

**INVASIVE LIFE: ILLEGAL IMMIGRANTS AND INVASIVE SPECIES ON THE  
GALAPAGOS ISLANDS, ECUADOR**

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## **ABSTRACT**

Paolo Bocci: invasive life: illegal immigrants and invasive species on the Galapagos Islands,  
Ecuador  
(Under the direction of Margaret Wiener)

This dissertation is an ethnography of out-of-place human and more-than-human presences. Focusing on the highlands of the archipelago's four inhabited islands, it examines how illegal farmers and invasive species have encroached on both the Galapagos National Park, where no one can officially reside, and the areas outside of the park, which are designated for contained human settlement. As a result of concerns about island conservation, the Ecuadorian state has required a permit to reside on the Galapagos since 1998. Yet, due to tourism's exponential growth, mainland Ecuadorians have continued to migrate to the islands, though largely lacking official residency. Illegal residents concentrate in the highlands to work as farmers, while invasive plants coming from the continent have covered large swaths of farmland and park areas alike. Excluded from the protections of Ecuadorian citizenship, these migrant farmers cope with new plants and insects that invade the crops. Yet they also find ways to procure a livelihood in these changed landscapes. Accounting for the unexpected thriving of illegal farmers and invasive species, I treat them as both a symptom of a conservation paradigm in crisis and actors that enact new forms of nature-culture. I move past a critique of conservation and contends that the emerging multispecies entanglements in the highlands are suggestive of

ways to live in today's world of ecological ruins, beyond modern promises of recuperation and betterment.

For Dietra

## ACKNOWLEDGMENTS

Thanks to everyone on the Galapagos Islands and mainland Ecuador who listened and spoke to me, showed me things, spent time with me, helped me. All names have been changed to protect their anonymity. Thanks to my advisor, Margaret Wiener, who has followed me during my entire graduate school education in the US. Thanks to my committee members, each offering suggestions and encouragement. Thanks to my friends in the US and Europe who have offered support and advice. I see the completion of my PhD as a function of love and privilege, both coming from my family. My grandparents have unwaveringly considered education as the most important opportunity for their children, my parents. They, in turn, have done the same to me, being there for me each step of the way. My parents have always considered helping me as obvious and imperative. I use these acknowledgments to tell them that I in fact deeply treasure their support, without which there would not be a dissertation below these lines. If there is a person singularly responsible for my graduate studies in the US, this person is Pr. Angelo Borgese. After a few words one evening he decided to support my application for a fellowship that lasted two years and in fact took me two years to get it. At that time, in Italy, I was jobless and frustrated. That opportunity changed my life in a strikingly dramatic, and luckily irreversible, way. My gratitude for him has not faded. I hope he draws a sense of deserved pride from knowing that he gave a young adult a new life within his life.

Dietra: this PhD has been a very long and especially arduous journey. I had not anticipated the quality of the challenges; I had especially not realized how much the preoccupations, anxieties, and fears would have undeservingly affected your otherwise serene life. I hesitate dedicating this work to you, acknowledging the many challenging times I brought into our relationship. On the other hand, we spent unique moments during fieldwork, and now it is a moment of joy. I want you on my side now that clouds have dissipated; I want to see your smile open and feel excitement about our future together.

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## CHAPTER ONE: INTRODUCTION

### **WaterBoxx®**

We left P.to Ayora at daybreak: a long day awaited us. I had arranged with members of the Charles Darwin Foundation (CDF), the leading scientific institution on the Galapagos, to participate in their day trip to the highlands of Santa Cruz, the most populated island on the archipelago. We were going to install large plastic boxes underneath young vegetable plants. Called the WaterBoxx®, they are designed to retain water and therefore help plants survive in adverse environments, whether because of climate, soil, or competition from invasive species. On the Galapagos, all of these characteristics apply: CDF had promoted use of these boxes as the latest panacea to the degradation of island terrestrial ecosystems. WaterBoxx® is made of polypropylene and, circular in shape, it is installed around a young plant. The latter absorbs water from the water tank underneath, and not from the soil. Since the tank is closed, no water is lost to evaporation—a problem for plants growing in soils with heavy sun exposure. Mr. Hoff, the Danish engineer who patented this technology (Groasis), claims a WaterBoxx® can save up to ninety per cent of a plant water requirement.

In planting his box, Mr. Hoff cultivates broader hopes: to fight erosion and thus reverse part of the two trillion hectares of man-made deserts; to alleviate poverty and unemployment in the world's rural areas; and to combat climate change. Rather optimistically, he estimated that the Groasis technology could result in “an additional US\$ 20 trillion for economic development;” “one trillion tons of extra food;” “the absorption of 10 trillion tons of CO2;” and,

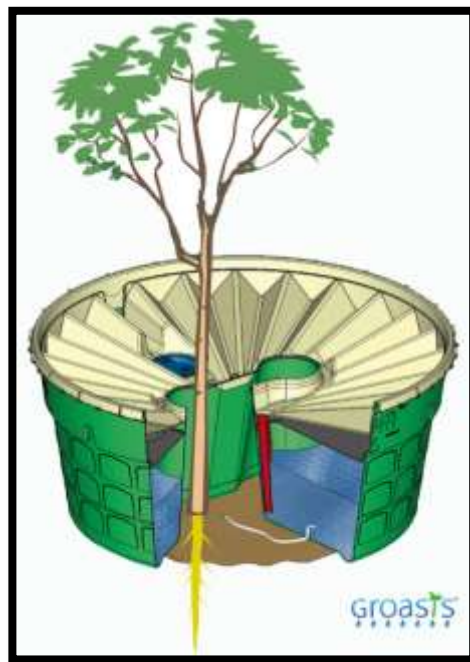
along the way, “two million jobs” (“Groasis” 2015). The CDF scientist in charge of this project told me that the inventor offered one hundred boxes to the Charles Darwin Foundation because he needed the publicity that would come with a project on the Galapagos Islands. Of minuscule size relative to the planet, the Galapagos archipelago is well known around the globe. Modern natural sciences have their mythical birthplace on the Galapagos there, Charles Darwin made the observations crucial to the development of his revolutionary theory of evolution. Since its establishment in 1959, the Galapagos National Park has protected large portions of the archipelago, thus ensuring the relevance of the Galapagos for contemporary natural science research as well. Because of their isolation and conservation measures, the Galapagos have been defined as “the last natural laboratory of evolution in the world” (Stewart 2006). But the fame of the Galapagos transcends the confines of science and science history. Large numbers of tourists every year visit the Galapagos to enjoy their natural wonders, understood through the lens of, and managed in accordance to, Western ideas of nature. With the implementation of Groasis, the Galapagos also would have stood as the symbolic site to begin to reverse the planet’s ecological challenges, or so Mr. Hoff maintained.

Local partners to Groasis, on the other hand, wanted to experiment with conservation technologies that also would positively impact on the local population. This constituted an important shift away from past approaches to conservation. On the Galapagos, the idea(s) about nature that have informed conservation for over a century have always gravitated toward a pristine, people-less nature (Quiroga 2009). In the first half of the 20<sup>th</sup> century, this paradigm of exclusionary nature even justified the killing and removal of species to be displayed in the US or Europe (Matthew 2017; Turnball 1912; Townsend 1925). Natural scientists of the time thought biodiversity loss was inevitable; their task was to “save” a small sample, whether dead in

museums or, later, alive in zoos (Hennessy 2013). Early conservation measures understood ‘nature’ as a collection of taxa devoid of fundamental connections from the sites of the species’ natural distribution. This led to an approach technically defined as *ex-situ* (off-site) conservation. The establishment of the Galapagos National Park in 1959 symbolized the dawn of a new era in the Galapagos: a form of *in-situ* conservation asked conservationists to save species in their habitats (Grenier 2007). However, the model of nature has remained exclusionary to this day. The park has protected its areas by tightly separating them from human settlements and activities. But growth of invasive species, tourists, and local residents over the past six decades has led park officials to increasingly question this model. The park has proposed yet a new approach to conservation, which addresses the obvious ecological interactions between human and natural areas. Espousing the SES (socio-ecological system) framework, which aims to analyze at once all interactions among biotic (including humans) and abiotic factors in a given site, the park has declared its interest in explicitly including humans in its interventions (González, Montes, and Rodríguez 2008). In all its professed potentials, WaterBoxx® held the promise to exemplify this latest direction in conservation.

I jumped into the back of a pickup truck and found a place to sit among two CDF field assistants, shovels, pickaxes, and a stack of the disassembled plastic boxes designed to mend the world’s ecology. On that day, we were going to install WaterBoxxes® not inside the park but on farms. The pilot project in which I was participating was multi-institutional: the Ministry of Agriculture, Livestock, Aquaculture and Fishery (MAGAP), the Santa Cruz’s harbormaster office, the Galapagos National Park (GNP), and CDF were all involved in promoting this new technology, which they planned to install in both protected and agricultural areas. Since the park was founded, the highlands of the inhabited islands have been divided between the park and rural

areas. This division reflects the archipelago-wide separation between the protected natural areas, where no human is permitted to reside, and areas set aside for human settlement. The park covers 97% of the terrestrial area of the archipelago and the vast majority of the islands. Even on the four islands where people reside (Santa Cruz, San Cristobal, Isabela, and Floreana), most of the land is protected by the park. In over sixty years, the park has primarily focused on the preservation and restoration of the protected areas, devoting little attention to the 3% comprising human settlement. Despite such a clear-cut division between humans and nature, which is geographical, political, and historical, both the Galapagos National Park and other public institutions on the islands, notably the Ministry of Agriculture, have recently stated their interest in bridging the divide. That day was a first attempt to find common ground between conservation of the protected areas and development for farmers in the highlands.



<http://www.dewharvest.com/index.html>

Once in the highlands, we stopped at the farms whose owners had agreed to participate and who offered small plots for installing the boxes. Most of the farmers had just applied the subsidized loan designed for the agricultural sector. They accepted participating in the pilot program to show their goodwill to MAGAP, which was helping them with the applications to the state bank managing the loan. I quickly discovered that the WaterBoxx® project on the Galapagos, though portrayed as an institution-led project, relied heavily on farmers. Farmers worked with us all day as we dug holes in the ground, installed the boxes, and transported forty-pound water jars in each arm to fill them. Once we installed the boxes, we inserted young tomato, pepper, and cucumber plants in the small pots of soil connected to the water tanks. The young plants, which farmers had grown in seedbeds from seeds selected among their best plants, were the result of more than three weeks of work. Rather than plant them and eventually sell their fruits, the farmers had to use the plants to the experiment.

The lead CDF scientist instructed the farmers how to monitor their growth. On a professorial tone, she lectured them on the protocol: how to identify the main bifurcation of the plant to measure its growth and how to record data on the printed excel sheets that she provided. She neither asked their opinion on the WaterBoxx® nor confirmed their willingness to measure periodically the plants and become her *de facto* field assistants. The scientist's condescending approach heightened farmers' uneasiness, which they manifested with lowering their eyes and self-deprecating smiles. I was accustomed to registering their discomfort with state employees, whether from the ministry of agriculture, the Park, or other officials. The relationship remained unchanged even when the scientist, a plant biologist, mistook a tomato plant for a pepper, proving to everyone that she couldn't tell them apart.



Author, 2013

In the following weeks I spoke with many of the farmers involved. They always had doubts about the WaterBoxx®. Why so much work to install a device that saves water right before the rainy season? Why were farmers asked not to use any insecticides or parasiticides if the goal of the box was to promote agriculture? On that afternoon, the CDF team and all of the farmers involved reconvened after working in two groups on different farms. One farmer, Lidia, discovered that the scientist went to her farm and took several young plants to use on someone else's property. Lidia was clearly upset but didn't say anything. A few weeks later the rains started; the water quickly overflowed from the underneath tank to the small pot at the center,

where we had planted the seedlings. All of them rotted and died. Farmers ended their weekly measurements. Weeds rapidly covered the boxes.

Once the preliminary stage was completed, the CDF team nevertheless defined it as a success (Charles Darwin Foundation 2016). Focusing on the promising findings with plants in the protected areas, the team swiftly produced graphs and reports as evidence of the encouraging results (Charles Darwin Foundation 2014). The targeted areas in the park were in the arid zone, the lowest terrestrial ecosystems. Precipitation and soil humidity are extremely low in such terrain; these conditions also have limited the spread of invasive species. Native plants, mainly shrubs with small, thick leaves, thrive in the wind-swept, rocky terrain. The team emphasized the recolonization of endemic plants on Baltra, a small, flat island north of Santa Cruz. Fearing a Japanese invasion, in 1942 the US built a base on that island with over 2,400 servicemen and 700 civilians. WaterBoxx® helped restore endemic plant communities that the military base had displaced. Assessment of the pilot project's second goal, to help farmers, did not figure in the reports.

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This dissertation is an ethnographic engagement with the generative aspects of conservation's failure on the Galapagos, a crucial site in the material and imaginative geography of biodiversity as well as in modern debates about the imperative to study and protect natural habitats. I examine the consequences of enforcing an idea of nature that excludes humans and, as the vignette above illustrates, the persisting quality of this vision even in the very attempt to rethink it. Yet my focus is not conservation's failure, but rather the ways multispecies flourish despite conservation's regime of nature. In fact, the new human and more-than-human assemblages that I discuss emerge *because of*, and not simply *despite*, conservation.



I call these new configurations ‘multispecies assemblages.’ Unlike ‘community’ or ‘society,’ ‘assemblage’ allows me to talk at once about humans and other species without the implication of any hierarchy among them. And, unlike ‘ecology’ or ‘ecosystems,’ ‘assemblage’ is less anchored to fixed interactions among species in a given site. These assemblages are precious elements to consider in a time of ecological degradation and the erosion of human tools to address it. Examining the complex ways species entangle, I reflect on ways webs of human and non-human life persist in defiance of the rigid bifurcation of conservation and development. Thus, I take these assemblages as both the material sites for potential ecological and social regeneration, or ‘refugia’ (Tsing 2015), and intellectual sources to rethink multispecies emergence.

My focus implies a departure from traditional scholarship on conservation. Scholars in anthropology, geography and political ecology have long criticized conservation for its adverse effects on local populations and environments (Brockington 2002; Neumann 1998; Brockington and Ingoe 2006; West 2006; Brosius, Tsing, and Zerner 2005; Biersack and Greenberg 2006). From its colonial origins to its current ties to neoliberal ordering of natural resources, conservation has increasingly emerged as a protean and often fraught intervention. Drawing on this scholarship, I engage in multispecies ethnography, which accounts for the presence of the more-than-human in what has been previously considered “human” societies (Ogden, Hall, and Tanita 2013; Smart 2014; S. E. Kirksey and Helmreich 2010), to see how the pieces of shattered conservation plans compose into new configurations.

The entrenched division between nature and culture is not the end but rather the beginning point of my analysis. Even the story of WaterBoxx® did not end where I left it. Ramiro is a farmer on Santa Cruz whose intelligence, curiosity, willingness to experiment and ability to grow

plants have always amazed me. Ramiro owns a small plot: he did not need to ingratiate MAGAP in the hope of receiving a loan for buying land. As a result, he did not partake in the frenzy to “llenar el campo de plastico” (“fill the land with plastic”), as he put it cynically in reference to the WaterBoxx® pilot project.



MAGAP learning from Ramiro. Author, 2013.

However, he later closely examined the boxes and discussed them with his brother, who had participated. Months later, when the clouds of the rainy season dissipated, he showed me with pride his version of the water box: a bucket enclosed in Styrofoam. Resting on top of the box, a small vase with a little hole let two thin roots of the eggplant plant he had inserted to absorb water. “All that chaos for something I made in one hour!” he declared proudly as we looked at the plant gently swaying in the breeze at our feet. He did not continue the experiment: bacteria spread in the water and killed the plant. But the ways Ramiro and other farmers engage with plants and, more broadly, human and non-human species cluster together and transform the landscape, have multiplied nevertheless. Their emergence is a symptom of what conservationists have called the ‘crisis’ of conservation on the Galapagos, which I discuss below.

### **Crisis in Eden.**

The Galapagos consist of thirteen islands (greater than 10 km<sup>2</sup>), six small islands (<10km<sup>2</sup>), and 107 rocks and islets. This archipelago straddles the equator 700 miles from the westernmost land in mainland Ecuador. All the islands are of volcanic origin: they surfaced from the ocean as a result of eruptions that occurred between 1 and 5 million years ago (Grehan 2001). Drifting on logs or swept by westward winds, species have reached the Galapagos at a rate of one species per 10,000 years and subsequently evolved in isolation from mainland ecosystems (Mauchamp 1997). A crucial aspect of their isolation was the late human colonization. Only in 1532 did a Spanish vessel, caught in the doldrums and drifting west, reach the shores of the Galapagos (Latorre 1999). The barrenness of the place frightened the crew, which spent two days looking for water, to no avail. As they sailed back to the continent, four horses died of thirst and sailors suffered immensely, as they had to ration water. They reached the continent after two weeks of



some of them progressively shifted to fishing and, from the 1990s, tourism. For the first century and half of colonization on the islands, human population size remained minimal (at 4,000 people); in the last two decades, it has changed rapidly.

In 2007, UNESCO added the Galapagos to the list of World Heritage sites in danger. UNESCO designated the Galapagos a heritage site in 1978, citing the uniqueness of species and the high degree of ecosystem preservation. Forty years later, growth of tourism, immigration, and invasive species were affecting local ecosystems and species in alarming ways. Over the past two decades, the number of tourists visiting the islands every year has increased more than four-fold, with current estimates surpassing the 200,000 mark (225,000 in 2015). Facing growing concerns about human pressure on island ecosystems, in 1998 Ecuador issued a law that restricted migration (but not tourism). With the LOREG (*Ley de Reglamentación Especial de Galapagos*), immigration decreased but did not disappear. Given the severity of mainland unemployment and poverty, especially in rural areas, Ecuadorians have continued to migrate to the Galapagos in the hope of a better life. Legal restrictions on immigration have prevented some mainland Ecuadorians from moving to the islands. To those who have migrated, the law has only deteriorated their legal status—to the unique condition of being illegal immigrants in their own country. The 2010 census showed over 25,000 people living on the islands. Illegal immigrants bring the number close to 30,000.

With the increased volume of goods and people moving from the continent, new species also have come to the islands, and a minority of them has become invasive. Due to the islands' isolation, local endemic species evolved with a lower competition than mainland species. As a result, some mainland species are better equipped physiologically (in matters of nutrition and growth rate) and ecologically (through competition and distribution) to thrive on the Galapagos

than endemic species are. Currently, the number of introduced vascular plants has surpassed endemic ones: 748 vs. ~500 (Tye 2006). This reflects worrisome global trends. Invasive species pose the largest single threat to terrestrial ecosystems worldwide (Charles and Dukes 2008). Also, 60% of all of endemic plants are listed as endangered by the International Union of Conservation of Nature (IUCN). Islands are the unfortunate protagonists of this story, both in the past and in its current acceleration. Islands represent 5% of the earth's land mass, but they have been the site of 80% of the known extinctions since 1500 (Island Conservation 2017). With estimates saying that global extinction rate has increased a thousand-fold, islands are the hardest hit.

Introduced species and the growing human population are the unplanned consequences of conservation on the Galapagos. Combining a strong emphasis on preservation and scientific research with the marketing of the islands as an elitist tourist destination (see Chapter 1), this type of conservation has proved increasingly untenable. More island ecosystems seem to be beyond their point of recuperation, the goal that park and other environmental institutions, such as the WWF, explicitly stated as their mission on the Galapagos (Bensted-Smith 2002). Several authors point to a conservation paradox: the park's measures, designing almost the entire archipelago as a protected area to enjoyment of scientists and tourists, have indirectly led to the main ecological threats that the Galapagos currently experience (Ospina 2006; Quiroga 2009). The Galapagos' uniqueness and their touristic branding attract more tourists every year. Defined as a paradox or "wicked problem" whose complexity resists solution (Rittel and Webber 1973), I treat it as an example of the failing of the *modern* project of separating nature from culture (Latour 2009; Latour 1993).

## Beyond crisis

My goal in this dissertation does not lie in documenting the challenges and difficulties of conservation on the Galapagos *per se*. Reasons for it are both personal and intellectual.

Personally, I do not oppose thinking about and acting for the wellbeing of other species, especially when they are rare and endangered. Rather, I ally with this project. In this, I am not alone: the imperative of conservation in a place of extraordinary biotic uniqueness is lost virtually only to a few cultural anthropologists.<sup>1</sup> Along with my passion for human diversity, and in fact closely entwined with it, since early childhood I have been fascinated by the lives of non-human others. Two years of fieldwork on the Galapagos only heightened in me what is at once a moral call, an intellectual curiosity, and, practically, viscerally, the desire to be immersed in, or stand before, animal and plant life-worlds. This personal knot of heterogeneous motivations, an entanglement in its own right, grew as I spoke to park personnel, scientists, farmers, fishermen, and other residents. I saw a friend's eyes widen recalling the "layers" of different shark species swimming at different heights as she dove in the waters of the northern islands of Darwin and Wolf, recently found to have the highest concentration of sharks in the world (León et al. 2016). I myself felt the thrill as I prepared my diving gear in a small, wildly-rocking boat, looking at

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<sup>1</sup> A world-renewed cultural anthropologist, in her defense not an expert on the environment, opined that conservation on the Galapagos is "for nothing" since "it's an empty space." Her words presupposed the congruence between meaning and humanity, with the corollary that what lies outside the human is meaning-less, vacuous, and therefore irrelevant. (Similarly, colleagues have giggled after hearing where I work, adducing as a reason for their reaction the overwhelming presence of tortoises on the Galapagos.) Such instances reflect a long anthropocentric tradition in my discipline and other critical social sciences, in which social scientists only focus on the 'social'—understood as a human-only construct. For a discussion of the need to move past the isomorphism between anthropology's analytics and analytical object (the human), see Kohn 2007. For a discussion of the divergence between modern thinking and biocentric arguments in Latin America and Ecuador in particular, see Gudynas 2009.

shark fins draw elegant, evanescent lines on the ocean's surface around us (the effervescence of the foamy water a good representation of my trepidation.) I trusted my friends as we swam in shallow waters by mangroves, where *tintorera* sharks (*Carcharhinus galapagensis*) rest during the day: because of the sand particles suspended in the water, we could barely see and thus, at each arm-stroke, feared touching a shark. (At once, we explored the intensity of multispecies liminality and the limits of our confidence.) I talked to a park official who was born on the islands about his joy at seeing the population of endemic dark-rumped petrel (*Pterodroma phaeopygia*) recover following measures to control black rats (*Rattus rattus*), which were eating petrel's hatched eggs. I hiked with Christian residents and learned about their belief in the islands restored after the Judgment Day, when human corruption will be washed away—a religiosity that, by inscribing current ecological events into a biblical understanding of the earth and motivating a renewed care for the islands, has become at once cosmology and conservation ethic. During breaks of *mingas* (communal work), I heard farmers on Santa Cruz, the most populated island, talk about the wonders of farming on Floreana, the smallest and least populated island, with rich soil and few pests.





San Cristobal. Author, 2013

On an intellectual level, this dissertation attempts a deliberate shift past the language of crisis. Decrying the corruption of landscapes may just be a form of nostalgic longing for a past that, anthropologists have taught us, never was (Rosaldo 1989). As Tsing has suggested, “progress still controls us in tales of ruinations” (Tsing 2015) and, in so doing, still operates with the language of modernity. Resisting the telos and rushed temporality of modernity—in its constant anticipation of and reliance on what progress will bring about next—becomes the condition of possibility for a new awareness and scholarship. “Slowing-down reasoning,” as

philosopher Isabelle Stengers has proposed, could allow for a new political, indeed *cosmo-* political project, one that honors practices and beings in their context (*oikos*) and type of agency (*ethos*) (Stengers 2005).<sup>2</sup> Far from denying conservation's challenges and thus falling back into a tradition of critical scholarship that forgets the physical aspects of the environment (Biersack and Greenberg 2006), this dissertation examines the tentative clusters that emerge despite human plans. From the language of crisis and *emergency*, I shift to that of the *emergence* of multispecies assemblages. Away from the idiom of division, I talk about meddling; from the desired stasis of pristine nature, to the "traffic" between nature and culture (Haraway 2008).

In sum, my discussion of the problems of conservation is not, as Haraway reflects Belgian philosopher Vinciane Despret does *not* do, an attempt to expose a line of thinking and practices that are stupid (Haraway 2016). Critical thinking becomes corrosive if left to its own devices (Latour 2004; de la Bellacasa 2011). Rather, this dissertation engages with emerging socio-ecological formations to find hidden ways for multispecies coexistence along with its risks, practices of minor remediation along with those of ecological and social ruination.

### **Dissertation project: invasive life in the highlands**

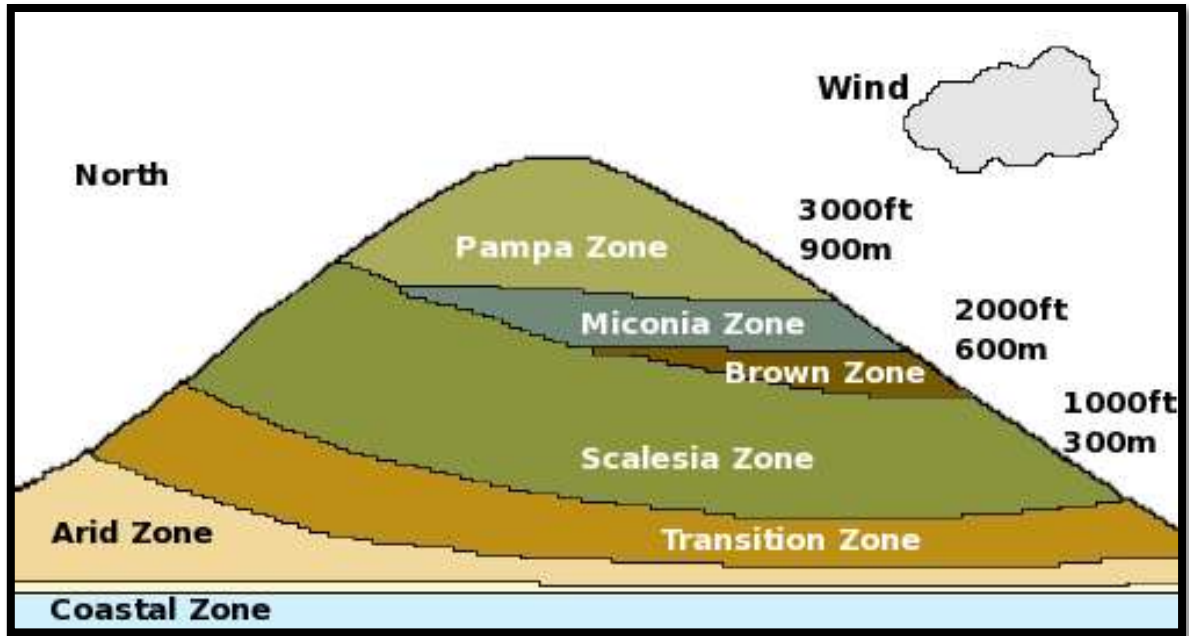
This dissertation is an ethnography of out-of-place human and more-than-human presences. Focusing on the highlands of the archipelago's four inhabited islands, it examines how illegal farmers and invasive species have encroached on both the Galapagos National Park,

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<sup>2</sup> In anthropology, see de la Cadena 2015. For a critique of the risk of reinstating a form linear temporality in the proposal of "slow down reasoning," see Puig de la Bellacasa 2015; for a critique of Stenger's project to compose *a* world, see Blaser 2016. I discuss my use in chapters 4 and 5.

where no one can officially reside, and on areas outside of the park, where humans live. I draw on environmental history and conservation biology to investigate the multiple interactions among native and introduced species, ecologists, park wardens, state officials, and local residents. I show how the presence of new species and humans disrupts the Ecuadorian state policies on the Galapagos, based on a rigid bifurcation of conservation and development as well as longstanding divisions between so-called pristine and invasive natures. As a whole, this dissertation asks: How can we rethink coexistence between humans and other species beyond the agendas of conservation and development? What is possible and hopeful in a time of rapid ecological change?

Ecologists distinguish seven vegetation zones on the Galapagos: the coastal, arid, transition, *Scalesia* (between 300 and 900 m), brown, *Miconia*, and pampa zones (above 900 m). The rationale separating these zones is vegetation rather than altitude. The upper portion of the *Scalesia* zone and the brown and *Miconia* zones, for instance, are defined by vegetation types whose distribution occurs in the same range of altitude: between 600 and 900 m. *Scalesia* is a genus of fifteen endemic species of trees or shrubs; *Miconia robinsoniana*, which gives the name to the second to last highest zone, is an endemic shrub characteristic of landscapes in the upper part of the highlands. In contrast to ecologists' definition of each zone by its key species, with 'highlands' I discuss these non-arid areas in order to include in my analysis both humans and introduced species. 'Highlands' ('*parte alta*' in Spanish) is not a technical term, but it is ubiquitous among residents and policy makers alike. Congruent to its local signification, 'highlands' here describe practices of conservation and agriculture and the lives of farmers, crops, and introduced species above the arid zone (above 300 m).



Parque Nacional Galapagos, 2015

The highlands of the inhabited islands are the richest ecosystems of the whole archipelago. Abundance of water allows for the greatest number of species on islands with little water otherwise. (Precipitation almost only occurs in the highlands; the basaltic soil has prevented the formation of aquifers in the lowland.) Yet natural scientists and park personnel consider those ecosystems the most degraded part of the islands. This is in part because precipitation and soil and air humidity have not only nurtured native species, but also the greatest number of introduced species on the Galapagos land ecosystems. (On the coast, species invasion is more difficult given arid conditions.)

The highlands' ecological changes have not, however, only stemmed from soil and climatic conditions, but are also closely tied to human history. During the first century of permanent colonization, which started in 1832, the availability of water in the highlands made

these the only areas where humans could hope to survive. (This constitutes a precedent to the current ways in which paths of invasive species and humans overlap, of which I talk more below.) Farming played a crucial, and often exclusive, role in locals' subsistence, but also in national politics. Ecuador's main strategy to affirm sovereignty at the edges of its territory, whether eastbound—the Ecuadorian amazon—or westbound—the Galapagos, was to establish human settlements. Throughout the first half of the 20<sup>th</sup> century, the perceived problem of overpopulation in the Andes gave new meaning to the State-sponsored colonization elsewhere. On the Galapagos, this form of resettlement continued until the early 1960s. Not just for ecological reasons (of soil fertility in the highlands compared to the barrenness of the coast), farming has been a crucial aspect of the Galapagos' natural and human history because the mainland Ecuadorians who settled there had no experience fishing and were for the most part farmers.

As tourism was born in the 1970s and began to grow in the following decades, unemployment and poverty among mainland farmers continued to motivate them to migrate. In the 1990s, residents moved to coastal towns to work in tourism. Large farms (eighty hectares or more), a testament to a time when settlers could take as much land as they could claim from *el monte* (the forest), were progressively abandoned. This process resulted in the rapid spread across farms and the park of hill raspberry (*Rubus niveus*), guava (*Psidium guayaba*), red quinine (*Chincona pubescens*), tropical cedar (*Cedrela odorata*), and other invasive species.

Along with these new species, immigrants who came after the 1998 law, often lacking official residency, have moved to the rural highlands. There, state presence is significantly less pressing than in the coastal cities. As a result, informal work is easier to obtain. Since police are less present than on the coast, many illegal farmers stay in the highlands almost all the time,

venturing to the cities only when necessary. Landowners often profit from lucrative tourist business on the coast, whether hotels, restaurants, or cruise ships. Busy with and enthralled by an industry that operates almost all year, landowners have little interest in making their land in the highlands productive. Most of them find it convenient to keep cattle and sell their milk and meat rather than cultivate the land. They hire illegal farmers, who often reside on the farm, to look after their cattle, maintain the *pasto* (pasture grass), and clear the ranch of poisonous invasive plants.

As a result, illegal farmers have developed an intimate knowledge of rural ecology, including invasive plants. In contrast, residents and policy makers extend their negative view on invasive species to illegals: both are perceived as ecological threats to the islands. This phenomenon has its origin with the inception of the Galapagos National Park: since then, conservationists have viewed farmers and farming as environmental problems and not as potential allies to conservation. Currently, conservationists' two main concerns about farming are that it attracts more people to the islands, in the form of cheap labor from the mainland, and that agriculture's use of pesticide and fertilizers is causing the most rapid degradation of island ecosystems. Ideas about farmers and invasive species tend to converge: both damage the environment and shouldn't be there.

Despite these negative perceptions, both invasive species and illegal farmers have proved more difficult to eradicate, or to ignore, than expected. Attempts to control invasive plants have proven ineffective and, more recently, counterproductive. For species like blackberry, red quinine, and tropical cedar, the park in 2013 has decided to halt all attempts to control them, since there are indications that these interventions cause a disturbance of which invasive species,

and not native ones, take advantage. Through such control measures, invasive species are spreading at an even faster pace than they would *naturally*—that is, without human intervention.

In this reversed posture of ‘non-control,’ agricultural land use could become a valuable strategy to curb the spread of invasive species. The park has long understood the farmland, increasingly abandoned, as the area from which invasive plants move to the park. Cultivating the land would thus constitute a new, though minor, value for conservation. Further, the relevance of a local production of food, which reduces the need to import produce from the continent and thus the risk of introducing new invasives, has become clearer. Yet there is a tacit fear that any policy that might ameliorate working conditions in the highlands would attract even more immigrants from the continent. In the logic of conservation, which seeps in popular discourse, immigrants remain the worst invasive species.

Illegal farmers and invasive species have created a new landscape that crisscrosses vast expanses of both protected areas and underused or abandoned farms. New people and plants have populated an unexpected zone of uncertain contours that, itself a result of a combination of economic, political, and ecological factors, the park fears has the potential to subvert the overarching model of conservation and tourism that has organized the Galapagos since 1959. Farming and highland ecosystems constitute the foci of this dissertation because of their centrality to human and ecological history, and because the division between the human and the natural, upon a closer investigation, blurs.

### **Beyond anthropocentrism.**

A crucial category to understand the Galapagos is that of invasion. In ecology, this refers to the successful colonization of an introduced species in a new environment without human assistance.<sup>3</sup> Here, I use this concept to understand a condition shared across species, humans included. Anthropologist Anna Tsing has reflected on how weediness is attributed to both mountain dwellers and undesired species in the rainforests of Indonesia (Tsing 2011). This constitutes an important departure from the understanding of invasive species, and broadly animals, in cultural anthropology and other critical social sciences, as I discuss below.

Since Henry Lewis Morgan's 1868 study of the acquired, human-like engineering knowledge of the beaver in the United States, anthropologists have long reflected on human relations, whether practical or figurative, with animals (Kirksey and Helmreich 2010). Ecological anthropology traditionally treated animals as part of the environment to which human communities must adapt (Mullin 2002, Shankin 1985), whereas symbolic and structural anthropologists addressed the way animals and their classification might index social organization and underlying cultural values (Leach 1964, Levi-Strauss 1985 [1963], Douglas 1978, Tambiah 1969). More recently scholars have critiqued both approaches for reducing animals to mere heuristic figures to reflect on humans, leaving little room for their actual existence and the complex ways in which they participate in human life other than as food and symbols. By investigating microbial ocean life (Helmreich 2008), cheese ecologies (Paxon 2012), mushrooms (Tsing 2011), scallops (Callon 1987), mosquitoes (Mitchell 2002), and insects (Raffle 2010), scholars have drawn on and extended critiques of the fixed divides between nature and culture entrenched in Western thought (Descola 1994, 2005, De Castro 1999, De la Cadena 2010, Ingold 2000, Latour 1993, 2005).

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<sup>3</sup> In ecology, colonization defines "the occupation of a habitat or territory by a biological community or of an ecological niche by a single population of a species." (Onofri 2011)



Environmental historians have looked at the role of introduced species in the European settlement of new lands, where domestic animals, plants, and unwanted species constituted the “portmanteau biota” or the “foot soldiers” of imperialism and colonialism (Crosby 1986, 2004, Grove 1996). Work in political ecology and anthropology built on this premise while questioning the narrative of an inevitable and linear conquest. Scholars have looked at the role of the human practices that enable invasion (Aldermann 2004, Robbins 1999, 2004) and at the shifting political valence of species control (Barker 2008, Head and Muir 2004), often in the context of post-colonial nations asserting their identity by policing their borders against human or non-human others (Comaroff and Comaroff 2005, Helmreich 2008, Franklin 2006). I draw on this line of inquiry to challenge the prevalent interpretation among social scientists of invasive species as mere victims of extra-scientific, xenophobic bias in conservation (Davis et al 2011, Didham 2005, Peretti 1998, Subramaniam 2001).

Taking invasion seriously, I interrogate how it reconfigures society and nature and ultimately blurs the division between the two. Further, work in ecology reminds me that species lack essential biological characteristics that make them invasive in a new ecosystem (Rejmanek et al. 2005). Also, unlike the theory of ecological imperialism, according to which domestic animals, plants, and unwanted species irreversibly and predictably transform new territories, species are subject to changes when they arrive in a new ecosystem (Barker 2008, Bengtsson et al 2003). This, in turns, demands conservation projects more open to indeterminacy (Wolff and Gardener 2012, Michaels and Tyre 2012, Zimmerer 2000). Resisting its use in pre-fixed narratives of crisis, ‘invasion’ helps me account for uncertainties around the emergence of a more-than-human society (Latour 2005) and find practical solutions for living together (Whatmore and Hinchliffe 2006, Rocheleau and Roth 2007).

## **Dissertation outline.**

Chapters 1 and 2 consider past moments of human colonization on the Galapagos and the consequent changes to both society and the environment. *Chapter 1* examines the divergence between national and international plans to establish prosperous colonies in the nineteenth and twentieth century, and their actual results. I call the result of this discrepancy a form of ‘diminished colonialism.’ *Chapter 2* reflects on the uncanny parallel between two coeval missions to establish human settlements: in 1959 a US science fiction enthusiast organized a colony of over one hundred people on the Galapagos. In the same year, the Galapagos National Park and the Charles Darwin Foundation were founded.

The goal of these two chapters is twofold. First, an historic approach counters the *presentist* tendency of state and international organization agencies on the Galapagos. Building on anthropological work, I argue that state and foreign actors on the Galapagos are engaged in development: the structuring of society and the environment according to an outside plan (Escobar 2001; Li 2007; Ferguson 1990; Mitchell 2002). To a varying degree of obviousness, development always operates with the language of crisis. UNESCO’s listing of the Galapagos as a world heritage site in danger and Ecuador’s declaration that this archipelago is in crisis make this connection evident. Firmly couched in the language of crisis, international and national actors on the Galapagos have approached conservation as a matter that requires immediate action rather than historically-mediated consideration. Far from imposing a false mutually-exclusive dichotomy, these chapters think with conservation and the Galapagos historically: they trace the historical emergence of social and ecological phenomena otherwise discussed only as emergency.

Second, this discussion unveils human projects on and for the Galapagos that differ from current conservation practices. From science-inspired colonies, European escapist desires, highly-productive *hacienda*-based farming, to ambitions to forge a new humanity while preserving nature, these moments in the Galapagos history offer new alternatives for thinking about the islands' present and future. Contesting dominant understandings of the Galapagos as a pristine place, these events help us to move beyond its corollary: that the mission of conservation on the islands is to restore an edenic past.

*Chapter 3* reflects on the current marginalization of farming and farmers. Farmers precariously occupy the seam of the conceptual division between nature and culture, which has informed life, politics, and territory in Galapagos. Since the 1970s, tourism and conservation have progressively dominated the political agenda. In it, farming does not comfortably fit. Considering the uncertain condition of farmers and farmland, this chapter discusses the unexpected resilience of both, which I call 'minor thriving.'

The last two chapters examine conservation measure in the highlands. *Chapter 4* analyzes complications during and after the world's largest goat eradication, which took place on the Galapagos between 1999 and 2006. It follows the ramifying ecological and social consequences of this intervention and questions the practical and ecological feasibility of any eradication. Showing how human-goat ties proved stronger than conservation's attempts to sever them, I call these multispecies assemblages 'invasive knots.' *Chapter 5* discusses how invasive plants have resisted the park's attempts to control them and, in so doing, are provoking new forms of conservation thinking that forgo the goal of restoring authentic ecosystems.

These chapters explore the unscheduled thriving of non-human life in the highlands and the overwhelming complexity that meets state and international institutions—the Galapagos

National Park, the Ministry of Agriculture, and conservation NGOs—in their attempts to measure such thriving, curb it, deviate its multiple projected courses, sanction or wilt it. The complexity of a thriving nature becomes inextricable—a fitting term to the thorny invasive bushes, which are difficult to disentangle from one’s own flesh—with the attempts to deal with this unwanted nature; one compounds the other. Speaking about the spread of new invasive species and particularly of a frog (*Scinax quinquemaculatus*), a Galapagos National Park official admitted that “*la situación nos escapó de las manos*” [“the situation went out of control,” *lit.* “the situation escaped from our hands”]. Though used figuratively, the image of a *quinquemaculatus* leaping off a hand and venturing into the Galapagos never to be found again, offers an ironic yet precise commentary on the failed attempts to control unwanted presences.

As a whole, this dissertation argues that the “invaded” zone in the highlands constitutes an area of abandonment, but also unattended social and ecological experimentation. My discussion of colonization attempts, farmers’ strategies to cultivate, eradication campaigns, and measures to control plants in the highlands points to various multispecies assemblages. The proposed concepts of diminished colonialism, minor thriving, and invasive knots situate these multispecies assemblages theoretically. Materially and conceptually, illegal farmers and invasive species press on the edges of the system based on the idea of Galapagos as an unproductive place dependent on tourism and separated from humanity.

## CHAPTER TWO. DIMINISHED COLONIALISM

### The crushing of tropical fantasies against the rock of equatorial reality

“What have you done to be sent to the Galapagos?” Franciscan missionaries would ask each other, jokingly, in the 1950s.<sup>4</sup> With few people and fewer state services, the Galapagos offered many reasons for commiseration. The joke also referred to the forms of coerced immigration to the islands that was still occurring. The swelling coastal city of Guayaquil in the mainland had confined petty criminals, *vagos* (‘lazy individuals’), and political dissidents to the Galapagos for more than a century by then. Posed now, the same question—“how did you make it here?”—would speak of tourists’ privilege to visit an exclusive international destination.

Although this joke sounds absurd today, I use it to introduce the human history of this archipelago. The Galapagos have not always been the luxurious, elitist tourist site that they are now. Travelers’ first impressions of the islands were unmistakably negative. The barrenness of the landscape, lack of water, isolation, the hideous looking or abnormal size of the iguanas and tortoises: all conferred to the islands the sense of an undesirable place. This sentiment testify not simply to the islands’ harsh environment, but also to the life conditions of the early settlers. Similar to the sailors stranded or confined there, for whom the Galapagos constituted a natural or human-inflicted punishment, colonization efforts were colored by hardship and even gloom.

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<sup>4</sup> Franciscan sister, interview 2012. See also Latorre 1999, note 3 p 343.

This chapter analyzes important moments in the national and international colonization of the Galapagos. The first section discusses the two main national promoters of the archipelago's colonization: José Villamil on Floreana and Manuel Cobos on San Cristobal. Their colonization projects were motivated by national and individual ambitions, while causing profound social and ecological changes to the islands. Ecuador channeled individual attempts to settle on the Galapagos throughout the 19<sup>th</sup> century onto the goal of affirming sovereignty at the edges of its national territory. Yet the allure of a new faraway land evoked contrasting ambitions. On the one hand, the state saw the Galapagos as an ideal, almost utopic place to establish an exemplary society, a model for the new Ecuadorian nation. On the other, also because of their isolation and size, the national government progressively used the Galapagos as a remote location to confine unwanted individuals. Ecuador initially sent prisoners to the Galapagos to be reformed; later it built prisons there to keep troublemakers away from the mainland. The early rhetoric of reforming prisoners and creating a new society—and cementing the nation as a whole—were practically denied by later projects of establishing prisons. Old problems, not hopeful beginnings, eventually took root on the islands.

The second section analyzes the Norwegian colonies on the archipelago at the beginning of the twentieth century. By detailing the succession of Norwegian expectations and disappointments, hopes and despair, I reflect on the Galapagos as a catalyst for European escapist desires. Their adventure exposes both the symbolic place that islands had in relation to European modernity and the discrepancy between such constructs and what tropical islands could actually offer.

Both sections offers stark examples of how colonization dreams burst soon after landing on the islands. Rather than successfully taming the islands, colonization plans have met constant

defeats, and their proponent bitter disappointments. I call this *diminished colonialism*: the poor if not tragic results of such attempts are a sign of the inadequate means of consolidating their plans on the islands. Executing mainland plans, whether from faraway Europe or close-by Ecuador, have constantly failed. Grand ambitions have turned into even grander challenges. Rather than a successful instantiation of colonialism, island colonization has demanded endless trials and offered unscheduled results. By ‘diminished colonialism’, I mean to capture both the forms of colonial aspirations and their scarce yields. Colonial dreams of tropical lushness and unbounded profits withered on the equatorial Galapagos. It is as if the imagined thriving of the tropics (of their natural resources, biodiversity, and economic opportunities) reduced to elemental scarcity on the equator. Covering an area, or a ‘diagram’ (Deleuze and Guattari 2004), of abundance, at its center the tropics are distilled into the unyielding equatorial line. If European pillaging of natural resources and political violence constituted colonialism in Latin America (Galeano 2010; Taussig 2009), plans to settle on and profit from the Galapagos look instead as a form of ‘diminished colonialism.’

### **National Sovereignty**

This section discusses the Ecuadorian attempts at colonizing Galapagos: their two leaders, the farm workers, their economy, and changes each brought to the land. The first permanent settlements on the islands have combined charismatic leaders with coerced workforce. The latter mainly were prisoners who had committed petty crimes, quite common in the impoverished port city of Guayaquil. Instead of serving their sentences, prisoners were sent to the Galapagos to fulfill colonizers’ dreams of conquest and economic success, but also Ecuador’s desire to claim the

islands.<sup>5</sup> The islands offered themselves as a social laboratory for a nascent nation. Whether to showcase the new national aspirations or hide and forget about the problems of the old one, the Galapagos participated in weaving the fabric of the new nation.

### **Villamil and de Olmedo: The Galapagos as greenhouse of the nation.**

José Villamil spent most of his adult life and all of his finances in attempts to colonize the Galapagos Islands. His enduring efforts to establish a colony on the islands led to progressively poorer results and growing desperation. Villamil's efforts speak to the divergence between intended and actual results that accompany the Galapagos' history well beyond his time. I read his colonizing attempts as an instance of diminished colonialism.

In the early 1830s Villamil formed a company, the *Empresa Colonizadora de Galapagos*, with three other businessmen. They asked Juan José Flores, the President of Ecuador, for “exclusive rights” over a small southern island of the Galapagos archipelago. Then called San Carlos, the entrepreneurs offered to re-name it ‘Floriana’ in his honor (now ‘Floreana’). The President accepted the proposal and instructed Colonel Ignacio Hernandez to accompany them on a first visit of the island. Aside from the prestige of having his name bestowed on an island, the President supported this project for reasons resting on two opposite understandings of the islands: distant, as a site to confine prisoners, but close enough to be claimed as Ecuadorian territory. The theme of distance and proximity, in its ambiguities, tensions, and variations—such as those of

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<sup>5</sup> Historian Latorre claims that the colonization of the Galapagos and the strong interest of a few individuals have resulted in a far better protection of them as a national territory in comparison to the Amazon. In Cobos' times, colonization was promoted to fend off foreign countries aspirations of the islands and to profit from agriculture and livestock.



isolation and connectedness, uniqueness and commonness, paradise and hell—set on the islands even before the delegates set a foot on them.

The Governor of Guayaquil José Joaquín de Olmedo, the direct superior of colonel Hernandez, instructed the latter to complete small and large tasks such as to “raise the national flag, build the first human settlements, administer the Law, and announce to the Ecuadorian Government that the light of civilization, arts, and commerce was finally born in that feral territory” (Latorre 1999). Governor de Olmedo was also a poet, now regarded among the most celebrated laureates of the patriotic and romantic style of the 19<sup>th</sup> century Ecuadorian poetry. As Governor, he instructed the colonel on matters of colonization. As a poet, he dedicated a poem to Villamil, who headed the enterprise. Together, the official dispatches to the colonel and the poem to Villamil, different in style but converging in their objective and even lyricism, read as a sort of *prosimetrum* of de Olmedo’s patriotism.<sup>6</sup>

In honor of Villamil’s origin in French Louisiana, de Olmedo wrote, for the first time, in French.

“Ces îles fortunes qu’un esprit agissant  
Naguères a données à l’Ecuador naissant,  
Verront fleurir bientôt, dans leurs flancs étonnés,  
Le riz et l’ananas, et les épis dorés.  
Alors, o Villamil, quand la nuit étoilée  
Surprendra les travaux chéris de la journée,

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<sup>6</sup> The literary composition that juxtaposes prose and verse, famously used by Dante in *La Vita Nuova*.

Le Florian satisfait mêlera dans ses chants  
Ton nom, et sa Filis, tes bienfaits et ses champs:  
Entouré de ses fils, et caressant son chien,  
Il redira toujours que sur le sol florien  
Tu appelas le premier, parmi ces déserts bois,  
Hommes, plantes, troupeaux, arts, plaisirs, mœurs and lois,  
Tous les biens de la paix... de Cérès tous les dons,  
Qui révèlent aux mers le bonheur de nations. (de Olmedo 1896)

In this poem, the growth of the Earth's fruits on Floreana symbolized the birth of Ecuador (*l'Ecuador naissant*).<sup>7</sup> The Latin goddess of fecundity, Ceres, offered the fruits of agriculture at the edges of the new nation's territory, the Galapagos.<sup>8</sup>

De Olmedo expected the colonel to “inculcate the principles of sociality, good harmony, and morality, while at the same time fidelity and adhesion to the Government of Ecuador.”<sup>9</sup> This experiment in morality and civic duties did not just apply to the convicts; rather, it extended to everyone, with little difference between freemen and prisoners. Floreana became a site where patriotic leaders experimented on forging an Ecuadorian identity, only a few years after national independence. Galapagos was supposed to mirror but also anticipate the formation of a new society and nation. It received the projected hopes and virtues of the *naissant* nation, halfway between a

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<sup>7</sup> Ecuador was born out of the collapsed reign of Gran Colombia in 1830.

<sup>8</sup> The etymological root of ‘Ceres’ is the Proto-Indian European verb ‘to grow’—now conserved in words such as ‘cereal’ or ‘to create.’

<sup>9</sup> De Olmedo in Latorre, p 402.

“greenhouse,” a controlled site for cultivating national civic values, and a museum, a small replica of the nation for displaying those virtues (in Latorre 1999). Floreana was starting anew; so was Ecuador. The archipelago became a laboratory well before scientists thought of it as such, and at the same time as colonial powers used their colonies as laboratories of statecraft.

In several newspaper articles Villamil explained his enthusiasm for colonizing Floriana drawing on international and national events. He considered “*los progresos de nuestra especie*” (the progress of our own species—humans) reflected in the successful colonization of the United States and José Flores’ accomplishments in Ecuador. In Villamil’s account, President Flores had brought “peace and law and will establish liberties and promote entrepreneurship” (Latorre 1999). Drawing on these two illustrious antecedents, Floriana was destined for success. Floreana could become the nursery (“*plantel*”) for Ecuadorian patriotism and the country’s most virtuous example. Both sign and signifier, inspired and inspirational: not yet colonized, Floreana and the Galapagos in general were set for either a spectacular success or failure. The island’s worth lay in its projected utility to national politics: as an outpost of the Nation and argument for patriotism, an exemplary colony, a trade hub, and, later, a prison site.

### **The colony**

Led by Colonel Ignacio Hernandez, the ship that carried Villamil to the Galapagos docked on the second week of February 1832. The ceremony of annexing the island, part of the “feral territory that had never seen the light of civilization,” turned out to be a rather crowded event. Obliging the pompousness of an official state act, the colonel had to list everyone present, perhaps

to the detriment of the ideal undergirding the very act of founding civilization in an uncultured site.<sup>10</sup>

“On San Carlos Island, the twelfth day of February of the year eighteen thirty two, I, the Colonel Ignacio Hernandez, sent by the Ecuadorian Government in order to claim possession of the Galapagos Islands under its authority, declare the following in the presence of: Joaquin Villamil and Lorenzo Beck, members of the colonizing company, Mr. Eugenio Ortiz, the mission’s chaplain, Miguel Perez, Andres Funiel, Tomas Parra, Lorenzo Quirola, José Chasin, Domingo Soligni, José Manuel Munoz and Juan Silva, first settlers, Captain Santiago Rugg and his crew, Mr. Juan Johnson, early settler of the island, and Captains Tomas Russell and John Tacker and their crews...”

The actual message—that Ecuador took possession of the island and, metonymically, the entire archipelago—was shorter than the preamble and the end, where he listed again all the people who signed the act.

The divergence between the intent of the official declaration and its results was symptomatic of a larger hiatus between state rhetoric and actual conditions of the colony. The aegis of the Ecuadorian nation-state and God, with whose aid they “happily stepped on the islands,” perhaps did not lend as much practical help as Juan Johnson, the Danish settler of that

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<sup>10</sup> In his document to the Colonel, José Joaquin de Olmedo expects “exact and prolific” reports from him. From an outside perspective, wordiness pairs more easily with redundancy rather than exactness. Yet, at the time of the foundation of Ecuadorian bureaucracy, it was seen as rather a manifestation of commitment and compliance. This small excerpt unveils one of the characteristics of Ecuadorian bureaucracy that is still alive nowadays. “Exact and prolific”, perhaps echoing Descartes’ famous expression “clear and distinct,” leads in an opposite direction from Descartes’ sensibility: to confusion, as the second term ‘prolific’ takes over the first, ‘exact.’

“desert” island, who had arrived there some five year before. He lived on a farm in the highlands and imparted to the visiting party crucial knowledge about the island. He offered the crew vegetables and fruits, all deemed of excellent quality by the Colonel. “Floriana is a beautiful island, [in the highlands] we have found several plants whose fruits were just perfectly ripe,” he remarked.

If lacking culture, the island already had agriculture. If isolated, the new settlers nevertheless hoped to increase an already established business of selling fruits and vegetables to visiting whalers: the Danish settler told the discoverers that more than seventy ships had docked at Floriana the year before. Writing a letter to a newspaper, Villamil asserted that “one day Floriana would be a major hub of the Pacific trade.” “I am not the only one” he added, “to think that everything seems to go for the best for this island” (Latorre 1999).

### **The utopian hacienda**

In line with the utopian settlements that European thinkers had devised since the birth of the modern state, the plan of colonizing Floriana centered on agriculture. Leaders of imagined settlements have similarly opted for a familiar option to survive in uncharted terrain: cultivating it. On the Galapagos, material self-sufficiency would allow colonization to unfold. Fruits would ripen hand-in-hand with the maturation of citizens’ national spirit. After all, the island had just been renamed “Floriana,” which, besides the direct homage to the President, evokes the blossoming of a flower (“*flor*”). The ripening of the land operated both as a symbol and practical means to survive.

Villamil built the settlement around the model of a *hacienda*, a large property with a single owner. Workers were eventually granted small lots for individual cultivation. But their work was

communal and confined to Villamil's extensive property. He called the *hacienda* "Asilo de la Paz" (The oasis of peace). Ironically, this turned out to be a description in stark contrast to the state of the agricultural settlements, of Villamil and the other leaders, during the nineteenth and early twentieth century.

A few months after officially establishing the colony, Colonel Ignacio Hernandez reported to de Olmedo that "the greatest harmony is among settlers. They live together as brothers: one doesn't hear any inappropriate or, even worse, obscene comment." In an unusual moment of social analysis, he offered: "it looks like that their isolation has strengthened the ties of friendship among them." The Colonel deemed isolation a force of social change well before natural scientists understood it to cause species evolution. The Galapagos were a laboratory for the state, before being a laboratory for science. As if afraid of having veered too much from the expected objectivity of a military report, the Colonel concluded on a perfunctory note: "Floriana has a very good dock to the north side and an excellent anchorage to the south" (Latorre 1999).

Villamil, too, sent reports to the Governor de Olmedo. A year into the colonization, 125 people lived on the island, and 400 more could have been easily accommodated. Settlers opened a trail connecting the highlands to the coast, in order to facilitate the trade of food—fruits, vegetables, and turtles—and water with whalers. Thirty-six ships arrived in the first six months.

The fervor for colonizing was, in his words, unmatched. Settlers built eighty houses and, "*con pedazos de machete por no decir con la uñas*" (with broken machetes and even nails) they cleared large swaths of the highlands (Latorre 1999). At their insistence, Villamil visited newly discovered areas in the highlands. He was impressed and even more optimistic about the future of the colony: he estimated that more than 2,000 cows could live in those lush valleys.

## **Problems arise**

While life conditions remained the same, morale began to fail. It failed, precisely, because the conditions did not change: difficult and spartan, they were justifiable only in a temporary situation, during initial hope and excitement. What enthusiasm overlooked slowly became more evident and less bearable. Ecuador faced a momentous time in its first years that sharply contrasted with the initial ambitions for peace, prosperity, and the promotion of virtues. Facing a civil war in 1834, the Galapagos served as a safe place to send revolutionaries. By 1838, convicts comprised half of the island population—150 individuals. For the Ecuadorian government, the Galapagos became a place of neglect, where prisoners and political dissidents could be forgotten. The 1840s and 1850s were particularly unstable years in the mainland, with successions of coups d'état and government repression. From the state, the colony received lots of prisoners but little help. Long gone were any aspirations for the Galapagos to embody virtues of the nascent state, they were the place where settlers' desperate attempts to survive added to the desperation of those who had been forced there.

The state even harbored doubts about the islands' allegiance to the government. The Ministry of the Interior confined to the island the leader of a failed coup, former Colonel Pedro Mena. The minister instructed Villamil to treat the Colonel "with the severity that the law prescribes, unless wrong ambitions [to revolt against the state] had arrived at the island as well." Villamil's answer revealed not only indignation at the insinuation but also frustration at the hardship of his life and the abandonment of his colony. Contrary to the image Villamil struggled to portray, and perhaps believe, his description of settlement changed for the worse.

“In response to your request, it is my duty to inform that [...] the scum of prisoners came [to Floreana], that I lived on the island four years, forgotten by the state, subject to privations and threats unknown to everyone [...], that my dedication to *this desert* has spared the government the great disgust of taking many people’ lives and that I help the state save money by emptying its prisons [...]” (Latorre 1999)

Throughout the letter he referred to Floriana as “*mi desierto*”, (‘my desert’). *His*, to be sure, still showing affection and commitment. But Floreana had by then become the desert it had always been, unless looked at through the lens of unmoored optimism. Even to Villamil, Floreana no longer promised to become the spectacle of the nation.

The project of colonization progressively unraveled, or, for its limited yet during effects, ‘diminished.’ Villamil left his position and took it back several times over three decades. Among Villamil’s successors, one governor was quickly charged with murder and sent to jail on the continent. Another, Mr. Williams, started a regime of extraordinary cruelty, which ended only when he fled the island after a revolt, two years later. Villamil returned to the island in 1942, as Mr. Williams’ successor. He wrote: “[the current situation on the island] would not fail to discourage not just me but the most persistent man; especially considering my investments, efforts, sacrifices, and the many dangers and concerns with which I had to deal. [Yet] I’m submitting myself again to the perilous life, which is even more difficult to bear for someone of my age.” (Latorre 1999).

Once on the island, he soon reported examples of the atrocities that Mr. Williams committed: random beatings and bone fractures, which often caused permanent disability, and even the killing of children and the elderly. Notable was the exile of a senior settler, Alexandro Rock, “*sobre un immense quemado de Albermarle para que se muriera de sed*” (on an immense



lava rock plain where he would die of thirst) (Latorre 1999).<sup>11</sup> Soon after the government decided to take action, Villamil's withdrew his formal accusation. Mr. Williams, despite his many crimes, didn't committed the one most important to Villamil: insolvency. (Mr. Willams bought land from Villamil and was paying back on time.) This prevented the puzzled government to proceed against Mr. Williams and furthered the perception that the Galapagos were socially and politically separate from mainland Ecuador.

This instance was but one of the many desperate attempts for Villamil to recuperate the money he invested on the island. Over the course of decades he tried multiple times to profit from trading charcoal, guano, salt, salted meat, and livestock. The more he failed, the more he tried. He struck deals with US businessmen, thanks to his personal connections to that country. The results were unmistakably disappointing. Meanwhile, the island was progressively abandoned by civilians and filled with *penados* (prisoners), as a result of the turbulent years of Ecuador. Instead of an "island of peace," Floreana became a trap for visiting boats, which prisoners stole in attempts to return to the continent, or whose crews were mercilessly robbed. Desperation led Villamil to sell not only natural resources from the island, but even a portion of the island itself. A Basque and French businessmen, Delfin Leon Ithurburu acquired it. Soon after, Villamil bought it back, in an attempt to reclaim control. Yet he couldn't pay and had to flee to Peru. Years later he returned to try again his chance, this time investing on a salted meat business. It turned a modest success until his partner, Mr. Norton, was killed on the island. Villamil died soon after, defeated and poor.

Villamil's legacy is considerable. Despite his failures, he changed the islands. Fragments and bits of his scheme—livestock, workers, ambitions for and modes of colonization—scattered

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<sup>11</sup> His last name was given posthumously because of the site of his death.

around the archipelago, tacking on a direction of their own. Perhaps the most enduring legacy of this era, half-hidden, unexpectedly thriving, and independent, was the livestock he left. Most of the cattle became feral: future hunters would take advantage of this abundant source of food; instead, conservationists would recognized it as an ecological threat.

### **Manuel J. Cobos**

Originally from Cuenca, Manuel Cobos soon distinguished himself as a man with a great flair for affairs and little respect for the law. Prior to living on the Galapagos, he was already know by local authorities in the province of Santa Elena, (the closest province to the Galapagos on the Ecuadorian coast) for being involved in smuggling goods from Panama, which he declared came from the Galapagos. Since the 1850s, he hired eight families to work and live permanently on Chatman Island (now San Cristobal) extracting *orchilla*.<sup>12</sup> In the same decades he repeatedly had to retreat to Mexico in order to avoid arrest orders. In the 1870s he established a hacienda in Mexico, with more than 300 Ecuadorian workers. When Valdizán, a businessman from the coast who in 1869 won the rights to exploit Floreana's *orchilla*, was killed in a revolt in 1878, Cobos convinced more than a hundred of Valdizán's workers to move to Chatman and start working for him. Cobos decided to live there as well. He would stay on the Galapagos until the day he was assassinated, 25 years later.

Over the years he founded a *hacienda* in the highlands, which finally covered more than 3,000 hectares. He named the hacienda "El Progreso," harboring an optimism similar to Villamil's.

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<sup>12</sup> A dye moss (genus *Rochella*).

His workers were at first free people who worked for him voluntarily. Over time, he started to accept prisoners from Guayaquil. Due to his authoritarian regime, however, their status on the continent and the reason that brought them to the island mattered little. All workers were subjected to his harsh and unchecked authority; even state officials de facto depended on him to survive on the islands and return to the continent on one of his two ships. Minor infractions, or even just lack of compliance of the daily quota of work (the set number of fish or cattle), were met with hundreds of lashes that often caused death.

Pedro Catuto, a hunter, probably received the highest number of such punishment. Despite having hunted several hundreds of feral cows, he was whipped around thirty times for every cow missing from his daily quota. Mistakes such as losing a sheep cost one herder his life he received two hundred lashes; other workers were locked in caves and found later eaten by rats and ants. Such punishments reflected not only Cobos' desperate determination to prosper in a difficult environment, but also his desire for total domination. All workers were subjected to his absolute power. Isolated and alone, whether officially freemen or not, all were slaves.

Cobos' dominion over his workers did not only inflict punishment and exploitation. He soon established a currency on the island, the "*Ingenio Progreso*," different from the national *sucre*, with which he paid his workers and sold goods in the island's only store. Wages, though, were close to nothing. The most trivial item was sold at an exorbitant price: soon workers found themselves indebted to him for life. Some of his workers came to the island because Cobos promised to pay their debts, acquired on the continent. However, he required them to pay him back at a high interest and with the island's bogus currency.

Manuel Cobos' colonization could be divided in two periods. At first, he mainly relied on livestock and agriculture. His most lucrative business came from animal products such as leather

and oil—used to illuminate streets in Guayaquil and other towns on the coast. The oil was extracted from marine and terrestrial tortoises, sea lions, sharks, iguanas, cods and, sporadically, whales (Latorre 1999). Eventually Cobos’ workers could not find any more tortoises; they and indeed caused the extinction of the tortoise sub-species on the south of San Cristobal. During the 1860s 1870s, before Cobos moved to the islands, the twelve families working for him systematically logged and cleared the highlands in order to plant crops and pasture grass. Out of the cleared patches they procured wood for construction. When earlier (in the 1840s) Villamil visited San Cristobal, he noted magnificent forests of guayacán (*Tabebuia chrysantha*). A few decades later they had disappeared, and Cobos had to import wood from the continent (Latorre 1999).<sup>13</sup>

Starting in the last decade of the 19<sup>th</sup> century, Cobos relied on a sugar cane refinery, which he built by importing the engine—and a mechanical engineer with expertise on its maintenance—from the United Kingdom. Sugar cane fields grew along with sugar production, until Cobos’ assassination. The large production demanded an efficient transportation system from the highlands to the bay. In this period a horse-powered railroad was constructed, the first in Ecuador, which extended a total of 23 miles. Its construction on a remote volcanic island demanded incredible work, which Cobos secured through harsh discipline, fixed daily quotas, and efficient division of labor.

During the days prior to his death, a trusted servant managed to get hold of a gun. When Cobos ordered yet another cruel punishment and refused to consider the servant’s plea, the latter shot him. A general upheaval followed: the state official on the island was killed too amidst looting

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<sup>13</sup> Old settlers have nostalgically talked to me about “the pampas” (prairies) of the highlands in their childhood. Now introduced and invasive plants (such as *mora* and *guaba*) have covered extensive swaths.

and pillage. Around 200 workers escaped on one of Cobos' ships and arrived in Colombia, where they were arrested and deported to Guayaquil. Their arrival in the port of Guayaquil generated scandal and a widespread interest in their story. As many of them were prisoners, and the story they told was so incredible, many were skeptical about their version of the events and ascertaining the truth took time. For more than 25 years Cobos had been the undisturbed despot of an island in Ecuador and little had been known about it. Government's plans to colonize of the islands to promote civic virtues could have not gone more astray. When the story finally surfaced, an image of the Galapagos as an undesirable place crystallized in the minds of Ecuadorians for generations to come.

### **State ambivalence towards the Galapagos**

State's ideas about how to profit from the Galapagos were contradictory during the first century of permanent colonization. This contradiction rested on different understandings of the islands: as isolated or strategically located, arid or fertile, to be forgotten or with the potential to become exemplary. This confusion has continued until the present and, I argue, contributes to the current framing of the islands' "crisis."

The divergence among projected ideas about the Galapagos was in fact contained in the very first state-sponsored colonization. Sent to make the islands the nursery of the nation, Colonel Ignacio Hernandez instead saw them as an ideal *natural* prison. He had even identified an islet east of Floreana, Isla Roca, as the perfect location. With no water, little vegetation, uninhabited, and to be destined to prisoners, this little island held the promise to be not only at the state's geographic edge, but also of its social fabric.

Actual settlers like Villamil, Cobos and others (Valdizán, Antonio Gil) turned the idea of confining prisoners into something more useful: prisoners would become workers. Ecuadorian law allowed this only if a long bureaucratic procedure was followed. The lengthy procedure discouraged citizens to comply. During Cobos' time criminals from Guayaquil were sent to his hacienda—a practice that continued with his successors as well. Journalists who accompanied the officials sent to the islands to investigate the circumstances of Cobos' death saw a boat full of cattle rustlers bound for the islands.<sup>14</sup>

In the following decades—and with the city continuing to expand—Guayaquil's authorities began to send not only petty criminals but also “*muchachos vagos y mal entretenidos*.”<sup>15</sup> The harshness of the islands would necessarily make them behave. The few resources would teach how to survive; isolation, how to conduct oneself in society. Not only young adults, but entire families (*los enganchados*) living in abject poverty moved to the islands. Some had recently come from the neighboring countries of Peru and Colombia and were living on the streets of Guayaquil (Rodas and Cardenas 2012). The Galapagos, then, became a place to dispose of people rather than reform them. They were an area of excess, where cattle rustlers met feral cattle, petty criminals mixed with serious ones, families moved from abject indigence to even worse poverty, and everyone suffered from isolation and hopelessness.

In fact, the distinction between being a freeman or a convict often blurred. On the one hand, most convicts simply became settlers, owning a small lot on which they could grow vegetables for their own consumption. On the other hand, throughout the 19<sup>th</sup> century pioneers traded workers

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<sup>14</sup> In 1902 the Congress prohibited the confinement of any prisoner on the Galapagos. (Rodas and Cardenas 2012) p 252.

<sup>15</sup> (Lazy kids with bad company) (Latorre 1999)

for cattle or vice versa, according to need. Cobos instituted a perfectly inescapable regime of oppression in which, as we have seen, little difference existed between the nominal status of freeman of convict. Furthermore, for many settlers, especially the political dissidents, living on the islands, isolated from the turbulent events on the mainland, felt like being imprisoned. From 1833 until 1844, only political dissidents and “insubordinates” arrived at the Galapagos. In 1884 the first penal colony was founded, and common criminals began to populate the islands. The last penal colony was closed only in 1959, the year the Galapagos National Park and the Charles Darwin Foundation were born.

### **From production to abandonment.**

The reach of Cobos’ ambitions have been unparalleled in Galapagos’ history. The highlands of San Cristobal and every other islands have never been as productive since. In the eyes of farmers who now live in the highlands’ semi-abandoned landscape, Cobos set in motion a backward-facing history, in which the inception was its climax, and what followed a decline. This arch of history, rather than progressive and incremental, went downwards—whereby the symbolic “going down” of things, to disintegration and demise, corresponded to the actual fact that settlers, money, and political interests over time have slid down from the highlands to the coastal towns.

To get to *El Progreso* now, more than a century after Cobos’ death, the only option are taxis. The glorious horse-powered railway was dismantled a long time ago. The public transportation is inexplicably absent. When I sought to visit the highlands during my very first days on San Cristobal, I reached the outskirts of the coastal town of Puerto Baquerizo Moreno and stopped at the curve of the road that climbs to the highlands. Realizing the rather slow traffic, I

resolved to wait sitting on the bus stop's bench. Surrounded by grass, it looked less like a functional public space than a historical vestige of a time where buses actually ran, proving that in the Galapagos sometimes something works, or has worked. I walked through the tall grass resolutely with my shoes cracking broken beer bottles, ignoring the signs of abandonment. Upon making contact with the bench, the top board instantaneously catapulted into the dense and thorny bushes behind it. The desolate landscape absorbed rather indifferently the noise and commotion the bench and I had created. The bus stop eventually showed itself for what it was: an existing yet nonfunctioning presence, a present absence. It was a commentary of the village in the highlands I had not yet reached—which I would never had, had I continued to wait at the abandoned bus stop.

Farmers who live in town stop by that very curve and other spots along the road to the highlands, though not for the bus. Every morning at 5 am, well before sunrise and in the quiet humid darkness of the night, a pick-up taxi stops at the market downtown. From there, it drives up to the highlands and down to a small farming community on the other side of the island, a trip of more than an hour. I took that taxi many times. Along the way, farmers in the back of the pick-up would bang their hands on the sides to signal a stop and jump off, while others waiting at the side of the road would flag it down. As the taxi climbs the mountain along the dirt road, the temperature drops and it often drizzles. Farmers in the back skillfully hold with one hand to the vehicle as it jerks and curves, while the other hand holds a hood, a worn hat, a shawl against the cold and rain. On the other side of the island, in the small community of *Cerro Verde*, the taxi picks up students who have to go to school back in *El Progreso*. The local school closed years earlier as population dwindled, but no public transportation was arranged for the families now cut off from the rest of the island. The price for the ride is reasonable, but certainly more than what a bus ticket would



cost. Villagers of Cerro Verde and farmers living in P.to Baquerizo Moreno have somehow found a solution the lack of transportation to and from the highlands; but the cost is entirely theirs.

At the entrance of *El Progreso* one sees gigantic mechanical pieces once part of Cobos' sugar refinery. They lay sideways in an unkempt garden that serves as a roundabout, the grass surrounding them or sprouting in between swaying in the constant breeze. In April 2015 the Ministry of Tourism declared some sites of the hacienda as historic heritage and installed signs explaining the history. Descendants of the Cobos family and the local Ministry of Culture rejoiced, as they finally saw a somewhat honorable alternative to the ongoing abandonment. Yet, considering how industrious the highlands once were, one is left wondering—and many residents of the highlands do. Once a powerful industry, now it is a museum—as indeed the general trajectory of the islands' history has been since the park was founded. From productive to unproductive, the museum symbolizes a process of beautification that has its discontents, though hidden from the side of the islands the shines: the tourist sites on the coast and desert islands.

In the decades after Cobos' death, *El Progreso* became increasingly less inhabited and poorer. Former inhabitants moved to the coastal town of Puerto Baquerizo Moreno for jobs in the public sector and tourism. In the heart of the village one see houses that are abandoned or dilapidated, or both. Those who live there are often the parents of the adult children who over the last two decades have left to live on the coast. Both houses and people have aged. Outside the village, scattered in the vast terrains that Cobos' farmers once cleared and cultivated, there are small, farms. Those who have money and live in the coastal town think about having a second house in the highland, away from the hot and noisy life on the coast. But these properties are always at the edges of the village, where precious vistas of the coastline and the ocean may be savored. Not just temporary, their presence is distracted, outward looking. The rest of the village

is dormant and at a palpable distance, in time and space, from the center of the modern Galapagos. The village *El Progreso* now strikes for its state of abandonment and the sad irony of its name.

*Escapism.*

Sir,

I have made repeated applications to captains of vessels to sell me a boat, or to take me from this place, but in every instance met with a refusal. An opportunity presented itself to possess myself of one, and I took advantage of it. I have been a long time endeavouring, by hard labour and suffering, to accumulate wherewithal to make myself comfortable; but at different times have been robbed and maltreated, and in a late instance by captain Paddock, whose conduct in punishing me and robbing me of about five hundred dollars, in cash and other articles, neither agrees with the principles he professes, nor is it such as his sleek coat would lead one to expect.

On the 29<sup>th</sup> March 1809, I sail from the enchanted island in the Black Prince, bound to the Marquesas.

Do not kill the old hen; she is now sitting and will soon have chicks.

Signed

FATHERLESS OBERLUS (in Hickman 2009)

This was the eloquent note that an Irish sailor named Patrick Watkins left on departing from Floreana, where in the early 19<sup>th</sup> century he spent an more than two years in a state of ferality, desperation, and depravation. The request about the hen oddly works against the solemnity that he had built in crescendo until then, but it hints at a crucial piece of survival on a desert island: cultivating land and raising animals. On the Galapagos, the theme of escapism has always unfolded both ways, assuming the islands as a place to escape to or from. The former modality has informed the solitary or collective adventures Europeans undertook, during the first century of colonization. The latter modality fit Patrick Watkins, abandoned on Floreana by an English ship around 1807.

This sentiment would also inform the later experience of prisoners, to be sure, but not only: the islands' isolation inflicted abandonment and longing to almost everyone who lived there.

In the Galapagos' history, this colonization model relying on agriculture has often deviated from settlers' plans, or mainlanders' fantasies. Despite the seemingly insurmountable challenges of living alone, Watkins managed to adapt and survive. He grew a long beard and wore ragged clothes. He cultivated potatoes and a few vegetables that he sold to visiting ships in exchange for liquor, of which he was very fond. He perfected the art of hunting feral goats by running after them, through thorny bushes and barefoot on lava rocks, and grabbing them by the horns. On a superficial level, his story seems to resonate with a narrative of self-reliance, to the fruition of a specific gender, race, and class to be sure, of great purchase in 19<sup>th</sup> and 20<sup>th</sup> century Europe. The book that best exemplifies this story that Europeans liked to tell about themselves, *Robinson Crusoe*, took inspiration from the vicissitudes of a Scottish sailor named Alexander Selkirk. Though the island to which he had been confined was not on the Galapagos,<sup>16</sup> Selkirk briefly sojourned on Floreana a century before Watkins.<sup>17</sup> But the commonalities between Selkirk's and Watkins' story go deeper than the fact that their tribulations took place on Pacific Islands.

Both Selkirk and Watkins adjusted to their respective islands and survived using the few means they had. However, a solitary life proved more "nasty and brutish" than ennobling. When a ship's crew rescued Selkirk, they saw "a man cloth'd in Goat-Skins who looked wilder than the first owners of them." (Thomas Dover in Hickman 2009). Goats, that is. Apart from wearing dead

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<sup>16</sup> Juan Fernandez Island, Chile, where he had spent four years and four months in complete solitude.

<sup>17</sup> Capt. Rogers took Alexander Selkirk on board on the way to Guayaquil, with a stopover in Floreana in 1708.

animals, he was surrounded by living ones: a multitude of cats that he was feeding “with his Goats’ flesh.” Cats followed him everywhere, protecting him from annoying rat bites. As for Watkins, Captain Porter described his look on Floreana:

“the appearance of this man [...] was the most dreadful that can be imagined: ragged clothes, scarce sufficient to cover his nakedness, and covered with vermin; hired hair and beard matted, his skin much burnt from constant exposure to the sun, and so wild and savage in his manner and appearance that he struck everyone with horror.” (Porter 1815)

Both stories differ widely from the one that Daniel Defoe would write, despite the fact that he drew inspiration from Selkirk’s story. Upon return to Europe, Selkirk tried to sell a manuscript about his misadventures, but to no avail. Selkirk’s manuscript was too realistic and didn’t match how Europeans wanted to imagine a tropical trial for their civilization. Selkirk died destitute and forgotten. Defoe instead, later accused of stealing Selkirk’s manuscript, wrote the immensely successful *Robinson Crusoe* (Defoe 1862). Watkins’ story engaged with the core idea of a civilized man—European civilization *ça va sans dire*—facing Nature.<sup>18</sup> Fictionalized, it became the story, and trope, of Man conquering Nature through the means of his civilization. Away from the unresolved harshness of Selkirk’s story, Crusoe instead forever touched and informed the popular imagination of an Enlightened European resolving the challenge of survival in the tropics.

Compared to Selkirk’s, Watkins’ story goes a step further: a definitive reversal of an imagined modern triumph. On Floreana, Watkins’ plan was two-fold: survival and inebriation. He grew a few vegetables, but with goals radically different from either European modern fables or Ecuador’s nationalistic ambitions for the Galapagos. For Selkirk, land was to survive, not for the

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<sup>18</sup> [Unlike Darwin’s encounter with Fuegians.]

cultivation of virtues. He worked the land but didn't apply himself to it. Through trade, the land's fruits gave him access to rum—as rare for him as vegetables were for sailors. The latter reported they often had to search in the grass and bushes to find “the helpless drunk,” motionless, in a stupor. Sailors insisted on Watkins' state of “insensibility,” a condition that doesn't seem to fit along the spectrum between animality and humanity. His insensibility awkwardly stood out to the side. To the European reader, Selkirk's inaction would have seemed an embarrassment in a place, physical and much as imagined, believed to stage the ultimate confrontation between human wit and nature's harshness.

Instead of virtuous, Watkins was cunning. Several times he abducted one member of a crew by intoxicating him with rum—another indirect use of agriculture unforeseen by any plan of colonization. Once the sailor returned to his senses, and his ship to the open sea, Watkins informed him of his new status of Watkins' servant. Only two people on the island and inequality was already created! The abuses Selkirk mentioned in his letter refer to some Captains' punishments once they realized what had happened and returned to the island to rescue their crew members. By the time he stole a vessel and left the island he had accumulated four servants, whom he brought with him and yet none arrived on the continent.

If the real facts of Selkirk's abjection departed from the imagined ones of Crusoe's stay on a desert island, Watkins stands as the very opposite of Crusoe's display of rational genius. Watkins had rum as companion and not an indigenous man; he was unmotivated, alcohol-loving, and turned feral. He became nature, rather than nature becoming his.

The relationship between Patrick Watkins' story and those of Selkirk and Crusoe speak to the intricate interweaving of aspirations and disappointments, dreams and reality, that attempts at colonization have sown, in which colonizers often got tangled. The gulf between European

dreaming of a tropical yet rational life and survival is a measure of the geographical distance between Europe and Juan Fernandez (for Selkirk) and the Galapagos Island (for Watkins). The same distance, this time between Norway and the Galapagos Islands, promoted a similar imagining equally detached from the island's reality.

### **Norwegian Galapagos.**

In 1924 Ecuador's consul August Christensen went back to Norway and threw a carnival party with the Galapagos, the destination of the colony he was organizing, as its theme.

“What could be more appropriate than to use as theme the land of our most recent enterprise—the future Norwegian colony in the Pacific? The carnival was held in the Hotel Atlantic's splendid banquet hall. Dressed in festive and colorful costumes in the changing light of the chandeliers, projectors and reflectors, they danced and celebrated with their more-or-less recognizable partners—while the excellent private ‘Jazzband Speed’ kept blaring out the newest Paris tunes. The successful arrangement was, however, due to the efforts of the painter Trygve Fleischer who was then living in Sandefjord and who had decorated the room. Upon a large and splendid curtain backdrop and a number of posters, Mr. Fleischer had recreated the sultry, enticing atmosphere of tropical islands. Paintings of some beautiful creatures enhanced the whole effect...” (Hoff 1895)

“That Galápagos had palm-fringed beaches was a widespread misconception” the author adds shortly after. Neither he nor the attendees seemed to have worried, or even entertained the thought, that their understanding and representation of the Galapagos on the occasion of a carnival party might have indeed been carnivalesque.

The name of the Galapagos Islands started to circulate in Norway more than fifteen years before, after a shipwreck of the Norwegian ship *Alexandra* in 1907 on the shores of Isabela. On its way from Australia to Panama, the large sailing ship was stuck in the doldrums and drifted to the Galapagos. The crew separated into groups that went to different islands; those who went to Santa

Cruz were rescued only months later. After they returned to Norway, many abandoned any desire to travel; yet a few longingly spoke of the beauty of the islands.

In 1922 three Norwegians sailed to the Galapagos. One of the three, Finn Støren wrote about their experience.

“At the time I visited the islands there were two colonies, one on San Cristóbal and another on Isabela (Albemarle). The former had about 200, the latter about 100 inhabitants. They were happy people. There were wives who prepared food. A cabin in which to live, food in unlimited quantities, together with total and infinite freedom to be enjoyed in the world's best climate. Is that not happiness? Could one wish for anything better? On San Cristóbal there are about 1,000 acres of cultivated land but there could be tenfold more. The soil is more-or-less free of rocks and easy to cultivate. About 10,000 cattle roam freely, but there is room for 50,000. It is a marvelous island, with water in abundance. Altogether there are five larger islands of similar fertility, some bigger, some smaller than Cristóbal. On these islands there should also be soil for new undertakings. Colonists could settle either on San Cristóbal, Isabela, Floreana, Santa Cruz or Santiago, all of which present great opportunities. The problem of water can be solved satisfactorily. All is arranged by nature so that an industrious and energetic colonist could be happy...” (Randall 1926)

A more or less rock-free soil and fresh water that, though “in abundance” is a problem of easy solution: is that not happiness? By the early 1920s, August Christensen, the Norwegian Consul in Ecuador and a ship-owner had been interested in whaling in the Galapagos archipelago for almost a decade. In 1923 he finally reached an agreement with the Ecuadorian Government on the Norwegian colonization on the Galapagos: each settler would receive twenty hectares of land, be tax exempt for ten years, and have rights to hunt, fish and trap on the uninhabited islands. Soon

he begun to publish newspaper articles where he invited all “honorable Norwegians” to settle on these “islands of opportunities.” People called the Ecuadorian consular office in Sanderfjord or went there in person, where they all received a brochure explaining the plan.

In the same years skipper Olaf Eilertsen heard from an Alexandra’s sailor about the Galapagos and was impressed by images of pirates’ hidden treasures and tropical bounty. “Did not [Alexandra’s] Captain Bohnhoff relate that the highlands were so fertile that one could almost see bananas and papayas shooting out of the red-brown soil? And did not the giant tortoises reach a weight of over 300 kilos (about 660 pounds)—like wandering tin cans with the finest contents imaginable?” (Hoff 1895). Olaf Eilersten contacted consul Christensen immediately after reading the announcement and together they planned a colony.

A family even sailed to the Ecuadorian consulate in Sanderfjord, in the south of Norway, from a village in the northern county of Nordland. They technically rowed, as they were on an “*åtring*”, a small eight-oared undecked boat, apparently not worried about the danger or strenuousness of the navigation. The son later wrote a book, “Mr. Petter’s Trumpet,” a title that refers to a poem by Peter Dass, a poet from the same northern region. Dass’ poem “Nordland Trumpet,” which inspired his parents to leave, reads:

“In our area we produce neither grape juice nor wine,  
in our mountains and hills silver ore is not likely to be found.  
We have no goldmines.  
Because we do not live in the land of Canaan  
where milk and honey flow like water,  
by us there are no grapes for picking.

They shouted and made a terrible noise;  
we need to borrow, we are starving to death,  
our stores are severely depleted.  
And if you do not alleviate this our emergency state,  
then you force us to go and pawn the very last of our belongings.” (Hoff 1895)



## **On translations and additions**

The popular William Beebe's "Galapagos, World's End" was translated into Norwegian in 1925. Reading of Beebe's book, which ignored the many passages about the barrenness of the landscape and the scarcity of water, corroborated the memories of former Alexandra's sailors stranded there and the image of the Galapagos of those promoting a colony there. Norwegians' vague knowledge about the Galapagos contrasted with their full awareness of Norway's post-war depression: speculation, unemployment, and gloomy future scenarios. The Galapagos' remoteness (and detachment from their everyday problems) allowed for Norwegians' cultivation of the greatest hopes. Imagining the islands was already an exercise in alienation from their difficult lives. The alienation was in fact double: a utopian ('non-existing' etymologically) place was created from the desire to be somewhere else, to negate where they were. Future settlers wanted to forget about the scarcity in Norway while, at the same time, ignored the one in Galapagos.

Former artist, impresario, editor, and amusement park director Henry Randall from Oslo soon joined the efforts and organized his colony. Surprisingly, he had clear ideas about how to describe an archipelago he didn't know. He published a small book in 1926, entitled "Galapagos: World's End" (*Galapagos. Verdens Ende*). The subtitle reads "the Norwegian paradise in South America's west coast." In his estimation, the Galapagos were the ideal site of a Norwegian colony, not only for fishermen but also farmers. He wrote that the fertile soil could provide food for hundreds of people as well as all sorts of wealth: diamonds, silver, gold, coal, oil. His book about "the land of future possibilities" resonated deeply in Norwegian society (Randall 1926).

The book wasn't his only effort to promote his colony. He wrote many newspaper articles and announcements, such as:

“A group, who in the near future plans to sail to Galápagos in their own ship, can take a few persons as passengers to Santa Cruz, Galápagos, in order to exploit the considerable opportunities there. Every person (women as well as men) is given completely free 200 maal (50 acres) of extremely fertile land, as well as hunting and fishing rights. Captain of the ship, O. Eilertsen, as is well known, has earlier successfully guided some colonists to Santa Cruz, and after a 4-months stay there, has gained a detailed knowledge of the region's great opportunities. The rights of every colonist can safely be expected to be taken care of in the best possible way. The cost is kr 1200, which includes full board and lodging aboard the ship for at least 14 days after arrival. Every person may bring up to 5 tons of luggage free. Join quickly. For more information, send kr 0.20 in stamps to C. G. Gujkild, Nytorvet 5, Oslo, tel. 12765.”

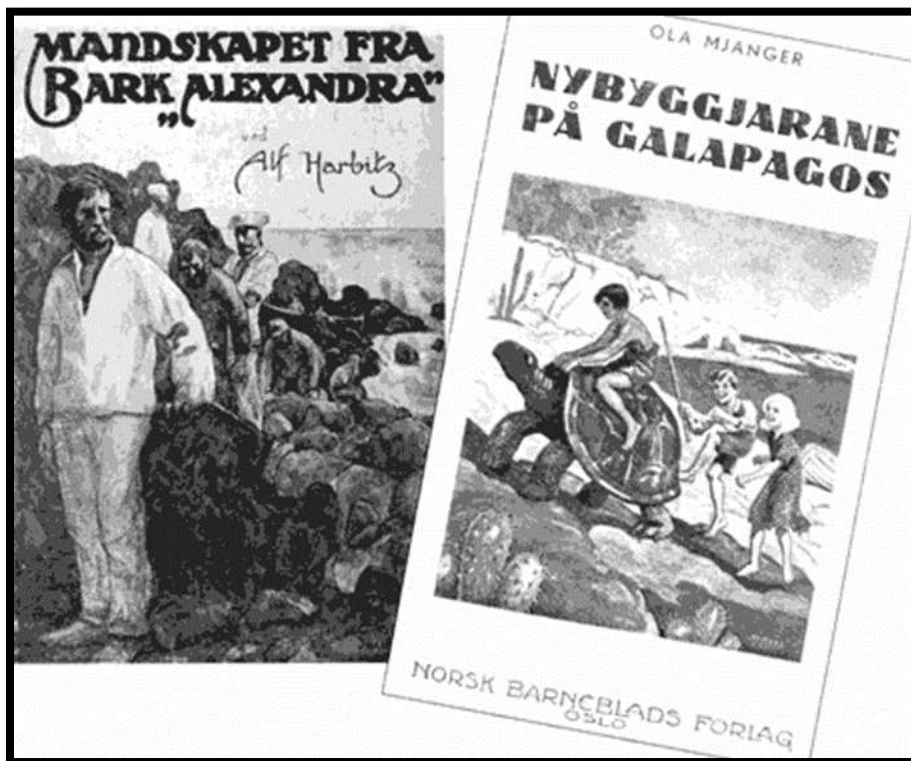
Armed with five tons of belonging and invincible optimism, a few Norwegians did just that.

A Norwegian journalist reflected that an expedition to the faraway Galapagos would confirm and exalt a quintessential Norwegian value. In a column titled “A Modern Viking Adventure” he argues:

“Yet, this is more of an adventure than anyone can imagine. As for myself, I confess that I would rather enjoy being a Viking aboard, bound for this shore of destiny. When a farmer's son leaves his home in search of greener pastures, he probably is driven by a conscious or unconscious longing for adventure. But the adventures that the USA offers her citizens are of a rather questionable kind. The emigrant goes from ordinary drudgery to greater drudgery. He offers his strength and his good sound peasant blood to another society, more-or-less free. He leaves an established, inherited farmers' culture for an uncertain hybrid hodge-podge which does not add an inch to his spiritual growth. With this Galápagos

expedition it is quite another matter. This is a new enterprise, a fresh initiative, a brave and daring expression of our national inherited need for adventure and action.”

Imagined geographical traveling promoted a temporal dislocation, to the Viking era, drawing on an idealized expression of Norwegian identity. (Similar to Harrsch’s conviction that the only way to express the American spirit was to move abroad.)



*Two books that describe Norwegian adventures in Galápagos: Alf Harbitz's "The Crew of the Barque Alexandra" (1915) and Ola Mjanger's children's book Settlers in Galapagos (1936).*

People who responded were enthusiastic but also prepared and well-educated. The adventure didn't look as unlikely and naive as it does now, in retrospect. They were mainly sailors,

but there were also farmers, civil engineers, an accountant, a hotel manager, and a teacher. A few months apart, three ships left from Norway on the long journey to the Galapagos. The first schooner brought around 387 tons of materials such as cement, wood, 3,000 m of water pipes, arms and ammunitions, construction tools, 400 books and a croquet set. The old 100 ton schooner that Randall bought for the enterprise even carried a voluminous diamond-drilling equipment. Hopes that the Galapagos could be of incalculable worth long preceded science's understanding of them. The Norwegians docked on the rickety wood pier of San Cristobal, unloading the large diamond machine, likely to the surprise and perhaps derision of the few fishermen families of the village.

### **Disappointment and failure**

The surprise was reciprocal. Many Norwegians were shocked by the rugged, arid coast of San Cristobal. Instead of palms they found cacti and leafless gray trees.

“There it was, so very different from the tropical island we had imagined—no tall trees—no green grass—only bare, grey lava boulders along the entire shoreline, and higher up an intertwined jungle of thorny, ugly bushes. Disappointment was plain on all faces. We had staked all that we owned and gone through a lot of difficulties, but as we stood there looking at the island we understood that the difficulties were just beginning. And we did not have to wait.”



*The four lifeboats were tied together in pairs, and the work of unloading the 14 prefabricated houses could begin. Photo courtesy Robert Ødegård.*

The highlands turned out to be less disappointing: they saw banana, orange, and papaya trees, coffee, sweet potatoes, “otoy” (*Xanthosoma sagittifolium*), and cattle roaming about. For months they worked hard to build houses—in perfect Norwegian style and with Norwegian pine, to be sure—and profit from agriculture and fishing.

Despite initial great enthusiasm by settlers and Ecuador alike, the colony soon dissolved. Isolation, rocky soil in the highlands, no experience handling the fish in tropical weathers, and even abuses by some Ecuadorians: all contributed to the premature end of their adventure.

They re-read the many articles on Galápagos, including Randall's small book about “The Norwegian paradise on South America's west coast.” They demand an explanation. What has happened to the South Sea paradise? Some weeks later, when Axel Seeberg is back in Galápagos and meets the Albemarle people, he is also shown what has been written in Norwegian newspapers in the Spring of 1926. It is especially the newspaper articles in

Tidens Tegn and Aftenposten, written by Aug. F. Christensen, that Seeberg finds incredible. Apparently he laughed until he cried, slapping his thighs, quite overwhelmed to think that anyone could describe the islands in such flowery terms.

Particularly noteworthy is the role of Rogelio Alvarado in the colony's demise. In 1909 he became the administrator of the hacienda "El Progreso" in San Cristobal, a few years after Manuel Cobos' death. Alvarado demanded to be paid for each animal the Norwegians would kill, on the basis that the whole island, and not just the 3000 hectares of the hacienda, were his property. He even established exorbitant prices for each class of feral animal: cows, horses, chickens, and pigs.

In the words of the Galapagos *jefe territorial*, years after the demise of the colony, Norwegian articles and reports "portrayed the islands as a paradise. [Norwegians] expected to find a great abundance of fruits, birds, fish and livestock, that what they had to do was simply build their houses in the 20 hectares granted to each settler and spend their time hunting and fishing without too much trouble" (Latorre 1999). Over the years all but four of the 150 Norwegians returned to their homeland. They left the Galapagos poor, having sold their belongings to Ecuador for little money, and bitterly disappointed.

## **Conclusions**

Sailors, journalists, and visiting scientists have often described the Europeans living on the Galapagos as Robinson Crusoes. In newspapers and magazines at home, European settlers wrote about their experience living on a remote island, addressing the audience to which they once belonged. Having discussed early attempts of colonization on the Galapagos, this chapter shows that Robinson Crusoe is a European construct, with little care for the biographies of the local

people and the biogeography of the place. Crusoe didn't exist in the tropics; he lived in the expectations of people going there and in romanticized reports about those who did it. He always resided in the mind of European readers. What goes on in the tropics was instead deception, ferality, alcoholism, abuse, environmental degradation, and moral abjection. Other times, it was simple survival.

During the tumultuous decades for Ecuadorians in the mainland and settlers on the Galapagos, agriculture had emerged as the most reliable, sometimes the unique, means of subsistence for humans on these islands. The volcanic soil offered itself as the last opportunity after all plans burst. Informal farming has been the sediment that rested after the convulsion of the Galapagos' social and natural history. Rather than an instrument of the state, island agriculture turned into a form of diminished colonialism: unplanned and difficult to manage—like the Galapagos themselves.

I have called these ideal-driven engagements with the islands and their spectacular failures forms of *diminished colonialism*. If Ecuador imagined an island colony as a laboratory for the nation states, the Galapagos proved a reluctant site. The islands' constant insubordinations to human plans have nevertheless generated important social and ecological consequences. To address the current state of the islands and their socio-ecological challenges, we need to understand the historical trajectory emerging from the unstable convergence of always emerging ambitions and actual results.

## CHAPTER THREE. BECOMING ISLAND.

### Introduction

In the year when the Charles Darwin Foundation and the Galapagos National Park were founded, 1959, a second project to colonize the Galapagos sprouted up unannounced. An American from Oregon decided to recruit volunteers and establish a utopian community on the Galapagos. This moment of the Galapagos' history has been largely eclipsed by the official inception of conservation on the islands. It would be perhaps easy to dismiss the latter, the utopian community, as the farce of the former, the beginning of in-site conservation. Rather than an instance of history later repeating itself as farce (Marx 2008), these attempts were coeval. And yet, each offers an insightful commentary on the other. In unearthing this colonization project, I expose its similarities to contemporaneous conservation attempts. Ostensibly envisioning vastly different scenarios for the islands, by establishing a park or a utopian community, these projects in fact struck the same chords in the western imagining of what the Galapagos were and could become. Reading them together produces an unexpected resonance.

I propose a mode of *resonant* reading to understand the pervasive presence of idealistic and even utopian thinking that has run through Galapagos' history. Augmented by later tales of scientific expeditions, Charles Darwin's visit spurred the first waves of tourism on the islands. His legacy has since sustained myriad "great expectations" for the islands, although often without any concrete knowledge of them. Reading about a utopian colony attunes us to the idealistic undertones of the conservation project. The latter enacted a new form of conservation



that I call the “Antarctica model.” Negotiations to devoting the southernmost continent to the enterprise of science happened at the same time as the international scientific community negotiated for a park on the Galapagos.<sup>19</sup> Rather than a mere chronological coincidence, the success of science’s advocates, internationally and in Ecuador, was instrumental in persuading the Ecuadorian government to establish a park on the Galapagos. Imagining the archipelago as a people-free space for science, the conservation paradigm that emerged on the Galapagos was distinct from the classic form of colonial enclosure and dispossession of local populations in other parks elsewhere (Brockington 2002; Brockington and Ingoe 2006).

This chapter describes the narrowing conditions of possibility for humans, especially farmers, on the islands. The lived consequences of this historical process are explored in chapters 3. Here I argue that hostility to farming has originated in the mythical connotations of the islands rather than any scientific or natural impediments to growing food on the islands. By establishing a *resonant* parallel between the ignored attempt to found a humanist colony and the much praised inception of conservation, I engage the powerful forms of utopian thinking that informed both. Each mobilized claims about science to further extra-scientific agendas.

The first goal of this chapter is to inject utopia back into history. A materialistic account of the ways politics have created a society and ordered nature, focused exclusively on the steps towards instituting conservation, is incomplete. (The same positivist posture would neatly separate, as epistemology teaches, science from non-science, and thus, by extension, consider

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<sup>19</sup> The International Geophysical Year (IGY), which in fact lasted for a year and half and ended in December 1958, brought together sixty-seven countries, Ecuador included, to conduct earth-science research in Antarctica. As a result, Ecuador created a permanent committee out of its IGY delegation with the task of “profiting from [the Galapagos’] natural resources and making them a center of [international] scientific research and tourism” (Grenier 2007).

only conservation and dismiss the colony.) The second goal is to reflect historically, and not solely intellectually, about these strands of utopian thinking. Anthropologist Viveiros de Castro has famously proposed to “take seriously” indigenous cosmologies—visions of and practices of living in a(nother) world (Castro 2011). “To take seriously” utopias means to challenge the implicit judgment, instilled in the word’s very definition (*ou-topos*, non place), that such worlds do not exist.

The Galapagos have over time been the recipient of diverse ideals and expectations. Their geographical isolation has augmented continental fantasies about oceanic islands. In discussing some of the ways people have imagined and engaged the Galapagos, this chapter tells the story of how the archipelago has been found and lost. A history of localized utopias, if we investigate rather than dismiss the oxymoron the word ‘utopia’ contains, tells of the tensions and contradictions between what was imagined and what was found. I look at these fantasies not as cultural or historic exercises, but rather for what they have produced. I argue that the strands of strong idealism that have informed colonization on the Galapagos are worth investigating them for their actual consequences. Dreams have become historical agents, whose intervention in the Galapagos is relevant for understanding current unexpected presences and new unintended consequences. The scientific-inspired modes of colonization I describe have been constitutive of the ways local people, especially farmers, have been relegated to being regarded as either an accident or a nuisance. Through the critical lens that focuses on utopian élans, this chapter shows how past colonization modes have prepared a hostile ground for farming and agriculture today. To grow vegetables on a utopian islands is difficult if not impossible. Legacies of the past still shape the place of agriculture and farmers geographically and politically on the Galapagos—in

the margins, poorly. Before delving into these two projects, I begin by discussing islands as a crucial and yet elusive fulcrum of modernity.

### **The island multiple: Provincializing Islands' provincialization**

No man is an island,  
Entire of itself,  
Every man is a piece of the continent,  
A part of the main.  
If a clod be washed away by the sea,  
Europe is the less.  
As well as if a promontory were.  
As well as if a manor of thy friend's  
Or of thine own were:  
Any man's death diminishes me,  
Because I am involved in mankind,  
And therefore never send to know for whom the bell tolls;  
It tolls for thee.  
*J. Donne*

Man may not be an island, as Donne offered, but an island, as least as Europeans thought of it, is not an island either. The conception of an island as a remote site detached from the busy world's affairs is not universal, but rather the product of a particular history. In the times when Europe engaged with colonial expansion, and European philosophy toyed with universal ideas, islands offered themselves as practical sites for gathering scientific knowledge and experimenting with civic order (Grove 1996; Mintz 1985; Rabinow 1995). But remote islands such as the Galapagos also crystalized as points of reference for the far-away, the unchanged, the not-yet touched by the enlarging edges of civilization. Scattered in the world's map like hidden treasures, islands constituted an imagined vantage point from which the West could take respite from modernity's vertiginous changes and nostalgically long for a state of nature that, anthropology teaches us, never was.

The European understanding of islands as isolated, despite its universalistic aspiration, reflected and distilled a mode of centripetal colonial thinking, rooted in the practice of drawing resources to the European centers of civilization from non-European countries considered far-away, remote (Mignolo 2009; Mignolo 2012; Taussig 2009). Germinating in the Renaissance and blossoming during the Enlightenment, European thinking conceived of itself as transcending pesky limitations of time and place. In this tradition, remote islands served as a different yet similarly un-locatable site as European philosophy was believed to be. There, a utopian imagining of society and nature could occur, or rather *take place*. Utopian thinking, by definition, tinkers with the non-place, imagines the impossible. In European philosophy, islands' distance allowed for the emergence of islands' paradigmatic, impossible value of being nowhere (More 1517). Remote islands became the place that lent itself to be negated as places. From one utopia to another.

An intellectual exercise more than a physical place, islands were crucial for constructing western modernity while at the same time allowing the imagining of a way out of it. They were both at modernity's center and on an un-locatable outside. Peopling this overdetermined space, especially the Galapagos, emerged from this contradiction. The colonization attempts I describe aimed at keeping the Galapagos intact while also changing them. Such a contradiction emerges from a critical analysis of the two enterprises. Scientists or utopians who set foot on the Galapagos, with their strong idealism in their motivations for being on the islands, did not perceive it.

“An island does not stop being deserted simply because it is inhabited,” wrote philosopher Gilles Deleuze, taking pleasure on playing with a paradox (Deleuze 2004). He in fact argued this seriously: for him, people who venture on desert islands enhance and perfect their desertedness.

If animated by a generative spirit, humans sacralize islands' isolation, making them complete and sublime. "In the ideal of beginning anew there is something that precedes the beginning itself, that takes it up to deepen it and delay the passage of time." Colonizing an island can be as creative and productive an event as the geological one that created the island.

The two enterprises I describe below, the first to forge anew the human and the second to restore nature, were both animated by a spirit congruent with what Deleuze theorized. In the former plan, the Galapagos' pristine state and remoteness constituted an ideal site for the construction of something entirely new. A key promoter of the second, to conserve islands' pristine state, Julian Huxley, believed that the Galapagos ought to be preserved for the study of evolution, which would explain not only biological processes but also the true destiny of the species at the pinnacle of this endless transformation: humanity. For both enterprises, a certain mode of human inhabitation of the islands would enable, rather than spoil, a messianic utopianism that could take place only on pristine islands. Isolation was the prerequisite.

This chapter considers these two moments of colonization as generative instances of the islands' social and natural history. However, my analysis differs from the proponents' interpretations of their own endeavors. Rather than conclude that these efforts have made the Galapagos sacred and whole (Deleuze 2004), as members implied and advocated for, I argue the opposite occurred. These science-inspired movements produced contested enactments of the archipelago's isolation, each producing ripples of unintended consequences. Assumed by colonizers and constituting the end goal for conservation, isolation became a social event rather than a natural fact.

In offering an analysis of these colonization attempts, this anthropological critique is also self-reflexive. As a discipline, anthropology has traditionally drawn and built upon the imagery of

islands as isolated (Redfield 2000). In this view, the infinite oceanic expanses that separated the anthropologist's home and fieldwork dissolved any cultural, geographical, and even temporal continuity (Fabian 2014). If the unity of the anthropological inquiry was the village, the perceived remoteness of which replicated the aseptic characteristics of a laboratory for the social scientist, the island in which the village was often located ensured a second, definitive degree of isolation. Whether on a continent or an island, the field site was bounded by what Deleuze called the desert that the islands projected outside (the natural element constitutive of their isolation): the ocean (Deleuze 2004). Narratives of navigation to the fieldsite, on which Levi Strauss famously defined as the “the blue crucible of the sea” (Levi-Strauss 2012), served as a rhetorical and theoretical device to prepare the reader for a world utterly new, disconnected from Western civilization. A solvent element, water would unmoor ethnographers—and their readers—from their own culture. Uninterrupted, extensive, and exotic fieldwork was the rite of passage to becoming an anthropologist. Exhausting navigation to the field site constituted a liminal space that enabled anthropology—during which time and space expanded and beliefs were suspended.

Dissociating themselves from this geographically dissociating and colonial disciplinary tradition, which operated a radical disjuncture between anthropologists and their others, anthropologists have recently contributed a solid critique of islands' isolation (Wolf and Eriksen 2010; Helmreich 2011; Pálsson 1994). In his seminal paper, Fijian writer and anthropologist Eveli Hau'ofa has rejected altogether the European vision of societies in the Pacific Ocean as “islands in a far sea” (Hau'ofa 1994). He sees them instead as part of a “sea of islands,” which ocean waters connect rather than separate. Against a (main)land-centric approach that cast island societies as fragmented and deficient in culture, Hau'ofa instead celebrates the “endless circulation of wealth and people” among islands, human alliances and multi-linguism.

In a similar vein, this chapter takes the Galapagos' isolation not as a fact but as an historical construct. This certainly does not deny the islands' millions of years of evolution without human presence. That the Galapagos are of volcanic origin, surging from the ocean and never attached to a continent, is undisputed. However, this fact does not exclude the ways in which isolation has become a veritable political category. An historical process, 'isolation' produced its discontents, pushing to the margins the actors that did not fit the narrative.

### **Filiate Science Antorse**

In 1959, US citizen Donald Harrsch finalized the logistics for his community on the Galapagos. He called his campaign, in a mix of Latin and English, the "*Filiate Science Antorse*," loosely translated as "together we move forward." In English, 'antorse' is limited to biology and describes the upward direction of hairs' growth in plants or animals. Harrsch employed it for more grandiose plans: to establish, in the words in his manifesto, "a colony of scientific philosophists [...] where Charles Darwin arrived at his theory of evolution." (Harrsch 1959). Harrsch was neither a scientist nor a philosopher—he had in fact dropped out of school in the eighth grade. A local newspaper articles at the time describes him rather unflatteringly as "an unemployed tugboat skipper" (Hillinger, 1960). Other sources acknowledge his energy and charisma but point to his temperamental character. He was, everyone agreed, an avid science fiction reader.

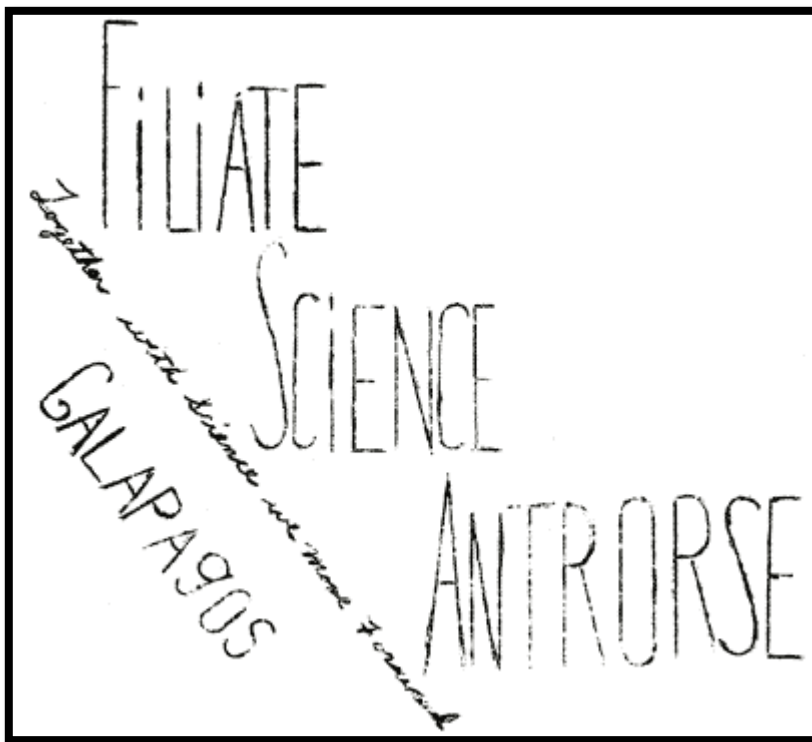
Harrsch posted ads in local newspapers in Washington State, where he lived. He recruited 106 members, 22 families and several single men. One ad read: "Is your family one of the 50 adventurous families with the spirit of America early pioneers needed to establish a model

community on a beautiful Pacific island?” His pitch rested on a contradiction: that individuals motivated by the same passion as US pioneers should join him and establish elsewhere, on the Galapagos. To be a true citizen of the United States, one had to leave them; to live by the authentic US spirit meant going outside the US. This thinking mirrors earlier attempts at conservation on the Galapagos. Several expeditions had gathered vast numbers of species, even the purported last individuals of one species, to “preserve” them in museums in Europe or the US (Matthew 2017). What scholars call *ex-situ* conservation presumes that biodiversity loss and extinction were inevitable. As a consequence, the task of conservationists was to replicate ecosystems in museums. Both in the history of early conservation and the US colony on the Galapagos, the idea of islands as isolated operated as a mechanism of expulsion, driving people or other species either away from or to the islands.

Each member committed \$2,500, which Harrsch initially proposed to divide equally between the building of the colony’s infrastructure and unspecified natural science laboratories. The company was “formed chiefly for one reason—Science,” Harrsch stated. He did not make explicit what science meant from him, as probably few lay people in the cold-war period in the US would have felt the need to (Rudolph 2002). Ideas about Science were as univocal as Science’s purpose and method was believed to be. He stated what, for him, science was *not* and was standing *against*: politics and religion. In fact, he proposed atheism as a requirement for the colony. Once the unnecessary burden of politics and religion had been jettisoned, humankind and nature would be revealed unfettered. The aegis of Science meant both an object of analysis—that of natural science—and a method for casting a light on and forging practically the new human and society. “The biological laboratory work” Harrsch writes “will give us an insight into the chemical and biological makeup of animals, and pursuing this work will give us much insight



into the makeup of a human organization.” After all, “one cannot disconnect sociology, psychology, and biology, and expect to come up with the correct answers” [to scientific questions] (Harrsch 1959). The expectation of a new world fused with and sustained the dreams of a new life and society. Antorse members were in fact called ‘eugeneans’—Greek for born well, and perhaps anew. In the words of a member, they felt they had “a chance to make it be the beginning of a new world where people live in peace.”



While aiming to further natural science research, Harrsch wanted to benefit from it financially. A tension between the goals to promote scientific research and become rich ran through the entire enterprise. Financial and intellectual expectations converged and diverged as

the Galapagos became a floating signifier for contrasting ambitions. In Harrsch's descriptions, the islands assumed the character of either harsh or lush islands, isolated yet also connected to the outside world, a place to study nature or to improve humankind, exotic yet comfortable enough that there will be "no need for anyone to give up their American heritage to participate in this venture" (Harrsch, 1959).

Leaving the shores of a corrupted America, eugeneans may have hoped to build a new society but found the worst of the old one. Before even having set foot on the island, the unexpectedly long navigation had rapidly affected the morale, and perhaps morals too. "People became like vultures" a member said. "It's a wonder we all did not go stark raving mad. Someone nearly did..." Eugeneans quickly learned to guard against everyone else. After innumerable travails, two dilapidated ships reached the shores of San Cristobal in 1960. Mrs. Kaufmann, on the first ship, remarked that they "thought it would be more desolate [...] We did not realize there was a village" (Hillinger, 1960). The island disappointed for more than one reason. No matter their expectations, San Cristobal did not meet them. It was less isolated as an exotic island yet too isolated export fish and produce—as Harrsch had promised. Also, more challenging than what expected, for their hopes rested on the image of exotic islands, but also desolated: despite the 1,200 people already living on San Cristobal (1,900 in total in the archipelago), the eugeneans did not find but little infrastructure in place.

Their plans to establish a thriving colony proved, unlike their first deceived impressions, wrong. Two unexpected presences complicated the buying and cultivating of land: the Ecuadorian state, which did not allow foreigners to own land, and wild dogs and pigs, which destroyed all crops. Also, none of the arrivals had any experience with fishing. The small catch

could not be stored since the refrigerator they purchased never worked, and they were not able to find any viable solution for selling it in the mainland.

The Antrorse project set out to found a new society, but it did not take into account the one that was already there. The colony, in fact, encountered great resistance from both local inhabitants and mainland Ecuadorians. A contingent of eugeneans sailed to Santa Cruz, where several Europeans and Americans had established themselves during the two decades before. “This is a marvelous island. When we want meat, we go a few yards into the bush and kill a wild steer, a goat or boar. There are avocados, oranges, pineapples, coffee and vegetables here,” a Belgian resident acknowledged in a meeting with the contingent. “But,” he continued, “If 100 families come to Santa Cruz everything will be ruined. There is not enough meat for that many. Everything will be gone in a short time if you come here. The cost of living will go up.” An American resident added: “How are you people going to make a living? You cannot make money fishing these waters: there is little enough for those who are here.” Another reflected, “On Santa Cruz a year ago there were less than 200 living here. Now that number has doubled. New people have been dumped here [from the mainland] without money or homes. They are living in makeshift shacks, killing off our supply of meat, and slaughtering what few of the giant land turtles that are left.” Another bluntly told them: “you people are creating unrest in our islands.” (E. Register, 10/20/1960). Eugenans were considered foreigners and invaders by foreigners who had arrived there (invaded?) earlier on the account that there was not enough fish in the ocean. (Located at the confluence of three major ocean currents that blend plankton-rich cold waters with warmer waters, the Galapagos have an extraordinary abundance of fish.) Locals already spoke of overpopulation and depletion of natural resources at a time when conservation politics, which would shortly use the same language, were only beginning to emerge. Since this phase of

human colonization on the Galapagos, the anti-human arguments about the “shrinking island” have always exceeded a scientific discourse.

Resistance to the project also came at the national level. And, despite ambitions to be novel and universal, eugeans became entangled with issues of race and imperialism. Their arrival, which coincided with an election for Ecuador’s presidency, fueled anti-American sentiments. An article in an Ecuadorian newspaper entitled “Do not let the same thing happen to the Galapagos that happened to Texas” fomented such sentiments. Parra Velasco, a candidate for president, urged his followers to voice their discontent in front of the US Embassy in Guayaquil, where hundreds of people threw rocks in protest. A rumor later circulated that, in response to the 500 American families that would migrate to the Galapagos, the Ecuadorian government intended to send 200 to 400 Ecuadoreans—many of them Indians—to Santa Cruz and San Cristobal Islands, “to keep the population balance in favor of Ecuadoreans.”

Race colored the protests against Antorse, but was a point of tension within the colony itself. Accommodation in houses that the Americans defined as ‘primitive’ was not acceptable, not because of habit or preference, but race. “We Americans cannot live in this fashion,” eugenean Sutton explained to the only reporter, from the US, who visited the colony in 1960. “We cannot eat the same diet these people eat. We cannot live in a house built of poles with mud plastered on the windward wall... with a cane thatched roof.” Don Harrsch was also criticized for demanding servants for his house, which went against the rules of the colony he had himself established (Catton and Larsen 1964). Too busy forging a new, just humankind, Harrsch required the services of a servant.

The perceived superiority of North Americans and the U.S. over Ecuadorians and Ecuador was rarely stated, but informed most of Harrsch’s analysis. He expected that Ecuador, being a

poor country, would welcome his *mission civilisatrice*. “So much so are they aware of the further need for progress,” Harrsch stated in his manifesto “that they have opened up many thousands of acres to colonists from abroad, especially are they interested in North Americans. Though they are by far not a rich country, they will do much to help immigrants to get a start.” His presumption of superiority was so embedded that, while writing about “immigrants,” he deemed appropriate the reminder that this rather unflattering word was in fact describing them: “immigrants (*which we will be*) have the same rights as citizens, except they cannot vote. The natural resources of the country are almost untouched, there are opportunities galore for anyone with a desire to get ahead and is not afraid of work. Land is free to anyone who can work it and the Government of Ecuador upholds the rights of all citizens or aliens” (emphasis added).

Teodoro Crespo, president of the Ecuadorean Institute of Colonization, reflected skeptically about the project: “They [the eugeneans] proposed to cure everyone in the islands of whatever disease ailed them, to give everyone free dental care, to reeducate the islanders to their way of thinking, with belief in God relegated to a minor role and great emphasis placed on scientific achievement. [...] I do not think there is any future for a colony with its head up in the clouds instead of having sensible, down-to-earth ideas.” (To Crespo, down-to-earth ideas included the belief in the celestial, Christian God.)

The failure of the colony was eventually complete. All the plans to procure a livelihood by fishing and farming vanished. Their health weakened as all hopes, along with members’ savings, extinguished. The families individually arranged a difficult return to the US, their depleted savings forcing them to multiple stops along the way.

Alternatively nurturing negative or positive expectations about the island, the common thread running through the tale of Antrorse colonization was the crashing of illusions.

Eugeneans' cloudy ideas about the Galapagos, and settlers and nationals' vague ideas about them, fomented illusions or fears that had little to do with reality. This history illuminates a larger trend in Galapagos' history. A place destined to reinvent humanity or eliminate its traces in order to discover nature, the Galapagos have been conducive to patterns of ambition and deception in national and international, civic and scientific colonization attempts.

Relegated as an accident by historians of the islands (Latorre 1999), eugeneans' illusions seem less so if one considers that psychology professors at the University of Washington followed, observed, and advised Harrsch in the design and implementation of his utopian community. The professors assumed the revered canonical status of impartial observers, while one offered instead suggestions to Harrsch as he was writing his manifesto. Harrsch had envisioned to equally split funding between building the colony and the unspecified natural science laboratories. The Mentor, psychology professor Dr. Stuart Dodd, suggested instead that he divide the funds in three, with the third funding research in sociology and psychology. Having modified Harrsch's plan to meet his own interests, the Mentor also introduced changes in accordance to the cold war sensibilities, "by persuading the leader that atheism would be unsuitable as the official doctrine and should be replaced by 'scientific humanism'" (Catton and Larsen 1964).

In the professors' account, Harrsch emerges as a fierce opponent of religion harboring a strong "faith in science." The irony of describing his belief in science as a faith was undetected. Nevertheless, this expression accurately describes a belief in the power and legitimacy of a science-based colonization of the islands that Antrorse shared with founders of the Galapagos National Park and the Charles Darwin Foundation. Harrsch's universal, science-inspired universalism was of course as objective and biased-free as much of modern science was believed

to be: Harrsch “expressed the belief [...] in a considerable privileged difference in favor of the male.” As for race, Harrsch “admitted some prejudice against Negroes, and much against Mexican-Americans, calling them ‘the rottenest race there is.’” (Catton and Larsen 1964).

The University of Washington psychologists diligently recorded the interviews with Harrsch and took notes, quietly. In the same time when natural scientists from Europe, the US, and Ecuador implemented measures for making the Galapagos a natural laboratory, social scientists were already running an experiment there. A belief in scientific objectivity informed both projects. “The research group [the psychology professors] unanimously expected the colonization scheme to fail, but did nothing to influence the outcome in any way.” Not at all concerned to appear callous, the professors believed that “the human” factor, here their intervention to warn the participants, had to be expunged even in social experiments. While Harrsch was busy with his utopian experiment, the professors did not miss the opportunity to run their more pragmatic one. “The sociological literature includes few if any account of a utopian movement which was observed and studied by scholars from beginning to end” (Catton and Larsen 1964). An end that, as the authors were pleased to declare, they in no way prevented.

In their published article, the professors reflect on the paradox that, though eugeneans believed they “had gone to the Galapagos optimistically supposing they were without illusions, [...] the illusion that they had no illusions probably aggravated their hardships” (Catton and Larsen 1964). Having no illusion was itself an illusion, which added to the others that eugeneans harbored in imagining the islands as the empty yet fertile springboard for their real yet utopian colonization. Following a few crucial steps in the history of conservation on the Galapagos, in the next section I show how other ambitions to establish an absolute category (Nature rather than humankind) were similarly embedded in messianic ambitions.

## **Science-inspired fantasies**

1959 was a crucial year for conservation on the Galapagos, as the last penal colony was closed, the Park and a research station were established. The creation of a people-free space for science thus happened in two moves: discontinuing an historic mode of coerced colonization and establishing institutions to protect and study nature. The Ecuadorian state would have rejected the strong international pressures to establish an international research station on the Galapagos had not they been couched to speak to national interests. Austrian ethologist Eibl-Eibesfeldt, a crucial figure of the early phases of conservation, and other scientists emphasized in official documents to Ecuador and international institutions such as UNESCO the touristic value of the islands and their unique animals. Scientists' concerns about environmental degradation in Galapagos have always focused on the presence of human and their non-human companions. In this section I briefly sketch the co-emergence of two ideas: that the Galapagos are pristine, and that humans do not belong to the Galapagos. Indeed, human colonization has profoundly affected the islands' ecosystems. Yet, paradoxically, concerns about the pernicious consequences of a human presence set in motion a process that has caused the ever growing colonization of the islands: conservationists, identifying and promoting the Galapagos' unique value for science, drew international attention to the islands and thus promoted tourism. Although tourism began to grow considerably only decades later, its reason was in the branding of the Galapagos as pristine.

In the early twentieth century, writing of scientific trips or millionaires' visits to the islands started to generate a widespread interest about the Galapagos in Europe and the US. Biologist and explorer William Beebe secured funding from the New York Zoological Society and, with a crew of a dozen male scientists and journalists, visited the Galapagos in 1932. His book



“Galapagos: World’s End” (a title itself redolent of utopian suggestions) became an immediate bestseller. The noble mission of conducting scientific research, in its gendered-inflected, intrepid treading on the physical edges of the civilized world and the symbolic ones of knowledge, titillated and satisfied the interest in frontier adventures. The boat in fact returned with little data; this, however, seems to have caused little trouble to the immense fame surrounding Beebe and his adventures. Animated by the motto “it’s all for science,” Beebe’s expedition in fact anticipated how scientific research would be mobilized to govern in the islands for conservation and tourism.

With the sole goal to be on the Galapagos, the Beebe expedition in fact spent less than 100 hours there. What limited their stay was ignorance about fresh water availability on the islands—minimal at best in the rainy season. The vessel had to retreat quickly to Panama to procure fresh water, and from there it returned home. Poor planning affected not only Beebe’s limited understanding of the islands’ biophysical characteristics, but also their society. Having failed to secure permission from Ecuadorian authorities to enter the inhabited islands’ ports, their expeditions did not visit the towns and villages. As a result, his books about the Galapagos (*World’s end* and *Arcturus Adventures*) describe the islands as uninhabited. With no significant scientific discovery to report, and having failed to even acknowledge human presence, Beebe’s texts were only successful in portraying an islands as the ideal site for adventure.

If Beebe’s “all for science” motto inspired a stronger presence on the islands, two decades later Julian Huxley’ belief in science realized such aspirations.<sup>20</sup> Julian Huxley, first president of

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<sup>20</sup> International measures to protect the islands were discussed in the thirties, but the Second World War interrupted any plan. Upon a visit to the Galapagos to mark the centenary of Darwin’s visit, world renowned scientist Victor Wolfgang von Hagen founded with Julien Huxley the “London Galapagos Committee” with the goal of raising funds to establish a research

UNESCO and founder of IUCN, the International Union of the Conservation of Nature, played a crucial role in instituting conservation on the islands. Julian Huxley was the grandson of Thomas Henry Huxley, known as “Darwin’s bulldog” for his unconditional support for Darwin’s theory of evolution. A neo-Darwinian, Julian Huxley deemed the Galapagos of extraordinary value, being the most important “example of Darwin’s brilliant success” (Huxley 1944). Huxley included conservation within the purview of UNESCO, arguing that “enjoyment of nature was cultural, and its conservation depended on science” (Huxley 1948). Relegating affect (here, enjoyment) to the weak side of culture, Huxley cleared the way for the hard job of science to reveal and protect nature. The IUCN provided instrumental support to expeditions to the Galapagos aimed at assessing the feasibility of a local research station.

Huxley’s ambitions went well beyond conservation. He considered Darwin’s theory of evolution and the place where it originated, the Galapagos, instrumental to developing a new type of humanity. Conservation of and scientific research on the Galapagos were imperative not solely for the sake of the Galapagos’ unique ecosystems, but also because new discoveries about evolution had the potential to improve humanity, by shedding light on the true laws that govern human behavior. However, as with Harsch, Huxley’s claim about the value of the Galapagos ended up less in promoting a universal idea (“Nature”, “man”) and more in contestations over,

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center on the archipelago. Also, former crew member of a Galapagos expedition Waldo Schmidt from the Smithsonian Institute had similar plans for Baltra, the small island where a US military base was created the next decade. Marking the annual centenary of the discovery of the islands (by Ecuadorians), the “Corporacion Cientifica National” urged to take measure to protect the archipelago. A Supreme Decree in 1936 declared the islands a national park and claimed that tourists, not national residents, were posing a threat to the pristine ecosystems. Ecuador’s first science committee was appointed with the task of designing a conservation plan (and later commissioned a study to assess tourist and agricultural potentialities). However, with little money and no concrete international support, Ecuador could not implement any plan until the end of the war.

and fractures within, the category of the human: Western scientists and tourists, excluded from the calculus of human invasion, and the locals, too poor and uneducated to understand the place they lived. I describe below how utopian dreams of conservation burst along the fault lines of race, class, and nationality.

### **Evolutionary humanism**

Huxley belonged to the restricted yet very active group of British scientists who, in the forties and fifties of the last century, strongly advocated for Darwin's theory against competing scientific theories of speciation (such as Lamarck's) and Christian opposition to evolution tout court. The role of the environment (over genetics or God's will) for understanding species matched with the concerns of a science at its early state: ecology. Coined in 1866 by E. Haeckel, the discipline of ecology and, proposed in 1935 by Tansley, the concept of ecosystem wanted to take biology in a new direction. Both authors stressed the importance of considering species' biology not in the abstract, or in a laboratory, but rather within their geographically-specific and multispecies context (in one world, *ecological*). In their boundedness and relatively simple ecological interactions, remote islands seemed the ideal place to reaffirm the validity of Darwin's theory and produce new science. (The seminal discipline of biogeography, which was born in the sixties, continued the heuristic focus on sited-ness and specifically islands (Warren et al. 2015; MacArthur and Wilson 2015)).

Not only was Huxley's belief in evolution absolute (he deemed it "the greatest of all revolutions in human thought" (in Bowman, 1966, p 3), it also informed an elaborate fusion between scientific optimism and social engineering that he termed "evolutionary humanism." As

one of the main advocates of the modern evolutionary synthesis, Huxley believed that evolution and science together could not only discover nature but also humans—in their essence and destiny. The theory of evolution informed this ambition. An evolutionary trajectory, for Huxley, rendered future predictions and models more precise and thus constituted a viable option for social engineering. His ideas about science’s potential for planning a society stemmed from a visit to Russia in the early thirties.

“Imagine a biologist in a world peopled only by vertebrates, and then introduce him to a lobster... imagine this, and you will imagine some of the strange feeling with which the visitor from a capitalist world finds himself regarding the wholly new type of social organism in which he is for the time immersed (Huxley 1932).

Though on the Galapagos, both vertebrates and lobsters abound, the both stood, in Huxley’s analogy, for a rare lobster in a world of all too common vertebrates. The Galapagos, out of metaphor, constituted a place where human self-awareness could awaken. The goal was not just heuristic; rather, it constituted a form of techno-utopian humanism: transcending the confines of science, evolution would offer “proper planning, [...] itself the application of scientific method to human affairs.” (ibid. p 52). Evolution was the method to, at once, forge humanity while discovering nature (the human nature included); the Galapagos, the ideal site for both missions.

In Huxley’s view, evolution had taught humans to distinguish between “higher” and “lower” forms of life, among which humans are placed at the very top (Huxley 1944). This position vis-à-vis the rest of the natural world did not come without responsibilities: the main one being promoting the destiny of our species. As a “sole trustee of further evolutionary progress,” Huxley was concerned about the degeneration in the human species, basing his fear on

Darwin's own account that "weak members" propagate (Darwin 1909, p 168). Darwin's only fault, Huxley asserted, was his hesitation to fully consider the human species in evolutionary terms. In his time, Huxley had to suffer the "curious and unfortunate anti-Darwinian revolt" in biology and the resistance against an evolutionary approach within psychology, sociology and history (in Bowman, 1966). The path forward was nevertheless clear, and it was starting to emerge: "the idea of evolutionary transformation began to permeate every field of human study, from cosmology to linguistics, from geophysics to art history, until it is finally beginning to dawn on us that the whole knowable reality is a single comprehensive process of evolution and that man's destiny is an evolutionary one" (in Bowman, 1966).

Wise members of the human species like Huxley himself advocated for eugenics, otherwise termed "the preferential breeding of the best" (Wells, Huxley, and Wells 1931). Purged of "inferior" [sic] and oriented towards a planned bright future, "mankind stands [before] the promise of Man, consciously controlling his own destinies and the destinies of all life upon this planet." Man was a promise that evolution would fulfill. Protecting and studying nature would ensure not simply the continuation of the latter but also the development of humankind.

### **Emergence of the anti-pristine: fractures within the category of the human**

Huxley's dream of achieving humanity's full potential on the Galapagos, similar to Harrsch's, came at the expenses of ostracizing one subgroup of this noble category: local residents. The first visit to the islands that UNESCO and IUCN financed in 1954 was assigned to a young Austrian ethologist, Irenaeus Eibl-Eibesfeldt from the Max Planck Institute. His report described a harrowing situation. Local residents took no measure to protect wildlife; on the

contrary, they hunted, fished, chased, and traded animals with seeming indifference. The gravity of the situation warranted a more extensive investigation. With the support of the Royal Society, IUCN, the Natural History Museum in Paris, the International Council for Bird Preservation, zoologist Robert Bowman from UCLA and Eibl-Eibesfeldt went back to the Galapagos in 1957. In a stay that lasted four months, these two young scientists travelled the archipelago extensively, with the goal of assessing the state of its ecosystems.

Interestingly, LIFE magazine financially supported the visit as well, and sent along a journalist and a photographer. The allure of the Galapagos as the birth place of Darwin's theory of evolution motivated LIFE to participate. At the same time, it resulted in further entwining the strands of conservation politics with those of international tourism. As Eibl-Eibesfeldt explained, by allowing LIFE to accompany and report on the expedition they hoped to "awake a widespread interest about our conservation project" (Eibl-Eibesfeldt 1959). As for future conservation measures, the involvement of global audience was deliberate, not simply a consequence. To declare the Galapagos both fragile and pristine, scientists sought to reach the broadest audience.



1957 EXPEDITION was led by Dr. I. Eibl-Eibesfeldt of West Germany and Dr. Robert Bowman of U.S. Behind them: LIFE's Photographer Alfred Eisenstaedt and Artist Rudolf Freund who illustrated this article.

LIFE 1958

The contradiction between divulging the “secret” of Galapagos’ pristine state (that is, a site almost devoid of humans) to an international public was foundational to the way tourism has been organized. Contrary to the scientist’s self-proclaimed posture as modest witness (Coppola 2016), advocates for science and conservation on the Galapagos were neither: not modest, as they reached out to international tourism, and certainly not only witnesses, as their plans for conservation and tourism profoundly transformed the Galapagos (Ospina 2006). Currently, anthropologists critique approaches to conservation that rely on revenues from international

tourism, extending the reach of the free market and introducing an economic logic to the governance of nature (Igoe, Neves, and Brockington 2010; Brockington, Duffy, and Igoe 2008). Such neo-liberal conservationist strategies take place in conservation on the Galapagos, but their seeds may be found in strategic choices at the time of the foundation of a protected area, such as involving LIFE to an ecological survey. Critiques of such approach were also, however, present at the time. In 1958, a colleague of Eibl-Eibesfeldt, Maurice Breton, reflected on the curious fact that when media coverage increases, species' numbers lower.

*“Alors que la faune et la flore sauvages du globe disparaissent petit à petit sous nos yeux, on constate un curieux phénomène social ; jamais les films, les émissions télévisées ou sonores, les livres, les conférences et les articles de journaux consacrés aux animaux et aux voyages n’ont eu tant de succès.”<sup>21</sup>*

If the collecting era of natural sciences before the advent of modern conservation have been criticized as rapacious and for its deleterious effects on the ecosystems (on the Galapagos, Matthew 2017), Breton argued that the new conservation-minded era of natural sciences was not that different in its consequences after all (Breton 2015).

While the global tourism was cast as an ally, local residents were not. In several articles and in his book *“Galapagos: the Noah’s Ark of the Pacific,”* Eibl-Eibesfeldt recounts witnessing actions leading of ecological degradation. Once, he visited the small island of Seymour South, which only a few decades earlier had been teeming with land iguanas and offered scientists an

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<sup>21</sup> “Now that the worlds’ wild flora and fauna are slowly disappearing before our very eyes, we realize a curious social phenomenon: never have movies, television and radio shows, books, and conferences and articles about voyages and the fate of animals been so successful.” (My translation).



undisturbed environment for the study of this reptile. A decade after the US military base closed, mice invaded the island and caused the land iguanas to go extinct. These animals had previously been the target, literally, of marines' boredom."<sup>22</sup> While he found dead iguana carcasses punctured by bullets, the devastation that mice were inflicting was far greater in scale. Eating iguanas' eggs and driving them to extinction, mice were scuttling about in search for food in the middle of the day.

“Mice will be the last inhabitants of South Seymour, and when they have eaten up all the remaining vegetation, then they will die off. The island will be as bare and barren as it was when it first rose from the ocean's depths and will be a constant and accusing witness to how, in a few short years, life that had flourished for thousands of millennia could be swept away as a victim of mankind's baleful conflicts.”<sup>23</sup>

Facing a miniature dystopian world where extinction and not biological life would prosper, Eibl-Eibesfeldt realized the morally challenging and ecologically complex nature of island degradation.

Ornithologist Jean Dorst, who visited the islands a few years later, similarly acknowledged that threats to the Galapagos were more severe than he had expected.<sup>24</sup> Together, Eibl-

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<sup>22</sup> “The island of land iguana [...] served during the Second World War as a military base and had made life miserable for several hundred thousand human beings... boredom... we really cannot blame for what they did. (Eibl-Eibesfeldt 1961).

<sup>23</sup> Eibl-Eibesfeldt 1961, p 177.

<sup>24</sup> [Natural history books on the Galapagos, scientists' memoirs of their visits unmistakably relegate human ecological degradation on the islands, or human presence altogether, to the end of their books. If too visible, accounts of degradation, let alone of gratuitous killing or infliction of pain to animals, could spoil the depiction of the paradise's island. At the end of books, they reinforce the dichotomy between innocent nature and destructive Man.]

Eibesfeldt's and Dorst's reports offer insight into the intense speculation about human nature, in which natural scientists engaged with while attempting to separate and purify the category of nature. Expecting to identify what stood between the Galapagos and their destined future as a space for science, natural scientists agreed that the problem was humans. With the intent to speak of humans generally, such analyses focus instead on the menace of locals. Speculations on what was so pernicious about humans, along with the proliferation of racial stereotypes, abounded. As scientists progressively discovered and attempted to convince the international community of the Galapagos' unique value, the local human presence was considered progressively alien.

Dorst and Eibl-Eibesfeldt considered first the human predatory instinct, which compels humans to hunt and kill as much as they can. Indeed, "man [is] the most predatory of all animals" (Eibl-Eibesfeldt 1961) Jill Dorst reported that flora and fauna were in a deplorable state since the beginning of permanent human settlements, or, as he put it, "since humans have stubbornly clung to the islands" (Dorst 1959b). The second one was human companions: domestic animals such as goats, dogs, and livestock had preyed on endemic animals' eggs, chicks, or outcompeted them in procuring food.<sup>25</sup> The third, and in their eyes, most distressing issue was a certain amusement or pleasure for killing they found among settlers, which they deemed completely devoid of biological, 'natural' necessities. Eibl-Eibesfeldt remembered witnessing "the most distressing barbarity" when he stumbled upon carcasses of six sea lions "whose skulls had been smashed. What made the scene especially disgusting and horrible was that the animals had been killed obviously without rhyme or reason and just for the sheer lust of

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<sup>25</sup> These animals account for the emergence of a humanized, "un-natural" Nature that will soon become one of the worst problem for conservation.

slaughter. No one had even taken the trouble to skin them. Not far away lay a pelican whose beak had been bashed-in by a stone” (Eibl-Eibesfeldt 1961).

If neither eating nor greed was the motivation, why such barbarities? Eibl-Eibesfeldt also remembered when the Ecuadorian crew of his ship, docking on the first islands of the Galapagos, immediately proceeded to “throw stones at the nesting gulls and frigate birds. When we arrived on the spot some gulls were already creeping on the sand with broken legs and wings, and one small owl had been killed. The young sailors were quite surprised when we told them that they had done something wrong but were receptive to the argument that it was thoughtless and cruel to destroy animal life which is so valuable for Ecuador and the world.”(Eibl-Eibesfeldt 1961). Similarly, Dorst offered that, compared to the pirates who visited the islands the century before, settlers were arguably “more pleasant and honest.” Yet, “as it is the case for the majority of people of Latin origin, the majority of them has not even the slightest concern about the protection of Nature” (Dorst 1959a).

Alternatively, Eibl-Eibesfeldt noted the state of abandonment of human settlers and the boredom “whether they will admit it or not” of their inhabitants (Eibl-Eibesfeldt 1961). He speculated that such sentiments could motivate otherwise senseless acts such as killing for fun. Yet the solution for the Galapagos conservation, conceived by an ethologist (Eibl-Eibesfeldt), approved by a plethora of natural scientists and science enthusiasts (Julian Huxley among others), and implemented to commemorate another natural scientist (Charles Darwin), fell short on these puzzling yet central social issues.

**Man’s destruction of the Earth; Science’s salvific power.**

The vast majority of scientific articles about the Galapagos provide in their introductions a succinct natural history, in which the archipelago's slow evolutionary timeline—millions of years—has been interrupted and menaced by the late and undesired arrival of people. This remarkably consistent anticlimactic parable, no matter whether the topic at hand is a lichen, rock, or a species of whale, has advanced western understanding of humans as agent of Nature's destruction. In this thinking, humans figure not only as Nature's destroyer, however, but also as presences not belonging there yet assiduously attached to those islands (all the while growing in number). The enthusiasm for scientific research in a place so symbolic of science resonated widely. Much as in Darwin's time,<sup>26</sup> a Malthusian discourse, exquisitely apolitical and forgetful of the privileged locus from which it was uttered, informed conservation's global concerns. In a post-war economic boom and a time of widespread fears of nuclear fallouts, Nature emerged as fragile; Man, more clearly as the culprit. The Galapagos served as a catalyst for conservationists' speculations about human nature and concerns about a human-less nature, thereby constructing their understanding of environmental degradation. As a result, nature became pristine and humans invasive.

The 1958 issue of the UNESCO journal *Le Courier*, in which Eibl-Eibesfeldt published a woeful article lamenting the degradation of the Galapagos, opened with a somberly titled introduction "*Allons-nous á la catastrophe?*" (Are we heading to catastrophe?") Going beyond an intellectual concordance with Eibl-Eibesfeldt, the author, botanist and IUNC president Roger Heim, responded to Eibl-Eibesfeldt's pleas for taking action on the Galapagos and was instrumental in passing the IUCN resolution in favor of a research station on the islands. Heim's

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<sup>26</sup> Both Wallace and Darwin (the discoverers of evolution) read and found inspiration in Malthus' theory.

piece offers insight into a common view of ecology and conservation at the time. There, he informed the readers that “*le monde plethorique a faim*” (the overcrowded world is hungry) (Heim 1958). It seemed to him that disinterested scientific investigation of nature, harbored in the curious minds of European gentlemen, had been replaced by the need to produce more food. Darwin’s times are gone: an excessively populated Earth needed more food (but, really, fewer people?) “The data are out there,” he claimed, “we need to produce more and more.” The underlying problem is too many people, at least *certain* people: those outside the exclusive imperial arrangement of world’s riches and resources. Who could question data, or science? Mankind was left with one last chance, Heim admonished: carefully peruse the edition of *Le Courrier* and especially his article.

After establishing an alliance with his readers against the hungry and ecologically noxious poor, Heim reflected that technology had provided with the means to increase the man-made destruction of nature. Goats’ negative consequences on the environment, known for millennia, are only of a different scale, but not kind, of the destruction caused by an atomic bomb. Goats, which as domesticated animals fell on the side of ‘human’ and not ‘nature,’ are just the bomb’s pre-technological antecedent. (An article in the same edition reflects on goats’ devastating effects on southern Europe’s landscape and calls for their extermination.) To Heim, technology’s linear progress suggests a similarly progressive destruction of the earth. In this interpretation, politics was expunged as either a cause or solution to ecological degradation. Squeezed between memories of biblical plights (of Nebuchadnezzar’s exile) and techno-dystopian prospects of plankton feeding the humanity, Heim saw the present moment with its dilemmas (Heim 1958). The problematic course of the Earth’s ecology was as inevitable as the solution: scientific knowledge—the only authentic opposite to ignorance. On the Galapagos, great expectations for

science motivated the establishment of a research station for conservation and led to frustration with its shortcomings ever since. That conservation should include concerns, considerations, and knowledge drawn not solely from scientific methods remains a contentious issue to the present.<sup>27</sup>

Eibl-Eibesfeldt offered a curious history of violence in dialogue with Heim's beliefs on violence and technology. Unaware of two millennia of philosophical reflection on theodicy and the problem of the evil, and forgetful of human history's atrocities, he contended that killing is not "an innate sentiment." "Only a pathological degenerate can find it in his heart to further mishandle a wailing, weeping or merely imploring fellow-man, still less to kill him." Technology, instead, put "men [...] in the position to overcome inhibition." It made the act of killing more detached, precise, and easier. "Our old hereditary mental and moral reactions" have not kept up with progress in technology. With instinct and morality out of the picture, Man is left with rationality (aka science). "Are we going to be able to compensate rationally for what is today denied to our feelings?" (Eibl-Eibesfeldt 1961). Similar to the logical jump from the description of anthropogenic island degradation to a recommendation for a research station, Eibl-

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<sup>27</sup> STS scholars have extensively unveiled the necessary political component of scientific knowledge production. The dichotomy between science and politics I describe here refers to the point of view of the scientists I am discussing. Social studies of science have dispelled the myth of science as objective and value-neutral. Showing how scientific knowledge is informed by power relations and social networks, scholars have exposed the contingent and contentious work of "stabilizing" events or phenomena into scientific facts (Latour 1987). With this approach, conservation raises a host of "wicked problems [since] there are no experts, nor can there be" (Ludwig 2014). In this view, the plurality of issues and the limited knowledge of each "expert" should constitute an 'ecology of practice'—in which participants "slow down" and meet the others with hesitation and openness rather than a priori certainty (Stengers 2005; Stengers 2013). Yet a dialogue between literature on conservation biology and STS continues to be limited (MacMynowski 2007).

Eibesfeldt noted on animal killing and yet blamed the increased detachment due to technology, arguably an unlike explanation.

### **Colonial entanglements**

It may look incomplete, if not surprising, that the recommendation to counter these problems, unanimously supported by UNESCO and IUCN, was a biological research station. With Robert Heim presiding, the IUCN passed a resolution urging the establishment of a scientific research center on the Galapagos:

“[The IUCN] is deeply concerned by reports [...] regarding the precarious situation of various species of fauna and flora endemic to the Galapagos Islands [...]. The General Assembly is likewise concerned by reports in the press of plans for the large tourist and economic development of the resources of the Galapagos Islands which might further jeopardize the endangered species found there. They recommend that qualified naturalists should be encouraged to visit the Galapagos Islands to make a survey and ecological studies of the fauna and flora and express their hope that facilities will be provided by the Ecuadorian Government [...] so that a small housing unit or laboratory might serve as a base for such scientific work. It is hoped that additional funds may be found to support a long range scientific programme in the Galapagos Islands and as part of such a programme, certain islands of the Galapagos Archipelago might be set aside as permanent reserves to enable the fauna and flora to remain undisturbed and so as to provide for long term research.” (in R. Bowman 1957)

Eibl-Eibesfeldt detailed his plan to save and study the Galapagos. “To commemorate Charles Darwin’s visit I proposed to call it a [sic] Charles Darwin Station. There must be someone on the spot to make sure that the measures adopted for preservation of the flora and fauna are actually carried out.” Scientists? “Also, such a research center, in addition to its usefulness for marine biology, would render inestimable service for the study of the rare land fauna of the islands” (Eibl-Eibesfeldt 1961). In another article, Eibl-Eibesfeldt similarly moves from the imminent danger of extinction to the unique opportunity to ask scientific questions.

Upon discussing the destruction that humans, dogs, cats, pig, and rats had wrought; remarking that the flora already showed signs of distress; noting that human need for wood has decimated the forests on Santa Cruz; and worrying about the reduced numbers of sea lions, iguanas, and tortoises; Eibl-Eibesfeldt pleaded for a research station on the islands (Eibl-Eibesfeldt 1958). There are numerous problems, especially of ethological and taxonomic kinds, that a research station would help solve, Eibl-Eibesfeldt remarked. For example, the Galapagos sea lion had been recognized as a species only in 1935, and not before. At ease in what he assumed an obvious nexus between conservation and research, he then returned to the importance of a research station “to facilitate conservation measures.”

The distress that tales of destruction evoked certainly justified the apprehension of international scientists. But while the research station would ostensibly “guarantee real protection” to the islands, it was in fact destined, much to the later and still ongoing frustration about its limited influence on the Galapagos National Park’s conservation measures, to do what its very name rather unequivocally stated: research. Science’s appeal to objectivity and its obvious role in conservation have been a constant feature of western conservation. Looking at current forms of conservation, which often gravitate to claims of community participation and consensus building, scholars have offered a critical view of the seemingly inextinguishable need for more science. On a fundamental level, such calls close rather than open discussions about what is at stake. Science operates as an accurate representational device of nature, whose value is uncontested. Secondly, and more to the point here, scholars have pointed at the conflation of “more science” with “better policy” (Jasanoff 2009; Fischer 2000) underlying this stance. The Galapagos presented a corollary of such approach. In the face of a dramatic situation, which field reports profusely described, the perceived solution was to set up a research station.



The urge to protect directly translated into the need to conduct research on what Eibl-Eibesfeldt calls “the Eldorado” for naturalists. To be preserved to humankind and for the future, scientists involved in research on the Galapagos saw it necessary to consider the islands an almost exclusive prerogative for themselves. The Galapagos were officially declared to be for everyone: a patrimony of humanity. But really for no one. Conservationists intended this quite literally, since they did not take into account the presence of scientists and often even tourists. Science scholars and feminists have long argued that Western knowledge is based upon an illusory disembodied posture: an ethereal, non-intrusive, and thus ostensibly objective view from nowhere, a God-eye view. The consequences, like those following from Antrorse, were unintended yet real. Such an illusion affected not only knowledge production but also ideas about the impact of fieldwork, a permanent research station, and, broadly, Western bodies. Concerns focused instead on locals (the *latinos*) and on how to avoid “promiscuities” between them and scientists (more later).

To protect nature as a whole, the category of human fractured. Tourism emerged as the obvious way to finance conservation; locals’ means of subsistence, as inconvenient. CDF secretary-general Corley Smith lamented the fact that “Ecuador is a ‘developing’ country and that conservation all too often appears to be the antithesis of development. There was a persistent belief, fostered by their popular name of ‘the Enchanted Islands’ that [...] the Galapagos must have rich economic resources which only needed development” (Perry 1984). Yet he was candid in stating that “tourism was definitively an official objective”. Indeed a 1965 report on the potential for tourism on the islands suggested what Corley Smith un-ironically described as a form of “tourism based principally on cruises, following the pattern set by millionaire yachtsmen.” Official documents that the CDF and the GNP produced in the first two decades

consistently drew home the points that the Galapagos were a superb site for science and (wealthy) tourism. Therefore, in the words of CDF secretary general Juan Black, conservation should work toward the “suppression of harmful feral species and incompatible human activities” (Perry 1984). In the imperfect juxtaposition of categories of beings (animals) and (human) activities lied the true message: certain humans, the non-millionaires, were perhaps just as harmful as feral species.

While invoking science, the conservation movement was animated by a plurality of extra-scientific motivations, whether of colonial, utopian, anti-human extraction. In his evolution-inspired, utopian vision for humanity, Huxley sought to promote conservation on the Galapagos but also improve humankind. In Huxley’s imperative to protect and study science in order to promote unabashed social engineering, one sees an instantiation of the white man’s burden, who all alone had to shoulder the responsibility of ruling over humanity and the world.

Enacted in the late years of colonialism, conservation on the Galapagos has in fact reproduced a colonial project of ignoring the needs and presence of human dwellers while coloring with moral necessity the mission to “protect” nature. The link between the Galapagos’ conservation to the colonial history of conservation is not post-factum speculative analysis. Van Strealen, the first president of the Charles Darwin Foundation, had previously founded Albert National Park in the Belgian Congo, allegedly the first park uniquely devoted to science. The park personnel declared the protected area human-free, or almost. Belgian authorities acknowledged the presence of “a group of Pygmies, 300 or so, whom we like to preserve” (Esposito 2011). For disciplines in which counting is the essential and often only goal, the “or so” as an estimate of Pygmies is a good indication of how little Belgian natural scientists cared

about them.<sup>28</sup> But setting up the Albert Park involved more than carelessness; the area was cleared through brutal eviction of thousands of Hutus and Tutsis. While purging almost all tribes, the pygmies were instead considered natural, and thus to be preserved. This Belgian model of conservation was widely adopted in protected areas in Africa and Asia in the 1930s. Huxley praised the Belgian authorities “for treating the pygmies, quite properly, as fauna rather than as tribes to be civilized,” to be left “to their primeval existence” (Bont 2015). Yet it was not too long before Van Straelen began to complain about the pygmies in the park, much as scientists would complain about locals on the Galapagos twenty years later. Accused of selling bush meat and bamboo coming from the park, and even animal hides to Europeans, the pygmies became the target of stringent controls. They slipped away from the category of endangered nature and unwillingly entered the one of human colonial subject.

### **The Antarctica model**

Conservation on the Galapagos continued the legacy of a conservation paradigm suspicious of locals. Ecuadorian and international documents blamed, respectively, tourists and local settlers (Grenier 2007). The latter interpretation increasingly gained popularity. Ecuador’s interest in making the Galapagos pristine, aside from the crucial interest in reaping economic profits from tourism, rested on the success that international scientific institutions had, that very year, in signing a treaty for Antarctica.<sup>29</sup> Ecuadorian scientists used the treaty to argue their

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<sup>28</sup> On the centrality of counting in development, see Muehlmann 2012.

<sup>29</sup> The International Geophysical Year set aside Antarctica as a nonmilitary region to be used for international scientific purposes alone.

importance to the Ecuadorian government when asking for the establishment of a research station on the Galapagos. The image of an immense place devoid of humans, which the scientific community had recently secured to science, percolated in the negotiations between the Ecuadorian IGY delegation and the Ecuadorian government.<sup>30</sup> Scholars of conservation have talked about the Yellowstone model of conservation, in reference to the brutal history of eviction of indigenous population and the pursuit of a human-less nature, which has informed the policies and practices of parks and natural reserves across the globe. Conservation on the Galapagos has been infused with a kindred yet distinct sensibility: what I call the Antarctica model combines the desire for an uninhabited place with the strong interest in scientific research (unlike the Yellowstone model).

Casting this radical divide between nature and culture, the politics of conservation entered a delicate terrain. Jean Dorst was the first author of the UNESCO report in 1959 about the establishment of a research station on the Galapagos Islands. This document sheds light on contrasting interests among different actors in order to establish the research station. The document had to affirm yet carefully balance two pairs of contrasting features of the Galapagos: as an instance of at once pristine nature and yet in the process of degradation and, secondly, as rich with scientific value but also offering the possibility for economic profit. As for the latter, Dorst noted that natural beauty of the Galapagos is “of great importance for Ecuador’s economic evolution.” Dorst considered the confluence of warm and cold waters accounts for a great quantity of fish, “whose rational exploitation, based on legitimate scientific thinking, could

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<sup>30</sup> Dorst thanks Dr. Pedro Larrea Penaherrera, director of the national delegation for the international geophysical year for his support in the project of establishing the CDF. Many members of the delegation participated to the new *Instituto Ecuatoriano de Investigacion Cientifica*. See (Dorst 1959b).

augment Ecuador's economic potential" (Dorst 1959b). The station would not only guarantee protection of the archipelago's flora and fauna but also the preservation of "picturesque sites that are of interest to tourists." (Dorst 1959a)

A corollary of the first pair of contrasting features (nature as pristine yet degraded) was another delicate balance to strike: the depiction of Santa Cruz Island as the best one for establishing the research center and conducting research on pristine ecosystems yet peopled enough for the necessities of communication and workforce.<sup>31</sup> The result was a recommendation that speaks of natural science's aversion to humans with a candor that was perhaps unintended. The chosen place lay on the west side of the Santa Cruz coast a few miles from the small village of Puerto Ayora. Arguments in its favor were scientific and logistic: fauna on the island was "well represented, in spite of the continuous poaching"; forests well preserved, "despite farming."<sup>32</sup> Being inhabited, the island allowed for relatively simply taking care of provisions, communications, and the procurement of a workforce for the actual construction.

Dorst appeared pleased to have located such a convenient place: in closing he remarked that "being close to a human settlement, yet not in its immediate proximity, offered all the advantages of the situation while avoiding the multiple material and psychological inconveniences that promiscuity would engender." Such a statement conveys the assumption that science is a vocation and scientists should not be distracted, or, perhaps, contaminated or corrupted by (other) human presence. The Galapagos as the Antarctica. This theme has

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<sup>31</sup> Similarly, Eibl-Eibesfeld recommended Santa Cruz because of the regular boat visits, so that the station is not cut off from the world (the very aspect they were enthusiastically describing and committing to protect about the Galapagos). (Eibl-Eibesfeldt 1959)

<sup>32</sup> Dorst, Rapport, p 8.

accompanied the scientific community in the Galapagos ever since. The responsibility of honoring the Galapagos as a scientific laboratory, because of their—rather mystified<sup>33</sup>—place in Darwin’s theory and potential for future discoveries, has inspired an antihuman ethic well beyond the protocols of natural science disciplines.<sup>34</sup> Despite the making of the Galapagos pristine has been a long process, Huxley, Dorst and Eibl-Eibesfeldt’s advocacy marked important steps towards the consolidation of this belief.

## **Conclusion**

Harrsch’s adventure makes an odd pairing with conservationists’ first steps on the Galapagos. The first enterprise seems the result of a deranged member of society; the second, the illustrious inception of a noble cause. Consequently, the facts about Antrorse are largely unknown, whereas the rise of conservation is celebrated as a matter of pride by both the Ecuadorian state and the international scientific community. Yet a resonant reading has suggested otherwise. Both enterprises were deeply imbued in forms of high idealism, which complicated their goals. Aiming to change humans, they reproduced longstanding fractures within it, based on race, class, and nationality. Both relied on science as a path forward to humanity. Both ended up with unforeseen and complicated problems. Endorsed by universal aspirations, their executions complicated already complex social divisions. Such divisions were further exposed by these projects’ utopianism, which schizophrenically imparted high hopes for an abstract humanity and

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<sup>33</sup> See Sulloway 1982.

<sup>34</sup> The Park has recently made explicit, though often just nominal, steps towards the inclusion of human society (in the term “complex socio-ecological system” used in the last two Management Plans)—thereby confirming the opposite posture up until then.

despair about local people. Juxtaposing their ambitions and fates produces a loud resonance. The reasons of one reverberate in the destiny of the other, and vice versa. Considered vastly different, the trajectories of their stories read in unison.

The enactment of these efforts has reproduced and amplified ideas of the Galapagos as isolated. Yet paying little to no attention to subsistence (fishing and farming) that have sustained all colonization attempts, these articulations of nature and society have increasingly opened the islands to the outside rather than protecting them from it. Relying on a wide audience, both projects, especially conservation, had opposite effects of to the utopian desires for isolation. The islands' pristine state was purported to be enacted by allowing tourists and scientists—understood as superior, almost ethereal human presences compared to locals. Read through the lens of Antrorse, conservation's legacy is two-fold: forms of idealism still saturate conservation discourse, and the politics of conservation have relegated as of secondary importance the possibility of locals to rely on the islands' resources to live.

## CHAPTER FOUR. MINOR THRIVING: THE “STRANGE PROLIFERATION” OF ILLEGAL FARMERS ON THE GALAPAGOS ISLANDS

A white man with a large hat, wearing a small backpack, and riding on a bicycle while pointing at his lot in a remote corner of the highlands was not what Marco expected. He confessed his surprise to me soon after—the white man was, in fact, me.

I had struck up a conversation the week before, as I was buying tomatoes from him at the Saturday market in the coastal town of Santa Cruz. He had laid out a few lines of produce outside the indoor market, where more established sellers, many of whom are not farmers but intermediaries, have their large and colorful stands. A few of my questions had convinced him of my interest in farming, and he agreed to a chat at his lot the following week. He explained where the lot is by a mix of natural and social landmarks (“two kilometers after Don Navarrete’s farm ... to the right after the dense cane stand on your left...”), necessary in a large territory with no street names, let alone street numbers. That I followed through on my promise, and that I found him, positively surprised him. We began talking openly. “Why shall I lie to you?” he told me after fifteen minutes or so in our conversation. “I am illegal, my wife is too. But this small lot is ours, we bought it thanks to our priest.” He was referring to the practice of undocumented farmers vicariously buying farmland through a permanent resident. Marco’s *pastor*, the priest of an evangelical church in town, did it for him. I had known this priest for years but never heard of his underground, illegal aid to illegals.

Marco’s lot is small, only 1000 square meters. The topsoil is thin, as the lot lies in the transitional plains between the humid highlands and the arid coastal vegetation. Marco and



Helena, his wife, do not have money for a greenhouse; they grow vegetables *a campo abierto* (open field), which limits their options of vegetables they can grow. In fact, they only have money for seeds. They attach the tomatoe plants with wire attached to young *porotillo* trees (*Erythrina herbacea*, an introduced species of leguminous tree), instead of more expensive infrastructure. Residents have traditionally used *porotillo* as a natural fence for their properties, since cut branches can be planted and grow independently into trees.

Towards the end of our chat, Marco excused himself to take a phone call: an agronomist who lives on the mainland was returning his call. This is how Marco seeks help when his plants are sick. Being illegal, Marco and his wife can't ask MAGAP, the Ministry of Agriculture, for assistance with farming. Instead, he tells the agronomist in the mainland what's wrong—the color of the leaves, the state of the fruit, the type of insect he sees crawling on the downward side of the leaves. On the other end of the line, 1000 kilometers to the east, the expert offers his paid advice.



Author, 2014

As Marco stood in the semi-arid land, intently speaking on the phone to an agronomist an ocean away, I took a picture of him, cast against an odd landscape of tropical trees in the distance and denuded land tentatively cultivated up close. He was standing on top of a small mound, perhaps unconsciously to get better reception. Illegal, illegally owning a minuscule lot at the margin of the marginalized area of the islands, the rural highlands, Marco had not desisted. Quite the opposite: gathering help wherever he could find it, whether from an agronomist in Guayaquil or in branches turned into infrastructure for his plants, he had found ways to farm. “This small

piece of land (*esta tierrita*) is a blessing,” he later told me. He was not referring to the way he acquired it—through a religious pastor—though I asked him about it, jokingly. We laughed. Rather, he was thinking about the modicum of hope for the future of his family which that soil allowed him to cultivate. When he and his wife arrived there, with all the difficulties of farming on rocky soil and the constant threat of expulsion, he didn’t think they could make it.

But there they were, with no intention to leave.

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Over the last fifty years, conservation measures have resulted in rendering the Galapagos increasingly more attractive to tourism (Epler 2007). Beginning in March 1998, new arrivals to the Galapagos Islands could not become permanent residents under any circumstance, except by marrying a resident. This law was the result of years of debates both on the islands and in the national government about the rise of tourism and in the local population. Sanctioned by the 1998 Constitution, the “*Ley Especial para Galapagos*,” simply known on the islands as “the Law,” created three legal categories of people on the islands: permanent residents, temporary residents (allowed to reside for twelve months, renewable), and tourists. While a tourist visa is merely a formality, and permanent residency is mostly limited to old settlers, the process of acquiring temporary residency has proved expensive, lengthy, and unpredictable. As the flux of tourists has continued to rise in the past two decades, so has the number of mainland Ecuadorians who have moved to the islands to escape unemployment and poverty and look for a job in the tourist industry. Some became legal residents, others not. A fourth category of people was born: illegal Ecuadorians in their own country.

As well-paid jobs in the touristic towns or on cruise ships require proof of legal residency, people who arrived after 1998 have lived and worked on farms in the highlands, where economic opportunity, and police presence, are minimal. Farmers face the island-wide issues of restrictions on pesticide use, the lack of public transportation, and difficult soil and climate. To those who are illegals, farming is further complicated by the risk of police *batidas* (checkpoints) while moving around the island, and the prohibition on land ownership. Illegal farmers cannot rely on state technical assistance either, since MAGAP does not recognize them. Yet, through other means, they have nevertheless learned how to acquire land, seeds, fertilizers, and pesticides. Also, to avoid public buses in fear of police checks, they have established trusting relationships with a few taxi drivers to pay reasonably, hidden smuggled motorbikes or, as I did with them for long miles, simply walked, kicking up dust under the punishing sun or sliding in the mud in the rainy season. Coming from a landscape of legality and continental ecologies, farmers had to learn to read a new environment and social conditions. Through mutual help, or the one coming unexpectedly from people like Marco's *pastor*, illegal farmers survive, endure, and perhaps, in a minor mode, even thrive.

My analysis of farmers' coping strategies is inspired by Deleuze and Guattari's conceptualization of the 'minor,' the mode of existence that proliferates in spite of and at the margins of the dominant forces in society (Deleuze and Guattari 2004; Deleuze 1986). On the Galapagos, the minor describes farmers' vitality and stubbornness to persist. Farmers' illegality has far-reaching consequences for their economic, political, and civic rights: they cannot access state incentives for agriculture and are easier targets of abuse and blackmail at the hands of private and state actors on the islands. Unable to buy land and access loans, their willingness to invest in their future is limited. Farmers suffer from marginalization but also take advantage of

the neglect or ambiguity with which state institutions (forget to) intervene in the highlands. Farmers' thriving thus emerges in the context of attenuated citizenship and concentrates on the sporadic opportunities of the present. This chapter strives for a complex understanding of the rural highlands, which reflects marginalization but also the possibilities that such a scenario opens. Through the concept of *minor thriving*, I analyze the unresolved tensions between the constraints that arise out of illegal farmers' marginalization and the vitality that, out of opportunism and endurance, they possess despite their marginality.

Anthropologists have always been attentive to the potential for alternatives to dominant economic and political regimes. Traditionally, scholars have looked at forms of organized resistance against structural and systemic forces (Abu-Lughod 1990; Kohl and Farthing 2006; Stern 1987). While continuing to analyze organized forms of resistance or political alternatives (Edelman 2001; Escobar 2004; Osterweil 2013), anthropologists today have turned their attention to less coordinated forms of resistance. Moving past earlier scholars' pessimism about the gloomy pervasiveness of neoliberalism and precarity, anthropologists have looked at informal labor organizations in Vietnam (S. Campbell 2016) or the middle class in Japan (Baldwin and Allison 2015; Kindstr 2016) and contended that the neoliberal or state powers recombine, rather than suppress, individuals' capacity to pursue their ambitions. The current erosion of old economic and political regimes has proven more ambivalent and dynamic than its first proponents contended (Ettlinger 2007; Kindstr 2016; Molé 2010). Victims of political and economic inequalities dictated by national and international structures retain a (limited) degree of agency. Research on slums in South Africa and Brazil (Chance 2015; Millar 2014) and the urban poor in India (Rao 2013; Das and Randeria 2015), for example, has shown that poor and

disenfranchised citizens, rather than being excluded from society, refashion their relationships with the state and themselves.

Here I describe a case in which illegal farmers, though suffering from structural marginalization, nevertheless participate in the social as well as ecological fabric of the Galapagos Islands. Illegal farmers craft social ties not only with other persons or the state, but also with the landscape and other species. Through the concept of minor thriving, this chapter challenges both assumptions about illegals' adverse effects on the environment and the conservation paradigm based on protecting the environment by separating it from human residents (Quiroga 2009). After historically situating the emergence of illegal farmers on the Galapagos Islands, this chapter describes how three farmers and their families navigate the difficult terrain of illegality and opportunity. Through the concept of *minor thriving* I show how illegal farmers, in contrast to their marginal status in society, have become custodians of older settlers' attachment to the land, while at the same time they experiment with forms of vernacular ecology. Further, some illegal farmers have become successful businessmen despite the constraints of farming on the Galapagos, and of their illegal status. In the conclusion, I reflect on how *minor thriving* recalibrates some theoretical expectations about change and resistance that scholars encounter in the field.

### **Ecological history**

“*Los que tienen los barcos hicieron la ley*” (“those who own cruise ships made the law”). A farmer named Fernando told me this, shaking his head and gazing down. We were talking about the 1998 immigration law. Demagogic by neither character nor possibility—he is illegal on

the island—Fernando meant it literally: powerful cruise ships' owners had leveraged their connections to draft a law suited to their interests. Confronted with the unbridled rise of tourism and immigration from the mainland, the state and conservation institutions focused only on the latter phenomenon, while tourism remains unregulated today. In 1997, the Galapagos' provincial government instituted *mesas participativas* (participatory roundtable groups) for discussing and ultimately proposing new policies about topics such as fishing, agriculture, tourism, and residency. Despite its veneer of horizontality and equal access, influential local figures often sat as chairs of each group. The results reflected this skewed representation.

Illegal immigration has been a contested issue ever since. In public discourse, it has crystallized around the figure of the young male Indian (from indigenous groups in the Ecuadorian Andes or Amazon) who works in construction in the islands' sprawling coastal towns. They are the most visible group of illegals, the one most talked about and in fact assumed to be the whole. However, urban illegal workers do not constitute the entire population of illegals on the islands. Among the estimated 5,000 illegals of the 30,000 residents of the Galapagos, there is a visible and an invisible part. Illegal farmers constitute the latter: clandestine by necessity, they form the majority of the illegals on the islands. They live in the vast, scattered, less densely populated highlands, where they work on large properties as farmers and ranchers. Like Fernando and his wife, they reside in and maintain farms, while their owners live in the coastal towns. Contrary to the image of illegals who have just arrived on the islands, some have been there for decades, and have spouses and children with them. They are little understood, discursively and geographically marginalized, and even less discussed or studied.

Until the relatively recent advent of tourism, all colonization periods often uniquely relied on agriculture. While the Special Law enforces mechanisms to reduce immigration, for

more than a century prior the Galapagos had been the site of forced and state-sponsored colonization. The islands' unforgiving conditions complicated the Ecuadorian state's goal of affirming its sovereignty, and repelling foreign claims with occupation at the edges of its territory, similar to what happened in the Amazon around the same time. Rather than people's presence, the problem Ecuador had on the Galapagos was their absence. With the rise of tourism, residents have progressively abandoned the highlands and agricultural production lost its prominence. Survival was no longer based on self-sufficiency, but depended on the flow of people from outside. Invasive plants have progressively covered farms that were left fallow. A certain division between humans and nature, or, rather, the choice of certain nature-culture assemblages (nature for tourists) over others (agriculture for the local population), has consolidated. Conservation measures have focused only on the protected areas, with the goal of preserving them, especially the tourist sites. The economic and political interest in tourism and conservation has resulted in disinterest in a comprehensive approach to the highlands, beyond the separation between the human areas and the park. At the seam of this division, in the semi-abandoned farms, invasive plants, crops, and illegal residents have settled. Attempts to eradicate invasive species have had little effect and even counterproductive. Larger profits in tourism than in agriculture, immigration restrictions on the work force, and the invasion of new species have thus transformed the highlands.

Though they are hired to remove the invasive plants that infest cropland and pastures, illegal farmers are the target of a negative perception that makes little difference between illegal immigrants and invasive species. In the eyes of the public, saturated by conservation discourse, invasive species and illegal farmers alike threaten the uniqueness of the Galapagos. Attempts to address the social marginalization of illegal farmers have been caught in the crossfire between



the national and local government, weary of taking extreme measures such as mass expulsion and alienating the rest of the population (that relies on illegal workers), and international environmental NGOs, promoting a rhetoric of anti-immigration as the panacea for all the islands' problems. The result has been inaction. While the politics are at a standstill, multispecies assemblages—composed of farmers, their crops, and animals—have not followed suit.

### **Illegal thriving**

Lacking official documents, illegal farmers cannot own farmland, and yet, for the same reason, they cannot work in the coastal towns, where the requirement of the residency in order to work is enforced more strictly. As a result, working in the highlands has become the only option available to them. Illegality both gives rise to a problem and hinders its solution. In the highlands, migrants have fewer chances to be caught and expelled than if they lived in the coastal towns. Farmers inhabit a marginal zone between the unpopulated park and the densely-inhabited coastal towns. Illegal immigrants suffer from being denied access to the little support and assistance that the state offers through the ministry of agriculture. The *asistencia tecnica* (technical assistance)—what the agronomists who define themselves as *de campo* (who work in the field) prefer over *el trabajo de oficina* (desk work)—consists of periodic visits to farms, discussions with farmers, observation of crops and, when available, administration of a small dose of chemical fertilizer or pesticide for the plants. The expansion of the state during the current presidency of Rafael Correa has resulted in increased bureaucratization and accountability (Novo 2014). For MAGAP, this has practically translated into keeping logs of all visits to farmers. Illegal farmers are reluctant to sign their names in official documents; as a result, they have increasingly renounced this service, which had the ostensible goal of better

serving farmers. Besides technical assistance, state financial incentives to farmers through MAGAP are beyond reach for illegals. While suffering from their status, illegal farmers have also taken advantage of the state's little interest in agriculture on the Galapagos. Illegality has affected their mobility, finances, and health, but it has not removed them from the islands. Farmers continue to live in the highlands, precariously yet permanently. Manifestations of their stubbornness under conditions of undesirability describe what I call *minor thriving*.

In their critical analysis of language as a social force, Deleuze and Guattari identified two contrasting yet equally constitutive modes of its articulation: the major and the minor (Deleuze and Guattari 1986). The former is the dominant, sanctioned one, which proclaims and enforces rules. The second (*pouissance*) is the mode that lacks power (*pouvoir*) but produces itself in constant variations that threaten to unmake the major rule. Far from being an abstract object of academic interest or an inert aspect of society, for Deleuze and Guattari, language constitutes a machine, an order-word assemblage with tangible existence and consequences. In its major mode, language is also a manifestation of institutional power. The relevance of language extends well beyond linguistics and could apply to all systems of power that inform a society (cf. Foucault's discourse). Applied to the Galapagos, the *major* forces are conservation and tourism. Though not always converging, they have informed politics on the Galapagos for the past sixty years. The *minor*, Deleuze and Guattari contend, is not what the major excludes, but rather what proliferates in the margins. Illegal farmers operate in a minor mode.

What form of thriving could these modes afford? Deleuze and Guattari closely tie the 'minor' to their concept of becoming. 'Becoming' refers to a process that never stops. This durative characteristic maintains the tension that the potential (to become) places upon what could be transformed by it (the actual). Observed in language, the minor presents itself in a form

of impoverishment (“a shedding of rules”) coupled with a “strange proliferation” (Deleuze and Guattari 2004, 115). Off the grid of legality and yet difficult to get rid of, farmers constitute a form of unwanted-ness and thus, for the logic of the “major,” a strange proliferation. The vitality of the minor is in fact the generative source in a society. The minor, Deleuze and Guattari admonish, is the becoming of everybody; in other words, becoming is always minor. If so, learning about the ways farmers thrive—their role in Galapagos society and ecology—invites us to consider what falls outside, or rather in the interstices, of the major institutions of tourism and conservation: invasive species, illegal farmers, and, in a place where the Park has for so long aimed at the restoration of ecosystems to their pre-discovery state, all humans (Bensted-Smith 2002).

## **Juan**

I first met Juan at the Saturday market in town, through another farmer. Shy but polite, he gave me his phone number and we agreed to meet the following week. I walked a good mile to find his place, after my taxi driver refused to continue the search in the maze of nameless dirt roads in the low-central highlands of Santa Cruz. Short and of a strong build, Juan met me on the road and we walked back to the farm and sat on unused Eternit pipes at the entrance. He lives alone in a shack made of odd wood boards, leftovers from construction work, and several metal sheets patched together for a roof. His house’s smallness was perhaps the reason we were balancing on broken, toxic pipes outside.

Juan raises a few pigs and some chickens, and has short rows of vegetables amid the otherwise fallow vegetation on his three hectares of flat, rocky terrain. We were courteous but

our interaction was awkward at first, as we didn't know each other. During the silences we looked up at his house, of whose modest appearance he was not openly embarrassed, but certainly not proud. Tied to a pole next to his shack, his two dogs never stopped looking at me suspiciously. They showed me their sharp canines and barked whenever Juan left me for a few seconds. Perhaps they, too, felt the vulnerability of their owner? He is illegal, he told me without reticence. A friend in common had mentioned my name to him, vouching for my good intentions, and we were able to talk without preamble or vague allusions. He knew that, though interested in his migratory status, I was not there to report him and seek his expulsion. Juan told me that he had lived on Santa Cruz for over ten years, well before the police's regular check points started, in 2006. The owner of the farm where he lives, also named Juan, has never been interested in legalizing him. For Juan the owner, the time and money involved in the bureaucratic process of seeking temporary residency for his worker has rendered this option uninteresting, especially since the negative consequences of not doing it are not his to face.



Author, 2014

Juan thus owns and doesn't own the farm. The Juan I spoke with lives on the farm, but doesn't own it. And vice versa for the other Juan, the landowner. This confusion—a coincidence of name but a divergence of destiny—is symptomatic of the profound changes that have affected Galapagos over the last fifty years. Once the center of colonization, now farms are relegated to a marginal place, where undocumented immigrants live. The Juan who officially owns the farm doesn't even live on the island. From time to time (“*de vez en cuando*”) Juan flies to the Galapagos to check on the farm and the other Juan, the farmer. But the real business for Juan the

owner is downtown, where he owns a restaurant. Otherwise, most of the time he lives in Quito. He is a permanent resident of the Galapagos Islands, which means that he can be on the islands or off as he pleases. For him and the many other well-to-do residents of the islands, the permanency of their legal status seems inversely proportional to their actual permanency. The permanent card, in other words, is a passport to get in and out of the islands, not a document to stay. The Juan I met, instead, has continuously lived for years in the impermanent shack made of multicolored, patched-together construction materials.

Over the last three years, police have caught Juan twice. He has received the two notifications that are (sometimes) given to irregulars warning that they will be deported if they are caught a third time. Juan has already played his only two cards, as it were. “I’m done” (“*Ya estoy hecho*”), he told me tersely, gazing down at his shoes. Since the second notification, Juan has kept his profile even lower, with shorter and fewer visits to the city. But he has continued to work every day on the farm. He has taken new measures, adjusting activities in his everyday life that could expose him too much. He sells his pigs directly to the few restaurants in the highlands (mainly for locals during the weekend) or butchers in Puerto Ayora. Also, he still goes to the Saturday town market (*feria*), though with few boxes of produce, which allows a quick retreat in case of police checks. “Being done” has also given him a sense of defiance. He is proud to be a farmer and makes the point of going to the *feria* every week.

“I am not afraid anymore, I have no fear. I go down [to Puerto Ayora] to feed the people (*dar a comer a la gente*). If the police stop me again [on my way to the market] I will show them what I have: broccoli, carrots, herbs (*hiervita*), tomatoes... these are to serve my community [the residents]! I’m here to serve my community (*para servir a la gente*).

I have an honest job (*un trabajo honesto*), I work every single day. I'm Ecuadorian and I'm here to feed the people. I have no fear.”

Aside from his modest cultivation and raising pigs, he works as a day laborer (*trabajador diario*) on farms scattered across the highlands whenever they need help—planting new banana trees, clearing invasive plants in pastures, harvesting tomatoes. There, he chats with the farm workers and gathers the latest news, which he then shares with other farmers. Updates on the precipitation in different parts of the highlands, which farmers and crops are doing well, and who has been notified by the police thus circulate informally as farmers quietly move and meet. He uses collective taxis for transportation when one passes by, since they are more discrete than a motorbike. Though one would be useful for moving across a large area with minimal public transportation, the motorbike isn't only prohibited by cost: the law prohibits it as well. (Besides, the *cupos* (the licenses) to own the fixed numbers of motorbikes are already taken.) Many farmers I met have a motorbike nevertheless, which they use only in the highlands. If they have enough capital to invest in one, it can save them money by allowing them not to use taxis every day. Juan can't afford the expense. If he isn't in a taxi, Juan simply walks, sometimes for hours. “I like it,” he told me as we were walking to Bellavista. “I check on other farms, the animals, the pasture... The landscape is beautiful (*el paisaje se ve bonito*), and calm. I have travelled all over Ecuador to work, but I like it best here. When I walk I don't bother anyone and no one bothers me.”

I met Juan the owner at his restaurant in town. He was surprised to learn of my interest in agriculture, yet he enjoyed talking about it. For this Juan, his farm represents a past he is not ready to relinquish. His parents moved to the Galapagos in the seventies. At that time, the only form of tourism involved millionaires whose private yachts circled the islands—it had no impact

on their livelihood. His parents bought 20 hectares of land and planted *camote* (sweet potatoe), yucca, and corn. Thirty years later, they moved to town for economic reasons, as Juan began working in a restaurant, and because he wanted to have his aging parents close by. He sold a large portion of the farm, but not all of it. To Juan, the farm is tied to his childhood, to family, and to a past livelihood and way of life.

For landowners, abandoning land is a part of the widespread, progressive course through which the Galapagos' highlands have changed. As it is widespread, on the other hand, their personal attachment to the land. On the Galapagos, a farm is both a repository of the old times on the islands, when to eat a fruit you would simply pick it from a tree, and the site of a future business: a hotel, a rental house, or maybe a restaurant. Islanders' investments in tangible assets, especially hotels or apartments, are relentless. In the towns, many houses do not have a roof, but rather an unfinished new floor, in the hope it will rise both their house and social status. As a consequence, steel bars for future columns sprout invariably from the last floor and dot the urban landscape by the hundreds, like antennae of animals feeding on the constant flow of tourist money waiting for the next architectural growth spurt. Though they live in coastal towns, permanent residents are reluctant to let go of farmland. Their transition from farm to town is incomplete: many landowners imagine future re-engagements with their land.

Recent immigrants, whether legal or not, keep the farms alive, and make landowners' dreams of going back to the land someday possible. Immigrant workers, suspended in the impossibility of becoming permanent residents and the likelihood of lapsing into illegality if they are temporary residents, maintain landowners' unresolved relationships with their land, due to the discrepancy between their livelihoods and where their memories lie. Like other illegal workers, Juan the farmer is affected by and participates in this stasis. But he has also found ways



to adjust to the ambiguities and restrictions of his status. As we walked together to the closest village, we talked more, and more freely.

“Before the Galapagos I was in the *Oriente* (the Ecuadorian Amazon). Land was cheap but it was too violent. I like it here instead. Since I moved here I mind my business and got a decent job (*un trabajo honorable*). There is always work for me: coffee, tomatoes, clearing invasive plants (*limpieza*)... I need to be careful [as an illegal immigrant] but I am accustomed to that: no alcohol, no prostitutes, no parties (*sin trago, mujeres, farras*)... but it’s much better than the Amazon. I have been here for almost ten years. I am a Galapagueno more than anything else... and for longer than so many other people! I want to continue to stay here, I’ve learned how.”



Author, 2014

## Lucy and Ramiro

Ramiro came to Santa Cruz in 1998, less than a year after the immigration law was passed. The landowner, Don Patricio, informally hired Ramiro to clear four hectares of forest in his land and to plant *Cedrela odorata*, an invasive tree with beautiful wood used for making furniture. Ramiro's wife and son quickly joined him. They have lived on the Galapagos ever since. Together, they have looked after Don Patricio's cattle and a small banana orchard, though the owner's economic interests in these activities is limited. In the dry season, which begins in January and ends in May, Ramiro has to remind the landowner multiple times to request the MAGAP water tank for his farm. As for the bananas that Ramiro and Lucy have harvested for him, some weeks he doesn't even go to the farm to pick them up. Don Patricio lives in Puerto Ayora and owns a successful hotel and restaurant, which keep him busy... and wealthy.

Don Patricio's sixty-hectare farm is but his share of the large farm that his parents owned. They arrived on the islands in the sixties and successfully grew coffee and raised cattle. But when cruise ships opened the islands to a steady flow of tourists, all of their children moved to Puerto Ayora to work in tourist agencies, restaurants, hotels, or aboard ships. Don Patricio's portion of his family's farm plays but a marginal role in his life, or that of his family. Since his idea of planting trees for furniture failed, he has taken little interest in the farm. The *Cedrela* trees thrived, but not the business he planned for them: too much competition among farmers keeps the prices of the wood low. *Cedrela* is invasive: it grows and multiplies without human assistance, making it common on the island. Once abandoned the plan of tree harvesting, a dense forest of cedar trees of the same height has grown down by the dirt road that crosses his farm. Don Patricio is not doing anything with the cedar trees, or with pretty much anything else on the

farm. He pays Ramiro and Lucy a small salary and gives them some staple foods (rice, meat, legumes, vegetable oil). His goal is to keep the cattle and the farm alive, because the farm belonged to his parents.

But Ramiro and Lucy complement this meager salary with other activities. Initially, Ramiro worked as day laborer on other farms, where he got the idea to set up a greenhouse. Several farms have greenhouses, because they allow continuous production of tomatoes and peppers, which are among the most requested produce in the market, even during the rainy season. Ramiro thought that a small greenhouse could nicely complement their crops in the open field. Growing vegetables is not among Don Patricio's job requirements, but when Ramiro and Lucy began to farm and sell their vegetables at the market, Don Patricio didn't mind, nor did he asked for a percentage of the profits. Building a greenhouse, however, was a different affair altogether. Greenhouses are made of arched steel tubes kept in place by wire, and are erected by a few skilled workers who recently arrived from Latacunga, a central Andean province on the mainland, where greenhouses are common. I saw them at work on a farm, suspended by an invisible wire several meters above the ground, skillfully assembling the tubes and connecting one row to the other.

Ramiro's plan to build a greenhouse, for its expensive infrastructure, required a new infrastructure of arrangements with Don Patricio, his boss and landowner. Ramiro proposed to him to hire the greenhouse builders. Then, Ramiro and Lucy would have worked on planting, harvesting, and selling; Don Patricio would have received a percentage of the profits. He rejected the plan—why go through so much trouble if his hotel and restaurant were doing well? But they were free, Don Patricio told Ramiro and Lucy, to do whatever they wanted, just not with his money. Yet the materials alone—the tubes, wires, and plastic sheeting—would have cost several

thousand dollars, to which they would have had to add the cost for the assembly. Ramiro and Lucy had some savings, and they were eager to improve their livelihood by increasing their production. By then they had three children, and the fixed salary they received for maintaining the farm was less and less sufficient to cover their expenses. But they were (and are) illegal, with no certainty whatsoever that they would still be on the island the next year, or even the next week. Though careful about their public exposure, they knew that they risked being expelled at any time. Why invest in the farm if the very variable that would have permitted them to reap the benefits, time, was so uncertain? The landowner didn't invest because he didn't care; Ramiro and Lucy could not invest even though they did care.



Author, 2013.

Their solution was a form of minor thriving: a small investment with a limited yet important yield. Despite the lack of support and dearth of means, Ramiro and Lucy decided to build their own greenhouse. Instead of light, sturdy, but expensive steel bars, Ramiro used large

dried logs from trees strewn around the farm. Instead of the roof's full arch motif that repeats exactly every couple of meters (to adjust to different field sizes), Ramiro used an intricate, messy assemblage of PVC pipes covered by plastic sheets, flat and overlapping. During storms, rain water leaks around the logs, around which there are always large buckets, which Ramiro and Lucy use to water the plants. Messy, but it works. Despite the extra work of manual watering and constant repairs, Ramiro and Lucy have been able to grow plants that couldn't withstand the rainy season if planted in an open field. New to this type of cultivation, they had to learn about soil and pest management in greenhouses by trial and error. Despite pests, repairs, mistakes, and no state assistance, Ramiro and Lucy regularly sell fruits and vegetables from the greenhouse and draw a small yet important extra profit. Away from MAGAP's reach, their agricultural model is rather a bricolage: an infinite string of ad hoc measures that keep the greenhouse structure from undoing itself, and keep the system of production from halting. Minor, but thriving.

Their thriving pertains also to the type of agriculture they embrace. When working on other farms, Ramiro used herbicides, pesticides, and fertilizers, which he concluded made him sick. Years earlier, for a good month he had suffered from strong stomachaches, joint pain, and severe fatigue. He used to spray on crops and often eat vegetables from the farms on which he worked, and he thinks that *los químicos* (the chemical fertilizers and pesticides) were responsible for his illness. Since then, Ramiro and Lucy have renounced any chemical additives or control of their crops, though Ramiro still uses chemical pesticides to kill invasive hill raspberry (*Rubus niveus*) and *sauco* (*Cestrum auriculatum*) in the pastures. The hill raspberry spreads aggressively and covers large expanses if untreated; the *sauco* is poisonous and even lethal to cows if they ingest it. Clearing invasive plants from areas for pasture is one of the few requirements with

which he must comply, since they threaten the very survival of the farm as Don Patricio intends it: something with the potential to become productive again in the future, or that does not diverge from his memories of the farm beyond a point of no return. But invasive species control is a requirement of Ramiro's job as keeper of the farm. By doing this, he participates in the dominant form of agriculture in the highlands: extensive, cattle-oriented, and reliant on agrochemical products.

However, since his illness, Ramiro and Lucy grow vegetables and fruits relying instead on natural pesticides, manual uprooting of weeds, and compost for fertilizer. After repeated attempts, they have learned that a combination of garlic and jalapeno peppers, fermented in vinegar for over a week, works well as a pesticide on all of their plants, in the greenhouse or open air. Similarly, his compost is the result of years during which Ramiro worked on and perfected it. He deems it highly effective, not only in boosting growth but also in keeping his plants strong and therefore less susceptible to diseases. For years he had struggled with his tomatoes plants: the high humidity most of the year is conducive to the growth of parasites that debilitate the plants and affect the production. As Ramiro's natural pesticide helps only up to a certain point, Ramiro was enthusiastic about the final results of his compost: plants were healthier and could fend off parasites by themselves more effectively. "They [the plants] are like human beings: if you are healthy [i.e. strong] you never get sick... The same happened to me: since I've stopped with the chemicals [in his garden] I don't get sick anymore... Eating well has made us both [the plants and himself] stronger!" Years later, the local high school once asked Ramiro for a sample for a national competition among schools aimed at promoting organic farming. Ramiro's compost, as he would always remark with pride, won first prize! There was no money associated to the prize, unfortunately. Nor did he receive much recognition, aside from



the minimal one that he elicits every time he tells the story. The school students were notified, and they notified Ramiro, but no journalist interviewed him. Small enough not to threaten his necessary anonymity as an illegal, yet sizable enough to make him happy, a modicum of pride has motivated him to continue growing organically ever since.

Because of the need for anonymity, Ramiro and Lucy do not promote their products as organic at the local market. Though they grow organic for their own health, they know that it adds value and could increase their profits if clients knew. Illegal farmers grow organic vegetables, with both their illegal status and the organic status of their vegetables unknown to everyone else. Ramiro and Lucy could simply write it on a small banner in front of their stand, as I naively proposed to do at first. They responded that customers would not care. Their answer, as I learned over time from similar cases, deflected attention from them to something else—in this case, their customers—whether legitimately or not. That locals wouldn't be interested in paying more for an organic product is a partial truth, but certainly not the reason why Ramiro and Lucy do not have a banner explaining about their organic products. Rather, Ramiro and Lucy did not want to draw special attention to their stand. The real reason, the calculus of exposure, was expressed in the form of their answer (negative and elusive), not its content. Being undocumented, they aimed to blend into the crowd rather than stand out: the opposite of any marketing strategy. Their thriving, by both growing healthier products and selling them for profit, had to be kept in a minor key.

### **The importance of being Ernesto, a farmer**



Ernesto came to the Galapagos in 2000, a few years after his brother Jorge. Because he arrived after the promulgation of the immigration law, he could not become a permanent resident, unlike Jorge. Both brothers work on a cattle ranch, one legally, and the other not. The landlord runs a very successful tourist agency: his father came to Santa Cruz in the sixties and was among the first to begin working in tourism, opening the first hotel on the island. With the profits from the hotel, the father also bought land and cattle in the highlands, which the son still owns. Ernesto and Jorge look after his cattle and farm.

I first met Ernesto at a meeting of a farmers' cooperative, of which he is a proud member. Not being a permanent resident, he could not officially participate, but in fact he was among the founding members of the association! Both brothers joined the nascent farmers' cooperative, as they hoped to receive state incentives for agriculture. But Ernesto was worried about the repercussions of new anti-immigration discussions and hoped that joining the cooperative would be a visible sign of his determination to farm. As any political intervention in the highlands in the following years has languished, he is less optimistic about the promises of the association. His passion for the land (*la tierra*) of highlands has continued, however, and so has his view on his job of tending the animals and the farms.

At 6 am every day, the brothers go to the ranch, where for the rest of the day they clean the stables, feed the cows, and milk them. An important task is to keep the pasture lush and free of invasive plants, which could rapidly cover large stands of the farm if untreated. As is common on the Galapagos, clearing is done by machete and manual uprooting. Though taxing, this is the best way to selectively get rid of invasive plants while leaving grass intact. Also, with a machete, farmers can reach all plants in irregular terrain. Using a machete ("*dar de machete*") demands strength and stamina, but also precision. Properly used, the machete often hits rocks below the

soil, with a swing ample enough to cut the plant but controlled enough not to break the *hilo*, the blade's sharp edge. As they make contact with rocks, machetes produce a distinct pastoral soundscape, heard only by those working on the farm. It does not bother them, they told me, and it didn't bother me either: it was a sign of work well done.

Both brothers share a passion for their work, but for Ernesto farming has an additional value. To him, to caringly cultivate the land demonstrates his commitment to cultivating his ties to the Galapagos. With me, his brother Jorge lamented the state of neglect of the farms and the state's desertion of the rural highlands. But for Ernesto, being a farmer is his chance to live a respectable life and aim for a stability beyond what the uncertain process of the yearly renewal of his residency affords. Surprisingly, he was more positive about work than his brother was. Ernesto's daily practices of care allowed him to cultivate his future along with the plants, despite all the uncertainties and constraints. For him, being a farmer is a chance to thrive in a minor mode.

"I like my job," Ernesto told me one evening. We were talking outside his house before dusk, after work. With confidence and pride, Ernesto told me that he likes to look after the "right" plants and eliminate the others.

"We know about plants (*nosotros sabemos de las plantas*). You need to take care of the pasture otherwise it withers... when the hill raspberry grows dense in thickets it's too late, you know, cows can't go through, not even us Christians [humans]! Only the pigs, with their heads pointing to the ground, can go there. The *sauco* you know, kills cows. She [the cow] looks weaker and weaker for a couple of days and then can't even stay up. She dies after moaning for hours... it's horrible. If you don't care for (*si no cuidas*) the land or abandon it... everything falls apart (*todo se descuida*). Other plants are good, but you have

to know them. The *musgo* on the guava trees [the epiphytic fern on their branches] helps the soil stay humid... There are good and bad plants. You need to know, it's not that everything is the same. *Hay que saber las cosas* (you need to know how to do things)."

As with Ramiro and Lucy, Ernesto's care for the land is not reflected in his illegal status. Not a resident, he can't officially own land, a house, or even a motorbike, though he owns all three, illegally.

Ernesto and his wife Belgica live in the western part of Santa Cruz's low highlands, where land is flat but rocky, and precipitation scarce. Due to the poor soil conditions, farming is limited and land is cheap. It's the only type of land they could afford to buy and on which they could build their modest home. They have a small house with three rooms: two bedrooms and an entrance that serves as a kitchen and living room. They bought their small plot well before the Law began to be enforced. Next to the house the semi-arid vegetation is slowly growing on a previously cleared area.

"That man (*eso señor*) [the owner of the land next to Ernesto's farm] lives *abajo* (down), in Puerto Ayora. He is legal... He has a restaurant and a house there but has also 20 hectares of terrain here that he leaves fallow. Years ago he cleared one hectare right here in front of us, he wanted to build a house. He cut everything, *lechoso*, *matazarno*, *mayagua*, *palo santo*, *caco*.<sup>35</sup> But at the end he didn't build anything, he ran out of money, or he didn't care anymore. There were beautiful *caco* and *mayagua* trees, how old must they have been? Even if he did build the house he could have spared the rarest

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<sup>35</sup> Respectively, *Scalesia cordata*, *Piscidia carthagenensis*, *Hibiscus tiliaceus*, *palo santo*, *Erythrina velutina*. Endemic trees of the arid and transitional zones.

and most valuable trees (*los arboles más preciosos*). People say they are *Gualapaguenos* but in truth they don't care about the land or nature (*la naturaleza*)."

We sat on plastic chairs on his porch as the evening began to fall and mosquitos encircled us. We looked at the quick, vertical equatorial sunset through the tangle of thorny vines in front of us, which grew tall after the neighbor cleared and then abandoned the land. From the bush sprang young *guayabillo* and *maracuya* trees; earlier I had recognized the latter from their flowers of delicate white petals and bright yellow and mauve pistils. The Park listed both tree species as invasive: they grow faster and outcompete endemic trees of slow growth such as the *matazarno* and *caco*, whose conspicuous absence was on display before our eyes. "There used to be tens of *matazarno*," Ernesto remembered. "At least I cut the dead trees and used them for my house!" Earlier, he had showed me their small plot of land behind the house, where watermelon and pineapples plants lay on the dry soil, and some tomatoes plants are hoisted with strings on frames of dry bamboo sticks. Because there is little rain and too many rocks, these are the only crops that Ernesto and Belgica can grow.

They wish they could buy land elsewhere and have an actual farm. But they can't, since they are not permanent residents. Meanwhile, the owner of the land next to theirs leaves it fallow. Listening to Ernesto and Belgica, their situation grew clear in my eyes as the chat uncomfortable for my body. Well past dusk, we were surrounded by hundreds of mosquitoes, their buzzing barely perceptible but their itch clearly felt. However, my interlocutors were happy, enjoying the cool air and quietly immersing themselves in the rich texture of the evening's sounds. The night closed on us completely: there were no neighbors nearby, nor lights. "We like living in the highlands," Ernesto and Belgica explained, calmly waving their hand around their

necks, foreheads, arms, legs, and feet to brush away mosquitoes. “We are not cut out for the city.” I jotted down these words, my right wrist pressed against the notebook on my leg as my pen scribbled, while my left arm blindly hoped to disturb mosquitoes before they could bite. “We wouldn’t be able to live crammed together with other people [in the cities], away from the farmland. After all, you need to take care of the land (*hay que cuidar la tierra*), if not, look what happens!” As he said this, his nose imperceptibly lifted to point at the darkness in front of us that enveloped the abandoned land. “If peasants like us don’t work the land, who does it?” he remarked emphatically.



It was time for me to leave and go back to the city on the coast. A taxi driver friend came to pick me up. The lights of his car, almost absorbed by the total darkness of the moonless night, looked like those of a boat on the sea. As for fishermen, living on farms is only for certain people; others would not adjust. But for Ernesto and Belgica, they had found his place in the highlands with his family and were determined to stay.

**Between the park and the city: illegal farmers' minor possibilities.**

Juan, Ramiro and Lucy, and Ernesto articulate overlapping forms of minor thriving. The responsibility that Juan feels to feed the residents infuses his work with meaning, despite the humiliations of being an illegal farmer. Ramiro's and Lucy's organic agriculture benefits the land, themselves, and the buyers of their products. Lastly, Ernesto's everyday work as on a cattle ranch has given rise to a vernacular moral ecology, which draws on a constellation of plants to care for, and another of ones to get rid of. Taken together, their commitment to the land is resilient. Uncertainties about their future on the Galapagos have not prevented them from cultivating, literally and otherwise, ties to the Galapagos. On the contrary: their marginality has heightened the purpose of their work: selling healthy food, caring for the land, providing for the local population.

Landowners enable these forms of minor thriving, in its complicated coexistence of limitation and possibility. As Juan's case illustrates, landowners often exacerbate farmers' economic or legal marginality by not giving them contracts and thus excluding them from the

option of becoming temporary residents. On the other hand, landowners rely on farmers to vicariously take their place and hold onto a piece of Galapagos' history. Despite tourism being by far the main source of income on the islands, and despite the fact that the society has adapted to and grown around this industry, historic settlers are not ready to let go of their family farms. Their economic interest in running those farms is often limited. Profits from agriculture and cattle are modest and have to be weighed against the expenses of periodic invasive species clearance and the high cost of imported seeds and fertilizers. Rather, their interest in the land lies between memories of their past and their hopes for future engagements. Ultimately, landowners participate in the making and, by their constant deferral of engagement in their land, unmaking (or making minor) of the highlands.

Juan, Ramiro and Lucy, and Ernesto and Belgica illustrate the liminal condition of farmers. They are in between landowners' past and future, the park and the city, their own hopes to be legalized one day and their fears of being expelled at any time. Such a condition of liminality arises from the fact that they are interlopers, a condition they share with the invasive species that grow in the highlands, which they combat on a daily basis. Local politics treat immigrants as a self-explanatory and uncomplicated problem: more people, more natural degradation. Invasive species share the same signification as a proxy of natural degradation, while at the same time they are seen as a consequence of immigration—since new immigrants are accused of smuggling new seeds. Though they are the ones who actually confront invasive species (plants, parasites, or simply mosquitoes) in their work, in public opinion undocumented farmers share similar characteristic of nuisance and even threat. But in the interstices of divergent policies and hypertrophic bureaucracies, concrete fears and imagined futures,

unavailable land made available through other means (such as a priest), farmers live, hide, and on their own terms, even thrive.

Social theorists have long discussed ways to analyze and promote forms of being that are alternative to society's rules and status quo. Torn between the desire to anticipate a redemptive future and the need for a critique of the present, scholars have oscillated between more or less grandiose forms of alternative socialities. Foucault's 'heterotopia' famously theorized spaces of resistance or otherness, in which the space's very possibility of existence vis-à-vis the incorporation of dominant forces is always questioned (Foucault 1984). Anthropologists' commitment to local contexts has often granted them a nuanced take on the frail and contested nature of the project of alternative socialities. For instance, in his ethnography of Chaco indigenous group, Blaser stresses anthropology's role in making forms of political resistance visible and thus closer to becoming viable as an alternative, or at least in sustaining its possibility as such (Blaser 2010). Similarly, Povinelli calls anticolonial and alternative social movements in current Australia and the US "spaces of otherwise" (Povinelli 2011). The otherwise, according to Povinelli, can take different forms. It may manifest itself in instances that "shatter a [major] lifeworld" or, as in Blaser's case, struggle just to maintain its (minor) position in a lifeworld. In this latter instance, the simple act of noticing participates in the space of resistance by describing what has the potential to become (Povinelli 2012).

Farmers here belong to the latter case. Their minor thriving refers to the ability to accord their lives to limiting and changing conditions, with all the uncertainty and ambiguity these involve. Calculations about their livelihood are made against these odds, but they are taken nonetheless. Rather than holding the promise of a dramatic rupture of the present and acting to change it, they live in its fissures. In the face of uncertainty and limitations, they exemplify



persistence. Povinelli reflects that in cases of attenuated potential (to effect change), the simple act of carrying on is a space of otherwise (Povinelli 2011). Abandoning neatly-outlined scenarios of radical change, Povinelli argues that such cases show social scientists the durative aspect of resistance against the traditionally theorized transitive and transformative aspect. Illegal farmers' minor thriving heightens, dilates, and expands a form of parceled, atomized present that is reproducible but not incremental: their present does not add up, it does not lead anywhere. Resolution towards a more stable condition—legally, economically—is constantly deferred. The repetition of an uncertain present is all that is available to farmers given a political regime that is absent and contradictory, rather than directly oppressive. Putting aside long-term planning and investments, farmers devise ways to procure a livelihood that is uncertain yet durative.



Author, 2014

**Conclusion**

The housing conditions of Ramiro and Lucy perhaps best exemplify the marginalization and yet perseverance that inform the lives of illegal farmers on the Galapagos. Ramiro's family lives only a few feet from a new, though unfinished, three-story building. They can see it from their makeshift living room, in which a wire net, instead of a wall, porously delimits inside from the outside. Between the two buildings, chickens and dogs roam around construction debris: broken PVC pipes and wooden boards, a small pond of solidified cement, plastic bags, a broken ladder. There is also an oil barrel, which Ramiro and his brother turned into an oven and grill. The area between the two buildings is a space of transition from the unworried but distracted presence of permanent residents to the uncertain but active one of illegals in the highlands.

In 2008 Don Patricio, the landowner, began the construction of this impressive building. The ground floor was going to be for Ramiro's family; the first floor for Don Patricio's family, as a second house for the weekends. The third floor, with a large balcony for hanging clothes, was going to become a laundry shop. In the end, none of these projects materialized. As a destination for weekends, Don Patricio's children and grandchildren prefer the beach to the highlands. Many of the older settlers were not able to swim and stayed away from the shade-less, rugged beaches, but things have changed. As for the laundry business, Don Patricio continues to rely on shops in Puerto Ayora for his hotel's laundry needs. Again, his business is doing well, and opening a laundry looked more like a hassle than an opportunity. Tourism never stops on the Galapagos, and profits are high all year. With no incentive to install electricity and running water in the building, the two other floors have remained empty as well. Instead, Ramiro's family of five continues to live in a shack. It grew *poco a poco* (little by little) around an old trough, now used for hand washing their clothes. With wooden boards and squares of tin roofing patched together, Ramiro built three rooms, two bedrooms, and a small kitchen and living room. In the

main area, next to an old fridge and an even older television on top of it, there is a plastic table with two plastic chairs. I was usually offered the only one that still has part of its back. Though with a visible break, a black string kept the two sides sewn together, like a frayed sweater. Resting my head on the iron net, I would feel the breeze on my back and observe mice rushing from one side of the room to the other and back, as I talked to Lucy and Ramiro who sat on a bench in front of me.

The unfinished building's commanding dimensions and squared geometry give way, in a continuum of broken or abandoned pieces of trash, farm animals, and recycled objects, to the layered, improvised, heterogeneous construction of the shack. For Ramiro's family, the house would enable a more stable life, the solidity of its edifice operating both as a symbol and as a tangible guarantee of a less uncertain future. But it is empty: Don Patricio could legally occupy it, but he prefers not to. Ramiro and Lucy could unofficially live in it, but they cannot because the house is not quite finished yet, if it will ever be. The space in between connects two buildings that are themselves half-projects. The purpose for both buildings half failed and half succeeded. For Don Patricio's project of a laundry business, or convincing his family to spend time on the farm, there is always a chance that extends into the future. Though excluded from the building and the privilege of deferring, Ramiro and Lucy operate in the extension of a minor present, which allows for minimal improvements, as the expansion of Ramiro's shack around the trough shows.

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Traditionally attuned to organized forms of resistance, anthropologists have not hidden their concern and disappointment at the erosion of such possibility in the time of globalized, flexible labor (Molé 2010; Lewis et al. 2015). Ethnographic attentiveness, however, has also

offered a solution to this impasse, perhaps arising more from the inadequacy of theoretical frameworks vis-à-vis changed times than from lack of vitality in contemporary societies (Biehl 2013). A recalibration of theory from major forms of resistance to minor modes of thriving needs to emerge from ethnographic engagements. This chapter has considered the lives of marginalized subjects, equally condemned by the law and the precepts of conservation to play the role of the impostor and interloper. While situating their condition within a complicated tangle of constraints, this chapter has described the ways in which illegal farmers respond to and creatively address difficulties. If recent scholarship has shown how marginalized actors are nevertheless able to affect their relationships with the state and society, illegal farmers on the Galapagos also play an important role in the ecological history of the islands. Engaging creatively in new types of farming, or perfecting or simply persisting in the ones they have employed for so long, they have articulated a form of vernacular moral ecology that tells them how to care for plants and soil and infuses their labor with a sense of responsibility to grow food for the community.

Spending time with illegal farmers in their farms and houses introduced me to the lexicon of their lives. I learned about their unresolved mix of possibility and constraint over time, sometimes by the obvious manifestation of an event, other times through the accretion of memories of imperceptible facts. For example, it took me a while to understand their silence and reticence to talk about themselves, and even longer to find ways to respond. Other events were certainly less opaque. The shack where Ramiro and Lucy's family live doesn't have a bathroom. They have a toilet across the road from their shack, but for the shower they use a hose next to the trough-turned-laundry. A joke runs in the family: that whenever Ramiro takes a shower, half dressed and in plain sight, a truck from MAGAP or some other visitor comes. His laughter would

show embarrassment at being caught in a private moment. This instance also displays, time and again, the little means of his life, of which he too was reminded in humiliating ways. These events make palpable the everyday life of people whose present has been suspended, and never opens to a clear future. But, as Povinelli reflects (Povinelli 2011), the persistent repetition of acts—such as farming while hiding in the Galapagos’ highlands—produces a continuance that in itself should be regarded as a “space of otherwise” or, as I suggest here, minor thriving.

## **CHAPTER FIVE. INVASIVE KNOTS: UNSOLVABLE MULTISPECIES TIES AND THE UNMAKING OF GOAT ERADICATION ON THE GALAPAGOS ISLANDS**

### **Goats notwithstanding**

On my first trip to the Galapagos Islands in 2010, I took a *lancha* (speed boat) from the central Santa Cruz Island that over three hours relentlessly crashed against an agitated winter surf to reach Isabela, the westernmost inhabited island of the archipelago. European, fair skinned, and, like Charles Darwin, disastrously prone to sea sickness, I was on Isabela for reasons having to do less with witnessing natural evolution than investigating the aftermath of a deeply controversial human intervention in nature: the world's largest goat eradication (Carrion et al. 2011). A multi-million dollar GEF (Global Environment Facility) grant, the largest of its kind ever issued, funded a multi-institutional effort by the United Nation Development Program, the Galapagos National Park, the Charles Darwin Foundation, the Galapagos government, and the Ecuadorian Ministry of Agriculture, Fishery, and Livestock. The *Proyecto Isabela* (PI) goat eradication recruited thirty-eight hunters locally; weapons, veterinarians, hunting dogs, helicopters, and pilots came from all over the world. Together, they pieced the most sophisticated, and deadliest, eradication assemblage ever attempted. 250,000 goats were shot dead over an area of 600,000 hectares during six years, from 2001 to 2006. Mangled by multiple shots and their legs stiff in death, piles of carcasses lay on the steep slopes of volcanoes or on the immense and arid lava plains, rotting under the equatorial sun.

PI was a success, or so campaign personnel declared once it ended. Due to overgrazing, goats threatened the largest population of Galapagos tortoises in the wild on Isabela, and a large

number of endemic plants across the archipelago in general (Desender et al. 1999). But with their eradication, the promise for preserving the Galapagos was restored. After PI, conservationists moved on to other projects. Nature guides began to mention to tourists the epic achievement of goat eradication with the detached relief that one savors when talking about past menaces. According to many people on the Galapagos, and even more abroad, goats were gone from the Galapagos. But as I walked down the sandy main road of Isabela's coastal town, I spotted a goat outside an unpainted, unadorned house. Tied to an old fishing line, the goat was unhurriedly grazing on vegetation that had sprouted on top of a pile of gravel. With bated breath, I reached into my backpack for my camera and took a picture.

It turned out that, although the eradication project had been deemed successful, eradication was not complete. PI cleared the designated territories, but goats still live elsewhere on the Galapagos, just on fewer islands and in fewer areas.<sup>36</sup> Once it ended, with all the logistics in place, PI personnel wanted to continue with the logical next step: an archipelago-wide eradication. Yet locals, who had protested against PI but couldn't stop it, successfully blocked proposals for complete eradication. Despite conservation's most cogent arguments and best efforts, goats still chew on the islands. Why?

This chapter discusses this intervention as a multispecies practice that has inserted itself in the history of human-goat interactions rather than marking a profound discontinuity—by eradicating goats altogether. PI produced the opposite result from what it intended: rather than sever all ties, it created new forms of human-goat sociality—under the techno-scientific practices

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<sup>36</sup> PI targeted goats in northern Isabela, Santiago, and Pinta. Small populations of goats still live on Santa Cruz, San Cristobal, and south Isabela.



of eradication—and urged locals to re-affirm and even create new modes of engagement with goats. PI's sustained intervention acted upon and yet exposed even further the reason why goats are still on the islands: their ties to humans.

PI personnel justified goat eradication as a necessary consequence of the care for the endemic species that goats threatened, such as the endemic tortoises. Studies about Galapagos tortoises abound, and international attention to this and other iconic species never fades (Santander et al. 2009). Though targeting goats, PI wanted to maintain this focus on famed and often endangered animals: actual information about the eradication campaign, which ranged from the search for funding all the way to the evaluation phase, was kept at a low tone to avoid protests from animal right activists. In the following pages I take the opposite approach: I keep tortoises at the margins and bring goats to the fore. Goat killing becomes here the subject of ethnographic attention.<sup>37</sup> Discussing PI as a continuous intervention, I ask if the latter is itself a form of care, justified by the care for the endemic animals and yet unfolding in different practices and assuming controversial social and ethical valences.

Though it may sound counterintuitive, I discuss eradication and care to understand how species live together, in knots (Haraway 2008; Rose 2012). Below, I show that goat eradication is a worlding practice—in fact a set of practices—that draw together strands of biology and fibers of socialities to recombine them into something new. In the wake of *Proyecto Isabela*, goats'

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<sup>37</sup> Engaging in multispecies ethnography, this and the next chapter de-center anthropology's traditional unit of inquiry, the *anthropos*, to investigate the lives of humans and animals and reflect on the faith of both. Kirksey and Helmreich offer four criteria by which multispecies ethnography is anthropological: relatedness, exchange, governmentality, and signification (Kirksey and Helmreich 2010). Though carrying the imprint of Foucault's scholarship, their explanation clarifies the anthropological relevance of all strands of multispecies ethnography.

diminished yet defiant presence is an invitation to recombine the elements of endemic and invasive nature that eradication so neatly intended to divide. Defying to untie, multispecies knots force ecological and anthropological thinking to “slow down:” to abandon long-used ideas about relationships, and practices of separation, between nature and society (Stengers 2010).

Telling an uneasy story of a techno-scientific intervention, this paper reflects on another form of uneasiness: that of social sciences and humanities in turning a lucid and dispassionate eye on ecological landscapes that are messy, and that stir up uncomfortable reactions. Yet these terrains literally cover more and more ground globally (Tsing 2015). They are characteristic of the inhospitable, anthropocentric time of global environmental change. To understand these “blasted landscapes”(Tsing 2015), where humans have intervened but the outcomes have been far from what we intended, becomes a critical tool for cultivating the chances for humans to live in them.

### **Care for Culling**

“A way of caring over here could kill over there” (de la Bellacasa 2011)

The decision to execute an eradication campaign rested on the assumption that it was going to be a definitive solution to goats’ ecological nuisance. Literature in conservation biology proliferates on the virtues of eradicating invasive species. Ecologists often portray eradication as “a cost effective and theoretically neat solution to prevent future or current impact of invasive species” (Lavoie et al. 2007; also, Wolff and Gardener 2012). Eradication of one species’ population results in fewer kills than periodic population checks do over time, thus offering both

economic and moral advantages. As for the “theoretically neat” aspect, eradication ostensibly gets rid of the problem, the invasive species, once and for all: what could be neater than that?<sup>38</sup>

Whether highly critical (Bird Rose 2009, Nelson 1993) or in favor of eradication (Rolston III), work in social sciences and humanities has implicitly shared this assumption—that eradication always works. In post-human and animal studies and environmental humanities, social scientists have mainly focused on the ethical implication of eradication or invasive species management (Van Dooren 2011; Clark 2015, Ginn et al. 2014) Yet they have neglected to turn an ethnographic eye to eradication itself, instead assuming its effectiveness.

Instead, I discusses eradication as a practice, rather than a fact.<sup>39</sup> Eradication, this chapter shows, is an intervention into the matter of life and the flesh of death. PI exploited goats’ sociality, and even their very biology, in profound ways. Goats were studied, modified biologically, lured, pitted against each other, chased, betrayed, poisoned, and shot. Hunting techniques were devised to counter the fact that goats modified their behavior as the campaign progressed. Goats were even enrolled in the campaign for their own death. Sterilized and fitted with radio collars, hundreds of so-called “Judas goats” led hunters to goats who had survived earlier phases of eradication and were looking for a new herd amidst the landscape of their obliteration. Furthermore, in a procedure never attempted before, PI personnel injected hormones in a sample of female Judas goats to increase their estrus and their ability to attract goats for

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<sup>38</sup> Mack and Forster (2009) go so far as to describe eradication as a “single lump payment.” Words of cautions are in Atkinson et al. 2012.

<sup>39</sup> On the critique of facts, cf. Latour 1999. Drawing on Deleuze and Guattari’s immanent philosophy, Latour makes a distinction between a fact and a factish, minimizing the former and arguing for the ubiquitous presence and relevance of the latter. Rather than an independent, self-contained “thing,” a factish is an event that implicates both the object and the subject, thus being unstable and contentious. Latour’s factish helps us understand eradication as a form of practice.

longer time periods. PI thus brought to life a new gender of goats in order to plunge their species into a localized annihilation.

Yet the nimble mammals are still on the islands, due to locals' protests. Settlers who have not participated in the tourism boom of the last two decades have voiced their attachment to goats the most. Fishermen and farmers have traditionally lived with, and hunted, goats. As in the 1980s and 1990s tourism and conservation have consolidated, fishermen and farmers have suffered from a double marginalization (Quiroga 2009; Ospina and Falconí 2007). Compared to tourism, their economic activities have become less and less economically relevant, while they have been increasingly restricted by policies aimed at protecting archipelago ecosystems. Fishermen and farmers feel as though they are the remnants of a past way of life on the islands, before the joint regime of tourism and conservation. Their ties with goats are historical and cultural. And, in response to PI and the ensuing project of complete eradication, these ties became also political.

Eradication produced new goats and human-goat socialities, but ecologies too. Areas freed of goats have subsequently shown uncontrollable growth of invasive plants. Targeted for grazing on endemic vegetative species, goats had in fact also gnawed at invasive ones, whose eradication is now deemed even more difficult than removing goats. Whether present or absent, goats generate problems: practically and ethically, eradication proved more complicated than social and natural scientists expected.

'Care' may help us grapple with this complexity. Reflecting on the eradication of feral donkeys in Australia, Bird Rose offers the most compelling moral critique of eradication (Rose 2008). She denounces the method of using Judas animals, individuals of the targeted species fitted with radio collars and used to locate the herds, for betraying the cross-species connectivity

that makes of a geographical territory a “country”, a flourishing and organic homeland (Rose 2004). In her powerful argument, white settler colonialism in Australia has been a violent, wild project that ignores and destroys aboriginal practices of “care of the country.” I value Rose’s description of care as commitment and purposefulness, in which humans take responsibility for their actions and their ecological consequences. However, by unraveling ethnographically the contentiousness of PI’s eradication campaign, I am interested in complicating her univocal judgment about eradication, implicitly or overtly shared by many scholars, by probing further the notion of care.

STS and feminist scholarship has used the concept of care to bring to light practices that are hidden, marginalized, and affective (Held 2005; Tronto 1993; de la Bellacasa 2012; Engster 2005). Work in animal studies and environmental humanities has showed how care for an endangered species can be ambiguous, coercive, and even violent (Van Dooren 2011; Haraway 2010, Giraud and Hollin 2016). Drawing on these two bodies of literature, I treat eradication as a form of care. In doing so, my goal is not to “explain it away” as a form of benevolent practice but rather to fully illuminate the complex, ethically-inflected, and controversial aspects of eradication.

The lens of care allows us, first, to account for the domain of *practice*: the sustained interventions that eradication demands. STS and feminist scholars have long engaged with ‘care’ to make visible forms of labor otherwise hidden (de la Bellacasa 2011; Held 2005) whose presence is necessary for the constant attunement between scientific knowledge and practice (Mol 2008). Recent work in anthropology and STS has explored how animals are part of nature-culture assemblages, often aimed at the production and reproduction of species for economic

purposes.<sup>40</sup> Though the goal is not economic but ecological, and the result is the end of the species' life and not its continuation under set parameters, PI too engages in sustained interventions in the targeted species. On the Galapagos as elsewhere where conservation measures take place, saving species on the brink of extinction requires great determination and continued effort (Hennessy 2013; van Dooren 2014). But so does the elimination of species responsible for an ecological threat. There is nothing inexorable about keeping one form of life alive and making another die. Both implicate humans, ethically and practically, in profound ways. Struggles to attain an invasive species' death are a continuation of those devoted to keeping alive an endangered species: both demand certain types of *care*. Eradication should evoke the image of continuously attending to an open wound in the tissues of living biota rather than one of swiftly performing a surgical incision. Achieving mass death is a laborious business. Taking this approach, eradication is a practical event that *matters*: whether it achieves its goal or not, it reconfigures society and nature.

Second, 'care' help us grapple with the ethically-inflected and affective domain of practice. In the words of Puig de la Bellacasa, care "could mean more than the responsible maintenance of technology, and still not become just a moral value added to the thinking of things" (de la Bellacasa 2011). Care reminds us that techno-scientific interventions are informed

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<sup>40</sup> *Contra* a tradition within anthropology that looks at animals solely to learn about humans. The former were referents and symbols of human affairs, devoid of autonomous social agency and significance. Emerging from this tradition, scholars have looked at invasive species as figure of human sentiments: of national purity, xenophobia, and anxiety about post-colonial national identities and economic wealth (Comaroff and Comaroff 2001; Lidström et al. 2015; Peretti 1998; Subramaniam 2001). This approach shares a common blind spot with conservation: whether interested in the symbolic valence or individual biology of the species, both allow little room for inquiries into how forms of trans-species socialities have resulted in configuring the "invaded landscape" at hand (Swanson 2015; Callon 1984).

by and provoke diverse modes of affective attachments. In the case study I describe, these attachments are sustained by, and elicit, controversial ethical justifications. Ecologists, veterinarians, and park personnel cared about the forms of life that goats threatened to wipe out, thus acting for *a* form of ecological connectivity. Caring for Galapagos' endemic tortoises and plant species led to caring against goats. The connectivity that care brings forth (D. B. Rose 2004) expresses itself through favoring some forms of life over others. The consequences of care for tortoises are lethal to goats and, for their very hidden and controversial nature, caring too.<sup>41</sup>

Third, rather than describing uncomplicated actions, 'care' points to the contentiousness of caring practices.<sup>42</sup> Recent work in animal studies has argued that conservation measures aimed at protecting endangered species are not always as irenic and uncontroversial as we have imagined. Reflecting on coercive practices for insemination and breeding of endangered whooping cranes in the US, van Dooren talks about forms of "violent care" whose goal, that of saving a species from its course towards extinction, doesn't grant us to pass on the ethical concerns that these very practices raise (van Dooren 2014; van Dooren 2011). Care thus does not consign us to the realm of speculative critique but rather exposes the highly contentious nature and practice of eradication. Care, thus, is not harmonious; on the contrary, it contains and opens

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<sup>41</sup> This ecological motivation sustained even eradication's most controversial measures, such as leaving dead goats to putrefy on the ground. Local settlers proposed instead to recover them and sell some of the meat. But PI personnel refused, for they wanted to "close the loop" of a nutrient cycle (Lavoie et al. 2007). Via plants, goats extracted nutrients from the soil; if removed, these minerals and organic components would have been subtracted from the ecosystems. Rotting offered the only possibility, if slow and distressing, for returning those nutrients to the soil.

<sup>42</sup> In doing so, my attempt is in dialogue with anthropological work on hunting in indigenous societies, which has long argued that killing animals needs not be separate from loving attachments with the animal (Willerslev 2007; Fausto 2007). Bird Rose too refers to hunting as an intervention inscribed in a process that "twists death back to life" (D. Rose 2013).

up for the divergence across opinions and practices that humans have and do when intervening in, living with, and killing animals (Shelton 2004). If life and its flourishing can be also pursued via lethal means, eradication deserves a form of “ecological” analysis that looks at the complexity of life webs in which it intervenes.<sup>43</sup>

As for doing eradication, writing about it is controversial too—and for that it is a type of care. This applies to the Park’s very limited publicity about the eradication campaign while it was taking place, and to this very chapter. Talking about species that face extinction, van Dooren affirms the role of storytelling as a form and elicitation of care (van Dooren 2014). I second his call but in order to do so, unlike work on eradication so far, I treat eradication itself as an object of curious, ethnographically-inflected study. Care and curiosity implicate each other: we cannot be caring if we are uncurious.<sup>44</sup> To tell this story and tread on a controversial terrain, I ask readers for a curious predisposition before judgment sets in.

### **Excess, transgression, invasion, eradication: on goats on islands**

“The goat is greatly responsible for the deforestation of the Mediterranean basin. Not only do goats eat vegetation: they uproot plants. They attack every single leaf of trees and shrubs, which can’t reproduce anymore. Goats do even more: they stand on their rear legs in order to reach higher branches of trees. No one believes it is possible to stop goats, whose agility is prodigious.” (Furon 1958, my translation)

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<sup>43</sup>. ‘Ecology’ refers here not as a closed arrangements of multispecies interaction but rather as a framework that opens to complexity (Stengers 2013).

<sup>44</sup> On curiosity, Haraway 2008.



Titled “The sweet goat, symbol of devastation,” this article was published almost forty years before the inception of Proyecto Isabela. In the same issue of the UNESCO journal, Austrian ethnologist Eibl-Eibesfeldt reported on the ecological threats to the Galapagos, among which introduced species figured in a prominent position (Eibl-Eibesfeldt 1958). Such vulnerability to the effect of introduced species, though heightened due to the Galapagos’ remarkable biogeographical isolation, is in fact a common characteristic of islands worldwide. Islands host a disproportionate number of species that have gone extinct if one looks at their relatively small land coverage compared to continents (MacArthur and Wilson 2015). 31% of extinct plant species and 26% of the threatened ones are, or were, from island nations (Campbell 2005). If extinction in the past six centuries has impacted insular species the hardest, the culprit is non-native mammals: rats, feral cats, but especially goats. In fact, the Galapagos Islands and goats’ ecological impact figure as opposite symbols (of pristine nature and destroyer of it) that emerge out of a long history of caprine proliferation around the world and the progressive realization of islands’ unique ecological value. The Galapagos stand as a quintessential instantiation of pristine nature with the same intensity with which goats personify the agents of nature destruction: the convergence of these two long histories (of isolated evolution and worldwide proliferation) has become a matter of concern to ecologists and park officials on the Galapagos.

Goat domestication is believed to have occurred in western Iran around 10,000 years ago, with the inception of agriculture, but spread rapidly. People valued goats for their milk and meat; goats moved from society to society and beyond. Goats have contributed to the deforestation of large areas around the Mediterranean basin, from North Africa to the Middle East and to Southern Europe. Paleoecologists have confirmed the devastating effects that goats wrought to vegetation that authors in ancient times such as Cato the Elder noted (K. J. Campbell and Donlan 2005).

In Europe, the earliest recorded goat introduction was on Holy and Lundy Islands off the coast of Great Britain in the middle age, but goats followed European transcontinental travels soon after. Goats have been on the Galapagos for the two centuries of permanent colonization, which began in the 1830s (Latorre 1999). They in fact preceded it, since pirates brought goats to the islands as early as the seventeenth century (Dampier 1699). Goats have been pirates' food, eremites' companions, and settlers' source of income and means of colonization. They benefit from a low metabolism, efficient digestion, omnivorous diet, low water requirements, and a high reproductive rate. Like humans, if not better, goats proved successful at adapting to and thriving in the rugged and arid Galapagos Islands.

*Proyecto Isabela* was the most ambitious use of a conservation tool, eradication, that was always meant to address ecological and ecologists' distress. In the fifties, the presence of invasive species and people alike provoked shock and fear among natural scientists visiting the islands, which prompted the establishment of the Charles Darwin Foundation and the Galapagos National Park (Eibl-Eibesfeldt 1959). As a consequence, eradication campaigns figure among the very first measures that the park took.

Biologists and ecologists noted goats' systematic negative impacts on vegetation as soon as they established a permanent research station on the archipelago and could periodically visit all of the islands (Hamann 1975). Peter Kramer, director of the CDF, reminisced with me about his trips to deserted and relatively small islands in the earlier 1960s. Far from the image of scientists as modest witnesses, he and other scientists brought rifles with them. Once arrived at the small island, they would shoot goats until they couldn't find any. "There was no planning, no technology... just us, the few people living there, who felt we had to do something." They knew about goats' ecological impact but also knew the limitations of their own rudimentary control

techniques. “We would inspect the cliffs by slowly navigating with our boat. But I knew that, despite this, they were hiding there” (interview, 2015). Starting as early as 1961, attempts at goat eradication continued to fail, with only a few successful exceptions on small islets, until Proyecto Isabela.

The decades of failure were due to the fact that a successful species invasion has a quality of excess, of transgression of ecological boundaries and defiance of human control, for which partial decimation of the population does little but clear the space for a robust come back. As park personnel grew to understand, every single goat individual had to be removed for an eradication to succeed. This was not primarily a semantic concern but rather an ecological one: conservationists on the Galapagos have learned that one single pair of goats, or even a pregnant individual, could rapidly bring back an entire population. Since goats have provided a much needed variation in a diet of fish and tortoises, fishermen have always carried with them these animals across the archipelago. Fishermen introduced a couple of goats in Pinta, a deserted island north west of the archipelago, in the early sixties. In only a few years that pair of goats grew to a population of 50,000 individuals!

Because of this *excessive* logic, work in critical social sciences has probed the moral dimension, or the lack thereof, of eradication campaigns and invasive species management. While the very goal of these interventions often hinges upon a rigid temporal divide that separates nature (in the past, to be reverted to) and culture (the time when European settlers arrived), scholars have argued that the labeling of animals and practices that target them (such as “invasive species” or “humane killing” and “euthanasia”) obscures the moral implications of conservation (Bensted-Smith 2002). Though agreeing that it is an important point, I argue that eradication should be

examined more closely. Rather than a single intervention, eradication demands continuous care and an unprecedented intervention in goat's bodies and sociality.

On Santiago, the second biggest island that PI targeted, the Galapagos National Park had attempted to eradicate goats for thirty years but, never succeeding, the goat population always bounced back. With the goat population growing, what was once impenetrable vegetation became barren soil. A CDF official who used to take long hours to walk to the hill top of the island was shocked to see how easy the trek had become! Goat-induced erosion transformed a once pristine landscape into a war-torn zone, a description ironically recurrent in reference to the effects of PI. Excess permeates both ecological invasion and its contrary, eradication. In Proyecto Isabela, eradication's excess—all or nothing—responded to, inverted, but ultimately mimicked the prodigious, excessive proliferation of goats on the islands.

The risk invasive species pose are not just environmental but also economic and to human and animal health. Invasiveness is indeed about breaking barriers: geographical (the division between protected and human areas) but also categorical--between ecology and humans. The breakage of an ecological barrier was the immediate justification for PI. Perry Isthmus dramatically divides south Isabela, of a horizontal shape, from the center and the north, which are narrower and oblong. It stretches from east to west along a seven-mile wide lava corridor between the Sierra Negra volcano in the south and Alcedo in the north. Devoid of vegetation, this isthmus consists of bare lava of the sharpest kind, which makes walking, human or animal, difficult if not impossible. For its impassability, Perry Isthmus had created two tightly-delimited ecological communities, technically termed 'ecological islands,' that had evolved separately for millions of years (Warren et al. 2015).

For over a century, goats had only lived in the south of Isabela, where there were also human settlements. But in 1966, a Park ranger spotted a few goats north of the isthmus, on the flanks of Alcedo. Undisturbed, the population grew fast. In the early 1990s, park wardens who climbed the volcano were dismayed to observe goats' effects on vegetation. Before goats reached the volcano, wardens trekking on scorched slopes of pumice pebbles would pass through low, dry shrubs and gray *Palo Santo* trees. Closer to the caldera's rim, endemic *Scalesia* trees dotted the landscape that hosted *Chelonoidis nigra vicina*, the largest population of Galápagos tortoises in the wild (de Vries 1984). Nestled in *Scalesia*'s branches, epiphytic ferns and orchids' leaves captured water particles in the air and condensed them on the ground. In these drip pools, tortoises drank and bathed. By the mid-nineties, all of this was gone. What a herpetologist described to me as the "impenetrable forest of Isabela's volcanoes" had disappeared completely (interview 2012). Goats' grazing converted forest and shrub into grassland. Lower humidity in the newly treeless landscape increased erosion triggered by goats stomping (Desender et al. 1999). Instead of trees and drip pools, there was a barren landscape and dust. Instead of tortoises, goats.

The *nigra vicina* subspecies had not died out, but did face the distinct possibility of extinction. Goats were eating everything: not only all kinds of vegetation but even tree bark. Goats' versatility in surviving in the Galapagos' harsh environments possessed an almost demonic quality: as incredulous settlers observed, goats even drank salt water from the ocean (Latorre 1999). After a trip to the volcano in 1992, an ecologist remarked on the difference between tortoises' rather clumsy mechanics of eating and the precise, voracious one of goats. For goats' "sure-footed mammals" (Merlen 1999), eating had been sharpened by millennia of ferocious competition within their own species and against others. In a picture that later became infamous,

a goat placed its front legs on trees' trunks and even the top of a tortoise's shell to reach higher leaves, in an involuntary sign of defiance and domination, not unlike images of safari hunters posing on their trophies. The ominous image that, thirty years earlier, Furon evoked in describing goats' impact in the Mediterranean basin (Furon 1958) represented itself with a renewed force in the birthplace of natural evolution and protected nature, the Galapagos. *Nigra vicina*'s shells had evolved with an arch above the neck to reach higher leaves, but goats hastily and unceremoniously dismissed this delicate line of evolution. The picture mobilized international support for some conservation measures against goats. With exactness, it captured the un-verbalized uneasiness for what stood as the ultimate affront: goats' opportunistic bipedalism. Not only threatening to annihilate millennia of tortoise evolution, it perhaps too eerily made goats resemble humans, alike in our tendencies to both proliferate and trample on nature.<sup>45</sup>

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<sup>45</sup> Similarly, in her discussion about flying foxes in Australia, Bird Rose reflects on the uneasiness motivating the rage against and killing these animals: "something of them that reminds us of us" (D. B. Rose 2010).



A meeting in England in 1994 marked the inception of *Proyecto Isabela*. Ideas about how to proceed ran as wild as the animals conservationists intended to eliminate. As a human-led eradication seemed plainly impossible to many, some proposed introducing lions, on the grounds that, in Africa, lions eat goats (Campbell 2014). As for the likely growth of the lion population due to the initial abundance of food (goats) and its projected, indeed desired, complete depletion, and

the consequences of having a large population of hungry lions on a human populated island such as Isabela... proposers of the idea hadn't thought that far. Also, likely due to goats' vigorous feeding habits and the abundance of food, scientists admitted that goats in Alcedo were beautiful: large with curly horns, bright furs, and of a commanding size. What could be done about the situation? Despite the skepticism on the possibility for a successful eradication, a decision was reached and the largest goat eradication campaign ever attempted began.

### **Killing goats**

“There are many deserving causes in Galápagos that urgently need attention, but few can equal the imminent destruction, not just of a species, but of the essential ambiance of the Galápagos Islands. I believe that it would be worth the clattering roar of helicopters, the chatter of guns, the movement of many people, and the endless investment of money to ensure the survival of this milieu *Galapagueño* before it is too late” (Merlen 1999).

The clatter of helicopters is what Doña Carmela remembers most about the eradication campaign: “For two years we had the noise [of helicopters] over our head ... from the town to the park, to kill goats. Two years! It was like a war!” Proyecto Isabela used helicopters on the expanses of volcanic landscape, with soil too brittle and the areas too vast to be covered on foot. The Galapagos are volcanic islands that straddle the equator: fierce sun, little water, and thick vegetation on rocky terrain or barren lava beds, depending on the altitude. Helicopters were but one aspect of the campaign. Mules carried hunters into the dense thickets on terrain above the arid coastal region. One hundred dogs from New Zealand and the Galápagos, specially trained on the islands, accompanied hunters. Outfitted with special boots to protect against the heat and the sharp lava rocks, the dogs corralled goats into specific areas or found individual goats hiding in



clefts. Semiautomatic shotguns, Benelli's M1 Super 90, came from Urbino, Italy.<sup>46</sup> Targeted by a symphony of hunting techniques deployed in a concerted fashion, *almost* all goats were killed.



Estimates suggest that nearly 99 % of the entire goat population on Santiago and 90 % on Isabela were killed. The remaining population learned that humans, no longer allies in the islands' colonization, had become their enemies. Goats had lost their "innocence": hiding in inaccessible caves, they made themselves undetectable. Even a small remnant of individuals holds the promise of regenerating the whole population, however, and cannot be tolerated by an eradication campaign. On both islands, the surviving goats, now educated and wary, constituted

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<sup>46</sup> Urbino was one of the prime centers of 15th century European humanism and home of the Duke of Montefeltro, the influential promoter of artists such as Raphael, after which Benelli named one of its signature gun. Arguably, PI's use of Benelli's arms re-purposed the late Renaissance aesthetics of *natura morta* ('still nature' lit. 'dead nature'). Though stillness resulted from lethal technology and not artistic sublimation.

the biggest problem, as they eluded standard hunting techniques. Goats, the hunted game, had learned the hunting game that helicopters, dogs, and humans were playing.

“In an effort to avoid educating animals, a systematic approach is needed,” wrote PI field assistant and veterinarian Karl Campbell. (To control masses, whether of people or goats, education should always be avoided.) He proposed adding an additional hunting technique to the human, canine, mule-assisted, and helicopter-based ones. Hunters would capture hundreds of goats, fit them with radio collars, and release them onto Isabela’s plains. These became the Judas goats, the betrayers.<sup>47</sup> Goats, as Aristotle wrote of humans (Aristotle 2004), are social animals: their aversion to isolation would lead them to find their peers. Sending invisible beeps to a satellite and back to the island, goats would remotely tether PI hunters armed with directional antennas, first, and rifles, second. Once the goats were found, hunters would kill all except the collared goats. Two weeks later, the hunters would return. Having just recovered from the previous massacre, the collared goats were expected to have found the strength once again to look for peers, to be gregarious, to hope for the future. On Isabela, this succession of shooting, allotted time for psychological recuperation, and more shooting went on for over two years.

Unlike the biblical figure, Judas goats were not aware of the scheme in which they were protagonists, but the end result was the same. Prevailing above everything, the herding instinct propelled eradication as inexorably as a natural force. There were certainly unforeseen complications, such as when a Judas goat would find other collared goats rather than

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<sup>47</sup> A Spanish church protested the use of biblical names (F. Cruz, 2014). On Judas Goats, see (Taylor and Katahira 1988).

unmonitored ones. In that event, all but one of the goats would be killed, the radio collars retrieved, and the survivor monitored to lead to further killings.

Judas goats were helpful but not decisively so. Female Judas goats would get pregnant, lose their sociality, and thus stop leading PI hunters to other goats. Following the pregnant Judas goats, radio antennas would beep in a diminished cacophony. Helicopters would fly longer distances only to find fewer goats. In the midst of an eradication campaign, their pregnancy meant a respite for their species in more than one sense: not only by procreating new life but also slowing down death. Local extinction due to Judas goats alone would occur too slowly and at too great a cost.

“I started then to think about how to improve this. What would be the perfect, ideal Judas goats?” Karl Campbell reflected (interview, 2014). He was thinking about a Judas goat that would search for, and be searched by, other goats in perpetuity. What may sound like a Platonic quest for an ideal animal in fact unfolded in the realm of actual goats. Since veterinarians identified males searching for mates as the main driver of gregariousness, strategies to increase estrus became key. According to PI veterinarian Campbell, the literature had established that “[e]strus duration may be increased by denying penile intromission during estrus”—admittedly rather impractical in the wild. The other known cause of a longer estrus is nymphomania, “a poorly understood condition often diagnosed as cystic ovarian disease.” “While nymphomaniac behavior would be desirable in Judas goat operations, it is unknown how to induce this condition,” Campbell reflected (K. J. Campbell et al. 2007).

Putting aside the desire for an always desiring goat, Campbell resolved to capture female goats, terminate any pregnancies, sterilize them, and inject hormone implants. As a result of a procedure that had never been attempted before, estrus would not last for the typical twenty days

per year but for an astonishing one hundred eighty days. Since transportation to a veterinary camp would have been costly and time-consuming, Campbell operated on goats, one by one, on the scorched slopes of Isabela's volcanoes or the treeless volcanic plains of the lowland. Famous as "the natural laboratory of evolution" (Larson 2002), the Galápagos became less a site for observing gradual changes over time and more a setting for artificial and deliberate variations on mattering: the making of a new goat. With a scalpel, anesthetics, and hormones, PI recombined the elements of female goats into something new: oversexualized individuals devoid of the ability to bear life but with an irresistible talent for delivering death.

The more their instinct for gregariousness prevailed over the landscape of death, the closer came eradication. The Judas goats, surpassing 600 individuals, were thus divided: 33 percent fertile female, 33 percent male, and 33 percent sterile females with implanted hormones. PI personnel called the latter "Mata Haris," after the famous Dutch spy working in Indonesia during the First World War (K. J. Campbell et al. 2007). Female spies are imagined to be attractive, after all, and definitely not entangled in the laborious, motherly business of pregnancy. Fusing the otherness and allure of tropical exotics and female deception, Mata Hari, the goats' third gender, performed 1.5 times better than other Judas goats. With the creation and deployment of Mata Haris, PI personnel achieved what many experts believed impossible. Care (for the tortoises) killed the goats. Nowhere in the world had a mammal eradication of such magnitude ever been attempted (Carrion et al. 2011). If achieving it seemed to be a chimera, a fanciful dream for conservationists, the key to PI's success lay in the *careful* forging of an actual chimera, a monstrous goat.<sup>48</sup> The only way to realize a chimera was to make one.

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<sup>48</sup> Etymologically, chimera means goat (Χίμαιρα, *himera*). In Greek mythology, Chimera was a monstrous animal that, with a lion's head and a caprine trunk, terrorized a province in south



Eradication in the targeted areas finally occurred when all but the Judas goats had been eliminated. However, a few were left in place to facilitate future monitoring. In the end, hunters were dismissed; mules, other introduced feral mammals, and even hunting dogs killed; helicopters and weapons repackaged in boxes and shipped out of the islands. The project concluded as planned: by effacing any trace of itself and allowing “nature” to take center stage. Eradication was designed to eliminate all signs of its interventions into pristine nature, including its own. Photos the park circulated showed the rapid regrowth of vegetation on the rim of the volcano. These images were juxtaposed with ones taken in the seventies, before the advent of goats, and thus before the eradication campaign. “I would like to say that we have done what the

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Turkey. The hero Bellerophon finally killed was aided by Pegasus, a winged horse (a precursor of PI’s helicopters?) (Woodard 2007). For other chimeric uses of animals in contemporary techno-scientific practices see Etches 2016.

world believed was impossible! Goats are part of Santiago's [and Isabela's] history," PI's director exulted (Lavoie et al. 2007). Once the history of their human introduction had been erased, goats gained the status of historical facts. Only their absence allowed goats to figure into the annals of Galapagos' history. Goats' menace to endemic tortoises and ecosystems seemed nothing more than a parenthesis in the million years of placid unfolding of pristine nature, while eradication appeared to be a shining example of technocracy and human genius.

### **Resisting care**

In fact, PI did not resolve matters as unambiguously as its supporters claimed. Resistance to goat eradication was expressed as opposition to the prospect of an archipelago-wide eradication but was already present during PI, as some of the hunters attempted to boycott it. The official publication about the project issued by the park proudly notes that 95 percent of the hunters were *Galapagueños*, anticipating the common complaint on the islands that jobs are outsourced (Lavoie et al. 2007). Yet among these hunters, even those most renowned for longstanding collaboration with the park, there was uneasiness with eradication. Miguel told me about his son, a park's warden, and his troubled feelings about killing so many goats. "During the weekend he would come to my house and, with the kids away during the afternoon *siesta*, say that he was tired of shooting goats. 'It's not why I chose to work in the park!' he would tell me." "After weeks of walking and shooting I got fed up. I loathed killing goats, especially in Santiago," said his son. Carlos, another hunter, talked to me with embarrassment about his experience with corralled goats in Santiago. His task was to shoot goats, one by one, for hours.

The dull repetition of killing, devoid of the fair rules of hunting and scaled up to the level of a massacre, understandably affected hunters. Yet there were also other reasons for resisting PI. “I was born and raised *en la parte alta* (in the highlands),” my friend Mauricio told me. “As a kid I learned to ride horseback, later I looked after the cattle and started to hunt—goats, feral cattle, pigs, but mainly goats. I joined the eradication [PI] for the money, but the idea bothered me that with my kids I will never be able to go on a friend’s *lancha* (small boat) to Isabela and hunt goats for a weekend.” While we were hiking through the impenetrable vegetation of the highlands, he once confided that during goat population control measures on Santa Cruz following PI (which took place as a compromise after protests against archipelago-wide eradication), he and other hunters spared young goats and pregnant females. “We were OK with killing goats, but eradication seemed like too much!” he told me.<sup>49</sup> But, he added, “it is something that we kept to ourselves.” Other hunters revealed that even on Santiago, during PI, they recorded some kills when in fact they let goats go, until they were required to provide a piece of ear for each goat they killed as evidence.

Second, PI took place during a period of tense relationships between the Galapagos National Park and fishermen. To voice their frustration against quotas of catch set by the park, fishermen released goats on goat-free islands. A diving cruise once spotted one goat on Wolf, the most remote island of the archipelago, 120 miles from park headquarters in Santa Cruz. Two park rangers and a photographer sailed there. Wilson Cabrera, a park warden, eventually shot the goat. They sailed back, against the wind and current, on an interminable forty-hour journey in rough seas. “It [the goat] was a message,” Wilson told me resolutely. For this reason PI officials

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<sup>49</sup> “*Matar si, pero erradicar nos pareció demasiado!*”

decided to leave Judas goats longer than they had anticipated, in order to alert the park of potential introductions. If there were goats, Judas goats would reunite with them, sending their GIS location to the hunters. For fishermen, goats served as a message to protest against the park; to respond, the park deployed Judas goats. Far from gone, goats became at once signified and signifier, message and messenger: a fishermen's symbol of rebellion and, for the park, a technology to further its policies. Judas goats stayed on the islands for almost two years after PI officially ended. Ironically, the project devoted to getting rid of goats intentionally left some on the ground. Because they were neutered, they would not increase the number of goats. Yet, their lingering presence symbolized a further departure from the image of eradication as a one-off, neat intervention. Surviving the most systematic and technologically-advanced killing of mammals ever undertaken, Judas goats were left grazing in the wake of their own species' eradication, amid thousands of carcasses—sterile but useful.





The defiance of PI's aspirations was not only symbolic, nor human: during the campaign, goats' resistance added to human defection. James Scott has drawn attention to the minor modalities of protest in which oppressed people engage, whose significance, or even existence, long escaped historians' and often even their own oppressors' awareness. His book *Weapons of the Weak* masterfully describes the fragmented, uncoordinated, yet diffuse ways in which peasants in a small Malaysian village expressed their dissent and acted against the status quo (Scott 1985, cf. also Hribal 2007; and Wadiwel 2016 for animals). As in Scott's case, PI's official documentation, amid the dazzle of graphs and data, did not include acts or missed actions of protest, human or caprine. As for the latter, goats resisted by learning, escaping, hiding,

standing still. After all the interviews and conversations I had about PI, the most poignant image I was left with was that of immobile goats under the vegetation, the noise of helicopter blades hovering above and reverberating all the way to the coastal town of Puerto Villamil on Isabela. For animals of prodigious agility, the decision to stop came only after learning from the infelicitous fate of those that moved. It was, indeed, the little available to them to resist, likely merely to postpone, their elimination.

Fourth, eradication of one species, even if successful in severing that species' ties with humans, often falls short of bringing about radical improvements in ecological communities. On Santiago, the immense island where PI eradicated goats completely, not endemic vegetation but rather blackberry (*Rubus niveus*), the worst invasive species in the Galapagos Islands (Renteria et al. 2012), has covered great swaths of the highlands with thick and thorny bushes. This is not quite the result that the park expected. "We knew it [*Rubus niveus*] could have been there, but the scale of its comeback... it was something that no one could have foreseen," a friend of mine, a former PI hunter now employed in a conservation organization on the islands, told me softly and almost mystically, afraid of saying too much about a patent display of conservation's failure. It turned out that goats don't have a penchant for endemic species as much as conservationists do: when grazing, goats eat indiscriminately, endemic but also introduced plants. The regrowth of non-native plants in Galapagos was indeed prodigious. Amidst the disservices that they cause, goats provided one positive intervention: keeping invasive plant species at bay. After their eradication, blackberry and guava (*Psidium guajava*) began to cover wide areas on both Isabela and Santiago. Reverting to pristine nature proved impossible for one more reason.



Author, 2013

### **Caprine humanities**

“Goats have always been with us, they have helped us during all this time. I love raising goats... the park cannot exterminate *that* for sure!” Rodrigo spoke to me with a grin showing

disappointment and defiance at once, holding the horn of one of his goats. They are corralled behind his farmhouse, only a few miles from Galápagos National Park. He told me that before eradication campaigns began, Puerto Villamil filled with hundreds of bleating goats when the cargo ship would come every other month. Corralled in the main square, goats were sold to the mainland *en pie*, alive. In those years, he would await with a mix of trepidation and anxiety the return of his father from a week-long hunting trip. Appearing smaller than they are to the naked eye, the plains that contour the two large southern volcanoes outside Puerto Villamil are in fact immense and labyrinthine with thick spiny bushes impeding the vista for those who venture inside. Stories of people never returning still circulate. When Rodrigo grew strong enough, he joined his father in goat hunting. He still hunted as we spoke, his eyes scanning my body while asking me how I would feel about carrying on my shoulders and neck deskinned quarters of bloody, warm, dead goats. Rodrigo lives in Isabela's highlands, where subsistence rather than tourism still governs daily chores. "*Turistas ... pocos. En verdad, no hay!*" he told me, oscillating his forearm back and forth longitudinally—the Ecuadorian sign for having a problem. "*Sigo con el ganado y la cacería hasta que Dios y el parque quieran!*" ("We have few... actually no tourists here! I keep hunting until God—and the park—want!").





My friend Gabriela, a farmer, would often mention goats as she reminisced about the Galápagos “before all this [tourists, cities, people, NGOs, 24-hour electricity] existed.” When she was young, activities on the farm, not the regimen of a work week, marked the rhythms of everyday life. Days were spent planting crops, harvesting, riding horses to the beach, exploring the highlands, hunting goats. “*No entiendo todo este furor contra los chivos* (I don’t understand all this rage against goats),” she once told me, “while *la gente abajo* [people who live in the coastal town of Puerto Ayora and work in tourism] keep smuggling pet dogs onto the island!” Two decades ago, she cofounded a small tourism agency in Puerto Ayora that managed a

sailboat. She has always loved exploring the islands, and organizing excursions around the islands seemed like a great opportunity. But when tourism picked up, people became competitive and greedy. Her business partner changed too and the relationship deteriorated. She quit without even claiming her share. Now the travel agency is among the many that benefit from the steady influx of tourists to the islands. “*Ya no hay conciencia que estamos en un parque.* Meanwhile, I keep buying *carne de chivo* (goat meat) from hunters, to support them,” she told me resolutely.<sup>50</sup>



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<sup>50</sup> “There is no awareness that we live in a national park.”

PI produced the opposite result from what was intended. Contrary to its goal, PI created new forms of human-goat sociality under the techno-scientific practices of eradication and urged locals to reaffirm and even create new modes of engagement with goats. Goats now live on farms on only three of the five inhabited islands. Whether on farms or feral, goats serve the local meat market. *Seco de chivo* (goat stew) is a delicious dish served on the islands. Though there are fewer than before, hunters continue to venture into the highlands to search for goats. Still nowadays, a type of care for goats exists on trails through thorny bushes to the rugged, scorched volcanoes and back, drops of goats' blood falling intact on the dry soil.





Author, 2012

### **Resisting solution**

“Goat eradication offers a permanent solution with a single investment.”<sup>51</sup>

Social scientists have long criticized conservation measures for ignoring the ways local societies inscribe species, endemic or not, into their cosmologies, livelihoods, and everyday lives

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<sup>51</sup> “La erradicación ofrece una solución permanente con una inversión única y final.” Lavoie et al. *Atlas*.



(Moore 2012; Carrier and West 2013; West 2006; Comaroff and Comaroff 2001) Yet they have made the same mistake by considering eradication as a detached, self-contained intervention, failing to see how it reconfigures multispecies assemblages. Often touted as a one-off, perhaps crude but efficacious way to deal with invasive species, eradication instead requires sustained, sophisticated, and extraordinary efforts, and it is always rife with possibilities of failure. Discussing its social, biological, and ecological reverberations, this chapter has argued that PI has generated “ways of life” (van Dooren 2014) which weave together humans and other species, and “unraveled” others.<sup>52</sup>

Recognizing eradication’s limits implies a need to question how viable it is to try to preserve the Galapagos as a bastion of pristine nature or even to seek to restore it to such a status. Yet this always has been conservation’s founding principle and ultimate horizon in the archipelago. The goats presently gnawing on Galapagos endemic plants are a reminder of scientific uncertainties and ecological complications that accumulate and overlay. The paradigm of conservation, one that divides pristine nature from locals, continues to fail. The demise of eradication and the survival of goats illustrate not only a crisis for conservation, but also the stubbornness of unwanted nature and, since local inhabitants resisted goat eradication, forms of multispecies sociality before which traditional conservation tools are impotent.

If conservationists believed eradication could achieve a *solution* to the problem of a species invasion, its failures invite us to rethink what a successful outcome might realistically entail. Eradication’s powerful but narrow application is impotent before knots of invasive species, as I discuss the next chapter, and knots that tie humans with invasive species like goats,

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<sup>52</sup> Cf also (Sodikoff 2012)

as I contend here. Etymologically, ‘solution’ (Lat. *solutio*) refers to loosening and untying strands, or ties, that formed a problematic knot. PI’s practices of careful mattering have paradoxically produced a novel instantiation of the invasive knot that ties goats and humans together, rather than *solving* it. Even if successful in severing a multispecies tie, the eradication of one species often falls short of effecting radical improvements to ecological communities. The unstoppable proliferation of blackberry (*Rubus niveus*) on large swaths on Santiago Island after PI’s goat eradication is a case in point.<sup>53</sup> Furthermore, eradication practices and results show that the very goal of ‘solution’ becomes uncertain. Scientists hoped to loosen the knots that tie one particular invasive species to other invasive species (including humans), endemic species, and Galapagos ecosystems. Yet the outcomes of sixty years of conservation suggest the opposite. This chapter has shown that ties between goats and people resisted and continued after eradication, which is why the problem didn’t get fixed, or the knot untied.

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<sup>53</sup> (Renteria 2006).



Author, 2012

## **Conclusion**

“It wasn’t pretty...” Gil de Roi told me reticently, in an effort to keep for himself the images that came to his mind. We were talking about dead goats after PI. Gil’s family is an institution on the islands: Gil and his mother, father and sister left Belgium fifty years ago. They have lived ever since on the Galapagos Islands and never stopped exploring them. Their love for the island has a long record: Gil’s father collaborated with scientists conducting fieldwork there,

one of whom named a new land snail after Gil's father, in recognition.<sup>54</sup> His sister is a world-renowned photographer of nature on the Galapagos. As for Gil, he continues fishing, hiking, or sailing for days to see the eruption of a volcano on another island up close, the incandescent sea of lava sizzling into the ocean and warming the air. On one of those trips he climbed volcano Alcedo on Isabela, just after PI had ended. "It wasn't pretty, what shall I say? The way a lot of goats died wasn't clean... lots of them mangled, you see. And all these animals left to rot... not a nice spectacle for sure!" Gil was almost embarrassed and preferred not to talk further. Generally, he agrees on taking conservation measures to preserve the endemic animals of the Galapagos. But he was uneasy about PI, though he largely kept it to himself. At last, he added: "They [the park and other parties involved in PI] wanted to protect the Galapagos, I get that. But it looked like someone bombed the island!"

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To care, its etymology reminds us, is to grieve.<sup>55</sup> In an intervention in which hundreds of thousands of animals died and ways of life faced extinction, caring as grieving is an important piece of the story. Work in environmental philosophy and feminist eco-philosophy have reflected the dramatic moral consequences of a species loss (D. B. Rose 2004; D. B. Rose and van Dooren 2011; van Dooren 2014). Yet care in conservation urges us to grapple with the challenge of saving life by delivering death. It points to continuous practices that by moral and ecological standards are imperfect yet important to consider, if anything because the problems they address

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<sup>54</sup> *Naesiotus cavagnaroi* (Smith 1961)

<sup>55</sup> "From Proto-Germanic *\*karo-* "lament," hence "grief, care" (source also of Old High German *charon* "to lament," Old Saxon *karon* "to care, to sorrow")."  
<http://www.etymonline.com/index.php?term=care>

don't go away if ignored. A philosophical posture alone, which criticizes eradication as an infallible machine of mass death, is not sufficient if we are committed to exploring the complexity and contentiousness of conservation measures.

Caring for the life and death of species is both a practical and ethical terrain that resists the binary of moral dilemmas about killing or not killing animals. I take the latter approach as in fact an instantiation of human exceptionalism, by which our thinking about animals is not truly affected by the complex ways in which the latter participate in and even constitute our "human" word (Tsing 2012). By surfacing the repressed contentiousness of "being with" other species, 'care' articulates a form of "ecological thinking." By this I don't propose a form of thinking that connects actors in a closed schematic, and even less so one that eliminates humans from scientific study. Rather, 'ecology' here refers not only to the object of the study, invasive and endemic species, and humans, but also to a mode of thinking. This mode accounts for a situation that draws heterogeneous actors together but for which there are no established norms, which causes 'hesitation' and raises questions about each actor's obligation towards the others (Stengers 2006, 2010, also Barad 2006, Haraway 2008, Kohn 2014).

Reactions of horror, though justified, should prompt us to want to know more, not less. Criticized as a colonial mode of ordering nature (Brockington 2002; West 2006), forms of today conservation are in fact helpful in making us understand that humans are implicated in local and global ecologies regardless human willingness to engage or withdraw. In a world where protected areas, mostly in developing countries, cover about 11% of the Earth's lands and continue to expand, understanding, living in, and protecting these places becomes increasingly relevant in recalibrating human actions and a sense of responsibility in the time of the Anthropocene. The unavoidable referent for thinking about the Anthropocene is the perspective

of the sixth mass extinction, in which for the first time in Earth's history a large portion of extant species face disappearance due to anthropogenic causes (Steffen, Crutzen, and McNeill 2007). Cast on this gloomy, overwhelming and yet oddly impalpable fate, the story of PI teaches one lesson above all: that our species is implicated in the lives of other species beyond, and sometimes in direct opposition to, human control and design. Caring practices for living in a changing world navigate these uncertain waters. But care also help us situate our thinking and practices within the full complexity of a more-than-human world.

A time of profound ecological changes similarly demands profound rethinking of humans as a species (Chakrabarty 2012; Plumwood 2002; Escobar 2008). Looking at species at the brink of extinction, Van Doreen and Bird Rose reflect on the Anthropocene as a time of increased human influence to make live and let die species that humans do and do not like (Rose and Van Dooren 2011). Drawing on his observations on the Galapagos and elsewhere, Darwin noted that extinction is among the ways species evolve. Yet the Anthropocene, van Doreen and Rose argue, marks a time in which, unlike Darwin's view of natural selection, humans influence other species' destiny more than ever before. This chapter has pointed to a scenario in which human intention produces consequences for the environment, but not the ones intended, and whose divergence has to be explored ethnographically. The ways humans are implicated and intervene in environments transcend the axiological anthropocentric standpoint: whether we like it or not (the Anthropocene), and whether we like them or not (other species), we are entangled with non-human worlds. Nothing better than showing the world's most sophisticated eradication campaign to be a form of multispecies entanglement can demonstrate this point.

## CHAPTER SIX. UNPLANNED PLAN(T)S.

“Look at this tangle of thorns.” (Nabokov 1955)

This chapter expands on the lesson learned in the previous one: that eradication is rarely conservation’s end point. It certainly wasn’t after PI, and even less so once residents forcefully rejected the plan of an archipelago-wide goat eradication. I examine here the consequences of PI beyond its effects on humans and goats: the spread of three invasive plants and their interactions among themselves and with native species. I rely on invasive species’ defining characteristic—their invasiveness—to traverse bounds of different types: ecological, scientific, and political. Goats and their traces lead the way in this transgression of domains, reassembling of the socionatural (Latour 2005), and crafting of geohistories (Haraway 2016; Povinelli 2016).

With the elimination of large numbers of goats, the shrub *Rubus niveus* (hill raspberry in English) has grown uncontrollably on the Galapagos’ uninhabited islands. Only goats’ voracious herbivore diet proved effective at keeping at bay this plant. On the inhabited islands, attempts at eradicating another invasive plant (*Cinchona pubescens*) has inadvertently resulted in facilitating hill raspberry’s invasion. If one were to ask what has happened after PI, the abbreviated answer would be: more invasions, more eradications, more failures. Detailing why, this chapter is the longer answer to the same question. It shifts focus from mammals to plants and, via conservation failures, from eradication to control. ‘Control’ refers to measures aimed at reversing, or at least curbing, the spread of an invasive species with the awareness that completely getting rid of that species, through eradication, is impossible. This chapter shows the unfolding of conservation

measures that went sideways, and sometimes backwards, from the planned direction—back to pristine nature. Plants whose ecology and sociology<sup>56</sup> I will describe here are there to stay, despite conservation’s best attempt to eliminate them.

On the Galapagos and elsewhere, this type of ecological unfolding and unraveling is the subject of hotly-debated discussions gravitating around the concept of novel ecosystem. Much like the ecological assemblages this term describes, ‘novel ecosystem’ is relatively young and contentious: it examines ecological assemblages marked by radical human-induced disturbance with the same scientific curiosity and rigor traditionally deployed in the study of “natural” ecosystems. This theory is not devoid of an ideological move: altered ecosystems are growing in importance in contemporary ecology. Ecologists, proponents suggest, ought to reconsider their exclusive interest in pristine ecosystems along with these changes in nature. A few ecologists working at the Charles Darwin Foundation have proposed this concept to frame the conservation agenda for the most disturbed ecosystems on the islands: the highlands of the inhabited islands. Relieved from the burdensome goal of complete restoration, a novel ecosystem approach concentrates on pragmatic ways to deal with invasive species that are there to stay.

However, the Charles Darwin Foundation and the Galapagos National Park have officially rejected this approach, reinstating the urgency and validity of the traditional approach that aims

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<sup>56</sup> Natural sciences are built around the assumption that both epistemically and practically the natural object is removed from the observer. By extension, human presence or intervention interfere with the results. Though ecology is the discipline interested in cross-species interactions, it puts humans aside. A growing body of critical social science has argued against conceptual barriers that keep animals, plants, mountains, rocks, and landscapes outside of (human-only) society, politics, and the disciplines that study them. I build and expand on this argument: the dyad “ecology and sociology” does not reinstate the dualism. Rather, it signals a discussion about plants that includes ecological studies as well as their participation in human and beyond the human politics.



to restore the islands' ecosystems. Problems on the ground, however, persist. A large number of invasive plants has established themselves in the highlands, in some cases profoundly transforming their host ecosystems. Most eradication campaigns have failed or, even when they have not, assessment of the ecological communities that eradication aims to restore is uncertain and arbitrary. This is because historic data about the highlands' vegetation prior to human permanent settlements is scant. Furthermore, little is known about the extent to which farming and other human activities have modified neighboring highlands' ecosystems (to farmland) since then. Lacking concrete evidence, the ecological baseline of an ecosystem, the past to which eradication aims to recover, is inferred by observation of interactions among species in the current altered ecosystem. Yet guessing species distribution and abundance during a pre-human past based on current ecological assemblages is just that: guessing.

Recent research has aggravated the scientific impasse concerning the best way to deal with invasive species. Studies have shown that invasive plants are already part of the Galapagos endemic tortoise diet, with, surprisingly, positive results on their health. Tortoises digest foreign plants quite well, thus disproving the presupposition that invasive species always harm local ecosystems and species. However, the conservation community has not assimilated this finding about invasive plants as easily as tortoises have consumed those very plants. Ecologists and park officials have struggled to conceptualize, let alone operationalize, a vision for conservation that manages, rather than eliminates, unwanted species. An overall plan for plants is still missing. Invasions continue and debates spread; the impasse remains while plant entanglements deepen.

Getting tangled in transformed landscapes and stalled conservation measures, this chapter reconsiders the highlands' matters, ecological and otherwise. Plants' stubborn, complicated, and enduring presence demands us to open up to new scenarios of conservation and human

habitation, whereby entanglements ought not to be severed, but rather understood and fostered or attenuated, depending on their effects. Individual attention to new species allows us to reconsider conservation's practical measures, especially eradication, along with their ideological foundation. Similarly, Tsing (2015) proposes an art of noticing, of which seeking mushroom is a small but luminous instantiation, that lets go of universal truths and turns our senses to the contextual, site-based unfolding of socioecological worlds.

Casting a light on the failure of conservation measures against invasive flora, I argue that plants clog ecosystems as much as conventional conservation thinking and beyond. I take their presence as an invitation to “slow down reasoning,” as philosopher Isabelle Stengers has proposed. With this expression Stengers has hoped to promote “a different awareness,” from what current forms of knowledge production would grant about any concrete situation in which “practitioners” are involved. Here, the thinking that aims to restore original ecosystems by employing aggressive eradication interventions constitutes, to riff on Stengers' lexicon, a normal-paced truth, one that is automatic, obvious, and unworthy of critical assessment. Walking on the same path, but slowly, meandering off of it, or even getting stuck there can foster the noticing of hidden complexities and thus produce new awareness about both the practices and theories of respectful coexistence. If localized and slow, thinking and practicing need not be radically divorced. Rather, they create an “ecology of practice”: an assemblage in which the ethos of its participants is derived from, and responds to, its environment, not universal truths (Stengers 2005). The park's conservation measures and their targets create an “invasive ecology of practice,” in which unexpected consequences unravel conservation plans, and whose challenges and specificities must be accounted for. Letting go of general truths in favor of ethnographic engagement exposes “ecologies” (*sensu* Stengers)—a concrete situation and the

knowledge and ethos that informs its practitioners—to forms of vulnerability: to being partial, wrong, or unsure. Sketching this emergent ecology gives us insight into the highlands’ social and ecological uncertainty, and thus into the challenges of living in, and protecting, the Galapagos Islands.

### **Rubus niveus**

“Shoot a goat and it dies, kill a blackberry and it sprouts back.” Geovanny, farmer.

Let’s start with what was supposed to end, but didn’t: goats. PI’s vicissitudes and mixed results, discussed in the previous chapter, have shown us that eradication is difficult to achieve because invasive species have participated in complex ways in human and ecological history. Even if successful, eradication may result in consequences that ripple out in ways that were not foreseen, let alone desired. Among PI’s unwanted consequences, was the one caused by replacing an invasive species such as goats with a worse one: the hill raspberry (henceforth blackberry). This happened most notably on Santiago, a formerly inhabited island where PI successfully removed all goats. Yet in so doing PI also stopped goats’ grazing on blackberry, leading to the plants’ rapid proliferation.

The quote that opens this section is from a friend of mine, a former PI hunter and now farmer. For the hunters, the duration of the PI campaign was overwhelming and the amount of killing disturbing. But during the campaign, park officials and contracted workers drew satisfaction from accomplishing a very tangible goal. By contrast, in eradication campaigns that targeted plants, the goal was less clear. For one, the very act of “killing” became elusive.

Consider *Rubus niveus*: the more you uproot, cut with a machete, and apply herbicide, the more

*Rubus niveus* springs back. Blackberry exploded on the goat-eradicated island of Santiago, but in the past two decades it has been an archipelago-wide problem. This is because its expansion is not only due to the sudden disappearance of its most effective predator on the islands. *Mora* (Sp. for the *Rubus* family, but on the Galapagos it refers to *Rubus niveus*) has reproduced naturally, without the assistance or facilitation of humans, with incredible success. Charles Darwin Foundation biologists have showed remarkable dormancy of *Rubus niveus* seeds—up to ten years in the appropriate soil conditions. This means that even after clearing an area by thoroughly uprooting every blackberry plant, and even excluding seed dispersal by birds, which in fact occurs abundantly, new blackberry plants are likely to sprout back. Referring to this miraculous growth, farmers would jokingly say that the blackberry plants “resuscitate”. It would be as if the goats that PI targeted, their bodies riddled in bullets and stiffened in death, relaxed their *rigor mortis* and resumed grazing. But this is what has happened to blackberry: if on the Galapagos goats became Judases, the blackberries Lazaruses. In this first articulation of the goal of this chapter, I argue in this section that blackberry’s incessant rebirth has meant the final demise not only of PI’s aspirations for successful eradication but also, more broadly, the model of a one-off, single-species intervention.



Author, 2014

Blackberry grows in thick, spiny bushes in the highlands of the five islands where humans live (Santa Cruz, San Cristobal, Isabela, and Floreana) or once lived (Santiago). Human-introduced,<sup>57</sup> blackberry has not needed humans anymore to reproduce: *Rubus niveus* became

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<sup>57</sup> A woman resident of San Cristobal brought a few plants from the mainland. I interviewed several residents who visited the woman, now deceased, and noted the new plants. The woman intended to grow some blackberry's bushes. She had not realized that, thought of the same family, she had brought *Rubus niveus* and not *Rubus glaucus*, the common blackberry. *Rubus niveus* looks similar to the actual blackberry plant—hence it's called with the same name.

invasive on the archipelago only a few years after its introduction in the 1970s. In the Andes, both in Ecuador and neighboring countries, *Rubus niveus* grows at the edge of roads but has never exhibited invasive characteristics. On the Galapagos, however, it has displaced native plant species in an ever growing area in the highlands. From the ground up, blackberry bushes form dense thickets that top *Scalesia*'s higher branches and reach even higher (up to 15 feet). Emerging from the thick bulge of their bushes, the highest blackberries' stems shoot up vertically, as if to defy gravity. While blocking the vista, the stems clearly show something else: *mora*'s indomitable will to conquer, or cover. The accurate coverage of *Rubus niveus* is not known, rendering its spread even more impressive and worrisome to the Galapagos National Park and ecologists who study it. CDF ecologists have estimated that, largely due to *Rubus niveus*, only less than 1% of the endemic *Scalesia* forest still exists on Santa Cruz Island (Renteria et al. 2012).

In my fieldwork I learned as much as I could about *mora*, accompanying people who study it and those who, like farmers and park rangers, deal with it on the ground. I joined park rangers in their periodic efforts to clear *mora*, their machetes first cutting with the blade, then banged flat against the stems, swung horizontally a few inches from the soil, and finally pointed to the ground, with the hooks down, to pull the vines, as if to make hay bales. Despite this art, which despite my dedication and practice I could not master, *mora*'s thorns reach everywhere: they lacerate the hard cotton of their long pants and long-sleeved shirts, they draw narrow, long red lines along hands and wrists, and they hurt well after one is done fighting them. Over the decades, a handful of rangers have unremittingly worked with blackberry. I got to know them all,

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However, *Rubus niveus* bears small, bitter fruits, of no use to humans. [Ironically, the last name of several families on San Cristobal is 'Mora'.]

as we talked between swings of machetes, as I attempted to replicate the swift movements of attack and defense, or over the metallic noise of the sharpener carving back the *hilo*, the blade, of their machetes during breaks. I also observed how dealing with *mora* had shaped their bodies: their bulging right forearms compared to the leaner left ones, the stiffness of their backs, the seemingly permanent scratches on their hands and forearms.

These park rangers haven't climbed any ladder in the park institution, but have simply and full-heartedly committed to the control *mora*. In 2014, a CDF biologist proposed a study on the effect of blackberry control on endemic birds. Areas that had been cleared would be left untreated, to compare other ones where *mora* control continues. Before meeting with the park rangers and informing them about her project, the biologist confided to me that she was afraid to hurt their feelings. She was going to share with them the hypothesis of her study: that chemical control used in treating blackberry negatively affects animals, water, and soil. A long time researcher on the island, she knew that fighting *mora* had justified their work for decades. More incisively than *mora*'s thorns in their skin, *mora* has entered their lives. Considering their experience, the attempts to removed *mora* from the Galapagos have instead resulted in getting it closer to humans.

*Mora*'s natural propagation is impressive. On the Galapagos, *mora* has a self-absorbed quality for which, one may think, it has never enough of itself. Suffocating plant life and blocking animal one, *mora* strives for a monotonous, dense, and almost surreal landscape. Entering in it, as I did following the CDF biologist, the body strains to slow down its movements and heighten awareness of the space it occupies. I was reminded of movies of bank robberies, in which thieves contort to complicated poses to avoid the beams of alarm lasers. Once a thorn touched flesh, we would stop, even refraining from removing the branch. Instead, we would



gently guide one arm to help, making sure it would not add to the toll of perforated skin. With *mora*, what scholars have theorized as borders—between subject and object, nature and culture—becomes a zone of focused contact.



CDF biologist Hainke Jager at work. Author, 2014.

*Mora*'s dull chromatic variation saturates the scene as much as its thorns block passage. With the back of leaves of a grayish green, similar to the hue of its stems, and the front of pale



green, a *mora* forest gently sways and enchants and confounds. The eye loses spatial reference and is caught in a plant spell. The variations of light green and light grey almost suffocate. This monotony emanates a different sense of thriving from that of lush vegetation, perhaps even a reverse: a thriving at a standstill. The maze of its shoots leaves the ethnographer wonder about this at once natural and unnatural growth. In a thick landscape, description rarifies (pace Geertz 1973): plant imbroglis resist the well-rehearsed anthropological drawing together of different elements into a coherent, rational explanation that alludes to a (re)solution.



Author, 2014

Conservation reasoning, too, slows down. This is because, unlike goats, eradication attempts have proved not just ineffective but also frustratingly counterproductive. Park rangers have made the empirical observation that blackberries actually spread faster in “controlled” than untouched areas. *Mora*’s virtues in unassisted propagation have been compounded by human actions ironically aimed at the very opposite: eradication. Practices and ideologies of modern hope (Latour 2009), of nature’s purity and ecological restoration, have deepened the entanglements between humans and their problems: blackberry in this case. To invasion ecologists, this is not surprising: uprooting blackberry creates an ecological disturbance of which opportunistic invasive plants, and not native ones, take advantage. What makes a foreign species “invasive” is precisely that: its capacity to grow and reproduce faster and more successfully than native ones. As a consequence, the “natural” propagation of an invasive species is accelerated by attempts to halt it. Both in Spanish and English, eradication’s etymology refers to “removing roots” (from Latin *radix*, root). Yet, for *mora*, uprooting the plants doesn’t adversely affect the growth of seeds in the ground. To the contrary, uprooting leads to faster propagation. On the Galapagos, *mora* has defied eradication, etymologically and ecologically.

The eradication of *mora* is, then, a lost cause *humanly*: direct human intervention has proved counterproductive. Instead, the park and Charles Darwin Foundation have funded a very expensive genetic analysis of *Rubus niveus* and are currently testing potential biological agents for biological control—introducing organisms to kill the target species. This shows that invasive species’ eradication, now as in the past, often exceeds human power and requires the help of other species, though with the caveat that things could become worse.

Compared to goats, the dead (the targeted *Rubus niveus* plants) not only resuscitates but become even more numerous. Park wardens currently add a second phase of control, fumigation, following manual uprooting. However, on the basis of studies of the consequences of the same pesticide applied to other plants elsewhere, there are strong suspicions that chemical spraying has negative effects on the soil, water, and even the endemic avifauna that feeds on blackberry. The park continues to clear only relatively small areas, in and around tourist sites. (Not solely a conservation tool, then, *mora* control has become a tourist intervention and less a practice for eradication.) Considering PI's hope that eradication would eliminate the problem of goats once and for all, *mora* shows the extensive ramifications of this frustrated expectation. The landscape of conservation on the Galapagos begs rethinking: not only its goal to restore pristine-ness, but also the sureness of its models and practices. In this section I have discussed two modes of entanglement: the practical one that rangers experience, literally, on their skins, and the one that results from the inability to find a strategy to get rid of blackberries. Theoretically and practically, *mora* lures, annoys, and ultimately stays.



Author, 2014

### ***Cinchona pubescens***

Negative ecological consequences from eradication campaigns, whether successful at removing the targeted species or not, are far from isolated. Isolation and closure are, in fact, what invasive species transgress. By invading, new species cross physical borders, such as the one that encircles the protected areas, and defy conceptual closure. To fully appreciate *Rubus niveus*' entanglement with the Galapagos' highlands, I introduce—pun *not* intended—another invasive plant species: *Cinchona pubescens*. Scientists suspect that control of this plant, in itself

ineffective, has introduced *Rubus niveus* into the high altitude, tree-less areas of the highlands in Santa Cruz. To be sure, *Mora* profited from goat eradication, as Santiago has shown. But other conservation interventions have also indirectly helped blackberry. *Cinchona pubescens* constitutes an important knot of this emergent assemblage, which weaves together different species and has reconfigured both the highlands and conservation approaches.

Locally known as *cascarilla*, *Cinchona pubescens* is an evergreen tree of the Rubiaceae family native to the northern region of South America (Jäger, Tye, and Kowarik 2007). *Cinchona pubescens* (red quinine tree) is the species with the largest natural distribution within its genus. *Cinchona*'s story is fascinating: it hides and resurfaces, branches out and spreads much like the plant itself, which grows from roots, or unexpectedly sprout from cut stems or fallen branches. Indigenous populations of Ecuador, Peru, and Bolivia have used this plant as a muscle relaxant in case of fever, aches, and shivering. For chemical properties unknown at that time, *Cinchona* was also used for malaria, which manifests itself with similar symptoms. Linnaeus named the genus *Cinchona* after the Countess of Chinchón, the wife of the Viceroy of Peru. Legend says that she was cured from malaria after trying an extract from this plant. This story and Linnaeus' spelling—with the missed 'h'—were actually wrong, but *Cinchona*'s anti-malaria effects were not.<sup>58</sup> The interest in *Cinchona* arose when this property was scientifically discovered: it derived from one of the alkaloids, the quinine, extracted from the plant's bark. Until the synthesis of chemical anti-malaria drugs, peasants cultivated *Cinchona* all over the tropics. During the WWII, the United States Army listed quinine among the seventeen items—

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<sup>58</sup> In addition, there are more than 100 synonyms recorded for this genus and five common names only in English. To confound matters even more, *Cinchona pubescens*' taxonomy has been often imprecise due to frequent hybridization among close species of the *Cinchona* genus.

including metals and crops—of strategic interest, whose extraction or production were promoted (Cuvi 2011). A few years later, in partnership with local governments, the US established cultivation of quinine across central and South American countries, including Ecuador.

In the 1940s, two farmers brought this plant to Santa Cruz, determined to cultivate it to extract quinine for the international market. Like so many entrepreneurial projects on the Galapagos, it didn't succeed. Chemical synthesis of quinine was perfected during the same years, and the profits from selling natural quinine, more expensive to derive, rapidly fell. However, *Cinchona* did not die along with the human ambitions that brought it to the Galapagos. By the 1970s, biologists observed that *Cinchona* was reproducing naturally (in ecological terms, it had 'naturalized') and, later, spreading quickly: from 4,000 ha in 1987 to 11,000 ha in 2004, less than half of which are in the Galapagos National Park (Jäger, Tye, and Kowarik 2007). *Cinchona pubescens* has been a serious concern for the park, initially for reasons unrelated to blackberry. On the Galapagos, the red quinine tree can reach up to 15 meters (higher than in the continent), and it has mostly spread into previously tree-less vegetation areas. These are the highlands' moist areas, where native shrubs of *cacaotillio* (*Miconia robinsoniana*) and both native and introduced Fern-Sedge communities grow.

The park has taken aggressive measures to control the spread of *Cinchona*, manually uprooting and spraying pesticides on young plants, and poisoning adult ones. In spring 2014, I accompanied the Charles Darwin Foundation's scientist researching *Cinchona* on the Galapagos, one of the most prominent experts on this plant worldwide. Together with her assistant, we hiked towards the mountain peaks past the farms on Santa Cruz. When we reached the highlands' highest altitudes, the landscape met us with leafless, lifeless, brown *Cinchona* trees, a testament to the intense campaigns the park had waged to control this plant for a decade. Yet, despite those



efforts, the undergrowth was covered with young saplings. They were germinating under endemic *cacaotillo* shrubs, or sprouting from stumps of fallen adult *Cinchona*. With vibrant red stems and green ovate leaves, they constituted the new layer of a stubborn, unwanted nature.



Author, 2014

Walking in this unique landscape of a gently-swaying sea of *Cascaquilla* leaves affected me strangely. For someone like me whose blood turned mad as malaria parasites multiplied,

destroyed red cells, and threatened my life, I couldn't help but note the irony of, years later and in another continent, being surrounded by red quinine trees. Quinine, an alkaline extracted from *Cinchona*, can stop the invasion of malaria broods in human blood, which multiply at a vertiginous speed for a couple of weeks asymptotically. Once felt, this precipitous growth leaves the human host only days before she falls into coma and, if untreated, dies, as happens to over half a million people per year, every year (Alonso and Tanner 2013). But, on the Galapagos and elsewhere, not only the malaria parasite but also *Cinchona* has also created its own invasion, though ecological and not biological. The *Cinchona* genus is among the 100 worst invader species in the world. Reproducing sexually, through light airborne seeds, and asexually, through multi-stemmed growth, *Cinchona* has spread significantly across the Pacific island groups of the Galapagos, Hawaii, and the Society Islands (Kueffer et al. 2010). Given *Cinchona*'s ability to expand across stories, names, taxonomies, and geographies, it may come as a surprise that currently it is considered rare and endangered in many countries of its natural distribution, such as the cloud forests of mainland Ecuador. Yet, *Cinchona* is but one case of a plant that is invasive on an isolated archipelago but endangered everywhere else, which illustrates the uniqueness of island ecology and the fraught task of island conservation.

Malaria's invasion is a tropical story, which has affected the health and economy of countries in these latitudes (Packard 2007). But malaria also tells the story of western encounters with the tropics, for commerce, colonial conquest, adventure, religious mission, and, as in my case, research (Harrison 1978; Brockway 1979). Malaria is a marker of this expanded tropical geography that has reached Berlin, Brussel, and Paris, in the same way *Cinchona*, cultivated in Africa, India, China, Indonesia, and the Galapagos, has expanded across the tropics worldwide, once human-driven and now "naturally" (by ecological invasion). With my boots disappearing



under the leaves of *cascarilla* saplings, I had to dismiss the prism of European colonial medicine, the tropics as the laboratory of the western world, the collective deliria of colonialism and the personal ones that my malaria-infested blood once triggered. The mat of young red quinine trees, so densely packed as to look cultivated tea, ceased to be medicinal. That understory spoke of ecological and axiological dislocation and translation: of a tree invading ecosystems and of a plant that was once life-saving but now an ecological nuisance, a weed. From being the cure, *Cinchona* has become the problem.

Yet the “problem” of red quinine trees, much like their history, is multiple (Mol 2002). First, *Cinchona* affects both plant communities and soil in the Galapagos’ highlands. A tree in an otherwise tree-less ecosystem, *Cinchona* reduces other plants’ exposure to light by 87% (Jäger et al. 2013). Also, its leaves capture droplets in the air, thereby altering soil humidity. Lastly, *Cinchona* changes the nutrient regime of plants by increasing phosphorus concentration in the soil (Jäger, Tye, and Kowarik 2007). For these reasons scientists describe *Cinchona* an ‘ecosystem engineer,’ defined as “species that directly or indirectly change the availability of resources for other species by causing physical state changes in biotic or abiotic materials” (Jäger 2007). On the Galapagos *Cinchona* spreads at a high rate and the consequences are largely negative. However, it doesn’t saturate the vegetation: in fact, it rarely exceeds 20% of the plant count (Jäger et al. 2013). This finding thus disproves the common assumption that an invasive species necessarily lead to the extinction of native ones. In a study that spanned eight years, ecologists have showed that species richness had not decreased (Jäger, Kowarik, and Tye 2009). *Cinchona* has actually helped a few endemic species, such as epiphytic ferns and orchid species that benefit from higher humidity. Unofficially, the Galapagos National Park recognizes this anomaly; however, they still interpret *Cinchona*’s presence as negative.

Even less discussed is the baseline of the park's restoration projects that target *Cinchona*: the "nature" to which the invaded landscape should return may not, in fact, be as "pristine" or "original" as the park has assumed. Instead, the ecological communities of the upper highlands on Santa Cruz may be the result of fire clearings, which farmers initiated to create pastureland for cattle in the 1950s and 1960s (Montalvo, 2014). Such fires likely helped ferns, herbaceous, and gramineous species establish in once *Miconia*-dominated areas. Though this anthropogenic imprint only affects the lowest areas of *Cinchona*'s distribution (the closest to farmland), it questions the assumption of past pristineness underpinning control campaigns.

Focused on the negative consequences of *Cinchona*, the park has intervened in ways that have eventually caused more problems and pushed the desired solution even further. Control methods have combined manual felling and uprooting of trees, to which various forms of chemical methods were added, such as "hack and squirt, basal bark, cut stump, girdle and squirt, branch filling, tree injections, and foliar spraying" (Jäger 2010). If this array of means seemed impressive, the results, unfortunately, were not. "Most of these methods were ineffective in the long run," the article informs (Jäger et al. 2013). The soft rustle that the article's main author and I could hear, as our pants strode through dense packs of *Cinchona* saplings, confirmed it. Following the first studies, the Galapagos National Park has employed a revisited combination of methods that the author has put forth over an area of 110 ha, barely 1% of the *Cinchona*'s coverage on the Galapagos. The author recommends this approach to "small populations of *Cinchona*" elsewhere (Jäger 2015). 'Small' is crucial, here: like the other invasive plants I will discuss next, eradication works when invasion is small, or, one might say, an invasion is not yet an invasion.

Furthermore, the limited success at controlling *Cinchona* and the probable consequent pollution of soil and water are not the only results. Additionally, and worrisomely, these conservation measures seem to have introduced *Rubus niveus* to plant communities that were previously *mora*-free. Uprooting and cutting created a disturbance that proved to be a fertile terrain, literally, for the colonization of blackberry. The result has been, once again, more *mora*.

### **Novel Ecosystems**

Interventions against goats and blackberry were part of a six-year, \$43,000,000 US project entitled “Control of Invasive Species on the Galapagos Archipelago,” funded by the Global Environment Fund and other partners. This project has been the most sustained attempt to date to eliminate invasive species from the Galapagos. Also, it has been the largest GEF grant for biodiversity worldwide. Here I discuss the results of the control of the plant species, and how a few CDF ecologists have reflected on these findings to propose the concept of “novel ecosystem” to guide conservation efforts in the degraded ecosystems on the Galapagos. The ‘novel ecosystem’ is a young and controversial concept that studies and guides the management of young and controversial ecosystems (Hallett et al. 2013; Hobbs et al. 2014; Hobbs, Higgs, and Harris 2009). The latter are the result of profound alterations that an invasive species, called a ‘habitat transformer’ or ‘ecosystem engineer’, has wrought to an ecosystem. Ecologists often agree on assessing ecological change, decisions about how to respond, however, diverge. Proponents of ‘novel ecosystems’ all agree on the benefits of eradication and contend that eradication is the way to go if there are realistic chances of success. Instead, differences arise after eradication methods have already been implemented: some ecologists say that continuing with the same methods may not be the best strategy (Hobbs, Higgs, and Harris 2009).

The prestige of the Galapagos as a mecca for natural sciences has rendered this archipelago a hostile terrain to the theory of novel ecosystems, as much as, unfortunately, its ecosystems have been receptive to new species. Charles Darwin Foundation's ecologist Mark Gardener was in charge of the GEF control campaigns on invasive plants and their evaluation. He saw their results as a strong invitation to reconsider the park's conservation agenda of designed land ecosystems towards the novel ecosystem approach (Gardener, Atkinson, and Rentería 2010). This section prepares this chapter's conclusion: eradication, though in isolated cases successful, has created transformation and uncertainty rather than a permanent solution, here understood as the permanent separation of parts once entangled.

Among ancillary tasks such as a tally of all introduced plant species and training local volunteers, the GEF projects on invasive species focused on eradication. Twenty-three species were selected based on their distribution, invasiveness, and genetic proximity to known invasive species that had been successfully treated elsewhere. The results, according to the leading CDF scientists of the project, were disappointing (Gardener, Atkinson, and Rentería 2010). Only four plant species had been successfully eradicated, all of them lacking the characteristics of persistent seed bank and minimal coverage (less than 1 ha) in a single-owned property. Eradication, thus, only succeeded in eliminating what was barely there. As for the other targeted species, the three main reasons for the disappointing results were: insufficient time and money, lack of permission from landowners, and underestimation of the plant coverage. Aggregating the result, sixteen plants were not eradicated because either institutions or land owners did not cooperate.

The lead scientists admit that the project did not include any provision to involve land owners and or offer any public consultation prior to the beginning of the eradication camping. As

a result, “permission to carry out the work was revoked half-way through the project by several farmers as it was believed that the field workers were stealing poultry and wood from their farms (*Citharexylum gentry*).”<sup>59</sup> The image of upside-down, fluttering chickens grabbed by park rangers running away with some *Citharexylum gentry* is comical, but the larger significance is not. The technical apparatus was powerful and the scientific knowledge, which supported the project’s methodology and research design, ostensibly solid. Yet people who by profession study species and their interactions crafted a project omitting humans and their interactions with other species (and ecologists’ own project). Further, in the sentence quoted above, authors use the passive voice to talk about farmers (“it was believed...”). Opting for a convoluted sentence *was considered* (irony intended) a worthy sacrifice in favor of the merit of conveying scientific detachments—all this in a document that reflects critically on lack of consideration of the human factor. All in all, an ecological intervention of ambitious reach and spectacular funds forgot one species: humans.

Having ignored to communicate with residents, personnel realized too late that landowners’ refusal to cooperate was compounded by farmers’ interest in the targeted species, resting on the “active or perceived use of the plant for medicine, ornament, natural fibers, timber, and a sentimental attachment” (Gardener, Atkinson, and Rentería 2010). While one landowner complained he felt “forced into removing this useful pasture crop,” the report acknowledges that landowners and farmers were indeed interested in eradicating some (other) species, like *Rubus niveus* and *Leucaena leucocephala* (a shrub common in Central America once known as the “miracle tree”). Yet these species “were poor targets for eradication because they were already

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<sup>59</sup> An invasive tree included in the list, covering about 330 ha in the archipelago, but, because of the economic value of its timber, private owners denied the permission

widely dispersed and their biology is not amenable to eradication (e.g. persistent seed bank).” Eradication, again, was successful when it was least useful: where the plant created the least nuisance, the problem was the least pressing, the magnitude the least commanding, and residents the least interested. Issues of jurisdiction, the plant’s actual coverage (space), the recursive cycle of invasion across plant generations versus the project’s limited timeframe (time), and opposing human interests (species) complicated an otherwise impeccably designed, and very expensive, project.

Thus, eradication fails in compounding ways. Like the manifestations, histories, and thus ontology of invasive species, eradication is multiple (Mol 2002). The technical and political limitations to successfully killing a plant at a faster rate than it reproduces are compounded by realizing eradication’s opposite effects on the targeted plant population, or by discovering how an invasive species supports a native one. Furthermore, eradication can prove harmful not only by accelerating the plant’s propagation but also by deploying chemicals that pollute soil and water sources and affect animals that feed on the targeted plants. In short, complications multiply, while eradication lags behind. ‘Novel ecosystem’ is a conceptual tool that was meant to begin there where eradication ends, and desperation takes off: with the acknowledgement that restoration to an original ecosystem is increasingly less feasible. For its proponents, ‘novel ecosystem’ constitutes an ecological state in which restoration is “prevented by the presence of potentially irreversible thresholds.” In ecology, thresholds are either ecological or social barriers to the change of an ecological community; irreversible thresholds thus preclude restoration

(Groffman et al. 2006).<sup>60</sup> The novelty of the novel ecosystem approach does not lie in the identification of transgressed thresholds. Rather, it does in recognizing that these changes are not reversible.

Generally, conservation practitioners and scholars have responded to a novel ecosystem approach more sympathetically than environmental agencies and nature-lover organizations. Awareness of an ecosystems' actual state of invasion and the resource limitations for restoring them is more acute in the former group than the latter one. On the Galapagos, the results of GEF campaigns has provided a compelling case of conservation's failure to restore protected ecosystems. But the park is not ready to let go of restoration quite yet. In an interview published in the prestigious journal *Science*, Mark Gardener, then CDF Director of Terrestrial Ecosystems, admitted eradication's structural limits and opened to less ambitious, contingent conservation goals (Vince 2011). In response, the CDF officially rejected his proposal. Geologist and CDF board member Dennis Geist affirmed that "embracement of invasive organisms have no place in the nearly pristine ecosystems of the Galapagos" (Vince 2011). Other scientists have rejected the term but have asserted conservation goals in ways that further illuminate the possibilities of novel ecosystems rather than preclude them. For example, a group of ecologists stated that "the goal [of conservation] is maintenance of a *semblance* of the original community, with all species playing their *original* roles" (Meiri, Dayan, and Simberloff 2006, my italics). To stress the importance of striving for an original community, the authors introduced the idea of its opposite: a copy. The 'semblance' of a pristine ecosystem introduces simulacra in conservation biology,

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<sup>60</sup> "Ecological barriers can be global phenomena, such as climate change, or local ones, such as "changes in salinity or local nutrients, [...], the local extinction of a key-stone species, plant invasion, or a combination of these" (Groffman et al. 2006).

suggesting that pristine-ness may not be restored but enacted and staged (“with all the species *playing* their role,” my italics).<sup>61</sup> Needless to say, an original copy remains a copy, and not the original. To attain ecological integrity through acting, or playing, departs from the very ideology of pristine-ness and original-ness towards the novel ecosystem approach.

On the ground, conservation practitioners across the spectrum of the novel ecosystem debate recognize that conservation efforts need to be prioritized. The Directorate of the Galapagos National Park states that its goals are “the conservation of ecological integrity and biodiversity” but also ensuring the “rational use of goods and services” that ecosystems provide. That is, not only preservation but also functionality matter: ecosystems services are the output of functioning, and not pristine, ecosystems.

### **Plant entanglements**

If taken beyond its use in ecology, ‘novel ecosystem’ becomes a powerful tool to describe ecological entanglements and ecology’s uncertainty. To make this point, I turn to *Cedrela odorata*, an endangered tree worldwide but, by the law of reversal and excess that invasive species on remote islands abide to (Warren et al. 2015) , invasive in Galapagos. Similar to blackberry, settlers introduced it to reap its fruit—whether actual fruits in the case of *mora*, or timber from *Cedrela*. Of the cedar family, *Cedrela odorata* is a tall monoecious tree of lanceolate, bright green leaves. It has shown remarkable adaptation across tropical and sub-tropical latitudes on both hemispheres, with a distribution ranging from lowland to low-mountain

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<sup>61</sup> For the role of performance in science, see Myers 2015.



elevation. Its irregular light brown bark covers a sturdy, oily wood that is termite-resistant and has a wonderful fruity fragrance. For two centuries it has been used to craft objects as varied as cigar boxes, wardrobes, and musical instruments. Extensive logging and the difficulties in establishing *Cedrela* plantations have accounted for its steady decline, which in 1998 prompted the IUCN Red List to declare it a vulnerable species (IUCN 2016).



In the early 1970s, a Santa Cruz settler brought *Cedrela*'s seeds to the Galapagos from continental Ecuador to grow this valuable timber on the islands. Botanists and travelers observed dense, but circumscribed patches of *Cedrela* in the highlands of Santa Cruz in that decade. But, by the mid-1980s, *Cedrela* began to spread. It was first recorded in the park in 1986 and, in 1990, a botanist first raised the alarm (Adersen 1989). Its light, air-borne seeds successfully colonized elsewhere, both in the rural and the protected area—a reminder that invasive species don't recognize such political divisions. Today, *Cedrela* trees create a bright canopy, due its leaves' luminous light green and its height, considerably higher than native trees. To the trained eye of a park ranger or a farmer, these patches are clearly visible along the gradients of the humid areas of the Santa Cruz highlands. *Cedrela* grows faster than the endemic *Scalesia*, once the tallest tree of such ecosystems. Without direct and abundant sun exposure, young *Scalesia* plants have suffered the most. Along with *Rubus niveus*, *Cedrela* is contributing to the almost complete disappearance of *Scalesia* in Santa Cruz. A 2015 report described *Cedrela odorata* as the invasive tree accountable for the fastest-growing and largest coverage of canopy among all invasive plants. Endangered everywhere else, invasive in Galapagos.

Everything described so far outlines the progression of a new invasive species that invasion ecologists and island settlers have come to well know: a human introduction, the species' dormant state, and then an “unexpected” explosion (Kueffer et al. 2010). Invasion ecology, a discipline much of whose history and relevance is tied to the study of islands (Lockwood, Hoopes, and Marchetti 2013), has time and again confirmed this pattern. The succession of inaction and surprise with which the park, NGOs, donor agencies, and the general public have responded to new introductions has formed another pattern, which I learned about while speaking with highlands residents. Luis, a Galapagos-born farmer, told me time and again



how uncomfortably familiar he is with this entangled political and ecological pattern. For several introduced not-yet-invasive species, he personally went to the park and informed them about the risk, with little institutional response and much to his frustration. “*Nada de nuevo,*” (nothing new) he told me with a disparaging grin when we talked about current problems around the spread of *Cedrela*.



Author, 2013

For years the park had engaged in “eradication campaigns,” a technically imprecise expression that in fact refers to controls *Cedrela odorata*’s population. However, park wardens have empirically observed that these interventions have accelerated, not hindered, the propagation of *Cedrela*. The more trees they uprooted, the faster they grew back. The park’s campaigns caused a colonization that was faster than the “unnatural natural” that *Cedrela*, of a species out of its natural bounds, would have created only by reproducing without human assistance. Ecologists have explained the mechanism behind this phenomenon: invasive species control creates a disturbance of which invasive species, not the slower-growing or less opportunistic endemic plants, take advantage (Hobbs et al. 2014). Land clearance invites further modifications, a step towards more disturbance rather than backwards to a previous state. Consequently, in 2007 the park decided to halt all interventions targeting *Cedrela*. This decision was still in effect as I left the Galapagos in June 2014. “We are waiting to see whether any measure that we take can be effective and not more harmful than simply leaving things as they are,” the Director of the Park Land Ecosystem Department told me. He looked preoccupied, while declaring that the state-of-the-art approach to control an invasive plant had come to be an indefinite postponement, a non-decision.

Yet the situation complicates further. Once the park banned the logging of local *Cedrela*, carpenters were asked to use imported timber as a substitute. Yet, as Miguel Herrera, the president of the carpentry association told me, imported timber is not always properly sanitized prior to its introduction on the islands. Several times he and his colleagues went to the park with photos of imported timber infested with unidentified bugs, larvae, and insects, which risk becoming invasive. “*Todo es un caos total, y a nadie le importa*,” Miguel reflected (“It’s a total mess, and no one cares”). We spoke a few days after a colorful snake had been spotted, dead, in

the highlands. The colors of Galapagos' animals and plant are often dull. Flowers of endemic plants, for examples, fall in the limited chromatic spectrum between white and yellow. This is because, in ecosystems with significantly fewer species than those on the continent, the species' need to differentiate among themselves to ensure pollination is significantly reduced (Abbott, Abbott, and Grant 1977).<sup>62</sup> Scientists, park rangers and locals alike are accustomed to these gentle colors. Thus finding a bright red snake was a shock on many levels. "Now there are snakes, have you seen this? Some say it wasn't poisonous, other say that yes it was... and the next one? And all this because of all the things, now timber as well, that we introduce from the continent!" Miguel exclaimed.

The snake, red with yellow and brown bands, did in fact look like a Coral snake, a highly poisonous genus widespread in the Ecuadorian Amazon. In fact, it was a Sinaloan milk snake (*Lampropeltis triangulum sinaloae*), a nonvenomous snake found in the coastal region of the country. For its similar appearance it is also called *falsa coral*, (Sp. for false coral). If the dead snake only resembled a poisonous one, the fears it spread was authentic and alive. Such fear compounded worries about new invasions. Uncertainty diffracted and multiplied through rumors and discussions and debates about what species it was, how it got there, what might have happened had the snake not been killed on the road, and what will happen when the next species comes. For Miguel, this event illustrated his concern that not just living organisms, especially

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<sup>62</sup> Galapagos' biodiversity is valuable for its unicity, called endemicity, not for its abundance (the tally of species in an environment). In this optic, the spectacular characteristic of 'nature' on the Galapagos is what it doesn't have—all the common species found elsewhere in the world. The logic of Galapagos' natural worth is a subtractive one.

produce, could be carriers of new introductions. Above all, it exposed and augmented the uncertainty surrounding conservation management of endemic and introduced species.

“We used to work with *matazarno* [*Piscidia cathargensis*, a Galapagos native tree now endangered], the best wood you could ever find. We used it for houses, furniture, constructions in the city, and even for cooking! Very little smoke. The park prohibited the logging of *matazarno* because it grows slowly... it was not keeping up with our use. We understood that. We moved to *cedrela* then, also because imported timber was prohibited. And now we can't use *cedrela* and have to use imported timber... the exact opposite! Why do they [the park officials] keep telling us that in the name of science we have to comply with this and that... when every ten years or so they change opinion and even contradict themselves?”

## **Conclusion**

Whether explicitly adopting the novel ecosystem paradigm or not, biologists and ecologists have increasingly acknowledged that nonnative species may have positive effects (Schlaepfer, Sax, and Olden 2011; Simberloff et al. 2013). Scientists are discovering that native species may feed on invasive ones, take advantage of the modified soil or microclimatic conditions, or grow or hide in their shade and, contrary to predictions, do not go extinct despite the invasion (Jäger, Kowarik, and Tye 2009). In 2015, herpetologist Stephen Black published the results of his research on tortoises' diet. His study is symptomatic of a shift in the natural sciences studies of the Galapagos Islands. Black showed that endemic tortoises on Santa Cruz feed on invasive plants, some of which were targets of unsuccessful eradication (Blake et al. 2015). The

correlation between the new diet and tortoise health is positive: body weight, an accurate index of chelonian general wellness, increases with the volume of invasive plants found in their diet. Blake recognizes that invasive species on islands tend to have negative and even catastrophic consequences on endemic species. Yet “there are nuggets in this story that make it a little more complicated” (Black 2014). Sifting through tortoises’ feces and counting plant seeds, Blake demonstrated this point. Yet, similar to its response to Gardener’s opening to novel ecosystems, the Galapagos National Park promptly issued a statement reaffirming the negative role of invasive species, without addressing Blake’s surprising findings and their troublesome implications.

Puzzling scientific studies and puzzled, stalled conservation measures suggest a shift to a zone of uncertainty that few are willing to admit, let alone engage. The Galapagos are a site where the immutability of ecosystems, ironically in contrast to the time-dependent theory that made the islands famous, looms large in the assumptions and projects of conservation. The park’s *Plan de Manejo*, which defines goals and strategy for the next five years, has in the past decade proposed the concept of a “complex socio-ecological system,” thereby opening to the tight connections between human settlements and the protected areas (Parque Nacional Galapagos 2014). But there has been little inquiry about where, when, how, or if some ecosystems have changed irreversibly. In this vision, a stable nature is permanently threatened by invasive species that permanently spread. This and the previous chapters, instead, have suggested a different scenario.

Through analysis of the transgressive, expansive ecology of three plant species, this chapter has reflected on the entangled and uncertain state of highland ecosystems. Invasive plants have profited on other eradication campaigns, while defying their own. They have grown



in population and numbers rather than dwindle and finally disappear. Shifting from the neat scenario of one invasion and a one-off intervention, such as in PI, species control measures have proliferated as much as species have. Yet this chapter has also argued that the model of proliferation, and the implications it carries, are sometimes off target. Not all invasive species wreak havoc unilaterally, irremediably. *Cinchona pubescens*, for example, has been shown to transform the highlands without causing the extinction of any endemic plant. In other instances, invasive plants may even help endemic ones. These findings support claims about novel ecosystems. The relevance of these ecological events and ecologists' discussions goes beyond the geographical bounds of the Galapagos and the disciplinary ones of natural sciences. The paradigm of invasion relates to that of pristine nature as much as the trope of crisis to the one of progress and modernity (Tsing 2015). Invasion is presupposed by pristine-ness as much as crisis is by modernity. Both motivate interventions aimed to, in Latour's expression, purifying social and natural domains. More, the pristine-invasion dyad articulates that of modernity-crisis. Pristineness is a reflection of the modern project of separation of nature from humans; invasion is but one enactments of the modern crisis.

Novel or not, certainly some ecosystems are not as they used to be. Further, on the Galapagos 'novel ecosystem' may refer to ecological assemblages that are not novel, and maybe not even an ecosystem. Plants that are considered habitat transformers, i.e. agents of a novel ecosystem, have been there for more than fifty years: they are inscribed in the archipelago's natural history as much as in the biography of human settlers. Because of the ties that connect these plants, their seeds, their fruits, and their timber to humans, the image of a bounded ecosystem doesn't suit their mobile and multiple presence. Settlers brought invasive plants such as *Cedrela odorata*, *Cinchona pubescens*, and *Rubus niveus* to the islands intentionally, in order

to cultivate them. These plants' invasion moved from the rural highlands into park areas, but they maintain a strong hold in the human areas too. Some plants are factored in residents' tourist projects that seek to adjust the highlands to a transition from agriculture to tourism. Invasive *Cedrela* has provided valuable timber but also majestic shade for tourists stepping outside new resorts in the highlands. Rooted in the history of human settlement, these plants have shown their future adaptability. Debates around the concept of novel ecosystems, rather than diminishing its validity, have reinforced the scenario that the concept introduces: that of entanglements and uncertainty (Weston 2017). Uncertainty is the condition of plants, people, and ecosystems, but also of the management of the territory.

Discussions about novel ecosystems in Galapagos have been of great importance, because they have explicitly opened to the perspective that the Galapagos may not be as timelessly pristine as they are portrayed to be. Furthermore, debates about novel ecosystems bring with them a sensibility for uncertainty as a means to understand vast areas of the Galapagos. Uncertainty is a condition of both such areas—their ecosystems, people, and plants—but it also compounds with the indeterminacy of our understanding and the ineffectiveness of the politics of nature and humans. The concept of novel ecosystem offers an entry point into the uncertainty about ecological processes and beyond. Ecologists who employ this approach include humans in their analysis, but often only as the cause that originated the transformed site that the ecologists intend to study. The human factor is tamed as a past event. However, the heuristic potential of novel ecosystem is broader. The ways the park intervenes in these ecosystems, the often mixed results, and the uncertainty around these plants' future (entangled with farmers, carpenters, and park rangers) are also part of what novel ecosystems describe. The highlands' uncharted, unexpected, and thorny terrains give rise to an uncertainty that “slows down reasoning”

(Stengers 2005) and opens up to a recombination of species as much as possibilities for life on the Galapagos.

## CHAPTER SEVEN: CONCLUSION. “WITH THE HELP OF GOD...”

During my first visit to the Galapagos, I went to talk to Carlos Carrión, the director of FEIG (*Fundo Especies Invasoras Galapagos*). FEIG is a trust that manages funds from international organizations for conservation projects. Such projects often involve partnerships across public and private institutions (like the Galapagos National Park and the Charles Darwin Foundation), which have different protocols for receiving and using financial contributions—FEIG oversees these financial processes. Entering his heavily air-conditioned room, the scene was as I expected: the office of an important person on the islands. Born on the Galapagos, Carrión is an economist with postgraduate studies abroad—three decades ago he earned a master’s degree in Madrid, Spain. He then became the Director of INGALA, the highest public authority on the Galapagos Islands (now *Consejo de Gobierno*). The way he treated me was I expected too: polite but harried. Perhaps for both these reasons he invited me to join him for a meeting with farmers in the highlands. Since he was busy, the invitation marked the end of our conversation; since he was polite, he let me follow him to his next appointment. I knew nothing about the highlands and I accepted eagerly.

He ushered me outside the office and waived at the first taxi. Twenty minutes later we reached a small school in Bellavista, where the meeting was taking place. Away from the sun-stricken, dusty streets of the coastal city, clouds covered the sky and soon it began to drizzle. Farmers filled the room, speaking softly among themselves, or waiting in silence. I was catapulted into a new world. I had expected to meet a director in the city and there I was, among

farmers in the highlands. They were dressed in heavier clothes than people in the coast, with long pants or skirts and long-sleeved shirts, but more cheaply, with discolored or tattered clothes. Dressed too formally, I was in a room where residues of *lodo* (mud) sketched footprints all over the floor.

The Galapagos National Park had called the meeting. Christian Sevilla, from the Department of Land Ecosystems, sat behind a table with three public officials: the mayors of the two highlands' parishes of Santa Cruz, Santa Rosa and Bellavista, and a representative from the Puerto Ayora's municipality. These three figures served as liaisons between the audience and the park. They spoke before the park representative, seemingly seeking to preemptively dissipate any skepticism among the farmers.

The official from Puerto Ayora gave a brief, rather standard speech. The talks of the two parishes' mayors were different. With a loud voice, holding the microphone too close to his mouth, Senor Loyola from Bellavista seemed almost to beg farmers to join the project. Struggling greatly to find the kind of refined words that he doesn't often use, he continued anyway, his voice absorbed by the apathy of the audience. Growing more uncomfortable, he tried to cope by raising his voice and talking even more. The project, the park representative Sevilla later explained, was to tackle *mora* (*Rubus niveus*) in an integrated fashion, by clearing contiguous rural and park areas. The park had long engaged with periodic clearance. But the results had been very poor, ostensibly due to the abundance of *mora* on farms adjacent to the park. Because of the persistent wind, seed dispersal of *mora* into the protected areas has been relentless. To tackle this problem, the park wanted to intervene in rural areas.

For a long time exclusively focused on protected areas, Sevilla declared that effective conservation had to reach beyond the park's borders. The plan proposed at that meeting was a

pilot project: to clear an area of 100 meters wide, fifty meters on each side of the park's border, and several miles long. The park was going to offer farmers herbicide and, in exchange, they would uproot *mora* from the designed areas on their farms. Park wardens, in turn, would clear *mora* from the park area. Both parties, farmers and the park, had an interest in addressing this plant's invasion. Proposing this type of mutually-beneficial collaboration was new. Innovative though it may have been, however, it was less ambitious than what the farmers wanted.

All farmers from Santa Cruz were invited to the meeting, but it was eventually made clear that the proposed project, called *Plan Piloto*, was going to enroll only fifteen farms that bordered the park in one sector of the highlands. Also, the areas within the farms that *Plan Piloto* proposed to clear were not necessarily the ones where farmers needed the most help. For the majority of farmers, the areas of their farms adjacent to the park, which were the highest in elevation and are often unleveled, were the ones they leave fallow. With little mechanization and minimal profits in agriculture on the Galapagos, cultivating those portions of their farms, let alone clearing them of unwanted species, made little sense. These areas had long been unproductive anyways, regardless of *mora*'s presence or absence.

Unconvinced by the Plan Piloto, they nevertheless cared about *mora* and other invasive species a great deal. "*Autoridades presentes, de la alcaldía, de las juntas parroquiales y del Parque, compañeros agricultores de Santa Cruz y las demás personas que nos homenajeen con sus estimadas presencias en ocasión de esta importante reunión,*" a farmer offered as a preamble.<sup>63</sup> His language was pompous, almost out of place. Yet almost all of the farmers who

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<sup>63</sup> "To the present authorities, of the municipality, the parishes, and the park; fellow Santa Cruz farmers and the other people who honor us with their presence at this important meeting..."

participated in the discussion attempted to speak in this same overly formal register. Thinking back to the event, their speeches reminded me to their Sunday church clothes: both bore the goal of affirming their dignity but made them seem markedly different than in their daily life.

The farmer continued, “why will only 15 *compañeros* receive help, when the majority of us deals with *mora*? Last week I tried to clean up half a hectare for planting more potatoes. Had I hired a daily worker it would have cost me \$100... to that adding the herbicide, which here [on the Galapagos] cost double [what it costs in the continent]. Who has that money, I respectfully ask? Instead I did it myself, *poco a poco*.” His straight right index finger, curling in an upward, u-shape motion, emphasized the point. “I protected myself, [with thick pants and long sleeve shirts] but in the end I got a fever anyways, because of all the thorn pricks. I had to spend the next day in bed!”

The *Plan Piloto* was an experiment to see if an “integrated” conservation approach, extending beyond the limits of the protected areas to farmland and directly involving farmers, would be effective. But the park’s underlying assumption was that *Rubus niveus*, given its already extensive coverage on the island and its aggressive proliferation, could only be controlled, not eradicated. A farmer respectfully disagreed. He looked uncomfortable when he was handed the microphone, which he held unsurely, the top of the microphone leaning sideways to his shoulder rather than toward his mouth. But his voice grew firm when he stated that *mora* could be eradicated. “If we all use 100 ml of Combo [an herbicide] per hectare and repeat the *limpieza* [clearing] every 3 months, it is in my humble estimation that, by virtue of a combined effort that would bring together all us farmers and the authorities [the park and other state institutions], in maximum one year we would eliminate *mora* (*deshaceremos de la mora*).” “With the help of God we can do it,” he concluded seriously.

To him, mentioning God added gravitas, rather than actually invoking divine powers. For Sevilla, the latter reason for this invocation would have made more sense. “Thanks for your comment,” Sevilla offered imperturbably, showing with his predictable answer the training in public relations he had received from the park. “But we know that currently we cannot eradicate it... but we can definitely deliver a better service from which both the ecosystems and farmers could benefit. It is only with perseverance and...” The room filled with the farmers’ voices.

“Vé? (Do you see?),” *economista* Carrión told me amidst all this. To him, things had been exceedingly clear since the beginning. I thought he was going to be among the presenters, but instead he stood in the back of the audience, behind the last row of plastic chairs. He knew all the farmers he had greeted—either with a kiss or a handshake, depending on gender—when we entered the room. Farmers went to him with confidence. Though wearing formal clothes in striking contrast to the farmers, *economista* Carrión looked at home. Since he was not there to officially support the launching of *Plan Piloto*, it seemed that he was there to assist with the show.

Instead, things were anything but clear to me. For a proposal that was quite specific in its geographical circumscription, timeframe, and goals, the farmers were making rather disparate comments and requests: an invasive ant that bites ferociously during the harvest of citric fruits— oranges, mandarins, grapefruits; need of water during the summer; the exorbitant price of fertilizers; bureaucratic impediments to hire and retain workers from the mainland, and so on. My puzzlement at the meeting was compounded by my frustration at not picking up the cues that *economista* Carrión gave me. As farmers told the park representative their stories and urged the park to act, he would lean sideways toward me and look at me, to note the obvious significance of what was happening.



## Practices of hope

“Do you see?” As much as I tried, I could not. Years later, I think back on Carrión’s mute interpellation. Reflecting on the Galapagos and my discipline, anthropology, I ask: what does it mean to hope in a context of changed landscapes?

What was before my eyes that wet afternoon in the highlands, yet I could not see, was that cultivating land is a practice of hope. The meeting not only revealed the divergence of agendas between the park and farmers. It also showed farmers’ willingness to persist (*conatus*) and effect change (*affectus*) within a heterogeneous assemblage.<sup>64</sup> I take this, now, to be an invitation to consider them, their crops, their weeds, and the protected areas in the highlands, beyond the entrenched divisions between nature and culture—and outside the lens of crisis and pessimism. In their multispecies entanglements, farmers enact forms of ecological care: not only have they developed an intimate knowledge of such landscapes, but their cultivation also reduces the volume of imported foods from the continent and thus introduction of new harmful species. In these practices, diverse strands of hope entangle: the hope of farmers to provide for their families and to strive for a better future, the hope of crops to thrive, and the hope of conservationists too, to curb invasive species’ spread through land cultivation.

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<sup>64</sup> I use Spinozian language to draw on the broad scholarship that argues for a type of agency that is distributed and immanent. Spinoza is a seminal thinker for a range of theories in social science and philosophy interested in decentering human agency: new materialism, actor-network theory, object-oriented ontology, constructivism, and post-humanism (Bennett 2009; Coole and Frost 2010; Latour 2005; Callon 1984; Deleuze and Guattari 2014; Haraway 2008; Helmreich 2011; Povinelli 2012).

Conservationists have neglected this tangle of possibilities altogether—Carrión’s disappointment that day taught me that, albeit belatedly. Anthropologists should not follow suit. How can our discipline attune to the emergence of hope to craft a space of possibility or even flourishing (Ginn, Beisel, and Barua 2014)), tenuous and tentative though it might be? In so doing, how can anthropology itself become a hopeful practice?

Over the past four decades, anthropology has systematically crushed modern hopes. Along with other critical social sciences, it has showed the adverse effects of the political, military, economic, and cultural project we call “modernity” on people and ecologies (Latour 1993). Modern goals, from bringing about ‘development’ and ‘freedom’ and even “doing humanitarian good,” have turned out to be fraught practices, at best, or violent and unjust practices at worst (Ferguson 1990; Escobar 2001; Fassin 2012; Ticktin 2011). Conservation has been an important subset of Western modernity. As an international political agenda, conservation originated in the West, yet it has predominantly taken place in the global south. This trend has only accelerated in recent decades (West, Brockington, and Ingoe 2006). Anthropologists have argued that the ostensibly universal goal of protecting nature has in fact enforced not only a specific understanding of ‘nature’ but also understandings of other social categories such as race, indigeneity, and economics. Like development—in fact an articulation of it—conservation has shaped social and natural landscapes. Anthropologists have given voice to the victims and discontents of this multifaceted project. Modernity’s hopes have caused anthropology’s pessimism.

However, the modern paradigm of conservation and its anthropological critique must confront with a new awareness, or an awareness of a new scale—that of planetary ecological catastrophe. On the Galapagos and elsewhere, scholars and conservationists increasingly reflect

on the rise of ecological degradation. Toxic, exploited, depleted, and radically transformed ecosystems are our contemporary, ecological ruins (cf. Stoler 2013; Gordillo 2014). Or, perhaps, they are the ruins of the future, of that which will soon be irreversibly transformed, irredeemably absent. Expectations about the future, thus, have changed. Writing about biodiversity and cultural loss, anthropologists have argued that the future anterior is the tense that articulates a moral discourse that asks us to act now to avoid dystopian futures (Povinelli 2011; Sodikoff 2012). Rather than a hopeful, modernist anticipation of the future, we now worry about the ‘Great Acceleration’ of socio-economic and earth system trends, which indicate a near-vertical spike in natural resource extraction and global saturation with contaminants (Steffen et al. 2015).<sup>65</sup> Another of these indicators, biodiversity loss, is key, not just to conservation. Mass extinction has marked every new period on earth. Some ecologists now argue that the earth has entered its sixth mass extinction, thus indirectly supporting the Anthropocene hypothesis (Ceballos et al. 2015).

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<sup>65</sup> In collaboration with the Stockholm Resilience Centre, the IGBP (the International Geosphere-Biosphere Programme) aggregated datasets of 24 global natural and social indicators, such as population, fertilizer consumption, water use, greenhouse emission, ocean acidification, stratospheric ozone, and Carbon dioxide) and showed the same pattern of a nearly vertical spike.



“Great Acceleration - IGBP” 2017

Coined by ecologist Eugene Stoermer in the early 1980s and later revisited by atmospheric chemist Paul Crutzen, the concept of Anthropocene has initiated heterogeneous attempts to understand how humans are transforming the earth as a whole, with an impact tantamount to geological forces (Waters et al. 2016; Steffen, Crutzen, and McNeill 2007). With the unwelcomed promise of life impoverishment, ecological ruination at the time of the Anthropocene challenges environmental scholars and conservationists alike. Implicit in most of the Anthropocene literature is a call for new scholarship and political action that can match the increased human capacity to destroy. But both natural and social scientists worry that this figure of the human risks reinstating modern fantasies of human superiority and control (Crist 2013; Caro et al. 2012; Haraway 2016; Collard, Dempsey, and Sundberg 2015). The Anthropocene

might just advance a modern agenda and, in turn, elicit a well-rehearsed scholarly critique against it. Both the diagnosis of and the solution to the Anthropocene, in its techno-utopian variants ranging from mining the Moon to engineering the climate, “crystallizes human dominion” (Crist 2013). Nature, on the other hand, becomes even more objectified and prey to a logic of extraction. Devoid of autonomous vitality, intrinsic worth, and chances to survive, ‘nature’ is understood as “post-nature” (Ellis 2009).

This dissertation has taken an opposite approach, addressing worrisome changes on the Galapagos but, at the same time, challenging the idea of human control over these changes. The goal of restoring ecosystems by implementing sophisticated technological measures has proven to be a fraught ambition. Examining the erosion of social and ecological conditions, I have reflected on the unwanted consequences resulting from interventions aimed at addressing such concerns.

Grappling with the reality of the Anthropocene, but resisting its anthropocentric gravity, I have showed that unscheduled emergence of ecological assemblages point to a diminished figure of the human rather than an aggrandized one. Rather than a more-than-human society, which acknowledges the ways other species participate in our lives and plans, we should write about the figure of the ‘less-than-human,’ because of diminished human control.

### **Hope on the Galapagos, hoping for the Galapagos**

The fate of remote islands is rather melancholy (Elton 1956)

What is the possibility of hope in anthropogenic field sites such as the Galapagos and, conceptually, in environmental scholarship? To be sure, the realization that we live a time of

profound, human-driven degradation seems to leave little room for hope. Remote islands' vulnerability to current global ecological events such as climate change, ocean acidification, invasive species, and biodiversity loss, only heightens a sense of loss that, since Darwin and Wallace, natural scientists have long felt (early anthropologists felt this too, about cultural loss). However, there are different kinds of hope. Conservation measures, aimed at a pristine past and the removal of humans, have profoundly shaped the islands, though not always for the intended reasons. The complications within this modern project present us with the opportunity to provincialize *that* instantiation of hope, and to let others surface.

The resilience of hope is relevant for rethinking the Galapagos and the modern idea of conserving nature that, though global in scope, has so clearly been implemented there. Hope partakes of both modern projects and post-modern sensibilities. Drawing on Isabelle Stengers' remark on the ambivalence of any *farmakon*—at once curative but also dangerous—Eben Kirksey asks if hope too has pharmaceutical properties: in high doses, as in utopian and modernist projects, it is toxic, whereas in low amounts it can be beneficial (E. Kirksey 2015). In other words, hope needs to be discussed in the context of complex, novel ties that humans have—whether they are aware of it or not—with other species. New forms of hope are necessarily contingent and unlikely to be scalable. Modern arrogance can turn into minor hope.

The tangles of species, settlers, and hopes on the Galapagos I have presented in this dissertation are an attempt to think in this direction. Along with different species, different forms of hope arise from those in the modern project. If modern hope has claimed itself to be obvious and all-embracing, I have discussed contingent manifestations of endurance and minor success. If any project to endure in or improve the environment must be motivated by a hope it succeeds, or at least that it is worth trying, then interventions in the webs of life became a matter of hope.

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### *Goats*

“I hope she’s ok,” said *dona Carmela*, her eyes absorbed in her own thinking. She was telling me about a goat that, she maintained, miraculously survived *Proyecto Isabela*. I talked to Carmela on Isabela, where she resides and where the highest number of goats had been killed. The eradication ended only when no goat was left in the island’s protected areas. Except for one perhaps, *dona Carmela* offered. She didn’t see it but her cousin did. He regularly goes hunting in the park and he once spotted it. “The goat was white,” Carmela told me with a warm smile. Caring for a goat that might have escaped an eradication campaign, as *dona Carmela* did with a goat she has never seen, shows us how goats have participated in residents’ lives. Along with those of other residents (Chapter 4), Carmela’s story tells of a way of caring for goats that has diverged from conservationists’ goals. Carmela lamented the eradication and wished the surviving goat well and, in so doing, wished herself well too. “I hope she’s ok!” she repeated.

The goats’ growing numbers prompted an eradication campaign, undertaken in hope of restoring the Galapagos to a pre-human past. Neither residents nor ecosystems, however, complied with this plan. Manifesting a widespread support for a local way of life of which goats have always been a part, PI’s hunters defected from the campaign (Chapter 4). Even on the islands when the eradication was achieved, the highly invasive bush that the goats had kept at bay (*Rubus niveus*) began to cover the entire land area, now unchecked. Additionally, the fight against another invasive plant (*Cinchona pubescens*)—brought to the islands in the hope of starting a successful business—has facilitated colonization by *Rubus niveus* in upper parts of the highlands that were previously uninvaded. The rebirth of these invasive plants following each eradication intervention announces the demise of a modern conservation project (Chapter 5).

The unraveling of plans (and unwanted spread of plants) is not the end of the story, however. Ecologists and settlers are reconsidering the role of such introduced plants: the invasive tree *Cedrela odorata*, which the Park has tried unsuccessfully to control, offers majestic shade and valuable timber; invasive plants give water and nutrients to the soil, or are part of the diet of endemic animals such as the Galapagos' famous tortoises or finches. Meanwhile, illegal immigrants find tenuous opportunities in the abandoned (by humans), invaded (by invasive species) rural highlands (Chapter 3). Paraphrasing Evans-Pritchard, new situations require new strands of hope.<sup>66</sup> Given the unforeseeable results of any introduction, and the always possible catastrophic results, hope in and for novel ecosystems—as some ecologists have defined these emergent landscapes—must be situated and cautious. But they are the necessary passageway for realigning our hopes to the possibilities of living in a changing world.

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<sup>66</sup> “New situations demand new magic.” (Evans-Pritchard 1937)





Author, 2013

### **Changing the temporality of hope**

A recalibration of human place vis-à-vis the larger web of life in which it is immersed, and the folding of future expectations into an emergent present, hold the promise of honing the art of noticing forms of immanent, *not* imminent hope. To hope in the time of the Anthropocene (and thus to rethink the concept itself), scholars need to switch from imagining future scenarios to bringing new awareness to present ones (without the vanishing point of yet-to-materialize events). They must transition from assuming universal certainty (evidence-based,

technologically-driven, future-oriented), to looking for contingent worth. “Slowing down” to consider messy landscapes—for which no easy solution is at hand, or even imaginable—is a requisite for attuning to present challenges (cf. also Nixon 2011). Stengers’ concept of ‘obligation,’ which asks all parties involved to be responsive to one another, might help with this conceptual, temporal shift. Letting go of universal categories (and disciplinary habits), what matters for Stengers is the practical sites where heterogeneous forms of knowledge and actors converge. Facing uncertainty about these interactions and their outcomes, all actors have an obligation to concentrate on the present.

In this context, hoping to hope might be part of a new form of knowledge production, and scholarly engagement, in the time of the Anthropocene. Reflecting on plants’ attempts to thrive and on the work of farmers, conservationists *and* myself, I treat hope as an obligation (*sensu* Stengers): an intimation not only to situated knowledge to specific actors, but also to imagine possible improvements once we jettison ambitions for radical improvements. Resisting the urge to reflect on the future, I take the Anthropocene as an “uncanny present,” as Rebecca Bryant put it: a present experienced viscerally, anxiously, as detached from any continuity between the before and after. This sense of present emerges from “the inability to anticipate the future” (Bryant 2016). In thinking about ecological crisis, this inability, rather than uncomfortably unavoidable, needs to be cultivated by letting go of an exclusive focus on future scenarios.

In opposition to conservation’ preoccupation with scarcity, a geographers’ manifesto calls attention to alternative forms in order to reimagine nature (Collard, Dempsey, and Sundberg 2015). Drawing on decolonial and indigenous thinking, these geographers argue for practices that focus on and enact the multiplicity of nature-cultures. Scholars in environmental humanities and animal studies, similarly, reflect on the need not only to note different, at times

incommensurable life worlds, but also to cultivate skills to respond to it (Dooren, Kirksey, and Münster 2016; Despret and Meuret 2016).

My inquiry treads on this uncertain terrain. I follow the winding lines that multiple species, in their entanglements, have traced. In my fieldwork, I sometimes looked for spectacular vistas. More often, however, I gazed down where I placed my feet. I dodged the thorns of bushes, worryingly invading local ecosystems as sorely my flesh. I contemplated the distilled, elemental scarcity of biodiversity on an isolated archipelago like the Galapagos. Searching for introduced edible fruits, I avoided endemic, poisonous ones. To wipe off invasive, biting ants, I sat under the benign shade of toxic, endemic trees. In choosing what to engage with and what to avoid, what futures to anticipate or undo, I was not alone. Attention to emerging opportunities is a necessary mode of engagement across plants, animals, and humans in a changing terrain.

The findings I have presented are the fruits of an exercise in noticing the particular, the contingent, the more than human, the in-between. Necessary for the attunement to complex, emerging assemblages, this approach exalts ethnography as a practice and decenters the relevance of rigid theoretical frameworks. Ethnography is a method of getting lost that opens us to new scenarios (Biehl 2013). It grants us the capacity for grounding forms of hopes that emerge from blasted landscapes, away from modern ignorance of our interspecies connections but also from the pessimism in scientific bulletins on extinction, degradation, and irreversible change. The ways species survive, and humans with them, offer us the opportunity to reconsider our attention and our hopes for hope. Neither grandiose nor insignificant, these forms of resilient webs of life bring forth cautious hopes. Hope shows us the people's practical remedies, the tinkered solutions to cope and endure. Hope also refers to non-human species that respond and search for solutions to new scenarios.



Author, 2013

In this dissertation, I have tweaked ethnographic methods and expanded the traditional bounds of anthropological inquiry to attend to forms of life at the margins of conservation practices. Doing so, I have inserted my own hope: to show forms of endurance in their socio-ecological potential and discuss the possibilities of flourishing, both human and beyond, in this anthropocenic time.

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