**Arana Gulch Adaptive Management Working Group Meeting**

**Minutes**

Santa Cruz Public Library- Downtown branch

224 Church Street Santa Cruz, CA 95060-3873

9-3pm April 23, 2013

**Participants:**

Susan Bainbridge, Researcher, UC Jepson Herbarium

Lena Chang, Biologist, USFWS on phone

Susan Craig, Planner, CA Coastal Commission

 John Dixon, Ecologist, CA Coastal Commission

Melissa Farinha, Biologist, CDFW

Mike Ferry, Planner, City of Santa Cruz Department of Planning and Community Development

Mauro Garcia, Parks Superintendent, City of Santa Cruz

Kate Huckelbridge, Ecologist, CA Coastal Commission

Tim Hyland, Ecologist, CA State Parks

Kathy Lyons, Biologist, Biotic Resources Group

Juliana Rebagliati, Planning and Community Development Executive Director, City of Santa Cruz

Suzanne Schettler, Botanist, alternate for CNPS

Christophe Schneiter, Engineer, Planning and Community Development Associate Director, City of Santa Cruz

Alison Stanton, Research Botanist, Consultant (facilitator)

Karen Tanner (notetaker)

Meeting began at 9:05

**1. Welcome**

**2. Meeting purpose, objectives, agenda, roles, and rules**

Alison presented the purpose, objectives, roles, and ground rules using flipcharts with the following information:

Purpose

* Kick-off Arana Gulch Adaptive Management Working Group (AMWG)
* Implement the Habitat Management Plan (HMP)
* Protect Santa Cruz tarplant and restore coastal prairie habitat to improve the population.

Objectives

* Meet each other
* Obtain updates on the Master Plan project
* Learn about the AMWG process and your role
* Obtain updates on SCT population status and coastal prairie habitat conditions
* Provide input on SCT/prairie management concepts and the Grazing Plan
* Provide input on Goals and Objectives
* Plan the spring 2013 baseline assessment
* Plan meeting schedule
* Receive public comment
* Evaluate the meeting

Agenda

Alison asked the group if they had any items that they did not think would be covered with the agenda. No items were submitted.

Roles

**YOU** are all here as stakeholders with an interest in the management of Arana Gulch and the federally endangered SCT

**I** am here as the facilitator to guide that decision-making process. I acknowledge that as the HMP author and expert on rare plants and adaptive management I am not an unbiased participant.

**OUR assistant** Karen is here as the scribe to take notes that will become the meeting minutes.

The **PUBLIC** is here to observe and provide comment during the specified period.

Ground Rules

1. Participation is expected

a.       You are all the experts

b.      we need to hear from you

2.       Listen fully to each other

a.       Don’t interrupt others

b.      Please ask for clarity if needed

3.       It is ok to disagree

a.       Offer different perspective

**3. Introductions**

Each member of the group was asked to tell their name, position, and where they are from and to take 2 minutes to tell the group about his/her involvement with the project at Arana Gulch.

**4. History and background of Arana Gulch and the Master Plan – developed by Mauro Garcia but read by Juliana Rebagliati**

See attachments: Arana Gulch History and Master Plan Background

*Q:* what is the obligation of the city for monitoring?

 In perpetuity there is to be long term management with goals of restoration. The conditions of the CDP run with the land. Initially there is an annual reporting requirement until interim success criteria are met, then it moves to every 3 years.

**5. Master Plan project plans, funding, and Coastal Development Permit (CDP) status** - powerpoint presentation, Christophe Schneiter

The city team and consulting staff have developed a plan for the multipurpose trail at Arana with a design based on the approved plan submitted to the coastal commission. Designers are landscape architects and engineers with experience working in sensitive areas. Kathy Lyons will do pre-construction monitoring and surveys, also will communicate special conditions for site to contractors. Susan Craig is currently reviewing plans, and plans have been submitted to CalTrans (funding agency) who is also reviewing. At City Council meeting later today, will ask them to approve plans so they can go out for approval by other agencies. (Note\* approval was granted on a 7-0 vote). Goal is to ask for bids this summer, select a bid near end of summer, start construction in fall (project to last 14 months). Amenities of the plan include paths, entrance features, informational kiosks, lighting.

*Q:* what is plan for disposal of soils when grading?

 Stockpiling of soil could occur, something to discuss.

Project has 2.4 million in federal grant money – but the program is coming to an end because of changes in transportation bills. Have to move forward quickly because the money may disappear. City is going to CalTrans on May 7 to ask for a commitment for the money. Funding also includes 816K from County, and an additional 62K (from a federal source). Construction estimates for main trail, cattle fencing, some restoration around trail are ~5.2 million, so ~2 million short. Agnes Street connector has been separated out because it has a state funding source – 344K and some local funds. City can’t mix state and federal money so have to bid separately, but the hope is to get the same contractors working on both projects.

*Q*: there is some remnant concrete out near Agnes entrance , will it be removed?

No current plans to do so. It is old foundations from a barn, and a blackberry patch

*Q:* Agnes connector, how many feet does it extend into the property?

About 0.2 miles, ~800 feet.

When the city originally got permission to construct Broadway/Brommer road and later abandoned the project, some land remained west of Bible Church and the city will sell this land to fund restoration (worth about 1 million). Recently sold a piece to Habitat for Humanity (240K, into city trust fund and allocated to project). May sell adjacent piece also. Rest of land will be retained for staging of the project and storage of materials. Then city will sell parking lot back to Bible Church, and there will be a final piece remaining. City committed to use the fund to do ongoing restoration, something the city has never done before.

*Question:* Will grazing fences be installed during the trail construction as part of the project plans?

Grazing fence configuration is part of final project plans and the design is not open for reconfiguration at this point. Cattle fencing construction is likely to occur during the latter part of the project to ensure pedestrian access during the project. Includes SCT areas A and D and C but excludes B. Fence on the western perimeter near Hagemann Gulch is out a little ways out from the trees to avoid impacting them, but equipment disturbance in this area will be restored as part of the contract.

**6. Adaptive management working group (AMWG**) **flow of information**

See attachment: information flow chart

Alison explained the diagram with following highlights:

AMWG composition designed to have representation by the 3 fed and state agencies charged with plant conservation and coastal zone management: CCC, CDFW, USFWS.

Technical advisors with experience with Santa cruz tarplant and coastal prairie management and research also invited. The composition of the AMWG has not been approved by the CCC. This year, the first task of management and/or research activities at Arana Gulch will be conducting the baseline assessment for the HMP. In a lot of these models the resource aspect is left off the diagram, but keeping a focus on that is an integral part of adaptive management. All documents coming out of this AMWG are public and will be posted to a website.Website will be an agenda item at a future meeting. Transparency of this process is an important part of building trust and getting buy-in. Having a paid facilitator or chairperson is important to moving the process forward, and this is Alison’s role to coordinate the process and provide leadership and foster cooperation. Decision making procedure was removed from first draft of agenda and will be an item at a future meeting

Questions? None raised…

*Took Break from 10:15 to 10:30*

**7. Santa Cruz tarplant (SCT) population status and coastal prairie conditions-** powerpoint presentation

See attached file: AMWG meeting 4.23.13 SCT pop and coastal prairie condition.ppt

Alison presented a slideshow with the trend in SCT population census data, a Google Earth image of site, and one site photo each of Areas B, C and D from June, 2012 and several of main coastal terrace from early April 2013. Several times she referred to the table on pg 45 of the HMP that lists the management activities carried at each site.

Comments/questions on SCT status or current conditions of coastal prairie?

*Q*: has there been documentation of species composition and spread of different species, are there data to go along with observational reports?

Limited to Sue Bainbridge’s data collected in 2000 that showed 90% non-native grasses one year, 73% another year.

*Q:* is a species list for Arana Gulch?

There may be one in the EIR for the trails but it probably was contained only in the original biotic assessment conducted by Kathy Lyons around early 1990’s.

**8. SCT/coastal prairie management concepts and the Grazing Plan**

**Goal of this discussion:** assess if a conceptual model is a tool we would like to pursue using to organize future discussions or decisions

Began discussion with a slide of the 4 “emergent biological principles for SCT management”- developed by Pavlik and Espelend in the first SCT Management Plan in 2005 (pg35 in HMP). Alison explained that she used these 4 principles along with elements from the Master Plan as a foundation for developing a conceptual model.

See attachment: Arana Gulch SCT/CP conceptual model.

Elements we are NOT discussing: strategies for public use and education are both covered by the Public Access Management Plan.

Strategy for population enhancement with planting or seeding: Tim or Sue Bainbridge tell us their experiences with outplanting at Twin Lakes? In 2000 and 200, grew about 600 SCT plants each year from seed and had pretty good survivorship in first year. Observed natural recruitment of 500 or 600 plants in following year. As of 2007, ~400 natural recruits but has declined since then.

Discussion of seed viability and seedbank:

Not really known, but first SCT management plan estimated seed viability at 5-10 years. Sue’s data of burying seed bags for 5 years showed that viability was cut in half over that period from about 70% to 35%. It has been 10 years since the seed bank assessed- Sue found densities in the 10,000’s per square meter. In 1980, 40K per sample were estimated.

Conversation redirected back to the conceptual diagram and the strategy to restore proper disturbance regime. Mowing is not on the diagram-purpose would be to mimic grazing. First SCT dismissed fire and grazing as “logistically challenging”. Semi-annual mowing regime does has not appear to have improved SCT.

Feedback on the conceptual model format in terms of its utility or usefulness in facilitating discussion of these topics?

Comments were made questioning why periodic fire keeps coming up and the benefit of restricting off-trail use. Alison notes that conceptual model format is helping drive group discussion; group agrees that it seems to be working as a useful too. Group will revisit the model in future meetings.

Discussion of SCT habitat Area B outside the grazing fence:

Only time plants observed in that location was in 1998 when there were 5 plants.

Several thought area B is rich in other native species like needle grass, sun cups and we can’t discount it without doing soil / seedbank analysis to determine whether it’s still a viable location. Others thought that if SCT overall habitat is improved across prairie, its fine to let Area B go. The omission of what to do about Area B in the HMP is an oversight and will be a topic at a future meeting.

**Discussion of the Grazing Plan**

**Objective:** Review details of plan. gain an understanding of the level of group and individual support of using grazing at Arana Gulch. The group’s comment and input can be incorporated as part of adaptive management.

See attachment: grazing plan overview

A total of 14 acres will be fenced. For now the CCC requires the whole area to be closed off. Gate between area C and D is intended to keep cows out of area D when soil is wet to prevent compaction. City has had really positive results using the grazer services of Tommy Williams out at Moore Creek. City will be putting it out grazing contract for bid.

Questions or comments on the plan?

The choice of grazing operator is clearly an important issue and the selection process will be open to participation from this group.

The issue of water conveyance to the site is a topic that needs further elucidation and discussion. Several in the group noted that the rancher is likely to have good insights about how to best get water to the troughs.

Q: Why use wooden posts painted green?

Wooden posts are only every 40 feet with metal posts every 10 feet. Color of fencing and posts comes standard so choice of green fence materials is not an extra cost.

*Q*: Was there a dairy operation out at the site? It was heavily grazed in the past?

The land has been heavily managed, beginning with the settlement period around the 1850’s. A dairy operation was ongoing for a long time, started in the 20’s.

*Q*: What does water rotational regime mean?

The source of water is moved depending on where you’re actively grazing.

Group decides to go around the room and everyone express their degree of support for the general concept of using grazing at Arana Gulch.

*Suzanne*: I will start. I’m 100% in favor of grazing. Lots of details to work out though, more information and more dialogue needed especially with grazing operator.

*Tim*: agrees with Suzanne, thinks grazing is as close to historic regime as we can get.

*Melissa:* Supports grazing as active physical perturbation.

*Sue B:* Supports but is concerned about it increasing non-native forb presence, would like to see search-and-destroy effort incorporated for new non-native forbs that are introduced via cows. But grazing remains her first choice for handling AG. Grazing is good, it is selective and cow compaction of soil can be a good thing.

*Kathy*: Totally favor, advocates for additional experiments within grazing area (i.e. electric fencing could be used to make grazing exclusion plots).

*John*: Is “me too” an option?

*Kate*: did not offer comment

*Susan*: did not offer comment

*Lena*: Supports under adaptive mgmt. approach.

*City staff abstained from comment.*

Alison then called to combine agenda items 9 and 10 and address them together after the break for lunch. In her agenda planning she expected that might happen and it makes sense to address them together.

**Break for lunch from 12-1pm**

Neither Chris nor Juliana were able to return after lunch because of the City Council meeting starting at 1:45. Several questions were asked when the group returned to the table:

*Q*: I did not get a chance to ask Chris if is there someone slated for oversight of construction activities? And how wikk heavy construction equipment access site?

 Construction oversight will come from internal project managers and a construction manager specifically for the bridge. Construction vehicles will use main existing trail through the area for access and it is already wide, unvegetated, and compacted.

*Q*: what is scheduled / contracted for pre-construction surveys?

City plans to use Kathy Lyons. The plans specify breeding bird surveys, checking construction exclusion fencing and verifying it is in correct location.

*Q*: Will the soil be stockpiled?

Not sure it needs to be stockpiled if there is no disturbance in A, B, C and D

*Q*: I’m wondering specifically about material removed during construction. What is going to happen to it?

Someone mentions that the USFWS Biological opinion has language and produces a hard copy of the document and reads the following excerpt:

 “Any soil that is removed near the historic Santa Cruz tarplant colonies during

construction of the paved path will be mechanically scraped so that redistribution of the

native soil could occur. Redistribution of the soil will occur under the guidance of a

qualified botanist and will be coordinated with the Santa Cruz Tarplant Adaptive

Management Program Technical Advisory Group.”

The group then discusses what to do with the topsoil (up to 15cm) in areas where there will be grading for concrete trail “near” historic areas B and C. Group decides that within 20’ of an SCT site is “near”. It seems feasible to require that soil will be removed and stored and potentially put on the large trail that will be used as the construction road (which will afterward be decommissioned, since it is within the grazing area). The group would also like to investigate the feasibility of getting soil from the post-digging (opportunistically) that will occur every 40’ along the fence line, targeting the areas near historic SCT sites and capturing the top 15 centimeters of soil in order to test it for SCT seed density.

*Q*: Looking at viability of seed bank, does it make sense to stockpile soil if seeds don’t retain viability? Is it realistic to conduct a study of seed density and viability before construction begins?

We don’t want to do anything that re-opens permitting. Simplest approach is to take the soil and redistribute it. A requirement to do that can be incorporated into the permit and it certainly wont do any harm.

Alison: Lets table the discussion of soil and assessing seed bank density right now because it can be done later in the year and right now we need to shift our focus to spring and what we need to do for the baseline assessment next month.

**9.** **SCT/coastal prairie goals and objectives**

**Purpose of discussion:** hear your suggestions for modifications or additional goals or objectives that might need to be addressed in the spring 2013 baseline assessment

 See attachment: goals and objectives for SCT coastal prairie

Alison asks group if goals #2 and #3 are sufficient to guide our baseline data gathering?

A target of1200 lb. per acre as the acceptable level of coastal prairie grassland sounds like more about forage sustainability than an ecological target. We may not want to sustain that much non-native grass. Might be better to say between 700 and 1500 lb. per acre with the bottom limit representing a sufficient level for erosion and the top for what tarplant requires. We should distinguish between native vs. non-native components in our lb. per acre target. We could add objective #3c to maintain a minimum of 30 native species or some other number that addresses species richness. Sampling method should include ID of individual species not just by guild, then aggregate data later for analysis. Change 3A to address non-natives and 3b to address natives more generally. Eliminate the specific date of 2015 to look at the trends over the first 3 years after grazing starts.

**10. Plan 2013 spring baseline assessment**

The baseline assessment is outlined in the HMP in terms of general parameters, but there is no detailed scope of work for data collection. Just prior to the meeting Alison discussed with the City doing the baseline data collection herself since it might be the most efficient and timely route. According to Mauro there could be some contracting constraints and purchasing guidelines that have to be followed and the City might have to ask for bids but there is no conflict for Alison to put forth a proposal. Several in the group expressed support for sole-sourcing to Alison because she has the background and expertise. There was general agreement that whoever does this work should be sitting in these meetings. And the same people should probably do it each year.

Then the group turned toward a discussion of different sampling methods (transects, quadrats, point intercept, nested rooted frequency), the advantages and disadvantages of each, and how they could meet the groups monitoring objectives ( see attachments- 2013 spring baseline assessment). Aspects of plot stratification, issues of sample size, use of a pilot study, and mapping were also discussed. The SCT sampling protocol will need to be different for the future. Karen Holl’s student (Lewis Reed) has done some work to come up with reasonable targets for terrace restoration and methods. At the end of the discussion the group is in agreement that Alison will submit a proposal to do the work and get one together for review next week

*Q*: What about the seed bank sampling? No need to put it off…

Sue would collect soil cores and put it in water to break it apart because it is clayey, and then sieve for seeds. Assessing the viability of the seed embryo takes some practice and skill. Advantage to looking at seed bank now is to assess state before grazing begins. Should be done before dispersal.

*Q*: If we find out there is a large healthy seed bank, or we find there is almost no seed bank; how does this change our management strategy? In the latter case maybe we’d do a life-support strategy as at Twin Lakes, where we did greenhouse work followed by out planting of large individuals. And maybe the longer we wait the worse the seed bank gets.

Group decides that from a management perspective, we should assess the seed bank ASAP. The group would like Sue to develop a proposal to do seed sampling this season, before SCT dispersal.

Alison: Ok, I think it is time plan our next meeting or to take public comment. Let’s take public comment first.

**12. Public comment period**

Sign- in sheet lists 4 people and indicates only one person would like to comment

Michael Lewis – Has a doctorate in environmental anthropology and archeology. Done a lot of work in the Southwest and Midwest. Lot of work with cattle and characterization of quaternary soils and paleosols. Is concerned about soils. Doesn’t see any soils analysis incorporated into HMP, thinks chemistry and soil dynamics will be important to invasion of grasses and desired endpoint with nutrient cycling.

Grazing is partly about taking away of phytomass, but also about what is left behind as manure. This grassland hasn’t had any manure since 1988, change in nutrient cycling. Has done a lot of work in elk pasture, different from cows obviously, but male elk make wallows that they douse with urine and they become spots with high diversity. He sees some patterns at Arana Gulch that may reflect something similar.

Also in the HMP some inconsistent statements about precipitation and tarplant numbers. Higher tarplant numbers do follow high precipitation. How to separate out the effects of burning / grazing from the precipitation input in a given year. Feels much better about this process and the Arana Gulch project after listening in on the meeting.

Alison thanks Michael. Asks the group if they should take a break or keep going. Group wants to keep going

**11. Determine meeting schedule**

Alison: The HMP suggests a quarterly meeting schedule. If we meet again in 3 months that will be July and SCT will be blooming then. We could incorporate a site visit and maybe get Tommy Williams or some other grazing operator to come talk to us.

Group agrees this sounds like a good plan. The second or third week of July seems to suit most participants. Alison will offer the group specific dates and work on setting up a second meeting during that time period.

**13. Evaluate meeting and closing**

To close the meeting Alison returns to the flipchart with the objectives and goes through each one as an accomplishment for the day. Then she places an evaluation form on the table and asks the group to please evaluate the meeting

Meeting action items:

* The HMP was distributed to the group and made available to the public on April 2. Alison will establish a deadline for receiving comments on the HMP draft document.
* Meeting minutes will be distributed to the group next week along with a deadline for comments. After comments are received and incorporated, the minutes will be made available to public- may be posted on a City website.
* Sue Bainbridge will develop a proposal to conduct a seed bank density assessment this summer before SCT seed dispersal. The group will review the proposal and decide over email whether to recommend the proposal to the City for funding.
* Alison Stanton will develop a proposal to conduct the baseline assessment this spring in May or early June. The group will review the proposal and decide over email whether to recommend the proposal to the City for funding. Addition bids may be requested.
* The next meeting will be scheduled for the week of July 8th or 15th and will include a site visit to Arana Gulch.

Meeting ends 2:50pm.