

Growing Sustainability at the UCSC Arboretum

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Provost's Sustainability Internship Program: UCSC Arboretum

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Abstract:

As a leader in plant conservation, the UC Santa Cruz Arboretum felt that it must also promote sustainable habits within its own operations. As the PSI, my role was to encourage this sustainable growth. In order to do so, I focused on these broad goals: educating the office staff, collaborating with the local community, and creating educational material centered around sustainability. The intended outcome was to change the way the Arboretum operates. Through collaboration with office staff, campus organizations, and my mentors we were able to implement change in the Arboretum's day to day operations. The project was a success measured by the outcomes of each broad goal. Together we caused the Arboretum to: achieve Green Office Certification, increase educational waste and energy signage throughout the buildings, interact and collaborate with campus organizations, sponsor a Zero Waste Wedding Guide, and partner with PICA to create a composting pilot program.

Introduction:

The Arboretum's mission is to, "inspire[s] stewardship of the world's biodiversity through research, education, and the conservation of rare, endangered, and extraordinary plants" (UCSC, 2016). The Arboretum practices this stewardship by propagating and managing over 300 Mediterranean plant families from New Zealand, South Africa, Australia and California. Not only is the Arboretum a home and research center for rare plants, but it also invites anyone to come learn and engage in activities centered around biodiversity and conservation (UCSC, 2016).

Prior to this PSI project, the Arboretum was already practicing sustainability habits. For the purpose of this paper "sustainability" refers to the definition put out

by the United Nations that reads sustainable development, “meets the needs of the present without compromising the ability of future generations to meet their own needs” (Our Common Future, 1987, p.16). With efforts in plant biodiversity conservation and research, the Arboretum manages to promote biodiversity for future generations; however, they had much room for growth in sustainable operations beyond the gardens.

The Arboretum wanted to continue to grow in accordance with its values of inspiring stewardship and in relation to the campus sustainability efforts. In order to improve their sustainable habits, my PSI position was created. This position required me to focus on inspiring sustainable habit changes in the office and visitor community through educational materials and outreach. This focus relates to UCSC Campus Sustainability Plan’s (CSP’s) “Awareness, Education and Engagement” goals that strive for engagement and teaching in sustainable practices (UCSC, 2013, p.4). The specific results of this project also relate to CSP’s goals. These results include the creation of waste and energy signs, a Zero Waste Wedding Guide, and a composting program. These all relate to CSP’s goals to reduce the campus carbon footprint from energy consumption and waste production (UCSC, 2013, p.6, 11).

Project Description:

This project was very loose in the beginning. Initially there were two broad goals: “make the Arboretum sustainable” and “help the Arboretum host Zero Waste Weddings”. With an immense amount of trial and error, unforeseen setbacks, and addressing miscommunications, this project eventually molded into specific goals.

- ❖ **Goal Statement:** Increase office sustainability habits through 2-3 educational materials and achieve Green Office Certification (GOC) Tier 1 (30-40%) by the UCSC GOC Team.

➤ **Project objectives:**

- Provide understandable waste diversion and energy saving signage
- Initiate and maintain contact with the GOC Program
- Promote the GOC process by organizing an office “Green Team” and facilitating and subsequent staff meetings
- Achieve certification through the program to help evaluate current sustainable habits and highlight room for future growth

- ❖ **Looking Forward:** Increase staff interaction and understanding of sustainable habits. Advance GOC level by one tier.

➤ **Future project objectives:**

- Host 10-15 minute discussions at office meetings about sustainable habits
- Re-certification process with advancement from Tier 2 (41%-74%) to Tier 3 (75%-89%)

❖ **Goal Statement:** Increase sustainability engagement and collaboration between the Arboretum, UCSC students and the local community through 2-4 outreach events.

➤ **Project objectives:**

- Host 2-4 tabling outreach events throughout the year
- Schedule tabling based on relevance and availability
- Recruit student sustainability organizations to table at Hummingbird Days. Require an interactive and educational activity as a form of sustainability education
- Create accessibility awareness at tabling events

❖ **Looking Forward:** Continue to develop relationships with students and community; increase accessibility.

➤ **Future project objectives:**

- Maintain and develop more student organization participation at Arboretum events
- Continue promoting opportunities to UCSC and Santa Cruz community

- ❖ **Goal Statement:** Research the feasibility and necessary steps to host Zero Waste events at the Arboretum. In tandem, create a Zero Waste Wedding Guide to be supplied and marketed to Arboretum wedding venue clients by Summer 2016.

➤ **Project objectives:**

- Research Zero Waste philosophy: methods, options, and infrastructure
- Encourage collaboration between campus departments and the Arboretum
- Create a Zero Waste Wedding Guide using research
- Provide the Arboretum office manager with references for the future PSI

- ❖ **Looking Forward:** Use research as starting platform for Zero Waste Weddings action.

➤ **Future project objectives:**

- Develop goal oriented focus, with minimum of 3 official deadlines in order to avoid setbacks & miscommunications
- Plan and coordinate an event catered to local Bay Area event planners to teach them about how to host, promote, and sell Sustainable Events to their clientele

- ❖ **Goal Statement:** Create a composting pilot program at the Arboretum that functions on three levels: diverting organics from the office waste stream, creating an educational & marketable composting program, and allowing PICA to avoid purchasing fertilizers for their garden.

- **Project objectives:**

- Complete a report on composting that includes: significance, value, marketability, estimated costs, necessary procedures, and pilot program outline
- Seek Green Team suggestions. Bring revised report to Arboretum Director for approval
- Acquire supplies by organizing with campus affiliates and the Arboretum
- Collaborate with Arboretum & PICA to create compost structure
- Provide understandable composting signage

- ❖ **Looking Forward:** Continue and expand composting program.

- **Future project objectives:**

- PICA training PSI during Fall 2016
- PSI continues program by sponsoring, training, mentoring “Arboretum Composting Interns” through an ENVIS internship

Impact Statement:

Socially, this project focused on involving Arboretum staff, UCSC affiliates and local Santa Cruz residents. I reached out to the staff in a variety of ways from hosting meetings, engaging them in the GOC process, and creating educational materials for their office space. I reached out to the UCSC and Santa Cruz communities through tabling events, recruiting volunteers and increasing physical and financial accessibility awareness to those interested in visiting. I also encouraged collaboration with UCSC student organizations and the Arboretum through Hummingbird Days tabling and a composting program. Beyond the initial community, the Zero Waste Wedding Guide and Pinterest provide sustainability education material accessible on the internet, reaching a wider audience.

Environmentally, this project focused on implementing sustainable habits. Waste and energy signage reminds all to be conscious of their habits. Ideally, each sign will function to promote waste diversion and lower energy usage. The Zero Waste Wedding Guide and Pinterest page are meant to inspire lower consumer footprints through reuse and reduction habits when planning events. Finally, the composting program allows the Arboretum and PICA the ability to divert organics from their waste streams, which can reduce greenhouse gas emissions at these locations.

Project Timeline:

Fall Quarter: Dedicated to Organization & Research

This quarter I spent time meeting with Jessica and discussing overall plans for this internship. I tried to define what it meant to “make the Arboretum more sustainable” and organized around this goal.

Key Dates & Deadlines	Description
September 22, 2015	First meeting with Jessica
September 27, 2015	UCSC Fall Harvest Festival Tabling
Every Tuesday & Thursday October - December 2015	PSI class meetings
October 1, 2015	Zero Waste Event research start date
October 10, 2015	Plant sale observations
October 16, 2015	Office habit observations
October 23, 2015	Research finding meeting with Jessica and Maura
October 26, 2015	PSI check-in meeting with Christian & Jessica
October 30, 2015	Green Office Certification (GOC) intro meeting
November 11, 2015	Zero Waste Event inquiry meeting
November 16 - December 3, 2015	Energy Saving Habit signs
December 9, 2015	End of quarter evaluation meeting

Winter Quarter: Dedicated to Action & Implementation

This quarter I used research findings to determine the next best action for the Arboretum's sustainability efforts. I started meeting with Jessica weekly which helped increase communication and move the project forward at a faster pace.

Key Dates & Deadlines	Description
Every Thursday from January - March	Weekly meetings with Jessica
Every Wednesday from January - March	PSI class meetings
January 7, 2016	First GOC office meeting
January 8-9, 2016	Inter-Org Retreat
January 10, 2016	Zero Waste Wedding Guide Start Date
January 14, 2016	PSI check-in meeting with Melissa & Jessica
January 21, 2016	Paperwork for tabling at BayTree/Quarry Plaza
January 22, 2016	GOC Waste/Water assessments
January 28, 2016	Pinterest state date
January 26- February 18, 2016	Outreach to Student Orgs for Hummingbird Days
February 11, 2016	Final GOC Meeting/Certification
February 18, 2016	Quarry Plaza Tabling
March 8, 2016	End of quarter evaluation meeting

Spring Quarter: Further Action & Looking forward

This quarter I finished projects stated in winter quarter, including the Zero Waste Wedding Guide. I was also able to establish a Composting Pilot Program. Lastly, I prepared information for next year's PSI intern and mentors.

Key Dates & Deadlines	Description
Every Wednesday from April - May 2016	Weekly meetings with Jessica
Every Monday from May - June 2016	Weekly meetings with Maura
Every Friday from March - June 2016	PSI class meetings
April 24, 2016	Bioneers Tabling
May 7, 2016	Human Race Tabling
May 8, 2016	Compost Research Start Date
May 11, 2016	Finished Waste Sign
May 16, 2016	Green Team Compost meeting
May 20, 2016	Compost meeting with Arboretum Director & Maura
May 20 - June 2, 2016	Acquiring compost program material
June 6, 2016	End of quarter evaluation meeting
June 3, 2016	Compost structure build day
June 6, 2016 - December 2, 2016 (tentative)	Pilot Composting Program: Start date - end date
June 10, 2016	Finalized Zero Waste Wedding Guide ready for immediate use Looking forward: PSI intern/mentor suggestions for next year

Project Stakeholders, Student & Mentor Roles

Stakeholders and Relevant Actors:

The Arboretum

Jessica F. Bailey: *Executive Director of the Arboretum/Mentor*
&

Maura Connolly: *Americorps Volunteer/ Arboretum Staff/ Mentor*
→ Mentorship, Brainstorming, Problem Solving

Theresa Milam: *Office Manager/ Green Team*
→ Motivating staff members, performing Green Team tasks

Tom Saucedo: *New Zealand Garden Curator/ Green Team*
→ Compost structure building, performing Green Team tasks

Martin Quigley: *Acting Director of the Arboretum*
→ Compost program feedback & approval

The Sustainability Office

Melissa Ott: *PSI Coordinator*
→ Support & Advice, Professional development class activities

Christian Monzon: *PSI Student Coordinator/UCSC Student*
→ Support & Advice, Zero Waste Information

Alana Mandrick and Marissa Mathsis: *Green Office Certification Team/ UCSC Students*
→ Certification process

Student & Campus Organizations

The Sustainability Office
→ Tabled at Hummingbird Days. Educational activity about water conservation

People of Color Sustainability Collective
→ Tabled at Hummingbird Days. Educational activity about People of Color in sustainability past & present

Program In Community and Agroecology (PICA)
→ Tabled at Hummingbird Days. Educational activity about composting

→ Collaborative effort to start composting program with the Arboretum

The BayTree Bookstore

→ Supplied wooden pallets for compost structure

Intern & Mentor Roles:

Intern Roles

Alina Mullins: *PSI*

→ Research & synthesize information about office habits, Zero Waste ideology, Zero Waste infrastructure on UCSC campus

→ Brainstorm ideas; seek collaboration & constructive feedback

→ Implement ideas after review

→ Attend meetings & ask questions

→ Represent the Arboretum at on & off campus events

→ Communicate needs, questions & concerns

Mentor Role

Jessica F. Bailey & Maura Connolly: *Mentors*

→ Provide support

→ Answer Unit specific questions

→ Ask questions, collaborate on ideas, and provide constructive feedback

→ Communicate needs, questions & concerns

Impacted community:

This project impacted the Arboretum community as whole including: the staff, the garden curators, and the visitors. The Arboretum now has educational material related to environmental sustainability that is accessible to anyone on site or online. Beyond the Arboretum, this project allowed for the UCSC student

community to become more involved in the Arboretum. Specifically, PICA and their collaborative efforts to implement a composting program.

Funding:

This project did not require outside funding such as grants. The Arboretum used it's own budget to purchase one item: chicken-wire for the compost structure. All other compost materials were repurposed items. Maura contacted the BayTree Bookstore and they were willing to provide wooden pallets. The white gallon buckets intended to be used for food scrap collection were going to be thrown away by the original owner, but I asked to have them. A wooden compost sign was made from repurposed wood found in the Arboretum's wood waste receptacle. All other educational signs made for this project were made with my personal art supply collection. No other materials were needed.

Measurable Results:

The success of this project will be measured by completion and achievement beyond the 2015 - 2016 school year goal statements.

❖ Goal Statement:

Increase office sustainability habits through 2-3 educational materials.

Achieve Green Office Certification: Tier 1 (30-40%) by the UCSC Green Office Certification Program.

Results:

→ The creation of understandable waste diversion signs for the Arboretum's office and visitor community. Two signs were made. They include: "Don't Recycle" and "Compostable" (*See Appendices: Appendix D*).

→ The creation of understandable energy saving reminder signs for the Arboretum's office and visitor community. Four signs were made. They include: turning off the lights, supplying reusable dish-ware, re-considering printing jobs, and using alternate methods of transport to get to the Arboretum (*See Appendices: Appendix C*).

→ The Office was Green Office Certified: Tier 2 (41-74%) by the UCSC Green Office Certification Program. Recertification can be continued in the years to follow.

❖ **Goal Statement:**

Increase sustainability engagement and collaboration between the Arboretum, UCSC students and the local community through 2-4 outreach events.

Results:

→ There were four tabling events held throughout the school year in order to promote outreach and community engagement. During these events we recruited students and members of the Santa Cruz community to volunteer & visit the Arboretum (*See Appendices: Appendix E*).

❖ **Goal Statement:**

Create a composting pilot program at the Arboretum that functions on three levels: diverting organics from the office waste stream, creating an educational & marketable composting program, and allowing PICA the chance to compost again avoiding purchasing fertilizers for their garden.

Results:

→ The creation of a composting guide & an approved composting pilot program between PICA and the Arboretum. This program will divert Arboretum and PICA organics from the waste stream, minimize some green waste produced by the Arboretum garden, allow PICA a place to create compost for their garden, and allow Arboretum visitors to learn about composting all throughout the summer by visiting the compost pile on site (*See Appendices: Appendix A, B*).

❖ ***Goal Statement:***

Research the feasibility and necessary steps to host Zero Waste events at the Arboretum. In tandem, create a Zero Waste Wedding Guide to be supplied and marketed to Arboretum wedding venue clients by Summer 2016.

Results:

→ The creation of a Zero Waste Wedding Guide. This guide can be published to their website and used as a reference for venue clientele who are interested in hosting a zero waste and or sustainable wedding.

→ The creation of an Arboretum Pinterest page. This page allows the UCSC Arboretum to be recognized as a sustainable entity on social media. It also allows Arboretum venue clientele to reference the page for inspiration on how to host a zero waste and or sustainable event
(See Appendices: Appendix F).

References:

UCSC (University of California, Santa Cruz). (2013). *Campus Sustainability Plan: 2013 - 2016*. Retrieved from: http://sustainability.ucsc.edu/governance/files/CSP_2013_2016.pdf

UCSC (University of California, Santa Cruz). (2016, May 26). *About the Arboretum*. Retrieved from <http://arboretum.ucsc.edu/about/index.html>

WCED (UN World Commission on Environment and Development). (1987). *Our Common Future: Report of the World Commission on Environment and Development*. Retrieved from <http://un-documents.net/our-common-future.pdf>

Appendices:

Links to Google Documents (public access, no login required)

[Guide to Composting at UCSC Arboretum](#)

[Compost Collection Bin Sign](#)

[Recycling Services Information for the Arboretum staff](#)

[Hummingbird Days Tabling Info](#)

[PSI Recommendations Mentors/Interns](#)

Website Links:

[Arboretum Pinterest Page](#)

Zero Waste Wedding Guide available on Arboretum website to be available during Summer 2016

APPENDIX A



Image 1 :Upcycled Food scrap/organics collection bins. Bins will be in the Office and Hort II.



Image 2 :Left to right: Luis (volunteer) Lauren (PICA Representative) Maura (Mentor) holding up the pallets before they were screwed together



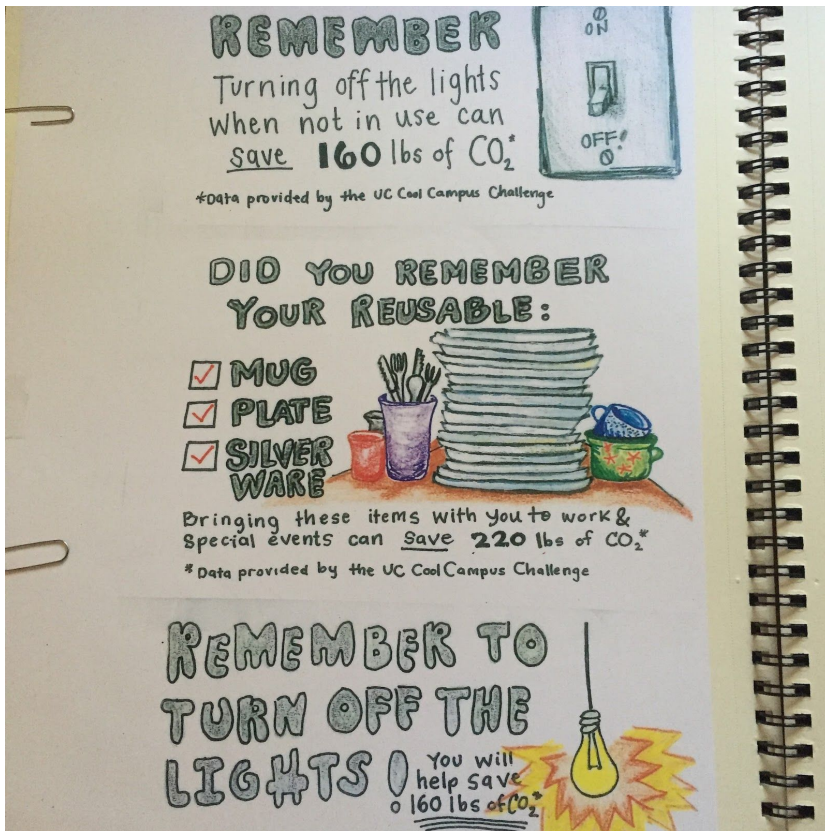
Image 3 : PSI Alina with the finished compost structure.

APPENDIX B

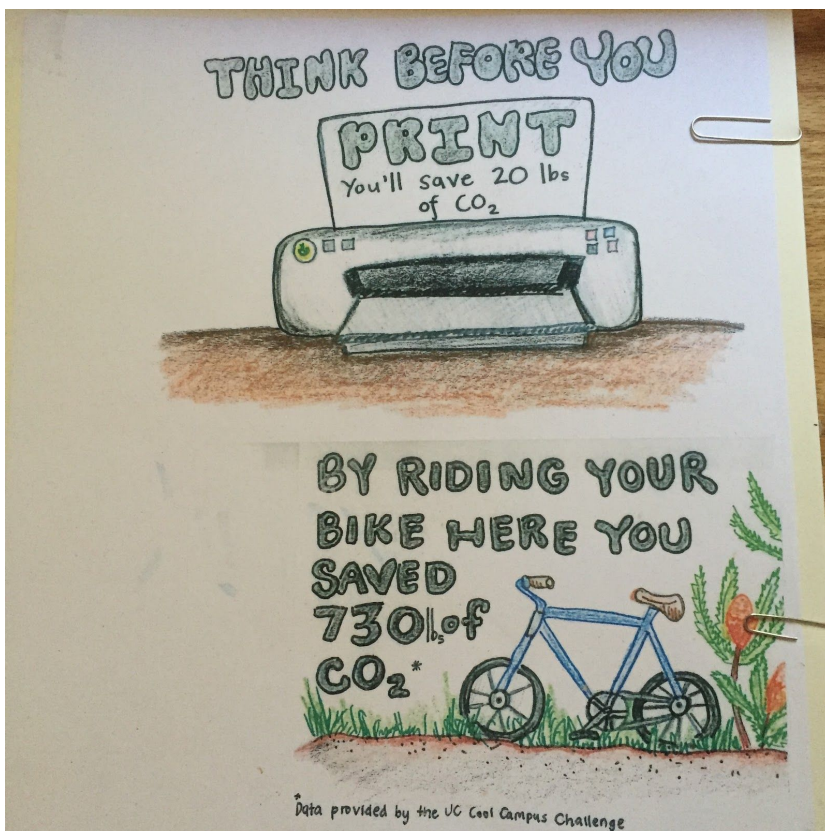


Image 4 :The finished compost structure. The structure is made from 4 upcycled pallets screwed together and chicken-wire staple gunned to the outside to discourage rodents.

APPENDIX C



Images 5 & 6 : Energy saving
reminder signs. Data adapted
from the UC Cool Campus
Challenge



APPENDIX D

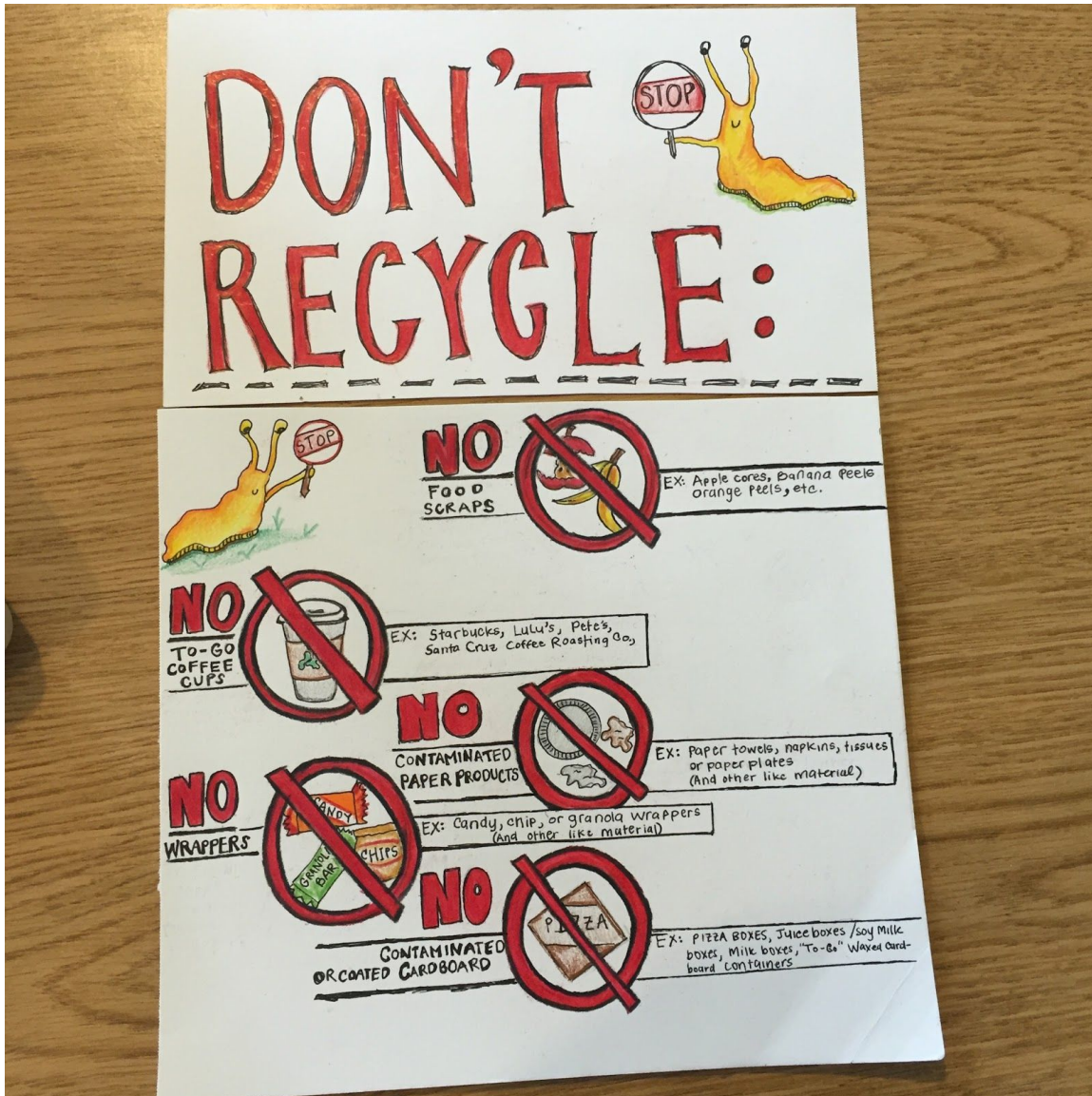
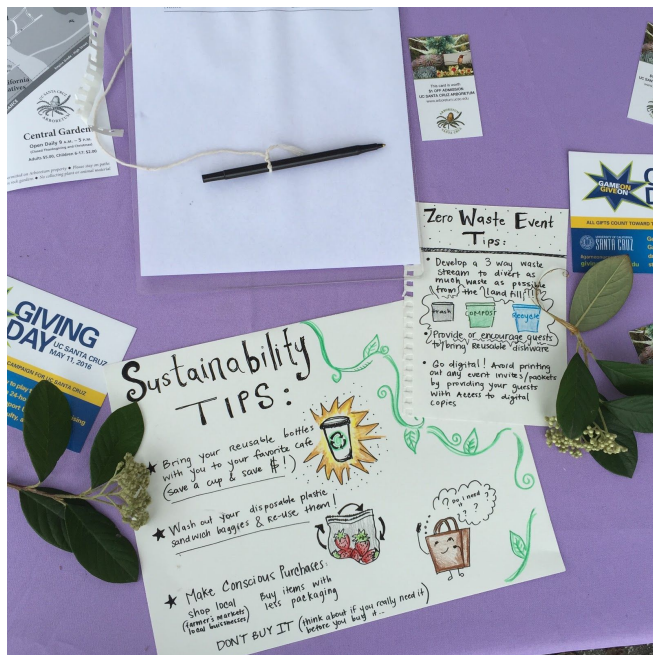


Image 7 : "Don't Recycle" waste signage. Sign intended to help keep trash out of recycle bins, which was a major problem in the office.

APPENDIX E

Images 8 & 9: The Arboretum tables at outreach events. Tables include information about the Arboretum, volunteering, sustainability tips, and \$1 off admission cards.



APPENDIX F

Image 10: A screenshot of the UCSC Arboretum Pinterest homepage.

