

**Draft**

**Minutes**

**Arana Gulch Adaptive Management Working Group Meeting**

Field and Zoom Meeting

**11:00 p.m. – 12:30 p.m. on Thursday, November 4, 2021**

**FIELD MEETING (9:00 -10:30 AM)**

**Participants:**

Travis Beck, City of SC Dept. of Parks and Recreation  
Blake Woessner, City of SC Dept. of Parks and Recreation  
Kathy Lyons, Biotic Resources Group  
Alison Stanton, Botanist  
Bill Davilla, EcoSystems West  
Justin Davilla, EcoSystems West  
Sylvie Childress, UCSC Greenhouses  
Grey Hayes, CA Native Plant Society  
Serena Stumpf, CA Department of Fish and Wildlife  
Frank Locatelli, Rancher  
Teresa Locatelli, Rancher

**VIRTUAL MEETING (VIA ZOOM) (11:00 AM – 12:30 PM)**

**Working Group Members present:**

Travis Beck, City of SC Dept. of Parks and Recreation  
Blake Woessner, City of SC Dept. of Parks and Recreation  
Kathy Lyons, Biotic Resources Group  
Alison Stanton, Botanist  
Bill Davilla, EcoSystems West  
Sylvie Childress, UCSC Greenhouses  
Grey Hayes, CA Native Plant Society  
Suzanne Schettler, CA native Plant Society  
Serena Stumpf, CA Department of Fish and Wildlife  
Mark Ogonowski, US Fish and Wildlife Service  
Todd Lemein, US Fish and Wildlife Service

Additional Attendees: Frank and Teresa Locatelli, John Pritchard

Field meeting was held at Arana Gulch, meeting at the west end of the Arana Gulch Trail, opposite the Santa Cruz Bible Church.

**Welcome and Field Meeting Objectives.** Travis opened the field meeting with introductions and a meeting goal to review the condition of Santa Cruz tarplant (SCT) outplantings/test plots and review of grazed areas.

### **Field Observations and Discussion**

1. Area B Split Rail Fence. A split rail fence was installed along the trail near SCT Area B. Blake asked the group if any action should be taken to restore the compacted area on the interior side of the new fence. Consensus of group was to allow natural recolonization of the bare ground and to continue to mow Area B. Goal for mowing would be to not let non-native plant species produce seed. Sylvie indicated that UCSC Greenhouses may have extra grass plugs (*Deschampsia caespitosa*, *Hordeum brachyantherum*, and *Bromus carinatus*) that could be used on-site.
2. Area A SCT Outplanting Plots. The group viewed the macroplots with the SCT outplantings. Alison presented a summary of management actions implemented on site:
  - a. Mowing. Area was mowed twice (April and June). Maintaining grass height at 8-10" was difficult with the available equipment. Blake indicated that the City is re-evaluating mower operations for 2022.
  - b. SCT Outplantings. Plants installed in January (400 plants) received 7 "of rain for season; plants installed in February (600 plants) were watering in, then received only 2" of rainfall for the season. The group observed that SCT growth (height and number of flowering heads) was highest in the mulched and weeded plots.
  - c. Mulched Plots. Based on concern that SCT seedlings would not germinate in the wood-chip mulched plots, the wood chip mulch in 3 plots (one per macro-plot) was raked off the plots on October 18, 2021, which was just prior to the first significant rainfall event of the season. Wood chips were raked to the perimeter of the plot. At the field meeting, SCT seedlings were observed in the bare areas of mulched plots, yet more seedlings were observed in the raked plots (due to more bare ground). Consensus of group was to rake mulch from additional plots and record SCT establishment. Group discussed options for mulched plots for outplantings in 2022.
  - d. Plot definition. Gray indicated that the plots should be considered grazing release plots vs. controls, as all of Area A has just been released from grazing.
3. Census of Native SCT. Kathy presented results of the 2021 census for native (not outplanted) SCT. 21 SCT were found on site, all within previously observed sites in Area A. Colony C1 had 15 plants, C2 had 5 plants, and C4 had 1 plant. Average height was 6.5", averaging 2 flower heads per plant. No SCT were found elsewhere on site. No SCT were found in Area B, C, or D.

4. Cattle Grazing in Areas C and D. Teresa reported that cattle were on-site in Areas C and D from February 5 to July 24, 2021.
5. SCT Outplantings in Areas C and D. None of the 50 SCT outplantings in Area D survived to produce flowers/seed. Some plants persisted into June, but were gone by August. The SCT outplantings in Area C were placed in a cattle exclosure. Group viewed these plantings, wherein approximately 50% of the plants survived and produced flowers/seed.

Virtual meeting was held via a Zoom video call. Travis Beck facilitated the meeting, representing the City of Santa Cruz Department of Parks and Recreation.

**Welcome and Meeting Objectives.** Travis opened the meeting.

The minutes from the June 22, 2021 AMWG meeting were accepted without revision.

### **Research Updates and Discussion**

1. Preliminary Results of 2021 Experimental SCT Outplanting. Alison gave a recap of the field meeting and a presentation of preliminary results from the SCT outplantings. She provided a handout with data collected from the plots (attached). There were larger plants in the sheet mulched plots. 200 control plants produced approximately 2,000 flower heads, whereas the 250 plants in the sheet mulched plots produced approximately 50,000 flower heads. The observed germination of SCT seeds observed in the field indicates plantings have been successful in providing seed into the soil seedbank. There was more seed germination in raked sheet mulch pots than un-raked, yet, some SCT germination was noted on gopher mounds and associated bare soil in the unraked plots. No germination was noted in the wood chips. Alison indicated the sheet mulch reduced competition (plant and soil moisture) which should be considered in future outplantings.
2. Mulched Plots. Consensus of group was to rake mulch from at least 3 more plots. There was discussion on whether some scrape plots should be created and on-site SCT applied to these plots. Others discussed removal of all wood chips from the site vs. re-use of the chips in future plots. Are there other ways to sheet mulch without wood chips? Group discussed options for mulched plots for outplantings in 2022. Alison will be preparing an outplanting plan for the AMWG's review. Mark suggested that there be an estimation of the number of SCT seedlings in the plots now and in January; perhaps measure by cover or photos.
3. Rejuvenation of the SCT Seed Bank. The primary goal of the outplantings is to build up the SCT seedbank. Group consensus that the seed bank is not fully rejuvenated and we are still in recovery regime vs. a maintenance regime. Bill indicated we need more year

of seedbank development to move to a maintenance regime. Grey suggested manipulating the grazing areas to zero litter and increase soil compaction to reduce competition and prepare the areas for outplanting.

4. Greenhouse Experiment. Sylvie presented the SCT germination experiments planned at the greenhouse. She indicated that disk seed readily germinate, yet have no long-term storage viability. The ray seeds are long-lived, yet she has not been able to germinate these seeds in the nursery. The proposed treatment for ray seed germination was explained which include mimicking fire, soil microbes, seasonal temperature and light variations, and rodent and bird activity. Recent studies with *Gaviota tarplant* indicate a need for seed scarification.
5. Genome Sequencing Project. Alison explained this study. UCSC took plant samples for the genome project. They also took soil samples to categorize soil microbes. All samples taken from Area A.
6. Existing Nursery Storage. UCSC has between 60,000 and 80,000 SCT seeds in storage (both disk and ray seeds). They will use up to 2,400 seeds for the germination trial.
7. USFWS SCT Study. Todd presented this study which is funded by USFWS. It is a study of historical uses range-wide and an evaluation of current management actions, such as none, grazing, and mowing. Study include obtaining soil samples, documenting RDM, and biomass and evaluating all factors by site to determine ideal management actions per site. The study will be used to prepare a Species Status Assessment and Recovery Plan.
8. Grass Plugs from UCSC. Sylvie asked whether there were locations of grass plugs of (*Deschampsia caespitosa*, *Hordeum brachyantherum* and *Bromus carinatus*). There was group consensus that these plants could be installed in weedy areas where there is no SCT, such as Area B or wet areas in Area D.

#### **Budget and Funding**

1. Budget and Funding. Travis discussed funding. The City takes AMWG input in budget items for Arana Gulch. The budget is currently \$79,00/year, most of which is personnel. \$19,000 comes from the Arana Gulch Trust Fund. That fund currently has \$750,000 and the current draw from that fund will last approximately 45 years. AMWG can request additional funds be taken from the trust fund for specific actions.

#### **Grazing Program**

1. Grazing. Teresa reported they want to bring cattle back on site once the grass growth is a bit more.

#### **Public Comments**

In the Zoom chat, John Pritchard asked whether other plant herbivory was observed. No other public comments.

**Next Meeting:** Expected to be in January 2022, as a field and virtual meeting