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Emily Kuhn

Agroecology Curriculum Proposal

Pitzer College

In partial fulfillment of the requirement for the combined Environmental
Analysis and Sociology major

Claremont, California, May 2022

Readers: Susan Phillips, Erich Steinman and Martín Vega

Keywords: Keywords: Agroecology, pedagogy, curriculum, food systems, regenerative
agriculture, food sovereignty, food production, community gardens

Abstract

The purpose of this research is to establish the viability of an Agroecology major at Pitzer College. I begin by problematizing Industrial Agriculture and making a case for Pitzer College to become a higher education leader in the global paradigm shift towards socially and ecologically just food systems. The proposed curriculum compiles pre-existing classes, objectives expanded from the EA field group, and an internship component embedded at five local land-based learning partner sites. I conducted a SWOT (strengths, weaknesses, opportunities, and threats) analysis of the Environmental Analysis field group as a potential host for the agroecology track, including study abroad sites where the proposed internship component could also take place. Finally, I analyzed the values and requirements of five agriculture-related curricula at California higher education universities in order to further provide recommendations for augmenting the informal agroecology curriculum already embedded at the Claremont Colleges.

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This work is dedicated to you.

Introduction

Three nearly grown chickens happily nestle themselves into their favorite heaps of fresh soil for a dirt bath, as student volunteers squeeze lemons and build raised garden beds around the perimeter of the Pitzer Student Garden. In the midst of all the activity, a chipper first-year student offers freshly made lemon curd, lime-aid, and lemony pancakes made from an abundant citrus harvest courtesy of the garden's orchard. As I water the recently planted papaya and pomegranate trees, the garden glows with life. Shoots of new life peek their heads out to drink in the gentle flow of water and the last rays of the setting sun. Fava beans, peas, Swiss chard, onions, garlic, broccoli, carrots ... and this is just the beginning!

My last couple of years of college have been spent with my hands in the dirt. Before the pandemic closed Pitzer's campus in March 2020, I spent the spring semester in Ecuador as part of Pitzer's study abroad program. When I first visited Yachay Wasi in Quito, Ecuador, the community primary school that would become my volunteer site, I was captivated. Children ran laughing through a terraced forest garden, lush with corn and sunflowers against the mountainous urban backdrop. It was more than the scenery that stuck with me though, it was the history of resistance that is embedded in the school's pedagogy of "ishkay yachay."¹ The Kichwa chakra is a food forest that holds millennia of cultural heritage. The space serves as a living classroom that maintains a legacy of food sovereignty by nurturing the families of the community and transferring ancestral knowledge to the next generation of stewards. Yachay Wasi is one of the many beacons of hope that demonstrates the dynamic potential of community growing spaces. My pivotal experience there continues to guide my work in the Pitzer Student

¹ Santillan Laura, Chimba Fernando, "Ishkay Yachay," (9).

Garden and motivates me to continue exploring other models for agroecology in higher education throughout California.

At Pitzer, we know that access to fresh, healthy food isn't a simple matter of supply and demand but of justice. Although an agroecology major or formal food systems track does not currently exist at Pitzer College, there are many opportunities to learn about the political and scientific basis for the importance of this field. As a community, we share a high level of awareness of the critical crossroads that we are at in regards to the climate crisis. One of the monumental challenges of our is confronting the paradigms behind the human-caused ecological crisis and shifting from extractive to regenerative models for our subsistence. The Claremont Consortium is in a position to strengthen not only our awareness of urgent alternatives to the industrial agriculture status quo, but to contribute meaningfully towards pushing back against the fossil-fueled industrial paradigm and expanding regenerative methods of food production. Existing curricular offerings at the Claremont consortium already offer a foundation for hands-on agroecology education. Later, I analyze the pre-existing agroecology offerings in relation to formally established agroecology bachelors' degrees in other higher education institutions. Finally, I provide recommendations for expanding agroecology curricula at the Claremont Colleges that are grounded not only in critical scholarship, but in hands-on engagement with grassroots actors outside of the Claremont Colleges.

When the pandemic hit the U.S., it revealed the fragility of food supply chains. Grocery stores across the country were a mess of shortages and many people panicked, exacerbating the situation. With a handful of corporations² controlling the food supply chain, this was a disaster

² Nina Lakhani, Aliya Uteuova, et al, Revealed: the true extent of America's food monopolies, and who pays the price," The Guardian. July 14, 2021, <https://www.theguardian.com/environment/ng-interactive/2021/jul/14/food-monopoly-meals-profits-data-investigati-on>

waiting to happen. Witnessing this on the heels of my experience abroad solidified my determination to learn from the small-scale food producers on the frontlines of the crisis. In the past two years since, I've continued taking classes while working at farms and community gardens. Generations of redlining and the rise of industrialized production have resulted in food apartheid for many people across the U.S., and the reality is that low-income farmers and communities of color whose labor produces, packages, and distributes fresh produce in the U.S. are those who most frequently lack access to it³. The Black Panthers confronted food apartheid in Oakland with community gardening and the Free Breakfast program. Guerilla gardeners like Liz Christy and Ron Finley have transformed urban lots in New York City and Los Angeles into green spaces abundant with fresh food⁴. Local community organizations like Huerta del Valle, Uncommon Good, and Buena Vista Community Garden are actively building regional mutual aid networks that confront systemic inequities by making affordable, healthy, and culturally relevant food accessible in Claremont, Covina, Ontario, and Pomona. These are the agroecological 'alternatives' that shine a light on what is possible when we dare to imagine what an equitable and truly regenerative food system can look like.

Building from the work of grassroots actors and food systems scholars, and spurred by the Robert Redford Conservancy's focus on regenerative agriculture, this thesis project responds to student-driven demand for greater hands-on agroecology learning opportunities and the increasing popularity of the Environmental Analysis major at large. By compiling existing educational resources and assessing opportunities for further enhancement of this urgent scholarship, I hope to contribute to the enlivenment of agroecology networks and a global paradigm shift that prioritizes systems of community care.

³ Patel, Raj. *Stuffed and Starved The Hidden Battle for the World Food System*. Melville House Publishing. (10).

⁴ Alonso, Nerea. *Huertos y Jardines Comunitarios*. (3).



Pitzer Student Garden Club March 2022, photo by Kasidit Phikrohkit PZ '22

The Industrial Agriculture Paradigm

Agroecology is an interdisciplinary scientific field, a set of agricultural practices, and a social movement to restore ecological balance and economic justice to food systems.⁵

Movements for food sovereignty like Via Campesina have used agroecology as a framework for achieving social and economic justice for small-scale producers in the Global South. The purpose of this literature review is to establish the relevance of this area of study to the Pitzer College Environmental Analysis major, given that this literature addresses one of the most

⁵ Gliessman, Steve. 2020. "Evaluating the Impact of Agroecology." *Agroecology and Sustainable Food Systems*.

critical intersections of equity and the environment. Particularly, there is a need for this curriculum to be embedded with experiential learning.

My combined major in Environmental Analysis and Sociology emphasizes two of the main disciplines that food systems scholarship draws from and offers a theoretical grounding that challenges the notion that the millions of people who suffer from malnutrition globally are a symptom of population pressures on the land. Leading Anti-Malthusian scholars Frances Moore Lappé and Amartya Sen raise a number of arguments contrary to this understanding of food systems and propose a power-structures perspective on food systems⁶ which offers a foundation for understanding the work of agroecologists. The power-structures perspective on food systems confronts the claim that population is the main issue by calling attention to the inconsistent correlations between arable land and hunger in various countries. Europe, for example, has some of the most densely populated countries in the world and yet very little hunger. Africa has a far greater percentage of hunger with a far lower population density, a clear indication that cropland per person does not demonstrate a clear correlation with hunger. Japan has about ten people for every acre of cropland and very little hunger. Tiny Singapore has 143 people for every acre of cropland and very little hunger. But Chad has 1.68 acres of cropland for every person— 17 times as much as Japan and 240 times as much as Singapore— and quite extensive hunger⁷. Wealth they determine, or lack of it, contributes to hunger more so than availability of food itself.

With this lens in mind we can better understand the influence of wealth in shaping who grows the food and who gets fed. Between 1990 and 1995, the world produced an average of 317 kilograms of grain per person each year, which is 1.87 pounds a day, or about 2,805 calories. However, 37 to 40 percent of that grain is fed to livestock (Americans consume about 800

⁶ Bell, M, Michael. 1998. *An Invitation to Environmental Sociology*. (119-120).

⁷ Lappé and Schurman 1988, 12, Table 1.

kilograms of grain each year per person due to their high meat diet). International policies like NAFTA and the World Bank's "rural development programs" helped sanctify this concentration of abundance by propping up industrial agriculture with export policies, obliterating small farms in Mexico, and strategically de-mobilizing rural uprisings by redistributing less arable land to rural families⁸.

Karl Marx observed the rise of this "new regime" of industrial-capitalist food production in Europe during the late 1800s and predicted that an ecological crisis would be sure to accompany it. As John Bellamy Foster points out in "Marx as a Food Theorist,"⁹ Marx's metabolic rift theory directly refers to the rupture between humanity and nature driven by increasing agricultural industrialization. The rise of the new food regime with the repeal of Corn Laws in Europe and the triumph of free trade after 1846 was characterized by intensified efforts to augment fertilizers, partly by chemical means, partly by imports of guano and other natural fertilizers, and the increased use of machinery in agriculture. In mid-1800s Britain, this meant converting large tracts of arable land from cereal and grain production (the primary subsistence of the working class) towards livestock. Marx observed that since meat-based agriculture required fewer laborers than grain-based systems, this new food regime led to further expropriation of land and displacement of thousands of workers. In addition to his research on the nutritional intake of the English working class in the 1860s, Marx's contributions to the political economy of food were largely influenced by German chemist Justus von Liebig's notion of the "robbing of the soil," he noted that farmers were required by sanctions of the market, to extract more from the soil in each successive cycle of production, on pain of economic failure. This meant that a metabolic rift, caused by the intensive robbing of soil of nutrients, a

⁸ Women working in the NAFTA food chain and Hungry for Profit

⁹ Foster, John Bellamy. Marx as a Food Theorist.

boom-and-bust cycle, was built into industrial-capitalist agriculture. “More simply put, industrial-capitalist agriculture takes nutrients out of particular ecological systems and returns them to the earth elsewhere, disrupting all the interdependent processes reliant on those local resources.” In Marx’s own words: “Capitalist production... only develops the techniques and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth- the soil and worker” (20).

Despite the rise of industrial agriculture, the majority of global food today is still produced by those who are most vulnerable to climate change, small-scale farmers working on under 25 acres. According to the Intergovernmental Panel on Climate Change (IPCC), the traditional agricultural practices of Indigenous people offer critical insights for regenerating soil, water, and overall ecosystem health. There is a common and dangerous misconception that industrial agriculture feeds the world. Academics must approach agricultural and food systems studies with a power-structures perspective to help disrupt the notion that machinery, chemical inputs, and genetic modification are “necessary evils” to accommodate a growing global population. According to the Intergovernmental Panel on Climate change, human-induced warming reached approximately 1°C (likely between 0.8°C and 1.2°C) above pre-industrial levels as of 2017, resulting in an increase in the frequency, intensity and/or amount of heavy precipitation events at the global scale, as well as an increased risk of drought in the Mediterranean region. These observed and atmospheric changes and the predicted climate impacts of the next decade are contributing to a decline in food production associated with the interconnected challenges of declining human health, hydraulic cycle extremity and unpredictability, and soil degradation¹⁰

¹⁰ Allen, M.R., et. al. 2018. “Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C

In the 1970s, David Bell introduced the concept of “knowledge-based society” to characterize fundamental social and economic shifts throughout industrialism to post-industrialism. Rachel Schurman and William A. Munro point out a critical moment in the development of this knowledge economy in their book *Fighting for the Future of Food*.¹¹ The discovery of the DNA double helix by Jim Watson, they write, catalyzed the subsequent birth of modern agricultural biotechnology in the 1990s. This book addresses the complexities of technological innovation within the context of the global agricultural system and narrates the struggles and successes of activists that shaped the industry. The marriage of bio-tech with business and rapid privatization of the industry was encouraged by the U.S. government’s push towards funding cuts to public science, incentivization of private research efforts, and deregulation of agriculture and food markets under the Carter and Reagan administrations. The three most pertinent problems with the rise of the biotech industry raised by the activists in this book are the increase in corporate control of agriculture, massive biodiversity loss, and erosion of farmers’ sovereignty. The “cognitive praxis” of this social movement, as defined by Ron Eyerman and Andrew Jamison, is the socio-political contexts of the 1960s movement's emphasis on North-South inequalities, capitalism, the military-industrial complex and environment.

A biotech industry worker that was interviewed for the book discussed the “party-line” that she noticed within the business, which deemed any critique of genetic modification as uninformed and therefore irrelevant. She attributed this in part to the lingering reductionist legacy of Jim Watson himself. Many activists mentioned in the book were the insider Biotech scientists who were themselves involved in the development of these technologies, like John Pollak and Jonathan King. Genetically modified seed, agrochemicals and other technologies

¹¹ Rachel Schurman and William Munro, *Fighting for the Future of Food: Activists versus Agribusiness in the Struggle Over Biotechnology* (University of Minnesota, 2010)

developed over the last three decades have been celebrated by highly strategic public relations campaigns for helping farmers and alleviating world hunger. Again, when considering the profitable products that went to market, the question of whose knowledge and needs are prioritized must be addressed. Rather than developing nutritionally enhanced or flood-resistant staple crops that countries in the Global South would desperately benefit from, the biotech industry stuck with the money-making research and development of Roundup ready staple crops like soy, corn, and wheat that are genetically modified to withstand further application of chemical sprays. Although the aforementioned issues remain, it is important to emphasize that the problem lies in the social relations of the global food economy and the notion that the biotech industry is the end-all solution, rather than the technology itself .

Most agricultural studies focus on annual crops, which are the majority of the foods we consume¹². Annual plants are those that grow for one season, and cultivating such plants requires exposed soil and thus consistent labor to plow, plant, weed, and harvest. Restoration ecologist, Mark Shepard, points out that over time this process of constant disturbance leads to a cumulative loss of topsoil. Unless the nutrients are routinely replenished by soil building measures between seasons, the yields and nutrition of the crops will steadily decrease. We are facing this predicament now on a large scale and know from the civilizations before us that disease, social strife and eventually collapse will ensue next. Mesopotamia, Egypt, Persia, India, China, Greece, Rome, North Africa, Central and South America are all scattered within the ruins of collapsed civilizations that relied upon annual crops as their staple foods and destroyed the perennial landscape in order to do so. Perennial food systems, by contrast, can live for several

¹² Shepard, Mark. 2013. "Restoration Agriculture: Real-World Permaculture for Farmers."

years rather than one season and are most resilient within the environments that they are regionally adapted to.

Aboriginal California was rich with wild produce. Buttercup seeds, manzanita berries, cactus pads, Indian rhubarb, wild onions, and hundreds of other plants nourished the native peoples. Millions of grains from native grasses became flour for Indian bread, and millions of plump tubers became raw or baked “potatoes” cooked in Indian earth ovens. According to Kat Anderson in *Tending the Wild*, the traditional themes associated with food among California tribes were positive and life affirming: mutual care, generosity, sharing, neighborliness, festivity, gratitude, abundance, and religious ceremony. Food was often used as a peace offering and gift. The cultural significance of food is apparent in the many examples of food being given as a gift to early explorers and settlers. In most California Indian societies, at least some of the harvest was shared communally. This served as a wealth-spreading device, a way to both dissolve competition and strengthen social bonds. In many tribes, when a hunter hunted alone or with others and brought home game, it was distributed among all of the village members. California is still home to approximately 150,000 people who trace their ancestry to the state’s original indigenous inhabitants. California Indian tribes have continued to endure major threats to their cultural survival. In the past century or so, economic and cultural pressures have caused many Indians to embrace modern Western culture, exploitative land uses have degraded their traditional lands and reduced the variety and abundance of regional floras, and restrictions on the use of public lands have limited their traditional practices¹³. The battle to preserve animals, plants, and ecosystems and the struggle for the survival of native cultures are deeply intertwined. The roots of agroecology emerge from the ancient land management systems of the California Indians, and both the social and ecological aspects of traditional ecological knowledge can

¹³ Anderson, Kat. *Tending the Wilderness*. 240-333

provide Western society with models for successful, long-term human interventions in the natural environment.

The diverse yields of no-till, chemical free, low-labor subsistence agroforestry would put industrial agriculture out of business. In contrast to large scale production of a single marketable crop, polyculture is much more nutritionally dense and diverse with medicinal shrubs and trees, including staple crops that are intercropped with companion plants to encourage habitats for beneficial organisms that help naturally control pest populations. Original food systems utilized by Indigenous peoples around the world are the basis for all modern ecology scholarship, from Bill Mollison's *Permaculture Design Theory* and Allan Savory's *Holistic Management*, to the work of ecologically-inclined philosophers like Arne Naess and Felix Guatarri. An agroecology major must be attentive to the foundation that its scholarship rests upon in order to achieve its educational objectives. *Monocultures of the Mind* by Vandana Shiva advocates for the importance of communities challenging conventional top-down knowledge systems and challenges the assumed superiority of western systems: "Democratising of knowledge becomes a central precondition for human liberation because the contemporary knowledge system excludes the human by its very structure." In the same spirit is the critique of the idea that "traditional ecological knowledge" or TEK, is simply a body of knowledge ready to be utilized (by any and all). Rather, many Indigenous scholars asserted that TEK is inherently inclusive of the people who have produced such knowledge, and that it is best understood as a set of practices rather than abstract knowledge¹⁴.

¹⁴ Whyte, Kyle. On the role of traditional ecological knowledge as a collaborative concept: a philosophical study. Ecological Processes. 2013.

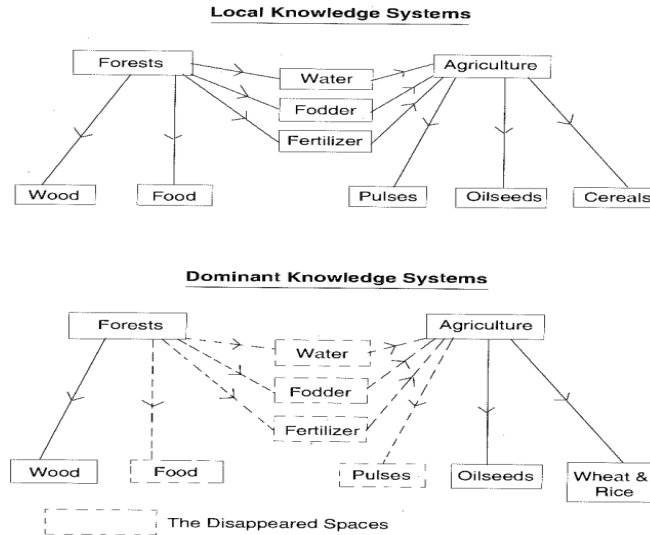


Fig. 1: Dominant Knowledge and The Disappearance of Alternatives.

Reclamation of traditional knowledge and agriculture, Vandana Shiva (1993)

Challenging epistemological foundations that establish the privileging of certain knowledge systems over others within the predominantly white upper-class educational institutions like Pitzer must be an essential component of an agroecology major. This will require students to be trained in understanding their positionality within what is often referred to as the “alternative food movement.” As Julie Guthman discusses in her article, “Bringing Good Food to Others: investigating the subjects of alternative food practice,” “farmers’ markets and community supported agriculture (CSA) tend to locate or distribute to areas of relative wealth (3). A recent study of farm-to-school programs demonstrates a similar trend; unless heavily subsidized by private foundations or the public sector, most of these programs are developing in relatively white, affluent school districts.” Santa Cruz has been referred to as ground zero of the US alternative food and agriculture movement, as it is home to a number of seminal organizations, and University of California Santa Cruz (UCSC) has become a magnet for food scholars and students with its Center for Agroecology and Sustainable Food Systems. The

Community Studies major at UCSC requires a six-month full-time field study throughout which students work with social justice organizations in a substantive way. Guthman describes being struck by the disjunction that she observes between what alternative food activists do and what food desert residents seem to want and challenges her food students to reflect critically on the ways that this plays out throughout their field study. She observes her students throughout their field study and highlights how their experiential learning allows them to experience what John Brown Childs calls ‘transcommunitality,’ which encourages ‘increased communication, mutual respect, and understanding among diverse communities.’ Although students in the major are also trained in participant observation and other field research methods and ethics through their coursework, Guthman concludes that the experiential learning within the context of the field study prompts them to grapple more deeply with the contours of white privilege¹⁵.

While many of us in the United States are aware that eating highly processed, unrecognizable forms of monocultures is not good for us, the convenience economy ensures that they are the most affordable and accessible options. The birthplace of supermarkets began in 1914 with the first self-service grocery store in Pomona, California. Capitalizing on the ironic idea of consumer sovereignty, this model soon became the foundation for the branded supermarket format that we know today. Although the ‘freedoms’ experienced in supermarkets are few, the options in lower-income neighborhoods are fewer. Raj Patel, author of *Stuffed and Starved* describes how the first supermarkets targeted poor people, successfully shutting down neighborhood channels for the distribution of fresh food and causing many foods available in poor neighborhoods to be highly processed and fat-saturated¹⁶. Today, the urban areas of the US without access to supermarkets are primarily occupied by people of color due to a phenomenon

¹⁵ Guthman, Julie. *Bringing Good Food to Others: investigating the subjects of alternative food practice*

¹⁶ Patel, Raj. 2007. *Stuffed and Starved: the hidden battle for the world food system*. Melville House Publishing.

he calls, 'supermarket redlining.'¹⁷ Large swathes of the countryside are also underserved by supermarkets, and traditional markets are on the decline. This means that in the midst of food-growing rural areas, it is possible to find 'food deserts,' areas in which it is extremely hard to access fresh food without a car. For the sake of clarifying that these areas are not "naturally" without food, I will not use this term. Instead, I will use the term "food apartheid,"¹⁸ coined by Karen Washington, which reflects the artificial socio-political construction of these segregated areas that lack substantial access to fresh, healthy, affordable and culturally relevant food.

When the COVID-19 pandemic hit the U.S, many people experienced the fragility of food supply chains for the first time. Grocery stores across the country were a mess of shortages and many people panicked, exacerbating the situation. With a handful of powerful transnational corporations controlling the food supply chain: from seeds and fertilizers to slaughterhouses and supermarkets, this was a disaster waiting to happen. A recent report conducted by The Guardian revealed that these companies, Kraft Heinz, General Mills, Conagra, Unilever and Delmonte, dominate the majority market share of almost 80% of dozens of grocery items bought regularly by ordinary Americans¹⁹. Many communities are working to combat food apartheid through community gardens. For example, The People's Grocery in Oakland, founded by the Black Panthers, takes community gardening and turns it into a grassroots subsidized food program. Huerta del Valle in Ontario works to teach the next generation of organic farmers, empower communities to manage their own collective gardens, and create a food system that compensates farmers equitably and addresses complex regional health issues²⁰. These are just a few of the

¹⁷ Eisenhauer, Elizabeth. "In poor health: Supermarket redlining and urban nutrition." *GeoJournal* 53.2 (2001): 125-133.

¹⁸ <https://regeneration.org/nexus/food-apartheid>

¹⁹ Lakhani, Nina, Uteuova, Aliya, et al. Revealed: the true extent of America's food monopolies, and who pays the price." *The Guardian*.

<https://www.theguardian.com/environment/ng-interactive/2021/jul/14/food-monopoly-meals-profits-data-investigation>

²⁰<https://www.huertadelvalle.org/>

community-driven projects that academics can wield for social transformation when establishing agroecology majors at our higher education institutions. The more embedded our scholarship is in the grassroots movements it originates from and in the communities—human and non-human—that we exist within, the more agroecologists can materially contribute to a bold transformation of our food system.

Methodology

Combining what I've learned from taking the food systems oriented classes available to me, exploring agroecology literature, and conducting ethnographic case studies in small-scale agricultural communities, I propose a woven spaces approach to the creation of this curriculum as defined by Sarah Wright in *Locating a Politics of Knowledge: Struggles over intellectual Property in the Philippines*²¹. This approach seeks to challenge the 'above' and 'below' dichotomy by illustrating that the experiences and ideas of different localities can interweave to produce a thick, many-centered space of international proportions by weaving together the experiences and ideas of different localities. The curriculum I propose is based on experiential knowledge that I gained in Ecuador, California and Colorado between February 2020 and April 2022. Following Lofland's Qualitative Research logic of "Starting Where you Are,"²² Although I originally conducted twenty semi-structured interviews with various small-scale growers, community organizations, educators, and city officials, the scope of this scholarship has shifted from a broader analysis of small-scale farming towards a more specific case study. For this reason, data from these interviews are excluded, though they contributed greatly to my personal development in understanding agroecology as a framework. By focusing on five local land-based learning

²¹Wright, Sarah. *Locating a politics of Knowledge: Struggles over intellectual Property in the Phillipines*.

²² Lofland, et al. 2006. *Analyzing Social Settings*. Chapter 1 "Starting Where You Are" & "Evaluating Fieldsites."

sites, I hope to demonstrate Pitzer College's potential to become a leading institution in the global paradigm shift towards socially and ecologically just food systems.

Beginning in 2020, Susan Phillips, the director of the Robert Redford Conservancy for Southern California Sustainability, had already begun to examine and outline a possible food and agriculture track within the Environmental Analysis major. Her intention for the track was to upend the Big Ag, corporate driven land grant model of most university-based agricultural education in the United States with a smaller scale, liberal arts model of pedagogy that worked with multiple partners and locations in the surrounding region. At the time that I learned of her work, I was applying for an Open Research Fulbright in Ecuador to continue learning about the regenerative agroforestry based educational models that I had begun exploring during my study abroad experience in Ecuador from January to April 2020. My collaboration with Susan began while working on the Pitzer Student Garden Revitalization. This work catalyzed my involvement in designing regular educational programming as a student garden worker. Throughout 2021-2022, Susan and I combined efforts alongside others towards the development of a formal agroecology university curriculum.

I demonstrate the viability of an agroecology track hosted beneath the EA field group at Pitzer College by using a mixed-methods approach that includes a SWOT (strengths, weaknesses, opportunities, and threats) assessment of the Pitzer EA field group's potential for an agroecology track considering the current consortium-wide opportunities, the results of a food systems survey sent to the Pitzer community, and an analysis of higher education curriculum at institutions that currently offer agroecology, sustainable agriculture, or other food systems-related majors. My SWOT analysis considers the objectives of the EA field group,

agroecology immersion opportunities locally and abroad, and identifies key professors that incorporate aspects of agroecology in their classes.

I weave together students' experiences at the five most commonly visited local land-based learning sites with my own experiences in the field. My modes of engagement that supplement the survey and SWOT analysis include participatory observation, informal chats, and semi-structured interviews at The Outback Wilderness, The Pitzer Student Garden, The Pomona Farm, Huerta del Valle, and Buena Vista Community Garden. The food systems survey is a follow-up to student and faculty/staff surveys conducted as part of my work with the student revitalization committee in January 2021, and the results and establish the high level of student interest in food systems. The Garden Revitalization process was spurred by donor Bob Glah. During the semester following the initial survey in Spring 2022, I sent out a follow up survey to students to gauge interest and engagement with the field of agroecology to student email groups. This follow-up survey was sent to student email groups including the student email server (student-talk), the Environmental Analysis contact list, and the Pitzer Garden Club email list and social media platforms. The survey was open to any student at the 5Cs, and two \$25 gift cards were raffled to two of the 106 total respondents.

Finally, I analyzed agroecology-related curricular offerings at 6 higher education institutions. Including Pitzer College, the analysis included two community colleges, five are four-year public universities, and four are private liberal arts universities. For the sake of this report, I include findings from the five most relevant higher education institutions in addition to a more in-depth analysis of the Pitzer College informal curriculum. These five colleges include University of California Santa Cruz, Cal Poly Pomona, Cal Poly San Luis Obispo, University of California Riverside, and Mt. San Antonio Community College. In order to demonstrate the

different values embedded within each institutions' agroecology-related programs, I coded the "about" and "objectives" sections of the colleges' websites and areas of emphasis within course requirements. Supplemented by interviews with community farmers and gardeners, I concluded my curricula analysis with two local (Ontario and Pomona) community gardens that have developed farmer training programs and a permaculture design certification program.

Analysis

The first step of my analysis was assessing the strengths, weaknesses, opportunities, and threats of building an agroecology curriculum within the Environmental Analysis field group at Pitzer College. There are four tracks currently offered within the EA field group: Environment and Society, Environmental Policy, Sustainability and the Built Environment, and Environmental Science. My analysis of the stated purpose and objectives for Pitzer's Environmental Analysis field group on the Pitzer website revealed an emphasis on three primary values, "interdisciplinary," "partnerships," and "research and action." As a student of this field group that opted for a combined major with sociology rather than pursuing one of the four tracks, I can vouch for the strength of the interdisciplinary curricular offerings between these two field groups and intersecting with my second Spanish major. This emphasis on interdisciplinary learning lends itself to the presence of an inherently interdisciplinary field like agroecology.

According to the Pitzer College website, "Environmental Analysis [EA] is an interdisciplinary major focusing on the interaction between human and non-human components of the biosphere.²³" The addition of an agroecology track to the EA field group would fulfill each of the six stated educational objectives:

²³<https://www.pitzer.edu/academics/field-groups/environmental-analysis/>

1. Understand and describe the complex social, scientific and humanistic aspects of environmental issues
2. Understand and apply both disciplinary and interdisciplinary analysis to environmental issues
3. Critically analyze, evaluate, and interpret scholarly arguments and popular discourse and be able to communicate this analysis to a variety of communities
4. Develop well-reasoned solutions to environmental predicaments, testing them against relevant criteria and standards
5. Be able to craft well-researched, informative and effective scholarly presentations
6. Contribute knowledge and action regarding environmental issues to the public through service learning, internships, community-based-research, and other activities

The agroecology track proposed in this thesis has the potential to particularly strengthen the final objective of the field group by expanding opportunities for hands-on learning. This thesis aims to analyze the current EA major and identify steps towards strengthening the proposed agroecology track with the addition of key courses/faculty/internships that would allow students interested in food systems to benefit from a robust agroecology curriculum.

The Environmental Analysis major is one of the most popular majors at Pitzer. Due to increased student pressure, the loss of key tenure-track faculty members, the permanent service burden and limited teaching load of the Redford Conservancy Director, and the need for additional tenure lines, there has consistently been scarcity of course offerings, particularly for nonmajor first and second year students. While the field groups work hard to ensure multiple sections of EA 10 Intro to Environmental Analysis each fall and spring, EA86 Environmental

Justice to EA and EA30 Environmental Science remain severely impacted. The comments expressed by survey respondents mirror this observation, with one respondent stating, “The availability of classes is a huge concern. I am nervous about completing the major especially without compromising my schedule/most interesting classes to me.” Additionally, although many respondents to the survey are currently pursuing multiple majors alongside EA, several respondents expressed a desire for more interdisciplinary offerings.

SWOT Breakdown:

Strengths: Pitzer’s EA history of justice-based and hands-on, land-based curriculum, and long history of partnerships with local farm-based organizations has culminated in the co-founding of Huerta del Valle. The CASA program embedded students in a community-municipal-college partnership around urban farming and community health, immersing them in farm work over the course of a semester of community-based research. Another strength is the Redford Conservancy’s development of a regenerative agriculture focus in 2020. This has culminated in a major regional food conference and increased connections in the region with multiple partners who are working on agricultural land conservation and regenerative farming methods. Another key strength has been the recent hire of Urmi Willoughby in Pitzer history. Willoughby teaches classes in the history of food and agriculture and is considering incorporating more direct, farm-based learning. Additionally, there are professors at all five colleges who are interested in and teach about food systems with classes that engage with on-campus sites such as the Pitzer Student Garden, the Pomona Farm the Outback Wilderness Preserve, the Grove House, the Robert Redford Conservancy and Bernard Field Station as well as off-campus learning sites where the study of food systems can be incorporated with traditional ecological knowledge. Faculty such as Heather Williams, Marc Los Huertos, Nancy Neiman, Martín Vega, and Colin

Robins also contribute diverse approaches to agroecology that range from soil science to political economics. These and other faculty offer important natural science, political, and historical grounding for an agroecology curriculum that could be expanded into a more complete list of classes. Finally, a key strength for the foundation of the major are the opportunities for agroecology education based in Pitzer's study abroad programs. Although further investigation and expansion of these strengths is needed, the Ecuador program is embedded with volunteer sites and field trips that teach students about agroecology from Indigenous perspectives, the Costa Rica program is based at the Firestone Center for Restoration Ecology where there are opportunities for agroforestry education, the Nepal program includes visits with subsistence farming families, the Italy program is based in the city where the slow food movement originated (Parma), and the Tanzania program includes student involvement in cultivating crops.

Weaknesses: The growing popularity of the EA field group combined with the departure of key tenure-track faculty is increasingly putting pressure on limited EA resources. Of the EA faculty there are none with the background and capacity to teach the practical elements of regenerative agriculture. While many interdisciplinary offerings that contribute to the field of agroecology exist, many are taught by adjunct professors and the integration of these resources that is necessary to develop a cohesive agroecology curriculum does not. For instance, adjunct professors, Scott Sawyer's Intro to Food Systems and Lani Cupchoy's Food and Health in Chicana-Latina Communities. To date, there has also been very little conversation across the five colleges about the creation of an agroecology track, and combining resources from all five colleges will be a requisite for its existence.

Opportunities: Though strengths and weaknesses noted from my own experience, informal conversations, and survey results only offer a partial picture of the Environmental Analysis field

group at Pitzer, this data is useful for considering opportunities for improving Pitzer's EA field group's ability to form an agroecology track. The formation of the track will help to improve the major as a whole by providing justice-based, hands-on learning opportunities. In response to the survey question, "What types of classes would you like to see more of in the EA field group?" The top response was "Food Systems." and the responses that were tied for second highest were "Indigenous, Agriculture, Agroecology, and Ecology." A theme that emerged frequently while manually coding the responses was an expressed desire for more "hands-on" experience. Given that there is both a demand and the curricular flexibility to expand interdisciplinary class offerings, the EA field group may benefit from combining forces with another field group to achieve a targeted hire of a faculty member with a background in food systems, ecology, agroecology, and/or Indigenous studies. With the resources and momentum gained from the recent revitalization of the Pitzer Student Garden and the allocation of sustainability programming under the Robert Redford Conservancy (RRC), the ability to collaborate and build partnerships as a coalition with other on-campus and off-campus sites is strengthened. Additionally, the mentorship of Pitzer Student Garden workers from supervisors such as RRC research fellow and long-time Huerta del Valle leader, Arthur Levine PZ '14, and Grounds Director Nico Galindo, who has 20 years of experience working at Pitzer which includes working with classes in The Outback Wilderness Preserve, and promoting vital intergenerational knowledge transfer for the garden's leadership transitions. This scaffolding supports the development of an informal curriculum within the proposed major's core praxis site, the expansion of community partnerships, and a case for reclaiming more spaces on and off campus for agroecological practice.



Word Cloud coding from survey responses.

One respondent highlighted the ways in which they would like for the EA field group to be strengthened in the additional comments section at the end of the survey. “I would love to see a more diverse range of subjects being taught within EA, especially ones that can spur action within the student body by offering (albeit small scale) solutions to our broken global food system (like agroecology, and histories/ecology of different farming practices).” One of the critical components of this major is also contingent on the hire of faculty who can teach Indigenous/Native American Studies. Efforts are being made at Scripps to develop the Indigenous/Native American studies minor into an intercollegiate major. Given the shortage of faculty in EA and the expressed interest in agroecology and Indigenous studies, there may be an opportunity for a combined effort between the EA field group and the students, faculty, and staff that are organizing for the Indigenous/Native American studies field group. Agroecology owes its roots to the traditional ecological knowledge of Indigenous people and its scholarship must rest on a strong foundation that engages significantly with decolonizing pedagogies and land-based movements. There is critical opportunity for collaboration between interested parties

in hiring Indigenous staff and faculty (particularly Tongva, Acjachemen, Cahuilla, Serrano, Tataviam or Chumash individuals and those from our local community at both Pitzer and Pomona) that have experience and interest in teaching classes that center TEK.

Threats: This strengths, weakness, opportunities, and threats (SWOT) analysis of Pitzer's Environmental field group indicates that the current EA class offerings may benefit from enhancement and expansion. It is important to consider that the Environmental Analysis field group, first formed in 1970 by John Rodman²⁴, has lost some of the integrity of its applied learning origins. One of the most immediate threats to the major is the loss of institutional knowledge with turnover of EA faculty. Professor of EA, Paul Faulstich, is retiring after 30 years of teaching in addition to his time at Pitzer as a student. His class, Restoring Nature, provides a crucial praxis component for students to engage with The Outback Wilderness preserve, archival information, and restoration ecology principles. Additionally, the departure of professors Brinda Sarathy, Joe Parker, Angela Mooney D'Arcy has contributed to this loss of institutional knowledge and classes that taught at the intersections of the environment and social justice. With the recent passing of two Tongva elders that the Pitzer community had long standing relationships with (Barbara Drake and Julia Bogany), students have lost pivotal mentors that have dedicated their lives to reclaiming and transferring millenia of regional traditional ecological knowledge.

Hands-on Learning: On Campus

Embedded in the highlighted classes are “hands-on” components, some of which take place at existing community partner sites. Following the recurring desire for more “hands-on”

²⁴ <https://www.pitzer.edu/timeline/environmental-sustainability/>

these sites could contribute significantly to the foundation of a potential agroecology major, minor, or certification program offered through Pitzer's EA field group. Some of these sites include; Huerta del Valle, Buena Vista Community Garden, The Pitzer and Pomona Student Farms, and The Outback Wilderness Preserve.

Pitzer Student Garden

The Pitzer Student Garden is one of multiple available on-campus sites that could be incorporated into a hands-on agroecology education. The origin story of the Pitzer Student Garden in 1994 is quite similar to the recent revitalization that it has undergone this year. A laborious community-wide effort transformed the space from a 12,000-square-foot asphalt parking lot into a dry land garden with fruit trees, vines and vegetables. In January 2021, a generous donation from Bob Glah catalyzed a committed group of stakeholders, including students, faculty, and staff, to re-animate the garden from a state of neglect. Throughout the following year, I worked with my peers on the revitalization planning committee, a committee including students, staff, and faculty from Campus Facilities, Advancement, the Grove House, and the Redford Conservancy, to co-create a plan woven from fellow community members' hopes for the space. One of the preliminary steps of the design process was creating student and faculty surveys to incorporate community insights into the vision for the garden. The two top priorities identified from these responses were "optimizing growing space" and "increasing community engagement." Both student and faculty respondents expressed interests in the garden becoming a more accessible space for educational opportunities. With this in mind, we created a two part design that focused on increasing production areas and opening up the space for increased educational programming.

By the time March 2021 rolled around, the Pitzer Student Garden plan had begun to take shape into something far beyond the scope of the original project. At this point, five students were now involved in the garden revitalization process, and together we wrote about our dreams for the garden in a collaborative piece published in Pitzer's student newspaper, The Outback News. As the committee worked to develop a plan for the space, we reflected heavily on how to weave together the feedback from the survey towards the transformation of the garden into an ecological and educational haven. In the next few months, our ideas began to blossom into fruition. Underground irrigation was installed, 26 chicks moved into their brand-new coop, and each of us who had applied for staff positions were hired to work in the garden. When we returned to campus, we were ready to start building the soil and get things growing.

Since students returned to campus in August 2021, community members have come together to haul over 300 cubic yards of mulch and compost into the previously barren garden plot. We've collectively transformed the space by using regenerative agroecology practices like lasagna mulching, companion planting, and mycological remediation to build soil health. Although there are no classes that currently include consistent engagement with this living laboratory, there is an informal curriculum that is embedded in its stewardship. Given the recent resurgence in resourcing of this space, many survey respondents indicated that they had engaged with the space in some capacity. One respondent said, "I really enjoy working at the Pitzer Student Garden!! It's super fun and really rewarding to feel like I am giving back in some way, and it's very therapeutic. I feel like I am learning a lot by actually doing hands-on work, and it can often feel more gratifying than some of my academic classes."

As a student worker at the Pitzer Student Garden, I share this experience. The responsibilities shared by myself and my three other fellow workers include:

- Designing, purchasing, and maintaining irrigation systems, row covers, and compost
- Chicken and orchard maintenance (including seasonal pruning)
- Sowing, transplanting, and harvesting crops
- Educational programming and community partnerships

As with any community garden, the longevity of the project's success requires a delicate balance between each of these core responsibilities. Our mission is to cultivate fresh organic produce and a dynamic space for experiential learning. As students, our responsibilities are numerous and there is only so much that we as individuals can do during our tenure. Throughout the garden's history, there have been fluctuations in engagement, upkeep, and maintenance. There is a demonstrated need and desire for this central community space to become embedded in the Pitzer educational experience beyond the informal living laboratory that it exists as now. About 70% of respondents expressed high levels of interest (4-5) in the Pitzer Student Garden or The Outback Wilderness Preserve. The opportunities for hands-on learning, experimentation, and interdisciplinary collaboration within this space are numerous, and the Pitzer Environmental Analysis field group would benefit tremendously from regularly weaving class curriculum into the space.

Pomona College Organic Farm

My landlord at the Claremont Co-op reminisces about the founding of Pomona Farm as a radical act of guerilla gardening. The Farm was founded in 1999 with the initiation of student-led initiatives such as Compost Club and the Gorilla Farming Club. The first fruit trees were in 2000, during a time when Pomona College had been planning to develop the land for other uses. As the

story goes, after a long fight and bureaucratic fight against the administration, the students won. Now, Pomona celebrates and highlights the student-run space. In many ways, the Pomona Organic Farm is a pilot site for the Pitzer Student Garden. Classes like Marc Los Huertos' Food, Land, and the Environment engage with the farm regularly and contribute to students' awareness of the learning opportunities embedded in the space. Many survey respondents cited Pomona Farm as a place where they had gained hands-on learning experience.

One student commented, "I work as a compost driver at the farm and have greatly enjoyed the position. It has taught me a lot about composting and how Pomona handles its food waste and has inspired me to look into more efficient ways of dealing with food waste on college campuses." The compost program at Pomona College is an exemplary model for diverting dining hall waste from landfills and industrial composting sites by collecting and composting the colleges' food waste at the farm. This is a prime example of an established, student-organized system that offers a localized, practical solution to a large-scale environmental issue. By engaging students more deeply with the real-world problem solving that is happening on our own campuses and highlighting their relationship to the intersections of Pitzer's four EA major tracks would better prepare students to translate theory into practice. Other on-campus or campus-adjacent sites for hands-on agroecology learning include; the Scripps Student Garden, Rooftop Garden (Pomona), and the Bernard Field Station.

The Outback Wilderness Preserve

The Outback Wilderness Preserve is a 3.4 acre plot of restored Alluvial Sage Scrub on Pitzer's Campus that has historically been an educational space for the practice of restoration ecology.²⁵ When tended well, this campus space offers a glimpse into the once expansive native

²⁵ <https://www.pitzer.edu/arboretum/outback-preserve/background-pitzer-outback/>

ecology that the Pitzer campus exists within. Paul Faulstich's Restoring Nature class engages with land-based learning within this perennial landscape and learns about the history, importance, and threats to the space's inhabitants. When compared to the urban farm spaces mentioned above and below, this space requires much less maintenance but still provides a vital source of food and medicine. Although colonization has significantly disrupted the transfer of intergenerational knowledge, Tongva elders maintain traditional ecological knowledge by continuing to harvest these foods and medicines. The Pitzer library's archive of restoration projects that students in the Restoring Nature students have performed over the last decade in The Outback also offers valuable preservation of some of this knowledge. The Outback Wilderness Preserve and its reference site, the Bernard Field Station, provide vital land-based learning opportunities for an agroecology major that is grounded in or paired with the second most popular classes that students asked to see more of in the food systems survey; Indigenous Studies.

Land-Based Learning: Off Campus

Over the years, opportunities for off-campus hands-on learning have grown at sites throughout Claremont, Pomona, and the Inland Empire. In the following section, I describe some of the sites that I've learned about and engaged with, and that survey respondents described experiences with. The growth of partnerships with these sites and others are integral to the vision for a regionally-grounded decentralized agroecology major that Phillips and I first discussed at the onset of this thesis.

Huerta del Valle

Huerta del Valle is a community garden whose mission is to “teach the next generation of organic farmers, empower communities to manage their own collective gardens, and create a food system that compensates farmers equitably and addresses complex regional health issues²⁶.” The garden is located in Ontario and started in 2010 through the Pitzer in Ontario program (now CASA) and community demand. Many students have volunteered there over the years as interns through the CASA program and other classes. According to Tracey Kimura, Projects Director at Huerta del Valle and former coordinator of The Farmer Training Program that was first offered at Huerta del Valle in 2018, is a keystone grassroots agroecology curriculum that emphasizes the potential of partnership-driven curriculum models. The curriculum has been developed from four main themes that were found during community feedback sessions: critical theory, agroecological theory, farm management, and business. The training is also based on models from other agricultural organizations in Northern California such as Mesa Farm and Alba Farms.

As a longstanding community partnership site, many survey respondents had gained experience from working with Huerta del Valle. One student described their experience in detail, “I was an intern for HDV in Spring 2020. I focused my research on how the gardens and urban farms have the potential for carbon capture and other ecological benefits. They were interested in calculating their carbon footprint/capture, but we found that the tools available to do so are largely geared towards corporate farms and not suitable for small farms and gardens.” This student’s experience highlights the ability for mutually beneficial relationships between Pitzer College and community farms. In addition to the CASA program, this land-based learning site is embedded with several other classes at the Claremont Colleges, including Nancy Neiman’s

²⁶ <https://www.huertadelvalle.org/>

Political Economy of Food, Martín Vega's Plants, Land, and Food, and SPAN31:

Community-Based Spanish Practicum by nature of Huerta's Executive Director, María Alonso, involvement with the program since its inception as a promotora (program host). Another student described an experience at Huerta del Valle that was built into their class. "Through Plants, Land, and Food and volunteering at Huerta del Valle I have had an amazing educational experience learning about local food justice initiatives and movements that make me feel like I am at least beginning to have a more reciprocal and grounded relationship to the place I am living.

Volunteering with Lideres Campesinas was also an incredible learning opportunity. I was able to witness the functioning of grassroots farmworker organizing and learn how to work in solidarity with people of different identities." This student's response echoes the 'transcommunalidad' that Julie Guthman observes from her students in their food internships through the community studies major.

Buena Vista Community Garden

Buena Vista Community Garden (BVCG) is a community garden in Pomona, California that students actively volunteer at. BVCG was founded in 2018 with a \$50,000 grant from the California Environmental Protection Agency. According to the U.S. Census, 70% of Pomona's population is Hispanic and most are low-income²⁷ (EnviroScreen). BVCG aims to lessen the environmental impact caused by polluting industries in and around South Pomona and to offer fresh, affordable food to their community²⁸. The design process for the garden has been guided by feedback from neighbors during community design meetings and mutual aid with other community gardens in the region. To promote access to healthy, fresh food, BVCG works with

²⁷<https://oehha.ca.gov/serp>

²⁸<https://www.bvcg.info/>

the Lopez Community Garden to distribute produce from the farm at weekly markets called “Puestacitos.” At these markets, consumers pay through voluntary donations.

Lynn Fang, one of the founders and a visiting lecturer of compost science at Cal Poly Pomona, shared about how community gardens are labors of love that need the support of many stakeholders. For example, she explained about the long process of installing the infrastructure for the garden; the irrigation meters and lines, the construction of the composting beds, and the community design for the objectives of the garden. A lot of support from other community farms and organizations like Amy's Farm, Food Cycle Collective, Sylmar High School, and others with the compost, trees, and tools they needed to start the project. Like many new community gardens, they face the challenge of maintaining the ongoing commitment of the volunteers the garden depends on and ensuring that food is distributed effectively and consistently. One hope Fang has for the garden is to get another grant so they can hire some to organize a comprehensive program to distribute the food. Fang is also in the process of developing her own version of farmer training to empower those who want to learn more about the process of growing food and building spaces like Buena Vista in their backyards. In hopes of inspiring others to reclaim vacant lots in Pomona as community gardens, Buena Vista is currently developing a curriculum for a workshop series that emphasizes the following themes; composting, Farm planning & maintenance, building structures, community engagement, and fundraising.

One of the first steps in transforming vacant lots is building healthy soils. With the support of other local organizations, BV started a composting program that uses food waste that is collected and distributed by the Food Cycle Collective, goat manure from Amy's Farm, and lots of mulch from various sources. That is why a large part of the farmer training that Fang

developed is dedicated to learning this process. Fang's educational background is soil science and composting and she will be teaching classes on this at Cal Poly Pomona starting Fall 2022. With this knowledge, she has worked on the collection of soil samples to show the evolution of the health of the soil since they began working on the plot. Other established off-campus learning sites include Uncommon Good, Amy's Farm, Lopez Urban Farms, and Cal Poly's Lyle Center for Regenerative Studies.

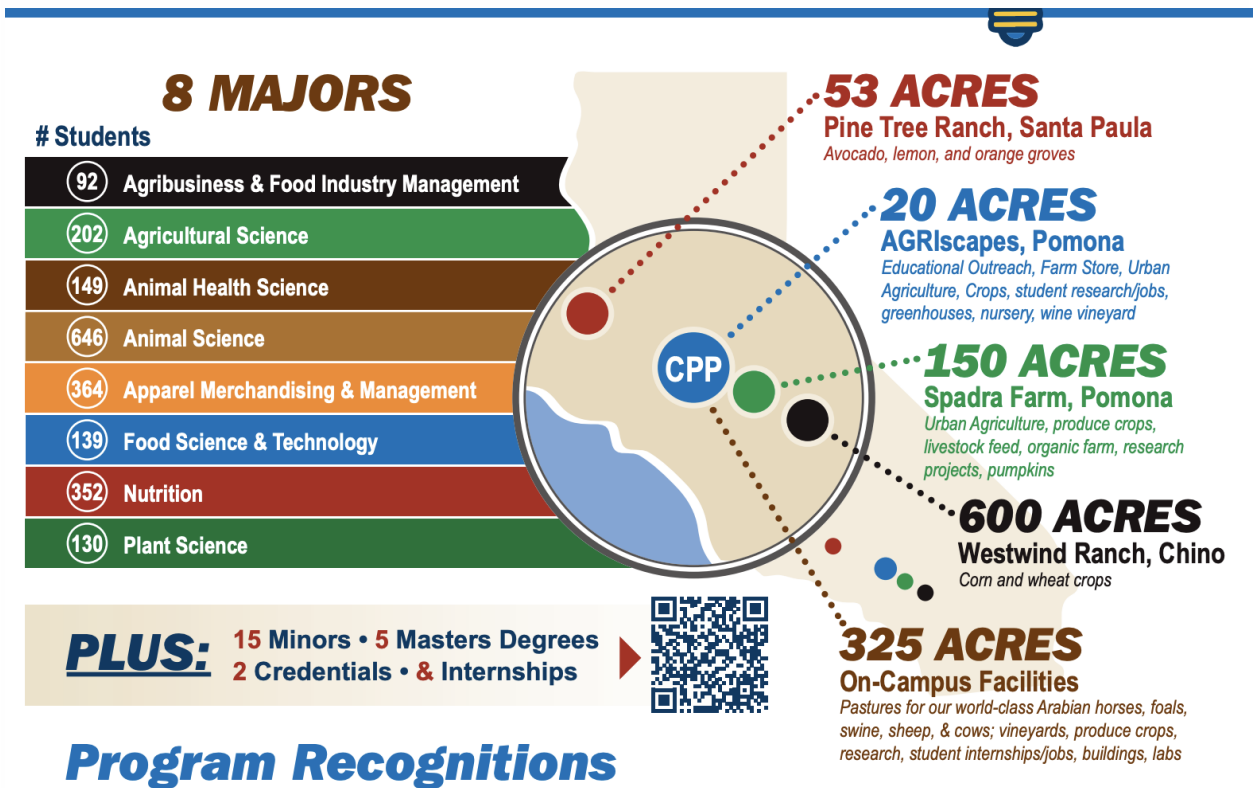
These sites are living laboratories that offer students opportunities to deepen their learning through immersion, experimentation, and collaboration. As demonstrated in the following section, many higher education institutions with food systems-related majors emphasize the importance of "learning by doing" by embedding their own living laboratories, both on and off campus, into their respective curricula. Particularly, the ten higher education institutions that I analyzed for their agroecology-related curricular offerings reflect this.

Higher Education Models

Given the notoriety of University of California Santa Cruz for its nexus within the alternative food movement, their model for agroecology studies is a useful baseline for this type of higher education curriculum. The Agroecology bachelor's degree program is the equivalent of one of the Pitzer College EA tracks. Although it falls under Environmental Studies, the description of the major equally emphasizes the "social" and "ecological" aspects of this study. Other recurring terms used throughout the description of the program and its objectives include similar language that student survey respondents used to describe the theme "hands-on learning." The five learning objectives of the major are directly correlated with the interdisciplinary class requirements that make up the curriculum; social science competency, natural science

competency, analytical thinking, communication skills, and production skills). Of all of the higher education curriculum analyzed, this breakdown of classes most closely resembles the definition of “agroecology” that guides this thesis.

Cal Poly Pomona’s Huntley College of Agriculture offers eight undergraduate majors²⁹. The descriptions on their website emphasize the Cal Poly educational model, “learn by doing.” They describe themselves as “the primary provider of undergraduate and graduate degree programs in these disciplines in Southern California” and highlight the numerous spaces on campus where students are able to practice the “learn by doing” philosophy. These highlighted aspects of the Cal Poly Pomona’s College of Agriculture and its proximity to Pitzer College make it a potentially promising partner institution for enhancing agroecology offerings.

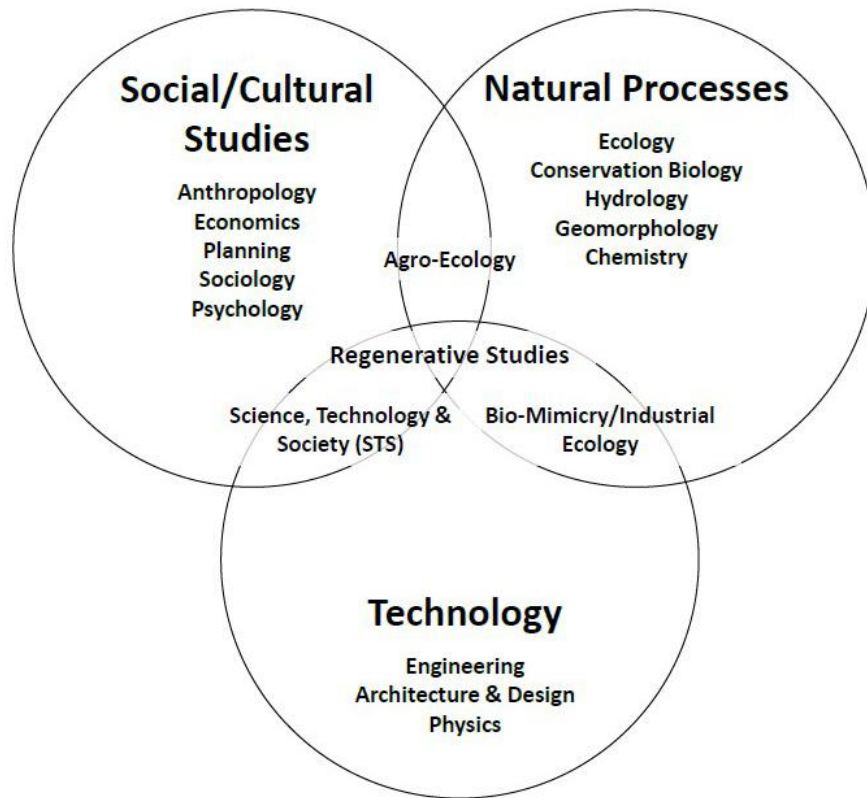


²⁹<https://catalog.cpp.edu/content.php?catoid=36&navoid=2903>

Two other key terms that recur throughout the about section of their website are “community” and “urban farms.” I found this interesting, especially when comparing terms emphasized in the about section of Cal Poly San Luis Obispo’s College of Agricultural, Food, and Environmental Science, which emphasized “technological expertise” and “professional development.” The major at Cal Poly’s College of Agriculture that most closely resembles an agroecology curriculum would be the Agricultural Science program, which includes required courses in ethics, sustainable agriculture, regenerative, and ethnic studies.

Other agroecology adjacent curriculum models that Cal Poly Pomona offers are the Lyle Center for Regenerative Studies Masters program and the minor in Urban and Community Agriculture. The Regenerative Studies Master program is housed under the College of Environmental design and uses the following figure to demonstrate the interdisciplinary foundation of the major. They emphasize the term “regenerative,” “community,” and various synonyms of these terms multiple times throughout their about section.

Mapping the Territory of Regenerative Studies



Mapping the territory of Regenerative Studies at the intersection of social/cultural studies, natural processes and technology

Student survey respondent: “I have learned a lot both academically, but also in ways that have allowed me to connect with the experience of working the land, and in becoming closer to the food I eat. I am constantly amazed at all the fruit trees at the Lyle Center, and it has been restructuring the way I think about the food I eat.”

Urban and Community Agriculture Minor

Minor Required Core: 12 units

- PLT 3760 - Introduction to Urban Agriculture (3)
- PLT 4965 - Sustainable Small-Scale Production (2)
- PLT 4965L - Sustainable Small-Scale Production Laboratory (1)
- PLT 4975 - Urban Agriculture Policy and Community Development (2)
- PLT 4975L - Urban Agriculture Policy and Community Development Laboratory (1)
- PLT 4985 - Urban Farm Business Models (3)

Minor Electives: 6 units

- PLT 2220 - Culinary Produce Technology (3)
- PLT 2977 - Farmers' Markets (3)
- PLT 2990 - Special Topics for Lower Division Students (1-3)
- PLT 2990L - Special Topics for Lower Division Students Laboratory (1-3)
- PLT 3360 - Bee Science (1)
- PLT 3360L - Bee Science Laboratory (1)
- PLT 3650 - Sustainable Agriculture (2)
- PLT 3650L - Sustainable Agriculture Laboratory (1)
- PLT 4450 - Social and Scientific Aspects of Organic Agriculture (3)
- PLT 4990 - Special Topics for Upper Division Students (1-3)
- PLT 4990L - Special Topics for Upper Division Students Laboratory (1-3)

Cal Poly Pomona Website

The University of California Riverside College of Natural and Agricultural Sciences (CNAS) has thirteen departments: Biochemistry Botany and Plant Sciences Chemistry Earth Sciences Entomology Environmental Sciences Evolution, Ecology, & Organismal Biology Mathematics Microbiology & Plant Pathology Molecular, Cell, & Systems Biology Nematology Physics and Astronomy Statistics. Their mission statement and about us pages for the college were distinct from the other colleges in that they emphasize a “structure that is unique among land-grant colleges.” The terms that they use to highlight this uniqueness are “collaborative,” and “interdisciplinary.” Their website even includes a diagram of where each department is housed and its relationships to other departments. Descriptions of the program also emphasize a focus on “research” and “science.”

The two departments that most closely resemble aspects of an agroecology curriculum are the environmental science department and the plant biology department. The Department of Environmental Sciences offers five specialization areas: Soil Sciences, Hydrologic Sciences, Atmospheric Sciences, Environmental Toxicology, and Environmental Management. The Department of Botany and Plant biology also offers four concentrations: Plant Cellular, Molecular, and Developmental Biology, Plant Genetics, Breeding, and Biotechnology, Ecology, Evolution, and Systematics, and Plant Pathology, Nematology and Pest Management.

Finally, I analyzed the curriculum of Mt. San Antonio community college, which is a local college that offers twelve certifications and four Horticulture Degrees. The degrees offered are Integrated Pest Management, Ornamental Horticulture, Plant Science Transfer Degree, Park and Sports Turf Management Degree. The website highlights the College of Horticulture's commitment to developing "employable skills."

From this diverse array of agroecology-related higher education curricula, Pitzer College can develop their own agroecology curriculum, perhaps in partnership with local schools and organizations. Following the stated objectives of the Environmental Analysis field group, I combine the strengths and aligned interests of these curricula to develop an agroecology curriculum from resources already available at the Claremont Colleges consortium.

Agroecology Curriculum

Given that the Agroecology B.A. at University of California Santa Cruz is most closely aligned with the values and existing resources for agroecology at the Claremont Colleges, my learning outcomes are adopted from theirs and revised to include regionally specific learning goals.

Learning Outcomes:

1. Develop a holistic understanding of the political, scientific, and practical aspects of agroecology.
2. Understand, describe, and critically analyze regional foodscapes (LA, Pomona, IE) and their relationship with the national-global food policy nexus
1. Demonstrate knowledge of the historical foundation for agroecology from movements and particularly the contributions of Indigenous practices and scholarship

Unless pre-approved by an advisor and internship site, students must participate in an **internship** that includes one of the following: field work with agroecology movements, data collection, and/or food production **after** completing their praxis requirement (EA085, POLI135L, or SPAN139, EA031). See list of site offerings in **hands-on learning** section or find another advisor-approved internship not listed.

Required Classes:

EA 010 PZ -Introduction to Environmental Analysis

EA 086 PZ -Environmental Justice or POLI 136 PO -Politics of Environmental Justice

EA 030L KS -Science and the Environment

One Native American Indigenous Studies (NAIS)³⁰ class

One class with lab or land-based learning component (EA085, POLI135L, SPAN139, EA03, BIOL110, EA 103L, BIOL106, etc.)

Capstone Seminar EA 150 PZ or Thesis -Critical Environmental Analysis

Guided by the high level of interest in Food Systems classes expressed by respondents to the survey, I've compiled a list of the current offerings in the realm of Food Systems or related to the four secondary interests indicated. The following courses were found by searching the five key terms from the survey in the course catalogs for Spring 2021, Fall 2021, Spring 2022, and Fall 2022 in order to gather the most current courses available in these areas of high interest. These classes can be used to fulfill the electives of the major. Note: the highlighted courses that contain a hands-on component and may count towards the land-based learning components.

Six Elective Courses and One Internship from the following

Food Policy and Politics

Introduction to Food Systems Sawyer, Scott EA 039 PZ-01

Global Politics of Food and Agriculture Williams, Heather POLI060 PO-01

Political Economy of Food Neiman, Nancy POLI135 SC-01

Political Economy of Food Lab Neiman, Nancy POLI135L SC-01

Plants, Land, and Food Vega, Martín SPAN139 SC-01

Food & the Environment in Asia and the Pacific Yamashita, Samuel HIST101F PO-01

Food, Culture and Power Chao, Emily ANTH009 PZ-01

³⁰ <https://www.scrippscollege.edu/departments/native-american-indigenous-studies-nais>

Food and Health in Chicana-Latina Communities Cupchoy, Lani CHLT090 CH-01

Food and Agriculture Engineer Willoughby, Urmi HIST060 PZ-01

Water Policy and Politics

Global Politics of Water Williams, Heather POLI061 PO

Water in the West Miller, Char EA171 PO

Ecology Science and Tech Skills

Food, Land, and the Environment Los Huertos, Marc EA085 PO

Introduction to an Ecological and Social Oriented Geographic Information Systems EA101PO
Douglass, Jaimes

Ecology and Environmental Biology Stephen, Adolph BIOL108 HM-01

Experimental Ecology Lab Donaldson-Matasci, Matina BIOL110 HM-01

Marine Ecology Gilman, Sarah BIOL169L KS-01

Tropical Ecology McFarlane, Donald BIOL176 KS-01

Conservation Ecology and Management Thomson, Diane BIOL067L KS-01

Soils and Society Robins, Colin EA 103 KS-01

Soils and Society with Lab Robins, Colin EA 103L KS-01

Advanced Animal Ecology w/ Lab Karnovsky, Nina BIOL112 PO

Aquatic Ecology w/ Lab Karnovsky BIOL106 PO

Ecology for Non-Majors with Laboratory BIOL001D

Intro to Ecology & Evolution STAFF, Bio BIOL041E PO only

Related Classes

Ecology in Latin American Lit & Film Gomez, Dalia SPAN189A PO-01

Global Environmental Politics Steinberg, Paul POST140 HM-01

Tropical Forests: Policy and Practice Steinberg, Paul SOS180 HM-01

Design Process Studio Monica Mahoney

Landscaping Lance Nekar

Qualitative Methods for Community Change ONT105 (Huerta del Valle internship)

Restoring Nature Faulstich, Paul EA031 PZ

Ethnoecology, Faulstich, Paul EA68

These courses currently already exist at the Claremont Colleges and could easily be used as a framework for a comprehensive agroecology curriculum that is comparable to other higher education institutions'. As the popularity of Environmental Analysis grows at Pitzer, there is a need to allocate more resources to the department, particularly in the fields that most interest students. There is a demonstrated high level of interest in the growing field of agroecology, though there are not any professors at the Claremont Colleges that are specifically trained in this field. The most pressing factor that prevents this curriculum from reaching its fullest potential is the need to hire a person who is well-versed in this field, and can guide the growth of this curriculum.

Conclusion and Implications

Given the student demand for food systems classes, and the curricular opportunities already available at the Claremont Colleges, I propose a formal agroecology curriculum. This curriculum should be formalized as a track of the Environmental Analysis major at Pitzer College and augmented by recommendations gleaned from my analysis of both formal and informal agroecology curricula embedded at higher education institutions, community gardens, and urban farms. Based on my ethnographic experiences as a student at Pitzer College and program facilitator at the Pitzer Student Garden, I suspected that a significant population of students in the Environmental Analysis field group desire more opportunities for hands-on learning and food systems classes. My food systems survey confirmed this observation. With

numerous opportunities for “learn by doing” already offered both on campus and at established community partner sites, the Pitzer EA field group could easily offer an immersive agroecology track. The overwhelming demand for more food systems classes may also be, in part, due to the lack of awareness that students have of the many classes and volunteer sites available to them. However, it also appears to be true that there are currently no classes that specifically specialize in the intersection of “food systems” and “hands-on learning.” Although there are food systems classes that offer land-based learning components, there is no equivalent of an accredited “agroecology practices” course or internship. In order to finalize an agroecology curriculum at Pitzer College, there must be a list of accredited courses that fill this gap in practical food systems work. The Farmer Training programs offered at Huerta del Valle, certification programs at Mount San Antonio, or even the permaculture design certification course offered at UCSC could potentially fulfill this requirement.

In order to strengthen the Pitzer Environmental Analysis offerings, Pitzer must contribute further learning opportunities to the growing field of agroecology. The next steps for holistically expanding and formalizing this hidden curriculum might be compiling a list of other potential community partnerships, identifying sites for agroecology learning opportunities that could be embedded in study abroad experiences, meeting with interested colleagues across the five colleges, and investigating intercollegiate accreditation for an existing concentration or certification program.

Epilogue

The Pitzer Student Garden has become a small but meaningful piece of this vision for an agroecology curriculum. As I look out at the space, filled with projects underway, the hope I feel is immeasurable. I imagine this space becoming increasingly embedded in a relational network with other urban farms in our vicinity, giving birth to an agroecology studies program grounded in experiential learning. Community gardens draw people in with the life and infinite possibility that they hold, and I truly believe that they are at the heart of the transformation for a brighter future. They teach us about our relationship with the planet and each other by assuring us that what we nurture will grow. The seeds we plant today will be nourished by these bright-eyed first and second-year students tomorrow, and though these trees will not bear fruit until long after I've graduated, they will serve as a living labor of love that will connect generations of Pitzer students to come.