

# Development of the Nature Co-Lab: Sustainable Design for Mixed Use Purposes

Team Leaders Nicole Pepper, Ricardo Patlan

Team Members

Abir Hossain, Alison Chi, James Javelosa, Brooke Shimasaki, Cali Ngyuen

Stakeholder Cully Nordby





## About Us

The Nature Co-Lab team is composed of seven undergraduate students at the University of California, Los Angeles (UCLA) eager to make a sustainable difference on campus. There are two team leaders, five members, and one stakeholder. The team leaders, Nicole Pepper and

Ricardo Patlan, were charged with guiding the team's efforts in a positive and productive direction, while blending the diverse ideas of the group into one cohesive mission. Additionally, the leaders were the primary liaison between the team and the stakeholder.

The stakeholder brought the institutional and professional knowledge base to the team. Without this knowledge and guidance, the team simply would not have had the capacity to effectively carry out our goals.

The team members are the soul of the



team. Their focus is the research that drives the project forward. Their hard work is what made this all possible.

## Motivation

Our team developed a plan to transform a lot adjacent to the Sage Hill nature area into a mixed-use space that would promote student wellbeing and student research while showcasing the area's native California habitat. This lot was historically used by UCLA Facilities Management and UCLA housing as a staging ground for construction and development projects near the on-campus residential halls. Currently, UCLA housing is in the process of finalizing its use of the space and has expressed interest in portioning it out for other uses. Our team created this plan as a comprehensive guideline for transforming that space, the Boneyard, into a sustainable mixed-use area.

The Sage Hill nature area, in its current state, is underserved and underutilized. As the only native habitat south of Sunset Boulevard in West Los Angeles, this area stands as a home for urban ecology and, being so, it should be recognized for its biological significance. Even though, for years, hundreds of students and faculty have worked together to restore and research



throughout this last remaining native patch, the reality is that most UCLA students do not even know that the Sage Hill nature area exists. Our team believes that if a mixed-use space was developed in the lot adjacent to the Sage Hill, it would increase the use of the nature area without compromising the integrity of its native habitat.

The Boneyard is wide, concrete-paved area with dismantled chain-link fencings scattered about. This open space poses as a great opportunity for redevelopment as it is relatively flat and easily accessible. Though the space has rarely been used in recent years, UCLA housing is planning a new nearby housing development. It is likely that this development project would make use of the site in the near future up and through 2019. Looking forward, our plan would initiate after the completion of this housing project.

As per UCLA administrative policy 880, in order to designate this space for future development it would have to undergo a review process. Space allocation is determined by the Chancellor and may be reallocated as necessary. The determination by the chancellor is "based on programmatic need and academic needs" (UCLA, 2008) This duty has been delegated to subsequent Executive Vice Chancellor & Provosts. As such, each space is assigned a specific "Campus Officer" who is in charge of the execution of an area for its intended purpose (UCLA, 2008). In order to change the intended purpose of a space requires process that includes:

- 1. A space request for review that has
  - a. Justification in terms of goals, objectives, or new program plans;
  - b. Description of space requirements (number of rooms and square feet);
  - c. Description of usage (e.g., instructional, office);
  - d. Evaluation of alternatives for space explored within requestor's area;
  - e. Impact on programs or activities of inability to obtain additional space
- 2. An analysis by respective Campus Officer
- 3. Decision by Executive Vice Chancellor Provost

The goal of the Nature CoLab report is to provide data and sufficient evidence to support allocating the "Boneyard" as a mixed-use space as a site that supports research, educational, and recreational areas. Currently the jurisdiction over the space is ambiguous - as there have been no official Campus Officer instated to oversee management of the site. This was the reason the Chancellor's Advisory Task Force on Sage Hill was formed: to develop a space request that would formalize the site. It is co-chaired by Associate Director Institute of the Environment and Sustainability <u>Cully Nordby</u> and Vice chancellor and Chief Financial Officer <u>Steve Olson</u>.



## Methodology

At the beginning of our project we knew that the ideas we had brainstormed through the initial first few weeks would require us to perform tasks that would have to be divided logically and equally between the two quarters we had to work with. We decided that during the first quarter of our project we would assess the site, gather suggestions from organizations who are interested in using space, and develop a survey for on-campus entities to produce some results. We would then use the Spring quarter to present our on-campus survey to a sizeable and varied population of current UCLA affiliates to get a sense of the features people want to see at the Nature CoLab. Additionally, we'd use Spring quarter to carry out our best practices assessment. This assessment aimed to draw inspiration and guidance from other universities that had similar mixed-use spaces. The criteria for these locations included the following: (preferably) located in California, adjacent to and operated by the university, and accessible by students. With a timeline of the events that would transpire and the deadlines we had to meet for our project, we were set to carry out our ambitions.

To begin, we first conducted several different visual assessments of the site. We first conducted assessments on our own and then, on later trips to the site, we invited Cully Nordby, Cody Chappel, a wildlife restoration manager from TreePeople, and our fellow SAR teams. After our visual assessment of the site, all of us could agree that we wanted to see some physical changes take place at the site. However, we realized very quickly that the developments we wanted to see at the space would not be implemented within the two short quarters we had to work with. This is why we shifted our focus to bringing our vision for the Nature Co-Lab to life through a comprehensive report on the site, complete with a visual rendering. We were able to accomplish this goal and produce this report based on responses which came from our on-campus surveys and best practices assessment.

For our on-campus survey we conducted key informant interviews to inform our questions for the campus-wide vision survey. See **Appendix A** for a complete list of the key informant questions. This primary interviews were used to guide our questions for our on-campus survey. We then came up with questions as a team and provided the list of questions to our stakeholder, Cully Nordby, for advice on how to improve them. Cully and Carl Maida both approved our draft of the survey and offered us further insight on the types of questions we should ask, and based on their suggestions we were able to come up with our survey. Still, we wanted a better idea of the suggestions people had for the space so we first conducted primary interviews with professors from various departments and representatives from UCLA organizations such as the UCLA Mindful Awareness Research Center and the Krieger Daycare Center. Based on these responses, we developed a comprehensive survey which was presented to



UCLA affiliates ranging from freshman to graduating seniors. We were able to present and get people to participate in taking our survey during the Earth Day Fair and on separate occasions when we broke up into pairs and used a kind of "cold-calling" method by approaching students on both North Campus and South Campus to get a good range of students from different academic backgrounds. See **Appendix B** for a complete list of the on-campus survey questions.

For our best practices assessment, we conducted online research on 15 different universities and completed five one-on-one interviews from those selected sites. We spoke with officials ranging from site directors to site managers to gain insight on site physical and biological characteristics, access and infrastructure, management and history, and specifics about education, research, and outreach. We were able to see recurring themes about features present across the sites, and from this we were able to incorporate features into our own design for the Nature CoLab plan. See **Appendix C** for a complete list of the best practices assessment questions. The details regarding our on-campus surveys and best practices assessments will be provided in the results section.

### On Campus results

For the on-campus portion of this research project, we split this into two sections. The first portion included conducting key informant interviews with UCLA faculty and staff that have worked with Sage Hill in the past or those who have expressed interest in using the mixed-use space in the future. The second portion involved a campus-wide survey that allowed us to gauge how students, faculty, staff, and UCLA personnel would want to see Sage Hill and the Boneyard utilized in the near future and what types of amenities would be necessary to support such.

For the first section, we were able to reach out to professors in two different departments at UCLA: Dr. Gillespie, Geography Professor and Professor Bob Bilder from the Psychology Department at the Semel Institute. Dr. Gillespie has been working with Sage Hill for years he supports student volunteers to help clean the area and participate in restoration projects. He is often the go-to advisor for a majority of student projects related to the area. Dr. Gillespie would like to ensure that the area is preserved and showcases its significant biodiverse habitat, and also believes in the importance in teaching the community about native California habitats. Dr. Gillespie also believes that having a student volunteer and/or paid student position to help oversee the area would be ideal, similar to a park ranger. While Professor Gillespie focuses on keeping the integrity of the Sage Hill as a vital biodiverse land, Professor Bilder envisions a collaboration between the Healthy Campus Initiative (HCI) and Sage Hill/Boneyard as a place



for students, faculty, staff, and UCLA personnel to go for a break from daily life. He believes that the Boneyard has great potential to become something integrative but feels that it is currently ignored and underused. Professor Bilder does believe that keeping the integrity of the space in respects to preserving the ecology of the area is important and comes first, but more can be done to make the space multi-purpose. Additionally, he believes that accessibility is also an important factor consider when designing the space. It should be a space that is easily accessible for people to navigate but also doesn't change the natural landscape of the area too much. Having these two professors from different backgrounds and studies helped us understand the ability to make Sage Hill and the Boneyard into a collaborative space.

Additionally, we were able to reach out to Morgan Barnes, an undergraduate student who is co-president of the Environmental Student Network at UCLA, and a team from Residential Life: Josh O'Connor, Jared Meyer, and Brian MacDonald. From Morgan Barnes, we were able to gather some information about what kind of amenities she believes would help create a collaborative and effective space for students to gather. To build a productive space, the Boneyard should accommodate items such as tables and seating areas, compost toilets, interpretative signage, and more. However, if a space were to be designed to increase traffic, it was stressed that it would be important to make sure that there are regulations for trash and keeping the area clean. On the UCLA Housing end, they initially have supported this endeavor to turn the Boneyard into a more inclusive space that can cater to student interests and well being. Luckily, UCLA housing and the CoLab team appear to be on the same page about the concrete pavement in the Boneyard: it should be removed. During a meeting in May, 2018, representatives from Capital Programs and UCLA housing discussed the potential of them providing the funding to remove the gravel and replace it with a more permeable alternative. UCLA Housing is moving has some specific parameters for the redesign of the space, which include a reinforced landscape barrier. More specifically, they explained that they plan on introducing more large trees as a barrier along the Veteran Avenue street side of the lot. During our meeting they also requested that the mixed-use space include an area for a greenhouse that would be dedicated for UCLA Housing projects.

For the second part of our on-campus research, we completed campus-wide outreach to students, faculty, staff, and personnel to gauge their familiarity with Sage Hill and the Boneyard, and also to see what kind of facilities or amenities they would find agreeable. We received over 220 responses to our survey - a majority of undergraduate students with backgrounds in various majors participated. While 40% of the respondents had not heard of or visited Sage Hill, 75% of them believed that it is important for UCLA to have a natural space on campus that supports California native ecosystems. Additionally, our respondents would like the space to include an outdoor classroom and education facility, a meeting and study place for students, and an open space to practice meditation. For the complete results and figures, see **Appendix D**.

## Best Practices Sub Report

We compiled the results from our best practices assessment into a subreport. The goal of this subreport is to provide an informed guideline and reference sheet that addresses management practices for similar university mixed-use spaces.

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#### Name: Arboretum

#### University: California State Fullerton, California

The California State Fullerton Arboretum provides an educational and recreational opportunity to interact with nature, open daily 8:00 to 4:30. This includes setting aside 26 acres of campus land for a multitude of vegetation types based on climate: mediterranean, desert, and woodland all contains over 4000 species of plants. 25 plots of land are dedicated to gardening which are leased yearly. The arboretum holds many educational facilities including classrooms, pavilion, and museum. Staff, volunteers, and students all help to upkeep the facilities and protect its natural state. For education purposes the site is used mainly for plant research, hydrology, art instruction, geology. For recreational uses specific spaces can be rented out for events like weddings or just passive visiting. It is managed by a director and affiliate staff, overseen by a board consisting of officials chosen by the city or the university. Majority of funding comes from associated non-profit Friends of Fullerton Arboretum which was established in 1972 - the same year land was set aside for the arboretum.

#### Name: Arboretum

#### University: University of California Davis, California

The UC Davis Arboretum is an 100-acre plot of land that hosts over 22,000 trees and plants adapted to the Mediterranean climate. The Arboretum is open 24 hours, every day of the year. This area was first established in 1936 and has been financially supported by the *Friend of UC Davis Arboretum and Public Garden* with support from over 1700 donors and over 200 volunteers. On top of volunteers, the Arboretum also has student interns to help maintain the beautiful space. To give back to the community, the Arboretum hosts a variety of activities such as guided tours, family nature programs, educational talks by artists, scholars, and scientists, as well as hosting classes and workshops. Because the Arboretum is located in the south side of the University, near the banks of the north channel of the Putah Creek, there are many academic courses that utilize the space for education and research. On top of that, UC Davis has a program called GATEways Projects (Garden, Arts, and The Environment), which focuses on connecting

undergraduates to the Arboretum, encouraging undergraduates to explore community engagement in developing programs to help the Arboretum better serve the community.

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### Name: Arboretum University: University of California Irvine, California

The UC Irvine Arboretum is a relatively flat 12.5 acre botanical garden with plants and communities from the California Floristic Province as well as a few South African species. There are 11 special collections with an emphasis on plant communities native to the Irvine area.

The Arboretum is 1.2 miles from the main UCI campus and 1.9 miles away from the campus housing. Due to a new partnership with the Ayala School of Biological Sciences, the arboretum is closed to unscheduled public visitation. However, the Arboretum organizes a quarterly open house event that via tours of the arboretums that showcase the research sites to the community. The Arboretum is available for undergraduate students, graduate students, faculty, and postdoctoral scholars to conduct research projects and it is the only site on the UCI campus where "common garden" experiments can be conducted. The botanical garden emphasizes conservation of rare and endangered species by growing various threatened species for genetic conservation. The Arboretum also is in the process of re-introducing the threatened and rare species into natural habitats. The Arboretum is managed by the School of Biological Sciences. The two main positions within the Arboretum include a director and a nursery manager.

### Name: Florida International University Nature Reserve University: Florida International University, Florida

The Florida International University Nature Reserve is an 11-acre environmental education facility open dusk until dawn. The primary purpose of the Nature Preserve is to serve as an outdoor classroom. Started in 1978, a local professor believed that if the land was kept untouched in would transform into a thriving ecosystem. FIU classes, as well as other groups now experience the Florida Everglades Ecosystem through 25 courses from 9 different departments. Three distinct sub-ecosystems provide habitat for 13 endangered plants, 15 threatened plants, and the other 238 plants and animals. Notably the site has gained recognition as a Wildlife Habitat by the National Wildlife Federation in 1987, and Butterfly Habitat by the North American Butterfly Association in 2011. The site expanded in 2013 to develop jogging/hiking trails, outdoor exercise equipment, and recreational facilities which now host environmental education workshops, concerts, yoga and martial arts classes and 5k runs. It is managed by a graduate student director who answers to the university's Environmental Preserve Committee.



### Name: Heritage Creek Nature Preserve University: California State Dominguez Hills, California

The Heritage Creek Nature Preserve is a remnant of the Old Nature Preserve at California State Dominguez Hills. The now 1 acre reserve, was once a 20 acre plot with native sage, grasses, and wildflowers. In 1974 the Old Nature Preserve was first designated at the university, but in 2005 it was converted into a university parking lot in agreement that they would leave a 1 acre plot for the reserve to use as a bioswale. Before the plot was completely stripped of the native plants, a group of students and professors collected and harvested seeds from the native plants to reintroduce. Since the parking lots construction they have worked to restore the bioswale into a functioning native habitat.

### Name: Leaning Pine Arboretum University: California Polytechnic State University San Luis Obispo, California

The Cal Poly SLO Leaning Pine Arboretum is five-acre land that is divided up into 5 different Mediterranean zones: California, Chile, Australia, South Africa, and of course, the Mediterranean. The vegetation in the California zone is native and vegetation in other zones are suited for California's climate. The hilly arboretum is located right on campus but it's open to the public, Monday through Saturday except on school holidays. Hours of operations are from 8am-5pm. Admission is free and visitors are able to use the lawn space, barbecue pit, and gazebo for special events. There is also plenty of benches and sitting areas for relaxation. In order to maintain the Arboretum, the Leaning Pine Arboretum has a Students Assistant Program, in which they can hire students to keep maintenance of the entire garden and work in groups on different projects. Because of this program, the Arboretum receives no funding from the State of California. The Leaning Pine Arboretum is under the Horticulture and Crop Science Department.

### Name: Oakland Nature Preserve University: Oakland, Florida

The Oakland Nature Preserve is a 128 acre preserve located in Oakland, Florida. The Nature Preserve was established as a nonprofit in 1997 and strives to educate the community while restoring and conserving the land. The Preserve includes 48 acres of upland and 80 acres of forested wetland with six unpaved trails, a wheelchair accessible boardwalk to Lake Apopka, a classroom-size pavilion, and a visitor center with exhibits, a library, a museum, and a porch. The preserve includes vegetation and wildlife native to the Upland/Wetland Systems in Florida. There are areas of high, thick forest vegetation as well as dense, low wetland vegetation. The preserve and trails are open all year with no entrance fee and no daily hours. The visitor center is



open from 9am to 4pm. The Oakland Nature Preserve focuses on restoration via controlled burns, planting of natives, and removal of non native species. Community involvement is strongly emphasized and over one thousand of volunteer hours each year are put toward restoration projects.

The space is most notably used to educate the community about the preserve's ecosystem. There are interpretive signs throughout the preserve, identifying plant and animal species along with the history of the land. Additionally, the visitor center has various resources including a museum, live marine life exhibit, classrooms, restrooms, drinking water, a library, and a serenity porch. Various events are also hosted on site, including paddle tours, guided hikes, birdwatching, insect safaris, and tai chi classes. These visitor programs are \$5 for non members but there are various levels of memberships that can be purchased. The space does not have any partnerships with universities but there are various outreach programs offered. One is the After School Science Club, where 1<sup>st</sup> through 8<sup>th</sup> graders learn about nature, wildlife, insects, plants, and ecosystems while hiking and crafting. The Junior Naturalist Program is a 6 week program, where a group of 10 students meet for two hours per week to earn badges based on classes, projects, and activates. A certificate and final badge is received after completing all six modules.

The Oakland Nature Preserve has various partners including the Florida Committee Trust, St. Johnson River Management District, and the Town of Oakland. Upkeep of the preserve comes from over twenty different families, organizations, and businesses including Verizon, Chipotle, Lowe's, Orange County, Friends of Lake Apopka, the Central Florida Foundation, and the Walt Disney Foundation. Memberships to the preserve are also available, ranging from individual, family, patron, and corporate which all pay varying amounts. The Challenge Match Grant also raises money for the preserve, pledging to match donations up to \$15,000. Night at the Preserve is another even used to raise funds, costing \$500 per person for hors d'oeuvres, desserts, wine and beer, raffle prizes, and live music. Additionally the Gopher Tortoise Run raises money that will be put toward educational programs.

The park is managed by a volunteer board as well as a small staff. There are 16 community members on the Oakland nature Preserve Board holding positions including fundraising committee chair, secretary, treasurer, and environmental scientist. There is a small staff with six head members holding the following positions: managing director, education and program coordinator, wildlife and volunteer coordinator, grand and fundraising coordinator, accountant, after school science club coordinator.

Name: Voorhis Ecological Reserve University: California Polytechnic State University Pomona, California



The Voorhis Ecological Reserve at California Polytechnic University in Pomona, California is the largest remaining undeveloped region in the area. The reserve contains a 100 acre nature reserve on a hill in the outskirts of the university's Northwest corner. The reserve hosts a native California ecosystem and notes the presence of coastal sage scrub and oak woodland across its landscape. The site itself is recognized by the university and the LA County and Department of Fish & Game as a significant ecological area. In 1983 the nature area was first designated and over time has actually increased in size.

The topography of the Voorhis reserve is mixed, but is dominantly sloped on the side of a hill. The hill increases above the reserve and is described as extremely steep and unstable, but this area is out of access to students and visitors. This reserve has an animal biodiversity assessment that counted 4 amphibian species, 12 reptiles, 100 birds, 38 mammals, 167 vascular plants, and an unnumbered assortment of insects.

This site is open to anyone that has access to the university. This site is between a 10-15 minute walk from the main campus and a 5-10 minute walk from the on-campus housing. The reserve itself is extremely undeveloped and left, largely, unmanaged. "We have no signs or no infrastructure to be honest", says the current Chair. The area does not have any fencing and has no regulated or enforced access hours. Introducing structure to the area, she says has both pros and cons. A pro being that, when people visit it is important for people to understand and respect the rules of use. But, introducing infrastructure also introduces a challenge of having to more officially manage the space. The Voorhis reserve does not have any ADA compliant access, but there is an unofficial road that has the potential to provide ADA access for viewing the area.

For general visitors there are no official rules of use that are enforced for the area. For researchers though, to use the area for a project they must submit a research-use request to the chair for approval by the reserve's committee. There have been a few events held at the reserve. One includes an annual event for the Coastal Sage Scrub Monitoring Program is a cooperative research group that goes to different areas around California to monitor how such patches change over time. There are no waste bins or bathrooms, so everything there is a suggested "pack it in, pack it out" rule. They do sometimes have issues with trash and have had a few issues with dumping of large trash items including mattresses. The Department of Fish and Wildlife has also had a few visits the the reserve for various ecological studies.

There is a Faculty Committee (all composed of professors in the Bio department) that manages the reserve. The committee has a Chair (volunteer position) that directly manages requests and issues in the area. Research requests get sent to the Chair and she shares them with the committee for approval. The area is essentially left natural and unmanaged, but there are many controlled invasive species removal days mostly headed by the chair and students. Students are the ones who spend the most time in the reserve, so they usually self regulate and let the chair know if there is something that solities their attention. There is no budget designated specifically for the reserve or the committee but the current Chair included that "if they wanted



more money they could probably get more organized." She also included that the Biology department has also provided small funding for past projects. The funding for most projects on the reserve come from the funding that the researchers themselves get. The reserve has a boundary that is recognized by the university. The university usually respects its boundaries but in recent history there was a case where facilities installed a water pump that got into boundaries.

The primary programming that occurs on the reserve is for research purposes. Every year students from the Biology, Geology, Engineering, Landscape Architecture, and Environment departments visit this sight. A class goes out to visit the sight about every other week throughout the year. The Introduction to Biology class, which a large portion of the student body is required to take, visits the reserve for field work bringing over 500 students to the Voorhis Reserve annually. Their website "The biodiversity of campus provides a natural laboratory for teaching and research. A number of Master's theses have been based on studies of the Voorhis Ecological Reserve and other undeveloped areas, and a number of courses in several departments routinely use the areas."Every year the reserve has between 5-10 graduate working on research projects within the reserve. A few years back a graduate student got a weather station installed and another began a project identifying plant phenology within the reserve.

One of the biggest challenges that this site has been weighing is trying to establish a line to for management practices. They fear that more management will bring more people which will bring more issues and hence introduce the need for more stringent management practices that they may not have the resources for. But, at the same time without management, many students and visitors do not give treat the area with the complete respect that it deserves. The current chair explained that what she is the most proud about at the Voorhis reserve is the number of students that work on it and how invested they are in managing the site.

### Name: Westside Nature Preserve University: West Connecticut State University

The WCSU Westside Nature Preserve is a relatively flat plus hilly woodland and wetland of 33 acres. According to founder, now ex-director, native plants is the majority species of the area at approximately 60 percent. While the non-native plant species consisted of only 40 percent of the area.

According to the area's website, "the primary purpose of the WNP is to set aside a portion of the locally diverse fauna and flora for future generations. Subsidiary purposes are to provide an outdoor laboratory for studies of the environment and to be an educational resource for the University community and the larger community in which the University resides.". The area has benches and an amphitheater as well as signs, brochures, and bulletin boards. Also has an online website that lists the plants and map.



The area is close to the university, about 1.2 miles from WCSU-westside campus. The area along the main road, but visitors soon must take an off-road path to get to the main area. The off-road path has guardrails leading up to a hill that has a sign, kosiak, and a brochure box at the entrance of WNP (Westside Nature Preserve) and its two rails. The area is open to the public and is always open at any time of day. The area is not ADA compliance as stated in an email by the founder:

*"WNP is not ADA compliant; with current economic condition of the state of CT, it is not likely to become so in the near future."* 

The rules and policies are stated on signs, kiosk, and brochures: No smoking, littler, weapons, open fires, and destructive and invasive species. The area was founded in 1993 and is currently funded by endowments and "Friends of WNP" groups. The founder was able to to provide the contact information of the current founder and they were accepted to be interviewed via email. Below is the response when asked about how the area is funded, how the area is generally maintained, and if they can confirm the positions they and the founder were in:

#### Fundings:

"Dr Dye mentioned to you that we have an account with the University — Friends of the WNP — that people can donate to for maintenance. There's at least \$5000 in there when I last looked. There are few expenses over the year, mostly involved with purchases of materials to repair boardwalks and railings. Over the years, tools (loppers, clippers, rakes) have been purchased for volunteers to use in trail maintenance." - Current Director

#### Maintenance:

"The WNP is maintained in several ways. We have student and faculty volunteers go out several times a year to do trail maintenance and repair boardwalks. For major repairs, such as re-welding broken metal handrails on steep sections of trail or to saw down damaged trees, we ask the University landscaping crew to assist. The crew also now any lawn areas bordering the WNP" -Current Director

#### How are directors appointed and confirmation:

"The WNP has a director; so far, it's been professors volunteering from the Dept of Biology. Being an ecologist has not been a prerequisite to the position (Dr Dye is a cell biologist. My immediate predecessor, Dr Wagener, is an ecologist, but I am a molecular biologist!) All we share is a passion for the outdoors and a commitment to see the WNP preserved. There is a committee of three additional faculty that work with the director to oversee the WNP" - Current Director Lastly both the founder and current director were asked about what challenges did they faced with the area. Both provided different perspectives and encountered different challenges.

VATURE CO LAB

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### Founder

"No real challenges, but the mid-90s was a time when the State of CT was in good financial shape- like so many things in life someone has to decide to pick up and run with the ball. I attended several meetings with the president's cabinet and gave slide (pre-PP) illustrated presentations."

### Current Director

"Construction in areas adjacent or upstream of the WNP have had consequences. When the University did some new construction several years ago, runoff added a lot of silt to the stream running through the WNP. Small fish species that I used to see have now mostly disappeared. Then a road was built adjacent to the Preserve, which necessitated destroying some of the rock walls that have extended in the Preserve for about 150 years.

Another challenge are ATVs (all-terrain vehicles). These tear up the trails and break the boardwalks.

Finally, vandals. We've placed benches at a few strategic spots so hikers can sit back and enjoy the ambience. These benches are anchored to concrete foots. Graffiti is a problem. And then, just last month, we found a bench thrown into the stream. Someone worked very hard to wrench that bench off it's footings!"

### Name: UCR Botanical Garden University: University of California Riverside

The UCR Botanical Garden is 40 acres of botanical gardens containing more than 3,500 plant species from around the world. According to a phone interview with the site's courier, the area has more non-natives than native plants. The site is about a mile away from the main campus, located in the eastern foothills of the Box Springs Mountain. The topography of the area is hilly with multiple different Themed and Horticultural Collections and Geographical Collections of plant species including some international ones. The garden was established for teaching purposes with many courses that utilizes the gardens' vast collection of plant species from around the world for research and projects.

The area is open daily, 8:00 am to 5:00 pm to the public, except for major holidays, special events, and during UCR campus closure. Gates and fences are placed around the area to enforce the hours. The courier mentioned that the site has patrols and walkie-talkies to call when someone trespass or when there is an emergency. When questioned about the site's ADA compliance, they mentioned that



"We are not ADA compliant. The site had established some, but we cannot claim to be compliance. The hilly topography of the area is an ADA obstacle. However, the maps around the area shows road type: dirt, gravel, and stone for those that need it."

The area has general rules and policies that are listed on brochures and their website. There are also guidelines that visitors must adhere to: stay on designated trails, do not disturb or approach wildlife, do not collect or trim plant material, disturb planting beds, or climb in trees, children under 16 must be accompanied by a parent or responsible adult, and photography in groups of over 6 individuals require advance notification and permits Events are held at the site and are listed in their event calendars. Some examples of events are: planting, fundraising, outreaching, providing tours, and giving some classes about the garden.

The courier explained that the area maintenance is currently: 2 full-time Garden Managers, 2 part-time Garden Managers, 5-6 Student Workers, and has volunteers who help at gardens and at office and events. The biggest expenses would be the employees followed by maintenance. The site has funding from Friend groups, endowments, and donations, however the prices and budget were not discussed. Fundraising events also raise funds for the site.

Finally the courier provided some challenges that the site and management currently has:

"Parking lot rates isn't control by the UCR botanical garden. Not enough parking spaces sometimes; hilly topography makes it hard to navigate, transport, and move around; lack of staff means not enough time to do things, currently employees do overtime often as the school year progresses."

### **Overall Results**

Of the 15 sites that we selected we were able to contact 11 of these sites directly via phone or email. The results from the subreport found that many of the sites had little-to-no officially designated and posted rules. The most common officially designated rules, were similar to those phone on the rest of the campus area including: no open flames, no smoking, no littering, no drugs, no weapons, and no alcohol. Many of the sites experienced similar programming to the current programming at the adjacent Sage Hill area including research and restoration. Other programming that sites had include workshops, seminars, and open recreation (running, yoga, etc.). To manage the area, a majority of the sites relied on volunteer student and faculty chair positions. Some universities even had a paid student position to oversee sight management. A huge portion of the overall maintenance of the area, including habitat restoration and site maintenance depended on student volunteers. To view the complete results see **Appendix E**.



### Rendering

The initial plan for the team was to partner up with a UCLA architecture or urban planning student to design a rendering for the CoLab mixed-use space. Due to time restraints and a general difficulty in getting in direct contact with the architecture department, we were, ultimately, unable to recruit a student to work with. Being so, our team decided to create the rendering ourselves. This rendering is a shared vision for the future mixed-use space, based on the compiled results from our key informant interviews and the on-campus survey. The renderging was created using Sketchup Pro, a 3-dimensional modeling software that is often used for architectural and landscape rendering. The purpose of this rendering is to construct a perceivable and virtually concrete concept for what the Nature CoLab could potentially look like.

The parameters for the model are based off of measurements made on Google Earth, approximately 180 by 70 feet, being so, the numbers are estimates rather than precise calculations. The model includes the features that were most popularly selected in our on-campus surveys; namely:

- 1) Welcome sign: would introduce visitors to the space and would read the rules of use.
- 2) Information booth: this booth would share the story of the Nature CoLab and explain to visitors what kind of programming is held there. It would also share the importance of the adjacent Sage Hill and inform readers about the significance of urban ecology and native California biodiversity. There could be a calendar for monthly programming posted. Here there could be brochures that also include the "about me" information and a calendar for programming.
- 3) **Outdoor classroom** space equipped with work tables, storage space, and transparent walls that double as whiteboards. This space could be used freely by the UCLA community outside of programming hours and will be available for reservation by classes, research groups, student clubs, or other related programs.
  - a) Two functioning **green houses**: the first requested by UCLA housing and the second requested by the Environmental Student Network (ESN) which would be used to procreate native California plants for the adjacent Sage Hill area and other campus landscaping projects. There are two storage sheds to hold tools and materials for each greenhouse separately. In addition, there is a shared compost container at the end of the greenhouses that will be used for organic waste.



- 4) Cleared area: a raised wooden platform will be used as the cleared space for mixed-practices. There has been discussion in partnering up with the UCLA Healthy Campus initiative to host yoga, meditation, and mindfulness programs in this space. There are storage containers adjacent to the platform, which could be used to store ground pillows, yoga mats, or other items of the sort. The simple beauty in the cleared area is that it will be up to interpretation of the group using it. This space would be open for general campus use, outside of any scheduled programming events.
- 5) **Study area:** dispersed throughout the space there are areas that are suited to support studying or relaxing. In the northeast corner there is a concentration of picnic tables that could serve as a particular hub for such practices. Ideally this space will be able to support studying practices, equipt with sustainable energy outlets (looking at the solar powered umbrellas on UCLA's Kerckhoff patio as inspiration)
- 6) **Compost toilet:** this compost toilet is located near the study area. This would be a unique opportunity to introduce the UCLA community to alternative, green, and progressive bathroom option. When you gotta go, you gotta go. And if you go, you should go green!

The CoLab team will be working in collaboration with UCLA housing and capital programs as the design process moves forward. During April, our team met with Capital Programs and housing to discuss future plans. Capital Programs stated that they will fund the removal of the current concrete ground and replace such concrete with decomposed granite; a permeable alternative. Capital Programs also stated that they plan on adding to the landscape barrier between the CoLab space and Veteran Avenue by planting tall trees, including Canary Pines. During the meeting, our team also discussed the potential of Capital Programs funding the removal of an invasive English vine species that has overtaken the CoLab area, while they suggested a possibility, that potential is still up for discussion. During this meeting, Programs expressed that, for the time being, the official entrance to the CoLab with start at the parking lot near the Krieger Child Care Center. This entrance is ideal in that it appears extremely feasible to assemble this entrance as an ADA (Americans with Disabilities Act ) compliant access point. This entrance is less ideal in that it is a considerably out of the way, and inconvenient, access point in regard to the UCLA campus. Being so, it would be ideal for future discussion to focus on the potential of introducing additional entrances that connect with the UCLA Residential Halls or directly with Veteran Avenue. Alternative entrances, such as these, would also deter extended traffic around the Krieger Child Care Center.

The idea of this space is to maximize use without threatening the nearby biodiversity. Being so, we hope that this space will be used conjunctively for personal wellbeing and

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recreation, that will foster a greater connection between the UCLA community and the outdoors, as well as a space that supports and improves the quality of the adjacent Native California habitat of Sage Hill. Though this rendering is not complete, it aims to serve as a visionary model that successfully reflects the campus' shared vision for what the space could potentially be. Below is an overview of the CoLab rendering; to view the full rendering see **Appendix F**.



## Challenges

Throughout the two quarters of research, the team encountered four main challenges:

- Establishing communication with Non-UCLA officials
- Difficulty recruiting architecture student for rendering
- Boundary dispute with UCLA Capital Programs
- Time sensitivity due to changing administrative personnel

One of the central issues that the team had faced was adjusting the project to fit a realistic scope and timeline. The project to develop Sage Hill and the Boneyard into a functioning space would take years. The team had to accept that by the end of the year there would be little to no physical change to the site. In contrast, the approach revolved around creating a strong foundation for future development of Sage Hill by conducting extensive interviews with various



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This brought up the challenge of establishing communication with relevant officials. In general UCLA officials were more accessible compared to off-campus counterparts. Of the fourteen case study sites, data was collected from twelve of them. This was due to difficulties in establishing communication, by either email or phone, from individual sites. The team was able to conduct phone interviews for five of the sites. The remaining sites were either contacted through email or solely research via their online platforms. With more time, it is possible that this outcome could have been avoided. In reflection, the team would have started the off-campus research earlier in the session, during the winter quarter to accommodate for this difficulty.

The second main challenge was creating a rendering of the future Nature Co-Lab. With the help of stakeholder Cully Nordby, the team sent a "wanted" ad to the UCLA Architecture department. This ad included a \$50 gift card to the student store, as an incentive. Unfortunately the team was unable to get a response. Once again, this complication was largely associated with timing conflicts. More specifically, if we had more time to personally go out to the Architecture department for recruiting, this could have been avoided. The team decided to create a rendering themselves using Sketchup Pro (for more information, see section on Rendering).

The third challenge the team faced was introduced late into our project and, unfortunately was not resolved by the end of the program. As the jurisdiction of Sage Hill and the Boneyard was ambiguous, there was an ongoing dispute about the site boundary. UCLA Capital Programs, who holds responsibility for campus infrastructure programs, declared that they would have permission the encroach into the Sage Hill nature area by extending the eastern boundary inward by 30 feet. This request is a response to an increased demand for more student housing near the site. The CoLab team was not included in the decision on the boundary extension, but expressed concern that this encroachment would be a major concern for the ecological well being of this already modest nature area.

Our last challenge that we faced was a timing constraint. Olson -- the Vice Chancellor and Chief Financial Officer and also the Co-Chair of the Chancellor's Adversary Task Force on Sage Hill, was set to retire at the end of the 2018 academic year. Due to this influential position among UCLA Administration, Olson has been a pivotal role in moving the proposal forward. The team hopes to reach out to Olsen with the intention of inspiring him to push this project forward before his departure from his current position.



The future of the Nature Co-Lab space and its longevity is dependent on a good maintenance strategy. The maintenance team that is tasked with this duty, should be created based on the on-campus and off-campus results. The on-campus survey results revealed that many students looked forward to volunteer and/or work in a student position at the area; over half of the responses were supportive of a "Sage Hill Ranger" as a student position as well. Sage Hill Rangers would give tours and classes on the area. Our off-campus report shows that other universities have student employees and interns alongside with faculty positions to oversee the area's daily maintenance, fundraising, events, and programming. Each area also had a faculty chair to be the head of the program and site and it was largely student/faculty volunteers that assisted the areas with restoration, events, and light maintenance.

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The rules at the Nature Co-Lab would follow the general common rules that were seen in all the areas: no littering, smoking, drugs, alcohol, weapons, starting open fires; students and faculty must obtain approval in order to conduct research in the area; and no disruptive/invasive plant and animal species since the native biodiversity of Sage Hill is vulnerable to non-native species. The Nature-Colab team suggests that the sight towards have a daily 8am-5pm schedule and also that the site supplies locks for any important storage bins that will remained locked after hours and when not in use. In addition, similar to Sage Hill, the Nature Co-lab would have a "Leave No Trace" policy to enforce the no littering rule. Rules, features, and maintenance will change over time as the project nears its completion.



## References

F. (n.d.). Fullerton Arboretum. Retrieved from http://fullertonarboretum.org/home.php

Florida International University. (n.d.). FIU - Office of University Sustainability. Retrieved from https://gogreen.fiu.edu/topics/the-nature-preserve/index.html

"Leaning Pine Arboretum." Leaning Pine Arboretum, California Polytechnic State University San Luis Obispo, 4 Jan. 2013, www.leaningpinearboretum.calpoly.edu/.

"The Westside Nature Preserve - Today!" *WCSU - Benefits of Community Service*, www.wcsu.edu/wnp.

"UCR Botanic Gardens." Botanic Gardens: Home, gardens.ucr.edu/gardens/#hc.

University of California: Los Angeles. (2008). UCLA policy 880: assignment and management of campus space. Los Angeles, CA: UCLA.

"Welcome to the UC Davis Arboretum." UC Davis Arboretum, UC Davis, arboretum.ucdavis.edu/default.aspx.



## Appendices

### **Appendix A: Key Informant Questions**

Introduce a map of Sage Hill and the Boneyard (potential mixed use area) What is your experience of Sage Hill and what do you think about the space? From your perspective, if the area were to be developed for more access from the UCLA community what kind of activities or programming would you like to see there?

- a) How large of a group would you anticipate bringing?
- b) What kinds of features would be needed to facilitate this? (ex. Seating, bathrooms, storage)
- c) How frequently do you anticipate using this space?
- d) How does this space fit in with your goals as a \_\_\_\_\_ (professor, student etc,)

What would be the minimum level of improvements in design or management practices that would be necessary to facilitate your ideas?

On the other hand -- What would be your more grandiose or visionary ideas for this space?



e) Point back to Map & Drawing: *have an outline of sage hill + boneyard area and ask them to do a brief sketch if appropriate* 



### **Appendix B: On-Campus Survey Questions**

### 1) What best describes your affiliation with UCLA?

- a) Freshman
- b) Sophomore
- c) Junior
- d) Senior
- e) Graduate Student
- f) Researcher/Post Doc
- g) Faculty
- h) Staff/Administrator
- i) Campus Visitor
- j) Other

### 2) What school or division are you affiliated with?

- a) Arts/Architecture
- b) Humanities
- c) Social Sciences
- d) Life Sciences
- e) Physical Sciences
- f) Engineering
- g) N/A
- h) Other

### 3) What is your experience with Sage Hill?

- a) I have never heard of or visited it
- b) I have heard of it, but have never visited
- c) I have been there between 1 and 3 times for a class or UCLA organization visit
- d) I have been there between 1 and 3 times for personal visits only
- e) I have been there more than 3 times
- f) Other

# 4) On a scale between 1-5, how important is it that UCLA has a natural area on campus that supports native California ecosystems?

- 5) How would you like to see this space be used? (check all answers that apply)
  - a) Outdoor and native habitat education space
  - b) Class Visits
  - c) Space for UCLA Club Activities and Participation
  - d) Outdoor Recreation (ie. wildlife viewing, birdwatching, plant identification)

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- e) Mindfulness Practices (Yoga and Meditation)
- f) Nature Walk (Trail through the nature preserve)
- g) Student and Faculty Research
- h) Nursery and gardening practices
- i) Study Space
- j) To enjoy as a peaceful and natural green space
- k) As a green space with minimal amenities
- 1) I would not like to see any changes to the Sage Hill area
- m) We should leave it undisturbed for native biodiversity
- n) Other

### 6) What features would you like to see introduced to the space?

- a) Minimally marked trail with minimal informative signage
- b) Clearly marked trail with dispersed informative signage
- c) Simple seating (outdoor pads or pillows)
- d) Amphitheatre
- e) Work table space
- f) Picnic table
- g) Compost toilet
- h) Stage/performance space
- i) Cleared space for meditation/yoga practices
- j) None of the above
- k) Other

# 7) If Sage Hill is redesigned as a mixed use space, how often would you anticipate visiting?

- a) Realistically, I probably wouldn't visit this space
- b) Once a quarter
- c) Once a month
- d) Once a week
- e) Everyday

8) Which statement is most aligned with your support for a student group that helps oversee maintenance of this proposed multi-use space

- a) I support it and would love to get involved!
- b) I support it but, likely, would not be interested in joining
- c) No opinion
- d) I don't support the creation of this program
- 9) Would you like to receive more information on this project and ways to get involved with Sage Hill? Leave your email below!



### **Appendix C: Best Practices Guideline Questions**

1) Physical and Biological Characteristics

- Size of preserve/reserve (in acres)
- Main type of habitat, vegetation? Is it low, medium or tall vegetation, mixed? dense or sparse?
- State of preserve: Is it...

intact, primary habitat fully restored restoration in progress just getting started

- Any protected plant or animal species? (local, state or federally listed, or of concern) If so, any special consideration for your management of the area?

- Topography: Flat, sloped, hilly

- Have you done a biodiversity assessment? If so, do you know # of species - plants and animals? (get a digital copy if you can)

### 2) Access and Infrastructure

- Distance to main campus
- Distance to campus housing
- Who has access? Students, staff, faculty, public?
- Borders: any fences, locked gates, or is it always open?
- Hours open, (how is this enforced?)

- Do you have ADA-compliant access? If so, is the entire area ADA accessible? If not, how do you accommodate disabled visitors

- What are rules of use? e.g., no pets, no fires, etc.? How are these enforced?

- Bikes allowed?
- Bathrooms?
- Waste bins?
- Any Lighting? On all night or off?
- Do you host events on site? If so, what type? Do you charge?
- What are your peak visiting hours?

### 3) Management and History

- Year area was designated as a preserve/reserve/site ..?
- How is area managed?

director/manager? staff? how many, titles/duties?



How is it maintained? (student interns, staff, volunteers)

If so, how many? duties?

- Where do you sit administratively? (academic vs administration?) i.e., Who do you report to?

a department chair, a Dean, the president/chancellor?, Campus Facilities ? Other?

- Does the area have any legal protection?

- If you are willing to share, what is your annual budget and where does it come from?

[This can be sensitive info, but would be *incredibly helpful* as we build a case for our space here]

for personnel for maintenance for restoration for infrastructure projects etc.

- Off campus partners? public agencies, NGOs, businesses? How do they engage?

- Donor funded aspects? Endowment? Sponsorships? A "Friends of " group?

- Are you currently trying to raise funds for anything - what for?

4) Education, Research and Outreach

- Education/Academic infrastructure? outdoor seating, outdoor classroom, indoor classroom, nature center, labs (wet or dry)?

- Educational signage? kiosks, bulletin boards, nature trails with stops?

- Do you keep records of use and access?

- Used by classes? How many classes or students/year? (could we get a copy of the list of classes?)

- Used for research? How many projects/year? Any long-term monitoring/projects? Ongoing programming?

- Used for outreach? K-12, NGOs, community groups?

.5) Final thoughts

- What are some of the biggest challenges that you've faced? How did you deal with them?

- What are you are most proud of about your site?



### **Appendix D: On-Campus Survey Results**





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## On a scale between 1 - 5 how important is it that UCLA has a natural area on campus that supports native California ecosystems? (1 being not important, 5 being very important)



#### How would you like to see the CoLab space be used?







# Do you support the creation of a student position as a Sage Hill Ranger?





Count of If Sage Hill is redesigned as a mixed use space, how often would you anticipate visiting:

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		Graduation
Classes		2.9%
20.0%		Guided Tours
		2.9%
		Outdoor Excercise Area
		5.7%
		Outdoor Performance Area
		5.7%
		Vegetable garden
Research		5.7%
14.3%		
		Education Workshops
		14.3%
Native Habitat Restoration		
14.3%		Private Events
		11.4%

Facilities Provided at Different Sites	
Benches/Tables	Barbecue Pit
15 /%	3.8%
13.470	Museum
	3.8%
	Nature Trails
	3.8%
Gazebo/Pavilion	Nursery
11.5%	3.8%
	Portable Trailers
	3.8%
	Multi-function Facility
Bulletin Boards/Signage	7.7%
11.5%	
	Amphitheater
	7.7%
None/Open Space	Classroom (Dry Lab)
11.5%	7.7%

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### Appendix F: Rendering of the Nature Co-Lab







### Appendix G: Sage Hill Ranger Uniform



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