

BEEING IN THE WILLAMETTE VALLEY:
A LOOK AT HUMAN AND HONEY BEE RELATIONSHIPS AND THE GLOBAL CURRENTS
THAT SHAPE THEM

By

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THESIS ABSTRACT

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Title: *Beeing in the Willamette Valley: A Look at Human and Honey Bee Relationships and the Global Currents That Shape Them*

This thesis explores interspecies relationships between humans and honey bees. Through multispecies ethnographic vignettes, beekeeper-honey bee relationships reveal the ways in which social systems inform interspecies entanglements. The research is grounded in the Willamette Valley, Oregon, and highlights the experiences of eleven beekeepers. Stories highlight how bodies interact within larger landscapes that are dictated by the dominant food system model. The bee hive becomes a meeting place for bodies to interact with, contradict, and reflect, conditions set by global currents.

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To pollinators – thank you. For enveloping me in curiosity, for stoking my passion, for a beautiful spring, for being my muse.

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TABLE OF CONTENTS

Chapter	Page
1: Introduction.....	8
Key Concepts.....	11
2: Methods	15
Location	15
Guiding Questions	18
Methodology.....	19
Positionality	21
Data collection and Participant Introductions.....	22
Thesis Outline.....	24
Recruitment and sampling	26
Interview style.....	27
Limitations and Ethical Considerations.....	28
3: The Landscape	31
Apis Industrial Complex.....	32
Exchange: Skewed and Entangled.....	36
Novel Ecologies: The Macro and the Micro.....	37
Labor.....	39
Life as a Bee?.....	42
4: The Radius	47
Care in the Construction of Personal Philosophy	48
Curiosity in the Construction of Personal Philosophy.....	52
On Connecting to Place	54
The Pool and Share.....	56
The Human, The Bee, The Place	58
On Existing in Both	61
5: The Space Between the Bee and the Keeper	62
On Seeing.....	65

On Hearing.....	67
On Smelling.....	69
On Tasting.....	73
On Feeling.....	75
On Detecting the Vibrancy of Bees.....	80
6: Concluding Reflections on Hope, Commoning, and Future Visions.....	84
Bibliography.....	98

Chapter 1: Introduction

It's springtime here in Eugene, Oregon as I write this. I sit in the library overlooking delicate cherry trees dressed in full blossom. Quietly working within tangles of blooming branches are thousands of little wings - pollinators of varied sizes comb flowers for nectar and pick up pollen on their furry appendages enroute. There are over 300,000 types of pollinators globally, of which 20,000 are bees (*Pollinator Conservation Program*, n.d.). Bees are of particular importance as they intentionally collect pollen as nutrition for their young. In their daily flower-hopping's, they interact with a plant's anthers, the part of a flower which facilitates pollination. Pollinators help about 80% of flowering plants reproduce globally, they are critically embedded into ecological and agricultural systems, and inextricably linked to the health and wellbeing of communities (*Pollinator Conservation Program*, n.d.).

However, we stand in a time marked by trends of decline in global pollinator populations and of general plant biodiversity. Pollinators are at risk. Pesticide use, climate change, introduced diseases, habitat loss, alteration, and fragmentation-a myriad of human-influenced factors- mix together as contributors to their decline (Potts et al, 2010). How easy it is for most of us to flutter about our own lives without fully understanding the impact pollinators have on our perceived normal. These tiny bodies take on grandiose importance in the health of our shared ecologies. And in the same vein, their bodies carry the role in translating a message of broad ecological imbalance on behalf of humans. They are indicators - living entities who interact with their environment in ways that express the health of an ecosystem.

This research explores these little entities who carry messages of burden and the humans who build intimate relationships with them. In this thesis, I work to understand methods of

interspecies communication and how social systems shape relationships between human and pollinator. While there are roughly 20,000 bees, there is one that has gained centerfold attention within the eye of human eye: *Apis mellifera*, the western honey bee. Honey bees have a historical pattern of capturing the attention of humans based on a rich history of interspecies relationships formed between hive and human. They have been muses for centuries. In fact, one of the earliest depictions of the honey bee dates back to 8000 BCE in the Spider Caves (Cuevas de la Araña) in Spain (Dyer et al., 2022). This entrancement is linked to the desire for sweet nutrition - honey, which inspired a fascination on the inner workings of the hive. Humans have had a vested interest in honey bees, so much so that they travelled aboard ships with European settlers and were introduced to North America in the 17th century in pursuit of preserving pastoral tradition (US Geological Survey, n.d.). This vested interest has been nurtured through human/bee co-labor in the form of beekeeping.

In general, a beekeeper's role is in the oversight and intervention of the health of a honey bee colony. However, beekeeping can look differently for different folks, and is reflective of one's philosophy and perception on what methods of hive stewardship fit best within their uniquely constructed ethos and livelihood. Although one's management styles can vary, there is a broader uniformity of the threats which can permeate hives and affect the wellbeing of pollinators. Since 2006, US beekeepers have lost an average of one-third of their honey bee colonies each year (Durant, 2020). Beekeepers of all sizes and management practices hold intimate attunement to the messages transmitted by bees which reveals the health of the landscape. Through the intentional involvement and closeness with the honey bee, beekeepers' step within containers of interspecies intimacy held on landscapes which challenge their wellbeing.

Through a case study approach grounded in the Willamette Valley, Oregon, I explore interspecies relationships between humans and honey bees. The honey bee has become a celebrity figure within the media, and fittingly, has become the co-star in this project. Livelihoods, identities, and personalities have been knit with the lives of bees. For many honey beekeepers, working with this species offers distinguishable experiences that can shape and influence an individual's perspectives on community, land, and self. Beekeepers frequent a space of interbeing interaction with intention often rooted in niche interest and curiosity. Beekeepers willingly entangle themselves within the hive in ways deeper than non-keepers. This is what piques my interest, the space between beekeeper and honey bee, their co-created translations of intimacy and collaboration, and how this all fits within a broader landscape of biodiversity loss and pollinator decline. In this research, I interview small-scale and hobbyist beekeepers. Small-scale and hobbyist beekeeping offers the beekeepers in this study space to explore interspecies relationality. By engaging with these beekeepers, I explore intimacy and interspecies collaboration, which illuminate my overarching questions:

- 1) How do beekeepers in the Willamette Valley, Oregon, view the relationship to their honey bees?
- 2) How does capitalism shape interspecies relationships between beekeepers and honey bees in the Willamette Valley, Oregon?
 - a. What motivates their current beekeeping philosophy?
 - b. What challenges do they face in their current philosophy?
- 3) How do beekeepers connect to their bees?
 - a. What do the spaces they co-create look like?
 - b. What universals are there in these spaces amongst beekeepers?
- 4) What do beekeepers envision as the future for native and nonnative pollinators?

To answer those questions, I anchor to the work of scholars who engage in multispecies studies. Multispecies studies critically look at binaries which position non-humans as *others* (Kirksey, 2010). Through a multispecies lens, I explore ideas of labor in capitalist systems, entanglement within the Anthropocene, communication across species, interspecies relationality, and commoning.

Key Concepts

There exists a growing tension between pollinators and humans. We are living in a time marked as the Anthropocene, a period in which “human disturbance outranks other geological forces” (Tsing et al., 2019) . Researchers pin the birth of this epoch to the birth of modern capitalism (Tsing et al., 2019). The foundations of modern capitalism overlook long-term ecological destruction in pursuit of exponential growth and progress. The Anthropocene dictates a landscape of alienation in this pursuit. The root, *anthropo-*, means human. The time of the human, a time of human-centric growth and influence which can overlook collaborative interspecies exchange. Growth under an anthropocentric lens, specifically within the container of capitalism, is enveloped in the “ideas of progress and with techniques of alienation that turn both humans and other beings into resources” (Tsing et al., 2019) . Human/nonhuman lives are always linked, and these interactions reflect influences as set by social systems.

The word *entanglement* frames how lives grow around and in response to one another (Tsing, 2021). It also frames how the Anthropocene imagines the human as being linked to the ideas of capitalist progress, which has “segregated humans and policed identities, obscuring collaborative survival” (Tsing, 2021). Humans and honey bees are entangled. Humans are reliant

on the services provided by pollinators, and in more recent consequence, honey bees have increasingly become more reliant on the services of humans to improve their health in a landscape shaped by our collective societal patterns (Andrews, 2019). Honey bees have grown to be an essential part of the industrial agricultural system which has developed into the dominant global food system. They are considered livestock in commercial pollination, and their bodies are instrumentalized as agricultural tools for pollinating large monocrops. Industrial agriculture is the root cause of declining honey bee health, yet we are deeply entrenched in a cycle which positions their bodies as resources – a cycle labeled as the apis industrial complex (Nimmo, 2015).

The Apis Industrial Complex viscerally paints how social systems shape interspecies entanglement. Agriculture continues to intensify, biodiversity decreases, and agrichemicals are introduced to the landscape with greater intensity- thus contributing to the decline of native pollinator species. The honey bee, a non-native species to the US, is increasingly relied upon in the dominant industrial food system for their pollination services. Within the US, commercial apiaries follow the flow of nectar nationally, intensifying the work that honey bees perform naturally to ensure successful crop pollination. An array of factors such as a lack of diversity in diet, exposure to agrichemicals, and increased transmittance of pests and diseases due to concentrated populations living in close proximity, all contribute to hive losses (Shanahan, 2022). However, the global political economy of food incentivizes industrialized agriculture (Baker et al., 2021). A cycle of dependency exists which places commercialized honey bees in situations of exposed vulnerability – thus ‘locking in’ this complex (Chable et al., 2020).

Amidst a landscape of locked-in dependency cycles, there are oases of interspecies closeness which critique the normalized instrumentalizing of honey bee bodies. The small-scale

beekeepers in this study demonstrate intentional interaction, with close attunement to the needs of a hive. They share stories which explore interspecies relationality and hold connections to their landscape which are informed by the relationships between themselves and honey bees. The beekeepers in this study are acutely aware of the challenges of this broad complex but stand in closeness and hopefulness in creating livable worlds of coexistence. Natasha Myers describes the *planthroposcene* as an envisioned epoch of plant/human collaboration of balanced and reciprocal care. It is, as Myers suggests, “a site for land-based justice, for healing and restoring relations with human and more-than-human kin, for growing livable worlds” (Myers, 2017). The act of *commoning* can help achieve these livable worlds of coexistence. Commoning stems from Garret Hardin’s concept of the “Tragedy of the Commons”, which looks at how common pool resources are exploited under some social systems (Hardin, 1968). Commoning refers to a collective stewarding of shared resources. The act of commoning offers a path of social change, which “regenerates people’s social connections with each other and with ‘nature’” (Bollier, 2020).

To explore these themes, I use multispecies ethnography to collect stories and highlight the interrelationality that exists between humans and bees. Multispecies ethnography “seeks to bring species linked to human social worlds closer into focus as the co-constitutive subjects” (Kirksey & Helmreich, 2010). Further, I employ a focused perspective within multispecies studies called Api-ethnography, which “considers bees as cultured beings that traffic between worlds of the hive and of the urban landscape” (Moore & Kosut, 2013). By engaging with small-scale beekeepers based in the Willamette Valley, I explore how global issues permeate intimate spaces. Amidst this permeation, there exists space for collaboration and hopefulness. Small-scale beekeepers in this study exist in both spaces, they stand within a landscape of

locked-in dependency cycles which commodifies and extracts, while nurturing interspecies relationships that highlight connection, collaboration, and hopeful space for commoning.

In what follows, I trace the stories of small-scale beekeepers located in the Willamette Valley, Oregon, to highlight interspecies relationships shaped by social systems. I break this study down by means of scales. In the first section, *The Landscape*, I outline the clash between capitalism and ecology through examining the apis industrial complex. Following that, *The Radius* discusses how beekeepers and honey bees interact in two spaces-the broader landscape and the more intimate space of the hive. After *The Radius*, I move into *The Space Between the Bee and the Keeper*, which looks at collaboration and communication between beekeeper and honey bee. I rely on the stories and reflections of eleven small-scale beekeepers in the Willamette Valley, Oregon. They are the pollinator interlocutors who share insight and mutual understanding of a shared landscape shaped by human-influences.

Chapter 2: Methods

Location

To explore the ways in which global issues of pollinator decline permeate small communities, I ground this case study in the Willamette Valley, Oregon. The Willamette Valley is situated between the Cascade Range, the Oregon Coast Range, and the Calapooya Mountains. It ranges from 20 to 40 miles wide and 120 miles long and follows the flow of the Willamette River (*Willamette Valley – Oregon Conservation Strategy*, n.d.). It is divided into 10 counties: Benton, Clackamas, Columbia, Lane, Linn, Marion, Multnomah, Polk, Washington, and Yamhill. This expanse is an essential agricultural region in Oregon for its fertile soils and temperate weather patterns. Not only do temperate weather patterns and fertile soil motivate farmers in the valley, but these conditions also motivate individuals to keep honey bees. It is hard to accurately represent the number of beekeepers and colonies present in the Willamette Valley due to several factors. First, it is not required to register one's apiary if the apiary contains 4 or less colonies. Within the city limits of Eugene, each development site is allotted up to three hives (*Eugene Code*, n.d.). Second, beekeeping becomes knit in as an identity. A person may align with the identity of a beekeeper regardless of if they are *actively* keeping bees. Through this research, I have encountered individuals who may be taking a break from beekeeping but still identify as beekeepers. For these reasons, accurate statistical representation of beekeepers in the valley becomes convoluted.

The USDA's National Agricultural Statistics Service collects information through the Census of Agriculture on land use and ownership, production practices, operator characteristics, income, and expenditures every five years. In 2017, NASS provided information by county on farms that tend to bees in Oregon. In the Willamette Valley, there is a total of 1,039 farms who engage in beekeeping, and the estimated colony number is 48,266 (*USDA - National Agricultural Statistics Service*, n.d.). I include these numbers to ground the popularity and presence of beekeeping in the valley, however it must be noted that this number is not an accurate representation as it only captures registered farms with apiaries. Due to the factors listed prior, this number of beekeepers is sure to be significantly higher.

The Willamette Valley presents an important case study when looking at human/bee entanglements for several contextual reasons. First being *flow*. The Willamette River flows north towards Portland, depositing rich alluvial soil along its banks creating fertile ground for prime growing. Following the river, flows Interstate 5. This highway acts as an artery which ties together the coastal west. Migratory apiaries follow the flow of pollen intercontinentally, such as the Californian almond blooms in early spring, and utilize major highway arteries including I-5.

The second factor to consider is *variety*. Because the valley holds conditions so conducive for growing, there exists an expansive and diverse agricultural scene. Farms in the valley range in growing practices, from conventional monocrops to small scale nonconventional farms, the diversity is expansive and engages in a variety of conventional and alternative markets. The Willamette Valley produces approximately 99% of the hazelnuts that are grown within the US (Olsen, 2013). Grass seed is also a vital monocrop that is highly popular in the valley. Grass seed and hazelnuts do not rely on insect pollinators to successfully aid in the

growing process, and therefore growing practices around these crops can tend to be less oriented around their health.

Finally, the Willamette valley holds a rich history of beekeeping. Beekeeping has been an integral part of Oregon agriculture since the introduction of honey bees to the area in the mid-1800s (Kellar, 2018). Their introduction sparked the creation of new markets selling honey bee products, actual honey bees, and their pollination services. In 1921, the Oregon State Beekeepers Association was formed, which provided Oregon beekeepers with a network for collaboration. Beekeepers connect through their interest in tending to honey bees, but the practice is highly personalized which reflects personal ideology. In the Willamette Valley, the beekeeping community holds diversity in beekeeping philosophy as expressed in the different goals, apiary scale, and management practices.

As established upon their introduction to the area, honey bees crystalized new markets for Oregonians which are currently active today. In the Willamette Valley, many beekeepers actively engage in these markets directly and establish livelihoods related to honey bee management. Many beekeepers keep honey bees just for enjoyment, unassociated to their livelihoods. The main point of convergence in the Willamette Valley beekeeping community is the desire to interact with honey bees. Within this convergence lies a common concern of honey bee health. Honey bees and their keepers interact at the hive – they comingle with the surrounding landscape and come into contact within the intimate setting of the hive. Donna Haraway describes these points of interspecies connection as *contact zones*, which “demonstrate how the lives of a multitude of organisms shape and are shaped by economic, cultural, and political forces” (Haraway, 2008). Whether keeping bees is a livelihood or a hobby, individual bodies integrate

within their landscape and meet at the hive in a space of intimacy, which can illuminate lessons and perspectives on pervasive global issues contributing to the decline of pollinators.

It is in this space that my curiosity lies. I am fascinated by the space of intimacy between beekeepers and honey bees, how bodies integrate in their larger landscape and come back to these areas of closeness and vulnerability. In this thesis, I explore how the Willamette Valley holds intimate space while integrating within the dominant food system. By sharing the stories of small-scale beekeepers in the valley I illuminate how factors of time, scale, and economic pressure can shape a beekeeper's philosophy and management. Throughout this study, I explore these issues by addressing a set of questions.

Guiding Questions

- 1) How do beekeepers in the Willamette Valley, Oregon, view the relationship to their honey bees?
- 2) How does capitalism shape interspecies relationships between beekeepers and honey bees in the Willamette Valley, Oregon?
 - a. What motivates their current beekeeping philosophy?
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- 3) How do beekeepers connect to their bees?
 - a. What do the spaces they co-create look like?
 - b. What universals are there in these spaces amongst beekeepers?
- 4) What do beekeepers envision as the future for native and nonnative pollinators?

In what follows, I will outline the process of answering these questions.

Methodology

I have been thinking about nesting dolls-how things fit within each other but contain their own identities and interior constructions. Small worlds fit within one another in both harmony and juxtaposition. In the early stages of research development, I desired to attach ideas and identities colored by the literature I nested in. My research started as an exploration of how beekeepers may be tools in an agricultural transformation, then shifted towards tensions in knowledge production, and from there, adjusted to observing how beekeepers may be performing everyday acts of resistance against the commodification of bee bodies. Working through these various angles, I started to understand that I was trying too hard to place a certain identity I *wanted* to see within this community, rather than explore the intricacies that lay before me.

I worked on a farm in the summer of 2022. I connect deeply to agricultural work. It humbles me and allows me to connect back to myself and my relationship to soil. I worked in the field alongside buzzing pollinators. This time working, my knuckle wrinkles carrying soil from the field to my house and back to the field-let me think about identity placement. My research evolved by acknowledging my own smallness. As a small being, a thread in a tapestry of lives, I can focus my attention on other small beings that weave together. My research shifted into adoration and exploration of the twists and tangles between the threads of humans and bees, and solely this. By stepping back and focusing on the threads, I can explore how social containers fit within one another, how lives shape each other, how love and connection is expressed, and how juxtaposed pillars of understanding support communities.

I tangle in things and fit into spaces. I carry my own network of fibers and interior world, these complexities tangle and fit into spaces that carry a myriad of identities and perspectives. As I sat in this reflection, I began exploring the work of Timothy Morton. He describes the notion of

ecological thought in resonant prose. “When we think the ecological thought, we encounter all kinds of beings that are not strictly ‘natural’. This isn’t surprising either, since what we call ‘nature’ is a ‘denatured,’ unnatural, uncanny sequence of mutations and catastrophic events: just read Darwin. The ecological view to come isn’t a picture of some bounded object or ‘restrictive economy,’ a closed system. It is a vast, sprawling mesh of interconnection without a definite center or edge. It is radical intimacy, coexistence with other beings, sentient and otherwise” (Morton, 2010). Ecological thinking informs my methodology and allows me to enter a space of multispecies ethnography. I employ ecological thinking as I engage in the framework of critical political ecology of pollination. By looking at this research through a critical political ecology of pollination framework, I assess the overlapping of lives and bodies as they tangle in social systems and economic pressure. Through my fieldwork, it became evident that bee-bodies knit together contradictions on a global scale while also inspiring intimacy.

I used the works of Eduardo Kohn to frame my multispecies ethnographic approach, which focuses “not just on humans or only on animals but on how humans and animals interact” (Kohn, 2013). I also rely heavily on the work of Mary Kosut and Lisa Jean Moore as presented in their book, *Buzz: Urban Beekeeping and the Power of the Bee*, wherein they identify the role of an api-ethnographer. An api-ethnographer “considers bees as cultured beings that traffic between worlds of the hive and of the urban landscape” (Moore & Kosut, 2013). As an api-ethnographer, I use the foundation of multispecies studies to inform my questions and methods of analysis. Ecological thought and multispecies ethnography inform how I enter the space of analysis of the complex relationships between humans and pollinators.

Positionality

Pollinators have lovingly consumed my attention for over a decade. I found deep rooted adoration for these insects as I explore threads which connect me to community. The communities which hold me are constellations of networks, and to explore these networks is my way of understanding the deep reverence I hold for tangles and support systems that exist within systems of unequal power. I was originally brought to the topic of pollination in my undergraduate research. Through the lens of pollination, I traced the implications of the Trans Pacific Partnership on the livelihoods of Chilean beekeepers. I met a third-generation beekeeper, Pia Paz, with a pet pigeon that sat on her shoulder everywhere she went, I smelled propolis in damp valleys, I walked alongside protesters in Santiago. Bees connected me to folks who shaped how I hold gratitude for my surroundings. These lives that I floated by for a blip informed how I view links and scales - how I understand that it all comes down to pollinators if you choose to see their work.

This research is important to me in how I reflect gratitude to my community. Holding curiosity is elemental to my gratitude. I am curious about the lives that dedicate themselves to insects-what draws them to these bugs and how does it inform their understanding of their surroundings? How do they connect to these bugs, and why? What values shine through these relationships? I value the work of the individuals I interviewed, as their frame of understanding connection orbits around care. The beekeepers involved in my research walked me through their reflections on the landscape which contains their practice. They showed me the micro-oases they create through holding supportive interspecies relationships. Throughout these conversations, I grew increasingly fascinated by the complexity of scale. In this research, I explore how lives fit

within lives within systems that fit within systems. Things can butt heads, contradict each other, make messy fringes and overlap. But they can also harmonize cohesively. The lives of the small-scale beekeepers and honey bees in this research embody the idea of nested scale. The hives tended by these beekeepers are contact zones of interspecies collaboration. They exist within a broader landscape built on the hegemony of industrialized agriculture. Industrial agriculture utilizes bee bodies as commodities and tools for production. It is important to explore the lives in these nested scales to understand how bodies exist in oases of care within broad systems of extraction.

I am not a beekeeper. My mother keeps bees back in Vermont. We briefly started that journey together, and now she carries on this hobby. She tends to her bees with care and curiosity. She's flooded with joy watching them pollinate her flowers. She feels deep sadness when they die. A large part of this research is in ode to her and the complex emotions she feels as she explores her connection to land and self - alongside her bees.

Data collection and Participant Introductions

Over the summer and fall of 2022, I conducted interviews with eleven beekeepers located in the Willamette Valley, Oregon. I decided to hold interviews with small-scale beekeepers to capture the intimacy that can be held between keeper and honey bee. I met numerous small-scale beekeepers who tend hives in their backyards, on the land of friends, or on the rooftops of urban spaces. I will introduce these beekeepers below. During my recruitment phase, I also reached out to numerous commercial migratory apiaries to integrate a range of scales and livelihood dependencies, however I was only able to connect with one medium-sized stationary apiary. The

medium-sized apiary who participated in my study offered wonderful insight into their lives as commercial beekeepers who initiated a honey cooperative. Their cooperative structure inspires my concluding reflections offered at the end of this paper. With a lack of response from migratory commercial apiaries, I took this as an opportunity to fully explore the ways small-scale beekeepers form intimate connections to their hives and their land, while considering the future of human-bee relations within our currently landscape.

I attended the Lane County Beekeepers Association meeting, where I met Ariel, David, and Judy. These association participants graciously offered me their time. They told me stories of the connection to their hives and the land on which they tend them. While working at Wintergreen Farm in Noti, I connected with other farmers who introduced me to Brent, Anna, Erin, and Mason. Brent tends bees in the Valley while also offering hive re-homing, which provides community members with an ethical alternative to the traditional hive-removal (extermination) options. Anna tends bees on the rooftops of Portland through her work, which offers community members an opportunity to engage with pollinators in an urban setting. Erin and Mason tend bees in a rural setting, exploring their bug-centered curiosities and their connection to the land.

Like Anna, I met David on a rooftop where he tends to (some of) his bees. David cares for bees on the rooftops at the University of Oregon, as well as on his own property in the Valley. His involvement with bees allows students to experience what it feels like to be a beekeeper. I met Michaela who tends bees while running a plant nursery. When I met Hannah, she was tending a few hives on a flower farm. I met Helen who tends to her bees alongside her sweet dog near her vegetable garden. I met the folks at Flying Bee Ranch who started a honey

cooperative which ties together medium-sized apiaries in the Valley together in ways which challenge the typical pattern of migration for commercial apiaries.

It is from these eleven beekeepers that I can synthesize their stories and understand how social systems shape interspecies connections between human and bee. The interviews were recorded by means of my phone. Our conversations were guided by broad questions that explore elements of the beekeeping experience. After each interview, I transcribed the conversations into a word document. I used the transcriptions to sift through and find recurring themes.

Thesis Outline

Prior to starting these interviews, I identified themes from the literature that I expected to explore with participants. These themes include labor, interspecies dependency, reflections on reciprocity and exchange, the sensory experience of beekeeping, and the draw of beekeeping. During the transcribing process, I noted several recurring themes across interviews. The thematic commonalities both built on and added to the themes I found in my initial literature review. Common themes I identified from my interviews include the concept of care, curiosity, focus, joy, bees as non-native species in the US, how one connects to place through bees, and reflections on interspecies communication. I organize my thematic findings within the body of this research in the chapters to follow.

In Chapter 3, *The Landscape*, I explore themes of labor, exchange, and the creation of novel ecologies in the Anthropocene. This section explores themes of contextuality which set the stage of the case study. In my literature review, I looked for discussion on the Anthropocene, the

idea of labor within capitalist systems, and extraction in the context of the honey bee. These parallel many themes that cropped up during my interviews. Beekeepers were keen to discuss labor, the effects of industrialized agriculture on bee health, and the contingencies of human-bee relationships within harsh environments. This section traces the pervasive global issue of pollinator decline in the Anthropocene.

In chapter 4, *The Radius*, I discuss themes on care, curiosity, and a connection to place and community. This section explores themes related to the beekeeping experience within the Willamette Valley that both challenge and reflect the overall landscape. In my findings, I observed how beekeepers build their personal philosophies which orbit around emotions of care and compassion. Beekeepers often discussed their connection to place through the relationship to the hive. Within this section, I also explore the recurring theme of how one's values are emulated within zones of interspecies contact. This section grounds the global issue of pollinator decline in the Willamette Valley, while revealing the agency of both beekeeper and bee as they comingle within the intimacy of the hive.

In chapter 5, *The Space Between the Bee and the Keeper*, I explore themes pertaining to the senses experienced by beekeepers, methods of interspecies communication, and shared sensations of emotional connectedness beekeepers feel for their counterparts. This section steps into the hive and explores recurring patterns discussed amongst beekeepers in relation to their sensorial and emotional connection to bees.

In my final chapter, *Concluding Reflections on Hope, Commoning, and Future Visions*, I discuss a shared vision for the future of human/bee relationships by exploring thematic recurrences of hope and the act of commoning. I recenter back to a global scale by tying together the reflections of the involved participants to visions of the future of human/bee relationships and

offer alternatives to an unjust dominant food system. These themes construct this thesis and reveal how social systems shape interspecies connections between humans and honey bees.

Recruitment and sampling

To collect ethnographic vignettes of human and honeybee interactions, I held informal interviews with beekeepers, I used participant observation at public meetings centered on pollinator education, and I spied on pollinators working alongside me at a farm in the Willamette Valley. My intention with primarily collecting data through informal interviews is reflective of the overall feel of this research. I want to capture the intimacy that can exist within interspecies connections. I explore with beekeepers their perspectives, hopes, motivations, and challenges in tending to bees within the situated landscape through the context of storytelling and informal conversation.

To recruit interviewees, I used convenience sampling through community networking. I contacted over 20 different beekeepers in a range of sizes in the Willamette Valley-of which 11 individuals agreed to share their stories. Contacts were acquired through google searching “Apiaries in the Willamette Valley” and through local food networks such as the Willamette Farm Food Coalition’s *Locally Grown Guide*. My efforts of snowball recruiting rolled along smoothly, I grew to see that if you mention an interest in beekeeping to anyone, they most likely know someone who tends a hive or two. I am indebted to my community and the willingness of my acquaintances to connect me to their beekeeping contacts. And of course, I am indebted to the beekeepers who participated in this study, for without their stories, I would lack the invaluable insight on the intimacies of the connection between human and bee.

Interview style

Informal interviews were arranged with eleven beekeepers in the Willamette Valley. Through snowball recruitment, I formed connections to beekeepers who felt compelled to share their perspectives on connection and entanglement.

The questions I ask during the informal interviews orbit around the central idea of connection. The goal of this research was to provide myself with the opportunity to explore multispecies ethnography. I divided my time amongst the beekeepers and focused my questions on their perception of connection, labor, and emotions. In the space offered by these questions, beekeepers explored sensation and connection of hive- tending and bee-mingling within the broader contextual landscape of an industrial agricultural model. Through an api-ethnographic lens, bees became buzzing entities of culture and connection (Moore & Kosut, 2013).

There is an emerging body of literature which focuses on interspecies connections in the Anthropocene. This literature challenges the binary of the Anthropocene and highlights how lives are entangled within novel ecologies. My literature review includes material which guided how to ask questions from a multispecies perspective. I anchor much of my research base to Mary Kosut and Lisa Jean Moore's book, *Buzz: Urban Beekeeping and the Power of the Bee*, which looks at interspecies relationships between beekeepers and pollinators in New York City. I also pull from the works of Anna Tsing and Bruno Latour on their understanding of the Anthropocene. Natasha Myers, Timothy Morton, and David Bollier help frame my understanding of 'solutions thinking' in their exploration of interspecies reciprocity. These works

and others help position my research within the space of curious exploration of the threads that tangle within landscapes that reflect human-influenced transformations.

I asked beekeepers how they connect to their bees. Our conversations explored if they feel that they communicate with their bees – and how. I asked beekeepers how they connect to their landscape, and how their work with bees may inform this connection. I asked these beekeepers to reflect on their surrounding landscape, first starting small, and then expanding to a wider reaching landscape that encouraged reflection on industrialized agriculture and tensions between capitalism and ecology. Through broad questions, new questions and topics were unearthed by way of organic conversation and curiosity. Through these organic and semi-structured interviews, I gleaned stories of hope, connection, reflection, lessons, and future visions which orbit around collaboration between human and bee.

Limitations and Ethical Considerations

This research is constrained by time and resources. To capture the voice of beekeepers more accurately, larger apiaries should have been included. This research highlights the voices of small-scale beekeepers who are primarily hobbyists. I was not able to interview largescale migratory apiaries, which would have broadened the array of perspectives and insights on the themes I explore. To work with this limitation, I found existing articles, interviews, blog posts, and forums that highlight the perspectives of migratory beekeepers. However, by not engaging with these beekeepers personally, I was unable to ask them the questions I asked the beekeepers involved in this study. This limitation was set by time, access, and availability. I acknowledge

this limitation and plan to elaborate upon this research by including the voice of migratory beekeepers in the future.

Another voice that was not captured in its authenticity is the voice of the bee. While exploring multispecies literature, researchers often discuss the root limitation of *the human*. To provide a voice for another species in its authenticity is unattainable, and thus presents an ethical limitation at its core. There are creative measures I took to address this limitation. I practiced close observations of pollinators at work in my backyard and during my various meanderings. I viewed the pollinators buzzing beside me at Wintergreen Farm as my co-workers, both of us engaging in the landscape and working with diligence. I tried ‘bee-lining’, a method of introducing oneself to neighboring hives by placing honey or sugar water on a plate and waiting patiently for a bee to visit. Once a bee visits the intentional treat, I observed the direction of its departing flight and timed its return with hive companions. I collected dead bee bodies and placed them in artistic renderings of my thought process, I had my dear friend Sarah, a pollinator-loving entomologist and community ecologist, walk me through the biology of pollinators. I read bee-themed poetry, looked at centuries of bee-themed art, and dreamed of sipping nectar. But I cannot fully be a bee. So, I cannot fully share the stories of bees. I can only tell the stories of their interlocutors, their human counterparts who work hard to know how to communicate with them.

There are many topics I wished to have included in this research. Almost all the beekeepers involved in this study mentioned native bees in relation to honey bees. The decline of native bees often gets overlooked because of the human-influenced charisma of the honey bee. There has been many a moment during the process of writing this thesis where I am struck with the guilt of contributing to this fascination and fortress of honey bee charisma. However, I

acknowledge that this human fascination illuminates *my* fascination. We are so deeply entwined with all pollinators, but we fixate on tangling with the honey bee. In a future study, I wish to focus more on the role of native bees in the human imaginary, the social connections farmers and beekeepers may form to these comparative underdogs.

Chapter 3: The Landscape

In the following chapter, I will detail the landscape on which the beekeepers involved in this study collaborate with their tiny counterparts. The landscape encompasses more than just a cartographic reference of the Willamette Valley. This landscape is contextual, it holds amalgamation of social-ecological entangling which ripple through lives and bodies. It holds the global in its soil; influenced by transnational food systems and social patterns. There is a growing body of research on the health of insect pollinators as impacted by land management. Honey bees are often referred to as canaries in the coalmine as they are key indicator species that are sensitivity calibrated to their environment and expose environmental pollutants that accumulate in their pollen and nectar (Nimmo, 2015). Despite their role as “canary”, honey bee researchers seldom call attention to the root cause of their health issues (Shanahan, 2022). Rather, research is often directed to the immediate issues such as parasites, pathogens, pesticides, and poor nutrition, to name a few - but “this is a problem because we cannot resolve honey bee health issues unless we conform the systems which cause them harm” (Shanahan, 2022). Industrial agriculture is designed to 1) increase labor productivity, and 2) increase yield (Shanahan, 2022). To fit this design, farmers must simplify and standardize their crop production, which in turn, establishes monocrop mosaics and ecosystem services replaced with fertilizers, pesticides, and other technological tools (Agrebi et al., 2020; Potts et al., 2010; Shanahan, 2022). The process of simplification and standardization of agricultural landscapes

supports farmers in increasing yield but introduces consequences which undermine biodiversity and ecosystem services (Cardinale et al., 2012; Tilman et al., 2002).

To dissect this landscape, I discuss contextual themes which will sort out the complexity of the grandiose issue of global pollinator decline. The subchapters examine themes which recurred consistently within my interviews, paralleling the arguments of existing literature on the clash of ecology and capitalism.

Apis Industrial Complex

What does it mean to be a bee (native and introduced) in this landscape? What happens when ecological systems are worked to fit in with the structure of human-designed social systems? Contextually-it is arduous and clashes. Industrialized agriculture landscapes do not hold diverse space for nesting and forage and expose bees to a myriad of agrichemicals (Durant & Ponisio, 2021). Consequently, “as agriculture intensifies, the overall abundance and richness of wild pollinators in agricultural landscapes decreases, and commercial beekeepers bring in honey bees to meet crop pollination needs” (Shanahan, 2022). This relationship, known as the apis industrial complex suggests how integral large-scale commercial beekeeping has become for industrial monocultures (Ellis et al., 2020; Nimmo, 2015). Through this complex, Ellis et al propose that there has been a “betrayal of the age-old relationship between humans and bees” (Ellis et al., 2020), where in this new relationship, humans continue to take products of the hive while reducing the diversified forage and habitat through increased monoculture landscapes. This complex grows challenging in the parallel of dependencies in the human-honey bee relationship. While reflecting on this entangled dependency, one beekeeper states,

The fact that we have honey bees outside of their range...they're imported into this environment and therefore reliant on our agriculture. That is like a cool thing about it, that they're so intertwined with human systems... we have to move bees around within our current system. Ideally, bees would be able to be in one place and have all their nutritional needs met within a radius...but just because of the system that were growing food under in monocrops, you couldn't leave a hive of bees in an almond grove year round because there's nothing blooming the rest of the year (Michaela, 2022).

Farmers need pollinators for successful crop reproduction. Honey bees need forage to sustain their colonies. Large scale farmers face pressure to simplify and standardize production through monocropping landscapes. Diverse forage is reduced as monocropped agriculture expands. Honey bees' reliance on agricultural lands hinders their health which prompts increased human intervention.

The beekeepers involved in this case study are acutely aware of this complex yet exist in a space that challenges parts of it. As Ellis Et. Al state, the apis industrial complex is a "betrayal" of a timeless interspecies connection. The beekeepers engaged in this case study are situated on the periphery of this complex, they exist within its landscape while also holding interspecies relationships that deviate from that of commercial-sized apiaries. One beekeeper, Ariel, discusses this reflection in our interview:

I just went to our state conference, I'm relatively new... It was mostly commercial beekeepers, so it was such a wake up to like how deeply in a 'big ag' kind of system I'm in all of a sudden... as far as treatments and things, without the hands-on time with individual hives and being able to see the effects of treatments and such, [commercial beekeepers] don't have as much time to put into each hive...they don't have time to do the inspections themselves, they're really flailing (Ariel, 2022).

Ariel remarks on how she is now in orbit within the landscape of industrial agriculture- 'big ag'. She goes further to discuss how the normal modes of operation for largescale beekeepers differs from her own, primarily based on the factor of time and scale. Research has shown that

beekeeping management practices vary due to factors related to scale, where larger apiaries tend to employ high intervention management techniques such as scheduled treatments, supplemental feeding, and hive manipulation (Underwood et al., 2019). Ariel introduces this divergence through her discussion of commercial apiary treatment plans and delves deeper by acknowledging the factors of time and pressure. In an Oregonian article written by Joe Hansen of Foothills Honey in Colton, Oregon, the pressures of global markets are outlined. Hansen ties this pressure to livelihood stress felt by largescale apiaries. Hansen states, “American beekeepers used to be in the business of making and selling honey. Beekeepers, though, have fallen prey to the same globalization bogeyman that has wrecked so many American industries: cheap foreign goods. Honey importation now outpaces domestic production every year, and a 2009 U.S. Department of Commerce survey of honey imports from Canada, Mexico, Argentina, and China found they sold for an average of \$1.28 a pound at the wholesale level. We can't compete with that price. It's below our cost of production” (Hansen, 2010). Hansen notes that due to global forces, largescale apiaries in the states have been “forced to search out new ways of making a living” (Hansen, 2010). More recently, largescale apiaries predominantly rely on pollination services which requires transcontinental migration to follow the pollen bloom of monocropped agriculture (Nimmo, 2015). Hansen notes that with the increase of industrial farms which require pollinators to be imported, more commercial beekeepers have shifted their apiaries into “mobile pollination forces” (Hansen, 2010). Foothills Honey, for example, makes 80% of its income from commercial pollination contracts (Hansen, 2010). These circumstances have snowballed into challenging and unsustainable terrain for non-native and native pollinators. “Life in monocrop, plantation-style orchards can be trying for bees. The landscape is rich in pesticides and chemically infused dirt. Our bees intermingle with hives from around the

country and vice versa, swapping parasitic Varroa and Tracheal mites and diseases like *Nosema ceranae* -- a microsporidium causing bee dysentery -- at an alarming rate” (Hansen, 2010). Here, Hansen traces what a bee will face in this landscape. Beekeepers involved in this study offered their own reflections on these conditions. Judy states:

People are moving bees hundreds of miles to pollinate the almonds. And that is their living! I really love beekeepers- I really feel bad for them because that is the way they make their living. And then after [the almonds] they will pollinate other important crops, and I think that really stresses out the bees. It really stresses out the bees and it does not have to (Judy, 2022).

Judy’s sentiments are common. In fact, Hansen addresses this concern in his article and states:

“A discerning reader might ask why beekeepers would willingly put their bees through such a challenging process. The answer: livelihood” (Hansen, 2010). Hansen addressing livelihood is elemental to understanding the social pressures placed on individuals on account of social *systems*. When reflecting on the current landscape, one beekeeper says,

When we talk about industrial agriculture, we really need to differentiate farmers from the system, because that causes a lot of conflict (Michaela, 2022).

Much like the lack of acknowledgement on the root cause of honey bee health decline, there exists a gap in acknowledging the *system* which pressures large scale farmers to make decisions that impact eco-systemic health. Michaela addresses the conflict that can arise from overlooking the systemic root of these decisions which are tied to one’s livelihood. The apiculture industrial complex is cyclical and entangles social and ecological systems into containers that clash. Yet, livelihood and an immediate paralleled interspecies reliance anchor these systems in place to support the dominant industrial food model.

Exchange: Skewed and Entangled

The entanglement of social and ecological systems in this complex skew interspecies relationships to be reflective of social currents. Researchers often discuss how the bee has been “anthropomorphized” to fit both human imaginaries and resource extraction goals (Nimmo, 2013; Preston, 2006). Impacts are reciprocated-honey bees have been reshaped through human involvement through selective breeding and transnational migration, while bees shape human societies in their key role in food production and material culture (Moore & Kosut, 2013; Nimmo, 2015). Mary Kosut and Lisa Jean Moore explore this pattern in their research. They note that “because bees are vital insects integrated into the food system, it is assumed that we can and should manage their reproduction and migration. It is believed that bees are as mutable as crops...The manipulation of the bee through antibiotic treatments, selective breeding, industrial labor, and habitat design has changed the species for the convenience of the human consumer” (Moore & Kosut, 2013).

At present, the honey bee itself challenges the notion of “natural”. The honey bee was brought into the US during the mid-1600’s by boat (Ransome, 2004). They were prized for their wax, an important element well incorporated into the lives and customs of European settlers. However, with agricultural shifts that took place in the US after WW2, the landscape of farming began to homogenize and industrialize (Holt-Gimenez, 2017). Given these changes, honey bees entered this pipeline of agricultural support through new avenues of livelihoods via commercial pollination. This created the coupled dependencies of commercialized pollination and industrialized agriculture, thus rooting in the apis industrial complex. As non-native honey bees grow to become a vital link in the production of industrial crops, they become agricultural ‘tools’- labeled as livestock. This livestock works. It gets tired, it gets sick, it transmits disease.

Humans intervene and manage their health. Given these complexities, honey bees in the US exist in this messy overlapping space. They are not truly ‘natural’ nor are they truly ‘cultural’, they are quasi. They hold their own agency, they roam free. But they also engage in spaces heavily dictated and controlled by human intervention.

A common theme noted amongst beekeepers in this case study is that of almond pollination. Almond production occurs in central California and is known to be the largest pollination event in the world, the monocropped almond orchards expand over 1.2 million acres and produce more than 75% of the world’s almonds (Durant, 2019). For small-scale beekeepers in this case study, it acts as a symbol of a shift towards imbalanced exchange reflective of the Anthropocene. Often using the almonds to illustrate these themes, I observe how beekeepers discuss this shift in two ways; through the threat of pests and diseases – (novel ecologies), and through the discussion of resource extraction – (labor).

Novel Ecologies: The Macro and the Micro

Novel ecologies have been described as “rambunctious” gardens that we humans have made but do not fully control, “monsters” that we have created and to whom we owe our care, and “sites of struggle” in political economy (Andrews, 2019). In this case study, honey bees both are *and* create sites of novel ecologies. Honey bees were introduced to the US in the early 1600’s, and later became vectors for novel pests and diseases-namely Varroa mites (Kellar, 2018; Sammataro et al., 2000). One small-scale beekeeper states:

There are mites everywhere. Just because one test shows zero, there still may be mites in another area of the hive. You just have to assume they all have mites, and it's kind of keeping the mite load low enough. If they have zero mites, they can pick them up on flowers that other bees have visited, by running into other bees in the wild, a lot of times if you buy bees they'll come with mites-they're just everywhere (Brent, 2022).

Almond pollination became a key point of reference for discussing the scale of mite transmittance between bee bodies. This trend can affect small-scale beekeepers as they could purchase bees from commercial apiaries who may have mites, thus transferring mites onto their future colonies (*Bee Culture*, 2019). One backyard beekeeper states:

We have to apply treatment more frequently, and that's really hard, I just went out and I have treated bees, and I have a collection board underneath the screen bottom where I pulled it out- it was full of mites. I mean I know the fall of mites is from the treatment but why did I have to treat again...why did I have to do it and why do I have this many mites (Judy, 2022).

Beekeepers like Judy feel pressure from varroa mites, an issue which they have noticed to increase within the last few years. Ariel discusses her perspective which expand beyond her hives and poignantly states:

I can't imagine how we would go about dismantling this. I don't know, I think that nature is doing it for us. When they've run out of water for almonds so they're starting to rip out some of the almond groves, maybe that'll be a signal for beekeepers. Keeping them in such great quantities like that has contributed to them being such a disease vector. All of a sudden...like the way that mites have evolved and spread so quickly all over the world, quicker than any sort of medication can come out. And there's no stopping it because we've created this global economy of bees. Moving throughout the world so fast. And when they're in such big numbers all together like that, of course they're spreading around every horrible thing and then immediately everyone drives them back to various places around the country and brings it all home. And hopefully it's not bringing it back home to native bees, but it probably is (Ariel, 2022).

The “global economy of bees” has influenced a nested scale of novel ecologies orbiting around the hive. To look more at the grey of this situation, one beekeeper offers this perspective:

One of the positive things that commercial beekeeping has added is this dire need for better genetics. For hundreds of years, we've bred bees to be docile and produce lots of honey- that was our goal...I think that's part of the reason that they're more susceptible to viruses now, because having robust bees with strong immune systems wasn't on the list of things we were selectively breeding for. So, I think that because of the losses in the commercial world, a lot of people are doing research are trying to find ways to help them adjust to mites...We caused that problem because we took the bees that hadn't lived in Asia for millions of years, put them back there, they got the mites, and then we spread them around, so now we're trying to figure out the solution for it (Brent, 2022).

Both Brent and Ariel draw the link between human decision and honey bee health on a commercial scale and recognize that human involvement is needed to lessen the burden of a human imposed issue. Thus, our care is owed to these relatively new sites of “monsters” and “rambunctious gardens” which are overrun with varroa mites.

Labor

Honey bees are lovingly known as “worker bees”- an apt name given to acknowledge their innate tenacity to sustain their hive. Behind this name lies a constellation of anthropomorphizing ecological occurrences. From a Marxist perspective, *labor-power* is the abstraction of labor into something that can be exchanged for capital (Marx, 1867). Through a multispecies framework, Marxist perspectives on labor-power critically expands to encompass non-humans as agents who are subject to extraction. In this case, honey bees are labor-power producing agents in their acts of pollination and byproduct production. Donna Haraway expands on labor from a multispecies lens by offering that nonhuman labor should be “taken seriously” despite these actors not working in “conditions of their own design” (Haraway, 2003).

On the culture of capitalism, Robbins notes that “capitalism defines sets of people who, behaving according to a set of learned rules, act as they must act. There is nothing natural about

this behavior” (Robbins, 2005). The beekeepers involved in this case study hold a multispecies framework in their observations of honey bee labor and productivity in industrial agriculture. In tandem to Robbins, Ariel states, “we build an entire culture around it” (Ariel, 2022)- *it* being the goal of hyper-productivity and producing capital by any means. Marx states, “all progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil” (Marx, 1867). Similarly, when reflecting on the value produced by bees in capitalist systems, Giorgos Kallis notes that “If we accept that value is not produced only by humans but also by ecosystems or fossil fuels then the workers are robbed not only of their work but also robbed of their commons” (Kallis & Swyngedouw, 2018). Thus, the ‘worker bee’ involved in monocrop pollination is ‘robbed’ through the exploitation of its innate ‘services’ and its access to just wellbeing is depreciated.

Under the umbrella of capitalism, honey bee bodies and innate “services” are subject to extraction through the labor-power of pollination. Like Robbins states- there is nothing natural in fitting the culture of capitalism upon ecological happenings such as pollination, and thus the *apis* industrial complex roots deeper within the landscape through social-ecological entanglement. In this landscape, bees become industrial workers, their bodies commodified to accommodate capital growth within a monocultured mosaic. Perhaps the most striking comment on this came from my interview with Brent. We sat in his beeyard amongst brightly painted hives with bee bodies buzzing by, he reflects on labor in the almond groves:

If you really look at it in a brutally honest way, it's slavery. It's interspecies slavery. We've harnessed them to do this work for us with pretty much nothing in return, you know, and we've done that because they are our key to monoculture crops, right, large monoculture almonds, blueberries, whatever it is that were trying to pollinate because we've just planted so much of it. And you can't have native pollinators that exist there to do the work because you've only got one source of food that lasts for a very short window of time. So, you know, when you have a large commercial operation of bees, and you're taking them on trucks and you're moving them around the country, it's a business model, but it has nothing to do with the wellbeing of them [the bees] at all. There are guys that try to take care of them better than others, but you know, when you really just look at it, they're taken around just for the profit of the people who own them (Brent, 2022).

Brent's perspective has stuck with me since our exchange. He encapsulates these complex ideas of labor so neatly through a multispecies lens, blurring the lines between human and nonhuman, and clearly links this nature-culture dichotomy to capital driven profit.

There is a sentiment here that I wish to address, involving the word "keeping". This research is anchored to discussing the act of "keeping" bees. But what is keeping, really? It is evident that 'keeping' holds so much based on the 'keeper'. 'Keeping' is a container that is filled by an individual participant. 'Keeping' reflects one's goals, motivations, constraints, and personal ethos. Beekeepers interact with their bees in a gradient of ways. From hands-off beekeeping, which is simply as such - no intervention on behalf of the 'keeper', to high-intervention beekeeping, where the keeper intervenes and manages hive operations at great intensity, perhaps by means of chemical treatments to control pests and diseases. 'Keeping' exists on a spectrum. It also implies ownership and observation. Ownership and observation on an *other*, the bee. This ownership and observation also exist within a spectrum. Perhaps it is born from curiosity, or it is born from a livelihood dependency attached to their performance and productivity. Beekeepers integrate themselves with these insects as the 'keeper' to observe inner-hive operations. They are the 'keepers' of these entities. These entities, under this blanketed landscape, are broadly considered agricultural tools to support the dominant industrial food

system. Keeping can convolute caring. Is keeping the same as caring under an industrial model? What does care look like within a commercial setting? And what does care look like in a more intimate setting of hobbyist beekeeping, of beekeeping detached from livelihood dependencies wrapped within the industrial food system? These questions orbit me as I engage in the complexities of the honey bee within the US. The quasi-nature-culture bee that reflects contradiction. Upon these reflections, I started to note that these beekeepers I talk with may be more reflective of *beecarers* as I position them in the context of the dominant industrial food system.

Life as a Bee?

Clearly the problem is us. We've created the problem with our monocrop systems. Now we do require honey bees to do the work in the system we've created whereas before the native bees were doing just fine...The whole thing feels really unsustainable. There's got to be a line some place, but that's just where we're at as a society. We took it, we took it to the edge, and we took it over the top and here we are (Ariel, 2022).

If tomorrow I were to wake up as a honey bee, I would navigate this landscape with deep trepidation. The Anthropocene dictates a landscape shaped by and adapted to human decisions. Between 2019 and 2020, it is estimated that 43.7% of US beekeeper colonies were lost (Durant & Ponisio, 2021). Honey bees and humans are so deeply intertwined, that despite the alarming rates of colony loss, new colonies are being bred at a parallel speed (Durant & Ponisio, 2021). "The crisis in global pollinator decline has been associated with one species above all, the western honeybee. Yet this is one of the few pollinator species that is continually replenished through breeding and agriculture" (Geldmann & González-Varo, 2018). Honey bees dance between the domesticated and the feral. They are highly managed and often referred to as

livestock. "Honeybees are artificially bred agricultural animals similar to livestock such as pigs and cows. Except this livestock can roam beyond any enclosures to disrupt local ecosystems through competition and disease" (Geldmann & González-Varo, 2018). As Ariel states,

Bees aren't a wild thing, they may be feral, but bees are managed. They have problems that we brought upon them and it's up to us to deal with it. One untreated hive affects everybody (Ariel, 2022).

How people keep bees varies greatly. Folks position themselves in different beekeeping "camps", ways in which they interact with their bees that is reflective of their values and perceptions, also known as one's beekeeping philosophy (Underwood et al., 2019). Beekeepers hold these unique practices, yet they all entangle themselves with the same bug. And with this, they all entangle themselves with the same pests and diseases. On this, Ariel states

We all have the same problems, it's just how we choose to deal with them (Ariel, 2022).

Choice in beekeeping management plans creates unique gradients of interaction. These interactions all happen within the same landscape, within the same context of historical entanglement. Michaela reflects on this and offers,

It's hard to say because people talk about 'naturally bees would do this and this', but they've been in these webs and relationships with humans for thousands of years, and so it's kind of like saying "naturally this broccoli plant would be growing here..." I don't know if it's at that level of domestication, but along those lines. There is some level of reliance that bees have on humans, but I think the way that they're managed now is that they're like totally dependent on humans moving them for the most part (Michaela, 2022).

The industrialized food system is reliant on the work of honey bees yet perpetuates a landscape that is detrimental to the wellbeing of both native and nonnative pollinators. As Ariel puts it, "the whole thing feels really unsustainable" (Ariel, 2022). We humans have instilled a

complex that skews exchange and our current food system is positioned upon it. David, a beekeeper in the valley, reflects on the commodification of the honey bee and states:

Well, it is necessary, we got a population to feed. It has a necessary work about it. It's up to the beekeepers to make sure there's enough bees at different locations to make sure they cover the crops. Otherwise, if they didn't do that, farmers would go bankrupt, especially your monocrop farmers (David, 2022).

There exists an air of acceptance. An acknowledgement towards social containers that clash with ecological systems and create imbalanced interspecies exchange. Acceptance lies in the grandiosity of this relationship. It exists as a blanket which covers this landscape. The beekeepers in this case study expose their created sites of deviation through reflection and action. When I asked Brian about the stresses of keeping bees while we sipped coffee on a cloudy day, he reflected on the lack of forage tied to oceans of industrial agriculture:

If you look at the Willamette Valley and you drive up I5, I mean it's just barren fields this time of year, by and large ...Almost like a food desert. Because of all the industrial agriculture. So, there's not a mosaic, a suitable mosaic of vegetation that provides more diversity for temporal diversity as well as forage diversity ...Right now there's very little that's available for bees to forage. Roses, dandelions... but there's a lot of introduced species, non-native species, that are doing well. My bees love it. It's not native, but it produces pollen and forage at a time of year when they have a hard time finding pollen and forage. So not only just providing more things for them to eat, but also think about when it's coming up for them to forage on (Brian, 2022).

Brian observes the landscape in which he keeps bees and plans to adapt to these *food deserts* by planting strategically timed pollinator gardens. Judy acknowledges the role of industrial agriculture and resonates with the motivation of Brian. She states,

I don't think the majority of farmers do this, but they could plant hedgerows in between things. If they did that it would greatly help the bee population. I'm very down on commercial farming but I know that people suffer hunger, and they need to supply food (Judy, 2022).

Like Brian, Judy recognizes the detriments of dwindling forage potential. Her acknowledgement of the necessity for largescale agriculture is met with an offering of adaptation to implement bee-friendly farming through hedgerows which would provide pollinators diversity amidst monocropped agriculture. Brent finds curiosity in the current landscape which shapes commercial pollination. I asked Brent to reflect on frustrations he may feel as a beekeeper amidst the spread of pests and diseases in colonies. Brent offers a creative and inspiring perspective which highlights adaption to landscaped realities:

I find it more fascinating - like what's happening there, then frustrating, you know maybe it's partly because I'm not trying to make money, I'm not trying to make a living with it, because if that were the case, it could be more frustrating because it's a lot more expensive to keep bees with the mite issues...to be honest, several years ago I found it frustrating that I couldn't keep them without doing anything with them. Not in the "oh I'd love to let them be in a perfect world", let them do their thing, but I kept losing colonies, so once I accepted that I couldn't necessarily do that, then it was more of a 'oh well what is the best way to help them, help them with these viruses, help them with the mites' (Brent, 2022).

It is evident that beekeepers in this case study observe the ripples of this landscape in their personal hives. Their reflections on the dichotomous nature-culture clash through pollination reveal values and aspirations for interspecies collaboration. Joe Hansen holds similar aspirations for the future of commercial pollination. In his article, he offers, “no matter what path agriculture takes, bees will need to be involved. Beekeepers will continue to do what we must, but I for one hope we can return to a model that will allow us to treat beehives less like livestock and more like the elegant societies they really are” (Hansen, 2010). Hansen looks towards the future path of agriculture, which has and will always involve bees. Human and bee lives are inextricably interwoven. However, the current dominant food system dictates an unequal exchange between humans and bees. The global trend of pollinator decline reveals this imbalance.

Chapter 4: The Radius

The landscape weaves together social patterns and global food systems. It creates a normative overarching experience for honey bees as commodified service providers for industrial agriculture. The purpose of this case study is to explore how, under this blanket, there exists sites of interspecies care and compassion. I call this chapter *The Radius* as a nod to the flight of the honey bee, who has a three-mile flight radius from the epicenter of their hive. Thus, they exist both within the intimacy of their hive, while intermingling with the landscape. In *The Landscape*, I trace how honey bees have been commodified through cycles of dependency as dictated by extractive capitalism. In this chapter, I explore how elements of the landscape are brought into the hive, while bees and beekeepers display agency that contradicts the dominant conditions. In the hive, both beekeepers and bees display agency in how they interact with one another and their community. The hive is a meeting place for living bodies to collaborate and create worlds, while also reflecting shaping influences and forces beyond their control.

The landscape in its elemental nature influences the hive. Bees roam their three-mile course with instinctive purpose and pack this landscape on their legs in the form of pollen parcels. They bring this pollen into the warmth interior darkness of their hive to store and convert it into honey. Much like a bee, the beekeeper also exists by intermingling with their landscape and the hive. Beekeepers interact with their landscape in unique ways, they form connections with their surrounding communities and generate perspectives shaped by interactions and livelihoods. They bring these perspectives into the space of the hive, influencing their personal beekeeping philosophies.

Who are these purveyors of the commons who frame intimate connection under multispecies relationality? How do multispecies interactions inform their understanding of place and community? The beekeepers in this case study shared with me how they connect to their bees, and in turn, how these relationships shape their perspective of place. They shared with me the praxis of their beekeeping philosophy. There is limited literature on the complexities of a beekeeper's philosophy. Robyn Underwood defines a beekeeper's philosophy as "determined by their willingness to use chemicals to control pests and pathogens" (Underwood et al., 2019). I recognize this as part of the network which constitutes philosophy. However, I add that a beekeeper's philosophy is deeply reflective of the emotional. I claim this based on the recurring patterns in conversation. Specific emotions of care and curiosity frame the way in which beekeepers reflect on interspecies connection. I found this to be highly insightful in understanding how beekeepers relate to both their bees and their surroundings in the blanketed landscape on which they nurture these connections. In what follows, I explore the themes of care, curiosity, and place-based connection, which overarch amongst informants in how they construct their personal beekeeping philosophies.

Care in the Construction of Personal Philosophy

I get pretty emotional over it sometimes, You know, seeing them...when I can tell someone's struggling a little bit more and I'm always like 'I got to figure out what's going on'. So it means a lot to me because I have to take care of them to the best of my ability, I can't just leave them. So I guess it's very caring. It's kind of like family (Helen, 2022).

Helen and I sat in plastic Adirondack chairs under the shade of a nearby tree, her dog Honey in between us, while we faced the hives. The sound of the bees buzzing droned as we

talked, little wings capturing the sunlight. Sitting with her, in the presence of her bees, near her garden, her home, her dog, she told me how she cares from deep in her heart. As she painted the depth of the connection to her bees, her care and admiration for non-human entities shone brightly.

Care becomes a thematic pillar of how beekeepers construct their personal beekeeping philosophy. Valley beekeepers trace how they care for their bees by connecting to these insects, expressing care through the time they invest on maintaining bee health. Conversations also revealed how beekeepers connect to their community at large. *Care* became another way to express perspectives on ethical beekeeping. It is a well-loved riff amongst beekeepers that if you ask ten beekeepers the same question, you'll get 11 different answers (Moore & Kosut, 2013). There is a spectrum of beekeeping styles with no 'right or wrong way', though practices tend to fall in two large and conflicting camps; "scientific" and "natural" beekeeping (Moore & Kosut, 2013). Thus, individual beekeeping philosophies reflect a beekeeper's values and perspectives of what *care* is to them. For Brent, his philosophy orbits around joy and connection. To *care* is to provide hands-on attentive support:

It is something that I enjoy doing, that I enjoy sharing, and so as long as I'm having fun doing those two things then that's my philosophy. And then to take care of them. Taking care of them is the hardest part because they definitely need a lot of care and feeding. Like I figured out the first year, you just can't put it give them a place to stay and assume they're good to go. They actually need our help because of diseases that were introduced into parts of the continent (Brent, 2022).

For Brent, to care is to be involved and attuned to issues to problem-solve. As discussed in the *Landscape*, many introduced pests and diseases on this continent are sites of novel ecologies. Like Brent, Ariel views care as hands-on involvement and expresses her values on what *care* is to her.

I do care about them. Since we are here in Eugene, we have a lot of treatment-free beekeepers. A lot of folks coming at it from a more hippy perspective. Which I get it... I totally get where they're coming from. But part of it may also be an unwillingness to look at existing research that already been done... [my practice] is hands-on. And as science driven as possible, as sustainable as possible. Yes It is gross to just be throwing different medications on them, but there is a balance. Luckily, we have some decent organic treatment options that aren't terribly toxic. It's something I didn't necessarily anticipate as part of it... It's a little bit gross, but yeah, if you're going to keep a pet, you got to take care of it. You wouldn't let your pet just be crawling with worms or something, you gotta get in there and do the worm stuff...They have problems that we brought upon them and it's up to us to deal with it. One untreated hive affects everybody (Ariel, 2022).

Brent and Ariel both hold care and impart it upon their bees through hands-on attention to the needs of the hive. How they show care is informed by their values and perspectives on the landscape at large. They recognize that numerous in-hive issues are human-influenced and show care by providing attention and involved support. Helen shares in this alongside Brent and Ariel.

I do get upset to learn about when somebody else isn't taking care of their bees, and I try my hardest not to say anything...natural selection is what some beekeepers want, but we just can't do that anymore, not around here. We have too many mite issues and diseases now (Helen, 2022).

Like Brent and Ariel, Helen bases her philosophy on her perspective of what care looks like. For Helen, to care is to provide in-hive support to alleviate issues of mites and diseases. Natural selection contradicts her perception of care. It is interesting to see these three similar perspectives in context to one another; especially in the context of what is “natural”. These three valley beekeepers illuminate the nature of human-bee entanglement, which dilutes the “naturalness” of bees. Given the landscape and history of honey bee introduction in the US, bees are contextually not “natural” (Moore & Kosut, 2013). Thus, a shared part of their unique beekeeping philosophies reflects this understanding and displays care through hands-on interventions.

Care permeates into a beekeeper's performance at the hive. The hive acts as a contact zone, a term defined by Donna Haraway as sites of "entanglement between species who do not share languages but are otherwise co-present and co-mingling organisms" (Moore & Kosut, 2013). When reflecting on what an ideal world of beekeeping looks like, Brent states:

I think the best word I could use for how I would hope other people keep bees is with care... I think everybody's beekeeping should kind of reflect their own relationship with the bees, but I do my best right now to work with the bees only using the veil...well and regular clothes...But It makes me be a lot more mindful of what I'm doing, and have more of a direct interaction with them because I'm really trying to work with them and care for them on an individual level (Brent, 2022).

Brent expresses care through a chosen outfit of vulnerability. Entering the hive with minimal gear exposes the beekeeper to the potential of a sting, but with slow movement and attention to the hive, human vulnerability meets bee vulnerability on the axis of care. Michaela also details her in-hive involvement which centers on care:

I don't really have any consistent rituals around opening the hives, but I tend to just kind of talk sweet to them and move slowly. After doing checks a lot the first couple years that I was keeping bees, this year I didn't feel the need to do big examinations on a regular basis...so Ill often just go in for what I'm looking for, and then make it as short as possible. Yeah, it's always fun to discover what's in there, what they're up to (Michaela, 2022).

Michaela "talks sweet" to the hive and shares with Brent in slow movement. Michaela also expresses care by holding boundaries; she enters the hive with intention, as to make the visit short and to not disturb the hive too much.

Curiosity in the Construction of Personal Philosophy

Much like care, curiosity surfaced as a common theme that valley beekeepers expressed when discussing their personal beekeeping philosophy. I share stories of expressed curiosity to center in on the power of this emotion in the act of beekeeping. Curiosity engages all the senses (Philips et al, 2015). Beekeeping is highly sensorial, a hobby that employs the beekeeper's full attunement to their surroundings (Moore & Kosut, 2013). Philips notes that to spark great curiosity is to enter a space that engages the senses - in this case study, this is the contact zone. In these spaces, curiosity allows one to "learn to 'see differently,' to look more deeply" (Philips et al, 2015). Valley beekeepers discuss curiosity in ways that illuminate their connection and draw to this practice. One beekeeper, Judy, discusses how curiosity quelled her initial fear of bees:

I was just so excited to start, the fear was just not there. And I have a degree in biology so I'm real curious about science and things like that. That overrode my fear. When I read the book and when I saw the bee swarm and when I went to the school, any fear I had was just turned into excitement (Judy, 2022).

Judy has been a beekeeper for 21 years; her curiosity has nourished a deep-rooted passion. After she detailed her initial fear being overridden by curiosity, she shared with me a story of a swarm that functioned as a catalyst for her introduction to beekeeping.

I was just amazed at looking at them doing that [swarming]. And because the queen had gone and they were all following the queen, and then I said to myself; I have to get bees. I just said I want bees! (Judy, 2022)

Judy's initial curiosity invites her to look 'more deeply' into the social lives of these insects with fascination. When asked what beekeeping would look like in her ideal world, Judy said:

I wouldn't be manipulating the hive so much because that bothers them...although I love to go in and see them because I'm so curious! but I know hands off is the best thing. I wouldn't have to be checking their resources so much to see if they would survive the winter. I wouldn't be medicating at all, that's a big one. I would have to do more swarm control since bees would be healthier, so that's something! (Judy, 2022)

As with care, curiosity is a pillar of her beekeeping philosophy. Her ideal beekeeping world challenges what the landscape pushes, in that she would prefer to not medicate and check resources, she would not be “manipulating the hive as much,” while her curiosity is overarchingly planar.

Hannah describes curiosity as something she communicates to her bees. Hannah enters the contact zone with communicable intention:

I'm always looking for ques before I even open the hive, like putting my ear up and watching the entrance and putting my hands on it like “hey this is my intention, this is what I'm curious about, I would like to open the hive and see if the queen is laying” like I'll feel into seeing if that's ok (Hannah, 2022).

Hannah's curiosity guides her hive inspections. She translates this to her bees through intentional interactions. Through intentional interactions guided by curiosity, she can ‘look more deeply’ by reading the ques of the hive to see if its ok to open it up.

Curiosity can shape the perception of one's surroundings, inspiring wonder and fascination. Brent touches on these sensations while exploring honey comb through past experiences:

It's fascinating to see what decisions they make and also how they make the honey comb you know having it in a box with foundations and frames is one thing but to actually see it in the walls of a house or in a barn or someplace they've been for a decade-you can see what ways they make their home, what ways they orient it, how they shape it, and some of those things and it's amazing and it makes you think they are in touch with things that we can't perceive, whether its magnetic fields or its air flow or it's something to do with the spot they're actually in or the structure, because they really have a purposeful way of building out that honey comb (Brent, 2022).

Brent's fascination lies in the curiosity of space; of how these beings relate to space and of the forces which influence their utilization of spatial containers. This curiosity evokes "seeing differently," seeing how space is influenced by forces that are unfelt by humans and investing energy in the fascination of interspecies understanding.

On Connecting to Place

I was touched to learn how valley beekeepers connect to their landscape through bees. By landscape, I refer to the broader contextual landscape, as well as their more immediate landscaped ecological and human communities. Valley beekeepers build unique philosophies based on their values and express it through demonstrated acts of care and curiosity. Human-bee interactions in the contact zones provide space for beekeepers to both demonstrate their philosophy and reflect on how they connect to place. Connection to place is significant to *The Radius*, as it explores how valley beekeepers exist in their own created spaces which lie *within* the broader landscape.

When reflecting on the common theme of connection to place, I came across David Bollier, who writes about the act of Commoning. The commons stem from Garret Hardin's original concept of the "tragedy of the commons," how common pool resources are exploited

under certain social systems (Hardin, 1968). Bollier takes this term and refracts it as a tool that can be used to recognize social change. He recognizes commoning as something that “regenerates people’s social connections with each other and with ‘nature’” (Bollier, 2015). In part of his look on commoning, Bollier discusses the role of *affective labor*-commons-based management (Bollier, 2015). Bollier states that “people’s sense of self and subjectivity is intertwined with their biophysical environment. They take pride and pleasure in becoming stewards of resources that matter to them and their community. This is why affective labor in a commons matters—it changes how we perceive ourselves, our relationships to others, and our connection to the environment” (Bollier, 2015). This idea ties neatly into how beekeepers build unique philosophies based on their values and landscaped surroundings. There is pride associated with a beekeeper’s chosen ways of hive-interaction, and is reflective of their perceptions on the self, others, and their connection to the environment.

Valley beekeepers in this case study preform affective labor in the caretaking of their honey bees. Honey bees are quizzical entities when looking at them from a commons perspective. Bees are their own entities but they are “owned” as “property”, while also looked at as a shared resource (Kallis & Swyngedouw, 2018). They are autonomous and feral while existing in the boundaries of being defined as livestock. They roam without fences, they commingle unsupervised, and they swarm. Swarming is special in this lens, as one beekeeper’s ‘owned’ hive can naturally split and swarm to a new location, potentially to be collected by another beekeeper to then caretake. It feels fitting to look at honey bees as a “common-pool resource” within the context of the landscape. Beekeepers remark on the social responsibility to caretake to uphold the health of this ‘common pool’. Bollier details how affective labor of the

commons is “not based on one-on-one exchange, but on personal commitments to the community as a whole—a ‘pool and share’ approach” (Bollier, 2015).

The Pool and Share

In this case study, beekeepers detail how their personal philosophies engage with the “pool and share approach” in how they are responsible for keeping healthy bees for the sake of the larger community. They are the “stewards of resources that matter to them” (Bollier, 2015). I noticed that when beekeepers expressed individualized acts of care for their hives, they would accompany this with a nod to their larger community. By them taking care of their own bees, they are acting responsible and taking care of this shared bee “pool” due to the nature of these pollinating rambles. One valley beekeeper, Helen, said:

I just think it's so important to take care of them the way that I'd want to be taking care of my dog or how I'd want take care of my garden, you know, I just think it's part of our whole ecosystem (Helen, 2022).

“A part of our whole ecosystem,” says Helen, a nod to the elemental role that pollinators play within ecological communities. The inclusion of community in her sentiment links to this idea of a shared “pool”, for Helen, it is of importance to steward her bees like she would to a pet. To quote Ariel when discussing the ‘petness’ of her bees and the care she feels indebted to impart on them;

If you're going to keep a pet, you gotta take care of it (Ariel, 2022).

When Helen and Ariel mentioned this, I thought of another interview I held with Judy. Judy expressed similar ideas as Helen but from the other side of the looking glass.

In our conversation, Judy marks on the act of caring for one's bees while reflecting on how the greater community can pose a threat to the health of a hive.

It's very hard, even around here. People are spraying their crops...or you know I mean a lot of people are pretty aware, but other people, they'll spray flowers, they'll spray trees, and that really it harms the bees and they're bringing it in in their pollen. I have very little equipment out here to clean up but usually I have piles of frames out here all year long and I have to take that old comb out, which used to be something very valuable, but it has all kinds of pesticides in it so I have to replace it with foundation, and from that foundation they have to build out the comb which is really strenuous. It is strenuous and they must use a lot of carbohydrate honey to produce the wax (Judy, 2022).

I found Judy's perspective intriguing in that it reveals a reflection on how one's landscape is brought in by bees. They take the physical elements of the landscape within their hive to construct their homes. In this contact zone, Judy has formed perspectives on how her bees interact with the surrounding radial community, which thus dictates how she expresses care through intervention. Judy follows this discussion by stating,

Not even ten years ago I started to rotate our foundation. And people used to just brag about their dark foundation that they used all the time, they'd put in every year... there's really nothing about honey that is organic because of the pesticides that they're bringing in. You can't control where they're going. Even if it says organic- it's not (Judy, 2022).

Judy reflects on the change she's experienced in her surrounding landscape. She understands this change through her connection to her hive. For Judy, long-term intimacy with her hives has allowed her to reflect on her connection to the environment and the decisions made on behalf of her surrounding community.

The Human, The Bee, The Place

Drawing closer in this radius, beekeepers show connection to their immediate community through their hive in unique ways. A multispecies perspective on community is important to reflect on in this section. Beekeepers shared sentiments on a blended understanding of community, which blurs the lines between nature and culture. In a piece by Teresa Lloro-Bidart which explores invertebrate human performativity in an urban garden, she observes how certain interspecies encounters can bring about “a holistic concept of the self—that is in turn understood as always relationally and dynamically connected to the surroundings of which the person is a constitutive part” (Lloro, 2020). I found this theme to be resonant with the ways in which valley beekeepers discuss their connection to their community. I sat with Judy in her home one day this summer. We chatted at her table below a quilted tapestry a friend had made for her depicting an image of queen spotting on the comb. On her walls held beautiful photographs of pollinators in action. By her door rested a stack of *Bee Magazine* readers and some hive tools. Judy is a beekeeper; she holds this identity with a smile. She reflects on her identity and connection as constituted through her beehive and states:

Everybody knows me as a beekeeper, and they know I'm passionate about it. In my garden only with flowers-I like to plant flowers that bees like... they do like the flowers and the herbs, like lavender and Rosemary, they just love that. My neighbors just love the bees because they I mean the pollination that they get is just wonderful. They're very supportive (Judy, 2022).

Judy reflects on her known and felt identity as a beekeeper, and then draws on how her bees interact with her community. The way Judy frames this highlights a blur between nature and culture from her perspective. She fuses the ways in which her bees interact with her community,

her micro-community within her garden, and her macro-community within her neighborhood. She reflects on these interactions while demonstrating how her identity is relationally and dynamically connected to her surroundings of which she is a constitutive part. When I left Judy's house, she gave me handmade beeswax candles.

Like Judy, valley beekeeper Brian reflects on his connection to both micro and macro communities through interspecies encounters. Brian holds relationships within both communities, and through his keeping of bees he acts as a facilitator that blurs the divide between nature and culture.

It takes some subtle or slow introduction with neighbors to get them used to the idea that they're living next to bees. One of my neighbors, her parents used to be beekeepers, so that was easy for her. Others, they just thought it was a cool idea. Only one of my neighbors was really wigged out about the whole process. So, you got to work those relationships in your neighborhood if you want to keep bees, because eventually those swarms will show up in someone's yard (Brian, 2022).

Through a connection to his hives, there is an understanding of his neighbors and their relationality to pollinators.

Ariel also observes place-based connections through her maintained hives. When reflecting on how her hives may connect her to her surrounding community, she said,

I think they bring a lot of life to a community in general. They're all on the neighborhood flowers which is nice when I go for a walk... Our shop apiary is just completely full of bees and something about having them there has also brought a ton of other bees there too. Suddenly there are native bees there that I've never seen before, there's now a huge bird population. You go out there on a sunny day and it's just kind of like a bee highway and you're walking around and you have to duck, that's pretty fun. They just bring a lot of life and interest to the environment (Ariel, 2022).

Through an involvement with honey bees, Ariel is keen to observe the expansion of her community. She notes an influx of birds and native bees coexisting in a common space. Learning

to “see differently” is an outcome of curious engagement with one’s surroundings and senses. As offered in this chapter, a beekeeper’s philosophy encompasses emotional elements of care and curiosity. Ariel connects to her bees and her setting through care and curiosity, noticing elements of change and flourishing per her involvement in the hives. Her reflections on the connection to place expands,

The nukes that we got came from different places. We tried to source them as locally as possible, but we realized that’s not really an option if you don’t have the connections. So, you may be getting queens and bees that are coming back from almonds, and that were raised in southern California, or even southern Oregon. And they’re just not quite adapted to our specific region. Some of our strongest colonies were the ones that came to us and then stayed (Ariel, 2022).

She notices how honey bees collected from swarming colonies tend to be the strongest hives, which opens a door of curiosity on the connection between honey bees and specific bioregions.

She furthers this reflection and states,

This is something I’d like to observe more and maybe look into further, just about how they are adapted to a certain place, and probably more importantly to the plants that grow in a certain place. This season we picked up a swarm nearby, we called her cedar. Her name calls back to the location and imagery of where the hive must have been from, and I can’t help but think, would she be doing best if she were like two blocks away? What are they used to eating ancestrally within their lineage of their hive? I can’t help but feel like that is how we help them survive in the long term. Going back to unsustainability-just creating huge numbers of queens in southern California and then expecting them to survive somewhere in North Dakota or something, that’s insane, but it’s kind of what we’ve been doing (Ariel, 2022).

Here, Ariel reflects on the micro and macro scales of community by holding two realities side by side. One reality being the uncertainty of where your new colony (nuke) originated from, while the other reality being the certainty of collecting a swarm that naturally could only exist within its approximated three-mile radius. As a curious beekeeper, Ariel approaches these two realities with the perspective of relational and dynamic connection to her surroundings.

On Existing in Both

The beekeepers in this case study highlight how emotions of care and curiosity blend to inform their perspective on place. They interact with hives within their radius, while positioned upon the broader landscape. Thus, they have a foot in both worlds...or two feet within a nesting doll that holds their reflections and desires within the boundaries of the landscape. As I reflected on the discussions with valley beekeepers, I noted strong parallels to Bollier's work on the Commons. I propose that these valley beekeepers take on the values of commoning, in that they are carefully stewarding honey bees within a landscape that relies upon them as a "common-pool resource" (Bollier, 2015). Further, based on the expanded definition of beekeeping philosophy, a beekeeper's praxis ties together reflections of the self and bee-and how this intertwinement weaves into both one's immediate and grander surroundings. Bollier states, "whatever the shortcomings of any individual natural resource commons, its participants realize that they must work with them, not against them. Unlike markets, commoners do not treat "the environment" as an object or commodity, but as a dynamic living system that enframes their lives. They generally have far less incentive than corporations to over-exploit the natural systems upon which they depend, and much greater incentive to act as stewards of nature for collective benefit" (Boiler, 2015). The beekeepers in this case study express traits of being commoners and their multispecies interactions inform an understanding of place and community.

Chapter 5: The Space Between the Bee and the Keeper

This chapter explores what lies between the bee and the keeper. Informants in this case study reveal intricate tapestries of interaction and emotion which ties them to their bees through inter-species-connectivity. I grew enthralled by this space of relationality. It flooded me with gratitude to collect stories of wonder, love, connection, fear, curiosity, and communication between bee and beekeeper. Whilst transcribing interviews, I observed a common theme of sensory immersion through the act of keeping bees. Beekeepers rely on sight, smell, sound, touch, and taste to understand their hive. And through understanding their hive, they embody agentic assemblages in the co-production of culture. These shared interactions between bee and keeper, as facilitated by multisensorial experiences, ignite a “hook”. Informants claim to be hooked to this practice, drawn in recurringly despite challenges and hardships, because they hold deep fascination, curiosity, and care for their managed hives. They forge relationships with their hives through multisensorial contact, allowing them to “communicate” with their bees. In the journey to understanding their bees, they learn more about their connection between self and place.

Sight, smell, sound, touch, and taste. The five senses were repeatedly discussed amongst informants when asked on how they communicate with their bees. This is not a novel discovery- there exists a rich blanket of folklore depicting entanglement between bee and human through the senses (Nimmo, 2013; Preston, 2006). In an anthropological study on Southern Beekeepers of the US, Kori Nadine Armstrong explores interspecies communication through the senses, probing into how beekeepers become “fascinated by the sophisticated social ecology of honey

bee colonies” (Armstrong, 2016). In *Buzz: Urban Beekeeping and the Power of the Bee*, Lisa Jean Moore and Mary Kosut dedicate a chapter to the qualities of interspecies entanglements between humans and bees, with particular attention to the involvement of the senses (Moore & Kosut, 2013). To highlight the beautiful galaxy which multisensorial interspecies entanglement holds, I wish to share this passage from *Buzz*:

“Humans and bees interact through emotional and physical entanglements. The intersecting nodes of insect/human are emergent; in these shifting spaces, bees affect humans both productively and painfully. Exchanges between beekeeper and bee reveal the significance of the buzz, the smell, and the sting as forms of cultural exchange and an intimate emotional and spiritual exchange between species. Bee love is a complicated ball of wax, whereby there are real feelings and emotion expressed at the awe and wonder of insects. And at the same time there is a sense of otherness and serious confounding emotions that make it seemingly impossible to break through to interspecies flows. But the sound of the buzz, the taste of the honey, the smell of the hive, and the fear of the sting speak to how bees are connected to unregulated sensibilities-affective facts that exist outside of experience. Bees are not simply insects or bugs: they are vibrant matter. Enmeshed with bees through body, mind, and soul, urban beekeepers celebrate and fear the vibrant matter that is co-created in their mutual practices” (Moore & Kosut, 2013).

This passage acts as an anchor for the following chapter. Moore and Kosut relate bees to *vibrant matter*-a prismatic concept developed by Jane Bennett. Vibrant matter explores the concept that all *things* have agency, all *things* hold their own power (Bennett, 2010). These *things* which encompass the human and the nonhuman, are connected in webs of assemblages.

Deleuze and Guattari note that an assemblage “comprises two segments: one of content, the other of expression. On the one hand it is a machinic assemblage of bodies, of actions and passions, an intermingling of bodies reacting to one another; on the other hand, it is a collective assemblage of enunciation, of acts and statements, of incorporeal transformations attributed to bodies” (Deleuze and Guattari, 1978). The two segments of an assemblage: one of content, the other of expression. As Kosut and Moore describe-bees and beekeepers interact through physical and emotional entanglements. Bennett parcels the actors within a given assemblage web as *matter*- actors are *things* that hold their own agency. Though, *things* can become commodities- especially within a culture of production and materialism. On this, Bennett states “American materialism, which requires buying ever-increasing numbers of products purchased in evershorter cycles, is antimateriality. The sheer volume of commodities, and the hyperconsumptive necessity of junking them to make room for new ones, conceals the vitality of matter” (Bennett, 2010). She asks; “why advocate the vitality of matter?” to which she answers, “my hunch is that the image of dead or thoroughly instrumentalized matter feeds human hubris and our earth-destroying fantasies of conquest and consumption. It does so by preventing us from detecting (seeing, hearing, smelling, tasting, feeling) a fuller range of the nonhuman powers circulating around and within human bodies. These material powers, which can aid or destroy, enrich or disable, ennoble or degrade us, in any case call for our attentiveness, or even "respect" (provided that the term be stretched beyond its Kantian sense). The figure of an intrinsically inanimate matter may be one of the impediments to the emergence of more ecological and more materially sustainable modes of production and consumption” (Bennett, 2010). It is here that I see the informants in this case study as keen detectors of this vibrancy that exists within nonhuman actors, namely honey bees.

Bennett's words are so beautifully resonant with the relationships I learned about between beekeeper and honey bee in this study. While she refers to *inanimate* matter, I lean into the synthesis of Moore and Kosut, which hold *matter* to the bodies of sentient honey bees. As detailed in *The Landscape*, the dominant food system model of industrialized agriculture creates a necessity for human intervention in naturally occurring insect pollination. Social systems of global capitalism which construct patterns of extraction and commodification alter the lived realities of certain bodies. In this case, honey bee bodies are instrumentalized into commodities designed for efficient production. Bennett advocates the vitality of matter because the image of *instrumentalized matter feeds human hubris and our earth-destroying fantasies of conquest and consumption* (Bennett, 2010). The beekeepers in this case study challenge normative instrumentalization of bee bodies through *attentiveness* (curiosity) and *respect* (care). They show this through “detecting (seeing, hearing, smelling, tasting, feeling) a fuller range of the nonhuman powers circulating around and within human bodies” (Bennett, 2010). In what follows, I will walk through the five senses as they pertain to the methods of connection between beekeeper and honey bee. In doing so, these informants will be highlighted as detectors of vibrant matter who hold space for the “emergence of more ecological and more materially sustainable modes of production and consumption” (Bennett, 2010).

On Seeing

A beekeeper's sight is an evident tool in their practice. *What* and *how* beekeepers see is vital to the methods of connection. The beekeepers in this case study illuminate how they use their sight to understand the intimacies of inner hive operations. Hannah shared with me her utilization of sight when interacting with her bees.

There are visual cues, especially as you begin to know certain logistical things like what indicates a healthy hive or sometimes you can just pick up an energy. Watching the entrance is a really good way to gauge 'the vibe' of what the hive is doing, whether they're coming in and out really hurriedly, or if they're just like lackadaisical and bringing in pollen (Hannah, 2022).

For Hannah, the more time she spends observing the visuals of her hive, the more intimate an understanding she gains about their day-to-day logistics. She shows attentiveness in her gained knowledge through spending time *seeing*. She is a *detector* that picks up on the overall energy of the hive and can decipher meaning from these visual cues. One cue Hannah discusses the visual presence of multiple queens in a hive. She states:

There are all these human imposed thoughts about how [choosing a new queen] works-like 'they battle it out! The stronger one lives!'... But maybe they just figure it out and its fine.... There can only be one, but there are these instances that don't conform to these rules that we impose where two queens can coexist until the old queen dies. Like maybe she wasn't going to start a new colony, maybe she just knew that her time was up...she's running out of eggs, she's like "okay I'm going to die soon" and they coexist until she dies or....like last week I saw there was a hive that had swarmed and I saw it had multiple queen cells because they look different than what other cells look like, and then we just found the queen at the entrance of the hive. She let herself out and let the other ones stay to keep the colony going (Hannah, 2022).

Hannah is an attentive detector-a deep knower. Her sight, lensed by care and curiosity, allow her to see a graceful change of hands between queens. She is privy to the non-conforming crown transfer that challenges a basic understanding of honey bee queens. Through sight, she sees amicability, humility, and acceptance of one's expiration. I got the sense Hannah relates to these bees deeper than just insects, she sees them as vibrant matter. Entities which carry worlds, relationships, pride, and agency in their inner-hive politics.

On Hearing

Auditory cues are widely used amongst beekeepers to understand the conditions of a hive. Most beekeepers in this case study used the term *buzz* at least once in our interview to discuss how they get to know the feelings of a hive. The buzz is a dynamic experience on its own. It carries more than sound. It carries vibration, holds sensation, reflects emotion, transmits power from a collective many, and it propels mighty bodies on long quests. Moore and Kosut explore the buzz in great depth in their research. They explore how the sound and sensation of the buzz offers nonlinguistic communication pathways between bee and keeper, whilst being reflective of the boundaries of interpretation of another species. On this, they state:

“The bees buzz speeds people up and slows them down. Like some sort of insect drug, bees have a physiological effect on the body, affecting the way we think, act, and move. But how do these entanglements affect the bees? We are aware that we must cross many borders and spaces to get to the place of the bee. With this in mind, we are interested in discovering animal/insect gestures. For us, these gestures include signs and acts that are not necessarily reciprocal, or fixed, but emergent in motion. They are interspecies echoes and reverberations- a cacophony of sounds that are made, and heard, but not necessarily understood by either insects or humans. The affective buzz is not unidirectional but is what Jane Bennett refers to as “agentic assemblage” made between two actants: lively human and nonhuman entities... She theorizes a “vital materiality”, which erodes the distinctions between humans and nonhumans. In this frame, we follow the vibrant vital buzz ricocheting through the bodies of bees and people, two species striving to coexist in common worlds” (Moore & Kosut, 2013).

Moore and Kosut liken the buzz to a co-created vibrancy that exists on the plane of a common world. Perhaps when one becomes attuned to the buzz, it is to be reflective and a

constituent of interspecies vibrancy and collaboration. I noticed the reflection of collaboration to be thematic when beekeepers discussed the buzz. Often, beekeepers would talk about the buzz in a way that illuminates their attunement to inner-hive activity. By tuning into the buzz, they collaborate in reflection of this activity. In other words, the sensation of the buzz, differing in context, offers the beekeeper insight on how they can collaborate with the hive in that moment. If the buzz is “angry”, a beekeeper may rely on the use of a smoker to calm the bees (more on this in the *smelling* section). During my conversation with David, he mentions how one of the hives he works with is habitually ornery. When I asked him how he got to know their cantankerous energy, he said:

You can hear it in them, how they buzz. It's an agitated buzz, I can just hear it. There's a difference between a calm buzzing and an agitated buzzing (David, 2022).

David hears the differences in buzz-his attentiveness allows him to recognize which emotions match with each buzz pitch. In an article in *American Bee Journal*, McNeil illuminates that a bee's buzz is a means of *both* intra and inter-species communication. “Sound is vibration that travels through a medium — most often air, but for the bees, comb, too. Vibration causes molecules in the medium to pulse outward, colliding with nearby molecules, creating waves. Humans hear by detecting the resulting oscillations in pressure. Bees detect air particle movements. Because traveling sound waves have both components, either can be used in sound perception... In response to an intruder, guard bees rock forward and issue a short burst of sound, repeating these warning bursts. When the hive is jarred, their collective reaction is sharp, loud buzzing, followed by faint beeps from workers in the hive at about 500 Hz... Experienced beekeepers recognize sounds as they work bees: ‘You hear and see personalities — agitated, angry, hungry, calm,’ said Bonnie Morse. ‘When you open splits, you know who went with the

queen and who stayed,' said John Jacobs" (ABJ, 2015). David *hears* and sees the personality of his hives through an attentiveness to the buzzing they emit.

Hannah also walked me through how she uses her hearing to understand her hives intimately.

You can hear the queens make a noise called 'piping'. Where if there's multiple queens in one colony-whether it's the old queen and the new queen, or two new queens that have hatched- if you put your ear up to the hive it sounds like they're almost 'honking'. It's a really cool thing to hear. They'll make different tunes, too, and they'll move around the hive. There are arguments on what this process may be, but maybe its them saying "I'm the queen.... hey I'm over here I exist" they're just calling back and forth to each other (Hannah, 2022).

For Hannah, auditory cues key her into these private conversations occurring amongst the folds of the comb. As McNeil discusses, a bee will emit vibrations and sounds meant to be received both by members within their species and outside of it. Hannah demonstrates her role as attentive detector by listening and working to understand the emotional and logistical meaning behind queen piping. This conversation came after Hannah described how she uses her sight to recognize multiple queens in the hive. In this multisensorial approach, she develops an intimately emotional knowledge of inner-hive processes.

On Smelling

Smell was mentioned in solid recurrence amongst informants. From a personal standpoint, smell is what connects me deeply to beekeeping, too. The smell of propolis, of pollen, of honey spinning in the centrifuge, of the smoke as it hangs in the air whilst checking frames; these are scents that connect me not only to my mother's beehives, but to experiences shared

intergenerationally on land that I grew up on. To connect with informants on their association with smell was to reignite my own candle of nostalgia. As a wannabe beekeeper myself, my sense of smell simply connects me to an interior blanket of memories, but for the beekeepers in this case study, smell is used to understand the health of the hives they are stewarding. Hannah paints this beautifully:

You're smelling all the pollen that gets packed in which turns into a beebread which starts to ferment so you'll smell that. You'll smell propolis, which is like the sticky resinous gooey deliciousness, and you'll smell the sweetness of the honey. But if there's too much moisture in the hive it'll almost smell sour or rotten. Or say that they're not controlling the temperature, the fermentation process of fermenting and capping the honey or turning the pollen into bee bread-those processes will get like...the bees can't facilitate this in the ways that they need to either if they're unhealthy or there's an outside circumstance like maybe waters getting into the hive. Or who knows...but it changes the scent. So, if the hive is sick, like if they have a bunch of mites, or they're being robbed...or they have some pest infestation, and you didn't know about it...they're not going to be able to facilitate all the things that they need to do so their hive will be out of balance, and you can smell it (Hannah, 2022).

Hannah uses her sense of smell to decipher the health of the hive. Not only does she use this as a tool to detect any cropping issues, but she also uses it to connect to the joy and “sweetness” of this interspecies connection. Perhaps it is in the careful and attentive stewardship of her hives that honey acquires a sweeter smell. Michaela also relates fondly to the smells associated with beekeeping. She states:

Smell is something that really stands out to me in the world of beekeeping and my experience with beekeeping, there are just so many smells that are just so particular to beekeeping and bees. Both, like the beekeeping aspect is the smoke involved, and then the bees themselves...I love that the smell of the bees lingers on me for like up to twenty-four hours depending on if I have a bunch of propolis on me. And during nectar flow times of the year, I prefer working without gloves just to feel stuff and then the smell lingers on my hands more (Michaela, 2022).

For Michaela, the entanglement of smells on her body brings her joy. She loves “that the smell of the bees lingers”. Like Kosut and Moore state, “exchanges between beekeeper and bee reveal the significance of the buzz, the smell, and the sting as forms of cultural exchange and an intimate emotional and spiritual exchange between species” (Moore & Kosut, 2013). She can step away from the hive but still *carry* it intermixed upon herself, an olfactic intimacy.

Michaela also touches on the scent of lemongrass essential oil. Lemongrass essential oil “mimics the nasonov pheromone that worker bees produce to communicate with other bees about orientation and recruitment” (*Glory Bee*, 2018). Many beekeepers use lemongrass essential oil to lure in a swarm of honey bees. Michaela told me about the process of luring in a swarm during our interview:

I put lemongrass oil in [the nuke box] and tried to attract a swarm to it and it didn't work right away. And then I met another guy, the owner of Blessed Bee-Phillip, I met him through the farm I was working at and connected with him you know, it was like June, and he loaned me a nuke box, which was obviously full of good smells and stuff. And I set it out in my backyard and the next day a swarm came to it (Michaela, 2022).

Through scent, interspecies communication can occur between bee and keeper. By mimicking intra-species olfactory communication, beekeepers can connect to honey bees to draw in new swarms and co-create vibrant matter through their mutual practices (Moore & Kosut, 2013).

Smoke is another highly utilized scent amongst beekeepers. Beekeepers will often use a device to puff smoke into a hive. Almost all beekeepers involved in this study incorporate a “smoker” in their practice, as it helps to calm honey bees. Bees release an alarm pheromone when in high stress situations (a scent quite resemblant of bananas!). When bees sense danger they use the alarm pheromone. This is a way to communicate imminent danger and the message

can spread through the colony very quickly. At such times, the colony is “activated” to defend its turf (*PerfectBee*, n.d.).

The use of smoke masks the attack pheromone, effectively confusing the bees and preventing the alarm pheromone spreading through the hive. Thus, the potential for an angry colony is diminished significantly” (*PerfectBee*, n.d.). Hannah utilizes smoke to connect and communicate to her bees, she describes her process as follows:

I do [smoke the hives] but I definitely do it in moderation. I think part of it is almost for the ritual. I feel pretty constantly comfortable around my hives and don't necessarily feel like I need it unless they're having a day where they're just like 'errrrhhh, I really don't want to be opened'. But I'm always looking for those cues before I even open the hive, like putting my ear up and watching the entrance and putting my hands on it like, 'hey this is my intention, this is what I'm curious about, I would like to open the hive and see if the queen is laying'. I'll feel into seeing if that's ok. Sometimes I have gotten there and been like OK today isn't the day. If there is an instance where I've gotten the yes and they're still kind of just giving me this kind of 'errrr' then the smoke does kind of have an effect of lulling that a little bit. So, I have the ritual of lighting it and then I usually walk around in a circle around the hives, which is what Ariella [a mentor] kind of set as a practice of, imagining a honey comb hexagon shape to set a container, so walking that while I'm using the smoker to state 'hey I'm here, I'm going to hang out here for a little while, we're setting a space'. I put a bunch of herbs in my smoker, so it smells really good. Just dropping into this space where it sets it apart from the rest of my day. I pause and accept this moment (Hannah, 2022).

For her, smoking the hives is ritualistic in setting a container of intention, calmness, and attentiveness between herself and the hives. Upon gleaning information about her hive through multisensorial exploration of sound and sight, she can decipher the mood of the hives, thus allowing her to base her decision to smoke the hives with more intentional clarity in response to what the bees may be communicating.

On Tasting

Most beekeepers in this study referenced using their sense of taste when discussing honey. Of course, a large motivation for successful interspecies communication is this sweet reward. Honey bees have invoked a longstanding draw because of their production of honey, manufactured and finished within their hive from gathered raw material (Preston, 2006). Honey is a tangible product that is emblematic of the landscape. To ingest honey is to ingest elements of co-constructed labor and landscape. Labor, in this context, is twofold; one being the labor of the bees who survey their landscape for nectar and pollen, and two being the emotional and physical labor of the beekeepers. For these beekeepers, honey can represent a co-created product that presents an opportunity for ingestible entanglements of interspecies connections. When talking with beekeepers about their relationship to the taste of honey, I understood a deeper connection to their sense of place and their connection to stewarded hives. Honey also represents a pillar of reciprocity between beekeeper and bee, which I will touch on in my following chapter in greater depth. Honey is more than a sweetener, it is interspecies connection to labor, love, and landscape. Erin shared with me that to her, honey reflects this intimacy. She says,

Sometimes I struggle actually eating it because it feels so special (Erin, 2022).

Erin refers to the honey extracted from the hives her mother tends. She notes the ‘struggle’ to eat this honey because of the sentiments it holds for her. When Erin mentioned this, I reflected on my own relationship with honey. My home is adorned with jars of amber honey graciously gifted by participants of this study, my mother, and by friends who know the depths of my fixation. Like Erin, I struggle to eat my stockpile because each jar contains a world of connection between unique bodies and ecological tapestries. It feels so complexly special to consume.

Perhaps it is here, in this complexity of ‘special’, that these stewards detect the emotional and physical entanglement of human-bee-landscape. In this chapter’s anchoring passage, Kosut and Moore put it as follows: “Exchanges between beekeeper and bee reveal the significance of the buzz, the smell, and the sting as forms of cultural exchange and an intimate emotional and spiritual exchange between species” (Moore & Kosut, 2013). I propose the addition of “the taste”, which encapsulates cultural, intimate, emotional, and spiritual exchange by means of ingestion.

From what I gleaned, honey connects beekeepers to their landscape in an intimate way, too. Through co-laboring with their stewarded hives, the beekeepers in this study reflect on ingestion through the lens of place-based connection. David and his friends tend hives located on various properties. During our interview, he told me of an event they hosted.

When me and my friend harvested all that honey, he kept it separate and wrote down where it came from. And then we did a honey tasting. He made a whole bunch of chili and we had to try to figure out where the honey came from...its cool to see what different people have going on, how their environment changes the honey and all that (David, 2022)

David notes how the environment influences aspects of honey profiles. As detectors with connections to both bees and landscape - David and his friends engage this intersection through inquisitive tasting. Bees carry with them elements of the landscape and convert it into honey through their innate agency.

Flying Bee Ranch in Salem, OR, celebrates this intimacy through their model of honey co-op. In 2020, the Flying Bee Ranch co-op was founded, which collaborates and builds partnerships with beekeepers in the area. I visited Jeremy and Delsey of Flying Bee Ranch in their Honey Tasting Room, seated at a table face to face with a gradient of honey. Flying Bee

Ranch co-op is special in that they separate their honey into varietal, mono-floral honey. As we talked, they handed me spoonfuls of carrot, buckwheat, meadowfoam, and fireweed honey. The Flying Bee Ranch co-op is special in that beekeeper's form partnerships with farmers—each beekeeper may hold a partnership with a different farmer, as opposed to the beekeepers following the flow of nectar by means of moving their hives nationally. Varietal honey from the Flying Bee Ranch co-op holds unique and complex flavors, while also holding dynamic partnerships between honey bee – keeper – farmer – and landscape.

On Feeling

On the sensation of *feeling*, I will examine it in two parts: the tactile and the emotional. Though *feeling* as discussed in the five senses refers to physical touch, I hope by distinguishing both elements to this sense I do justice on translating the complex dynamics of touch that beekeepers shared with me. In doing so, the enmeshing of multifaceted touch as recorded in these interviews will highlight Kosut and Moore's discussion on physical and emotional entanglement. When asked about physical interaction, almost all the informants in this case study revealed unprompted emotions associated with this experience. The most prominent *feelings* I will elaborate on include sting as it relates to fear, and bare hands as it relates to vulnerability, calmness, and focus. I noticed that the physical element of the sting prompts methods of physical interaction, i.e., the use of protective gear. The root connection to physical sting thus elicits emotional affects of fear, calmness, and focus.

I found the concept of sting as a vessel for both physical and emotional feeling dynamically reciprocal. Moore and Kosut explore this idea in their work—they recognize

reciprocity by stating that a sting is “an accidental chemistry that has tangible consequences for both actors. Usually, it is an insignificant altercation from the perspective of humans (most people recover and live without consequence), but it marks the end of the life of the bee... The sting is a site of vulnerability, a space or moment of significant interspecies exchange. A bee sting is different than a mosquito bite; insects breach our body’s borders for different purposes...bees deliver a more acute and lasting pain and, more importantly, their sting is a defense mechanism. Regardless, bee stings can be intense, long-lasting, and psychologically traumatizing...beekeepers learn to deal with the possibility of getting stung, but it is in no way a deterrent...the knowledge of a potential sting while not entirely conscious to each beekeeper (or even researcher) is lodged inside the body and memory, almost anticipated” (Moore & Kosut, 2013). During an interview with Helen, she touched on the severity of a sting for the body of a bee and said:

They don’t want to sting you because they know they’re going to die (Helen, 2022).

Beekeepers form relationships with their bees that enable them to read the communication of aggravation, or the ‘warning signs’. Bees will do various things to let a beekeeper know they’re aggravated *before* stinging. Beekeepers are detectors, tapping into multisensorial communication, and can understand these signs. While discussing stings, beekeepers revealed how this constant possibility acts as the focal reason for slow intentional movement. Michaela reflects on this and says:

When I do get stung, I work to not freak out. I think it has made me a lot more careful too, or just like I hear this about commercial beekeepers that they get stung all the time, or maybe they just don’t wear as much equipment...I’ve been curious if that’s because they’re moving quickly or if it’s just because of exposure and it’s just inevitable. So, I really try to not get stung by moving slowly and by being really careful (Michaela, 2022).

The potential of a sting elicits careful, slow movement for Michaela. She discusses the fear attached to the sting. For her, a sting is connected to fear, and to manage this emotional sensation, she interacts through slow and careful movements. The act of moving slowly and carefully allows for deep focus.

What's really cool for me about interacting with my bees is that, like interacting with most animals, it immediately forces me to focus (Michaela, 2022).

There is an entanglement between the fear of a sting and the focused slow intention of movement while interacting in the hive – the physical and emotional blend together. The word focus cropped up throughout these interviews in high frequency, especially when asked about their experience physically handling frames of bees. For Judy, she connects her experiences interacting in the hive to her Zen practice.

I can go into a hive and it's very mindful, it feels very Zen, it's a very Zen experience. That's what I like to tell people, and I practice Zen so it all feels connected (Judy, 2022).

Judy ties together her physical interaction with bees to her Zen practice. Like Michaela, Judy's handling of bees lends focus and calm concentration.

I thought it was fascinating to hear Michaela's ideas on why commercial beekeepers may get stung in higher frequency - perhaps a result of quick work, lack of protective gear, or due to prolonged exposure. Many informants in this case study discussed their choice of minimal protective gear. Often, beekeepers wear protective full body suits, a veil, and gloves whilst working in a hive to manage the potential of stings. However, many informants in this study mentioned that they opt not to wear gloves, as it can hinder their tactile senses and blur

attunement they may find through bare contact. Brent touches on the use of protective gear in his own practice. He states,

When you have heavy gloves on you can't feel when you're accidentally squishing a bee with a frame. You can't really feel what's going on in the hive and you're not aware of it. You're standing there holding frames and you have these open and there are like 8,000 bees swarming around, you're a lot more aware of what you're doing when you don't have that protection. But that's me, I don't propose that for everyone (Brent, 2022).

In the decision not to wear protective gear, Brent heightens his attention to physical touch. The choice of exposure for tactile attentiveness brings about the feeling of vulnerability. No protective gear enhances both a sense of vulnerability and tactile connection to bees.

David shares this with Brent. In our discussion, David discussed his choice for selectively wearing protective gear—a decision based on the overall sense he picks up from his bees. By not wearing protective gear, he states that:

It keeps me calmer, helps me think about staying calmer. Because the calmer I am, the less likely I'll get stung. If they get agitated a little bit, then I can tell (David, 2022).

Like David and Brent, Hannah connects her choice of protective gear to a sense of vulnerability, calmness, and tactile attunement to her bees. She shares:

If you have gloves on your tactile senses are dulled in a sense, where you're unable to feel the same things as just using your bare hands. They [Spikenard] like to use feathers instead of brushes and you can just feel the movements of the vibrations like, like you're tuning in. If you're moving a bee aside and it buzzes like "hey don't move me like that" you can feel that in a way with a feather or with your bare hands that you can't feel if you're using gloves or like a big brush. So yeah, the fact that you are so exposed and vulnerable slows you down to tune into their vulnerability more (Hannah, 2022).

Hannah reflects about the lessons learned during a beekeeping apprenticeship at Spikenard, a honey bee sanctuary in Virginia. Her reflections illuminate thoughts on reciprocal vulnerability-

both herself and her bees interact with one another in vulnerable states. Her decision to minimize protective gear allows her to *tune in* to the buzzing communication of bees.

For Ariel, physical contact through the sting inspires feelings of personal strength and focus. She reflects on this and says:

It kind of grew on me throughout the season. At first, it's the danger of it all, because you feel like a badass, you know because you're going to get stung and then you DO get stung. And it's not that bad, and then you make it and you're like 'oh yeah I am a badass'. So, there's a little bit of adrenalin the whole time at first, and something about it where you must give them your full attention or they're going to sting you. You can't focus on what the dog is doing or what the kid is doing, and like if anyone else is talking to you and all the stuff on your phone. You got to get through it and just give them all your attention for a while. I don't know, I just started dreaming about bees every night, I got really obsessed (Ariel, 2022).

Bees have turned into an obsession, her subconscious muse. There is a danger involved through the potential of the sting, which for Ariel, has taught her about her own strength. It's through this physical interaction and the potential of the sting that she finds focus, strength, and attentiveness. All of which blend into a deep love and obsession to continue engaging with bees.

Helen discusses attentiveness to bees and her relationship with protective gear. When I asked her if she works with or without gloves she said:

There were a few years there where I worked after that without gloves. My gloves kind of hinder my feeling for everything. You're more mindful of what you're doing. But then I started getting nervous when all of a sudden, they would just decide 'oh we're just going to crawl up her arm you know just make this track' and it's just like that does not feel good still, like that feeling of them all over me (Helen, 2022).

Here, Helen discusses the conflict in physical touch. On one hand, gloveless work enables her to tap into mindful and attuned collaboration with bees. On the other hand, gloveless work evokes nervousness and discomfort brought forth by the physical sensation of bees crawling upon her.

Like Moore and Kosut state, “bee love is a complicated ball of wax, whereby there are real feelings and emotion expressed at the awe and wonder of insects. And at the same time there is a sense of otherness and serious confounding emotions that make it seemingly impossible to break through to interspecies flows” (Moore & Kosut, 2013). Helen holds love for her bees, while at the same time, feels emotions which position them as an *other*.

Moore and Kosut discuss how “beekeepers learn to deal with the possibility of getting stung, but it is in no way a deterrent” (Moore & Kosut, 2013). In an interview with Brian, I asked him to elaborate on *when* he feels enjoyment in keeping bees. Brian responded by saying:

Anytime I'm not getting stung. I mean, it's all fun. Obviously, there's some parts that are more work than others. But you know, when I first started it was the summertime, I would come back from work and I would pull up a chair next to one of the hives and I'd sit there with a beer and just watch them coming and going, and I would just relax (Brian, 2022).

Brian feels a sense of enjoyment despite the possibility of getting stung. He feels relaxed and connected to his hives and finds joy in their observation.

On Detecting the Vibrancy of Bees

It's an immersive experience. And it forces you to be in touch with what's happening in the environment at that moment. You know, like the sound the bees are making, and the smell of the hive, and like-it seems totally silly but-the tastes that are coming out of it in different seasons...I like to think that I'm aware of my environment, but this really grounded me within my environment, even in the different bioregions that we keep our bees in. We have one at home, we have some in the city in a different spot, and we keep two little apiaries outside in the country in Pleasant hill. Just those little differences in what they're foraging on and the wildlife around them, it feels as though they are more in tune with the plants and the light season than anything else. The whole thing has been really immersive. I just feel like there's so much to learn (Ariel, 2022).

The beekeepers in this case study are *detectors*, reliant on seeing, hearing, smelling, tasting, and feeling the vibrancy of bees. I position Ariel's passage at the start of this section to spotlight the clarity in which she calls to her senses. Ariel describes how the 'immersive experience' of keeping bees connects her to her environment in a unique way. She is a detector who works to understand her bees who know the landscape intimately. In a sense, these bees become interlocutors between her and the surrounding environment.

What lies between the bee and the keeper? The space between is a co-created vibrant physical and emotional exchange. In wrapping up this chapter on exchange, I call back to Bennett's advocacy for the vitality of matter. For Bennett, matter is constructed by actors within assemblages-actors are *things*/beings that hold their own agency. The vitality of matter is detected through the senses, though this vitality can be obscured by commodification (Bennett, 2010). Thus, multisensorial attunement can lessen obstruction by observing this vitality. The beekeepers who shared with me their stories of interspecies exchange embody the detection of vibrant matter. I collected stories from these beekeepers which highlight attentiveness and respect (Bennett, 2010). Bennett discusses that through attentiveness and respect, pathways of more "ecological and more materially sustainable modes of production and consumption" are uncovered (Bennett, 2010). Moore and Kosut discuss how beekeepers could access these alternative pathways through their interspecies exchanges: "Beekeepers seem to stand in close witness to the inner workings of other habitats and networks and in the process develop an ethos of responsibility towards bees. Although bees don't really belong to humans, we feel compelled to help and manage them once we get more familiar, more intimate-for the sake of these bees and possibly die to a moral ecological imperative. As our responsibility grows, so does our emotionality, whether we are the self-appointed stewards of plants, animals, or insects" (Moore

& Kosut, 2013). Like Ariel shared with me, through her connection to bees, she gains access to her surrounding landscape in newfound intimacy.

The beekeepers in this case study steward hives in ways which emulate their beekeeping philosophies. Their work involves “both physical labor and levels of emotional labor that are cultivated over time as part of nurturing and maintaining a colony” (Moore & Kosut, 2013). To connect with bees, beekeepers use their *own* bodies - they rely on their five senses to understand the health of the hive in efforts of stewardship. Kosut and Moore state that “the performative nature of beekeeping also calls for embodied learning and sensitivity. Here the bee becomes an educator/teacher through a commingling and penetration of the senses” (Moore & Kosut, 2013). When I asked Ariel about why she keeps bees, she said:

I think I feel like it is fulfilling in a way that nothing else really has been...Theres something about it that makes people obsessed (Ariel, 2022).

For the beekeepers in this case study, “intersecting nodes of insect/human” connection evokes attentiveness and respect (Moore & Kosut, 2013). Through these nodes of connection, intimate relationships are formed which knit species together within their given landscape. Like Ariel shares, beekeeping has captivating qualities. It draws folks in and connects them to their surroundings in uniquely intimate ways. Attentiveness and respect, as shown through their stewardship, can lessen the obscurities of commodification. The beekeepers in this study discuss their practice as it pertains to their whole body and its innate senses. They demonstrate a required slowness, attention, focus, and care when interacting with stewarded hives which connect their bodies to the bodies of bees. I suggest that through these intimate connections, these beekeepers demonstrate nodes of hope amidst a landscape which instrumentalizes bee bodies as

commodities within industrial agriculture. Nodes of hope are nurtured by interspecies connection reflective of attentiveness and respect.

Chapter 6: Concluding Reflections on Hope, Commoning, and Future Visions

Ok, so why does this all matter? I've sat with this question for almost two years now. I want to answer this question neatly, in an organized way that I can easily print on a flag and parade around, perhaps even as catchy as a "Save the Bee" bumper sticker. But alas my conclusion is un-slogan-izable. What I've really found to be of importance is a complex spiderweb of how to hold hope. I'll elaborate, of course (did I hook you in?), but first I'd like to revisit an analogy that I touched upon in my methodology.

I've been thinking a lot about Russian nesting dolls. When I wrote that analogy in the onset of my thesis journey, I had been trying to make sense of these nesting dolls in a theoretical sense. Since then, I've allowed myself to explore each doll. I've filled each doll inside each doll. This is all an attempt to explore how my brain makes sense of things both larger and smaller than my physical self. I first started by filling the space of the largest doll, *The Landscape*. I then moved into the second doll, *The Radius*, and finally I filled the tiniest, *The Space Between the Bee and the Keeper*. As I hopped from doll to doll, I grew overwhelmed in reaching the smallest figure, as it meant that I would eventually have to vocalize why anyone should *care* about this doll of dolls in the first place. But why do *I* care about this doll of dolls? Why did I allow myself to understand the way these pieces fit into one another so perfectly whilst holding such complexities, contradictions, and unique interior constructions? Because of hope!

Perhaps this is a lesson other folks have already come to master, but I realize I struggle with how to maintain deep roots of hope within a landscape that is imploding from human-

caused environmental degradation. Bees have provided me with a way to explore this hopelessness. They've also provided me with a way to envelop it *in* hope. Human and honey bee lives are inextricably linked. We have entered an alarming period of pollinator decline because of human-influenced factors. At large, honey bee bodies are commodified as agricultural pollination tools to support the dominant model of industrialized agriculture. But honey bees also exist in intimacy with some beekeepers as seen in this case study. In these relationships, there are reflections on reciprocity, awe, admiration, gratitude, compassion, and moral elevation. There is a dualism in which intimate and intentional relationships exist in both resistance to and acceptance of the dominant landscape. This was often touched on during interviews with beekeepers. Brent shared:

I think they're both going to exist [small and large beekeeping] for as long as we can sustain monocultures. As long as we can still put enough money in and get that back as a culture, right, for monoculture to exist, we're going to keep doing it. Because the shift to all small farms, all permaculture agriculture is something that must happen and will happen eventually, because the monocultures aren't sustainable, but until that shift happens there's going to be both [commercial and small-scale apiaries] (Brent, 2022).

For Brent, small and large-scale beekeeping will exist in tandem until there is a broader shift within our food system. Once this shift occurs, there is hope for a landscape reflective of interspecies reciprocity within the food system.

It's in this dualism that honey bees have become a sort of medium throughout my internal quest to understand what envelops me, and in turn how I envelop my interior. Bees have been reckoned as psychopomps in mythology, a guide for departed souls (Ransome, 2004). To satiate a desire to etherealize everything around me, perhaps bees became my silent guide for the part of my soul that let go of hope. Perhaps they became the medium needed to catalyze an acceptance

of dualism, showing me how to have hope in a landscape that so desperately portrays hopelessness, if that's what you choose to see.

So, with bees as my guide and beekeepers as their interlocutors, I travelled to that part of my soul that departed and showed her the interiors of other dolls who exude hope in landscapes that challenge their essence. The dolls I refer to, of course, are the beekeepers and the honey bees I met. For these beekeepers and honey bees exist within a landscape that is harsh, taxing, and influential...this big doll that holds us all and exposes us to conditions born from its structure. And in true nesting doll fashion, there are inside dolls that exist in their clever uniqueness and contrast. They have interiors which protect love and care. To peek inside the shared lives (hives) of honey bee and keeper is to feel the warmth of relational connectedness.

Relational connectedness teaches this hope that I craved to find. Positive social relational emotions encompass awe, admiration, gratitude, compassion, and moral elevation - otherwise known as self-transcendent emotions (Stellar et al., 2017). These emotions “bind individuals together in social relationships by promoting cooperation and group stability” (Stellar et al., 2017; Petersen et al., 2019). Self-transcendent emotions hold uniqueness from other positive emotions in that they orient the *other* by “diminishing one’s focus on the self and encouraging greater sensitivity and attunement to others” (Stellar et al., 2017). Social relational emotions are elemental to understanding “the process through which humans connect to nature” (Petersen et al., 2019). *Attunement, cooperation, group stability*. These words reverberate through the stories I collected from the beekeepers in this study. In *The Space Between*, I explore the utilization of the five senses to detect the vibrancy of bees. Through sensorial engagement, beekeepers are *attuned* to the needs of their hives. Multisensorial engagement allows for interspecies communication, wherein the beekeepers display attentiveness and curiosity. They enter contact

zones in *cooperative* reverence, reflective of the signs and signals given by their tiny counterparts. And through their intentional and careful performance at the hive, there is methodical interspecies collaboration to support *group stability* through actions that nurture overall colony wellbeing. Emotions of awe, admiration, gratitude, compassion, and moral elevation colored the stories I collected. During my interviews, I asked the small-scale beekeepers *why* they keep bees.

I'm not trying to keep bees to produce honey or run it as a business, I get to just step back and actually form a relationship and take it slow because I don't have an agenda besides just awe, just being in awe and in reverence...It's all this very intentional relationship of 'what do the bees need to facilitate their highest level of wellbeing and how can we as humans help them exist in a good way given that there's rapid colony collapse disorder, and loss of habitat, and pesticides, and all these other things that are infringing on the health of all pollinators (Hannah, 2022).

Hannah is fueled by connection, awe, and reverence. She bases her relationship on the intention of collaboration in pursuit of wellbeing in the face of infringing human-caused factors.

There is a Sanskrit phrase, *kama muta*, which describes the emotion of being moved by love. “The primary appraisal involved in *kama muta* is experiencing a sudden intensification of communal sharing...Communal sharing, one out of four relationships humans use to coordinate their social interactions, is the foundation of relationships in which people feel shared identity, are motivated by unity, share resources according to need and ability or signal and commit to being one by assimilating each other's bodies” (Petersen et al., 2019). The theory of *kama muta* is not restricted by the biological borders of one species, it is expansive, it can be felt when “suddenly intensifying communal relationships with an animal, deity or even an abstract entity such as the earth or the cosmos” (Petersen et al., 2019). The stories I collected shimmer in *kama muta*, they shimmer in the importance of reflecting on expansiveness and interspecies

connection. I observed how a “shared identity” can extend beyond biological borders, too, through a collection of reflections on how bodies connect to their surroundings. Beekeepers attune their corporeal senses to read and send signals to the hive superorganism with the intention of tending to their resource needs.

Holding hope is important-but seeing tangible change is needed to calcify its existence. Through this research, I became exposed to various pockets of change which fuel hope in achieving just interspecies reciprocity within the food system. In *The Radius*, I discuss how the beekeepers involved in this study display values of commoning. Commoning “regenerates people’s social connections with each other and with ‘nature’” (Bollier, 2015). Bees are jokingly called charismatic microfauna, but perhaps they could also be called charismatic micro-commoners, too. I see honey bees as micro-commoners who distribute work and work for the benefit and health of their hive. They also facilitate and inspire social connections; commoning “changes how we perceive ourselves, our relationships to others, and our connection to the environment” (Bollier, 2015). To ground the values of the commoners, I want to highlight a trend I noticed amongst a handful of informants.

Several beekeepers mentioned that if they were to offer pollination services, they would engage in ways quite different from the dominant model which follows nectar blooms through migration. Helen shared that she would prioritize staying local, as to check on her hives.

I wouldn't do it out of the state and I would try to make sure it was within, you know, probably 50 miles so I could get to them and check them as many times as I need to. I don't like the idea of not knowing what's going on or if they need to be split. I don't want them swarming while they're out there, so I would want to be close enough so I could check on them about every 10 days (Helen, 2022).

Ariel shared a similar goal to Helen, stating that:

I think just selling the products they produce. I never want to have to expand to large scale pollination services. I don't want to send my bees away, unless it was like really localized or um...in fact I'm trying to see about localized pollinator services. Somewhere where I could still tend to them and make sure things were going well, and still treat them if need be. But mostly thinking about honey products right now (Ariel, 2022).

Through these offerings, I see the beekeepers involved in this study as hopeful nodes of change. They share in these visions of localized pollination services with attunement to the needs of their hives, which reflect values of commoning through ethical engagement with common pool resources.

I also want to touch on two projects that exist at varied scales which both demonstrate valuing the commons. In *The Radius*, I introduce Flying Bee Ranch in Salem, Oregon. Through their honey cooperative, they bring together medium and largescale Willamette Valley apiaries in collaboration and incentivize investing in lasting partnerships between beekeeper and farmer. By drawing these stakeholder connections under the umbrella of pollinator advocacy, they form nodes of hope and tangible success in the act of commoning a shared and vital resource within the Willamette Valley.

On the trans-national level, Pollinator Partnership (P2) is a non-profit organization that is exclusively dedicated to the protection and promotion of pollinators and their ecosystems. Their program, Bee Friendly Farming (BFF), is a certification program for farmers to help “protect, preserve and promote pollinator health” (Pollinator Partnership, n.d.). Through their program, they provide guidelines for farmers and growers to promote pollinator health on their lands. Through this certification program, they strive to “set standards for sustainable farming on important concepts like planting pollinator food resources, providing nesting habitat, and incorporating an integrated pest management strategy. BFF helps ensure the future of both

pollinators and sustainable agriculture as it expands across North America and around the globe” (Pollinator Partnership, n.d.). P2’s BFF program offers tangible commoning action as it promotes and supports interspecies through knowledge sharing, advocacy, and agricultural shifts towards sustainability under the umbrella of pollinator welfare.

The honey collective and BFF demonstrate acts of commoning through different scales with the intention of pollinator welfare advocacy. These are pathways for a future of the commons. Brent offers breadcrumbs of hope for the commons, as shared in his excerpt above. To reiterate, he shared that *“the shift to all small farms, all permaculture agriculture is something that must happen and will happen eventually, because the monocultures aren’t sustainable, but until that shift happens there’s going to be both [commercial and small-scale apiaries]”* (Brent, 2022). And as Michaela states, *“when we talk about industrial agriculture, we really need to differentiate farmers from the system”* (Michaela, 2022). I offer these two excerpts alongside one another to highlight the observed impact of social systems on the way that humans interact with their environment. Social systems of extractive capitalism and industrialized agriculture shape pathways that hinder the overall wellbeing of pollinators, and largescale systemic changes are needed to address these patterns.

Broadly speaking, human-bee interactions are not based on reciprocity. We are deeply intertwined with honey bees in a “multispecies relationality that cannot be disentangled” (Kosut & Moore, 2013). In *Buzz: Urban Beekeeping and the Power of the Bee*, Kosut and Moore offer a range of solutions for upholding future relationships between pollinators and humans. In their solutions, they detail what “ethical engagement” looks like as a pathway. “Ethical engagement involves creating more deliberate and thoughtful working conditions for bees that consider their health and well-being...Ethical engagement relies on modifications in our practices and

relationships with bees; it seems to us that this speaks to contemporary notions of sustainability. We seek to *engage* with bees in a manner in which they are not taken for granted as an inexhaustible natural resource” (Moore & Kosut, 2013). To acknowledge a caveat, this solution is not to idealize the detangling between humans/nonhumans. I am reminded by Anna Tsing and Donna Haraway that humans have influenced such intense alterations in naturally occurring ecosystems, that our entanglement with other species binds us together in ways irreversible. Commercial pollination will still exist, and novel ecologies will still permeate, shift, and mirror human-influences.

Given this condition, a shift towards ethical engagement can happen through agroecological transformation. Like Brents vision, there is a need for a systemic shift from industrialized agriculture towards networks of small-scale agriculture reflective of eco-systemic symbiosis. A transformation towards agroecology would alter the broader global landscape to reflect values of commoning through networking, knowledge sharing, stakeholder collaboration, and ethical engagement with nonhuman others involved in food systems. Agroecological transformations are reflective of landscape diversification and strengthening equitable social connections (Bezner Kerr et al., 2023). Further, “transformations built on agroecological practices for the production, distribution, and consumption of food, range from facilitating natural pollination to local markets and nutritious diets” (Bezner Kerr et al., 2023). This shift can accumulate nodes of hope through social networks and partnerships. These nodes can grow and offer transformative change to the conditions dictated by the current global food system. The interviews with participating beekeepers reveal how folks are thinking about this transformation through the lens of pollination. It appears that bees provide them with a medium to understand the social and ecological impacts of a global change like this.

I speak of the dualism that exists in this world of pollination in the Valley. I explore how beekeepers stand in both worlds, a world of acceptance and acknowledgement towards the larger tapestry of the landscape shaped by global currents, and a world of ‘new-worlds’ that are built from interspecies relationality and intimacy with their surroundings. When I envision hopeful futures, I acknowledge agroecological transformation - which in a sense captures its own dualism that parallels the worlds of the beekeepers featured in this study. Agroecological transformation envisions global landscapes of reciprocity, justice, and relationality – a transformation *from* the larger tapestry shaped by global currents of power imbalance. *And* it envisions localized networks supported by knowledge sharing, communication, and just social-ecological connections. Perhaps it is through agroecological transformation that this dualism will melt. By this I mean, in a successful state of global transformation, the dominant landscape can change. The global currents will be reflective of social justice, just multispecies relationality, and reciprocity. The beekeepers in this case study stand in two worlds, acknowledging the current global food system and creating just worlds through intimate relationality. With agroecological transformation, the global food system will reflect intimate relationality, melting the binary of their current ‘two-world’ reality. There is hope for balanced reciprocity in the intimately entangled interspecies relationships which support our global food systems.

It’s through the stories of the beekeepers that I explore how bodies interact in their broader landscapes and meet in spaces of closeness. It’s also through these stories that I am set to reflect on this broad global tapestry we knit ourselves within. I wonder if the insights I gathered on these intimate reflections are thoughts that flutter into other minds in other landscapes. Beekeeping is so deeply engrained in the lives and traditions of countless communities expanded beyond the Valley. A while back, I grew close to several beekeepers scattered around Chile.

They shared their stories with me, too, of intimacy, closeness, and reciprocity-emotions born between themselves and their bees. My intersection in their lives came at a time of turmoil sparked by the Trans Pacific Partnership, a multi-national trade deal, basically a new-age NAFTA. It was through their bees that they detailed their concern for this trade agreement. Concern nested in the posed alterations of the landscape in Chile, expanding industrial agriculture and pesticide use. From these two 'isolated' studies, in Chile and in Oregon, I have learned how the hive reflects global decisions and social currents. Therefore, for solutions to truly permeate beyond surface level, there must be systemic change.

This change has potential in the form of agroecological transformations, which would de-normalize the industrialized agricultural landscape that pervades in dominance. We can see nodes of agroecological change in various capacities in different localities. Folks are thinking about agroecology in the Willamette Valley; for example, beekeepers are keen on farmers who diversify their landscape because it harmonizes with the health of the hive. There is hope in scale. With minds reflecting on how bodies interact and come together, perhaps the scale can tip on the side of agroecological transformation, sparking larger swaths of landscapes to honor these reflections through systemic changes in what is 'normal' in the food system.

Agroecological transformation offers the potential of positive social systems shaping interspecies interactions through just reciprocity and ethical engagement. A shift towards agroecology would improve biodiversity and reduce landscape fragmentation, positively impacting native bee populations by increasing habitat and forage. I asked beekeepers what lessons they have learned from their bees. Many referenced how the bee's social organization is something of admiration, how they work collaboratively and for the good of their community. How they use their resources in balance and seek not to extract resources in over-abundance.

Though I did not necessarily use this information in the body of my thesis, I think it became a silent catalyst for myself in understanding how deeply important this process has been for me in feeling hopeful.

There is a shiny love-filled behemoth which rests inside of me and beams out of my pores. It beams out gratitude for the beekeepers involved in this case study. I swim in curiosity; I crave it to understand how I nest into scales. The beekeepers I spoke with offered me their time and energy, and most dear to me, their curiosity. I built this research upon multispecies ethnography, which in all honesty, felt quite like a spooky behemoth in its own sense. How was I to capture the stories of tangled lives if I could not translate the voice of the honey bee? Though I did not learn a new language, I learned how to use my curiosity as a tool to edge nearer to the stories of a bee. For those of you who may read this, who may hold a similar agenda in exploring how lives tangle, how species meet, may I suggest engaging with deep curiosity and openness. It's through this ethnographic process that I reconnected to my own hope. And in turn, I offer this to others as a methodological tool to reconnect to one's hope through the stories and tangles hopes of others. Learning about these intimate relationships and their existence within the broader global landscape, I see how hopefulness permeates and shapes how we can envision our collective future.

A personal note on weaving stories

One summer day, I visited Erin and Mason's beehives in the woods near the farm that I worked at. We hiked to the field nestled on the wooded property, crossed through the bear fence, and chatted in churning air of buzzing bodies. We huddled over the Warre hives they built from lumber sourced after a nearby fire. Our eyes followed muddy tracks left by mason bees, a native solitary bee in Oregon, that had laid their eggs in the crevasses of the box alongside the honey bee hive. The tracks looked like fish scales on the wood. We watched a little bug, a blur of hurried legs scurry around the box—a bug with a mighty bite, an appetite for various pests that could negatively affect honey bees. “There's a whole ecosystem in here”, said Erin as we took in the movement. I asked Erin why she keeps bees— “it's not even about keeping bees, it's about keeping respect for the environment” (Erin, 2022).

I hold so many dear memories in my heart that have helped to solidify this lens that I carry, which inspires me to follow the threads of lives that grow entangled, perhaps unseen, in my own life. I connect to my surroundings deeply through artistic practices. Working with my hands allows for my internal reflections to enter and commingle with my landscape. During this research, I made a weave in hopes of processing these feelings in a way that is genuine and innate to myself. I entwined treasures found within my community that represent currents of interspecies support. Strung within a decommissioned honey bee brood box, I entangled honey comb, yarrow, straw flowers, wolf lichen, sheep shearings, snake sheddings, wispy grasses from greenhouse edges, usnia, wool, and cotton. I tucked a few dead honey bees into crumbling hive. The bottom of the loom holds a bison horn, a component of biodynamic preparations used with the intention to support interspecies communities. The bottom of the loom also holds wood burned emulations of the fish-scaled mason bee nests. The elements woven together each carry

tender memories of connection and community. I made this weave to explore how interspecies connections are shaped by the culture of capitalism through the lens of beekeeping. The conversations and connections built during this time of close-looking weave together landscapes, motivations, aspirations, and tribulations, and blanket me in a tapestry of recognition of interspecies justice that happens amongst us at all moments.



Bibliography

- ABJ. (2015, September 1). *Sounds of the Hive—Part 1*. American Bee Journal. <https://americanbeejournal.com/sounds-of-the-hive-part-1/>
- Agrebi, N. E., Steinhauer, N., Renault, Graaf, D. de, & Saegerman, C. (2020). *Beekeeper's perception of risks affecting colony mortality: A pilot survey* [Preprint]. Preprints. <https://doi.org/10.22541/au.159493350.05578294>
- Andrews, E. (2019). To save the bees or not to save the bees: Honey bee health in the Anthropocene. *Agriculture and Human Values*, 36(4), 891–902. <https://doi.org/10.1007/s10460-019-09946-x>
- Armstrong, K. N. (n.d.). *Being with Bees: An Anthropological Study on Human-Animal Relations in Southern Beekeeping*. 113.
- Baker, P., Lacy-Nichols, J., Williams, O., & Labonté, R. (2021). The Political Economy of Healthy and Sustainable Food Systems: An Introduction to a Special Issue. *International Journal of Health Policy and Management*, 10(12), 734–744. <https://doi.org/10.34172/ijhpm.2021.156>
- Beekeeping With a Smoker—PerfectBee*. (n.d.). Retrieved May 18, 2023, from <https://www.perfectbee.com/your-beehive/equipment-and-clothing/beekeeping-with-a-smoker>
- Bennett, J. (2010b). *Vibrant matter: A political economy of things*. Durham, NC: Duke University Press.
- Bezner Kerr, R., Postigo, J. C., Smith, P., Cowie, A., Singh, P. K., Rivera-Ferre, M., Tirado-von der Pahlen, M. C., Campbell, D., & Neufeldt, H. (2023). Agroecology as a transformative approach to tackle climatic, food, and ecosystemic crises. *Current Opinion in Environmental Sustainability*, 62, 101275. <https://doi.org/10.1016/j.cosust.2023.101275>
- Bollier, D. (2020). Commoning as a transformative social paradigm. In *The new systems reader* (pp. 348-361). Routledge.
- Cardinale, B. J., Duffy, J. E., Gonzalez, A., Hooper, D. U., Perrings, C., Venail, P., Narwani, A., Mace, G. M., Tilman, D., Wardle, D. A., Kinzig, A. P., Daily, G. C., Loreau, M., Grace, J. B., Larigauderie, A., Srivastava, D. S., & Naeem, S. (2012). Biodiversity loss and its impact on humanity. *Nature*, 486(7401), Article 7401. <https://doi.org/10.1038/nature11148>
- Chable, V., Nuijten, E., Costanzo, A., Goldringer, I., Bocci, R., Oehen, B., Rey, F., Fasoula, D., Feher, J., Keskitalo, M., Koller, B., Omirou, M., Mendes-Moreira, P., van Frank, G., Naino Jika, A. K., Thomas, M., & Rossi, A. (2020). Embedding Cultivated Diversity in Society for Agro-Ecological Transition. *Sustainability*, 12(3), Article 3. <https://doi.org/10.3390/su1203078>
- Deleuze, G., & Guattari, F. (1987). *A thousand plateaus: Capitalism and schizophrenia*. Minneapolis: University of Minnesota Press.
- Durant, J. L. (2019). *Bitter Honey: A Political Ecology of Honey Bee Declines* [UC Berkeley]. <https://escholarship.org/uc/item/20f1f816>

- Durant, J. L. (2020). Ignorance loops: How non-knowledge about bee-toxic agrochemicals is iteratively produced. *Social Studies of Science*, 50(5), 751–777. <https://doi.org/10.1177/0306312720923390>
- Durant, J. L., & Ponisio, L. C. (2021). A Regional, Honey Bee-Centered Approach Is Needed to Incentivize Grower Adoption of Bee-Friendly Practices in the Almond Industry. *Frontiers in Sustainable Food Systems*, 5. <https://www.frontiersin.org/articles/10.3389/fsufs.2021.628802>
- Dyer, A., Garcia, J., Prendergast, K., Howard, S., & McFarlane, S. (2022, January 26). *From rock carvings to rock music – the prevalence of bees in art throughout human history*. The Conversation. <http://theconversation.com/from-rock-carvings-to-rock-music-the-prevalence-of-bees-in-art-throughout-human-history-173069>
- Ellis, R. A., Weis, T., Suryanarayanan, S., & Beilin, K. (2020). From a free gift of nature to a precarious commodity: Bees, pollination services, and industrial agriculture. *Journal of Agrarian Change*, 20(3), 437–459. <https://doi.org/10.1111/joac.12360>
- Geldmann, J., & González-Varo, J. P. (2018). Conserving honey bees does not help wildlife. *Science*, 359(6374), 392–393. <https://doi.org/10.1126/science.aar2269>
- Good Queens Good Real Estate Good-Bye Mites | Bee Culture*. (2019, June 18). <https://www.bee-culture.com/good-queens-good-real-estate-good-bye-mites/>
- Haraway, Donna J., 'Training in the Contact Zone: Power, Play, and Invention in the Sport of Agility', in Beatriz da Costa, and Kavita Philip (eds), *Tactical Biopolitics: Art, Activism, and Technoscience* (Cambridge, MA, 2008; online edn, MIT Press Scholarship Online, 22 Aug. 2013), <https://doi.org/10.7551/mitpress/9780262042499.003.0026>
- Hardin, G. (1968). The Tragedy of the Commons. *Science*, 162(3859), 1243–1248.
- Holt-Giménez, E. (2017). *A Foodie's Guide to Capitalism: Understanding the Political Economy of What We Eat*. Monthly Review Press. <https://doi.org/10.2307/j.ctt1pwt8gg>
- Kellar, B. (2018). Honey Bees and Apple Trees: Hood River, Oregon as a Case Study for the Creation of the Honey Bee Pollination Industry. Oregon State University.
- Kallis, G., & Swyngedouw, E. (2018). Do Bees Produce Value? A Conversation Between an Ecological Economist and a Marxist Geographer. *Capitalism Nature Socialism*, 29(3), 36–50. <https://doi.org/10.1080/10455752.2017.1315830>
- Kirksey, S. E., & Helmreich, S. (2010). The Emergence of Multispecies Ethnography. *Cultural Anthropology*, 25(4), 545–576.
- Kohn, E. (2013). *How forests think: Toward an anthropology beyond the human*. University of California Press.
- Lloro, T. (2020). Toward an interspecies critical food systems education: Exploring an intersectional cultural humility approach. *Toward Critical Environmental Education* (A. S. Gkiolmas & C. D. Skordoulis, Eds.). https://www.academia.edu/83260590/Toward_an_interspecies_critical_food_systems_education_Exploring_an_intersectional_cultural_humility_approach
- Morton, T. (2010). *The ecological thought*. Cambridge, Mass., Harvard University Press.
- Moore, L. J., & Kosut, M. (2013). *Buzz: Urban beekeeping and the power of the bee*. New York University Press.

- Myers, N. (2017). From the anthropocene to the planthroposcene: Designing gardens for plant/people involution. *History and Anthropology*, 28(3), 297–301. <https://doi.org/10.1080/02757206.2017.1289934>
- Nimmo, R. (2015). The Bio-Politics of Bees: Industrial Farming and Colony Collapse Disorder. *Humanimalia*, 6(2), Article 2. <https://doi.org/10.52537/humanimalia.9909>
- Nimmo, R. (2013). *From monarchists to communists: Bees in the socio-political imagination.* / *Sociological Insect*. <https://sociologicalinsect.com/2013/10/10/from-monarchists-to-communists-bees-in-the-socio-political-imagination/>
- Olsen, J. (2013). *Growing Hazelnuts in the Pacific Northwest: Introduction* [Text]. <https://catalog.extension.oregonstate.edu/em9072/html>
- Petersen, E., Fiske, A. P., & Schubert, T. W. (2019). The Role of Social Relational Emotions for Human-Nature Connectedness. *Frontiers in Psychology*, 10. <https://www.frontiersin.org/articles/10.3389/fpsyg.2019.02759>
- Phillips, R. Evans, B. Muirhead, S. (2015). *Curiosity, Place, and Wellbeing: Encouraging Place-Specific Curiosity as a 'Way to Wellbeing'*. *Environment and Planning*. Volume 47, pages 2339-2354.
- Pollinator Conservation Program.* (n.d.). Xerces Society. <https://xerces.org/pollinator-conservation>
- Potts, S. G., Biesmeijer, J. C., Kremen, C., Neumann, P., Schweiger, O., & Kunin, W. E. (2010). Global pollinator declines: Trends, impacts and drivers. *Trends in Ecology & Evolution*, 25(6), 345–353. <https://doi.org/10.1016/j.tree.2010.01.007>
- Preston, C. (2006). *Bee*. Reaktion Books.
- Ransome, H. M. (2004). *The sacred bee in ancient times and folklore*. Dover Publications.
- Robbins, R. H. (2005). *Global problems and the culture of capitalism* (3rd ed). Pearson Allyn and Bacon.
- Sammataro, D., Gerson, U., & Needham, G. (2000). Parasitic Mites of Honey Bees: Life History, Implications, and Impact. *Annual Review of Entomology*, 45(1), 519–548. <https://doi.org/10.1146/annurev.ento.45.1.519>
- Shanahan, M. (2022). Honey Bees and Industrial Agriculture: What Researchers are Missing, and Why it's a Problem. *Journal of Insect Science*, 22(1), 14. <https://doi.org/10.1093/jisesa/ieab090>
- Special Development Standards for Certain Uses | Eugene Code.* (n.d.). Retrieved May 17, 2023, from <https://eugene.municipal.codes/EC/9.5250>
- Stellar, J. E., Gordon, A. M., Piff, P. K., Cordaro, D., Anderson, C. L., Bai, Y., Maruskin, L. A., & Keltner, D. (2017). Self-Transcendent Emotions and Their Social Functions: Compassion, Gratitude, and Awe Bind Us to Others Through Prosociality. *Emotion Review*, 9(3), 200–207. <https://doi.org/10.1177/1754073916684557>
- Tilman, D., Cassman, K. G., Matson, P. A., Naylor, R., & Polasky, S. (2002). Agricultural sustainability and intensive production practices. *Nature*, 418(6898), Article 6898. <https://doi.org/10.1038/nature01014>
- Tsing, A. L. (2021). *The mushroom at the end of the world: On the possibility of life in capitalist ruins* (New paperback printing). Princeton University Press.
- Tsing, A. L., Mathews, A. S., & Bubandt, N. (2019). Patchy Anthropocene: Landscape Structure, Multispecies History, and the Retooling of Anthropology: An Introduction to Supplement 20. *Current Anthropology*, 60(S20), S186–S197. <https://doi.org/10.1086/703391>

Underwood, R. M., Traver, B. E., & López-Urbe, M. M. (2019). Beekeeping Management Practices Are Associated with Operation Size and Beekeepers' Philosophy towards in-Hive Chemicals. *Insects*, *10*(1), Article 1. <https://doi.org/10.3390/insects10010010>

USDA - National Agricultural Statistics Service—2017 Census of Agriculture—Volume 1, Chapter 2: County Level Data. (n.d.). Retrieved May 17, 2023, from https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/Oregon/

Use This One Strange Trick To Catch A Swarm This Season. (2018, April 30). GloryBee. <https://glorybee.com/blog/use-this-one-strange-trick-to-catch-a-swarm/>

Willamette Valley – Oregon Conservation Strategy. (n.d.). Retrieved May 17, 2023, from <https://www.oregonconservationstrategy.org/ecoregion/willamette-valley/>