



Sustainability Action Research 2021

INCORPORATING EDIBLE LANDSCAPING ON UCLA'S CAMPUS

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ABSTRACT

The UCLA Sustainable Action Research (SAR) Outdoor Spaces team worked to increase and improve edible spaces on campus by developing a standard operating procedure for the long-term management of edible landscapes for the UCLA Landscape Master Plan. UCLA has a history of developing student-initiated medicinal or edible gardens that eventually fall into disrepair. Cultivating herbs, fruits, and vegetables on campus could support student food security, serve as an educational tool, and contribute to a resilient local food system. We have conducted fifteen interviews of garden and grounds managers, relevant student groups, and other leaders in the food and sustainability spaces in order to evaluate current and previous campus projects. The common themes brought up in our discussions were landscaping aesthetics, adherence to UCLA sustainability goals, and difficulties with consistent upkeep. To assess campus perspectives on edible landscaping, we distributed one student survey, reaching 420 students, and one staff survey, reaching 41 staff members. Our survey indicated high student and staff interest in seeing more edible landscaping on campus and in utilizing these spaces for volunteer, education, or research opportunities. This survey also gathered critical information on perspectives on preferred locations, elements, and output uses of edible landscaping. We completed a GIS analysis, comparing data on current campus plants against sun, soil, and water needs. We used this analysis to create several maps which can guide future decisions on where to put edible landscaping. We provide six major guidelines in our final report: consult Tongva authorities, look at South Campus for potential locations, distribute output through the Community Programs Office, use native or Mediterranean plants, ensure caretaker responsibility, and make edible landscaping an integrated experience.

FOREWORD

This report was created by six undergraduate students at the University of California, Los Angeles. The research was produced as part of the 2021 UCLA Sustainable Action Research program through the Institute of the Environment and Sustainability (IoES).

We acknowledge the Gabrielino/Tongva peoples as the traditional land caretakers of Tovaangar (the Los Angeles basin and So. Channel Islands). As a land grant institution, we pay our respects to the Honuukvetam (Ancestors), 'Ahihirom (Elders) and 'Eyoohiinkem (our relatives/relations) past, present, and emerging.

We thank all of those who have made this project possible, including, but not limited to: our stakeholder, Mark Biedlingmaier; our SAR directors, Elizabeth Tanner, Anh-Vy Pham, and Jaime Wittner; our faculty advisors, Carl Maida and Cully Nordby; Chief Sustainability Officer Nurit Katz and Deputy Chief Sustainability Officer Bonny Bentzin, for sharing their knowledge on campus landscaping; Xiaojian Fan and Jason Ficht of Design Workshop, for their feedback on our survey, and all the dedicated students, staff, and faculty who offered their time and insights to this project.



Basil Sprouts at jane b semel HCI Community Garden [@hcigardens]

TABLE OF CONTENTS

01.	Our Team	4
02.	Introduction	6
03.	Background	7
04.	Methodology	9
05.	Results and Discussion	11
	a. Key Stakeholder Interviews	12
	b. Case Studies	13
	c. Student and Staff Surveys	14
	d. Suitability Analysis	18
06.	Recommendations	19
	a. Guiding Principles	20
	b. Expanding our Edible Campus	21
	c. Future Research	23
07.	References	24
08.	Appendices	29
	a. Outdoor Spaces Box Drive	29
	b. GFI Asset Map	30
	c. List of Key Stakeholder Interviewees	31
	d. ArcGIS Map of Potential Edible Landscape Locations	32
	e. Suitability Analysis Maps	33
	f. Questions from Student Survey	35
	g. Questions from Staff and Faculty Survey	39

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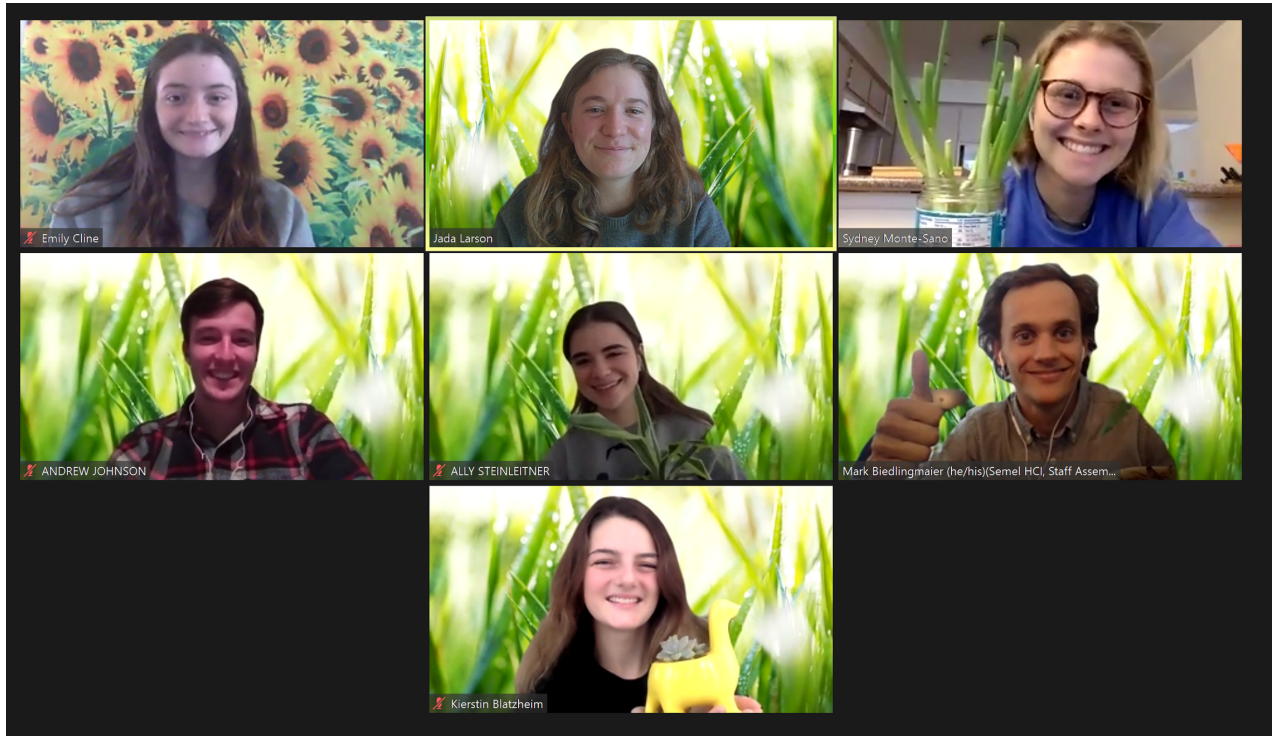
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Spring 2021 SAR Outdoor Spaces Team Zoom Photo

INTRODUCTION



Despite the small size of the UCLA campus, there are underutilized areas that could be transformed into multi-functional food-producing spaces that can help address student food insecurity and create places for community building, research and learning opportunities. The Outdoor Spaces team learned from the success and failures of current and former edible landscaping projects at UCLA and other universities in order to identify the necessary components for future efforts to succeed in the long-term.

Outdoor Spaces began the year by interviewing over a dozen students, faculty, and staff involved in food systems and in community garden and grounds management. The team identified the reasons that past student gardens failed, assessed garden management best practices, and evaluated how edible landscaping can best serve the UCLA community in the future. The information they gathered allowed the team to assist two student groups in their ongoing efforts to install edible landscapes, including guidance on selecting appropriate edible plants for the locations.

Moreover, the team is ensuring their efforts will be long-lasting by collaborating with UCLA's first ever Landscape Master Plan Task Force. After their first meeting with the planning team at the beginning of spring quarter, Outdoor Spaces realized the importance of gathering student perspectives and decided to conduct a survey. The team received responses from 420 undergraduate and graduate students, who identified specific locations, types of plants, and preferred uses for future edible landscaping. Acknowledging that students are not the only ones on campus, Outdoor Spaces surveyed staff and faculty as well and received 41 responses.

Meanwhile, Outdoor Spaces fostered connections with various campus entities, meeting with Global Food Initiative fellows and presenting to the Semel Healthy Campus Initiative (HCI) Center EatWell Pod. Outdoor Spaces also collaborated with the Sustainable LA Grand Challenges Native Plants team to create a shared ranking system to identify suitable locations for edible and native plants.

BACKGROUND

Four months prior to the first class on the UCLA Westwood campus in 1929, the first trees were planted for the College of Agriculture's demonstration orchard on campus (Schroeder, 1992). Described as "possibly the best ever assembled for teaching and research of subtropical fruits," this 10-acre orchard boasted numerous cultivars of fruit and nut trees:

"More than 125 named cultivars of citrus fruits were represented. Other species included 110 cultivars of persimmon, 7 cultivars of loquat, 8 cultivars of almond, 37 cultivars of fig, 12 cultivars of cherimoya, 12 white sapote, 5 jujube, 3 feijoa, 20 grape, and a number of other species -such as olive, walnut, guava, banana, cacao, papaya, medlar, peach, plum, apricot, pecan, and many of avocado." (Schroeder, 1992 p. 2)

By mid-1950, the urban growth of Los Angeles prompted the reduction of the College of Agriculture, and today, the Health Science complex has replaced the orchard. Although the orchard has disappeared from campus, student involvement in edible landscapes has not.



"Avocado rootstock progeny nursery on the campus of the University of California at Los Angeles, spring 1936" (Schroeder, 1992).

Edible campus landscaping is the use of food-producing plants in landscaping. It combines fruit and nut trees, berry bushes, vegetables, herbs, edible flowers, along with ornamental plants into aesthetically pleasing designs that can adopt any garden style. Growing food on campus reduces the long transportation distances of produce and increases accessibility to fresh, healthy food. This is especially important for the University of California, where an estimated 48% of undergraduate students and 25% of graduate students face food insecurity (Global Food Initiative [GFI], 2016). Edible spaces also promote community engagement, serve as an educational tool, and contribute to a resilient local food system.

UCLA currently has a variety of edible landscapes, including community gardens, vertical gardens, herb boxes, and seven types of fruit scattered across campus: guava and pineapple guava, olive trees, common figs, date palms, avocado trees, and citrus trees (Hern and Hoar, 2018). However, the edible landscapes currently present on campus do not meet student demand for them.

An equitably designed edible campus could provide valuable resources to support those students in need while supporting the sustainability efforts of our campus (GFI, 2017). Although space is a limited resource at UCLA, underutilized spaces exist and can be transformed into edible spaces for community-building, research and teaching. There are a number of student groups already interested in increasing edible landscaping in these underutilized spaces, including a group advocating for an Indigenous student garden, as the UCLA campus lacks a permanent space for Indigenous students to grow food, share knowledge, and collaborate on food sovereignty projects.

BACKGROUND CONT.

UCLA graduate student, Maritza Geronimo, in their Global Food Initiative (GFI) project on Indigenous Food Sovereignty, describes how establishing an Indigenous student garden can provide a way for BIPOC students to reclaim space and reconnect with the land (Geronimo, n.d). In another project, undergraduate Sophia Papia worked with Professor James Bassett to create a backyard-sized food forest design tailored for the UCLA campus, but still is in need of a location (Sophia Papia).

"Underutilized spaces exist and can be transformed into edible spaces for community-building, research, and teaching."

Previous SAR projects have studied community gardens, sustainable landscaping, campus biodiversity, and campus spaces and space design. For instance, the 2020 SAR Community Gardens research team surveyed plot holders at the Jane Bb Ssemel HCI Community Garden, determining that the current location is relatively inaccessible due to its non-central campus location and providing suggestions to improve garden management (Eisen et al, 2020). Another resource for garden management is the UC Student Gardens Report, produced by UCLA GFI fellow Ian Davies, outlining the various leadership, features, and techniques of garden initiatives across the UC campuses (2015). Other UC-wide recommendations for gardens and landscape management are available through the University of California Agriculture and Natural Resources (UC ANR) website. These guides include "Community Garden Start-Up Guide" (Surls), "Trace Elements and Urban Gardens" (Hodel and Chang) and "The Use of Greywater in Urban Landscaping" (Hartin and Faber). Although these guides are not

specific to the Los Angeles area, they provide steps for approaching urban gardening that would apply to the UCLA campus. Beyond the UC system, other universities, including Arizona State University (ASU) and the University of Kansas (The Landscape Master PlanUK), have established extensive edible campuses, which have helped to inspire our project



jane b semel HCI Community Garden [@hcigardens]

METHODOLOGY

We began our project by creating a general asset map (see Appendix A for the document), identifying faculty, staff, and student organizations involved in community garden or grounds management, sustainability, basic needs and food systems. As our project relied on collecting a wide array of expert advice, this was an important first step for our project, allowing us to better conceptualize the network of individuals that comprise the landscaping, sustainability, and food-related systems at UCLA. We quickly learned that a pair of students, Katie Osborn and Brian Cook, working with the Global Food Initiative (GFI), were undertaking a similar project (see Appendix B for an image of their map). We contacted them and agreed to work in collaboration as we both completed our research.

As we had identified more individuals in our asset map than we could interview, our primary stakeholder Mark Biedlingmaier assisted us in the process of identifying which people to reach out to and helped connect us to these key informants. In all, we completed fifteen key informant interviews, gathering each interviewee's experience with gardens and grounds management (see Appendix C for the list of interviewees). These interviews allowed us to determine the current state of edible landscapes at UCLA, challenges involved with starting and running such spaces, and potential future edible landscapes to consider implementing. Although we faced challenges in our attempts to reach busy staff and faculty, we worked around this issue by sending persistent follow up emails, reaching out through classes or by phone, or switching to email interview formats if the interviewee did not have time for a Zoom interview. This allowed us to eventually speak with nearly all of the stakeholders we contacted.

Next, we conducted two surveys, one for students and one for staff and faculty, assessing perspectives about edible landscaping at UCLA, with regards to locations, output uses, types of plants, and maintenance (for full list of questions see Appendix F and G). For the student survey, our team decided to provide an incentive to respond: the first 20 respondents automatically received a \$10 VISA gift card and the rest were entered into a raffle for one of ten \$10 VISA gift cards. This was funded by a \$390 grant from The Green Initiative Fund (TGIF). The student survey was distributed through department listservs and student organizations, and it received 420 legitimate responses. However, we faced two main challenges: automated bot responses to our survey and delayed receipt of TGIF funds. We solved the bot problem by adding a CAPTCHA code at the end of the survey, and we went through our results and removed the automated responses. Indicators of an automated response that we used to filter included emails that were random strings of text, names that seemed fake or did not match the email, and responses that were very close together and had the exact same answers. For the TGIF funding, after not receiving official confirmation that our funding was approved within the expected time frame and not being able to reach those in charge of distributing funds, we re-applied during the final application funding round for the year. This application prompted a response from TGIF, allowing us to begin the process of accessing the funds required to compensate our survey respondents.

METHODOLOGY CONT.

The staff and faculty survey was adapted from questions on the student survey, substituting departmental affiliation for environmental organization affiliations and adding questions to assess interest in interacting with students. We did not offer a monetary incentive, and we distributed the survey through the Staff Assembly Newsletter, the Semel HCI EatWell Pod, and the Semel HCI Community Garden. The staff and faculty received 41 responses.

- **Key Informant Interviews**
- **Student and Staff Survey**
- **GIS Suitability Analysis**

Finally, we utilized GIS to conduct a suitability analysis of UCLA campus. As the LA Grand Challenge Native Plants team was working on a similar analysis, we collaborated to identify factors that are important for ranking spaces as sustainable to grow both edible and native plants. The factors include sunlight, plot sizes, underutilized spaces, and proximity to parking lots and throughways.

To begin, the Mildred E. Mathias Botanical Garden provided us with data on the location of every plant species on the UCLA campus. After using Python to clean the file, the botanical plant name was used to join the Botanical Garden's CSV to a file from The Queensland Government Opendata Portal (data from our suitability analysis is available in the Outdoor Spaces Box Drive – link in Appendix A) containing botanical plant names and each plants: light needs, ideal soil type and water needs, among others. The combined file allowed us to map the light, soil, and water needs of plants on UCLA's campus (see the maps in Appendix E). To examine the proximity to roads and parking lots, we calculated the latitude and longitude of 116 locations of interest, which were identified through interviews and a map of underutilized spaces provided by UCLA's Landscape maintenance team (map linked in Appendix A). Using these calculated values and the latitude and longitude of each parking lot and throughway, we calculated the straight line distance using the pythagorean theorem, a method that accounts for the Earth's curvature. As a final product, we produced an ArcMap to display various growing conditions across campus.



Mildred E. Mathias Botanical Garden.
Stuart Wolpert/UCLA Newsroom

RESULTS AND DISCUSSION



Jake Michaels/UCLA Newsroom

01. Key Stakeholder Interviews

02. Case Studies

03. Student and Staff Surveys

04. Suitability Analysis

KEY STAKEHOLDER INTERVIEWS

We interviewed fifteen key stakeholders who have worked with facilities management, edible spaces and dining at UCLA and other college campuses. Through these interviews we were able to identify three potential areas of challenges as well as their potential solutions: aesthetics, year-round engagement and meeting UCLA's sustainability initiatives.

Many UCLA spaces are available to rent for third parties and therefore garden spaces must be maintained on a regular basis to prevent rotting and, in the case of olive trees at the Luskin Conference Center, stained hardscape (Wisor). With the 2028 Olympics, UCLA will turn into Athlete Village, and all parts of the UCLA campus will have to be in top shape (Fabris). To prevent unwanted dead areas at the end of the growing season, evergreen plants should be chosen.



Jane b semel HCI Community Garden

As part of UCLA's sustainability initiative, the university is trying to reduce its water usage. Native or otherwise drought-tolerant, Mediterranean plants can reduce water usage. For native edible plants, it will be imperative for the Landscape Master Plan team to consult with Tongva authorities and Indigenous students to ensure they are included in the planning. Additionally, using edible spaces for UCLA must take health and safety guidelines into account. According to Justin Wisor, Director of Custodial and Grounds, UCLA is committed to going herbicide and pesticide free, following Pepperdine University's integrated pest management model (Wisor). This means that landscaping must consider more integrative designs that naturally reduce rodents and other pests, such as planting mint around trash receptacles. Additionally, landscaping itself can pose a safety hazard, such as fruit falling from trees (Wisor). Designs must consider proximity to pathways to mitigate such risks.

Since many edible landscapes are currently student-led, one of the main challenges is associated with consistent upkeep management, particularly during the summer and holiday breaks. This is less of a challenge with family and grad housing, which tend to serve as a home for students over longer time periods, as compared to undergraduate spaces (Fabris). To combat this, other schools like UC Berkeley and Arizona State University hire and pay two to three students to care for the garden during the summer (Hambrick; Thirkhill).

Our interviews were less conclusive in terms of the policies and procedures regarding the health and safety of harvesting and utilizing the food produced on campus. While the Community Programs Office (CPO) Food Closet already accepts donations from the Semel HCI Community Garden (Izuchukwu) and UCLA dining has used produce in the past (Ferrone), UCLA Facilities has questions about navigating the output of future edible landscapes (Wisor). At ASU, food is inspected by the ASU Health Department and is expected to follow USDA and FDA guidelines before being distributed (Thirkhill).

In addition to the aforementioned challenges, yet another is deciding what to plant in future spaces. Future plants will need to be aesthetically pleasing as discussed previously, not be too water intensive to avoid interfering with other UCLA sustainability goals (Wisor), and avoid the health and safety hazards discussed earlier. Across the board, perennial plants are favored due to their lower maintenance and cost (Wisor) and mediterranean plants seem to do well in the UCLA climate (Cooch). There seems to be a preference towards planting herbs (Ferrone, Wisor), although a herb garden did fail in the past due to lack of management (Ferrone). Also favored are root vegetables, which can be donated with little preparation needed prior to consumption (Izuchukwu), and other vegetables that grow close to the ground and require less maintenance than taller plants (Wisor). Fruit bearing trees bring mixed reviews: while they may be easier to install, as seen in the installation of fifty fruit trees at University Apartments South this year (Fabris), they seem to cause issues with their droppings and maintenance (Wisor).

CASE STUDIES

Arizona State University

Arizona State University (ASU) has a long history of edibles on campus. Edible landscaping is incorporated across the ASU campus, primarily in the form of date, citrus and nut trees. A basic care plan is determined using the Tree Care Program Document and ASU has worked with their health services department to ensure food safety protocols are put into place. Much of their produce from fruit trees is packaged and sold, following FDA guidelines. Harvesting is generally more supervised and people are encouraged not to pick food except on special occasions such as tours or during an end-of-the-year harvest. When produce is not sold, it may be distributed to student clubs or campus staff or may simply be enjoyed by the grounds crew. Edible landscape management does require a lot of help from the crew, but also depends on the support of the community through volunteers and student interns. Through the Arbor Day Foundation, ASU has an advisory committee of students, community members, staff, and faculty to discuss what people are interested in seeing on campus.

University of California, Berkeley

Berkeley Student Farm (BSF) was founded in summer 2020 to consolidate the management of Berkeley's eight operating gardens and farms. The coalition is solely responsible for the gardens and has one faculty advisor and one graduate student who oversees things more long-term (Hambrick). The largest gardens have dedicated managers, and BSF also supports positions for managing basic needs and coordinating food recovery. Leadership roles are given out by how much time each student is willing to dedicate to the garden, and the organization has a horizontal structure with "bottom-liners" who are willing to step up and take on more work. Additionally, their crowdfunding and grant writing teams have been critical to the success of garden maintenance, funding projects such as replacing old irrigation systems. Volunteers are able to harvest as much as they would like to take, and the rest is donated to the Basic Needs Center. Two of BSF gardens' serve Black students (the Fannie Lou Hamer Garden) and Guerrilla Gardeners and Indigenous and Native students (the Guerrilla Gardens). To learn more or get involved, check out their website: <https://www.studentfarms.berkeley.edu/>.

STUDENT AND STAFF SURVEYS

Of the 420 students who responded to our survey, 61.2% were undergraduates and 38.8% were graduate or professional students. The majority of these students were not already involved in sustainability, with 65.9% reporting no prior affiliation to any major sustainability organization or department at UCLA. Additionally, 207 students, or 49% of respondents are interested in being contacted to further engage with the project. Of the 41 staff and faculty members surveyed, there was a wide range of departmental affiliations and 19 people who are interested in being contacted to further engage with the project.

01. Knowledge of and Interaction with Existing Edible Landscapes

When asked about their knowledge of edible landscapes at UCLA, only 27.1% of students were aware of existing edible landscapes on campus, while 41.5% of staff were aware of existing edible landscapes. 20% of students responded that they had previously visited, volunteered, or interacted with edible landscapes on campus. These results indicate that while knowledge of edible landscaping on campus among students is low, the interaction levels among those who know of these edible landscapes is high. Among staff, 24.4% have previously visited, volunteered, or interacted with edible landscapes on campus. Although more staff are aware of existing edible landscapes, the level of interaction is not much higher than the level of interaction of students with these landscapes.

02. Interest in Edible Landscaping

The popularity of this initiative is high: 88.8% of students and 90.2% of staff and faculty consider themselves "very interested" or "interested" in seeing more edible landscapes on campus. Given the interest among current students, future edible landscaping potentially could become a distinguishing campus attribute for future Bruins. It may also draw alumni interest, particularly in regards to the connections with UCLA's agricultural history.

88.8% of students and 90.2% of staff and faculty consider themselves "very interested" or "interested" in seeing more edible landscapes on campus.

03. Volunteering, Maintenance, and Engagement Interest

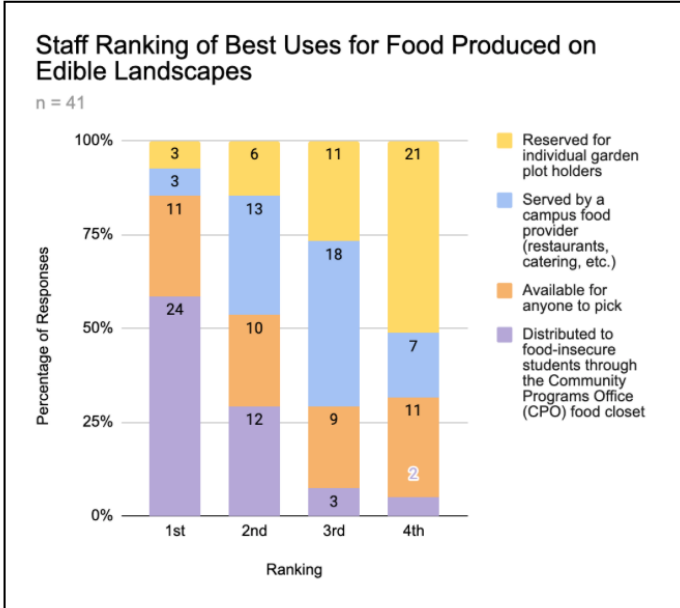
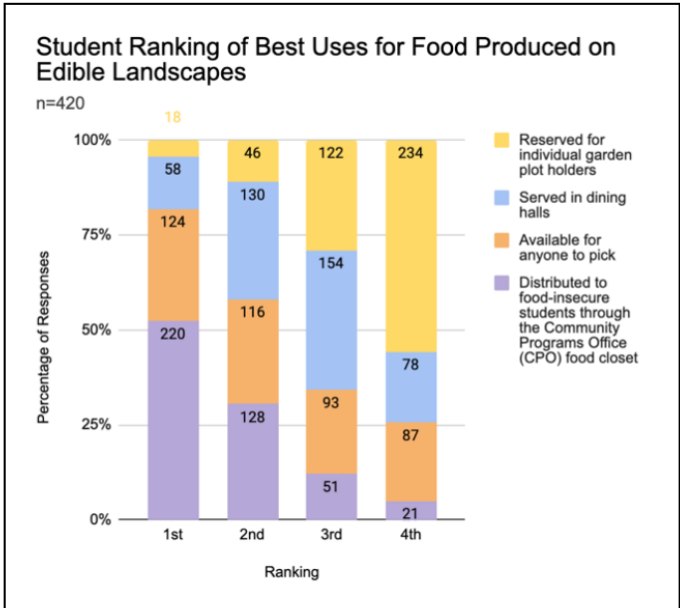
83.3% of student survey participants indicated that they would be willing to volunteer to maintain an edible landscape. Within the participants interested in volunteering, 32.4% would be interested in volunteering one or more hours weekly and 36.7% would be interested in volunteering one or more hours monthly. Based on the responses of our sample size about how much they would be interested in volunteering, the total number of potential volunteer hours is 2933 hours per quarter, which is 267 hours per week. The total number of potential staff volunteer hours based on the 41 staff responses is 186 per quarter, which amounts to 17 hours per week.

Additionally, 34% and 35.7% of students we surveyed said they would be "Very Interested" or "Interested," respectively, in maintaining edible landscapes if it were a paid position. This could be funded via sustainability or food security programs at UCLA such as The Green Initiative Fund or the Global Food Initiative.

Moreover, 62.8% of students responded that they would be interested in getting involved with edible landscaping through a class or research opportunity. 11 staff members expressed interest in teaching a class or leading a student opportunity involving edible landscaping. Only 29.3% of staff and faculty were interested in working with student groups to maintain edible landscapes.

04. Garden Outputs Uses

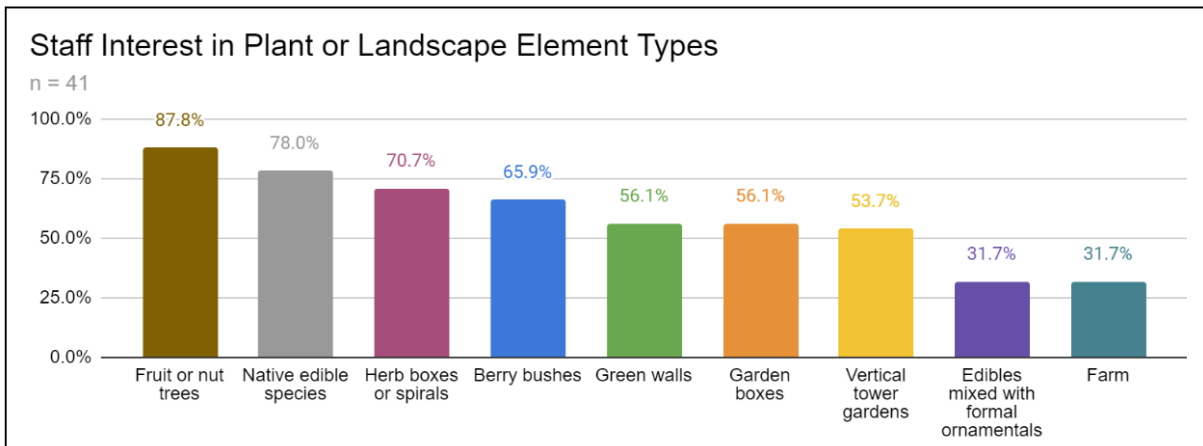
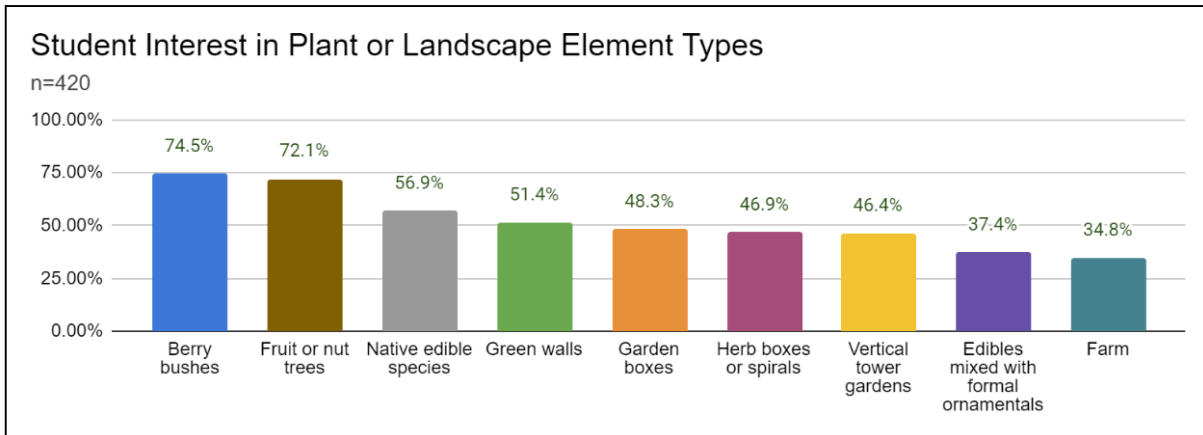
Of the options for the best uses for garden output, "distributed to food insecure students through the Community Programs Office (CPO)" was the most popular choice among both students and staff. "Available for anyone to pick" was the second most popular option. "Served in dining halls or by a campus food provider" and "reserved for individual plot holders" were ranked low by both students and staff in terms of best uses. These results indicate a consensus among students and staff that food produced on edible landscapes should be widely available to individuals in the campus community instead of being reserved for select groups.



05. Types of Edible Landscaping Elements

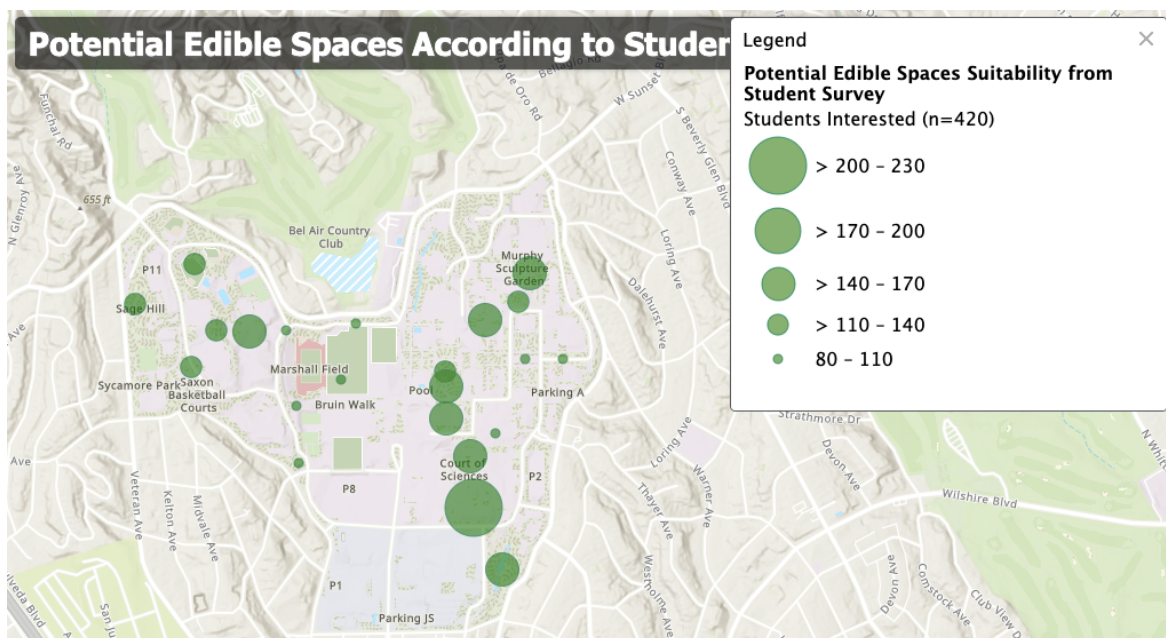
In terms of the most popular options for types of plants and landscape elements to be grown on edible landscapes, students preferred berry bushes and fruit and nut trees. 74.5% of students chose berry bushes as the type of plant they are most interested in seeing grown on campus and 72.1% of students marked fruit and nut trees as the landscape element they are most interested in seeing on campus. Native edible species were also a fairly popular option, with 56.9% of respondents showing interest in this type of landscape element. Green walls, garden boxes, herbs, and vertical tower gardens all had a moderate preference from survey participants. The least popular options among students were edibles mixed with formal ornamental plants and farms.

Among staff and faculty, fruit and nut trees were the most popular type of landscaping element, with 87.8% of respondents expressing interest. Native edible species was the second most popular option among staff, with 78.0% of staff marking interest. Herb boxes and berry bushes were also popular landscaping elements among staff and faculty. Participants also expressed a moderate amount of interest in green walls, garden boxes, and vertical tower gardens. Similar to students, the least popular choices for staff and faculty were edibles mixed with formal ornamentals and farms.



06. Future Edible Landscape Locations

Our survey also included a map with twenty-two labeled locations that participants could select to indicate where they would like to see more edible landscaping. The top five locations selected as ideal for edible landscapes by students were Kerckhoff Patio, the Murphy Sculpture Garden, in the Court of Sciences, the Court of Sciences Food Student Center, and Sunset Village on the Hill. The top locations selected by staff and faculty were the Mildred E. Mathias Botanical Garden, in the Court of Sciences, the Court of Sciences Food Student Center, the Inverted Fountain courtyard, and along Bruin Walk between Bruin Plaza and Powell Library. These results were used to create an ArcGIS map where the size of the point for each location corresponds to the relative interest of students and staff in seeing an edible landscape in that location (see Appendix D for a link to the ArcMap).



07. Benefits of Edible Landscaping

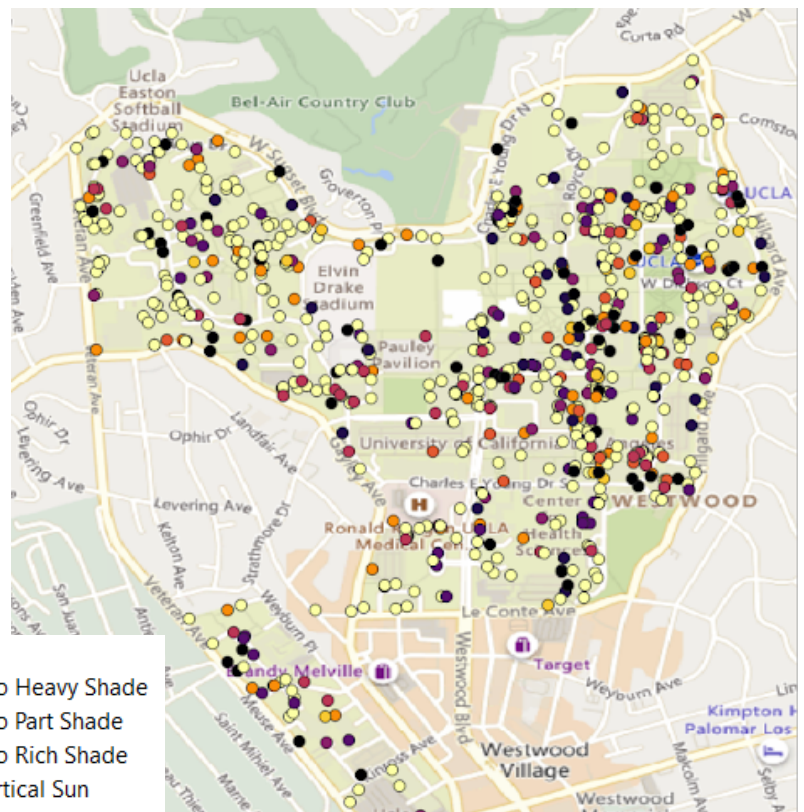
Given a list of benefits of edible landscapes, environment and community stood out as the two most important benefits to student survey participants. Health was also ranked as a fairly important benefit by students. Art, sovereignty, economics, and other benefits were not marked as highly in terms of importance to students. Similarly, staff and faculty ranked community, environment, and health highest in terms of importance of benefit and ranked other options much lower.

SUITABILITY ANALYSIS

Our suitability analysis took the approach of identifying the water, light, and soil needs of the plant currently growing on the UCLA campus in order to draw conclusions on what types of plants to select for those locations in the future. From our map of light needs, most plants on campus require full sun to partial shade, and only two plants perform well in complete shade. This suggests that most currently vegetated areas receive a large amount of sunlight.

Regarding water needs, 163 of the 330 plants we assessed need 600 to 900 milliliters (ml) of water per month, and 114 plants require 900 to 1400 ml of water per month, the highest water need category. This indicates that much of UCLA's current planting is water-intensive, so planting edibles that are drought tolerant or have low water needs may benefit UCLA's water conservation initiatives. Finally, the most common soil requirement category for plants on campus was also the broadest: sand, loam and clay. As these three soil types have very different textures and properties, this makes it difficult to assess what edible plants UCLA's current soil could support.

Overall, the data collected is a tool future researchers and planners can use to identify the ideal plants to grow on UCLA's Campus. However, our analysis with the data from the Queensland Government only included the 330 plants of the 1800 total plants from the Botanical Garden dataset. In the future, we suggest finding more extensive data on plant requirements, which would allow more conclusions to be drawn from these maps.



- Full Sun
- Full Sun to Heavy Shade
- Full Sun to Part Shade
- Full Sun to Rich Shade
- Full to Partical Sun
- Sun or Shade
- Bright Indirect Light
- Light Sun
- Shade

RECOMENDATIONS



jane b semel HCI Community Garden [@hcgardens]

01. Guiding Principles

02. Expanding our Edible Campus

03. Future Research

GUIDING PRINCIPLES

01

Consult Tongva Authorities

Beyond acknowledging our presence on the traditional, ancestral and unceded territory of the Gabrielino/Tongva peoples, it is important to meaningfully include Indigenous staff and students in every step of the design and implementation process and to avoid being extractive with such consultations. For instance, when selecting native edible plants, work with the Indigenous community to determine which plants are preferred. Also, establish harvesting guidelines to allow this resource to be accessible.

02

Look at South Campus

There is student and staff interest in having edible landscapes in the Court of Sciences, which is near the Institute of the Environment and Sustainability (IoES) and other life science departments that may be interested in utilizing edible landscapes. One such space that could be converted is the planter above the Court of Science Food Court (“the Bomb Shelter”), which has spiky natives that have overgrown the adjunct bench wall.

03

Distribute Output Through Community Programs Office

There is a strong consensus that harvests should be distributed through the Community Programs Office Food Closet for food insecure Bruins to be able to enjoy. This should be done with proper signage that indicates the food was grown on campus and if applicable, details the preparation required prior to consumption.

04

Ensure Caretaker Accountability

Many student-led projects suffer from lack of labor resources during the holidays and summer breaks. To ensure landscapes are taken care of, particularly for edibles harvested during the summer, any project headed by a student organization should involve staff to support management during the summer months or create paid student positions. Additionally, UCLA should consider creating a Facilities position that specifically oversees campus edible landscaping, ensuring crops are harvested on time according to sanitary guidelines, distributing the food produced, overseeing signage, and coordinating tours and other public engagement opportunities.

05

Plant Native or Mediterranean Berry Bushes, Fruit & Nut Trees, and Herbs

Once established, these edible perennial plants require less maintenance than annuals, and they can be planted in such a way to provide integrated pest management. Further, evergreen plants would reduce seasonal aesthetic concerns.

06

Make it an Integrated Experience

Edible landscapes have the opportunity to be a learning experience, even for those not involved in their maintenance. Signs should be posted throughout the space with names and uses of the species planted for visitors to enjoy.

EXPANDING OUR EDIBLE CAMPUS

Anderson School of Management Garden

The Net Impact Club wants to put in a community garden near Anderson and then create a sister garden in a food desert. In the short term, they are considering creating a temporary garden plot in the Anderson patio and expanding after building credibility in their ability to maintain the space. Factors they are considering as they begin this project are the aesthetics of the edible plants since this area is well traveled, setting clear expectations with Grounds Maintenance about the roles of the students and management in maintenance, and building connections with the staff and school administration who work in the department and in sustainability (Net Impact et al., 2021).



Anderson School of Management /UCLA Newsroom

Semel HCI Kerckhoff Patio Design

The Graduate architecture group is planning a moveable shade structure for the Kerckhoff Patio and would like to include edible landscaping. Ideas they are considering include planting small citrus trees or putting small edible plants like herbs in the existing tree wells. Since Kerckhoff Patio is a very popular spot on campus and a historic building, the aesthetics are very important. Any plants grown would need to look beautiful throughout the year and should not create any droppings that would make the patio look messy or stain the ground. Additionally, irrigation is an important factor because plants that require hand-watering are not ideal, but irrigation infrastructure cannot be added if there is any chance of damaging the historic building. As a result, plants that require little water are recommended for this area (Semel HCI Patio Design Architecture Masters Students Team et al., 2021).



Kerckhoff Patio Garden /UCLA Newsroom

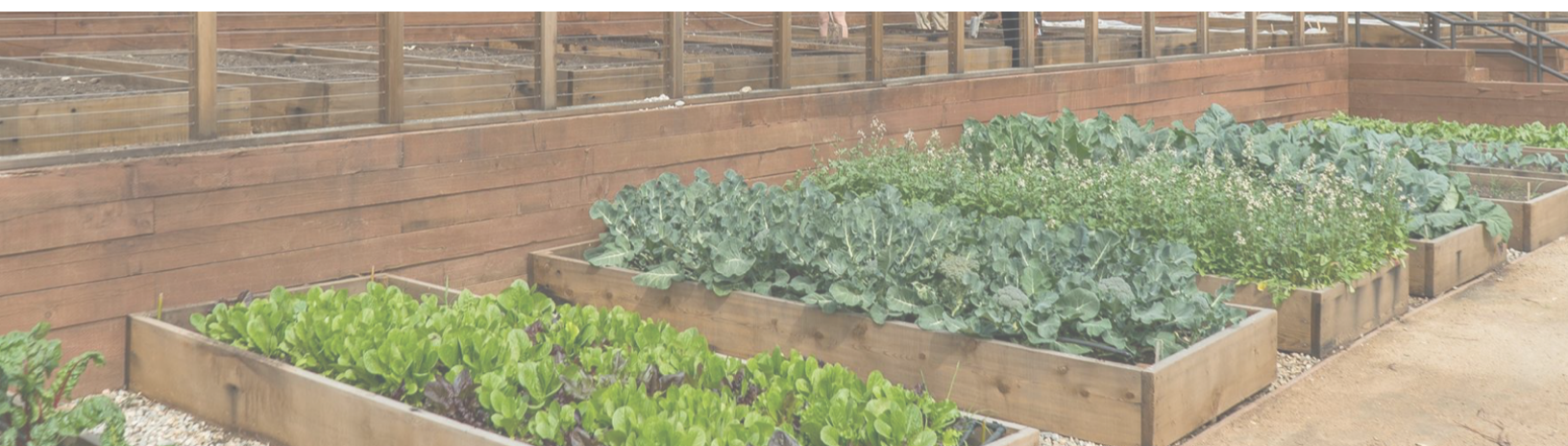
EXPANDING OUR EDIBLE CAMPUS CONT.

Indigenous Garden

Graduate student Maritza Geronimo conducted a Global Food Initiative (GFI) project on Indigenous Food Sovereignty in the 2019-2020 academic year, concluding that “the future goals of this project are to create an Indigenous garden at UCLA where Indigenous and Students of Color can continue to learn how to grow their own food and reconnect to the land” (Geronimo, 2020). In a meeting with Maritza and another student, they indicated that such a space is still a priority.

Food Forest

For her 2021 GFI fellowship, fourth-year undergraduate student Sophia Papia worked with Dr. James Bassett to design a proposal for a food forest the size of the average backyard with plants best suited to UCLA’s climate. A food forest on campus could serve as a space to teach about food justice and show students what can be grown in Los Angeles. Currently, Dr. Bassett is looking for a place to establish this permanent campus feature. In our interview, he suggested that one could possibly be placed near the current location for the DIG campus garden. The produce from a food forest could potentially be utilized to support food security by collaborating with a non-profit such as Food Forward (Basset).



Student Plots/jane b semel HCI Community Garden

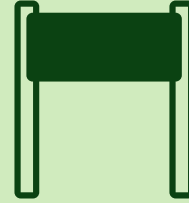
FUTURE RESEARCH



**FOCUS
GROUPS**



**GARDEN
PROTOTYPE**



SIGNAGE

The next steps for campus-wide edible landscaping would be to conduct focus groups with students, staff, and faculty to identify which species to plant for specific spaces. One focus group to prioritize is indigenous students, who have advocated for a dedicated garden space on campus.

It would also be beneficial to install temporary community garden-type landscaping on the main campus as a prototype for more permanent installations. Future groups could also expand on our research by looking at rooftop spaces for edible landscaping. Additionally, future efforts should work with CPO to streamline donation and pickup services to the Food Closet.

Finally, research is needed on how best to communicate edible landscaping to the campus community: signage for identifying and harvesting edible plants, recipes to cook with food produced to ensure it is not wasted, and lesson plans for student learning opportunities.

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APPENDICES

Appendix A

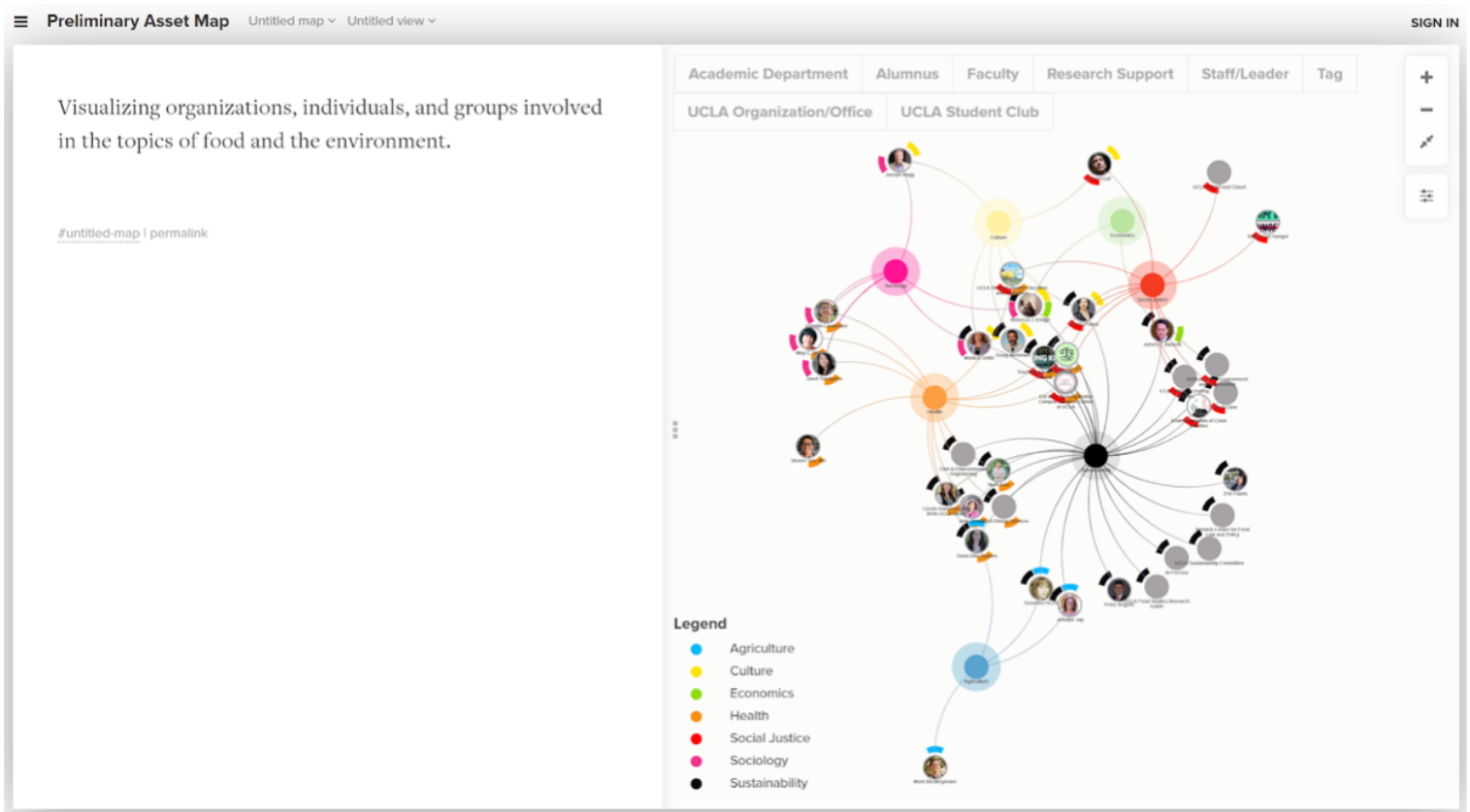
Resource Box Drive

<https://ucla.box.com/s/u2bndqhiu4p2h95ottymfndvlul44paj>

Description: Description: This Box Drive holds resources for future edible landscaping that the Outdoor Spaces team has compiled or created. These resources include: our final report and presentation, our asset map, our student and staff survey analysis, our suitability analysis data, past UCLA garden and landscaping reports, and edible landscaping resources from other universities.

Appendix B

GFI Asset Map



Description: Screenshot of the preliminary GFI Asset Map currently in progress and led by students Katie Osborn and Brian Cook. Each of the stakeholders identified is linked to one or more of the following categories: agriculture, culture, economics, health, social justice, sociology, or sustainability. The map can be sorted by stakeholder type, and a description of each stakeholder appears when the image is clicked.

View the full interactive map at <https://www.kumu.io/UCLAGFICCC/preliminary-asset-map>.

Appendix C

List of Stakeholder Interviewees

- Justin Haggard: Garden Director, UCLA Dig
- Hein McKnight: Director of Operations and Computing, Luskin School of Public Affairs
- Jules Cooch: Manager of Public Outreach and Education, Mildred E. Mathias Botanical Garden
- Terry Huang: Assistant Garden Director, Mildred E. Mathias Botanical Garden
- Maritza Geronimo: Graduate student and leader, GFI Project on Indigenous Food Sovereignty
- Steve Lu: Garden Director, University Apartments South Resident Association
- Justin Wisor: Director, Custodial and Grounds
- Chidera Izuchukwu: Assistant Director, Basic Needs and Technology
- Erin Fabris: Sustainability Manager, UCLA Housing and Hospitality
- Al Ferrone: Senior Director, Food and Beverage for Housing and Hospitality
- Claire Hambrick: Project Leader, Berkeley Student Farms
- Shahla Rahimzadeh: Academic Counselor, UCLA Food Studies Undergraduate Minor
- James Bassett: Lecturer, UCLA Institute of Environment & Sustainability
- Mark Biedlingmaier: Special Projects Coordinator, Semel Healthy Campus Initiative Center at UCLA
- Ashley Lee: Garden Coordinator, Semel Healthy Campus Initiative Center at UCLA
- Deborah Thirkill: Arboretum Program Coordinator, Arizona State University

Appendix D

ArcGIS Map of Potential Edible Landscape Locations

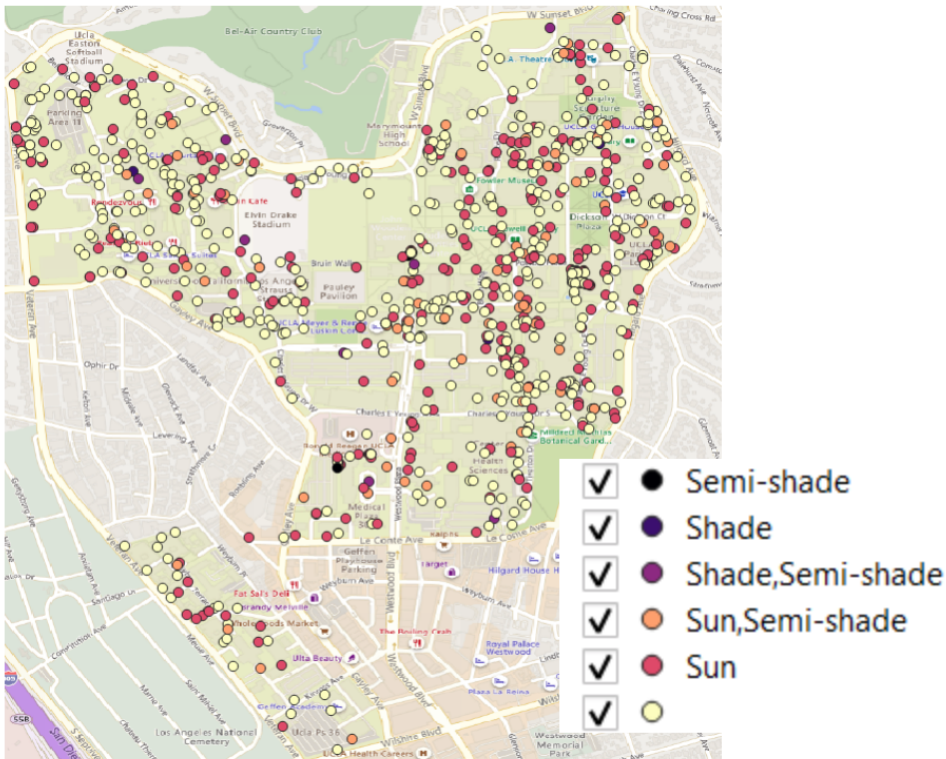
<https://arcg.is/0u1mWL>

Description: This story map shows potential locations for new edible landscapes at UCLA as suggested by students and staff on the two surveys we conducted. The size of each dot is based on the number of students who indicated they were interested in seeing edible landscaping at that location, with the biggest dots representing the highest student interest.

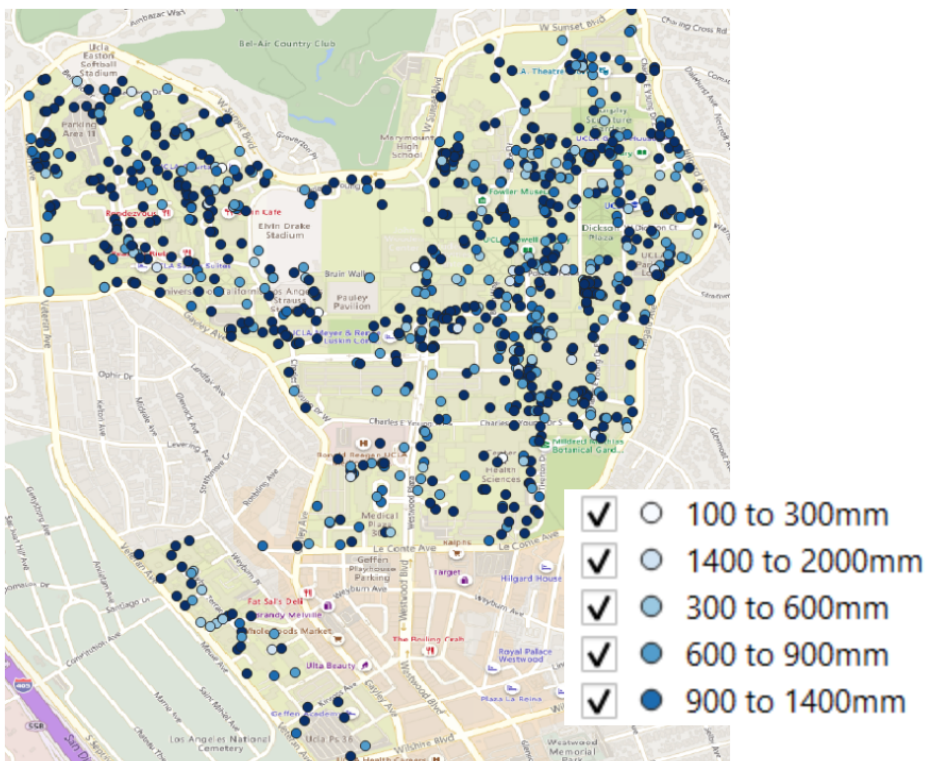
Appendix E

Suitability Analysis Maps

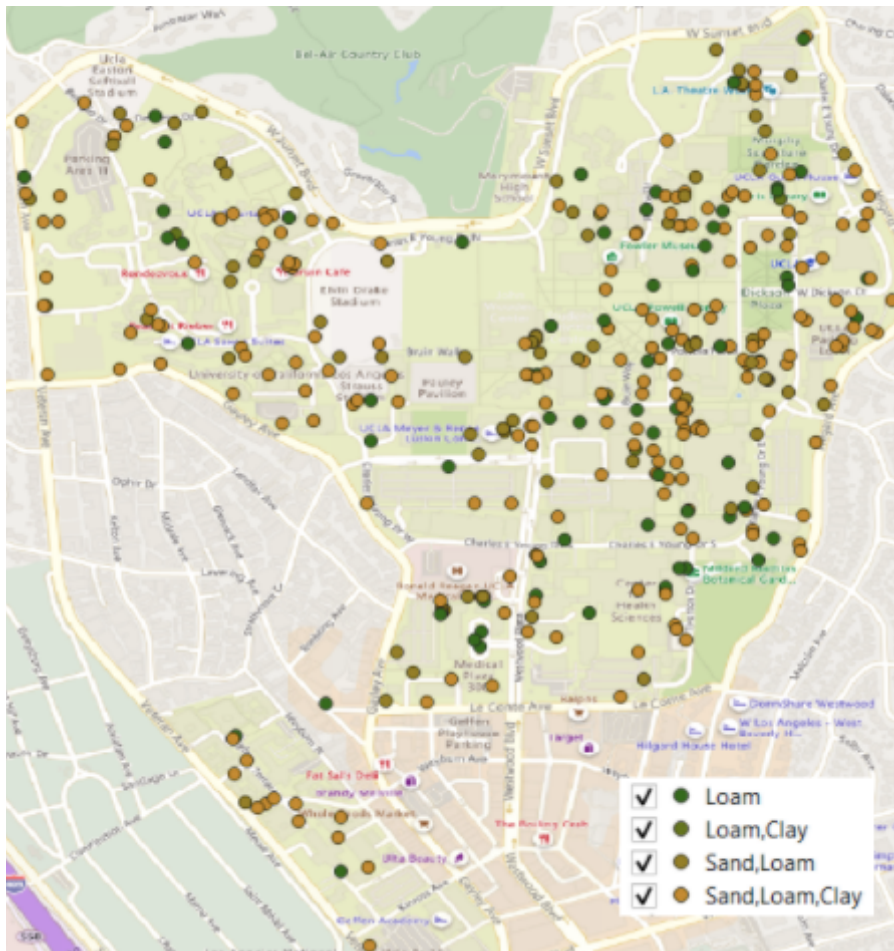
Light Needs of Current Plants



Water Needs of Current Plants



Soil Needs of Current Plants



Appendix F

Questions from Student Survey

1. What is your affiliation with UCLA?
 - a. First-year undergraduate
 - b. Second-year undergraduate
 - c. Third-year undergraduate
 - d. Fourth-year undergraduate
 - e. Fifth, sixth, or higher-year undergraduate
 - f. Graduate student (including professional students)
2. Have you been involved with any of the following environmental organizations, centers, or resources on campus? (select all that apply)
 - a. UCLA Office of Sustainability
 - b. DIG: Campus Garden Coalition
 - c. Environmental Student Network (ESN)
 - d. Environmentalists of Color Collective (ECC)
 - e. E3: Ecology, Economy, Equity
 - f. Ecological Restoration Association (ERA)
 - g. Food Studies Graduate Certificate Program
 - h. The Green Initiative Fund
 - i. Sustainable Action Research (SAR)
 - j. UCLA Institute of the Environment and Sustainability (IOeS)
 - k. Bruin Beekeepers
 - l. Sustainability LA Grand Challenge
 - m. Bruin Home Solutions
 - n. None of the above
 - o. Other: _____
3. Do you know of any existing edible landscapes on campus?
 - a. Yes
 - b. No
 - c. Unsure
4. Have you visited, volunteered, or interacted with any edible landscapes on campus?
 - a. Yes
 - b. No
5. If yes, which edible landscape? (select all that apply)
 - a. Bruin Plate/Sproul Tower Garden
 - b. DIG Student Garden
 - c. jane b semel HCI Community Garden
 - d. Medicinal Herb Garden at Community Health Sciences
 - e. Medicinal Herb Garden at Ronald Reagan UCLA Medical Center
 - f. Other: _____

6. What is your level of interest in seeing more edible landscapes on campus?

1. Very interested
2. Interested
3. Neither interested nor disinterested
4. Disinterested
5. Very disinterested

7. Are there any locations where you would like to see an edible landscape? (select all that apply)

1. Sage Hill
2. Along De Neve Drive on the Hill
3. On the grass fields at the Sunset Canyon Recreation Center
4. Between the Hedrick and Reiber dormitories on the Hill
5. Sunset Village on the Hill
6. Along the road behind Drake Stadium
7. Along Bruinwalk between the Hill and the Bruin Plaza
8. Along Charles E. Young Drive West
9. Along Charles E. Young Drive North
10. The Intramural Playing Field
11. Tongva/Janss Steps grass field
12. Along Bruinwalk between the Bruin Plaza and Powell Library
13. Kerckhoff Patio
14. In the Court of Sciences
15. Court of Science Food Student Center (aka. the Bomb Shelter)
16. Behind Royce Hall
17. Mathias Botanical Garden
18. Murphy Sculpture Garden
19. In front of Bunche Hall
20. Dickson North and South Courts
21. Along the road between Dodd Hall, the Law School, and Murphy Hall
22. None of the above
23. Other: _____



8. What types of plants or landscape elements would you like to see integrated into these edible landscapes? (select all that apply)

1. Fruit or nut trees
2. Berry bushes
3. Garden boxes
4. Herb boxes or spirals
5. Native edible species
6. Green walls
7. Vertical tower gardens
8. Farm
9. Edibles mixed with formal ornamentals
10. Other: _____

9. What would be the best uses for food produced on edible landscapes? Please rank from 1st (most preferred) to 4th (least preferred).

- a. Served in dining halls
- b. Distributed to food-insecure students through the Community Programs Office (CPO) food closet
- c. Reserved for individual garden plot holders
- d. Available for anyone to pick
- e. Other: _____

10. How much time would you be interested in volunteering to maintain an edible landscape?

- a. Two hours or more per week
- b. One hour per week
- c. One hour twice a month
- d. One hour once a month
- e. One hour once a quarter
- f. I would not be interested in volunteering.

11. How interested would you be in getting involved with maintaining an edible landscape if it were a paid position?

- a. Very interested
- b. Interested
- c. Neither interested nor disinterested
- d. Disinterested
- e. Very disinterested

12. Would you be interested in taking a class or becoming involved in a research opportunity with an experiential learning component that involves interacting with an edible landscape?

- a. Very interested
- b. Interested
- c. Neither interested nor disinterested
- d. Disinterested
- e. Very disinterested

13. What do you see as the most important benefit of edible landscapes, if any?

- a. Art
- b. Community
- c. Economics
- d. Environment
- e. Health
- f. Sovereignty
- g. None of the above
- h. Other: _____

14. Are you a part of any organizations that would be interested in maintaining or assisting in the maintenance of an edible landscape?

- a. Yes
- b. No
- c. Unsure

15. If yes, which organization?

Short Answer:_____

16. If you are a part of a BIPOC (Black, Indigenous, People of Color) community or organization, how likely would you be to get involved with maintaining an edible landscape dedicated to your community (e.g. a garden space reserved for Indigenous students)?

- a. Very likely
- b. Likely
- c. Neither likely nor unlikely
- d. Unlikely
- e. Very unlikely

f. I am not part of a BIPOC community, or I would prefer not to answer.

17. Please provide your email if you would like to be entered to win a \$10 VISA gift card.

Short Answer:_____

18. Are you interested in potentially being contacted for future opportunities to engage with our project?

- a. Yes
- b. No

19. If yes, please provide your first and last name.

Short Answer:_____

20. Do you have any additional comments you would like to communicate to our team?

Short Answer:_____

Appendix G

Questions from Staff and Faculty Survey

1. What is your position at UCLA?
Short Answer: _____
2. What UCLA department(s) are you affiliated with?
Short Answer: _____
3. Are you involved with any of the following organizations, centers, or resources on campus? (select all that apply)
 - a. UCLA Office of Sustainability
 - b. UCLA Institute of the Environment and Sustainability (IOeS)
 - c. UCLA Food Studies Minor
 - d. UCLA Geography Department
 - e. Ecology and Evolutionary Biology Department
 - f. Fielding School of Public Health
 - g. Luskin School of Public Affairs
 - h. Emmett Institute on Climate Change & the Environment (UCLA Law)
 - i. Geffen School of Medicine
 - j. UCLA Landscape and Grounds
 - k. UCLA Basic Needs
 - l. Community Programs Office (CPO)
 - m. Semel Healthy Campus Initiative (HCI)
 - n. The Green Initiative Fund (TGIF)
 - o. None of the above
 - p. Other: _____
4. Do you know of any existing edible landscapes on campus?
 - a. Yes
 - b. No
 - c. Unsure
5. Have you been involved with any edible landscapes on campus?
 - a. Yes
 - b. No
6. If yes, which edible landscape?
 - a. Bruin Plate/Sproul Tower Garden
 - b. DIG Student Garden
 - c. jane b semel HCI Community Garden
 - d. Medicinal Herb Garden at Community Health Sciences
 - e. Medicinal Herb Garden at Ronald Reagan UCLA Medical Center
 - f. Other: _____

7. How much time would you be interested in committing to the maintenance of an edible landscape?

- a. Two hours or more per week
- b. One hour per week
- c. One hour twice a month
- d. One hour once a month
- e. One hour once a quarter
- f. I would not be interested in contributing to the maintenance of an edible landscape

8. What is your level of interest in seeing more edible landscapes on campus?

- a. Very interested
- b. Interested
- c. Somewhat
- d. Disinterested
- e. Very Disinterested

9. Would you be interested in teaching a class or leading a student research opportunity with an experiential learning component that involves interacting with an edible landscape?

- a. Very Interested
- b. Interested
- c. Somewhat Interested
- d. Disinterested
- e. Very Disinterested
- f. This is not applicable to me.

10. Would you be interested in acting as additional support for students or student groups in the maintenance of an edible landscape?

- a. Very Interested
- b. Interested
- c. Somewhat Interested
- d. Disinterested
- e. Very Disinterested

11. Are there any locations where you would like to see an edible landscape? (select all that apply)

- a. Sage Hill
- b. Along De Neve Drive on the Hill
- c. On the grass fields at the Sunset Canyon Recreation Center
- d. Between the Hedrick and Reiber dormitories on the Hill
- e. Sunset Village on the Hill
- f. Along the road behind Drake Stadium
- g. Along Bruinwalk between the Hill and the Bruin Plaza
- h. Along Charles E. Young Drive West
- i. Along Charles E. Young Drive North
- j. The Intramural Playing Field
- k. Tongva/Janss Steps grass field
- l. Along Bruinwalk between the Bruin Plaza and Powell Library
- m. Kerckhoff Patio
- n. In the Court of Sciences
- o. Court of Science Food Student Center (aka. the Bomb Shelter)
- p. Behind Royce Hall
- q. Mathias Botanical Garden
- r. Murphy Sculpture Garden
- s. In front of Bunche Hall
- t. Dickson North and South Courts
- u. Along the road between Dodd Hall, the Law School, and Murphy Hall
- v. None of the above
- w. Other: _____



12. What types of plants/landscapes would you like to see grown on these edible landscapes? (select all that apply.)

- a. Fruit trees
- b. Garden boxes
- c. Herb boxes
- d. Native edible species
- e. Green walls
- f. Vertical tower gardens
- g. Farm
- h. Other: _____

13. If there are any specific plants that you like to see integrated into these edible landscapes, please list them below.

14. If applicable, please describe how you would like to interact with an edible landscape.

15. What would be the best uses for food produced on edible landscapes? Please rank from 1st (most preferred) to 4th (least preferred).

- a. Served in dining halls
- b. Distributed to food-insecure students through the Community Programs Office (CPO) food closet
- c. Reserved for individual garden plot holders
- d. Available for anyone to pick
- e. Other: _____

16. What do you see as a benefit of edible landscapes, if any? (select all that apply)

- a. Art
- b. Community
- c. Economics
- d. Environment
- e. Health
- f. None of the above
- g. Other: _____

17. Would your campus facility, organization, or department be interested in helping support the maintenance of an edible landscape?

- a. Yes
- b. No
- c. Unsure

18. If yes, please specify below

Short Answer: _____

19. Are you interested in potentially being contacted for future opportunities to engage with our project?

- a. Yes
- b. No

20. If yes, please provide your full name with your email below.

Short Answer: _____

21. Do you have any additional comments you would like to communicate to our team?

Short Answer: _____