**Minutes**

**Arana Gulch Adaptive Management Working Group Meeting**

Santa Cruz Bible Church (near Frederick/Broadway Entrance to Arana Gulch)

**9:00 a.m. – 12:00 p.m. on Thursday, January 24, 2019**

**PARTICIPANTS:**

Noah Downing, Planner, City of SC Dept. of Parks and Recreation

Kathy Lyons, Biotic Resources Group

Suzanne Schettler, CNPS

Bill Davilla, EcoSystems West

Lauren Garske-Garcia, CA Coastal Commission

Monica Oey, California Department of Fish and Wildlife

Matt Heber, Maintenance, City of SC Dept. of parks and Recreation

Additional Attendees: Tommy Williams, Craig Dremann

**Soil Testing for Nutrient Levels.** In December 2018, the City obtained a permit from CDFW to cover the potential take of SCT seed from soil testing. In December, 26 soil samples were obtained on site. 13 samples were taken at 0-2” depth and 13 samples at 3-6” depth. 10 samples were taken in Area A, 4 from Area B, 6 from Area C, and 6 from Area D. The AMWAG reviewed the results and discussed changes in nutrients compared to the 2013 soil testing conducted by Sue Bainbridge. Levels of available N and P decreased between 2013 and 2018. pH decreased slightly from a mean of 5.0 to a mean of 4.8. The data showed little difference in soil nutrient levels between the management areas, SCT vs. no SCT and coast tarweed vs. no coast tarweed. Craig Dremann commented on the high iron level and high acid. From his experience, modifications are needed to restore the prairie. Bill Davilla commented that the pH is historic and typical of Watsonville loam. Available N is expected to be lower with cattle grazing as they are consuming the N from the annual grasses. A discussion occurred on whether experimental plots to test nutrient treatment is warranted. The group discussed that any nutrient treatment should not occur within the SCT area, but could occur in other grassland areas. The group agreed that a comparison of soil nutrients with other SCT sites is important.

Action: Noah Downing will ask East Bay Regional Park District if they have any soil testing data they may have for their seeded SCT sites. He will also ask if USFW can help facilitate testing at other locations.

**SCT Recovery Actions:** Noah Downing presented information on the agreement with UCSC to store and produce bulk seed for the SCT. 25 flower heads (5% of total flowering heads on site in 2018) were collected, with seed and chaff delivered to UCSC. UCSC collected 270 seeds from this material (unknown number of disk vs. ray seeds); however, Kathy Lyons reported at least 180 ray seeds were counted in the material when it was delivered to UCSC. To date, UCSC has documented 30% germination of 28 seeds; the remainder of the seed from the 2018 collection is being stored. The group asked whether any seed treatment was done prior to germination.

The group discussed recovery actions with the bulked seed (to be available in fall 2019). The group agreed that out planting of SCT seed/plants should occur in areas separate from recent historic SCT sightings. The group discussed growing some seed in native soil to compare with nursery plants. Out-seedings should occur in areas mapped with low RDM (red). The group discussed the relationship of soil hydrology to SCT during the growing season and suggested monitoring soil moisture through the growing season may be useful. Group discussed site disturbance and a mechanism to move SCT seed around after SCT flowering could be good, including by cattle and use of molasses buckets. Craig Dremann suggested looking at the proximity of SCT seedlings to annual grass seedling.

Action: Noah Downing will ask UCSC about any seed pre-treatments and progress of seed germination. Noah Downing and Kathy Lyons will put together protocols and locations for seeding.

**Installation of Blue Bird Boxes:**  Four blue bird nest boxes were installed, in coordination with the Santa Cruz Bird Club. The club will be monitoring the boxes for nesting activity.

**Invasive Plant Control:** The City indicated that work will begin soon this spring on thistle control. Matt Heber, maintenance, will be doing this task. Other invasive work is the manual removal of Himalaya berry, digging out the root mass. Matt will also monitor other invasive plant species, such as stinkwort (*Dittrichia)* which was observed in Area C in 2017.

**Cattle Grazing:** Noah Downing reported that cattle were brought on site on December 24. Tommy Williams reported there are 7 cattle on site. These cattle were on the site previously (in 2016) and are large, 1,000-pound animals. In 2018, the animals were smaller, weighing approximately 300 pounds. The animals are currently in Area C and are eating a lot of grass. He expects to move them into Area A the week of January 28.

**RDM Results.** Kathy Lyons presented data from the October residual dry matter (RDM) measurements. The SCT in 2018 were all in areas mapped as lowest RDM (red), which is similar to previous occurrences. The group discussed mechanisms to move SCT around, including corridors of low RDM (red). The group discussed keeping cattle on site longer in Areas C and D to create more low-RDM (red) areas. Tommy Williams indicated the cattle could possible stay on site into July if there is enough on-site feed. The group discussed use of molasses barrels in high RDM (blue) areas to encourage more grazing and to reduce RDM levels.

**SCT Plant Cover Data:**  Kathy Lyons presented data from the fall plant cover measurements at the 2018 SCT sites. Plant cover and species composition was documented at four of the five SCT patches in September 2018. Seven 1-meter square quadrats were used to record absolute plant cover, litter, cattle dung, and bare ground. Plant cover averages 83%. Most plant cover was provided by exotic annual grasses (EAG), primarily ryegrass (*Festuca perennis)* (26%) and rattail fescue (*Festuca myuros)* (7%). Exotic annual forbs (EAF) were dominated by filaree (*Erodium botrys)* (18%) and cat’s ear (*Hypochaeris sp.)* (8%). Cover by native species included SCT (8%), blue-eyed grass (*Sisyrinchium bellum)* (0.1%) and California rose (*Rosa californica)* (0.1%). Litter and cow dung each provided 4% cover. Bare ground represented 10%. The group asked how this compared with the April data collected from all the management area.

Action: Kathy Lyons will review April 2018 data and compare data to data collected at the SCT plot data once the final report is received from Alison Stanton. Plant data from SCT plots will be collected again in 2019.

**Native Plant Diversity.** Kathy Lyons reported that purple needlegrass seed collected in summer 2018 was out planted in November. An approximately 15’x15’ plot was created for out planting of this seed. The plot is in close proximity to other needlegrass areas to expand the native grassland area. Seed was hand broadcast onto the site, application at approximately 25 seeds per ¼ meter plot. Plant growth in the plots will be assessed in spring 2019.

**Management of Area B:** The City presented previous management at Area B (periodic mowing). Craig Dremann indicated more specific mowing (mow to 4-6” monthly) could be done here to encourage native plant growth, as discussed at previous AMWG meetings. He suggested growing native seeds in plots of sterile soil to test fertilizer applications. The City indicated tasks in 2019 will include mowing and weed whipping Area B and continued weed control.

**Next Meeting:** June 2019.

Action: Noah Downing to send out a Doodle poll for next meeting.