Perspectives in Honeybee Production: A Gozo Case Study

by Jacob Jansen

SUMMARY

The islet of Gozo, Malta is known for its rural landscapes and attractive tourist destinations. It is also home to a variation of honeybees, maintained by the beekeepers of Gozo, and desired by farmers for the purpose of pollination. In July of 2016, I spent three weeks on this islet, practicing skills in applied anthropology through the Off the Beaten Track field school. I was interested in the means of production that go into the creation of honeybee products, and specifically the people that make this process possible. During my time in Gozo I met Adam, a 60-year-old beekeeper, who provided me with some of his perspectives on honeybee production. Working alongside Adam and his honeybees offered me a glimpse at what it means to be a keeper in Gozo. Recently this practice is experiencing new challenges, shaping the tasks and concerns of Gozitan beekeepers. These keepers express their perceptions of potential bee extinction as signs of colony collapse disorder (CCD) arise. With this, Gozo's environment is facing unfamiliar conditions that are potentially related to climate change. These issues are ultimately met by a community of beekeepers that survives the practice of beekeeping on Gozo through the exchange of local knowledge and dialogue. I left Gozo with further questions about how the islet's environment shapes beekeeping and what the future of this practice will look like given our warming planet.

$A\ R\ T\ I\ C\ L\ E \quad I\ N\ F\ O$

Keywords

Beekeeping, Climate Change, Colony Collapse Disorder, Community Knowledge, Ethnography, Gozo, Multispecies Relationships

How to refer to this article

Jansen J., Perspectives in Honeybee Production: A Gozo Case Study, 2018, Omertaa, Journal for applied anthropology, http://www.omertaa.org/archive/omertaa0081.pdf

OMERTAA 2018 JOURNAL OF APPLIED ANTHROPOLOGY

The Author

"Being with the honeybees... it is something nice, you know? It is in my blood" said my key informant, Adam, who has been a beekeeper for a large portion of his life. I could resonate with this man's feelings towards something that compelled him to be attentive to discipline and actions that required daily, obligatory focus. Adam would often draw particular attention to the passion which fundamentally drives his determination to care for an agricultural practice that inherently involves a multispecies relationship. I was only beginning to understand this relationship by the time I left Gozo in 2016, but I knew very well the flame in Adam's heart that pushes him to continue keeping honeybees. I can describe this determination through an intersubjective approach, which parallels my dedication to anthropological studies.

In my few years of studying anthropology, I have learned a lot about myself and the identity I possess in the context of a positionality which has summoned questions that seek to constructively challenge my place in the world. Finding absolute, static answers to these questions may be suitable for some, but the very idea makes my skin crawl. I pursue anthropology because my interpretations and critique of the discipline(s) encourage me to seek ontological roots which poke at what I consider comfortable, bringing unfamiliar realities into a fragmented view. It is through anthropology that I choose to observe the world around me. When doing fieldwork with my informants, it was often difficult for me to explain what my exact purpose on Gozo was, and how anthropology brought me to a country in the Mediterranean Sea. Towards the end of my initial fieldwork, informants began to understand I was not just interested in honeybees, but beekeepers and how humans relate to these insects. When Adam and I would talk about beekeeping and those qualities which continue to reserve his time for apiculture, he would say something along the lines of "It is like with you and school, or your love for making music. Beekeeping is something nice for me." My fieldwork of 2016 aimed at questions of the environment, community dynamics, and human-animal relations. Although in much simpler terms, being alongside my informants often felt like people spending time together, talking about the things that concerned and interested them.

The Project

In this ethnographic work, readers will see that my intentions for this project is an ongoing process. As I write this preface in March of 2018, I continue to pursue my research which has its foundations in this piece. As a reference point, I consider this work an exploratory essay inclusive of ethnographic encounters and anthropological applications. This project was my initial attempt at 'doing' anthropology, and its pages are a product of that effort. I am not going to lie – this line of work is not for everyone. It takes dedication and the ability to fail, and when you expect to succeed, you fail again. The very nature of anthropological fieldwork is exhausting, but as I have hinted at earlier. I love this discipline. When I'm thinking anthropologically, I feel as though I am learning. I express this perhaps now too repetitively only to bring home the point that fieldwork for me is more than research, more than writing, more than interviews. Anthropology is my way of becoming in a world that will consistently try to tell you what is with fuzzy explanations. So, this project means a lot to me, especially because it is the result of time contributed to my inquiry by informants, mentors, colleagues, friends, and family.

Before I left for the field in 2016, I decided to channel this work towards a Food Studies minor degree at the University of Oregon. Under the direction of Dr. Stephen Wooten, I utilized my data that was retrieved from the field in the form of field notes, recorded interviews, photographs, and memory. These things would be used to create the pages you are now reading. Upon my return to the United States, I spent a long time writing and rewriting until I finally settled on something that I felt captured my experiences and the information I had acquired. Although I had read a decent number of ethnographies and took numerous anthropology classes before the field, nothing could prepare me for the exhaustion of doing fieldwork. I will expanded on this experience beyond the preface. Prior to this project, I had no hands-on training in conducting research which involved informants. To makes things more difficult, I also had no prior experience with beekeeping practices. This project was a lot of "firsts" for me, including my first time being outside of United States territory and flying on planes for what seemed like infinity. It was not easy, but pushing through is what rewarded me with a lot of selfgrowth and determination to continue my journey as a budding anthropologist who desires to listen and learn.

My experiences in Gozo shaped the research questions I entered the field with. I developed content analysis in a post-field environment. Being with beekeepers brought me closer to a Gozitan context of environmental pressure, human-animal interaction, and apicultural community. These are my topics of interests in this paper, directed by a curiosity that sought to explore ethnography and thick description. If, while reading these pages, you think "Where is the author's theory?" and "What is the overarching thesis?" you would be right to suggest these areas messy. I did not go into this piece aspiring to be a fantastic theorist, or find that sweet-spot of theory and practice. Nor did I happily settle on a singular statement which encapsulates the essence of these pages and my direction, although the summary of this work is an attempt. I landed somewhere between environmental concerns and threats of climate change while considering human-animal relationships in the context of vulnerability. Then, I considered how community is vital among apiculture for the sake of agricultural management. This is all to say that my essay is exploratory in that it documents a growing process in my anthropological beginnings and early inquires on topics that have since expanded into theoretical channels. It is my hope that reading this paper will be enjoyable for nonacademics and scholars; an approachable piece of writing. Looking Forward

"Perspectives of Honeybee Production: A Gozo Case Study" touches on notions of climate change creating a sense of vulnerability for humans and honeybees. Today, I believe environmental pressures expose and express identities, which is particularly relevant to my current interests. In 2017, I returned to Gozo as a staff member for Off the Beaten Track. This time around, I assisted in mentoring students which gave me pedagogical insight to the field school environment. I was able to balance my staff member position and continue fieldwork. I collected ethnographic data for about 3-months-time. My 2017 experience left me wondering the extent to which our identities are imbedded into nature. It is through this thinking that a developed thesis emerged through an initial question: Do honeybees have autonomy?

The question may seem odd to those who cannot imagine honeybees without beekeepers. What enables us to perceive and articulate the honeybee are the ways we relate to it, and the parts of our social selves we inscribe into this animal to create meaning. As Anna Tsing (1995) would say, by empowering nature, we can see through and with biological objectivities, bringing a subjective analysis into the nature / culture discourse. By extending agency to honeybees, we reveal the deep ontologies associated to this organism, crafted through years of dominantly Western knowledge constructions.

Under the guidance of Professor Ana-Maurine Lara, my thesis for 2018 argues that these ontologies are not solely connected to an imagined extension of agency by which we can understand the honeybee. This is a nice start, but it does not allow us to fully articulate the colonial influences and eurocentric properties associated to the honevbee's conception in nature. Rather, we must acknowledge a subjective zoe, or that which is killable in the words of Giorgio Agamben (1998), and the ontologies connected to honeybees. These ontologies were cast out of bios, or the political life of humans, and into a realm of nature. As the honeybee is shaped, so too are humans. Many cultures are connected to, and agriculturally dependent on, the honeybee. I argue that this animal's 'shaping' took place in a human-animal entanglement while considering the legacy of colonialism, which consequentially crafted honeybees in both a physiological and social sense, affecting how we relate to and use this organism.

Malta serves as a contact zone for post-colonial discourse, and with climate change threatening this archipelago, it is clear that environmental stress exposes and expresses the post-colonial identities of beekeepers and honeybees alike. I examine an incident which took place in Gozo a few years ago to put theory into practice. A Sicilian beekeeper's queen-breeding hives were burned by anonymous culprits in 2016. This comes only after a few years of the Sicilian beekeeper setting up his queenbreeding business in Gozo. Tensions among 'foreign' and 'local' beekeepers reveal post-colonial anxieties which manifest into the way my informants related to honeybees.

What does it mean for beekeepers to be afraid of crossbreeding honeybee species, and what deeper ontologies of colonialism are rooted in an insect's 'regional' purity? How can we connect mitochondrial DNA tests of honeybees to that of humans, both of which lend to a knowledge construction of 'races'? When does tension arise for beekeepers, and how do environmental pressures pose as threats to honeybees and their caretakers alike? These sorts of questions are what I now deploy in the hopes of bringing an anthropological lens to beekeeping for the sake of revealing colonial ontologies rooted in eurocentric knowledge constructions and the techno-science that follows. In other words, my research has continuously concerned more than honeybees. In the present, my work is about how we relate to nature and the ways in which perceptions of the environment are subjected to a cultural shaping. I explore nationalism, colonialism, post-colonialism, eurocentrism, racism, and the ontologies that carry Western dominate intelligibilities into the realm of zoe, expressible through environmental conflict.

Why Publish this Piece?

It took me a while to finally decide this writing should be published through Omertaa. When you have invested so much of your time into a creation, it becomes something special to you. Then, there comes a moment when you have to let that creation go and live on its own, in the world of many eves and their ideas. There is certainly a feeling of vulnerability at hand in putting this piece out there, but this is largely something I have internalized. As one of my advisor's constantly reminds me "Don't over think it Jacob." She is right, and this idea of publish or perish truly is the burden of creativity that must change in academic culture. There are ideas in this essay that I have since shifted from, developing my understanding on issues along the way. Some qualities of this piece are missing from my writing today, and I find myself returning to this work to see how I made inspiration and knowledge turn into something personal and weaved with emotion. This project was the first big step in my process as an academic-in-the-making, but it also symbolizes the experience of learning from others, writing, and reflecting on ideas. To publish this piece places it in the history of my developments. As a writer and researcher, this is an important record to keep track of for the sake of evaluating growth. Also, this bit of writing is something that I am truly proud of, and I do not allow myself to feel that way often. Most importantly, there are realities within this text that places personal narratives in a context of environmental stewardship. Knowing that others will read these pages and see these realities is what has pushed me forward, among this project and those related to it.

J.J. Eugene, Oregon May 2, 2018

Acknowledgements

This paper would not have been possible without the generosity and love from my parents, extended family, and friends. As I type these words, I am reminded by the person who inspired me to pursue anthropology, Dr. Annarose Pandey, for I will always consider her my first mentor and greatest teacher. I also owe my respects to Dr. Ana-Maurine Lara for making me aware of the field school in Gozo, and Dr. Rupa Pillai for helping me through initial concerns and first-timedoing-fieldwork butterflies. Special thanks to one of my friends who invited me to his home so that I could experience beekeeping before departing for Gozo. I thank my field school staff members and fellow students for their support. Most of the experiences in this essay would not have been possible without the kind and inviting person that was my key informant. I also thank Dr. Stephen Wooten for expressing interest in my research and helping me channel this ethnography towards the pursuit of a Food Studies minor degree at the University of Oregon.

Introduction

Before the Field

In 2016, I came across the opportunity to participate in a field school, hosted abroad on the islet of Gozo, Malta. As an undergraduate cultural anthropology student, I was longing for a chance to go beyond the classroom setting and apply my skills in communication and analysis. After expressing interest in field schools to a professor at my university, an email was later sent to me, detailing an applied anthropology program. The application described Off the Beaten Track (OtBT), a field school for anthropologists. My interests at that time pertained to notions of tradition and modernity and how these factors of our globalized world are culturally represented. Additionally, I was fascinated by means of production and the people who make something that is consumable, possible. I applied to the field school early, excited to potentially participate in an experience that I knew would be life changing. The program offered a honeybee-culture workshop which I took an interest in. After I was accepted into the program, I spent a lot of time "preparing" myself for fieldwork.

There is only so much you can learn about fieldwork in a classroom environment. I do not mean to say that digesting reading material and the lectured experiences of professors is not important, because these things certainly are. However, there is a world of senses and interaction that are encountered when doing ethnographic research that simply cannot be thoroughly explored using texts or documentaries because these experiences are locked in subjective sights, smells, touches, tastes, and sounds. As anthropologists, we try our best to record and analyze the moments and details that intrigue us, in the hopes that we can share a particular reality. There are

limitations to our descriptions though, and this acknowledgment is what compelled me to do fieldwork. I needed to see if I could apply anthropology to something that captured my fascination and justified the disciplines that I adhere to. Of course, this was all something that I realized after the field, so I spent many months "preparing".

Before arriving in Gozo, I paced in circles among my mind, writing and rewriting research questions. The fact that I was going to a place which I had never visited before to do research on a practice that I had never participated in terrified me. Malta was not a country I had heard of prior to my research, so I spent a large amount of time learning about the history of this archipelago and its various people. To say I *fully* explored the historical contexts of Malta would be an insult to the people of Malta and their ancestors, as this archipelago is rich with human contact and culture. It is important that I mention some principal historical context, but it must be noted that my intentions are to address Gozo in a particular contemporary state with focus on perceived environmental conditions and beekeepers that will be discussed later in this ethnographic case study. The following provides a very brief historical context that is missing many details and triumphs which ultimately characterize the foregrounds of the Maltese people.

A Very Brief History of Malta

Approximately Northeast of Tripoli, Libya and south of Sicily, Italy is the archipelago of Malta. The islands of Malta are small in size, consisting of Malta (containing the capital of Valletta), Gozo, Comino, Cominotto and Filfla occupying an area of 122 square miles.¹ Malta is a place that has served as the canvas to varying strokes of human societies due to its strategic location. It has been visited numerous times by several cultures, either by accident, or intentionally through the pursuit of colonization. The people of Malta have developed through "...centuries of domination by Arab, Norman, European and English administrators."² In particularly, this interaction zone has faced the colonizing masses of a Neolithic group somewhere from Italy 8,000 years ago, followed by the Phoenicians, the Carthaginians, the Romans and the North African Arabs, Sicilians, various European powers throughout the Middle Ages, the Knights of St. John, the French under Napoleon, and lastly the English who arrived at the beginning of the 19th century.³ The British would have significant control over the Maltese islands throughout the majority of the 20th century.

By September 21, 1964, the Maltese assumed full responsibility for their own affairs by declaring an Independence Constitution.⁴ In this, Maltese and English would become the official languages of Malta. With the British somewhat out of the archipelago, Malta would need to rethink its economic foundation. Additionally, due to its small size, Malta needed a continued import of resources from neighboring countries. In July of 1990, Malta formerly applied for membership in the European Union.⁵ On May 1, 2004, Malta officially became a Member State of the European Union.⁶ Then, in 2008, Malta adopted the Euro, granting higher international attention and access on an economic platform.⁷ Today, tourism has served as a source of economic profit for the country of Malta. Over the past few decades, this source of international attention and financial support has significantly affected the development of the Maltese islands. Although tourism has been great for Malta in many ways, it has also taken its toll on the islands and its people. Since Malta was given Membership to the EU, it is thought that an increase in affluence, security, and modernity has emerged, but there is anxiety that such international positioning threatens the national sovereignty, local integrity, and tradition of Maltese people.⁸ Increased national attention has brought fluctuations to Malta's population rates. By 1998, tourist arrivals had increased to 1,182,240 and by the year 2000,

almost one-fourth of the economy and slightly more than one-fourth of full-time equivalent jobs depended on tourism.⁹ This last fact is one that really stuck out to me considering my position.

Initial Concerns

As a white male visiting Malta from the United States, I considered what sort of impact people like me may leave. Malta has been in the midst of globalization for quite some time, having been visited by millions of different people. That does not mean that I had the right to impose my beliefs or expectations on a place that I was venturing to for educational purposes. Regardless of the fact that my time in Gozo was largely spent conducting fieldwork and spending time with locals, the people of Malta had no way of knowing that I was an anthropologist as opposed to a tourist. Not that this would make a difference in how I was perceived due to the Maltese reality that between the months of June and September, tourism influx is expected.¹⁰ There was an internal element that I had to allow myself to be comfortable with, and that was the condition that I would have to function in Malta through the communally perceived identity of a tourist as an anthropologist. Stronza (2001) draws attention to the dynamic of an anthropologist's position and how it parallels with that of a tourist when she states "Both [tourists and anthropologists] spend time exploring the cultural productions and rituals of society, and both carry the status of outsider as they make forays into the lives of others."11 Stronza goes on to guite humorously detail the physical appearance and relationship anthropologists may distinguish as distasteful when considering the stereotypical "...sandal-footed, camera-toting legions..." that are tourists.¹² There is a truth that I and fellow anthropologists must accept, and this is that "...tourism can be an ideal context for studying issues of political economy, social change and development, natural resource management, and cultural identity and expression."13 My research does not pertain to the

context of tourism as Stronza's lens hones in on, but her work brings attention to the notion that it is alright for anthropologists to think like tourists, let alone be perceived as one. Some may argue that anthropologists have complete control over how they are externally viewed in the field, or no control at all, but this is a discourse that I do not wish to address in this paper. My concerns about identity in the field came from the historical and sociological contexts I absorbed for months prior to departing for Gozo.

As I have mentioned, I spent a great deal of time "preparing" for the field, which encouraged me to carefully analyze the colonial past of the Maltese islands. Considering the fact that Malta has been an interaction zone for centuries on a global platform, I asked myself the extent to which my venturing to Malta differed from those colonizers of the past. I was going to Malta as a student to practice my skills in applied anthropology and ethnography. However, was this any different than the masses before me that decided to "practice" their skills? I dwelled on this question for quite some time before concluding that if I was going to go to Malta, I would exhaust my capabilities to learn as much as I could about the Maltese islands, its people, and their culture. In fact, if I had not have integrated my responsibility to learn about Malta through the context of my course material at the University of Oregon, I reasoned with myself that I did not deserve to be in Gozo at all. Hence, I spent many months "preparing"; a word that created my drive to push forward, but a context that was misunderstood - of which I realized after returning from my field experience. To thicken matters, I knew very little about bees!

When I told people that I was going to Gozo, Malta for a little over three weeks to study beekeepers, the impression I typically got was that I knew *a lot* about bees. This could not be farther from the truth, as I knew very little about bees and the practice of beekeeping.

Objectively, I knew just as much about bees and beekeeping as anyone else. For starters, bees are insects that can fly and make this sweet stuff that people can eat. Then there are the beekeepers, who are people that typically wear protective clothing and tend to bees. Now, how the bees make that "sweet stuff" called honey, and why beekeepers tend to bees, or more specifically, what they *do* with the bees was beyond me. My lack of bee and beekeeping knowledge was a big concern that troubled me, and I had to seek a resolution.

I have always been the type of person that learns best through handson experiences, and I knew that if I wanted to truly learn about bees and beekeeping, I had to experience the practice of keeping bees before departing for Malta. This is why the story of my 2016 ethnographic research does not begin in Malta. Rather, it begins in Aurora, Oregon where I first encountered beekeeping and the tactile experiences this entails. Despite my enthusiasm to learn about Malta, bees, and beekeeping, I questioned my interests as a student of anthropology. Specifically, I wondered what sort of insight I could provide as an American who had never left the United States prior to doing fieldwork, in addition to the reality that this same American only recently discovered interests in Malta and a desire to learn about beekeeping. In other words, my preparation process was time to define initial concerns and justify the reasons for doing fieldwork in Gozo as a budding anthropologist. Throughout that process, I found meaning for pursuing my research, and this became especially true by different terms after returning from Gozo.

The Importance of This Project

In 2006 and 2007, 40 percent of honeybees in the United States vanished and millions of hives around the world perished.¹⁴ At this time, the number of hives in the United States was approximately 2.4 million, which was less than half of what it was in 1950.¹⁵ It is difficult

to determine the precise reasons as to why so many honeybees rapidly declined in 2006, but specialists in the field of entomology and beyond refer to the term "colony collapse disorder" to holistically explain the dramatic loss of honeybees. This term, otherwise known as CCD, was first coined in January 2007 among a report from scientists at Pennsylvania State University who were researching the causes of substantial bee loss.¹⁶ In 2010, the USDA came to a consensus which stated that CCD is not caused by any single factor, but is the result of a complex combination of multiple factors, which include certain agricultural pesticides, beekeeper-applied chemicals, poor nutrition, pathogens, and parasites.¹⁷

During 2006, I was 11-years-old, and I could not care less about bees. In fact, I hated them because of the times I was stung; once beneath the belly button at the age of eight, and another on my palm at the age of ten. The only thing I knew about bees in 2006 was that I did not have an allergy to their poison. Of course, I would like to think my relationship with bees today has grown, as I no longer mind a sting and enjoy the sight of buzzing bodies. Apis Mellifera, also known as the "western honeybee," has a long history of relationships with humans, especially in western societies, since ancient Egypt.¹⁸ As Nimmo (2015) describes, "Humans have shaped and reshaped honeybees..." through methods of "...selective breeding, intercontinental transportation, and changing [of] beekeeping practices; but bees have shaped human societies perhaps more profoundly, having played highly significant roles in human food production and material culture...".¹⁹ One can understand how vitally important bees are to the world, both in an environmental and sociocultural context. However, it is harder to recognize the reality that honeybee production is a multispecies relationship, comprised of taking and giving.

Honeybees are the most economically valuable pollinator of agricultural crops worldwide, capable of maintaining biodiversity by pollinating various plant species whose fertilization "requires an obligatory pollinator."²⁰ As humans, we utilize bees and their survivalbased desire to collect pollen, nectar, and make honey. Whether it is collecting honey, propolis, wax, or the bees themselves, our species has imbedded the use of another species into agricultural and material demand. Like the farmers who tend to their livestock, the beekeepers tend to their bees. Some might say that it is the livestock themselves who tend to their humans. This "deep yet fragile" relationship has been explained as a "web of obligation."²¹ When multispecies relationships are affected by natural or unnatural cause, all animals, including humans, have a tendency of reacting.

One of the things I am interested in is how people react among multispecies relationships when the relationship itself is at stake. This is something that I realized many months after returning from Gozo. My experiences from the field shaped the question that has guided a post-field thought: What does it mean to keep bees in Gozo? This question does not seek an answer to all answers. In my research, I am not attempting to define the nature of Gozitan beekeepers, but rather provide a glimpse of what it is like to keep bees on the islet of Gozo. Whether you are in the midst of the Mediterranean Sea or in the United States, the state of the honeybee is, as Kosek (2010) states, dismal.²² I found meaning to pursue ethnographic research in Gozo through the reality that honeybees are in trouble, and have a great place in our environmental and sociocultural concerns. I found context through the experience of keeping bees with my key informant. This context was defined by Gozitan perceptions of CCD and the potential extinction of bees, as well as concerns alluding to climate change, all of which is met and reacted to by a community of beekeepers that survives the practice of beekeeping on Gozo. This context also

highlights the importance of this project, for the perspectives and experiences of beekeepers are valuable to understanding not only the status of bees and the way that status is reacted to, but the multispecies relationship between bees and humans that is at risk.

Methodology

Shaping Research

This ethnography is the product of post-field reflection and the materialization of a context shared with me in Gozo that I will attempt to put into words. When I left for Gozo, my research inquiries were occupied by premature thinking. Prior to leaving the U.S., I took my initial concerns and personal defense of meaning for doing ethnography into account. To an excessive degree, I spent many months compulsively fixating on the ways I could theorize or interpret honeybee culture. At the time, notions of tradition and modernity were broad, yet abstract concepts that I enjoyed analyzing. I was also developing an interest in the means of production which allow societies to function, and specifically the people and their narratives behind that production. Initially, I thought to synthesize my interests by pursuing an ethnographic case study which would look at the ways modernity has influenced beekeeping in Gozo, Malta.

Specifically, I was curious as to whether or not the practice and therefore culture of beekeeping had experienced changes since Malta joined the European Union in 2004. I assumed that I could tap into this potential dynamic by meeting informants and recording their narratives on the matter. When I got to Gozo, I quickly discovered that either 1). I did not know how to engage my initial topic as an amateur ethnographer, or 2). Locals were simply not interested in talking about the politics of globalization and how joining the EU may or may not influence the practice of beekeeping on Gozo. After a few days in the *field*, I began to realize that my research questions and overall topics of interest would change.

I had come to Gozo with questions and material that I drafted in the United States. My excitement definitely got the better of me, which I can honestly attribute to the part of myself that thought I could pursue questions which derived from the context of armchair research, as opposed to the experience of fieldwork. It was clear that I bit off more than I could chew, and after being in Gozo for four days, I realized that I would have a hard time answering questions related to perspectives on Malta's relatively recent membership in the EU and its potential influence on beekeeping. I was able to apply a few curiosities from my initial research pursuits to this project, but overall, the latter half of my fieldwork experience and post-field analysis was shaped through the context that I observed, provided by the perspective of my key informant and other Gozitans.

Informants

The first informant that readers will meet is Nicholas, a 21-year-old Oregonian attending the University of Oregon. Nicholas and I have been friends throughout our undergraduate years of education, and it was when I became concerned about beekeeping know-how that Nicholas stepped in. I had known that Nicholas and his father kept honeybees at their family home in Auroa, Oregon. I asked Nicholas if I could visit his hives during one of our school vacation periods for a crash course in beekeeping knowledge. With open arms, he welcomed me for a day of beekeeping, and this would be my first encounter with thousands of honeybees and their hives.

In July of 2016, I had approximately three weeks to pursue my research interests and discover perspectives through the exchange of communication with informants. In Gozo, I met Adam, a 60-year-old beekeeper who invited me into his life, sharing his opinions and experience as a Gozitan beekeeper. Adam would become my key informant, introducing me to the practice of beekeeping on Gozo, in

addition to fellow locals. His friend, John, would also invite me to his hives, providing additional insight on honeybee production in Gozo. Along the way, I encountered other locals who I spent significantly less time with, but they nonetheless contributed perspective that shaped my field experience. Although I would have liked to interact with more informants during my time in Gozo, I feel as though the relationships I established and the perspective I encountered was rich and engaging considering my time constraints. As they say, quality over quantity; my time with the informants I met was precious and I am forever thankful for their contributions to this ethnographic case study.

Methods in the Field

The first book I encountered that applied the terminology for fieldwork methodology was Kenneth J. Guest's textbook: Cultural Anthropology – A Toolkit for a Global Age (2014). I find it appropriate that I parallel the definitions from this textbook to the methods of fieldwork I practiced during my time in the field. This ethnographic case study used several methods which enabled me to gather various perspectives and recorded experiences. The data within my work is qualitative, detailing information which is not solely drawn from statistical sources.²³ I utilized participant observation to both participate in and observe the daily life of those informants I studied.²⁴ Additionally, I conducted formal and informal interviews with my informants, of which one formal interview was recorded at length by the consent of Adam.²⁵ To help process my time in the field, I consistently took field notes which enabled me to reflect on written observations, places, practices, events, and interviews.²⁶ Lastly, I took photographs and created sketches of the environments I experienced for the purpose of reflecting on visual displays during post-field analysis and presentation within this ethnographic case study. The photographs in this piece will not disclose specific locations, both in Oregon and Gozo, for the sake confidentiality and

safety of my informants. The names of my informants have been replaced with fictional ones to prevent identity detection.

Setting the Stage

To be clear, the initial setting of this ethnography takes place in the state of Oregon, U.S. It is here that I first encountered tactile knowledge of beekeeping, providing exposure to the conditions one might face when keeping honeybees. This first-encounter was my initial glimpse into the multispecies relationship between humans and honeybees. In the process of learning about honeybees and beekeeping through the performance of tending to hives in Oregon, I conditioned myself for the potential of working with honeybees in Malta alongside local beekeepers. This ethnography transitions its space and context, leaving Oregon and arriving in Gozo. The time-line of this text can be said to have "started" in November of 2015, for this is when I began preparing for fieldwork that was then conducted between the months of June and July of 2016.

Practical Fieldwork

Keeping in Oregon

Growing up in Oregon, I have had the privilege of being surrounded by beautiful greenery and diverse ecological environments. When it is not raining or cloudy, the sunshine illuminates trees and brings vibrancy to seasonal vegetation. Some might say Oregon is a great place to raise honeybees, especially during the spring and summer seasons. Of course, I was not able to recognize what conditions are great for raising honeybees until I encountered the practice of beekeeping in Aurora, Oregon. In June of 2016, I visited my friend's family home to take part in tending to honeybees for the day. Nicholas, a 21-year-old student attending the University of Oregon, has been keeping bees for the past few years with his father. Having known this, I asked Nicholas if I could visit him during the early summer to experience beekeeping before departing for Gozo. Delighted, Nicholas set a date for my arrival which relieved a sense of anxiety that I had been fostering due to my inexperience with bees and beekeepers. Throughout my life, I never had a reason to encounter bees in mass quantity. Beekeeping was simply a word in my memory bank that summoned the mental image of a person wearing protective gear, fiddling with boxes that buzz. On June 16, 2016, Nicholas provided me with tactile meaning and knowledge that would imprint a subjective definition of beekeeping into my mind.

In the summer, Nicholas visits his family home in Aurora after having spent the majority of the year in Eugene studying. On the day I arrived in Aurora, the weather permitted a blue sky with scattered, fluffy white clouds. The temperature was decent – not cold, but also not too warm. Nicholas greeted me in his driveway and we walked into his home. We stepped foot into a living room where Nicholas had laidout our beekeeping gear. He explained that the gear would prevent honeybees from stinging us, and that it was important to make sure our cuffs and pant bottoms were closed in the event that a wandering honeybee found its way into our clothing. My first few moments of "beekeeping" were spent hopping around on one foot, trying to put the other in a pant leg of a fully-body suit. I eventually got myself together and situated the suit comfortably. From the living room, Nicholas and I walked outside, heading towards the backyard of his family home.

We stepped towards a secluded clearing that was surrounded by trees, boulders, and blackberry bushes. I began to hear a chatter of buzzing unlike anything I had ever experienced before. "Okay, we're getting near the hives so make sure your suit and gloves are fastened," Nicholas advised.²⁷ The sound of buzzing intensified as we approached five beehives. Carefully putting one foot in front of the other, I tip-toed behind Nicholas. I wondered if the honeybees could



Figure 1. Five beehives, safely secluded and surrounded by greenery. Photo by Jacob Jansen.

sense me coming, and if they were familiar with Nicholas and his father. Once we neared the front of the hives, Nicholas told me to follow him as we stepped to the side, away from the entrances of buzzing boxes. Nicholas explained that it was better to avoid stepping in front of the hives when possible, because not doing so could interrupt flight patterns of the bees. There were thousands of honeybees buzzing around, some larger than others, coming from the five boxes that we now stood behind. I starred in amazement as honeybees darted in every direction, some leaving the hives and some returning. My initial reactions to this environment were internally complicated by feelings of vulnerability and awe.

I knew that the protective beekeeping suit would likely shield my skin from a sting, and this was the concerns of that 8 and 10-year-old version of me that still remembers being stung under the belly button and on my palm. Yet, I told myself going into this project that I would have to accept being stung in the event that a concerned bee defended itself. I reasoned that the honeybees were more vulnerable than I was, and respecting this notion remains critically important to me today. After a few moments of being surrounded by constant buzzing, I felt my body acclimate to the situation. Like falling asleep to the sound of white noise emanating from an old television set, my ears channeled the symphony of buzzing into a tranquil hum that began to sound no different than my own breathing and rustling. I faded in and out of trance-like states with every suggestion of guidance Nicholas motioned or verbalized. Nicholas had brought a box that contained metal wedges, a spouted-can, and torn pieces of a burlap sack.²⁸ As I stood behind the hives, my mind raced with questions that would be generously answered.

For starters, I wanted to know more about the difference in dimension between the hives that stood vertical, like stacked boxes, and the one that sat horizontal, suspended on four legs.²⁹ Nicholas explained that

the vertical boxes are referred to as Langstroth hives, coined after the inventor L. L. Langstroth. The horizontal box is called a Top-Bar hive because unlike the Langstroths, this hive system uses single wooden bars which the honeybees construct a free-hanging comb off of without the use of a frame. Inside of the Langstroth hives, ten or nine frames are placed within each box. Nicholas owns two Langstroth hives and harbors another for a nearby neighbor (the middle of the three Langstroths in Figure 1). These three hives are placed on top of a wooden pallet to protect the base from flooding in the event of heavy rainfall. The bees enter the Langstroth hives through a bottom board with slits that can be adjusted for varying capacities of honeybee colonies. The Langstroth model is stratified by design, with the box closest to the ground typically referred to as a Deep Super or Brood Chamber. One will find another Brood Chamber above the initial that is capped with a Queen Separator (screen) to prevent the Queen Bee from entering the final medium-sized chamber (the Honey Super) closest to the top of the Langstroth system. To complete this hive, some beekeepers will have two covers (internal and external) which protect the stratified boxes from rainfall and help to regulate heat.

Nicholas explained that beekeepers are always testing variable conditions and techniques with their hives, and although there are some standards which most keepers abide by, their subjective opinion and experience with the hives tend to personalize the way a hive system is organized and treated. I was eager to learn about any objectivities that beekeepers might hold standards to elsewhere in the world, so I asked Nicholas about the features of a hive that are considered "standard."

He realized that it would be a good idea to distinguish the honeybees themselves before describing any objectivities concerning hives. He began by explaining that the honeybee species most people work

with is a descendant of *Apis Mellifera*, the common Western honeybee. Nicholas then directed my attention to the difference in size of the bees flying around. He described the smaller honeybees as Workers. Their job is to collect pollen and nectar for the hive to feed a colony and maintain internal conditions. Nicholas then pointed out a Drone, which has a bigger body than the Worker and serves the purpose of mating with a fertile Queen. He noted that the Drones do not have stingers, nor do they collect pollen and nectar. The head of this caste system is the Queen, who mates with Drones and gives life to hundreds of Brood (baby bees). Nicholas added that a Drone is the result of an unfertilized egg, whereas a Worker or Queen Bee come from eggs that have been fertilized. The Queen Bee larva in particularly are fed royal jelly, a secretion from honeybee Workers. As Nicholas explained all of these specifics to me, he was preparing to open a Langstroth hive.

The metal wedge that Nicholas brought would be used for gently separating frames which tend to conjoin because the honeybees will expand their wax combs beyond the boundaries of a frame. Nicholas referred to the spouted-can as a "smoker" which he would have me fill with strips of burning burlap. Its purpose is to sedate the honeybees while the hives are being opened. Looking closer at the smoker, it reminded me of a hybrid between an accordion and a watering can. Nicholas instructed me to gently push on the accordionlike side of the smoker, creating a gentle pfft of smoke. I continued to keep the smoker going as Nicholas opened one of the Langstroth hives. Once the external and internal covers were removed, a honey bearing Super was revealed along with a wave of bees. Inside of the first box were hundreds of Workers and Drones. Nicholas was determined to find the Queen so that I could compare the relative size of each honeybee among the caste system. A hive only allows for one Queen, and finding her is difficult unless you have experienced eyes,

or mark her back with a non-toxic splotch of paint. "We're going below the separating screen to find the Queen because I want you to see her. Hopefully I can find her, but you just never know. Make sure that smoker is still going," Nicholas said to me as he removed another box. I continued to stoke the smoker, occasionally blowing puffs over the hive while Nicholas searched for the Queen. The buzz of bees intensified with every layer we descended into the hive. At last, among masses of Workers and Drones, Nicholas spotted the Queen. It was at this point that I remember fully appreciating the beauty of a hive, and admired the hard work of each individual bee and their role among the colony. I could not help but to think about divisions of labor, and how the hive operates on a basis of individuals working together to survive themselves and a collective community.³⁰ Nicholas and I smiled as we watched the Workers and Drones cluster around the Queen, protecting her from potential threats and aiding her



Figure 2. If you focus your eyes to the center of this image, you can see a bee with an elongated body and a white splotch on their back. This is the Queen, surrounded by Workers, Drones, and larva. In this photograph, the Queen is likely placing eggs into the comb cells. Photo by Jacob Jansen.

needs. "Alright, we should close this up so they don't get too frustrated," said Nicholas as he began reassembling the layers of Supers.

Now that I had encountered the bees and the complexity of their individualized roles, Nicholas was ready to discuss similarities that I might find in Gozo. He explained that temperature is a common factor which most beekeepers attempt to regulate. A healthy hive will be between 32 to 35 degrees Celsius, which is an ideal temperature for brood and their upbringing. At best, Nicholas informed me that beekeepers will tend to keep hives in the shade if the weather is outstandingly warm. Alternatively, hives can be opened on hot days to allow extra air flow, but most Langstroth and Top-Bar hives have ventilation holes. Nicholas pointed out that in Oregon, beekeepers have more to worry about with the rain and cold winters. He also mentioned that if the bees do get too warm, they'll attempt to cool down the hive by flapping their wings or periodically dispersing from the colony. In the event that the hive becomes completely overheated, the bees will either swarm in mass, deserting the hive, or perish. Nicholas also noted that keepers around the world have difficulty with Varroa mites and disease, among other problematics discussed earlier in this text.³¹

To combat these issues, beekeepers will attempt to assist the hive by incorporating mite and hive beetle strips which contain chemicals that treat the colony, potentially ridding the beehive of pests. During our time beekeeping together, Nicholas tested one of the Langstroth hives for mites by collecting a group of honeybees into an emptied container. Within this container was powdered sugar that would be carefully shaken among a test-group of bees. The honeybees were then released and Nicholas sprinkled the powder onto a white plate. He poured a small amount of water onto the now powdered plate, revealing two tiny dark speckles. "So these are



Figure 3. Nicholas holding a honey-packed frame from one of his busy Langstroth hives. Photo by Jacob Jansen.

mites," Nicholas explained "but because there isn't a large amount of them, we don't have anything to be worried about. If there were a lot, then we would need to treat the hive at large." I was amazed by the fact that something so tiny could cause such big problems for bees and beekeepers. Nicholas and I wrapped up our day together by opening another Langstroth which was packed with honey bearing frames. It is difficult to realize how much work honeybees put into their hives and the byproducts they create, but a great encounter for appreciating this magnificence is seeing the inside of a hive or holding a honey-packed frame. Nicholas handed me a dense frame that was coated with a goldish filling that gradually faded to a darker, brownish color. I realized that I was holding a mass amount of honey, or the collective effort of bees. I looked at Nicholas and smiled upon handing the frame back to him. "I want to show you the Top-Bar hive before you go," Nicholas said after closing up the Langstroth.

Traditionally, a Top-Bar hive allows for free hanging combs which are unrestricted by frames. Nicholas explained that he and his father had been experimenting with an untraditional, framed and frameless Top-Bar to see what sort of results they would get. A Top-Bar hive is sort of shaped like a 'V' with a squared bottom. Nicholas' father made their Top-Bar hives, installing a viewing window on one side. When I asked Nicholas about the window, he said that his father installed it to reduce the number of times the hive had to be opened for inspection. "Unfortunately, every time you open a hive, there's no doubt you'll kill some bees in the process," Nicholas said as he gently pulled a honeycomb-dangling bar out of his hybrid Top-Bar hive. On one side of the hive rested 12 bars, whereas on the other, frames were placed like the ones found in a Langstroth. Seeing the frameless combs and comparing the Langstroth model to the Top-Bar hive as a whole made me realize that Nicholas and his father were not just experimenting with design, but methodology for honeybee care. The



Figure 4. Nicholas holding a frameless Top-Bar comb covered in honeybees. Photo by Jacob Jansen.

Langstroth model allows for direct access into the hive, whereas Nicholas' Top-Bar model was built with the intention of reducing human intervention as is intended by the installment of a viewing window. This differentiation in hive constructions compelled me to think about how a beekeeper's philosophy of care is materialized through the model and treatment of their hive(s).

Green and Gin (2014) draw attention to distinctions between conventional and natural beekeepers. A conventional beekeeper regularly intervenes with colony care whereas natural beekeepers, by contrast, let the hive manage its own leadership.³² Conventional keepers typically use Langstroth or Top-Bar models whereas natural beekeepers have been noted using Sun Hives (among other designs) which are essentially undisturbed pots that bees form their colony in.³³ With these two definitions in mind, a spectrum can be imagined, and on this spectrum one could plot notions of honeybee productivity and health. However, I'd prefer to just recognize that these distinctions exist, providing support to the fact that beekeeping is a lot more than tending to bees. It is a decision between intervention and idle observation; a platform for preference among multispecies care and cooperative existence. By the time Nicholas and I had finished our day together, I was seeing beekeeping and bees in a whole new light.

Visiting Nicholas in Aurora allowed me to experience beekeeping in a tactile fashion that provided an excellent opportunity for exposure to the practice of keeping honeybees and the plethora of knowledge this entails. Of course, beekeeping for one day could not possibly teach me *all* the complex dynamics in raising bees, but it did provide insight on the roles beekeepers and bees play among the multispecies relationship that has evolved throughout a large part of human history.³⁴ I left Nicholas' family home knowing a lot more about the technicalities that go into beekeeping, and I became educated about honeybees themselves in the process. Nicholas and his father keep



Figure 5. Nicholas (left) and the author (right). Photo by Jacob Jansen.

bees for the purpose of hobby and bonding while positively contributing to the environment through the support of pollinators. They harvest honey now and then, but as Nicholas said to me "We only take the honey if we feel the hive can support themselves later." There is a level of conscientiousness among beekeeping that extends beyond selfish acts of human behavior, prompting the keeper to be selfless in their multispecies role, at least in the case of Nicholas and his father. I wondered if I would see this same behavior in Gozo, and for what reasons. Beekeeping in Oregon has objective gualities considering the State's greenery, flora, and diverse ecology among lands that receive notorious rainfall, even in the summer months. I now look at these features of my homeland through the lens of a beekeeper. Nicholas has not had much trouble keeping honeybees with his father since they decided to invest in the practice a few years ago. Perhaps this is a testament to their skills in beekeeping, but there is also something to be said about keeping honeybees in a place that has access to environmental resources ideal for the practice. I would consider this notion in greater depth during my time in Gozo.

After departing from Aurora, I began to see bees a lot more, and to some extent this troubled me. I was bothered by the fact that it was so easy for me *not* to notice bees prior to my experience in Aurora, and this same train of thought made me realize that I had no clue about the hard work that goes into honeybee efforts.³⁵ Not everyone has the opportunity to experience beekeeping, and it is easy for us to lose sight of the importance bees have among environmental and agricultural concerns. A few days prior to leaving for Gozo, I imagined many scenarios in which my fieldwork experience could devolve or be a complete disaster. I told myself that if I could at least *notice* the bees in Gozo, I would be taking a step in the right direction.

Arriving in Malta

On July 1, 2016, I flew from Portland, Oregon to Malta, stopping in Amsterdam's airport along the way as a hub. This was my first time leaving the United States, but surprisingly I did well on the plane and experienced only minor anxiety. I had spent months preparing for my arrival in Malta, and now that the time had finally come, I was overcome by happiness. The field school that enabled me to pursue my research is located on Gozo, which is a separate land mass from Malta. Throughout the course of my fieldwork, I spent the large majority of my time on Gozo. Upon my arrival, I noticed two distinguishable features between Gozo and Malta.

As my plane prepared to touch down in Malta, I looked out the window to find two very different bodies of land. Passing Gozo, I noticed less population density and more farmlands, whereas Malta presented the opposite view. In 2013, approximately 425,384 people occupied Malta with a population density of 1,346 persons per kilometer squared.³⁶ In Gozo, a significantly lesser amount of people occupied its surroundings at an approximate 31,446 in 2013.³⁷ After spending time in both Malta and Gozo, it is clear that Malta can be accurately defined as more urban, whereas Gozo is considerably more rural. The images below are intended to visualize these distinctions.³⁸

I continued to stare out the plane's window, gazing upon the contrast of limestone buildings and farmlands. I started thinking about where honeybees and their keepers might be. The keepers themselves could be anywhere, but the bees would likely be found near clusters of greenery and flora.

On June 20, 2016, a report (supported by the EU and Malta's National Apiculture Programme) was published by the Agriculture and Rural Development ISAMM CM stating that the Member State of Malta had



Figure 6. A glance at Gozo, featuring Mgarr Harbor. In the upper right corner of this photograph, you can see the islet of Comino. Photo by Jacob Jansen.

208 beekeepers, of which two manage more than 150 beehives.³⁹ I knew that I could find beekeepers and their bees, but I was not quite sure how I would do it. I had no methodology or plan for meeting beekeepers other than simply talking to locals, hoping that a conversation could lead to topics regarding bees or beekeeping. I had a general idea of where I could find bees based on the necessities they require: pollen, nectar, greenery, and water. Malta has a rich history of beekeeping, so I anticipated that finding someone to talk about bees with would not be an issue. For centuries, Malta has been noted for its excellent honey, and its Greek colonizers called the island 'Melite,' which comes from the Greek word 'meli', meaning honey.40 As I said earlier, if I could at least notice the bees, I would be taking a step in the right direction. The next milestone would be to locate hives and the environmental conditions that may be ideal for honeybee colonies to utilize. Then I would have to locate the people that tend to bees with the hopes that conversation would be welcomed. As I stepped off my plane, I emerged into a joyful reality; I had finally arrived in Malta.

Lone Bee

Upon my arrival, I spent a few days in Malta prior to departing for the field school located near Xlendi Bay, Gozo. My initial reactions to this new environment were flooded with physiological demands; rest and water. I planned to arrive in Malta a few days before heading over to Gozo where I would situate myself among the field school. I have never been able to sleep on planes, so by the time I located my hostel in Sliema, Malta, I unpacked my belongings and slept the rest of the day away. The following morning, I chugged a few bottles of water and got some breakfast. I was still tired from my travels, but I felt myself acclimating to the time zone and heat. I would spend the rest of the day hanging around my hostel until leaving for Gozo the next morning.

Beyond my physiological reactions, I admired the beauty of my surroundings. The warm July sun penetrated every surface, illuminating limestone houses and buildings which laid still in the afternoon only to be woken for evening chatter and activity. Malta has adopted the siesta hours, which means from the time of mid-day to about 4:00PM, the country lies still as people take lunch breaks and rest in preferably cool places.⁴¹ I adapted to this schedule very quickly, in part because locals strongly adhere to it, but also because I have always enjoyed afternoon rest. The peaceful sound of waves could be heard from my hostel if you listened closely through the *vroom* of vehicles. The Mediterranean Sea itself is absolutely incredible with its sparkles of blue that highlight and compliment the prominence of limestone that is imbedded throughout Malta's geologic expressions. I would skim across this amazing body of water to reach Gozo through Malta's ferry system.

To get to Gozo, you have to take a ferry which travels from the northwest point of Malta, past Comino, and arrives in Mġarr Harbor. Ironically, it is near this harbor that I would spend a lot of time with my key informant.⁴² My initial presence in this space was characterized by "arrival" as I was greeted by the OTBT staff members. From here, we went to our research facility, located near Xlendi Bay, which would be my home for the weeks to follow. The field school operates during the Spring, but also offers sessions for June, July, and August. Other students and I would spend the majority of July pursuing our research questions by practicing skills in applied anthropology. Some students had faculty mentors which specialized in specific topics of interest. I came to Gozo with general curiosities related to honeybee culture, and an OTBT staff member named Peter would later come to Gozo, providing an open ear and helpful critique to my fieldwork experiences.⁴³



Figure 7. A glance at Malta, featuring dense building complexes. Photo by Jacob Jansen.

My first week in Gozo was accompanied by partial guidance from the staff members of the field school. However, there was strategic distancing between the field school students and staff members that allowed for individualized experience and independent learning. The field school facility itself was always that place at the end of the day where everyone could relax and talk about their encounters. It was also a location that you could find yourself trapped in if *the field* was not on your agenda for a day. When you are running around an islet that is usually 32 degrees Celsius in July, there tends to be an occasional voice in your head that says "Okay, we have been out here long enough. Job well done; now go back to the field school." There was a couple of times when that temptation nearly had me crawling back to Xlendi Bay, and some days I had to prioritize my stress or exhaustion. Yet, I would estimate I spent 20 out of the approximate 25 days I was in Malta *doing* fieldwork.

In a week's time, I had acclimated myself to Gozo and its environment which is drastically different than the majority of Oregon's. Throughout my stay in Gozo, it sprinkled on and off for a few days which was accompanied by a vicious wind storm. In Oregon, it is not uncommon to enjoy a beautiful summer afternoon, only to later be greeted by gloomy rainclouds and total down-pour in the evening. I noticed that the majority of Gozo and Malta was very dry during my stay. Flowers and bushes were stiff to the touch and crackled in the daylight. Fields, although speckled with some greenery, were largely dry and scarred with a tint of brown from the sun's unforgiving rays. Not only was my first week in Gozo critical to *experiencing* the landscape and its environmental features, but it was also a crucial time for encountering local perspective.

In the days leading up to encountering my key informant, I had come across various Gozitans voicing concern about the summer season. Specifically, the common narrative regarding the environment was highlighted by a typical expression: "Never in my life. Never in my life have I seen it this dry." According to an article by Malta Today, Malta experienced the driest winter in 93 years during 2016, with temperature peaks at 24.6 degrees Celsius in March, and February being the driest month on record since 1923.⁴⁴ I did not know much about beekeeping prior to my experience in Aurora, Oregon, but I *now* knew that if bees need anything, it is certainly healthy pollinatorfriendly plants and access to water. I had interacted with one beekeeper during my first week in Gozo who drew particular attention to the health status of his honeybees. Although he did not have time to show me his hives, the beekeeper claimed that the unexpected



Figure 8. Dry fields outside of Munxar, Gozo. Photo by Jacob Jansen.

winter brought misfortune to the bees and their keepers. Specifically, he said that many beekeepers refrained from harvesting honey due to the condition of Gozo's dry seasons. By choosing to leave the honey in their hives, the bees will be able to utilize their food storage much more effectively. At least, this is the general idea; if there is not the means to make honey, why take it in the first place? To this beekeeper, it was clear that his honeybees and their health were prioritized far above the desire of honey.

It did not take a beekeeper's opinion to reflect on the circumstance of the season and its relationship to bees. This is something that I discovered when simply talking to locals. If I mentioned to Gozitans that I was doing research involving honeybees and beekeepers, they would immediately draw ties to the intense seasons and the severities this brings to honeybees. The beekeepers are certainly more knowledgeable regarding matters of bee health and productivity, for they work with these social insects on a daily basis. However, the general populous of Gozo that I interacted with was well aware of the situation they were experiencing, and can imagine or see the affect this has on bees. Although not every Gozitan may consider the extremities harsh climate may bring to bees, they certainly realize that warmer winters and blistering summers result in poor productivity for crops which ultimately alters food availability and quality. After a week of experiencing Gozo's environmental conditions, my research interests began to shape alongside concerns that were directly communicated from the field itself.

I began thinking about how the seasons are not only reacted to, but what impact it has on locals, and more specifically, beekeepers and their bees. Climate change was not even something that I considered in the context of beekeeping before departing for Gozo, and it was now a topic that was revealing itself through the shared experience of Gozitans. The Times of Malta wrote an article in 2014 which reflected on climate change, stating "The impact of climate change will lead to more extreme and haphazard weather patterns, with prolonged Saharan-style heatwaves, more intense rainy periods and longer dryer spells. This escalating rise in temperature will be accompanied by severe water shortages as rainfall in Malta is drastically reduced "by some 12 per cent," according to [climatologist] Dr. Fenech."⁴⁵ Was I witnessing the impact of climate change and its toll on Malta's environment? This was a question that now burrowed its way through my previous research interests which developed prior to leaving for Gozo. I was now wondering what sort of insight more informants, and specifically beekeepers, could provide relating to the status of Gozo's environmental condition alongside discourse on beekeeping. My mind was flooding with curiosity as another question emerged: What does it *mean* to be a keeper in Gozo? The question itself is simple, but the answers are complex, and this was something I was approaching after encountering some context. Meeting my key informant would provide specificity and share a glimpse of what it means to keep honeybees in Gozo.

By the end of my first week in Gozo, I had talked to numerous locals and one beekeeper. Many of the conversations had were unrelated to this study, but were nevertheless important to the development of my ability to navigate unfamiliar social and geographic territory. Of the conversations that were inclusive of beekeeping or bees, the common narrative described a lack of seasonal vegetation due to inconsistent rainfalls in the winter, resulting in a noticeably dry summer. This dry spell is particularly detrimental to Gozo's bee-friendly plants such as thyme, clover, citrus trees, almond trees, carob trees, and prickly pear. Having seen these specific plants during my stay, it was obvious they were struggling to make it through the summer. Branches and leaves wilted, and fruit-bearing trees yielded shriveled offerings. My initial conversations with locals and general observations were the catalyst to a newfound interest in the field, but it would be Adam who showed me the affect such environmental conditions have on honeybees.

I wish I could say that I found Adam among his hives after endlessly searching for beekeepers. I did spend a good amount of time looking for details pointing to the location of honeybees and, perhaps, their

keepers. If you have got the eye, some folks can watch a honeybees flight pattern, tracking it all the way back to its hive. I am nowhere near capable of this skill, which is why, at best, if I found a hive box I could at least attempt to locate its owner. Coincidently, Adam came to me through the assistance of a fellow field school student. I had come "home" to the field school one evening at around 4:00PM. A fellow field school student approached me and said with a smile on her face "Jacob! I met a beekeeper who is really interested in meeting with you! I told him that you are wanting to learn from beekeepers, so he gave me his number to share with you." My colleague handed me a small slip of paper with a phone number written on it. A feeling of relief rushed over me as I starred at the numbers. Having been in Gozo for a little over a week, I was beginning to feel like my chance for meeting informants was slowly dwindling. I did not just want to meet beekeepers, ask some questions, and move on. A large part of me was also looking for the establishment of a trust-worthy relationship between me and someone who had insightful input on beekeeping in Gozo. This is a lot to ask out of a fieldwork experience that lasted a little over three weeks.

I thanked my colleague for the contact and wrote down the number in my field notes. Later that evening I called the number, and on the other end of the telephone line was a cheerful voice. I would later come to know this person as Adam – my key informant. I explained to Adam that he had met one of my colleagues earlier that day. "Yes, yes. I remember" said Adam, "You can come by my hives tonight. I'm going to feed the bees if you want to help me do that." The field school was having a special dinner that evening, so I proposed meeting a few days later. Adam was fine with this and sounded happy that a student was interested in learning from his practice.

My first time meeting Adam was July 12, 2016, on a warm summer evening. Earlier that day, I grew anxious as I realized the situation that

was approaching. Since beekeeping in Aurora, Oregon, I had no other experience with handling honeybees. Prior to departing for Malta, and even before meeting with Nicholas, I put in the effort to look up information on keeping bees, attempting to familiarize myself with not only the organism itself, but how to take care of honeybees, carefully and respectfully. I was nervous about going to see Adam because I felt inexperienced with beekeeping and worried that our first encounter would consist of me overwhelmingly asking questions. In other words, I was approaching a sense of performance in the field that would be instigated upon interacting with Adam for the first time. We are always performing when we, as people, interact with each other. In this context, I wanted to make a good first impression on Adam, asking the right questions when necessary and showing my ability to convey knowledge and intrigue when appropriate. I had interacted with informants on Gozo and Malta prior to meeting Adam, so it was strange for me to feel this uprising bubble of worry. Perhaps the reality that I would not be in Gozo much longer created some sort of finalizing overtone within my subconscious; the pressure of time at its finest. At this point, I was not necessarily sure if I was finding the answers that I was looking for, but I was beginning to realize that topics much more relevant, and spoken from the field, would be the newfound interest and direction of my research. All this premediated foot-work was very anxiety inducing, and despite the class I took on "working abroad" or the ethnographies I thumbed through in search of method, I felt alone and unprepared.

At around 5:30PM on July 12, I made a phone call to Adam, letting him know that I was available to meet if his schedule allowed it. With delight, he told me to make my way to him as soon as possible. I told Adam I would be at his house around 6:00PM, ending the conversation with a tightening feeling in my stomach. About an hour prior to this phone call of departure, I had spent time talking to Peter,

an OTBT staff member. I navigated my feelings of anxiety with him, confronting my internal conflictions of *how to do* fieldwork, or at least how to have the confidence in one's self to try. After some mental pacing, Peter looked at me with a serious, reassuring face and said "You just have to get out there and *do* it. Do not worry about messing up – just give it your best shot." It was simple advice to a simple solution that I could not see for whatever reason. This push was exactly what I needed to feel comfortably alone; vulnerable in a setting that was unfamiliar to me, performing social interactions that were beyond my normal sense of comfortability, all the while swallowing the anxiety of trial and error, allowing myself to *be* in the present no matter how much I called to the past or desired to see the future.

As I walked from Xlendi Bay to the village of Victoria (where I would board a bus to Adam's residence), I embraced the sun's warm rays as they radiated my skin. I let the cool sweat dribble down my forehead and I felt the weight of my water bottle hang from my fingertips as it swayed with every step I took closer to Victoria. I could have taken a bus to the terminal, but I decided a long walk would clear my head and allow me time to realize I was comfortably alone. Earlier this same day, Peter and I were standing outside of our living quarters watching some honeybees fly around a Palm tree, collecting pollen and propolis. We noticed a larger, black bee out of the rest of the honeybees. Peter explained that this species of bee is a European carpenter that is solitary, working mostly alone without the assistance of a large colony. I watched the carpenter buzz around, working alone but in unison with its environment. As I now walked to Victoria, a dark body flew by in my peripheral view. I looked to my left, gazing upon a backdrop of Gozo's rural landscape, and to my adjusting eyes, the solitary bee approached me, flying alongside the pace of my footsteps. It continued buzzing along my route for a long, precious

moment before darting away. The instance was too beautiful to believe, yet here it had happened; a metaphor of my current state. Continuing my trip to Adam, I neared Victoria, feeling rejuvenated and ready for the unexpected.

The Keeper

From Victoria, I boarded a bus that would stop in Mgarr Harbor, an area close to where Adam lives. When we spoke to each other on the phone earlier that day, Adam had given me his address. It was not until I stepped off the bus that I realized the address had no numbers. It was simply a name which was different from what I am used to in the States. I knew Adam lived near a hotel that overlooks Mgarr Harbor, so I figured if I got lost, I could at least locate this hotel and ask an employee for directions. This is what I eventually did instead of roaming aimlessly. As I approached the hotel, I look around and realized it was surrounded by houses. I wondered how long this building had been there for, and how locals felt about having a touristhub in the midst of their village. Stepping inside the hotel, I was hit with a startling cool breeze, something of which I had not experienced in many days. An employee stood behind a desk with a friendly smile on her face. I asked her if she could point me in the direction of Adam's address which I had scribbled in my field notebook. She explained that part of the address was the street he lived on, but the other part was the name of his house. At this point, my confusion with the addresses of Gozo finally gained clarity. Most of the houses in Gozo have their own names, and I would later learn that these names tend to live on for generations, having been created by the first families who occupied a residence. I thanked the hotel employee and stepped back into the scorching sun.

The hotel sits on a single narrow road, of which you can travel up, into the neighborhoods of the village adjacent to the harbor, or down,

back towards the direction from which I departed. Heading towards the residencies, I now began looking more closely at the names which accompany buildings. Every home had its own name, and this is something that I absolutely adored. I thought it was so precious that each house had its own identity which indicated the particular location of a person or family. These addresses were much more personalized than the zip codes I am used to in Oregon. As I walked further up the road, a little farther from the hotel now, I spotted a man in his driveway who seemed to either be waiting or taking a rest. I approached the man and asked him if he knew the location of the address I was searching for. He turned around and looked at a stone banner that had a house name beautifully carved into it. Then he pointed at the banner, looking at me now, stating that I was standing in front of the address I was searching for. A huge smile stretched across my face as I said "You must be Adam. I'm Jacob, it's a pleasure to meet you." Adam laughed as we shook hands and greeted one another.

Adam is in his early sixties and has lived on Gozo his entire life.⁴⁶ His interests in beekeeping began at the age of seven when he would watch honeybees fly around hives that belonged to some neighbors nearby. At the age of fourteen, Adam began keeping bees of his own. To this day, Adam continues to practice beekeeping, to which he defines as a hobby. Although, the labor involved in this "hobby" is far from short. Every other day, Adam tends to his honeybees, spending his retirement in the warm Gozo sun among his apiary. I knew from my first in-person interactions with Adam that he was a welcoming individual, interested in my curiosity to learn more about beekeepers and bees.

Upon being invited to enter his home, Adam showed me to his garage which was filled with cardboard boxes, beekeeping equipment, tools of various sorts, and a tractor with a trailer attached to it. The garage had a comforting smell of beeswax, dust, and tools. Working his way through the garage, Adam came across a cardboard box, handed it to me, and told me to find a beekeeping suit that fits. He then opened his garage door and a warm gust of air came rushing in as sunlight sparkled through dust particles. Adam rolled his tractor and trailer into his driveway so that we could have more space to pace around the garage. After finding a beekeeping suit that fit me, I helped Adam load some frames and other equipment into his tractor's trailer. Once the tractor was packed, Adam pulled a draw-string that was connected to the engine of the tractor. The engine sputtered and then fired-up, running for a bit in neutral as black smoke puffed out of a tiny exhaust pipe. Adam hoisted himself up onto the tractor, leaving little space left on the bench-like seat that he was now occupying, but it was enough room for me to squeeze onto. I wedged myself next to Adam, my left side balancing my right leg which was now dangling off the tractor, nearly touching the ground. Adam released the clutch and said "Okay, hold on." We rolled out of his driveway and began climbing a hill that led further, up into the village. The ride was a balancing act for me as every little bump shifted my weight. I imagined it must have been a comical sight to see for those passing by us.

Adam turned the tractor towards a right-hand road which led straight as far as I could see. He then veered left, taking us on a beaten path that had a very steep incline. We passed a tree that had black legumelike pods hanging from it. Adam shouted over the engine explaining that these were carob trees and the bees in particularly are attracted to them. As we reached the summit of the path, we approached a leveled area which had a fenced-off portion and an open plot. The plot was dry, perhaps home to plants the year before. This year however, the soil was barren and cracked with nothing salvageable growing. The fence adjacent to the plot is made out of bamboo and



Figure 9. Adam and the author riding a tractor, in route to Adam's apiary. Photo by Jacob Jansen.

surrounded what I figured was an apiary. Adam turned off the engine of his tractor and gestured for me to help him grab our gear out of the back of his trailer. We began putting on our beekeeping suits as Adam explained what we were going to do. I struggled to get my right leg through the full-bodied suit while listening to Adam's explanation of our objective. He paused and helped me guide my foot through the fabric, laughing all the while.

Today our plan was to water the plants withheld inside Adam's apiary. As we finished suiting-up, I realized it felt as though we were preparing for battle. Adam was persistent in asking if my gear was fitting well and not revealing any access points that sneaky honeybees may potentially investigate. I checked every possible entry point; my veil and its zippers, the pant leg cuffs that I had now shoved into knee high boots, and my gloves which smelled of rubber and smoke. All seemed to be in order and we were ready to enter the apiary. I wondered to myself if the bees were doing preparations of their own. Could they sense the upcoming roar of a tractor engine that precedes the opening of their hives? Adam removed a wooden pallet that was in front of a door situated in the bamboo fencing that surrounds his apiary. He then pivoted a handle upwards which was a small piece of wood repurposed into a latch. Adam swung open the door, revealing the sight of hives surrounded by different types of shrubs, fruit trees, and plants. From the apiary, you can see Mgarr harbor and Malta in the distance surrounded by the Mediterranean Sea.

As we walked around the apiary, Adam showed me fig trees that were depleted by a lack of water. He grabbed a hose that was hooked-up to a large water container and turned a valve, water now rushing out onto the dry soil. "This year is too dry. The fig trees are dying." Adam was completely right; his fig trees were dying, their branches going gray in color and yielding small fruit. Malta and Gozo have faced problems with their figs in the past. In 2013, the Times of Malta

reported on a beetle that was attacking fig trees, causing trouble for local farmers and their ability to produce this desired fruit.⁴⁷ In Adam's case, the lack of water available in his apiary also contributed to his fig trees perishing. Dryness became a consistent theme as we walked around the apiary and Adam pointed to fruit trees and herbs that had suffered this year more than any other. As mentioned earlier, Malta's dry and inconsistent winter created a scorching summer which had lasting detrimental effects on the ability to produce local vegetation.

As Adam finished watering the remainder of his plants in the apiary, he guided me towards some of his hives. He pointed to boxes that had very little traffic interacting with their entrances. Adam explained that he had trouble with these hives since the summer began, and that he could see they were unhealthy by looking at the entrance. I asked him what he thought the cause of their "unhealthy" appearance might be, to which he replied the now common narrative; the environment. Adam explained that without the vegetation producing pollen and nectar properly in the summer months, the bees cannot produce enough honey to keep themselves fed. As a result, their numbers reduce and the colony conserves their energy, foraging just enough to survive the season and maintain their low numbers. I wondered if the time of day had anything to do with the lack of bees presenting themselves at the entrance of the hive, or perhaps this hive was new and working to build its numbers. Either way, Adam deduced that these hives were struggling and I could only wonder about how perception influenced the truth of that statement.

It was here, looking at these traffic-less hives, that I began to wonder about colony collapse disorder. Adam's hives certainly were not collapsing, but they were struggling, and had one of the hives completely died, would we be able to label that as a collapse, and to that extent, a disorder? According to the USDA's definition of CCD, cited earlier in this paper, a scene of CCD would be the decrease of



Figure 10. A lack of traffic among 'unhealthy' hives. Photo by Jacob Jansen.

hives in large numbers attributed to a combination of multiple factors which include certain agricultural pesticides, beekeeper-applied chemicals, poor nutrition, pathogens, and parasites. So unless all of Adam's hives flopped in mass numbers on a given day due to a potentially unknown variety of reasons, only then could we suspect that an incident of CCD had taken place. However, on this warm summer day when Adam had taken me to his apiary, all of his hives appeared to be in order, despite the nutritional depletion caused by the unfortunately dry winter that year. I say 'appeared' because in reality, I would not know what to look for in the event of a healthy or unhealthy hive. Adam however could tell a hive was in bad shape just by looking at its exterior, let alone opening the hive to see unhealthy brood patterns or a lack of activity. According to Adam, the weather conditions and environment were to blame for poor hives. These were among the first notions he expressed to me regarding perceptions of potential honeybee extinction as warnings of colony collapse presented themselves in the form of nutritional depletion.

As our time in the apiary came to a close on that first day, the heat had caught up with us. We were both sweating terribly in our suits, of which we were likely only wearing because I was present. Adam refused to put his veil on in the heat we were experiencing. I had no interest in removing my veil for the simple reason of wanting to avoid getting stung. As the evening sun carried on, we brought our time at the apiary to a close by sterilizing some frames-to-be. Adam had two large freezers in his apiary which act as insulated units to store frames in. He covers these retired freezers with cardboard to protect them from humidity. Inside the freezers are bundles of frames which he sterilizes by burning a sulfur stone in a can-and-wire mechanism. Once the sulfur is ignited and begins to smoke, he attaches the stone to a wire that sits in a can which is then placed in the freezer. Adam explained that the smoke from sulfur kills anything from disease to Varroa mites. In 1992, around 80 per cent of all honeybee colonies died in Malta due to an untreated case of Varroa destructor, a mite which Nicholas was testing for when we were beekeeping together in Oregon.⁴⁸ Sterilizing frames prior to their placement in future hives was a reaction to the past, a method for the present, and a plan for the future. Adam was fighting the possibilities of honeybee extinction in Malta. On separate occasions, Adam and I would feed his honeybees which would act as a temporary aid in times of nutrients depletion.

"Smoke, smoke, smoke!"

We had met on several occasions since that first day when we watered Adam's plants and sterilized frames. One day I met up with Adam in the early evening for what he described as feeding his bees. I could imagine feeding a dog because I have one. Or a cat, or a bird, or a fish; but honeybees? I was excited to see what was going to happen at Adam's apiary. When I got to his house, he had already loaded his tractor and trailer with the supplies we would need. In the trailer were a few jugs of some sort of solution, tools for the hive, and a bottle of water for us to drink. "Where are the suits?" I thought to myself. I casually asked Adam if we would be wearing our gear today, to which he replied, "We won't need the suits today because we're just feeding the bees." I assumed this meant that our contact with the honeybees would not be too close, and that perhaps there was something in the apiary kept at a distance which the bees could visit to eat from, like a bird feeder of sorts. I was wrong.

On this particular day, the wind was threatening to blow Gozo to Italy. Warm gusts of air had stirred up from North Africa and made their way for us. The wind had continued to blow for at least four days before it calmed to an occasional breeze. As Adam and I hoisted ourselves up onto his tractor, I wondered if the wind would affect what we were going to be doing with the honeybees. "It's windy!" shouted Adam over the engine. "It's no good for the bees, but we will manage." The balancing act of riding on the tractor with Adam was intensified by the occasional gust of warm air that washed over us. Perhaps I am being dramatic, but those tractor rides were always a little heart-racing. Adam and I pulled up to his apiary and grabbed the jugs of solution from his trailer. "What are in the jugs?" I asked. "It's a syrup – two thirds sugar to one third water" Adam replied. As we opened the gate to Adam's apiary, he explained why the wind made it difficult to work with honeybees.

The most obvious reason is that the bees have a hard time navigating around their hives when a gust of air comes through. Adam also explained that opening hives on a windy day messes with the temperature inside the boxes. The honeybees have to reestablish their conditions because of the drop in temperature. They do this by fluttering their wings, heating up the inside of the hive which requires energy, and considering the lack of resources the bees had in 2016 among Gozo, any unnecessary exertion of energy could spell trouble for a struggling hive. As Adam explained these details to me, I realized he was communicating another species' behavior in the given circumstance.

This idea of knowing another animal's behavior really stumped me as I thought more about how we deduce our interpretations of nonhuman species behavior. One could rationalize, without getting into the thick of mechanical specifics, that you could *test* the behavior of honeybees, and specifically how they react to a hive being opened, exposed to an external climate. If we were to watch the inside of a hive with a thermal camera moments before it's lid came off on a windy day, perhaps we'd gradually see a change in the colony's overall temperature as the internal climate of the hive adjusted to external conditions. Then we would think to ourselves "The honeybees are reacting to a shift in temperature." Adam did not have a thermal camera though; he has *experience* with the bees as a being himself.

As humans, we are animals with our own behavioral traits like the rest of the animal kingdom. When we are tending to honeybees and responding to their behaviors, perhaps part of our knowledge of a hive is an entanglement between what we imagine the colony to be, and the way we interpret how a colony behaves. Moore and Kosut (2014) draw attention to the idea that "what we smell, taste, hear, and feel, in addition to what we *think* about bees, is filtered, diluted by humanness."49 In the case of a hive's temperature being dropped, the ultimate factor defining the interpretation of the situation is a moment of vulnerability. In other words, Adam was communicating his perception of the bee's vulnerability to the wind. What stumps me is whether that perception is simply a dilution of humanness, or a projection onto the nonhuman species in order to make sense of a shared experience among multispecies interaction and relationship. The experience is shared in that Adam and I are feeding the honeybees, and thus the ones who are opening the hives and creating

a moment of vulnerability for the colony. At the same time, Adam and I are susceptible to getting stung, so the circumstance of vulnerability goes both ways. Green and Ginn (2014) recognize that vulnerability cuts across species, for it is a condition of all life forms nonspecific to humans among existence itself.⁵⁰ To this extent, vulnerability and how it is experienced differentiates between humans and other species, but only by degree rather than kind.⁵¹ That is to say that all animals (including humans) live within the same world of vulnerability. As humans, we are positioned in a cosmos of vulnerability which provokes us to interpret ourselves and the world around us.

When Adam and I fed his bees on that windy day in the apiary, an overtone of vulnerability categorized the experience of our behaviors and that of the honeybees. As mentioned earlier, today we were without suits, and to my surprise, we were working closely with the bees. After entering the apiary, the first thing Adam did was grab his smoker and fill it with straw. He then lit the dry grass, puffing the tool



Figure 11. Feeding the honeybees syrup due to drought. Photo by Jacob Jansen.

until a consistent stream of smoke wildly danced out of its spout, fighting the occasional gusts of wind. I was put in charge of using the smoker when necessary. Adam and I had rested the jugs of syrup on his storage-freezers and were now going to each hive, retrieving jars that had been inside the boxes on their top-most Honey Super. Adam had about thirty hives, and with each one, he would undo the lid of the hive and grab a jar while prompting me to puff a little bit of smoke to ease the honeybees' alertness.

The jars, some bigger than the others, had plastic tops with holes in them. These were to be filled with syrup and placed back into the hive with the lids facing downwards. The idea is that the jars slowly drip syrup which the honeybees can collect to utilize for energy. This method was in response to the lack of pollen and nectar available, enabling the bees to survive a dry summer. After all the jars had been filled, we began putting them back in their homes. By this point, the wind had started to pick up. Adam would grab each jar, remove the lid of the hive, and carefully place a syrup-drip in place while I stood next to him puffing the smoker. I was having to puff harder and more consistent now because of the increasing winds. I could tell this made Adam a little uneasy because without our smoker, we were defenseless in the event that the honeybees felt threatened. I myself was pretty terrified because I was not used to having bees buzz around me in large quantities with no suit to protect me. Nevertheless, I continued to puff the smoker, watching Adam's reactions to every hive he opened. Some hives were more active than others, and so a request for more smoke would come here and there. As we neared the last few colonies, Adam said "There's one that we need to do that's an aggressive hive. We will do it last. This wind is no good!"

The last jar was placed in its hive and a feeling of relief washed over me until Adam said "Okay, one more. It's aggressive so use the smoke." I had assumed we already took care of his aggressive hive being that there were no more jars to handle. My fingers and palms were sticky with syrup and the smoker's odor was all that I could smell. Adam had grabbed a jug with syrup remaining in it. We approached the final, *aggressive* hive, and as Adam took its lid off, a *wuvvv* sound emerged as honeybees flew in all directions. Inside the top of the hive was a circular tray that Adam was now tilting the jug's spout towards, releasing syrup into the tray. While feeding the bees, I got into the routine of puffing the smoker despite the wind blowing most of my efforts away. We had not run into any trouble until now. As the wind picked up, our first and only line of defense was useless.

Adam yelled "Smoke, smoke, smoke! Smoke, smoke, smoke!" as bees flew all around. I imagine he must have been stung, if not a few times. I continued to puff, but with every pffft the wind took the smoke with it, away from the bees. I froze, certain I was going to get stung. I had been wearing sunglasses that day which were now rested on my head. A bee flew right by my eye, buzzing around my head as if to scold me. I jerked back and yelped, my sunglasses flinging off and onto the ground. "Don't be scared Jacob... don't be afraid" repeated Adam as I danced around, trying to avoid the bee. I should have remained calm but I was overtaken by a buzzing reality; trapped in an apiary with nowhere to hide. I was in a trance of fear, and it took me a few moments to recover, realizing that Adam had been smokeless longer than he probably preferred. I handed him the smoker as he put the lid back on the "aggressive" hive. Taking it, he puffed around the hive, then around me, and finally on himself. The bees had flown off in scattered directions at this point as the wind continued to blow heavy gusts. Adrenaline rushing, I prioritized my behavior in the moment of shock as opposed to trying to contain my actions in the situation. Adam did not seem to mind, but he was nervous that I had been hurt. "Did they stick you?" he asked worryingly. "Nope. Not this time!" I

replied while chuckling nervously. I could not gauge whether I had just made a fool out of myself, or if all of this was simply part of the process that we were enduring in order to feed the bees. Either way, the commotion had come to an end and we were now leaving the apiary, having finished the task at hand.

That evening I had joined Adam for dinner. It was our second time eating together which was such a pleasant experience because it created a space where we could talk about a variety of things, whether that was beekeeping related or not. By this point in our time together, Adam and I were well acquainted. I decided that I would learn a lot more if I solely worked with him than if I were to spend one or two days with a variety of beekeepers throughout my stay in Gozo. Adam became my key informant and had me asking questions that I did not consider until having been in his apiary. Thus far, I was experiencing an environmental context that was out of the ordinary for myself, but as well as for Gozitans. The dry summer was making life for the honeybees and their keepers difficult, and concerns were emerging that continuous summers such as these were leading to the potential of honeybee extinction on Gozo. The island and its keepers were facing vulnerabilities that challenged the practice of beekeeping and beyond.

Despaired but Prepared

On July 21, 2016, Adam agreed to participate in an interview with me for the purpose of documenting information that might otherwise be lost in the transcription of field notes and general observations. I arrived at Adam's home around 4:30PM in the afternoon and was greeted with a glass of water; the late afternoons were particularly hot. After some chit-chat, we settled for what would be a little over an hour of interview discussion. I pulled my digital hand-held recorder out of my pocket and set it on the table. "Is it alright with you if I record this conversation so I can write about it later?" I asked. "Of course, not a problem" Adam replied. My initial questions concerned background information on Adam so I could develop a deeper understanding of who he was in relation to beekeeping.

One of my questions asked "Do you consider yourself a beekeeper?" I expected a straightforward answer that would not lend too much detail, but Adam explained "Well, let's face it. I'm an amateur, not a professional."⁵² "Not a professional?" I asked. "No" replied Adam, "I can't be a professional in Gozo. No, no... We are too limited. We are too small to be professional, in my opinion. I have to say the truth." Adam was reflecting on a perception that positions the minimal land of Gozo and its resources in a context of limitation, one that according to him prohibits the potential of being a "professional" beekeeper. "What does professional beekeeping look like to you?" I asked. Adam explained "When you call [someone] a professional [in] beekeeping (Adam laughs), you are living, in my opinion, your whole life in beekeeping; bee's production, for example. Professional... I'm not an expert, but professional means "this is my job." Beekeeping is not my job, it is a hobby, you know?" I understood where Adam was coming from in relation to Gozo's limited agricultural resources and the commitment required to be a professional beekeeper, but I wondered about how so much labor could be considered a hobby, and to that extent, how a surplus of harvested honey might be utilized by a hobbyist.

Beginning at the age of 14, Adam worked with a small number of hives that gradually increased to twenty by the time he was 21-yearsold. He and his friends would "split" the hives, doubling their colonies year after year. Today, Adam has about 38 hives, but he once had up to 60 when, according to him, environmental conditions were better. Adam explained "I started [this] as a hobby, not as a business, but with the honey you can get money. What are you going to do with all

that honey? You have to sell it. With the hives, you produce a lot of honey. Not this year though, but when it is a good season, that's a lot of honey, hundreds of kilos." It was clear that Adam was making some profit off this practice, although as a hobbyist as opposed to a "professional." In 2016, both Adam and the honeybees were making very little in terms of profit or honey. The environmental conditions of Gozo's summer hindered Adam's opportunity to harvest honey. I wondered how the current circumstances differentiated from those prior according to Adam's oral history.

I asked Adam to talk about the summer season of 2016 for details concerning his perception of how the environment correlated to the health of honeybees. "This season ... we never experienced!" stated Adam. "They didn't expect this year, eh? Never, nobody talked about this year last year, never, never. Never in my life." I was particularly intrigued by the word "expect" used by Adam. He explained that the old people (largely referring to farmers and long-time Gozitans) have ways of determining the expected seasons, but with climates drastically changing, these knowledge constructions are challenged by unfamiliar environmental circumstances. "So, this season was unexpected?" I asked. "It was unexpected" replied Adam. "For example, the trees are dying, the bees are dying, and that's a problem. It's all dry, but they say it could be a good year (referring to 2017)." I was intrigued by what a good year for beekeeping and agricultural endeavors looked like considering I had showed up in perceivably difficult environmental conditions.

Adam explained that when it is a good year "for the beekeeper and farmer, the rain is good. If it's raining, there are flowers and everything. And this depends not only on the rain, it depends upon all seasons, how they will be. If it's too windy, that's no good. If it's too dry, that's also not good. In the springtime, for example, the bees need flowers – that's important, you know?" Adam also explained that with the

concerns of honeybee diseases, worsening environmental conditions could only make matters more difficult. Considering the work of Le Conte and Navajas (2008), we can situate Adam's concerns in a global environmental discourse concerning beekeeping. They state "Climate change can impact on honey bees at different levels. It can have a direct influence on honey bee behavior and physiology. It can alter the quality of the floral environment and increase or reduce colony harvesting capacity and development. It can define new honey bee distribution ranges and give rise to new competitive relationships among species and races, as well as among their parasites and pathogens. Beekeepers will also be obliged to change their apiculture methods.⁵³ In changing environmental circumstances, beekeepers will be forced to adapt their knowledge constructions to new realities, altering how hobbyists and professional keepers conceptualize the needs of honeybees, as well as shaping the methodologies of beekeeping itself. I wondered what Adam's thoughts were in regards to matters of increasing environmental vulnerability and the positioning of honeybees within it.

As Adam and I were discussing the needs of honeybees, we simultaneously came across the needs of humans; a multispecies entanglement. According to Adam "The human can't live without the bees. The bees [are] the most important thing for humans. Otherwise we can't eat vegetables, or fruit." He added, "The bees, they do a lot of things, they do too many things for us. Without the bees, we can't live, and that's a big problem." Adam's concerns about the honeybees frame threats of survivability for the environment as a whole. He associates changing climate as detrimental to the environment, which is consequentially a problem for honeybees and their survival. According to Adam, if the honeybees cannot survive, then neither can humans. As Adam and I spoke of the consequences that a rapidly changing planet would have on honeybees and human survivability as

a result of multispecies dependency, an atmosphere of despaired feelings washed over us through our interaction with notions of climate change and its effect on bees and humans.

Our interview was addressing matters that had direct and future implications, all of which was troubling whether we were considering honeybees in the context of Gozo, or the world in terms of environmental uncertainties. It is easy to get caught in a despaired wake when addressing concerns that seem increasingly out of one's control. I believe it is important for us to harness these feelings of despaired complexities, using them as a reflection for preparation and ultimately prevention. In terms of preparation, beekeeping on Gozo has had to methodologically reconsider honeybee nutrients, exemplifiable through the introduction of syrup-feeders. This technique is characteristic of the environmental challenges honeybees, and thus humans, are facing. The problem of environmental change consequentially affecting honeybees cannot stop at adjusting methodologies however, for adaption and mitigation only worsen matters in the long run. Climate change fundamentally concerns choices, those of which are largely administered by government authorities. It is beyond the scope of this paper to suggest global preventative mechanisms to reducing the threat of climate change. However, matters of preparation in terms of beekeeping practices among environmental stresses is an accessible topic, relevant to the concerns conveyed in the interview conducted with my key informant.

Practically speaking, preparing for unexpected environmental conditions in terms of beekeeping largely regards money according to Adam. It is a logical factor to consider, for if there is a lack of economic support by which beekeepers can sustain their apiaries, how might we expect honeybees to survive? In our interview, Adam mentioned that beekeepers in Malta receive an assisted amount of euros from the government for the purpose of aiding resource costs among apiary management. Between 2014 and 2016, a total amount of €27,099.97 was provided for apicultural development by the Malta National Apiculture Programme with combined aid from the European Union.⁵⁴ €13,547.97 was provided in 2014, and €13,552.00 in 2015, with no expenditure or aid reported for 2016.⁵⁵ Adam states that this money was far too little considering the number of beekeepers in Malta. "For the whole island of Malta, for all the beekeepers of Malta, only €13,000 to share between us [per year]" said Adam in frustration. "Last year, they gave me 150 euros for the hives. That won't help. What do I do with 150 euros? I just buy a few [varroa mite] strips. The package of strips cost me 26 euros. And how much money will I produce?" explained Adam. According to his perspective, Adam believes the considerably small sum is a result of demand, and because Malta has limited agricultural resources, a case for greater aid funds does not compete in the whole of the European Union. "We are small. What can we do? We can't be professional, because to be professional you need money" said Adam.

It was clear Adam associated what he called "professional beekeeping" with economic capacity, and this was particularly something to consider in the midst of unfamiliar environmental conditions. If beekeepers do not have the resources to prepare and defend against uncertainties, what does this mean for the accessibility of surviving a practice and thus a species? Like most agricultural practices, beekeeping is an expensive endeavor, and this is amplified by "professional" pursuits in an industrial context. Adam is a hobbyist beekeeper though, and he has been one for a large portion of his life. From his perspective, as the environment changes, so too does the practice, and this suggests an increased demand in economic preparations. With continual summers like the one that hit Malta in 2016, Adam will need to purchase more ingredients for his syrup

solutions, as well as buy more varroa mite strips in the event that a breakout occurs when the physiological conditions of the honeybees are already weakened by environmental stresses. Additionally, supplying water to apiaries will likely become scarcer if winters provide insufficient quantities of water. On multiple occasions, Adam noted that Gozo was "too small" or "too poor" to effectively deal with matters of honeybee decline and productivity in the midst of unfamiliar environmental conditions. It was as if he was suggesting there was a level of inferiority to consider when comparing Malta to other countries, whether that was in an economic or agricultural sense. It is not that this is an inherently true matter, but the size of a place and the resources it is capable of producing and utilizing is a factor that significantly influences the way beekeeping is practiced in Gozo. Economic considerations aside, I asked Adam how beekeepers learn methods of preparation, and the general art of beekeeping.

Learning through Community

Adam learned the skill of beekeeping primarily from the farmers he grew up with. Today we have the internet which provides a plethora of information on beekeeping, but there is a tactile reality to this practice that cannot simply be "Googled." This is especially true when thinking about the specificity of an environment's conditions and how that will pair with methodologies of raising honeybees. Today, Adam largely considers how local beekeepers tend to their hives, adopting methods to his practice depending upon "what works" and what does not. Adam explained that all beekeepers have different ways of tending to their apiary. "Me for example, sometimes I don't agree with other beekeepers and other beekeepers don't agree with me, you know?" said Adam with a smile. He added "That's why we talk, but no one ever *insists*. We talk, we change, and if you're right, keep doing it. If not, that's it. With John, he and I talk a lot, but he does his way [of beekeeping] and I do my way. For example, John is going to open his

hives in the evening time. I prefer working in the morning, when it is a bit cooler, for both the bees and I. In the late evening, there's too much humidity." John is a friend of Adam's who is also a beekeeper in a nearby village. The two of them have been discussing beekeeping approaches and tips for a long time, and I was fortunate enough to be invited to John's apiary.

Nestled in a lush valley accessible only by skilled drivers or on foot, John's apiary sits in a green pocket on the east side of Gozo. A view of the Mediterranean stares at you from one side as gargantuan limestone cliffs tower over this valley on the other. Adam and I visited John's apiary on my last day of fieldwork in 2016 and the three of us talked about honeybees and life experiences. In visiting John's apiary, I learned a bit about how he approaches his hives in terms of what he does and does not do. John explained that he prefers not to use a



Figure 12. A day at John's apiary. Photo by Jacob Jansen.

smoker when he is dealing with his honeybees because it can be

overwhelming for the bees, and that only in conditions when he is harvesting honey is the smoker considerable. Additionally, because John's apiary is so close to the sea, his property is lined with rows of bamboo fencing to defend crops and hives against the strong winds that race through his property on some days. The environmental context of this apiary was drastically different from what I experienced in being with Adam. Reflecting on this, had I spent three weeks working with John, I might be caught in an illusion that Gozo's environmental conditions were a lot better than they are. The honeybees, however, ultimately reflect that issues of vegetation and dehydration are at stake, and I believe that this would be an unavoidable context regardless of where one was keeping bees in Malta. That being said, it is the differentiations in beekeeping experiences on Gozo and the health of honeybees positioned within the management of their keepers that makes knowledge constructions and transmissions difficult to understand, but vital to address in the struggle for sustaining apiary health.

Every beekeeper will have their subjective experiences in tending to honeybees, and I think this is something to utilize, both within and outside of the context of beekeeping, when addressing approaches to climate change. For the beekeepers of Gozo, the community knowledge that has shaped this island's apiary practices will need to call upon those singular voices of experience to determine what the variety of realities that comprise beekeeping have to say about preparing for changing environmental circumstances. We can extrapolate this notion to a global pursuit of preparation and prevention in the events of environmental uncertainties. This requires challenging "objectivity," much of which is imbedded into the technoscience of climate change. In other words, the individuals that comprise communities and their knowledge systems must be heard among the global discourse on climate change. Considering subjective perspectives allows for us to reframe our positioning within global crisis, acknowledging a vulnerability that is inclusive of all life and the communities we depend upon.

Conclusion

"We are the present, you are the future"

I had visited Adam one evening in July as the sun was preparing to set and the lime stone of the island was releasing its heat. There was some hives that needed new coats of paint, so Adam had spent most of the day in his driveway, brush in hand. Upon my arrival, I sat and talked with Adam as he applied different coats of heat resistant layers. We were discussing honeybee cross-speciation in relation to climate change when Adam suddenly stopped painting, looked at me intently, and said "We are the present, you are the future." The "we" was inclusive and beyond the context of beekeepers; Adam's reflection on those generations who have participated in the environmental status of the Earth. The latter bit of this memorable instance suggests that I, along with those following and leading a future of environmental stewardship will be responsible for charting a course towards improvement.

By the time I returned from Gozo, I was looking at the environment and my place within it by new terms. For starters, doing fieldwork with beekeepers in Gozo brought insight to notions of multispecies interaction and vulnerability, and how our relationship with the environment is a constant reciprocal process that requires us to be conscientious of our subjective understandings. I find this realization critical for further environmental pursuits, for I believe we can all benefit by challenging objectivities in paying closer attention to individual concerns and how these are (or are not) part of a larger environmental conversation. In the case of colony collapse disorder and perceptions of honeybee extinction, Adam's relationship to this issue was a matter of feeling and seeing problems that tend to be weeded-out by science that seeks a way of producing objective knowledge constructions. I argue that subjective cases must be considered for purposes such as governmental aid, whereby finances are distributed on the basis of demand. Quantifying experience and needs is a tricky thing, but I think lending an ear to subjective necessities will further help us to understand how to be attentive to individuals and their role in environmental uncertainties as our planet suffers from changing climate.

In this paper, I attempted to relate concerns of CCD in the context of climate change, showing how these two issues are interrelated at a level of subjective perception. Additionally, I looked at beekeeping as a practice which depends on the differential experiences of beekeepers, positioning honeybees in a context of management that has been, and will continue to be, influenced by community knowledge constructions (a notion which can extend outside of Gozo and beekeeping itself). Looking towards future engagements with the topics presented in this piece, I believe it will be important to explore theoretical directions concerning human-animal relationships and their positioning within environmental concerns. I also wish to later expand on the roles community plays in apicultural developments. Finally, challenging the technoscience of climate change and colony collapse disorder will be critical for placing the subjectivities of beekeeping concerns and beyond within a heard and serious global dialogue.

References

- Blouet, Brian. A Short History of Malta, New York, N.Y.: Frederick A. Praeger, Inc. 1967.
- Bramwell, Bill. "Maltese Responses to Tourism." Annals of Tourism Research 30, no. 3 (2003).
- Calleja, M. Judith. "Factors Enhancing the Rapid Assimilation of Maltese Immigrants in Detroit." *Central Issues in Anthropology* 6, no. 1 (1985).
- Conte, Le Yves, and Navajas, Maria. "Climate Change: Impact on Honey Bee Populations and Diseases." *Revue Scientifique Et Technique (International Office of Epizootics)* 27, no. 2 (2008).
- European Commission. Agricultural and Rural Development ISAMM CM (National Apiculture Programmes 2017-2019: Malta), 2016: p. 1. Retrieved from <u>https://ec.europa.eu/agriculture/honey/</u> programmes/national-apiculture_en on April 2, 2017.
- Green, Kelsey, and Ginn, Franklin. "The Smell of Selfless Love: Sharing Vulnerability with Bees in Alternative Apiculture." *Environmental Humanities* 4, no. 1 (2014).
- Guest, J. Kenneth. *Cultural Anthropology: A Toolkit for a Global Age.* First ed. New York: W.W. Norton & Company (2014).
- Idotravelto.com, "Siesta & Business Hours," idotravelto.com/malta. April 9, 2013, accessed April 2, 2017, <u>http://www.idotravelto.com/malta/info/general-information/Siesta-and-Business-Hours.php</u>
- Kosek, Jake. "ECOLOGIES OF EMPIRE: On the New Uses of the Honeybee." *Cultural Anthropology* 25, no. 4 (2010).

- Lisa Jean Moore, & Mary Kosut. (2014). Among the Colony: Ethnographic Fieldwork, Urban Bees and Intra-Species Mindfulness. *Ethnography*, 15 (4).
- Ltd, Allied Newspapers. "The impact of climate change." Times of Malta. December 24, 2014. Accessed April 03, 2017. <u>http://www.timesofmalta.com/articles/view/20141224/editorial/Theimpact-of-climate-change.549515</u>.
- Magri, Melvin. "Malta's bees need protection." *Times of Malta*, June 24, 2012. Accessed September 20, 2017. <u>https://</u> <u>www.timesofmalta.com/articles/view/20120624/environment/</u> <u>Malta-s-bees-need-protection.425741</u>
- "Malta experienced driest winter in 93 years." MaltaToday.com.mt. April 12, 2016. Accessed April 03, 2017. <u>http://www.maltatoday.com.mt/lifestyle/environment/63992/malta_experienced_driest_winter_in_93_years#.WN25y_nyu03</u>.
- Malta. National Statistics Office. Gozo in Figures (Online). Retrieved from <u>https://nso.gov.mt/en/publicatons/Publications_by_Unit/</u> <u>Documents/02_Regional_Statistics (Gozo_Office)/</u> <u>Gozo_in_Figures_2015.pdf</u>, (2015).
- Malta. National Statistics Office. *Malta in Figures (Online)*. Retrieved from <u>https://www.um.edu.mt/library/oar/handle/</u>123456789/13191, (2014).
- Malta Tourism Authority. "Tourism in Malta 2015." Retrieved from <u>w w w . m t a . c o m . m t / | o a d f i | e . a s h x ?</u> <u>id=71520fa6-5f2f-455c-96a4-5a3ad4f74b2a</u>, (2016).
- Martin, Ivan. "Beetles threaten survival of local fig trees." *Times of Malta*, June 17, 2013. Accessed September 20, 2017. <u>https://</u>

www.timesofmalta.com/articles/view/20130617/local/Beetlesthreaten-survival-of-local-fig-trees.474161.

- Nimmo, Richie. "The Bio-Politics of Bees: Industrial Farming and Colony Collapse Disorder." Humanimalia J. Hum. Anim. Interface Stud. 2 (2015).
- Ribbands, R. C. "Division of Labour in the Honeybee Community." Proceedings of the Royal Society of London. Series B, Biological Sciences 140, no. 898 (1952). <u>http://www.jstor.org/stable/82709</u>.
- Stronza, Amanda. "Anthropology of Tourism: Forging New Ground for Ecotourism and Other Alternatives." *Annual Review of Anthropology* 30 (2001).
- Suryanarayanan, Sainath, and Kleinman, Lee Daniel. "Be(e)coming Experts: The Controversy over Insecticides in the Honey Bee Colony Collapse Disorder." *Social Studies of Science* 43, no. 2 (2013).
- Tabone, Patrick. "Malta's EU Story: How Ten Years of EU Membership Have Changed the Country." *The Today Public Policy Institute* (2014).
- Vassallomalta.com. "Bee Keeping," Maltese History & Heritage. N.d, accessed April 2, 2017, <u>https://vassallohistory.wordpress.com/</u> <u>bee-keeping/</u>

- ¹. Brian Blouet. A Short History of Malta, New York, N.Y.: Frederick A. Praeger, Inc. 1967: p.15.
- ². Malta. National Statistics Office. *Malta in Figures (Online)*. Retrieved from <u>https://www.um.edu.mt/library/oar/handle/123456789/13191</u>, 2014. p.iii.
- ³. Judith M. Calleja. "Factors Enhancing the Rapid Assimilation of Maltese Immigrants in Detroit." Central Issues in Anthropology 6, no. 1 (1985): p.4.
- 4. Brian Blouet. p.219.
- 5. Patrick Tabone. "Malta's EU Story: How Ten Years of EU Membership Have Changed the Country." The Today Public Policy Institute (2014): p.17.
- ⁶. Ibid. p.13.
- 7. Ibid. p.26.
- ⁸. Bill Bramwell. "Maltese Responses to Tourism." Annals of Tourism Research 30, no. 3 (2003): p.586.
- ⁹. Ibid. p.588.
- ¹⁰. Malta Tourism Authority. "Tourism in Malta 2015." Retrived from <u>www.mta.com.mt/loadfile.ashx?id=71520fa6-5f2f-455c-96a4-5a3ad4f74b2a</u>. 2016: p.5.
- ¹¹. Amanda Stronza. "Anthropology of Tourism: Forging New Ground for Ecotourism and Other Alternatives." Annual Review of Anthropology 30 (2001): p.261.
- ¹². Ibid. p.261.
- ¹³. Ibid. p.261.
- ¹⁴. Jake Kosek. "ECOLOGIES OF EMPIRE: On the New Uses of the Honeybee." *Cultural Anthropology* 25, no. 4 (2010): p.650.
- ¹⁵. Ibid. p.650.
- ¹⁶. Richie Nimmo. "The Bio-Politics of Bees: Industrial Farming and Colony Collapse Disorder." Humanimalia J. Hum. Anim. Interface Stud. 2 (2015): p. 2.
- ¹⁷. Sainath Suryanarayanan and Daniel Lee Kleinman. "Be(e)coming Experts: The Controversy over Insecticides in the Honey Bee Colony Collapse Disorder." *Social Studies of Science* 43, no. 2 (2013): p. 217.
- ¹⁸. Richie Nimmo (2015): p. 1.
- ¹⁹. Ibid. p.1.
- ²⁰. Yves Le Conte, and Maria Navajas. "Climate Change: Impact on Honey Bee Populations and Diseases." *Revue Scientifique Et Technique (International Office of Epizootics)* 27, no. 2 (2008): p.499
- ²¹. Kelsey Green and Franklin Ginn. "The Smell of Selfless Love: Sharing Vulnerability with Bees in Alternative Apiculture." Environmental Humanities 4, no. 1 (2014): p.159.
- ²². Jake Kosek. p.650.
- ²³. Kenneth J. Guest. Cultural Anthropology: A Toolkit for a Global Age. First ed. New York: W.W. Norton & Company (2014): p.A-6.
- ²⁴. Ibid. p. A-5
- ²⁵. Ibid. p. A-4
- ²⁶. Ibid. p. A-3
- ²⁷. Although I took notes during my time with Nicholas, I did not record formal conversations due to the fact that we were tending to honeybees throughout the entirety of my visit. All quotes concerning Nicholas are paraphrased through the assistance of my field notes and memory. Our conversations took place on June 16, 2016 in Aurora, Oregon.
- 28 . See page 17 for the application of these tools.
- ²⁹. See page 14, Figure 1.
- ³⁰. C. R. Ribbands. "Division of Labour in the Honeybee Community." *Proceedings of the Royal Society of London. Series B, Biological Sciences* 140, no. 898 (1952): 32-43. http://www.jstor.org/stable/ 82709.

³¹. See page 7.

- ³². Kelsey Green and Franklin Ginn (2014): p.156.
- 33. Ibid. p.156, Figure 1 (Sun hive).
- ³⁴. Richie Nimmo (2015): p.1.
- 35 . "Honeybee efforts" is referring to the labor of bees which humans demand for agricultural and environmental necessities.
- ³⁶. Malta. National Statistics Office. *Malta in Figures (Online)*, 2014. p. vii.
- 37. Malta. National Statistics Office. Gozo in Figures (Online). Retrieved from https://nso.gov.mt/en/publicatons/...by...(Gozo.../Gozo_in_Figures_2015.pdf. (2015): p.3.
- 38 . The limitation of these images is that they only show a glimpse of each respective body of land.
- ³⁹. European Commission. Agricultural and Rural Development ISAMM CM (National Apiculture Programmes 2017-2019: Malta), 2016: p. 1. Retrieved from https://ec.europa.eu/agriculture/honey/ programmes/national-apiculture_en on April 2, 2017.
- 40. Vassallomalta.com. "Bee Keeping," Maltese History & Heritage. N.d, accessed April 2, 2017, https://vassallohistory.wordpress.com/bee-keeping/
- 41. Idotravelto.com, "Siesta & Business Hours," idotravelto.com/malta. April 9, 2013, accessed April 2, 2017, http://www.idotravelto.com/malta/info/general-information/Siesta-and-Business-Hours.php.
- 4². The "irony" here is that when I finally reached Gozo, I remember thinking to myself "Okay, time to explore and start talking to people." In the future, I would not have to go very far beyond Mgarr Harbor to locate informants willing to talk about bees or beekeeping. Of course, I interacted with much of Gozo before discovering my key informant.
- 43. To see my initial thoughts regarding research interests concerning bees and beekeeping in Gozo, see the section titled "Shaping Research."
- ⁴⁴. "Malta experienced driest winter in 93 years." MaltaToday.com.mt. April 12, 2016. Accessed April 03, 2017. http://www.maltatoday.com.mt/lifestyle/environment/63992/ malta_experienced_driest_winter_in_93_years#.WN25y_nyu03.
- 45. Ltd, Allied Newspapers. "The impact of climate change." Times of Malta. December 24, 2014. Accessed April 03, 2017. http://www.timesofmalta.com/articles/view/20141224/editorial/The-impact-of-climate-change.549515.
- 46 . Adam's personal communication with the author.
- 47. Ivan Martin. "Beetles threaten survival of local fig trees." *Times of Malta*, June 17, 2013. Accessed September 20, 2017. https://www.timesofmalta.com/articles/view/20130617/local/Beetles-threaten-survival-of-local-fig-trees.474161.
- ⁴⁸. Melvin Magri. "Malta's bees need protection." *Times of Malta*, June 24, 2012. Accessed September 20, 2017. https://www.timesofmalta.com/articles/view/20120624/environment/Malta-s-bees-need-protection.425741.
- ⁴⁹. Lisa Jean Moore, & Mary Kosut. (2014). Among the Colony: Ethnographic Fieldwork, Urban Bees and Intra-Species Mindfulness. *Ethnography, 15* (4), p.10.
- ⁵⁰. Kelsey Green and Franklin Ginn (2014): p.153
- ⁵¹. Ibid. p.153.
- 52 . Adam (beekeeper) in discussion with the author, July 2016.
- 53. Yves Le Conte, and Maria. Navajas. "Climate Change: Impact on Honey Bee Populations and Diseases." (2008): p.503.
- ⁵⁴. European Commission. *Agricultural and Rural Development ISAMM CM* (National Apiculture Programmes 2017-2019: Malta), 2016: p.4. Retrieved from https://ec.europa.eu/agriculture/honey/ programmes/national-apiculture_en on December 9, 2017.

⁵⁵. Ibid. p.4.