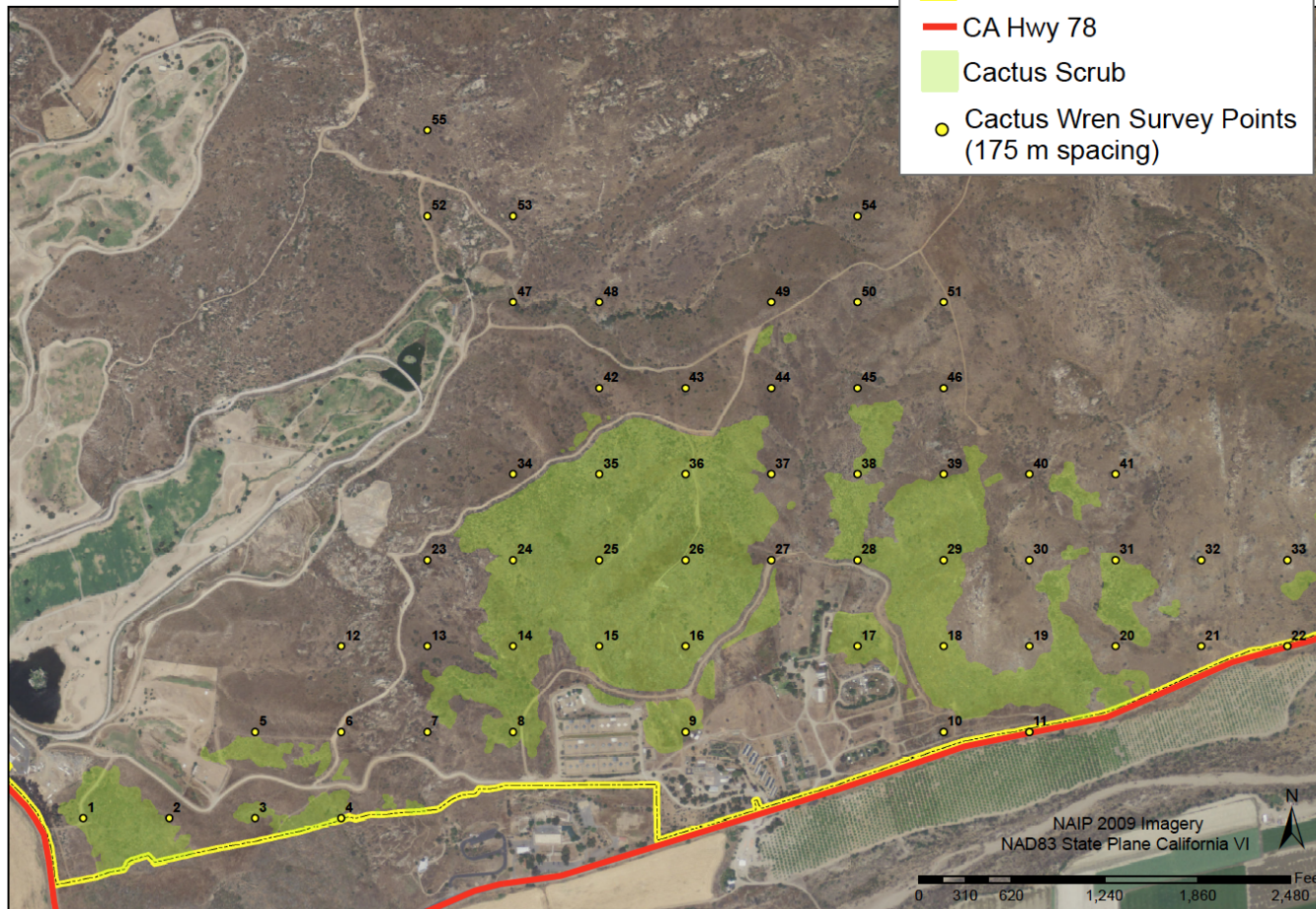


# Safari Park Native Species Reserve Cactus Enhancement Areas 2010



Map of 2010 cactus enhancement areas. In all 15 acres of habitat were enhance.

Safari Park Native Species Reserve  
Cactus Wren Survey Points 2010



Map showing locations of cactus wren survey points

Please let me know if you have any questions.

Sincerely,

Bryan

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