

Minutes
Arana Gulch Adaptive Management Working Group Meeting
Zoom Meeting
1:00 p.m. – 3:00 p.m. on Thursday, October 22, 2020

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
Lauren Garske-Garcia, CA Coastal Commission
Sylvie Childress, UCSC Greenhouses
Debbie Bulger, CNPS
Deanna Giuliano, CNPS
Frank and Teresa Locatelli
Members of the Public: Jean Brocklebank, Michael Lewis, Craig Dremann, John Pritchard

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 with a review of the project goals from the 2006 Arana Gulch Master Plan and the 2013 Arana Gulch Habitat Management Plan (HMP). There are broad management goals for sensitive habitat project wide, in addition to goals for the Santa Cruz Tarplant (SCT). Bill Davilla indicated that management actions for SCT are not always consistent with goals for coastal prairie restoration. Alison Stanton reminded the group the HMP was developed to satisfy the special conditions of the coastal development permit issued by the CA Coastal Commission and that the permit specified the broad management goals.

The minutes from the March 2, 2020 AMWG meeting were accepted without revision.

Review Monitoring Data, Grazing Activity and Observations from Field Visit

1. Census of SCT. Kathy Lyons presented results of the 2020 census for SCT. As of October 2020, one SCT (10" high, branched at 2 inches, 35 flower heads) was found in Area A. Area A supported 17 SCT plants in June 2020, but by July 2020, only one remained. The mortality of the other 16 plants is attributed to low browsing by cattle. No SCT were found elsewhere on site. No SCT were found in the 10 experimental scrape plots created

in November 2019 (3 plots in Area D, 6 plots in Area A and 1 plot in Area C) or in a molasses plot that was created in Area A in June 2019.

2. Outplantings of SCT. Kathy Lyons reported on the 28 nursery-grown SCT plants that were installed in Area C in January 2020. As of October 2020, 5 SCT plants remained and were flowering. Mortality of the remaining SCT plants were attributed to gophers and may have been exacerbated by initial watering of the seedlings. Cattle grazed the outplanted area through June; at June 10 plants were alive, yet they were cropped to 2". A cattle fence was installed in late June to exclude cattle from 80% of the plantings. The SCT seedlings were produced during seed germination tests conducted at UCSC. Sylvie Childress indicated that the nursery grown plants were grown from disk achenes only. She indicated some success in germinating ray achenes using gibberellic acid (24-hour soak), but has been unable to produce any plants. Sylvie has limited time to pursue additional germination tests without seeking approval. The Arana Gulch SCT seed is stored at UCSC under temperature-controlled dry storage.
3. Grazing Activity. Teresa Locatelli reported on the 2020 grazing program. Cattle were brought on site in mid-March, which was later than anticipated due to contract/insurance issues with the City. 10 cattle were placed in Area A in mid-March. Additional animals were brought on site later in the season and moved periodically between Areas A and C until June 30. No grazing occurred in Area D. The maximum number of cattle in a pasture at any one time was 10.
4. Vegetation Assessment. Alison Stanton presented the findings of the vegetation assessment conducted May 7-8, 2020. She showed photos of site conditions in 2019 and 2020 obtained in the annual photo-monitoring. She presented a summary of vegetation data from scrape plots and control plots and also showed several representative photos of the plots. Vegetation height was the same in control and scrape plots in Area A. Scraping produced a greater amount of bare ground (approximately 40%) in Areas A and D, compared to control plots. There was no difference between the control and scrape plot in Area C; both areas had dense vegetation and no bare ground. Bill Davilla commented on the amount of fossorial turnover he observed in Area D leading to more friable soils and lack of soil compaction typical of SCT habitat. Blake Woessner indicated that the City mowed a portion of Area C to control the dense growth of radish.
5. Residual Dry Matter. Kathy Lyons presented the findings of the RDM measurements from September 2020. There were many similarities to 2019; however, there was more blue (high RDM) in the northern portion of Area A, due to high cover of mature radish. The southern portion of Area A was mapped as green and red, similar to 2019. The SCT were found in a red zone in Area A and Alison noted that this pattern has been consistent during the grazing period. Cattle were brought on site later than other years

after the radish had a chance to mature and the cows did not eat the more mature radish. Teresa Locatelli indicated that mineral blocks were placed by the water troughs.

Public Comments.

1. Jean Brocklebank. Jean expressed concern on use of prescribed fire in Area A and its damage to ray SCT seeds. She reiterated her concern about bikes using the grassland edge of the trail near Area B, causing bare ground. She repeated her request to the City to consider a barrier to keep bikes on the paved trail. She presented her concern on pruning oaks in the oak woodland and herbicide applications. She requested the oaks be left alone.
2. Michael Lewis. Michael agrees there are potential conflicts between management for SCT and restoration of the coastal prairie. He believes the City rationalized SCT enhancement for purposes of the trail construction. He stated that its time to look at Arana as a whole and to restore all of the area using an ecosystem based management approach vs. creating a SCT “Zoo”. He questioned how the restoration goals of the project are specified. He thought looking at the Shaw property as an example could be informative.
3. Craig Dremann. Craig suggested seed testing with seed be sent to the New Mexico seed lab for a tetrazolium test for viability of disk and ray seeds and also test cold moist stratification with potassium nitrate. He expressed concern on the use of commercial potting mix for growing SCT seedlings because the soil may wick moisture away from the plant and stunt growth. He is concerned about the ongoing loss of SCT plants at Arana. Craig described his project on the Shaw property where the site increased in native cover from 1% to 95% in 5 years. He recommends taking cows off the site and doing monthly mowing, with grass height no less than 8 inches, not allowing non-native plants to create seed. He would like to do a sample study and take 1 sq. ft. of soil from each area and grow out the plants to evaluate the native and non-native seed bank.

Management Decisions. AMWG members discussed recommended management actions for the 2020-2021 growing season for SCT and the coastal prairie. Bill Davilla stated that the AMWG has reached a decision point regarding management direction. He expressed concern that the seeds in the seed bank have lost their viability, but the AMWG has been pursuing strategies to try and stimulate the seedbank. Alison confirmed that the seedbank data show a 100-fold decline in viable SCT density between 1999 and 2013. Bill further suggested that grazing is really a maintenance strategy aimed at reducing biomass and increasing light penetration to allow for germination; however, this strategy will not work if there is no seed. Therefore, if strategies to recover the species from the seedbank are longer be achievable, then management needs to shift gears to focus on getting SCT seeds into the system. The group

agreed that the red (low RDM) area in the southern part of Area A (mapped as coastal prairie) be used as the main experiment area to test different management strategies aimed at generating seed production on site.

Mark Ogonowski suggested that the SCT management/experiments be small and doable. Plots should receive management and seed/outplantings should not be irrigated, so as to reduce gopher attraction. He also suggested use of small mammal herbivory exclosures. He expressed optimism that SCT can still be grown on site. Alison Stanton indicated that the species is “cooperative” in that there has been success in growing the species in the greenhouse and we know that planted seedlings can survive to reproduce.

Alison reminded the group that a decision was needed on moving forward with greenhouse propagation of SCT. Sylvie Childress indicated that 500 plants were being considered for propagation but many more could be produced. She said that seedlings need 8 weeks development time before planting. Alison Stanton suggested experiments with staggered planting cycles to accommodate inconsistencies in weather and rainfall, which could affect seedling survival. Sylvie indicated the first batch of plants would likely be available in January 2021. Kathy Lyons suggested installation of SCT plants in some of the scraped areas and also suggested monitoring SCT recruitment in the scrape plots in 2021 since other sites have shown SCT emergence in second year after seeding (Santa Cruz Gardens #12).

Mark Ogonowski and Todd Lemein indicated there could be some funding available from USFWS for recovery actions focused on experimental plantings. Funds may be available for labor and materials for focused management and assistance with monitoring. Alison described her experience with designing endangered plant field experiments, specifically with Tahoe yellow cress, and her familiarity with the FWS Section 6 funding process. The group recommended moving forward with propagation and design of experimental plantings for 2021.

When the group returned to the topic of grazing, Kathy Lyons suggested cattle grazing be removed from the southern portion of Area A and off the Danthonia-dominated coastal prairie areas to allow the Danthonia to recover. Alison Stanton agreed that the mapped coastal prairie area should be managed differently and suggested that the northern portion of Area A and Area C can be managed similarly with grazing or mowing. She pointed out that 2x mowing in the past did not result in notable SCT recruitment and suggested monthly mowing in the non-coastal prairie areas. Blake Woessner indicated the City has a flail mower and it may be feasible to do some monthly mowing with the limited staff available. However, participating in outplanting and maintenance of SCT experiments is not feasible and even thatch removal after mowing would be difficult.

Alison wondered if it was feasible to graze within the northern portion of Area A. Travis Beck indicated a desire to avoid new fencing and asked whether just grazing within Areas C and D would be okay. Teresa Locatelli responded that both options would be okay and also indicated that an electric cross fence across the northern part of Area A could be feasible but might require some training of the cattle.

Mark Ogonowski recommended that the extant plants in Area C be left alone and monitored; no additional plants should be added to this area. Todd Lemein indicated interest in installing some SCT outplantings in a grazing area. Mark suggested the actions be considered part of a 2-year study. Members also expressed interest in having a better understanding on ray achene germination. Sylvie Childress indicated that is possible but it would require funding and an agreement between the City and UCSC.

AMWG Recommendations

Pursue SCT propagation at the UCSC greenhouses as soon as possible. Start with 500 and consider an additional propagation cycle to accommodate a later planting.

Conduct experimental plantings of greenhouse-grown SCT in 2021. Alison said she is available to design and analyze the experiments if there is funding available.

Continue grazing in select pastures. Additional temporary fencing may be needed.

Pursue additional germination studies, as funding allows.

Allow Craig Dremann to do a sample study and take 1 sq. ft. of soil from each area and grow out the plants to evaluate the native and non-native seed bank.

Other Meeting Outcomes

The group expressed interest in visiting the Shaw Property where Craig Dremann has worked. Travis agreed to set up a field tour.

Next Meeting: Not yet determined.