The imperative of life: Multispecies associations and vital happenings in Talamanca, Costa Rica

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Abstract

This research is a composite anthropology of life, assembled from diverse ethnographic engagements with multispecies lifeworlds in Talamanca, Costa Rica. Focusing on four different modes of dwelling in a more-than-human world, the research asks: What happens when people’s lives become entangled with, and concerned with, the lives of other species? What kinds of relational configurations arise? How are other-than-human lives, organisms and ways of life conserved, monitored, sustained and reintroduced? What are species’ responses to human activities, projects, plans and initiatives? How does the shared experience of a common world affect entanglements between species? What is at stake in entangled lives, and what emerges through encounters between different species? What does this tell us about life as an interspecies experience, about its imperative requirements and the possibilities of reciprocal flourishing?

To answer these questions, I use ethnographic film to inspire and inform the entire project. The research is infused with filmic forms of attention to the relational becomings of living beings as they respond to the vital happenings that confront them with the forces and matter of the world. Through film, I explore the longest-term multispecies entanglement in the area, whereby the Bribri people, the largest indigenous group in Costa Rica, are entangled with the forests, valleys and coasts of Talamanca through a range of mundane encounters with other living beings and living matter. Secondly, I engage with a river conservation programme, the ANAI Stream Biomonitoring Programme (ASBP), in which a group of biologists and locals monitor riverine life. I track the work of scientific measurements concerned with riverine species, with their numbers, habitats and future, while rivers emerge as continuas and meshworks through which riverine lives become entangled. Thirdly, I explore social life at the Jaguar Rescue Center, a wildlife rehabilitation and reintroduction centre, where humans and wild species learn to live together, cultivating – not without difficulties – the possibility of a future back in the wild, while making the best of adverse circumstances. Finally, I analyse the Ara Project’s work to breed and reintroduce *Ara ambiguus* macaws. In particular, I track how encounter value is produced and circulated, how care practices and considerations articulate and contract, and then how the parasitic logic that sustains the project comes into being, redistributing benefits and reinforcing the multispecies association that constitutes the project.

In sum, this research aims to enrich the emerging field of multispecies studies by calling for a unifying and adaptive theory of association that captures the ethical, material, semiotic and affective dimensions of conservation ecologies, that is, the multiple forms of vitality that shape human engagement with the lives of other species. The research shows that as species (lives) become entangled through life, to sustain and to conserve become collective enterprises, and it is therefore the multispecies association that comes to matter the most in the pursuit of reciprocal flourishing and sustenance. Relationally emergent multispecies associations vary according to the entities involved, but they always converge on the imperative of life. This imperative is the multispecies shared experience of making a living with and through others, within the given constraints of spatially and temporally specific political ecologies, facing and navigating the uncertainty of life happenings. Finally, this research shows that ethnographic film does not conceptualize, but rather temporalizes and materializes multispecies associations and vital happenings, and can therefore work as an incubator of more extended, inclusive modes of ethnographic attention to, and awareness of, the multiple and concurrent vitalities of social life.
Declaration

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Introduction

1. Anthropologies of life

One night early in my fieldwork, I was on the terrace of my house in the centre of the town of Puerto Viejo de Talamanca, in the Caribe Sur of Costa Rica. Puerto Viejo is a small cosmopolitan community known for its laid-back atmosphere and the surrounding forests and corals, protected areas and indigenous reserves. In recent decades, the town has attracted an influx of global tourism and real-estate investment, sustained by a growing presence of international expatriates. I was reading ‘What happen’: A folk-history of Costa Rica’s Talamanca Coast, by the historian Palmer (1993), whose work on coastal settlements in Talamanca is one of the rare historiographical accounts of this corner of the country. Reading and swinging on my hammock, I was having a hard time fighting against mosquitoes, which were all around me. At the same time, my landlord, who lived on the first floor of the building with his family, was trying to grab a couple of coconuts from a palm tree in the garden. The presence of the mosquitoes was quite painful, and after a while I decided to go to sleep under my mosquito net.

As I left the hammock, I sensed a revelation about what I had just read in Palmer’s book. The first settlers of the coastal communities of Baja Talamanca were mostly Nicaraguan and Jamaican fishermen, who arrived at the end of the nineteenth century following turtles, to catch them and collect their eggs. The turtles were visiting the coasts of Talamanca because they were attracted by the corals, a rich habitat for finding nourishment. For a moment, I felt like one of those fishermen searching for turtles, and I also felt like one of those turtles searching for corals, since I had come to Talamanca to nurture my research interests. A few minutes later, under my mosquito net at last, I could hear mosquitoes flying around me, but now unable to reach my skin. “What a great invention mosquito nets are!” I said loudly, thinking that the mosquitoes could hear me and would give up. In the vibrant silence of my room, I could still hear my landlord struggling to grab the coconuts. At one point, he ordered his younger son to bring him the ladder. That must have been the turning point in his struggle, because after a while I heard the little boy saying “Que rico [so tasty]!”, presumably referring to the coconut water he had just drank directly from its source. In the richness of that moment, I recall feeling life in the ubiquitous activity of searching for food and refreshment.

Recently, Pitrou (2014) has asked whether life might be a legitimate object of study for anthropologists. For Pitrou, “taking life as an object is to study how different people conceive
the functional characteristics of living beings, but also how they attribute causes to such phenomena” (Pitrou, 2014, p. 161, my translation). Moreover, he continues:

this implies not reducing life either to a substance circulating between bodies, nor to the characteristics or behaviours observable in living beings in a given environment, but questioning the existence of underlying theories which make intelligible the causes that produce these phenomena. (Pitrou, 2014, p. 161)

Pitrou proposes two approaches that are particularly suitable to help anthropologists embark on such a project.

The first is Ingold’s phenomenological approach towards an ‘ecology of life’, whose aim is to explore the relations between organisms and their environment. For Ingold, being alive takes place between the perception of the world and action in the world. This ‘dwelling perspective’ considers the immersion of organisms within their environment as the inescapable condition of being alive. For Ingold (2011, p. 78), the environment resembles a “meshwork of entangled lines of life, growth and movement”, such that movement represents life itself, “the impulse of life that gives rise to the forms we see”. However, Pitrou (2014, p. 168) identifies certain limitations to Ingold’s approach, because it makes “all beings, human and non-human, and all actions, technical and artistic, seem to swim in the same undifferentiated direction”. For Pitrou (2014, p. 168), the ‘generality’ of Ingold’s proposition poses problems, “especially if the intention is to engage with the perspectives of different living conditions”.

The second approach, which Pitrou suggests can overcome this limitation, is represented by Kohn’s (2013) proposition of life as a semiotic process. According to Pitrou, Kohn’s project sheds light on how different species read life signs by using diverse semiotic systems such as icons and indices, when they perceive and respond to the world from the perspective of their species. Pitrou explains that Kohn does not propose a sentient ecology, but rather an ecology of selves, whereby the signs emitted by a living being are constantly responding to the signs emitted by others. In Kohn’s (2013, p. 62) words, “the self is both the locus and the product of this process of interpretation”, and “[b]eing alive – being in the flow of life – involves aligning ourselves with an ever-increasing array of emerging habits”, while also responding to “disruption and shock”. Thus, Pitrou (2014, p. 173) concludes, Kohn’s semiotic approach to life works well to explore “the ultimate consequences of the process of differentiation inherent in perspectivism: the plurality of points of view on the world that generates a multiplication of semiotics”.

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Among anthropologists, Helmreich has perhaps dealt with life in the most radical and multidisciplinary terms. Helmreich (2011) does not ask ‘what is life?’ but rather ‘what has life become?’ (Helmreich, 2011). In particular, grounding his argument on extensive ethnographic research with marine biologists (Helmreich, 2009) and artificial life (Helmreich, 2000), Helmreich has argued that life and its facts are today more in a state of unprecedented dissolution and transformation. As Helmreich (2011, p. 673) writes, “[a]ll these transformations destabilize any naturalistic or ontological foundation that life forms – embodied bits of vitality like organisms and species – might provide for forms of life – social, symbolic, and pragmatic ways of thinking and acting that organize human communities”. Put in another way, “life forms and forms of life inform, transform, and deform one another” (Helmreich, 2011, p. 676). This means that ‘life itself’ is something that is made and remade across different sites, epistemic communities and contingencies, through multiple discourses and practices. Rather, then, than being “compressed into the logic of a code”, life is a process “ever overcoming itself in an assortment of bodied manifestations” (Helmreich, 2011, p. 674).

Both Kohn and Helmreich articulate their anthropologies of life through multispecies ethnography, which is an emerging trend within anthropological research. However, as Haraway (2008) remarks, human nature has always been a multispecies relationship. As discussed by Kirksey and Helmreich (2010), multispecies ethnography is particularly inclusive of those organisms that inhabit human social worlds, with particular attention to those “contact zones where lines separating nature from culture have broken down, where encounters between Homo sapiens and other beings generate mutual ecologies and coproduced niches” (Kirksey and Helmreich, 2010, p. 546). In this sense, multispecies ethnography is a rich corpus of studies which reveals how the boundaries between living beings are more fluid than what we previously realized.1 However, multispecies ethnographies are not naive, but also interrogate “the hidden ontology in the frame of ‘multispecies’ – that of species” (Kirksey and Helmreich, 2010, p. 563). Multispecies ethnography thus rests on a concept – species – which is marked by tensions. As Kirksey and Helmreich (2010, p. 563) argue, the concept of species simultaneously expresses biological similarity and difference, “logical types as well as that which is relentlessy specific”. Because of this tension, multispecies ethnography is highly productive for thinking about difference, but in a very specific way. Since it is profoundly species-centred, multispecies ethnography does not include the full range of what is alive, in particular, what is not species-like.

To overcome this limitation, we might refer to Ingold and other authors to offer a more generous account of life as the mingling of multiple vitalities, not only of species. Ingold argues that life is about processes of coming into being, which he, together with his colleague Pálsson, recently defined as ‘biosocial becomings’ (Ingold and Pálsson, 2013). Elsewhere, Ingold (2010, p. 3) has defined life as “the generative capacity of that encompassing field of relation within which forms arise and are held in place”. With this definition, Ingold seeks to challenge the Aristotelian hylomorphic model of creation, which sees form as agent imposed on matter as passive substance; Ingold (2010, pp. 2-3) instead proposes “an ontology that assigns primacy to processes of formation as against their final products, and to flows and transformations of materials as against states of matter”. For Ingold, these processes of formation take place in the open, such that life responds to ‘the currents’ of the world, to the air and water, to what sets objects ‘into motion’ as they become things. In this view, life is about joining processes of formation, which take place across the medium-world. In Ingold’s (2010, p. 8) terms, “[t]he bird is its flying; the fish its swimming”.

Water and air are lively matter, but they are also vital constituents of species’ lives. So, life is also about the intrinsic vitalities of matter and earth forces. In this vein, Bennett (2009) engages with the vibrancy of matter, especially with the “ecological character of vital materialism” (Bennett, 2009, p. x). For Bennett (2009, p. viii), vitality refers to “the capacity of things – edible, commodities, storms, metal – not only to impede or block the will and design of human but also to act as quasi-agents or forces with trajectories, propensities, or tendencies of their own”. Strikingly, Bennett (2009, p. x) seeks to “dissipate the onto-theological binaries of life/matter, human/animal, will/determination, organic/inorganic” so as to equip scholars with new conceptual tools for an “aesthetic-affective openness to material vitality”, and “to sketch a style of political analysis that can better account for the contributions of non-human actants”. Central to Bennett’s argument, then, is affect – the sensuous enchantment with the everyday world, and the force-power that enhances the operativity of ethical principles as they become ethical behaviours. Bennett (2009, p. 117) thus proposes that a vital materialism is necessary to develop “a transversal mode of perception”, to show that “an affective, speaking human body is not radically different from the affective signaling non-humans with which it coexists, hosts, enjoys, serves, consumes, produces, and competes”. Such reasoning suggests that political ecologies are “ontologically diverse assemblages of energies and bodies, of simple and complex bodies, of the physical and the physiological” (Bennett, 2009, p. 117). Across political ecologies, then, every force-matter that affects and is affected by ‘agentic assemblages’ is alive, such that ‘nature’, as a plan of
immanence, “ceaselessly generates new forms” (Bennett, 2009, p. 117).

My curiosity about the emerging forms and liveliness of political ecologies has driven, and has been driven by, my interest in the public visibility of environmental conservation in Costa Rica. Environmental conservation is a form of contemporary politics strongly related to ‘nature’, and is thus particularly suitable for critically exploring life and political lives, multispecies communities, and the vitality of the material world, with all its forces and becomings. Given their public resonance, I deemed the political ecologies of environmental conservation in Costa Rica interesting opportunities for thinking about, in Bennett’s words, “the outside that’s within” (Bennett, 2009, p. 113) human experiences of the world, where, to paraphrase Hayden (2003), nature has gone public. At the same time, I had a particular motivation for addressing environmental conservation. Reading political ecologies of environmental conservation, to which I will refer in my conclusion, I often found terms such as ‘livelihoods’, ‘biodiversity’, ‘wildlife’, and ‘nature’s life-sustaining services’. There seemed to be so much ‘life’ in the conservation lexicon, but in the analysis itself, life and lives tend to disappear. This work, and the anthropologies of life that sustain it, is the response to my discomfort with the disappearance of life and lives, which is hard to accept, especially considering that ‘life’ is the ‘political’ of conservation – the total social fact that transforms ecologies into political collectives, multiply inhabited by entangled lives and diverse vitalities. Bringing life and lives back into conservation therefore was an urgent research objective that I brought with me to Costa Rica.

Curiously, as soon as I arrived, I discovered that my anthropological fascination with life was a ‘public concern’. Those who visit or live in Costa Rica hear about life all the time. The expression ‘pura vida’, literally ‘pure life’, is ubiquitous and can be used in any social circumstance. It works as a welcome, goodbye, excuse, motto and philosophy of life. One can be ‘pura vida’ through having a good attitude towards life, but ‘demasiado pura vida’ (‘too much pure life’) is the result of a bad attitude towards others. My comprehension of the endless possible uses of the expression ‘pura vida’ lasted throughout my stay in Costa Rica, but in the first days of fieldwork, I wondered whether that was a sign of life, encouraging me to delve deeper into the question of life and lives in relation to environmental conservation, another public concern in Costa Rica. Ultimately, this was the direction I took in my fieldwork.

2. Political ecologies of conservation in Costa Rica

Evans (2010) tells the fascinating story of how Costa Rica became a ‘green republic’,...
that is, of how environmentalism, nature protection and conservation became embedded in the country’s political agenda. It is helpful here to chart the key points which make this story unique both regionally and globally.

During colonial times, what is now Costa Rica remained marginal in the topographies of power of the Spanish Empire, so the pre-Columbian landscape suffered less than other areas of Latin and Central America (Hall, 1985). As I will explain in the following section, this is also a story of local resistance and resilience, not simply one of a lack of colonial interest. This is a crucial detail, because, Evans (2010) argues, the history of environmental conservation in Costa Rica begins in the encounter between natural scientists – who started to visit Costa Rica a few decades after independence in 1821 – and the landscape, whose natural history showed relatively little anthropic impact. In particular, scientific investigations, carried out by foreign scientists during the 19th century, and by national institutions during the 20th century, generated a critical corpus of scientific knowledge that increased the awareness of local conservationists and national political elites when the first environmental concerns arose in the country. In Costa Rica, deforestation emerged in conjunction with the ecological changes caused by coffee cultivation, which was introduced around 1930. The expanding global coffee market meant that forested lands underwent slash-and-burn practices to increase production, in particular in the Central Highlands, the most populated area of the country. Inevitably for a developing country located in the tropics, deforestation became a serious issue during the 1960s. Fortunately, in 1996 a highly restrictive Forestry Law was promulgated, setting a legal framework for integrating national parks into a single system. As Evans (2010) explains, this remarkable achievement was the result of the tedious work of a wide range of actors – political representatives, conservation experts, scientists and national and international agencies. However, the development of natural parks across the country was only a partial remedy to the increasing rates of deforestation, which had exploded in the 1970s and 1980s – marked by the profit-oriented banana industry, the development of national infrastructure, rapidly growing urban settlements, and the expansion of cattle-farming and the timber industry across the country.

In the mid-1980s, after a severe debt crisis hit the country, neoliberal restructuring of public investments affected the entire national park system, with severe cutbacks imposed. Nevertheless, environmental protection remained high on the national agenda. This was the moment when the ‘sustainable development’ discourse started flourishing internationally, and Costa Rican representatives jumped on the bandwagon. During the late 1980s, initiatives such
as the Costa Rica Debt Conservation Plan allowed Costa Rica to reduce its foreign debt by investing in conservation programmes. Moreover, one of the world’s first experiments in a green economy took place in the national programme of incentives for environmental services (PES), which involved compensation to promote reforestation activities and the international purchase of carbon credits stored in forested areas. Encouraged by the opportunities to distribute to communities the economic benefits of emerging international conservation trends, programmes and funds, influential conservationists started advancing the proposal of integrating various park areas into the national park system. This project involved the creation of quasi-protected areas, known as ‘buffer zones’, where local inhabitants could be involved in the management of natural resources, instead of being relocated. This process marked the beginning of the decentralization of the administration of parks, with the new Forestry Law and Biodiversity Act being finally approved in 1996 and 1998 respectively, after several disputes. These two laws configured a new era in conservation policies, as they promoted and facilitated the involvement of civil society organizations and non-governmental transnational actors in the field of environmental conservation. At the same time, state institutions provided extensive ecotourism incentives, and promoted various environmental education initiatives.

By the beginning of the new century, therefore, sustainability, conservation and biodiversity were central to the national political agenda. These changes fostered popular participation in environmental issues, and, most importantly for local economies, transformed Costa Rica into a mecca for nature lovers and eco-tourists. The vast eco-tourism industry is perhaps the most vivid exemplar of a unique story of conservation achievements. According to Obando (2007), 25% of national territory today is under a regime of conservation or protection, a substantial achievement, though a controversial one.

For the anthropologist Bozzoli (2000), the specificity of Costa Rica’s experience of environmental conservation lies in its conflation with the challenges of sustainable development. She argues that in Costa Rica sustainability has overtaken environmental conservation as a policy orientation, embedding in conservation policies concerns about social justice and inclusion, community participation and human rights. Today, international attention is drawn to Costa Rica’s successful schemes of environmental compensation (known nationally as PES, globally as REDD+), to the extensive bio-prospecting programme of its national biodiversity agency INBio, and, more recently, to the country’s intention to become carbon-neutral by 2020.

For others, however, conservation achievements in Costa Rica are neither socially nor
ecologically successful. Anthropologist Stonich (1999) has argued in highly critical terms that Costa Rica’s conservation strategies have been a failure, although it is a place where they could have been successful—a democratic, unarmed nation with a welfare state. She suggests that the country has fallen victim to an externally-imposed scientific imperialism, resulting in the government prioritizing the ‘biological’ over the ‘social’. Conservation achievements in Costa Rica, Stonich (1999) continues, have often generated inequitable patterns of development, conflicting with the interests of the land-hungry poor. Moreover, initiatives, such as debt-for-nature swaps, carbon sequestration programmes and the more recent collaborative agreement between the pharmaceutical giant Merck & Co. and the national agency INBio, have been “particularly contentious” (Stonich, 1999, p. 187) for their inequity. For Stonich, conservation ambiguities in Costa Rica are evident in the much-lauded national system of protected areas. Despite its global celebration, this system actually results in a “mosaic of small, disarticulated islands of preservation surrounded by vast areas of environmental degradation” (Stonich, 1999, p. 188). As can be seen in this copy of the first map I bought in Costa Rica, this is particularly true in the northeast of the country, and least evident in the southwest of the country, which is where I conducted my research.

Figure 1: National Parks and Reserves of Costa Rica. A copy of the first map I bought in Costa Rica, which was the only one available at the airport (Copyright 2002, Conceptos Digitales, CR, S.A).

Similarly, Campbell (2002) identifies four main reasons for conflicts arising from the creation of protected areas in Costa Rica. First, protected areas and natural parks have often been established without consulting local people. Secondly,
expropriation have been inadequate or non-existent. Thirdly, due to high population growth rates and high levels of private land ownership, most landless peasants have increasingly been forced to encroach on protected areas. Finally, restrictions on the use of natural resources within protected areas have been directed against small farmers, while major logging has continued unabated. Utting (1994) too has argued that the ‘conservation-through-exclusion’ approach throughout Central America has failed to address crucial social issues and neglected the socio-economic and cultural concerns of those living around parks. In relation to these issues, Palmer (1993, p. 236) mentions a local landholder’s reaction to the conflicts arising from the establishment of the Cahuita National Park on the Talamanca coast: “They call it ‘natural resources’, and it’s natural resources, but is our farm!... If they were intelligent, they would realize that you can’t function a park in an area where people are going to be hostile.” These words, pronounced in 1979, suggest that conservation in Costa Rica has required and triggered multiple social and environmental negotiations. Conservation successes, then, in Costa Rica have always been negotiated, hard to enforce, and precariously achieved (if at all). Both local and global issues have been responsible for failures of conservation. For instance, reflecting on the landscape history of the Alto Tuin, Nygren (2000) suggests that the act of ‘cutting down trees’ (deforestation) should be framed as a peasant struggle over access to ‘inappropriate’ natural resources. Conservation, then, functions as form of cultural supremacy over local indigenous systems of agriculture. Stimulated by the global Green Revolution, the state encouraged peasants to invest in intensive farming and cattle-herding, indirectly causing massive deforestation. Then, after only two decades, state officials completely changed register, publicly encouraging indigenous agroforestry practices on the basis of their intrinsic conservation potential. For Nygren (2000), Costa Ricans, in particular peasants and indigenous groups, have often had to deal with the absence of a clear national strategy for accessing and managing of natural resources.

Campbell (2002) argues that Costa Rica has recently experienced a shift from a narrative of endangered biodiversity and ecosystems, to a counter-narrative based on sustainable use and community-based conservation. This counter-narrative allows for the coexistence of ‘non-consumptive’ and ‘consumptive’ uses of local biodiversity: while the former is associated with the potential benefits of ecotourism, the latter has been associated with the growing bio-prospecting industry. In both cases, Campbell (2002) argues, local communities have been marginalized. Moreover, Honey (2010) explains that eco-tourism enterprises, which had previously been small-scale, locally owned and serving domestic and regional visitors, have been transformed since the state started to support ecotourism during
the 1990s, favouring large foreign investors over small community enterprises.

Thus, after closer examination of the realities of Costa Rican environmental conservation today in terms of policies, social justice and ecological results, little remains of Evans’ (2010) ‘green republic’. However, rather than asking whether conservation projects and politics have achieved stable results in Costa Rica, it may be more helpful to ask how conservation materializes in the lives of people who find themselves enveloped by a contested and composite political field of environmental governance. What is conservation in people’s everyday lives?

Anthropologist Vivanco (2007) has recently offered an ethnographic answer to this question in his vivid account of the social field of conservation in the Costa Rican reserve of Monteverde, comprising multiple actors, shifting perceptions, and problematic negotiations reflected in a vast array of everyday micro-politics. For Vivanco, conservation is an arena of encounters, conflicts and partial agreements between people and institutions, which often have disparate ideas and practices of nature and social change. As such, Vivanco (2007, p. xiii) argues, in Monteverde, “environmentalism is a powerful new force of social and ecological change, yet its boundaries are fluid and those who claim environmentalist sensibilities are many”. There are two aspects of Vivanco’s work that are particularly inspiring for ethnographers of conservation. First, Vivanco is highly successful at historicizing conservation. The second aspect could have been explored more radically by Vivanco: the multispecies dimension of conservation encounters. Indeed, in Vivanco’s ethnography, the first aspect prevails over the second, even when conservation emerges as the encounter between different species, in particular between people and the resplendent quetzals (*Pharomachrus mocinno*), which enchant local residents and visitors. Though Vivanco may to an extent be a multispecies ethnographer manqué, he is certainly an excellent political ecologist of the Monteverde conservation arena. He meticulously traces settlement patterns, the agrarian history of the reserve, local conflicts over access to land and natural resources, together with the social changes triggered by eco-tourism businesses and foreign settlers. Vivanco’s ethnography thus indubitably offers a vivid analysis of the different publics, actors, institutions, priorities and political decisions involved in environmental conservation in Costa Rica (as elsewhere), which overlap with “new styles of interacting with the landscape” and “shifting regimes of productivity” (Vivanco, 2007, p. 19) in relation to natural resources.

Though I am inspired by Vivanco, I seek a stronger focus on the multispecies encounters of conservation. I thus intend to engage radically with the liveliness of
conservation political ecologies, initiatives and experiences in Costa Rica. I do so in an area of the country where environmental conservation can be studied in its various manifestations (e.g. biological corridors, projects, local organizations), but also where conservation is particularly at stake today. Indeed, the canton of Talamanca is the ecological fortress of the country, with the highest density of protected areas and reserves. In Talamanca, conservation encompasses people and species, mountains and coasts, water and electricity, and a multitude of human and non-human everyday experiences of the world. Most importantly, Talamanca is now the most forested canton of Costa Rica and one of the world’s key biodiversity hotspots, which is due to its history, and to those who have lived in Talamanca since time immemorial, humans and non-humans. What can be conserved today in Talamanca is the result of long-term multispecies and environmental entanglements. In the next section, I tell the story of ‘Talamanca la eterna’ (Talamanca the eternal), adopting this expression from those that know more than me about the past, present and future of Talamanca.

3. ‘Talamanca la eterna’

Very little is known about Talamanca and its indigenous human groups in pre-colonial times. According to Stone (1962), the territories of Talamanca were inhabited by a large indigenous network made up of extensive trade connections. These connections were not only local, since the Bribris, Teribes, Cabecares and Borucas had interactions with the Indians of the Andes, Mesoamerican Olmecs and Mayas. Moreover, there was also a more recent population of Mexican Chichimecas, known as the ‘Sikwua’, who had mixed with local groups. These details stress that local history in Talamanca has always been multiple, comprising relations, encounters, commercial networks, and also contention over the rich lands of Ara. Talamanca was known locally as ‘Ara’ until the foundation of the colonial outpost of Santiago de Talamanca in 1610, which lasted only five years before being destroyed by a coordinated indigenous uprising. As Fonseca (1996) notes, the foundation of Santiago de Talamanca, rather than securing control over the lands of Ara, radicalized indigenous resistance. Nevertheless, by the mid-17th century, Franciscan missions had established their presence and influence in the area, attracting families to join their missions through forced relocations or in exchange for material goods.

Indigenous groups initially tolerated religious missions. According to Villarreal (2014), this was because coastal areas of Talamanca were under attack by Mosquitos, who, supported by the British Empire, already controlled most Caribbean coastal territories. Along the coast, including Talamanca, they had captured slaves to sell to Jamaican plantations. Compared to
this threat, life in the missions represented a relatively safe option for indigenous human groups in Talamanca. However, missions caused radical social transformations in local livelihoods, in particular in terms of family structure, land tenure and religious practices. Inevitably, these changes produced tensions, which exploded in 1709 in a series of armed attacks against missionaries. These revolts constitute a turning point in the human history of Talamanca. Local resistance was the result of strategic alliances between different groups which managed to overcome their differences. However, the colonial response was ferocious. The central authorities swiftly sent additional forces to Talamanca to suppress the revolts, executing their leaders, as well as some who had not participated, in one of the bloodiest periods of the colonial occupation. However, as Fonseca (1996) argues, from the point of view of indigenous people, the 1709 revolts were a victory, because the Spaniards abandoned their project of gaining access to Talamanca, even though they had already changed its history.

During the 17th and 18th centuries, local groups adapted to a world that was quickly changing in response to external threats. Moreover, following Costa Rican independence in 1821, specific historical decisions transformed Talamanca into the country’s ‘indigenous’ stronghold and frontier. Villarreal (2014) argues that it is difficult to trace the boundaries between the ‘outside world’ and the ‘indigenous world’ of Talamanca. Even before Costa Rican independence, “the indigenous world of Talamanca, far from being isolated and stuck, was dynamic, changing, fluid and active” (Villareal, 2014, p. 32, my translation). Additionally, Villarreal explains that Spanish conquistadors’ colonial project failed because local chieffaincies managed to maintain political independence through passive and armed resistance. After independence, the state prioritized control over its peripheral territories; but Talamanca was a problematic territory, where two competitors vied for control. On one side was the Mosquito Kingdom, previously contained by the colonial authorities through financial remunerations, which were suspended immediately after independence. On the other side, there was Colombia, which ruled over what would in 1903 become the independent state of Panama. In such a context, indigenous people were “the best existing resource to promote the sovereign aspiration of the Costa Rican state” (Villareal, 2014, p. 256). For almost a century, local caciques were given political concessions, but by the end of the 19th century, the state had reconsidered its alliances, and had begun to entrust political and administrative functions to non-indigenous officials.

Meanwhile, mestizos and Afro-Antilleans had started to settle in Baja Talamanca (the coastal and lowland areas). This migration increased dramatically with the absorption of the
workforce for the construction of the Atlantic railroad. Moreover, numerous Panamanians, Nicaraguans and Jamaicans had settled on the southern coasts of Talamanca. By the 1870, the new coastal settlers exceeded the indigenous population on the cordillera.

Figure 2: The Talamanca coast (1700-1914) (source: ‘What happen’: A folk-history of Costa Rica’s Talamanca Coast [Palmer, 1993, p. 14]).

The United Fruit Company (UFC) thus encountered a heterogeneous social landscape when it expanded its banana plantations, infrastructure and international trade networks from Panama into Costa Rica in the early 20th century. The famous novel Mamita Yunai (Fallas, 1969[1941]) tells the story of the hopeful yet painful arrival of the UFC in Talamanca with historical precision and ethnographic sensibility. This process transformed Talamanca into an enclave of emerging global capitalism, at a moment when state sovereignty was still weak. Lansing (2014, p. 38) argues that the expansion of the UFC in Talamanca reflects the “unstable nature of state territorialisation itself”. Meanwhile, the Bribris, the indigenous group which lived near the coast, were gradually were usurped of their ancestral lands by the UFC. In this process, they were absorbed as part of the nation, while simultaneously being excluded from its capitalist spaces, which were monopolized by the UFC. However, Lansing (2014) explains that under state pressure, the UFC was obliged to delineate a cartographic space, which included indigenous territories to be preserved from any further land grabbing. With this paradoxical operation, in 1916 the UFC took advantage of an 1885 national decree – which had already dramatically reduced the overall amount of indigenous lands in Talamanca – and delineated a Cartesian space, which would become, in 1977, the Talamanca Indigenous
Reserve. Though the UFC was present only from 1914 to 1930, when the company left after a series of floods, it had significant impacts on the landscape of Talamanca, as well as on local livelihoods, especially in terms of agricultural practices. Many Bribris abandoned their lands to work for the UFC; many others saw forests disappearing to make way for banana plantations; others, their lands illegally occupied by the UFC, fled to the mountains, reconfiguring their lives in harsher environmental conditions.

In light of this story, Posas (2013) draws on theories of resilience in socio-ecological systems to highlight how the Bribris absorbed externally-caused environmental shocks. She argues that the Bribris have been successful ecological stewards of the territories of Talamanca, for a range of reasons: their maintenance of specific ecological patterns, such as parcels for rapid use; itinerant agriculture; a rich variety of edible species cultivated in polyculture parcels; techniques of soil maintenance to prevent erosion; agro-pastoral and hunting hybridization; the seasonal use of enriched forest areas; and measures of hydrological management. All such livelihood patterns “have helped hedge against risk and shocks, while meeting basic needs and contributing to the conservation of crops and natural diversity” (Posas, 2013, p. 54). Borge and Castillo (1997) adopt a similar perspective to locate BriBris’ social and ecological resilience in traditional systems of land and natural resource use. In particular, Borge and Villalobos (1994) argue that BriBri livelihoods have adapted efficiently to the ecologies of the cordillera of Talamanca. The ways of life through which BriBri livelihoods have become entangled with the ecological world of Talamanca have thus favoured the emergence of a particular logic of conservation, based on continuously reproducing the ecological order of tropical forests. Therefore, Borge and Villalobos (1994) conclude, in Talamanca, ‘culture’ and ‘conservation’ have always been interdependent. This is also why many of the Bribris that I met and stayed with during my fieldwork consider themselves conservationists ‘desde siempre’, ‘since forever’.

Indeed, most of the people I discussed conservation and environmental issues with in Talamanca would agree that the Bribris have been the ‘guardians’ of the forests of Talamanca for centuries. However, during the same discussions, I also heard concerns that the Bribris had ultimately embraced a lifestyle that undermined their ‘conservationist’ vocation. I heard such complaints both from ‘indigenous’ and ‘non-indigenous’ people. How to make sense of this double register?

Borge and Villalobos (1994) refers to a crucial moment of social transformation that has left an indelible mark on the social fabric of Talamanca. This moment coincides with the RECOPE (Refinadora Costarricense de Petroleo) petroleum explorations carried out in
Talamanca between 1980 and 1985. Though unsuccessful, these explorations integrated Talamanca into the rest of the country in new ways. Within a few years, the local economy of subsistence and small trade was quickly transformed into a market economy. Both indigenous and non-indigenous farmers became dependent on cash income. Many left their lands and went to work for RECOPE, while roads and commodities made their way into indigenous territories. Moreover, RECOPE explorations created the basic infrastructure that favoured the progressive introduction of plantain monocultures across indigenous lands and throughout Talamanca, introducing agrochemicals and new forms of salaried work which further disrupted local livelihoods. With this historical reminder, Borge and Villalobos (1994) question the future of ‘indigenous Talamanca’, or ‘Talamanca la eterna’, after so much has been disrupted, both socially and ecologically.

4. The present of conservation in Talamanca

To imagine a possible future, we can look back to the past or into the present. In this vein, Palmer, a historian, together with two Bribri ecological activists, Mayorga and Sánchez, has asked what it means to be an indigenous Bribri today (Palmer, Mayorga and Sánchez, 1992). Unsurprisingly, their response is framed in terms of the Bribris’ ecological and social entanglements with the forests of Talamanca, and with their mundane and supernatural beings. In cosmological terms, as a human group, the Bribris see themselves as corn seeds (dtsō), of a variety that differentiates them from other human groups. Sibú, the main Bribri divinity, has also created non-human living beings, and instructed the Bribris about how to live with, care for and use them. The Bribris thus consider themselves co-dwellers of their world.

On the basis of this ‘cosmovisión’, as my Bribri friends would say, and as argued by Palmer, Mayorga and Sánchez (1992), being Bribri today means facing the same everyday challenges as non-indigenous neighbours, but with a different ecological responsibility. This refers in particular to the constraints of living and making a living within indigenous reserves, which are also protected areas, and thus must be conserved while being used. In relation to this, Mayorga explains that, for the Bribris, reserves are “the only way in which remaining forested areas, agricultural parcels, and animals can be conserved and protected” (Palmer et al., 1992, p. 77, my translation). By dwelling and owning forests, she continues:

Our history can be defended, and also our language and traditions; we can be united and strong, we can get back the lands that are now in the hands of non-indigenous; we can protect medicinal plants and animals we use to cure illnesses, resources that can
only be found in those forests that remain in their optimal conditions. (Palmer et al., 1992, p. 77)

These words were written almost two decades ago. After my research stay in Talamanca, I find that Mayorga’s words haven’t come true, considering the problematic circumstances facing those who defend indigenous reserves today. The following ethnographic vignette elucidates the concerns that conservation raises today across indigenous territories and reserves in Talamanca.

One day, Eduard, who was my main contact for exploring local environmental politics from the Bribri perspective, invited me to attend a REDD+ workshop at the communal house of the Kekoldi Reserve. REDD+ is a global initiative promoted by the United Nations, aimed at reducing emissions from deforestation and environmental degradation through payments to national governments or local communities. If forests are kept stable, carbon stocks can be measured and traded globally to offset greenhouse emissions produced elsewhere. As a UN initiative, REDD+ schemes are implemented by national governments after consultations with indigenous people. This is particularly relevant in the case of REDD+ in Latin America, since indigenous people are generally the ‘dueños’ (owners) and inhabitants of the remaining forests (van Dam, 2011) – as is the case in Talamanca.

Before the beginning of the workshop, Eduard introduced me to Agustin, the mediator cultural (cultural mediator) in charge of leading the discussion, who also became the president.

Figure 3: Forest coverage in Costa Rica cantons. Talamanca is the only one with percentage between 80%-100% (source: Francisco Ruiz Leon, retrieved from https://semanariouniversidad.com/pais/cobertura-forestal-del-pais-se-duplico-en-30-anos/).
of the ADITIBRI (Asociación de Desarrollo Integral del Territorio Indígena BriBri) when I left Costa Rica. In a small office, located in a corner of the large, recently inaugurated communal house, Agustin explained to me why the Bribris can be considered ‘conservationists by culture’. For centuries, he argued, the Bribris had lived in Talamanca conserving their forests without any major ecological impact, quite unlike western civilization. Also, he continued, “gracias a la naturaleza [thanks to nature]”, indigenous people had reinforced their collaborative relations, which are the foundation of their living together. Even today, he concluded, cornfields are often cultivated together by friends. “One of them offers the land, others supervise the crop, and others harvest,” said Agustin, before mentioning that the Bribris had fought hard to defend their lands and ways of life against the colonial project. Meanwhile, about ten participants had sat down, so we moved to the main room for the workshop to begin.

During the workshop, Agustin stressed the urgency of developing an indigenous REDD+ proposal in response to the already drafted national REDD+ plan. Several times, Agustin clarified that the RIBCA (Red Indigena BriBri-Cabecar, the organizer of these workshops sponsored by the World Bank) was trying to send a clear message: “This pre-consultation is not meant to say ‘yes’ or ‘no’ to the national plan, but is rather meant to formulate an indigenous proposal as a conservation community.” In addition, Agustin remarked that REDD+ consultations were a ‘pan caliente’ (hot bread) for the central government in San José, which was publicly stating that indigenous people had already been consulted. Agustin highlighted the gap between the REDD+ national agenda and indigenous realities. In particular, he explained that REDD+ mechanisms were prohibitive in terms of access to the forest and its natural resources, even for those who own them and who have always conserved and protected them, like the Bribris.

Initially, Agustin framed REDD+ initiatives as a direct consequence of global warming. However, he soon changed register, insisting on the opportunity to use REDD+ schemes as tools to recover and regularize the titles of lands which were part of the Kekoldi Reserve (a coastal appendage of the Talamanca Indigenous Reserve), but were illegally occupied by non-indigenous settlers. Evidently, Agustin had hit the right note, because this issue proved to be one of collective concern. One of the participants intervened to stress that land issues were long-standing and unresolved in the Kekoldi Reserve. Another referred to recent opposition to REDD+ programmes in some of the communities of Alto Coen, since the economic compensations were incompatible with the fact that these forests are located on mountains which are sacred places for the Bribris. Another quickly dismissed the issue on the basis that
this was not the case for the Kekoldi Reserve. A middle-aged woman, one of the few participants, made a different argument, explaining that for the Bribris rivers are all sacred, as are certain species of trees, such as the manú (*Minquartia guianensis*). Following her logic, all Bri bri territories are sacred to some extent. Unfortunately, her observations were not followed up.

The workshop thus revealed a degree of collective bewilderment at the technicalities of REDD+ mechanisms, whose explanations remained opaque. Indeed, Howell (2015), who conducted ethnographic research about a pivotal REDD+ project in Sulawesi, argues that “[d]espite the fact that no one knows what REDD […] will turn out to be, there is no shortage of reports and publications that deal with what it ought to be” (Howell, 2015, p. 253; emphasis in the original). Most importantly, indigenous people and their representatives are often considered “the least equal and potentially the great losers” (Howell, 2015, p. 269) among REDD+ stakeholders. While this reinforces the rights of forests’ owners to express their concerns and hold political power in the negotiations, their voices and points of view are often mediated by NGOs, which “claim to speak on behalf of communities they do not always know well” (Howell, 2015, p. 269).

This is not the case in the Kekoldi Indigenous Reserve, where a local network of indigenous organizations such as RIBCA is leading the workshops (albeit with World Bank sponsorship). But not far from there, at the entrance of Amubre, a densely populated indigenous community, throughout my research there was a large poster saying: “NO REDD+”. When I asked Eduard who put that poster there, he said, “Well, indigenous people have no money to print posters, so one should ask who has the money to do that. Obviously, it was somebody else.” But perhaps one should also ask if REDD+, not just the posters against it, is the priority of indigenous people or of somebody else. Assisting in that workshop, I grasped that to make REDD+ meaningful to people, Agustin had to mediate by ‘selling’ REDD+ benefits as opportunities to solve long-standing land issues in the Kekoldi Reserve. Evidently, without cost-benefit translations, REDD+ mechanisms would not be understood, for at least two reasons. First, it is not clear what REDD+ is about. Secondly, people in the Kekoldi Reserve, as elsewhere, have their own recipe for protecting their forests – holding land titles and expelling illegal occupiers.

In line with Howell’s (2015) remarks about the opacity of REDD+, Agustin confessed to me at the end of the conference that no one knew exactly how REDD+ would work in practice. From their perspective, he said, there was a concern that REDD+ and similar initiatives may
impose severe limitations on the ways in which indigenous people can inhabit and use their forests, which they have conserved for centuries. Crucially, this kind of paradox is not restricted to the implementation of REDD+ schemes across indigenous territories in Talamanca, but is rather an intrinsic contradiction of overlapping and ontologically different logics and practices of doing conservation. In this regard, Sylvester, Segura and Davidson-Hunt (2016) have enquired about indigenous rights to traditional food, especially wild animals and edible plants, in La Amistad Biosphere Reserve. This includes the International Park and UNESCO World Heritage Site La Amistad (PILA) and its surrounding buffer zones, which overlap with 11 indigenous territories in Talamanca. Sylvester et al. (2016) explain that regulations about what people can and cannot do in terms of using natural resources is often contradictory, especially within indigenous reserves. For instance, although hunting and fishing are banned, the new PILA management plan allows fishing and hunting in certain zones, ‘for subsistence’ only, if these activities are done with traditional methods, without weapons or dogs. Sylvester et al. (2016) also argue that, from a Bribri perspective, hunting restrictions affect access to health and traditional food, which is usually collected while groups hunt deep in the forest. Additionally, hunting is associated with practices of sharing food and teaching youth about traditional ecological knowledge; since Bribri diets are becoming increasingly westernized, characterized by processed food, they need to be complemented with local food. This study is particularly valuable as one of the authors, Segura, is a Bribri scholar. His explanation is crucial for challenging western assumptions about forest conservation. According to one Bribri interviewee quoted in the article, when the supernatural beings created by Sibú to care for the world (such as Duaro, the protector of animals) become aware that forest plants, fruits and animals are no longer being used for their purpose – which includes sustaining the Bribris – they will slowly cause these forest resources to disappear. Thus, for the Bribris, using, consuming and accessing the natural resources offered by the forests is what keeps forests alive, self-sustaining and life-sustaining.

For the Bribris, then, forests and their territories are humanized spaces that are there to be used, inhabited and accessed, since this does not endanger but rather sustains life and lives. This logic is the generative principle through which the Bribris have ‘since time immemorial’ made a living in Talamanca. Today, being Bribri in Costa Rica means defending, negotiating and sustaining this logic, finding ways to navigate the circumstances of life in a changing and messy world. Obviously, this is something that the Bribris share with their neighbours, and with all those engaged with sustaining diverse logics of conservation which respond and put into practice diverse ecological responsibilities. As Vivanco (2007) argues,
environmental conservation is a heterogeneous field of forces, initiatives and actors converging on ‘nature’ through the generation and encounters of situated ‘natures’. In this sense, conserving nature in Talamanca is about diverse but overlapping ‘values’ and ‘territorializations’ of nature. As the map below shows, the canton of Talamanca is densely packed with different regimes of conservation: a national and an international park, a biological reserve, a wildlife refuge, a biological corridor and several indigenous reserves (Telire, Talamanca-Cabecar, Talamanca-BriBri and Kekoldi).

Figure 4: Conservation zones in Talamanca (source: Jeffrey Parrish, retrieved from: https://nationalzoo.si.edu/scbi/migratorybirds/research/cacao/parrish.cfm).

However, one of the limitations of maps is that the plurality of lifeworlds that constitute territorial forms of conservation tends to disappear in favour of lines and delimitations. I here return to the anthropologies of life I introduced at the beginning. So, where are Ingold’s (2011) lifelines – the movements, experimentations, happenings, encounters and becomings that take place across the material worlds encompassed by conservation regimes? Or, in Helmreich’s (2009) terms, where can we find the complex, unstable, emergent relation of mutual becoming between the life forms and forms of life that conservation practices are concerned with?

In introducing my field-site, I have sought to do justice to those who, like the Bribri, have inhabited Talamanca ‘since time immemorial’, and who consider themselves ‘conservationist since forever’, by historicizing the field of conservation in Talamanca. However, this work is about the here(s) and the now(s) of conservation experiences. Today, a multitude
of initiatives is taking place within and all around indigenous reserves and territories in Talamancan. From the highest peak of the cordillera of Alta Talamanca to the open sea of the Baja Talamanca, there is a composite mosaic of initiatives, associations, plans, actors and institutions that are doing conservation in various ways. This richness also poses political problems. The canton of Talamanca is situated at the margins of an environmentalist state (a ‘green republic’) where, if Bozzoli (2000) is correct, the priorities of environmental conservation overlap with those of sustainability and social justice. However, Talamanca is not only the most forested and most protected canton in Costa Rica, but also the country’s poorest canton, with the lowest human development index (PNUD, 2011). Bozzoli’s (2000) consideration thus requires critical interrogation. Who benefits from conservation in Talamanca? I will return to this question in the conclusion of my thesis.

5. Research outline

Taking a more ethnographic perspective, this research addresses the outcomes of searching for ways of doing conservation and of dwelling in worlds that are imbued with life and lives. Put differently, within real-life experiences, conservation dissolves into mundane becomings, entanglements and experiences of the material world. During my fieldwork, I heard the word ‘conservation’ surprisingly rarely, but this does not mean that conservation does not exist. Conservation is in action; it happens; it takes place over time across different sites, where I witnessed the hard work put into sustaining life and lives. Most people I met and talked to during my fieldwork agree that conservation is about ‘la naturaleza’ (nature), and that there are different ways of doing conservation: rescuing injured wild animals; implementing agro-forestry; consuming invasive marine species; organizing bird-watching sessions; monitoring rivers; reintroducing endangered species; teaching young pupils about different species’ ways of life; or simply doing things as they were once done, ‘traditionally’ – or, alternatively, embracing the new. In this sense, the analytical accounts developed in the following pages will tell the stories of different ways of living and doing conservation.

The work presented here is about mundane experiences of conservation in Talamanca, whose vitalities would otherwise get lost in a map with lines, points and definitions. Inspired by Tsing’s (2012) reflections on ‘nonscalability’, this work tracks conservation efforts and relations that are not scalable, ‘not amenable to precision-nested scales’, but that emerge across diverse political-ecologies inhabited by diverse species and ways of doing conservation. In Tsing’s (2012, p. 522) words, “we need nonscalability theory to understand how such multispecies landscapes work. Rather than scalable science, the place to start is critical
description of relational encounters across difference.” Political ecologies of conservation may be considered nonscalable emergent ecologies (Kirksey, 2015), because they engage with unique contingencies, accommodations, care practices and responses. But there is something more. For Tsing (2010), nonscalable worlds cultivate reciprocal flourishing, alimented by mutual transformative relations between different species, while more inclusive models of collective well-being are coming into being. The words ‘inclusive’ and ‘flourishing’ are not meant to solve the ambiguities and troubles of these contact zones of encounters across species differences (Haraway, 2006, 2014). These are not death-free zones, or islands of ecological justice. During my fieldwork, I mostly interacted with people who work daily to make “new ways of relating to nature possible” (Tsing, 2010, p. 201) and available to others; none of these people worried about the deaths of some if the lives of others were nurtured. Finally, nonscalable political ecologies are all problematic in different ways. My thesis engages radically both with these differences and with the ubiquitous problematics of sustaining life and lives.

Therefore, in this shared ‘open whole’ (Kohn, 2013), comprising habits and disruption, both life and lives are at stake. This stake is the imperative of life – which includes not only what must be done to keep oneself alive, but also what must be done to sustain life through the lives of others. In this thesis, the imperative of life is considered the ‘essence’ of conservation, and the following chapters will explore its multiple manifestations, engaging with different ways of making kin, making a living and building associations across species boundaries. My research thus asks: what happens when the lives of people become entangled with, and concerned with, the lives of other species? What kinds of relational configurations arise? How are other-than-human lives, organisms and ways of life conserved, monitored, sustained and reintroduced? What are different species’ responses to human activities, projects, plans and initiatives? How does the shared experience of a common world shape entanglements between species? What is at stake in entangled lives, and what emerges through encounters across species boundaries? What do the outcomes of these encounters tell us about life as an interspecies experience, its imperative requirements and the possibilities of reciprocal flourishing?

During my stay in Talamanca, which lasted 14 months from 2014 to 2015, I visited several communities, projects, associations, private farms and protected natural areas, including the Gandoca-Manzanillo wildlife refuge, the Gandoca RAMSAR lagoon, the Kekoldi and Talamanca Indigenous Reserves, the Cahuita National Park and La Ceiba Reserve. I talked
and worked with a wide range of locals and expatriates who were variously involved in conservation activities, which had become their way of making a living, the source of life for them. Although my research is informed by multiple encounters and locations, to answer my research questions in the following chapters, I will focus my attention on research relations which I cultivated over a longer term.

The research is divided into four substantive chapters. In chapter 1, I use ethnographic film to elicit specific forms of attention to the relational becomings of living beings, as responses to the vital happenings that confront them with the forces and matter of the world. I start with the longest-term multispecies entanglement in the area, whereby the Bribri people, the largest indigenous group in Costa Rica, are entangled with the forests, valleys and coasts of Talamanca through a range of mundane encounters with other living beings and living matter. In chapter 2, I engage with a river conservation programme, the ANAI Stream Biomonitoring Program (ASBP), in which a group of biologists and locals monitor riverine life. I track the work of scientific measurements of species, their numbers and their habitats, as well as the narratives used to associate rivers’ life and lives with the life and lives of the ASBP. In chapter 3, I explore social life at the Jaguar Rescue Center, a wildlife rehabilitation and release centre, where humans and wild species learn to live together, cultivating – with difficulty – the possibility of a future back in the wild, while making the best of adverse circumstances. Finally, in chapter 4, I analyse the Ara Project’s work to breed and reintroduce *Ara ambiguus* macaws. In particular, I track how encounter value is produced and circulated, how care practices and considerations articulate and contract, and how the parasitic logic that sustains the project is relationally alimented and distributed.

The film that precedes the first chapter has been asked to work as incubator of forms of attention suitable to explore life and lives in mundane, transformative and relational terms. The film is part of the first chapter, but it also inspires the whole research. Here, ethnographic film is not intended to be a research methodology, but rather the seed for a possible flourishing. Shooting a film entails a specific ethnographic posture, in which the anthropologist, as filmmaker, is busy with the camera, framing, directing and looking through a device that transforms both the way one looks and hears (through optics and microphones) and the way one experiences social life, crafting and recording what is being witnessed. If filming is indeed not fully compatible with other kinds of ‘doings’, it is also a generative posture that directs attention to the textures, transformations and unseen details of the material becomings that shape social life. In my research, filming is about the moments in which, through cine-trance, I
attuned myself to the vibrancy of life. My ethnographic film thus offers viewers and readers the opportunity to grasp the latent vibrancy of being in the world and across worlds, very lively ones. In this sense, the process of shooting the ethnographic film was a sort of suspension of the hands-on participatory and collaborative methodologies of research that I used throughout the rest of my research.

I asked many of my informants if I could spend time with them during their daily activities, in exchange for any practical help I could offer. In other circumstances, I followed the volunteer route, because most conservation initiatives in Talamanca are already familiar with people (mostly foreigners) who want to acquire hands-on experience helping with everyday management, work and duties. So, with the exception of the film process, I mostly worked as a ‘volunteer’, a methodological posture that favoured the acquisition of embodied knowledge through critical discussions with other volunteers, managers and workers, and intimate engagement with the bodies and presences of other species, whose lives were our shared concern. Generally, as a volunteer, I had little time to observe, as I was asked to do things, like cleaning animal units, accompanying them somewhere, searching for their food and serving it to them, or carrying things to help the team or the person I was working with. In this process, I asked many questions about species, local politics, working conditions, personal biographies and local economies. On other occasions, I refrained from asking questions, allowing a different kind of enquiry, less investigative and more experiential, in the here(s) and now(s) I shared with other people and species in the open. As oral discussion was not possible with other species, I instead observed and appreciated their forms, colours, movements, sounds and lively manifestations. Life in the open is a loop of happenings, if one learns to be attentive to the layers of life – lives, matter, forces and happenings. There is food for thought everywhere, but at a certain point, it is necessary to stop, to grasp what is going on.

This research is therefore also about locations and movements across a landscape. These three research components (locations, movements and landscape) would better be represented on a map, to give a sense of how partial and situated my research in Talamanca was.
In the map above, black arrows point to the main fieldwork locations, which I visited several times. In particular, I moved mostly between the coast and the foothills of the Talamanca cordillera, going as far as the margins of the PILA forests, inside indigenous territories. Yellow arrows track my main routes and lines of movement to reach different field-sites: the ASBP river sites, the Ara Project field station in Manzanillo, the Jaguar Rescue Center in Cocles and the release reserve La Ceiba near Punta Uva, the ANAI headquarters in Hone Creek, and the bus stops in BriBri to reach indigenous communities, such as Amubre, Katsi, Bambu and Shiroles. Moving around, alone and with others, by foot, bicycle, bike, car and public transport, has been crucial to this research, which has grown along the lines of multiple movements and encounters that no map or research could fully depict in all their liveliness. In this sense, this research is only a partial account, one of the many possible stories that can be told about the life and lives of conservation in Talamanca.
Chapter 1: Filming lifeworlds

Figure 1: Justo Layan in his plantain farm in Amubre (photo by the author).

Introduction

In this chapter, I begin to develop my research framework by focusing on the livelihoods of the Bribri. The Bribri are today the largest indigenous group in Costa Rica, their roots in Talamancas dating to time immemorial. The Costa Rican anthropologist Bozzoli (1979), in her first ethnographic monograph, *El nacimiento y la muerte entre los Bribri*, explains that the Bribri consider Talamancas their ancestral land. She goes on to argue that in Talamancas, on both the Atlantic and Pacific slopes of the cordillera – where they still live today mostly as *finqueros* (farmers) – the Bribri maintained autonomy and isolation from foreign influences until the very end of the nineteenth century. However, this statement is arguably misleading, since the Bribri have for centuries faced historical, ecological and political forces of change. In this process, the Bribri have consolidated specific ways of making a living and making kin with what is around them, and sedimented these ways of living in the landscape. Accordingly, the Bribri are historically entangled with the natural environment of Talamancas. This point is crucial for understanding how important their ways of life and livelihoods have been – and continue to be – in shaping Talamancas’s ecological present and conservationist future.

Once, I was talking with Eduard, a young Bribri involved in various conservation activities within the Kekoldi Reserve, the coastal (now autonomous) area of the Talamanca Bribri Indigenous Reserve. At one point of our conversation, it was unclear whether he was
making a statement or posing a question: “Para nosotros, eso de conservar la naturaleza es desde siempre, verdad? [For us, conserving nature has been there since forever, right?]”. Whether a statement or a provocative question, this triggered my curiosity to explore Bribri ‘conservationist-since-forever’ ways of life in ethnographic terms. Therefore, in different ways in the film and in the chapter, I frame Bribri lives and livelihoods as stories ‘of’ the world, not merely ‘in’ the world. For Haraway (2016), the use of the preposition ‘of’ instead of ‘in’ captures how stories become worldly as they emerge through relations and encounters – and also, I suggest, as a response to the becomings, the happenings and the forces that give life to the ecologies of Talamanca. This chapter thus asks directly: what can we do with stories? Obviously, stories can be told. But, as anthropologists, can we only ‘tell’ stories? In what follows, I suggest that stories might be treated differently: stories are in the world ‘to world’ otherwise. This point affects what ethnography can do with stories and what stories can do for ethnography.

My exploration of the Bribri world started at a moment of my research when I felt a particular urge to address conservation in non-textual, ‘atmospheric’ terms. After a few months of research in Talamanca, I felt strongly that the vitality of the world I was dwelling with others, humans and non-humans, deserved all my attention, and a special sort of attention. And life responded. One day, I met a couple of US expatriates (who are numerous in Costa Rica); after I had told them about my research, they suggested I meet Danilo, an enthusiastic Bribri they had encountered a few months previously in Bambu, an indigenous community near the town of BriBri, the administrative capital of Talamanca, where Danilo worked as a public official in a state office. When I first visited him and told him that I was searching for inspiring perspectives and stories for my research film, I saw a twinkle in his eyes. He at once suggested I make a film on cacao and ‘the Bribri creation of the world’. He confessed that he was very busy with his work, but invited me to stay with him, visit his family and meet his friends, to understand more about the Bribis, their ways of life, and what he called their ‘cosmovisión’. One day, in his house, I met Justo, his brother. He also seemed excited to hear about my film project. He told me that he would be delighted to help me as a long-term friend with the film.

A few days later, I was already in Justo’s house in Alto Katsi, surrounded by secondary forests, the majestic traditional conic houses he had built in his property, and the powerful sound of the Katsi River, flowing a few hundred metres from Justo’s property. Until that moment, I had felt that the vibrancy of life in Talamanca deserved filmic attention through
moments of mundane contemplation, but in Alto Katsi I realized that I just had to switch on my camera and attune myself to all the vitality that enveloped me. Unlike his brother Danilo, Justo worked as a farmer, and was also an experienced guide of the cordillera of Talamanca, which he had explored throughout his life, alone and with friends, and he took me with him on his explorations. Moreover, Justo had a large family (including humans and non-humans – a dog, a few pigs and some chickens), who received me with both curiosity and trust, readily allowing me to film their daily life.

The film that gives life to this chapter thus intends ‘to world’ conservation in Talamanca from a situated perspective, grounded in the lifeworld of my friend and informant Justo, a Bribri farmer and local guide. Allowing me to live with him for three months, to stay in his houses and farm, and to move with him around the Talamanca Bribri Indigenous Reserve, Justo offered me the opportunity to grasp what ‘being conservationist’ means for a Bribri today. On one occasion, Justo told me that he understood too late that hunting and cutting trees was very bad for the forests, and that he was now convinced that “los bosques hay que conservarlos [forests need to be conserved]”. I asked what the alternative was, if people had no access to forests, their products and resources, their animals and plants. We were in his plantain farm in Amubre. He looked around, and then he looked back at me, and said “Eso [this]!” – referring with a hint of sarcasm to his farm, which encompassed a few hectares of plantain monoculture, and at first sight had nothing to do with forests and their ecological richness. Beyond its sarcasm, Justo’s response was nonetheless extremely realistic, acknowledging that plantain monoculture had become the productive alternative to forests resources, to sustain his life and others’ lives. From that moment, I started to consider environmental conservation in terms of ways (or alternative ways) of making a living, from the perspective of those who need to conserve and sustain their own lives, as well as the lives of others, the lives of the forests, of their farms, and of their loved ones.

In part, my ethnographic film revolves around the processes through which life and lives are sustained, showing how these emerge in Justo’s lifeworld. At the same time, I wanted the film to do something more, to bring life and lives back, not just into conservation, but also in the very same experience of the world. Here I refer to the relational and material consistency that sustains and conserves Bribris’ ways of life in Talamanca, but I also refer to how the ‘personal’ fits into the ‘collective’, how lives – human and non-human – navigate life forces and circumstances, and respond to material becomings. It is in this sense that the stories of the world are not there simply to be told or narrated. Stories have the potential to
situate in place and time, revealing what lifeworlds are made of. My film thus engages with Justo’s lifeworld not so as to make generalizations about the Bribris, their ways of life, or their ways of doing conservation – although the film is about sustenance and consolidation of lives and life. Instead, I use the film to inspire forms of attention towards the living world in which the meanings, prohibitions, outcomes and practices of conservation are taking place. Accordingly, the film is not about ‘conserving life’ but rather about ‘living life’ between constraints and emerging possibilities. As it started to emerge from Justo’s comment that plantain monoculture became somehow the alternative to the use forest resources, but also the way through which most of the Bribris make a living today, conservation is mostly about this interplay between constraints and possibilities.

So, the entire thesis inherits two key ethnographic emergences from the film. The first concerns what we conceptualize as ‘conservation’: within the lives of people and other species, ‘conservation’ has to do not simply with how people protect and care for nature, but with how they (and other species) make a living. The second is related to the restless liveliness of the world in which conservation experiences take place, responding to overlapping multiple vitalities – of matter, elements and forces, and living and perishing beings.

Before proceeding with the reading of the chapter, I invite the reader to watch the film, and experience the world of Talamanca in its restless becoming. Then, in the pages that follow, I will further contextualize the film within the framework of my research, explaining what the film has bequeathed to the thesis’s diverse ethnographic and theoretical articulations.

1. Beyond indigeneity

When we examine Bribri livelihoods and their relations with the landscape of Talamanca (see Whelan, 2005), two species can help us grasp the divergent yet coexistent orientations that shape the Bribri agro-ecological present, and inevitably also its future: cacao (Theobroma cacao) and plantain (Musa paradisiaca). For the purposes of my argument, it is important to note that the commercial farming of cacao and plantain flourishes across two very different sorts of ecologies: agroforestry for cacao and monoculture plantation for plantain. Cacao is a ‘shade crop’, which means that it can be integrated into highly differentiated agro-ecological systems – zones of life that can harbour biological diversity and work well in terms of food security and self-sufficiency for their inhabitants (associates), and also as ‘corridors’ for local wildlife. By contrast, plantain monocultures configure what, in different contexts, has been termed “blasted landscapes” (Tsing, 2014) or “cultural landscapes
blasted by capital” (Kirksey et al., 2013, p. 243). To be precise, plantain monoculture produces landscapes characterized by lack of riparian vegetation, loss of biological diversity, soil erosion and widespread use of agrochemicals – all of which result in increased vulnerability to environmental hazards and degradation.

Danilo is a Bribri cultural broker, promoter of indigenous tourism, and public official at the TSE (Tribunal Supremo de Elecciones de Costa Rica). When we first met and discussed my film project, he at once declared that the film must be about “el cacao y la creación del mundo [cacao and the creation of the world]”, which, he said, was very important to the “cosmovisión indígena”. He invited me to visit his mum in the neighbouring community of Amubre, to stay with her, so I could start filming. Accordingly, my filmic journey in Talamanca began with cacao. I spent a few days in Doña Natalia’s house, where she invited a neighbour to show me the entire process of chocolate preparation: the collection of cacao pods from the trees, the extraction of beans, and the procedures to dry, toast and grind them into the dark dough which, once dried and solidified, could be melted into hot water and drunk as chocolate.

However, after a few days, I found myself at a dead end. After showing me the entire process of chocolate preparation, Doña Natalia and her friend had little more to offer to my film project. So I started to ask around to find out what people knew about cacao (in Bribri, known as tsuru) and the creation of the world. However, I quickly realized that most of them knew very little and provided only vague answers. It is worth noting that the rapid spread of monilia (Monilioptorha roreri) – a fungal disease that took over during the 70s and 80s – had a devastating effect on cacao crops all over Talamanca. This may in part explain why filming and exploring the social life of cacao rapidly proved problematic, since the youngest generations perhaps had little to say about something that was no longer abundant and did not play the key role in livelihoods and the local economy that it had once played.

However, while searching for tales and stories about ‘cacao and the creation of the world’, I found myself confronted with abundant evidence of an entire landscape devoted to plantain and its circulation. Whenever I travelled to visit Danilo in Bambu, his mum in Amubre, or his brother Justo in Alto Katsi, I saw plantain fields everywhere. Moreover, I saw boats and trucks full of plantain, and many people engaged in transporting it. It was as if the entire world revolved around plantain. In the moments when I was worried about the progress of my film project, I wished that Danilo had suggested I make a film on plantain instead of cacao. However, when I met Justo, who was a plantain farmer as well as a local guide, I felt relieved – I could finally start to film this world revolving around plantain. Ultimately, the film went
beyond both cacao and plantain, but I have explained these initial filmic explorations in detail because, in the environmental understanding I developed through the film, there is something quite revealing about how the Bribri manoeuvre between diverse sorts of commercial farming, which are also ways of doing conservation, of sustaining life and lives.

Sossa’s (2016) analysis of the long-term history of cacao cultivation amongst the Bribris in Alta Talamanca identifies four models of production: the ‘traditional’ model (until 1908, the arrival of the United Fruit Company [UFC]); the ‘enclave’ model (1909-1940, the period of the UFC’s presence and decline in Talamanca); the ‘ecological recuperation’ model (1941-1979, the period when the UFC had left Talamanca and the Bribris returned to their lands and livelihood practices); and the current model of transition, characterized by the valorization of cacao as an organic, fair-trade product which is supposed to reinforce communitarian organizations and local producers. Sossa (2016) suggests that both the mythological and the productive entanglements of the Bribris with cacao have persisted and adapted over time in the face of radical ecological changes, and have found new configurations in response to shifting economic circumstances. For Sossa (2016), then, cacao history in Talamanca reflects Bribris’ resilience in Talamanca throughout their history. Finally, cacao and chocolate today are cultural products that can be used to attract visitors, tourists and cacao lovers and experts from all over the world. As such, cacao in Talamanca presents producers, sellers and consumers with concrete opportunities for reciprocal flourishing. This flourishing also extends to the ecologies that host cacao crops, which can be maintained in all their functional diversity.

By contrast, plantain is the ideal species and crop for illustrating the disruptive changes that have affected Bribri livelihoods in recent decades (Borge and Villalobos, 1994; Borge and Castillo, 1997), transforming the entire socio-ecological landscape of Talamanca. Today, the plantain economy is the engine of economic life in Talamanca. However, its expansion has caused, as Ali Garcia Segura, a Bribri scholar, told me during a private conversation, a process of ‘campesinisation’ (peasantization) of Bribri livelihoods. This point is particularly relevant to the life of my friend, informant and film protagonist Justo. His plantain farm constitutes his main source of cash income, and the main focus of his daily preoccupations, but his earnings are, he told me several times, never enough for his family’s needs. Indeed, Castillo-Vasquez (1999) notes how the boom of plantain monocultures across indigenous territories in Talamanca has resulted in the loss of several ‘traditional’ practices of land use, crop rotation and communal work. It has also affected food self-sufficiency and
increased farmers’ indebtedness and their vulnerability to market fluctuations and environmental hazards.

Finally, although the plantain economy aliments the lives of many Bribris who I met during my fieldwork, it is also necessary to consider who is actually benefiting most from it, especially considering that the forests, waters, lands and bodies are already showing signs of damage. Indeed, there is something strange about walking in the mud of the tiny gaps between plantain farms, with no trees around, blue plastic bags protecting the plantain bunches, seeing lush forests a short distance away; I wondered what these places and the nearby rivers were like before the plantain explosion in Talamanca. Nevertheless, selling plantains is the only moment in which I have seen Justo put money in his pockets, after hours of work helped by some of his friends — although I doubt that they received monetary compensation for that help. Finally, if one examines — and partakes in — what circulates on the tables of Talamanca, it is easy to understand that plantains sustain life and lives.

Much more could be said about Bribri livelihoods in relation to cacao and plantain, but what interests me here is the coexistence of these two cash crops throughout the landscape of Talamanca. As two extremes of an agro-ecological spectrum, they suggest that concurrent forces — resilient and transformative — are simultaneously shaping Bribri life experiences. If, then, we consider the Bribri agro-ecological present, it is clear that there is nothing static and crystallized about being Bribri today in Talamanca, and about how the Bribris sustain their lives by practising conservation through commercial farming. Without access to the forests, it is necessary to eat somehow. So, if there is some sort of Bribri ‘indigeneity’ in terms of conservation, it is shaped by multiple articulations (spatial, temporal, socio-economical and ecological), which make it difficult to circumscribe what is and is not ‘indigenous’, and what is and is not ‘conservation’, both in terms of livelihoods and in terms of cultural identity.

As I explained in the introduction, Bribri cultural identity is profoundly related to the generative logics of the forests and, more generally, to the landscape of Talamanca. However, Nygren (1998, p. 35) challenges “the assumption that Bribri indigeneity is an isolated and self-regulated matter”. She argues that Bribri mythology is increasingly used today to address racial inequalities between Bribri and non-indigenous people. Thus, she continues, “the reconstruction of the mythological imagery is an essential part of the Bribri struggle to cope with the traumatic experiences of domination and to deconstruct the hegemonic version of history and power” (Nygren, 1998, p. 31). In Nygren’s argument, this means that Bribri mythological imagery does not reside solely in an ancestral past, but responds to modernity, as it is
mediated by colonial and global forces. In this sense, she suggests, Bribri indigeneity has become a malleable cultural resource used to face a challenging political present.

Most of the Bribris I met during my fieldwork live between different worlds and worldviews. On the few occasions when I asked them to explain why they would consider themselves ‘indigenous’, I felt quite uncomfortable, as if I was forcibly eliciting static explanations of something that is actually extremely elusive and multiple, if highly tangible. To give a sense of how Bribri indigeneity is shifting, multiple and variable, I will refer to some ethnographic interactions I had with Justo’s family while shooting the film. For instance, when Lali, Justo’s small daughter, used to call me ‘sukia’ (which means in Bribri ‘the foreigner’), Justo told her she should not use that word, which only defines who is indigenous and who is not. Once, when I asked Justo if he considered himself more indigenous than Costa Rican, he replied, “I am indigenous, but, being so, I am the most Costa Rican of Costa Ricans.” These vignettes suggest that what it means to be Bribri cannot be framed easily within rigid grids.

Once, while filming, I asked Justo to send a message to humanity, and in his brief monologue, he invited all of us “to eat organically to stay strong”. Indeed, I often heard others saying that the Bribris usually eat ‘organicamente’ (‘organically’). However, this does not exempt Bribri farmers from using agro-chemicals on their farms, or from buying frozen chicken, commercial rice, beans and sunflower oil for their families, as Justo does, despite knowing that these products are far from ‘organic’.

In their edited volume, Indigenous experiences today, de la Cadena and Starn (2007) suggest thinking about ‘indigeneity’ as a political force that is mobilized through different registers and claims. They argue that contemporary ethnographies of indigeneity reveal “mixture, eclecticism, and dynamism as the essence of indigeneity as opposed to a falling off or ‘corruption’ of some original state of purity or originality” (de la Cadena and Starn, 2007, p. 3). This kind of reasoning explains ‘indigeneity’ as “a relational field of governance, subjectivities, and knowledge that involve us all – indigenous and non-indigenous – in the making and remaking of its structure of power and imagination” (de la Cadena and Starn, 2007, p. 3). Being indigenous may therefore be framed as a peculiar ‘dwelling perspective’ (see Cruikshank’s [2007] contribution to the volume), constantly revitalized “through patterns of engagement and struggle” (Li, 2000, p. 151, cited in de la Cadena and Starn, 2007, p. 11). In sum, de la Cadena and Stern (2007, p. 403) propose an epistemological project in which ‘indigeneity’ might support some sort of ‘rewriting’ through which the “category of the indigenous would probably disappear”.

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The ethnographic film that is part of this research engages with such ‘rewriting’. In this sense, I embrace Blaser’s (2014, p. 51) question (and implicit proposal): “is there a way of addressing difference that does not necessarily fall back into essentialism?” For Blaser (2014, p. 53), indigeneity is ontology, a way of worlding: “the tool [that] enacts the fact”. In his view, ontology does not concern “a supposedly external and independent reality” (Blaser, 2014, p. 55), but includes “its own participation in reality-making” (ibid.). Blaser thus looks at ontologies as stories (of the world not in the world) that shape the “variably successful performance of that which they narrate” (Blaser, 2014, p. 54).

Before concluding this section, to give a sense of what I think being Bribri (and indigenous) means, I will refer to an exchange that I had with Justo one day. I was in Justo’s house, and we were having breakfast, when I was offered something that resembled a pancake. However, I had seen Mariana, his older daughter, preparing the mixture, and I remembered that she had not used eggs, butter or yeast – just flour, sugar and milk. When I saw that familiar form on my plate, I told Justo that it reminded me of a pancake. With a hint of humour, Justo looked at me and said: “Sí, un pancake a la indio! [yes, an Indian pancake!]” This interaction reveals that being Bribri refers to ‘ways’ of doing things with what is around and readily available. This is making a living within given constraints. In my experience, this is largely what ‘being Bribri’, understood as a collective generalized experience, is about.

2. Filming lifeworlds

To explore Bribri livelihoods as lives which are both constrained in certain ways and open to the amplitude and possibilities of the world, I propose thinking (and filming) in terms of lifeworlds, to focus on what actually happens within and across ‘worlds’.

I take the concept of lifeworlds from the work of the anthropologist Jackson (2012), and allude to a corpus of research grouped together as ‘existentialist anthropology’ (Jackson and Piette, 2015). For Jackson (2012, p. 7), the term ‘lifeworld’ captures the “sense of a social field as a force field (kraftfeld), a constellation of both ideas and passions, moral norms and ethical dilemmas, the tried and true as well as the unprecedented, a field charged with vitality and animated by struggle”. The project of existentialist anthropology centres on the “dynamic relationship between how we are constituted and how we constitute ourselves, between what is already there in the world into which we are born and what emerges in the course of our lives within that world” (Jackson, 2012, p. 7). Existentialist anthropology is thus attentive to lifeworlds, by taking into consideration “actual modes of being” (Jackson and Piette, 2015, p.
22), rather than ontological configurations. For Jackson and Piette (2015, pp. 3-4), existentialist anthropology is characterized by:

- a refusal to reduce lived reality to culturally or socially constructed representations, and a determination to explore the variability, mutability, and indeterminacy of that lived reality as it makes its appearance in real time, in specific moments, in actual situations, and in the interstices between interpretations, constructions, and rationalizations, continually shifting from certainty to uncertainty, fixity to fluidity, closure to openness, passivity to activity, body to mind, integration to fragmentation, feeling to thought, belief to doubt.

These perspectives entail an interest in life projects, in particular the way in which they unfold and make their way in the world. In my film I worked precisely in this direction.

However, since Bribri lifeworlds are entangled with the emerging ecologies which surround them, I was also inspired by a recent body of anthropological literature that offers conceptual tools to make sense of life and its forms within and across worlds, and, most importantly for the discussion here, to do so in more-than-human terms. As should be evident from watching the film, Justo’s lifeworld is profoundly human, but also extensively inhabited by other living beings, presences, materials and forces. So, in approaching Justo’s lifeworld in filmic terms, I have been attentive to the ‘volume’ of its relational, atmospheric, material and affective emergence. My film is also the outcome of my engagement with a different kind of anthropologies of life and lifeworlds (see the introduction), which complements the existentialist agenda.

In his ethnography *Alien ocean*, Helmreich (2009) tracks the work of marine biologists concerned with oceanic microbial life, to theorize nature-culture intersections. In particular, he emphasizes the mutually generative character of *life forms* – organisms – and *forms of life* – “cultural, social, symbolic, and pragmatic ways of thinking and acting that organize human communities” (Helmreich, 2009, p. 6). Helmreich shows oceanography in the making through different forms of bacterial life, sites and circuits of global concerns and action. In his account, life forms and forms of life are “overlapping” (Helmreich, 2009, p. 280), mixed up, and continuously remaking one another. Thus, “life as a material and semiotic relation is being aliened, transferred across contexts”, as if “life is no longer itself but rather its partibility, its relationality” (Helmreich, 2009, p. 282). As life has become “alien” (Helmreich, 2009, p. 283) matter, its limits and origins contested and rearticulated, ‘human nature’ is also no longer the same, no longer apart, but rather ‘saturated’ by other natures.
Thus, in Helmreich’s terms, Bribri lifeworlds could be considered emergent forms of life (see also Fischer, 2003), which shape and are shaped by the multitude of life forms that inhabit these lifeworlds. Furthermore, Helmreich’s work not only suggests that forms of life are being constituted through mutual relations between different life forms, but also that non-human life forms also have their forms of life, their lifeways (cf. van Dooren, 2014). In this sense, cacao and plantain also have their forms of life, which are manifested in blasted landscapes or in highly differentiated agroforestry patches.

In *How forests think*, Kohn (2013) expands further on Helmreich’s arguments, inviting us to bypass human worlds, and become more attentive to how other-than-human life forms and forms of life make sense of their environment (the forest) through the signs (symbolic, iconic and indexical) that fluctuate and circulate across the ‘open whole’, life as ‘sign process’. Ethnographically, Kohn shows how Runa people and other living beings of the Avila forests represent the world and how these representations become, in evolutionary terms, embodied in their life form and embedded in their form of life. Kohn (2013, p. 9) continues to argue that “what we share with nonhuman living creatures is not our embodiment, as certain strains of phenomenological approaches would hold, but the fact that we all live with and through signs”. For Kohn (2013, p. 20), signs are living forms, worldly “process(es) of pattern production and propagation”, patterned ways of life, “specific configurations of limits on possibility” (Kohn, 2013, p.19). In this sense, forms are organisms, as well as their evolutionary pathways, their modes of being alive in the world, responsive to life signs. Thus, for both Helmreich and Kohn, life manifests itself through living forms.

Kohn’s argument is thought-provoking within the framework of my research, because it has encouraged me to look at living beings through their always-changing forms, as results of an “open-ended becoming” (Kohn, 2013, p. 199) which is the result of “trans-species and transhistorical relations” (Kohn, 2013, p. 25). However, Kohn’s ‘being alive’ unfortunately excludes those forms and material forces that are not constituted by a ‘self’, which he defines as “a form that is reconstituted and propagated over the generations in ways that exhibit increasingly better fits to the worlds around it” (Kohn, 2013, p. 55). If, then, we follow the outcomes of Kohn’s position, what do we do with the liveliness of all those forms and forces that have no ‘selves’, but are manifest in the ‘open whole’ of which the Bribris are part? What do we do with the material features of Bribri lifeworlds – land and water, light and darkness, the weight of bodies and the force of gravity, the pathways across forests and between farms, the moon-cycles that orient agricultural practices, stones and tools, the processes of material
transformation? Becomings are characterized by multiple vitalities, which are not all of a semiotic order. Seen from the Bribri lifeworld I filmed, that of Justo, there is something more than representations and signs in the ‘open whole’ which Kohn talks about.

In this sense, phenomenological approaches to more-than-human worlds have acknowledged material vitalities to a somewhat greater degree. For instance, in his famous article ‘Materials against materiality’, Ingold (2007, p. 1) considers the properties of materials (against a focus on materiality) to argue that “the forms of things are not imposed from without upon an inert substrate of matter, but are continually generated and dissolved within the fluxes of materials across the interface between substances and the medium that surrounds them”. Drawing on Gibson’s (1979) tripartite vision of what constitutes a living environment (substances, surface, medium) Ingold (2007, p. 12) offers a different perspective to Kohn’s:

Bringing things to life, then, is a matter not of adding to them a sprinkling of agency [cf. Kohn’s semiotic representation] but of restoring them to the generative fluxes of the world of materials in which they came into being and continue to subsist.

Ingold’s (2007, p. 12) view, then, is that “things are in life rather than that life is in things”. Finally, for Ingold (2007, p. 11) materials are “active constituents of a world-in-formation”. Contrary to Kohn’s vitalist categorization of life as a semiotic process in which living forms are ‘selves’ in the process of consolidating themselves, Ingold (2007, p. 11) focuses on materials: “[w]herever life is going on, they are relentlessly on the move – flowing, scraping, mixing and mutating”. For Ingold, life is not about selves, but rather about processes of formation and transformation. However, if we follow Ingold here, we neglect the intrinsic differences that characterize life forms and forms of life, since these respond to material becomings from multiple perspectives and in different ways. These perspectives (other-than-human) might be inaccessible, but their existence and becomings tell us that life is multiple and also that its vitalities are multiple.

So, filming lifeworlds requires multiple attunements to their overlapping vitalities, whether project-oriented, organic, semiotic or material. Arguably, these adjectives do not matter very much, because ‘being alive’ can be seen from different perspectives, through forms, materials and signs, and through personal projects across the given constraints of collective life. Filming lifeworlds has thus allowed me to engage with what ‘being alive’ means and with the forms it takes. Specifically, since the research film brings together theories and ethnographies of life, it sublimates the textures of the world into theories, and it dissolves
theories into the textures of the world. At this point, it is important to understand what the film can do both for material realities and for abstractions of living worlds, for the mundane and the transcendent.

In this vein, there has been a recent debate amongst visual anthropologists entitled ‘Where indeed is the theory in visual anthropology?’ (Piault, Silverstein and Graham, 2015). Diverse answers have been offered to this question. I draw on this debate to explain the relevance of ethnographic film not ‘within’ my research project, but rather to inspire it. In other words, as I have said, I use the film to sublimate theories, perspectives and concepts into a unifying filmic experience of the world – or rather, of Justo’s lifeworld, since, despite the overlapping of multiple lifeworlds, we can only stay with one world at a time.

Within this debate, Piault argues that ethnographic film has often been a tool for a ‘shared anthropology’ (such as in the pioneering work of Jean Rouch [Feld, 2003; Henley, 2010]), offering “a way to take into consideration the essential reciprocity of appearances” (Piault et al., 2015, p. 170); relationalities between ‘different worlds’ can thus “create the cinematographic narration, fed through its own development and then giving significance to the film” (Piault et al., 2015, pp. 171-172). Rather than emphasizing theory and theories, Piault argues that what matters is the relational product whose reception, interpretation and outcomes cannot be controlled by the producer, since they entail multiple gazes, tensions and forces.

Graham (Piault et al., 2015) makes similar arguments about the use of images in anthropology as “a moment of cultural intersection” (Piault et al., 2015, p. 176) that “can provide gendered, spatial, intersubjective and highly reflexive ways of knowing” (Piault et al., 2015, p. 177). Therefore, Graham calls for a theory of the visual as “generative process rather than retrospective move” (Piault et al., 2015, p. 177). In Graham’s view, images (and sound) are meant to elicit theories of world, rather than be subjected to them. Finally, Graham invites us to consider ethnographic film as both “a sensory means of knowing and a process of making meaning not from the textual description that tethers them but from the translation of the visual experience” (Piault et al., 2015, p. 178).

In response, Silverstein (Piault et al., 2015) considers that “[i]f we are looking too hard for theory (in visual anthropology) then we have clearly missed the point about looking at all” (Piault et al., 2015, p. 175). She frames ethnographic film as an instrument which can unsettle the epistemological, ontological and methodological assumptions of our ethnographic
practices, so as to recognize that “the generative potential of visual anthropology must be recognized through form” (Piault et al., 2015, p. 174). Also, Silverstein considers observational cinema a genre that not only reflects a phenomenological project, but also an ontological one, in that it questions the ‘humanity’ of the ways, stories and ‘forms’ through which we as anthropologists apprehend the world. At this point, she refers to Kohn’s (2013) work, in particular to his invitation to explore beyond language and beyond the human, becoming attentive to “parts of the world that reveal some of its different entities, dynamics, and properties” (Kohn, 2013, p. 10). I seek to show that ethnographic film represents a significant opportunity for this sort of attentiveness.

It is, then, no coincidence that Silverstein refers to ‘form’. Indeed, what is radically peculiar about forms is precisely their relational emergent nature, as Kohn’s work with the Runa people in the Ecuadorian Amazon shows. The ability to render their becomings as ethnographic manifestations requires both temporalities and relationalities. This makes film very suited to this project, thanks to its abilities to track in real time the space-time of these becomings, their morphosis and transmutations. Indeed, it also allows us to track them in iconic and indexical terms – a point which Kohn wants us to explore more radically. The fluidity and transformative relationality of forms matter because they tell us something about the consistency of the lifeworld that I explored through the film.

My film thus answers a rather different question to that posed in the debate above: where is the ethnography in visual anthropology? And what does it tell us? Through my film, I seek to show that ethnography takes a different form when it becomes audiovisual and imaginative. Ethnography literally materializes itself through textures (bodies and surfaces) and direct representations (sound and images, icons and indexes) of forces (such as light, temperature, gravity, weight, movement, water and time). The film thus shows that, seen through a Bribri lifeworld, life appears profoundly relational and restless, and that living forms – both life forms and forms of life, as well as material becomings and affective forces – are actually stories of ‘this’ world. Forms and forces are there for us to experience terrestrial politics as intrinsically cosmopolitical, above, across and beneath the surfaces and textures of life, in voluminous worlds.

For a comprehensive discussion on cosmopolitics, see Blaser (2016). The term cosmopolitics refers to the work of Stengers (2005), for whom “cosmos refers to the unknown constituted by these multiple, divergent worlds, and to the articulations of which they could eventually be capable” (Stengers, 2005, p. 995, cited in Blaser, 2016). The term ‘cosmopolitics’ has also been elaborated by Latour, who explains: “The presence of politics in cosmopolitics resists the tendency of cosmos to mean a finite list of entities that must be taken into account. Cosmos protects against the premature closure of politics, and politics against the premature closure of cosmos” (Latour, 2004, p. 454, cited in Blaser, 2016).
Finally, seen through the flow of my research film, life appears (at least to me) as the experience of being exposed to encounters with living substances and beings. Thus, flowing through the worldliness of the real, as rivers do through the landscape of Talamanca, and finally reclaiming a way out into the vastness of the ocean which they flow into (to embrace the possibilities of oceanic thinking), the filmic journey reminds us that Justo’s lifeworld extends far beyond humanity – although ‘being human’ is the only way we humans have to make sense of the world. However, life is also a temporal affair made up of multiple possibilities and vitalities. So, ‘filming lifeworlds’ responds elastically to temporalities and possibilities of overlapping living forms and transformative forces. Although we are humans, there is so much we can explore to enrich the world we inhabit and share with other beings and abundant vibrant matter.

3. Attentiveness beyond multispecies becomings

It is here important to emphasize that, through the process of its coming into being, during fieldwork and through editing, the film is a living manifestation of the real taking the ethnographic stage. My reference to the ‘real’ alludes to Das’s (2007, p. 15) call for anthropologists to undertake “not some kind of ascent into the transcendent but a descent into everyday life” – into actual modes of beings in the world, into real life-projects. However, I am also concerned with Kohn’s (2013) focus on ‘the real’ as the world that lies out there beyond language. For Kohn, the ‘real’ is not just what happened, but also what is coming into being – spontaneity, growth, and entanglements – which can “encompass living minds and non-living matter, as well as the many processes through which the former emerged from the latter” (Kohn, 2013, p. 58).

However, I am not completely satisfied with Das’s and Kohn’s propositions of the ‘real’; after watching what the film has become, I disagree with both of them. First, what I filmed while living with Justo manifests a particular real: the ‘descent’ into his everyday life is also an ‘ascent’ to the transcendence of his lifeworld – consider, for instance, Justo’s transformation into an actor of a film that will circulate in the future beyond his familiar Talamanca. Secondly, the liveliness of what comes into being during the film also concerns matter and forces, not merely ‘beings’ and ‘selves’. The matter of the ‘open whole’ is very alive in Talamanca, if not in semiotic terms, then certainly in relational and responsive terms. It is precisely this polymorphous liveliness that the film seeks to capture.

At one level, I used film to frame Justo’s lifeworld in more-than-human terms, not
because I deemed this theoretically or ethnographically important, but simply because, while staying with Justo and his family, I vividly realized that there was a multispecies universe which was calling for my attention. With the term ‘multispecies’, I refer to a growing body of transdisciplinary research whose articulations, theoretical background and intellectual agenda have already been widely discussed (see the introduction). From this diverse body of work, I retain a focus on what makes us human, and on what makes vital entanglements between species take specific social forms. However, I also engage with multispecies studies as a source of ethnographic evidence that renders species non-discrete entities, multiple on their own and transformative: ontologically ‘amphibian’, in Kirksey’s (2015) terms. Thus, while the multispecies essence of Justo’s lifeworld is made manifest throughout the film, on the other hand, the film necessarily revolves largely around humans. This is a critical tension I had to engage with while editing the film, finding a way through all the material that I shot. I sensed the necessity to be true to the ways we apprehend the world – ways which are inevitably human. In practice, a human consideration of multispecies worlds cannot escape humans, although it is necessary to resituate humans in something more voluminous and shared with others. Multispecies worlds are about recovering ‘togetherness’ (Ginn et al., 2014); however, as anthropologists we are better suited to carrying out this project from a human perspective, accepting and hoping that others more familiar with other species will do the same from other species’ perspective.

If the multispecies rendering of Justo’s lifeworld might pass unnoticed (I recognize that I may not have been wholly successful in my attempt), this might in part be due to our taken-for-granted ways of looking at the world, and to what we expect to experience through a film. It is important not to forget that film (and the whole story of cinema) is a human expression, and that, in this sense, humans have ‘colonized’ film. Multispecies scholars might engage with filmmaking practices in an attempt to ‘decolonize’ film, but I also wonder whether this is possible so long as there are humans behind the camera and in the editing room. However, to return to the film that I present as part of this work, abundant answers to the question ‘what is a species?’ are offered throughout the film. If these are hard to find and grasp, this is because states of being (that is, species) are sedimented and ephemeral at the same time. This is life’s answer! Therefore, I track transmutations of living forms, to trace their relational becomings, their being alive in relation, in the here and now of the ethnographic real, a filmic one. The process of collecting oranges (life forms) from the tree, cutting, sharing and eating them – as well as the forms that oranges’ skins take, the skills and tools used to achieve those forms, and
Justo’s explanation to his daughter Lali of what oranges are called in Bribri\(^2\) – shows precisely what a multispecies becoming looks, sounds and tastes like. In this sense, the film is an ode to the multitude of life forms and forms of life that were manifest around me during my fieldwork, eliciting specific forms of attention. Hence, the process of attunement through which life forms and forms of life ‘showed me the ways to go’ is also the hidden story of the film, pursued through the opportunities of what Fijn (2012) calls ‘multispecies filmmaking’. However, the film also radically expands Fijn’s notion in terms of the amplitude of the world that such an approach can engage with.

Filming herders and livestock in Mongolia, Fijn (2012, p. 71) has explored an approach to filmmaking that can take into account “visual and auditory communication between human and non-human agents”. In her project, Fijn is inspired by the filmic work of MacDougall (the Doon School part 2) and Castaing-Taylor and Barbash (Sweetgrass). She notes how these works, though articulated in the first case in strictly human terms and in the second case in ‘more-than-human’ terms, are not conceived as explanatory experiences but rather as revelatory experiences. Through these experiences, the audience is encouraged “to think harder while watching the film and to pay attention to detail rather than to make broad judgments and conclusions” (Fijn, 2012, p. 76). Fijn refers to MacDougall’s consideration of ethnographic film as particularly suited to exploring “visible cultural forms, the immediacy of individual experience, human relationships with the material world, and social interactions in all their evolving and multivalent complexity” (Fijn, 2012, p. 86). So, experiencing the vivid and sensorial journey proposed by Castaing-Taylor and Barbash’s film Sweetgrass – where humans, dogs and sheep are moving together across the landscape – Fijn (2012) proposes that MacDougall’s ‘multivalent complexity’ clearly also encompasses non-humans. In Fijn’s film Khangai Herds, spectators are constantly exposed to communicative relations and responses between humans and animals, to the point that the film itself becomes a sort of vocabulary of the ‘shared language’ between herders and their companion species. In this sense, Fijn’s ethno-ethnological approach to filmmaking is deeply ‘language-based’, and her cinematic attempt to grasp a multispecies world based on vocal communications neglects what lies beyond communication. Moreover, her wide-angle perspectives, which she intends to give a sense of the landscape and to contextualize multispecies relations and entanglements, make little invitation to explore the texture and fragments of living matter that also shape the human-animal relations she is filming.

\(^2\) Language is the most ‘exceptional’ expression of human forms of life, Kohn (2013) argues.
In this sense, there are limits to multispecies filmmaking, because worlds in general, and Justo’s lifeworld in particular, comprise more than species and their becomings. Indeed, this was my immediate sensation while living in Talamanca and going around with Justo, his family members and friends. We would climb, stumble, eat, drink, sweat, enjoy water and the sun, fear darkness, light fires, and often build shelters from the rain. Certainly, these are things that species do, experience and are concerned with, but there is something more. There is a world out there made of matter and forces, which are highly important throughout the places where I lived while filming: farms, houses, rivers, riverbanks, paths, clearings.

In this respect, adopting a multispecies perspective to ‘evoke’ place is a way of adding more layers of vitality. Concha-Holmes (2015, p. 62) suggests that “the spaces where humans, plants, and animals intermingle are rich junctures of mobility, sensuality, and impressions that together evoke a sense of place”. Thus, in her film Senses of Silver River, she proposes an evocative ethnography where place becomes event (Casey, 1996), a gathering of movements or meshwork of life lines (Ingold, 2008). As we watch her film, we are invited to experience the sensorial dimension of the Silver River in Florida, together with all those presences and perceptions that shape human explorations of a place-ecosystem, populated by boats, sounds, water, monkeys, reciprocal sightings, flowers and bees, manatees and video cameras on REC mode. All this assemblage of overlapping experiences is what Concha-Holmes (2015, p. 70) calls the ‘sense of place’, an experiential dimension, whose aim is to deconstruct views of “nature as an object in contrast to a human subject”. However, her theoretical ambitions are only partially achieved in her film: rather than experiencing a ‘sense of place’ directly, we experience the ‘place’ from a certain distance, mostly from a boat. As a result, the intimacies enabled by the place-event are mostly absent. By contrast, with my film I privileged proximity to living bodies and living matter, using focal lengths that would better allow the viewer to appreciate the textures and the forms of the living, to grasp details while also wondering to what and to whom those details belonged.

Nevertheless, watching Concha-Holmes’ film evoked a sensation which I had once while shooting my film. I was with Justo on a small balsa (a makeshift boat) made of trunks and ropes, and we were coming in to land on a riverbank after travelling from his finca to his sister’s house, a few kilometres downstream. It was early afternoon, and it was silent except for the subtle sound frequencies produced by flowing water and by the soft breeze rustling the leaves. I was completely focused on filming the extremely slow docking of the balsa on the bank with me on board, when suddenly I ‘sensed’ that I was actually filming time, the suffused
temporality of an entire place, of the water floating, of our balsa docking, of moving leaves, weeds and tree canopies.

This filmic ‘feeling’ is hard to explain in words – and perhaps the result of a cine-trance\(^3\) caused by recording and monitoring sound through a couple of binaural microphones in my ears, which are immersive since they record omnidirectionally. However, I seek to describe the feeling because it reveals that what Concha-Holmes (2015) defines as the ‘sense of place’ is also the sense of its rhythms and temporalities. Thus, time emerges as an additional layer of vitality that I seek to canalize through film, thanks to the space-time continuum that moving images entail. This step is important for framing multispecies becomings as temporal becomings, simultaneously linear and non-linear.

In a related discussion, exploring the various visual methodologies used to witness and provoke evocations of more-than-human worlds, Lorimer (2013) lingers over Deleuze’s (2013) vitalist philosophy of cinema, in particular his analysis of time-images. As Lorimer (2013, p. 65) explains, in Deleuze’s second volume on cinema:

His understanding is grounded in a non-linear conception of time in which forms and events are understood as emergent and contingent. He argues that we should not understand film as a necessarily linear (and thus reversible) succession of still images, but as a process of montage with the ability to express the liveliness and dynamics of time and the nonhuman becomings of the world.

Thus, Lorimer (2013, p. 65) draws on Deleuze to propose that time-images work methodologically “to express the liveliness and dynamics of time and non-human becomings of the world”, and politically “to provide a sensual shock to thought, catalysing or restricting lines of flight and affirming new ways of being”. This can “open thinking space for an affective micropolitics of curiosity in which we remain unsure as to what bodies and images might yet become” (Lorimer, 2013, p. 71).

In light of these discussions, I embrace the evocative potential enabled by time-images through the process of filming a multispecies lifeworld, considering place and time as affective forces that shape the stories of lifeworlds. However, there is a further issue to be addressed

\(^3\) Cine-trance is a term used by Rouch (2013) to describe a particular engagement with the atmosphere of what is being filmed. As Rouch (2013, p. 39) states, “For me then, the only way to film is to walk with the camera, taking it where it is most effective and improvising another type of ballet with it [...] it is a matter of training, mastering reflexes as would a gymnast. Thus instead of using the zoom, the cameraman-director can really get into the subject. Leading or following a dancer, priest, or craftsman, he is no longer himself, but a mechanical eye accompanied by an electronic ear. It is this strange state of transformation that takes place in the filmmaker that I have called, analogously to possession phenomena, ‘cine-trance’.”
here. In a recent intervention, multispecies scholars van Dooren, Kirksey and Münster (2016, p. 6) have argued that multispecies studies are ways of “transforming noticing into attentiveness – into the cultivation of skills for both paying attention to others and meaningfully responding”. While this is a clear explanation of what is at stake with multispecies studies (novel ways of being attentive), I refer to this contribution because it shows that multispecies studies are sufficiently mature for their ways of being attentive to be exported beyond inter-species entanglements. This is clear when the authors ask whether similar forms of immersion used to aliment multispecies studies might also work for other vital manifestations, such as “a stone, a tornado, and a volcano” (van Dooren et al., 2016, p. 1), or “weather systems”, “artificial intelligence”, and “chemical species” (van Dooren et al., 2016, p. 4). These are all entities that we “would consider to be nonliving” (van Dooren et al., 2016, p. 4).

I understand these concerns clearly: for all those studying multispecies worlds, associations, projects and becomings in ethnographic terms, it is problematic to neglect earth forces, the vibrancy of the material world and the atmospheric circumstances of life in the open. If we are too attentive to multispecies becomings, what do we do with the other vital components of the world inhabited by different species? The research film that I propose as the source of inspiration both for this chapter and for the entire research project thus seeks also to do justice to those dimensions and components.

Finally, the challenge that aliments the film consists of challenging human representations, within the given constraints of being human and using cinematic language, which as a medium is also very human. Apparently, this effort is destined to fail. Yet, failures have the potential to suggest possibilities to consider differently. Therefore, filming Justo’s lifeworld as I did is my attempt to shift the focus from humans to the volume of the world they inhabit, comprising multiple forms and forces. In part, this endeavour challenges cinematic storytelling in terms of how we know it (narrative/non-narrative), and what we expect to see and experience through film (a story with dialogues, a beginning, an epiphany and an end). In sum, my film performs a world beyond the human, showing what it sounds and looks like, and making us feel uncertain about its forms and forces.

4. The waterworld of Talamanca: matter and forces

In my experience of Bribri lifeworlds, one ethnographic situation where forms and forces really mattered concerned water. Talamanca is a wet ‘open whole’ (to use Kohn’s [2013] expression), which is inescapable for those who live in Talamanca, where – as the film shows – water is
insistent and persistent. If the film revolves around water, this is because Bribri lifeworlds also do so. Therefore, I engage with the flows, forms and forces of water, showing how they matter in the lives of the protagonist Justo, and of many of the beings living around him.

One day, I was with Justo in his plantain farm. It was raining, and we were waiting to drink a recently made coffee, after boiling water collected from the small river running beside Justo’s farm. We were sitting under a rudimentary shelter built by Justo to protect himself and his crew of friends from the rain. I thought that now was the right moment to ask him about the story of his farm. In response, he explained that his farm had previously been a soccer pitch, which had been abandoned after a flood in 1993. What I wrote down reporting that conversation was my immediate feeling of how that flood gave Justo a new life opportunity. The flood allowed him to occupy a communal piece of land, transform it in his farm through hard work (planting plantain), so that he could consolidate his tenure of a plot that anybody could have reclaimed. Most importantly, he also told me that, after the flood, people – including himself – ‘had to embrace the new’ (‘habia que ir con el nuevo’), that is, plantains. That flood is thus part of the stories of how Justo became a plantain farmer, and also of how a communal piece of land went from being a collective social space to a private farm.

Reflecting on this tale, I have become aware that water and its forms have a peculiar ‘force’ in Talamanca, to configure and reconfigure worlds. Moreover, water and its forms have the ‘force’ to shape landscape experiences, the ‘sense’ of place. While living, moving around and filming with Justo, crossing rivers, tributaries and creeks was a daily experience. These crossings were the most demanding, adrenaline-filled activities of my fieldwork, as well as the most radically cohesive with the ‘open whole’. While we were crossing rivers together, Justo rapidly realized that he had to be vigilant not only for himself, but also for my balance and the level of water on my body, to prevent water from getting inside the backpack where I kept all my film gear. Since the level of water usually comes up to the stomach, crossing rivers requires skill – especially since it is impossible to see what one is stepping on. Stones are both obstacles and anchors: one can stumble on them, but also use them as supports against underwater currents, which can knock a person off their feet. Therefore, when crossing rivers, it is necessary to care for others, because falling or stumbling is the norm, and can be dangerous. Several times, while Justo was keeping an eye on me, I did the same for Bella (the family dog,

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4 In Helmreich’s dialectical relationship between life forms and forms of life, there seems to be no place for water, although water too has its forms. Therefore, I propose considering water as a force of life, and, consequently, I suggest that forces emerging through matter have forms. This will become more evident in chapter 3, where I discuss electricity and water, with particular attention to their forms and forces.
who followed us almost every day), fascinated by her skills and techniques for crossing rivers. She, astutely, did not follow our routes. Rather, she carefully observed the currents of the rivers, and used their force and direction to be transported by them, rather than crossing them. In this way, Bella made best use of her energies and minimized risks.

Thus, water and its mundane forms shape bodies, skills and relations in Talamanca. After I visited Justo and travelled with him to his farm several times, I understood that I had to buy proper rubber boots like everybody else around me. That was crucial if I wanted to wear dry shoes every morning when I woke up, and most importantly if I wanted to walk comfortably throughout the day through rivers, mud and puddles. However, I quickly realized that I had to wear socks to avoid irritating my skin, while everybody else around was used to wearing the same boots without socks. I wondered how they managed to do so, until I noticed the thickness of the skin on their feet, caused by water and the friction with the rubber.

One example of how water shapes skill is prediction of rainfall, or rather its anticipation. Especially in Alta Talamanca, where rain is very frequent, most Bribris see it coming and move accordingly. Nevertheless, on innumerable occasions, we were caught by unexpected, heavy rainfalls. When this happened, I had to stop filming, and Justo could finally walk faster, rather than waiting while I struggled with my film equipment. Several times, Justo had to endure my terrible mood when I took my camera out of the bag and was unable to film because the camera lens was misted up, due to the reaction of electronics (albeit sealed) to humidity and temperature shifts. During these moments, Justo learned about the frustrations of a filmmaker in the waterworld of Talamanca, realizing how absorbed I was in my film project, which was my job there with him.

Historically, one of the main concerns the Bribris have had in relation to water is floods. In their analysis of the 1993 flood (which Justo mentioned in the story of his farm), Borge, Castillo and Rodriguez (1995) explain that the Bribri have always coexisted with floods by developing specific strategies for predicting and reducing risks to human life, making sense of this phenomenon as something “natural and beneficial” (Borge et al., 1995, p. 63). Today too, according to the authors, the Bribris are able to use bio-indicators to predict floods, although these have become increasingly unpredictable, frequent and torrential, given that the hydrological cycle in Talamanca has been transformed over recent decades. These changes to the hydrological cycle must be framed and considered within wider dynamics, such as plate tectonics, loss of riparian vegetation along the rivers, deforestation, and the ecological degradation caused by the intensive plantain monocultures expanding everywhere throughout
indigenous territories.

At present, the repercussions of the expansion of plantain monocultures for the waters of Talamanca are far more alarming than floods. Although very few people during my fieldwork talked about water pollution (more people referred to the abundance or scarcity of water), this does not mean there is nothing to worry about. While I was working with a group of biologists (see chapter 2), I was told about a meeting that had taken place a few years ago, involving experts, organizations and indigenous leaders gathered to discuss the present and future of water in Talamanca. Searching online, I found a report of that meeting,\(^5\) which unfortunately suggests that there is little hope for the future of water in Talamanca. The report highlights the increasing use of agrochemicals in indigenous farms, their effects on local biodiversity and their negative impacts on the potential for organic farming. Most importantly, the report adduces medical evidence to show that agrochemicals (such as chlorpyrifos, difenoconazole and terbufos) are already circulating within human bodies in those communities that are largely devoted to plantain monocultures. These issues are compounded by the limited access to potable water of some of the most isolated communities, such as Alto Coen and San José de Cabecar, and recent concerns about the expansion of a national hydroelectric plan in Talamanca (which I address in the next chapter). In sum, then, the report offers a comprehensive picture of the political-ecological concerns that grip the present and future of water in Talamanca.

Throughout the film, therefore, water is ‘ethnographic matter’ in political terms (although implicitly), but it also assumes material and poetic significance. Bennett (2005, p. 447) argues that matter has vibrancy and vitalism which are manifested “with movement and a certain power of expression”. Building on this argument, Steinberg and Peters (2015, p. 256) propose that water triggers a “productive, if unstable, frisson of matter and meaning”. This meaning expresses “the dynamic materiality of incessant movement and transformation” (Steinberg and Peters, 2015, p. 255). Moreover, for Steinberg and Peters, water is vibrant matter that constitutes the world, and its restless vibrancy and circulation can help us to conceptualize territory as ‘volume’ rather than surface. In this sense, water allows us to leave behind ideas of matter as “static substance” (Steinberg and Peters, 2015, p. 252), in favour of a consideration of “the various ways in which matter changes physical state as it moves through, and simultaneously constructs, both space and time” (ibid.). Interestingly, Steinberg and

Peters develop these arguments by thinking about the materiality, temporality and verticality of the ocean as a space of global politics. In this sense, it is no coincidence that my film passes through the waters of the ocean before coming to an end. And it is only now, reading Steinberg and Peters’ call for a ‘wet ontology’, that I realize a posteriori what that meant in the process of shooting the film.

As I got to know Justo, I was surprised to discover that while he was extremely familiar with ‘certain’ waters (those of rains, rivers, their pools and waterfalls), he was unfamiliar with those of the ocean a few kilometres away, so near yet so far. Indeed, when he confessed that he had not been to the sea for the last twenty years, I realized that the coasts of the Baja Talamancan were included in my zone of familiarity with ‘the waters of Talamancan’. I wanted to share my aquatic lifeworld with him, as he did with me in Alta Talamancan. So, I used the filmic journey that brought Justo and myself to the sea, following familiar waterways, as an experiential tool to unbind Justo’s lifeworld from its territorial surface, to relocate it across the oceanic openness of world history and its fluxes and encounters. In this sense, the film is not meant to be representative of one among the many Bribri lifeworlds that I found on the cordillera of Talamancan. Rather, the film is a material and metaphorical attempt to frame flows, forms and forces, as well as the film itself, in relational terms.

Furthermore, from a poetic perspective, water has a long-standing history of cinematographic presence. D’Aloia (2012, p. 88) argues that the stylistic use of water as “setting”, as well as the “expressive use of its properties” in cinematic experiences have enhanced the “sensorial space” that can elicit an immersive experience of fruition, thus counteracting the “relocation” of film experience from one setting to another. Thus, d’Aloia considers that cinematic experiences of water work on two different levels. First, water symbolizes the unconscious, “the concrete and perceivable projection of an inner projection of the psyche” (d’Aloia, 2012, p. 93). It is “a substance capable of directly communicating symbols and meanings to the spectator, reducing the separation between the fictional space on the screen and the psychic space in front of the screen” (d’Aloia, 2012, pp. 93-94). However, drawing on Bachelard (1983), a philosopher of elements and imagination, d’Aloia also remarks that water works in filmic terms by configuring human imagination as independent of interpretation, proposing “direct images of matter” (Bachelard, 1983, p. 8, cited in d’Aloia, 2012, p. 94) where “the form is deeply sunk in a substance” (Bachelard 1994, p. ix, cited in d’Aloia, 2012, p. 94).

I thus wonder whether these reflections about ‘cinematic waters’ might to some
Kohn’s (2013) approach to living forms as mediated by semiotic processes, by bringing in more immediate images and experiences of matter, through which meaning making and vitalist categorizations vacillate in front of the rich multiplicity of living processes and experiences. This perspective is highly relevant for the project of my research film, as water stands as a filmic metaphor of the transformative nature of forms, forces, movements, lines and detours – that is, of the slippery configurations of life and lives.

Finally, the abundant presence of water in my film is intended to expand theories of life beyond ‘living beings’, so as to embrace more deeply the intrinsic vitalism of matter and earth forces, showing how these emerge from and affect lifeworlds. After watching the film, I have almost no doubt that life and lives, filmed from Justo’s lifeworld, are historically, materially, semiotically and relationally consistent. It would be inappropriate to isolate these dimensions to define what is or is not alive – for instance, by privileging the semiotic over the material. Indeed, doing so would impede the serious, yet challenging, project of going beyond the human and apprehending the world in its multiple vitalities. Always remembering that as Hastrup and Hastrup (2015, p. 12) write about the vitality of water, “whatever we are defining or un-defining as living, we humans are the definers”.

Conclusions

What can we do with stories? And where indeed is the ethnography in visual anthropology, and, more specifically, in my film? While these may seem distinct questions, they are interrelated for the discussion in this chapter and for the accompanying research film. At the beginning of this chapter, I asked whether stories about the world are there simply to be told, or whether stories can do something more for ethnographers. I posed this question because the development of my film project (which is part of the wider research project) showed me that stories materialize and situate lifeworlds in place and time. Of course, this is not to deny that stories tell something, but it raises the question of what we ask stories to do for us. Stories can explain, and support arguments, but they can also inform pathways of critical enquiry. As I have argued in this chapter, the process of shooting the film worked for me in a particular way, prioritizing the familiarization with specific modes of attentiveness tailored to the need to grasp the liveliness of a world where multiple modes of conservation are taking place. In this sense, one might wonder where environmental conservation can be found in the film, which is precisely why this film revolves around the lifeworld of a Bribri friend. As Borge and Villalobos (1994) argue, being Bribri, or, from another perspective, Bribri ‘indigeneity’, is a form of life in which culture and conservation merge, so that conservation is
not an extraordinary practice, but rather the everyday imperative of sustaining life and lives. In this sense, the vivid and sensorial filmic experience offered in the film is a reminder that different forms of conservation are different cultures of conservation – a point which I emphasize throughout the thesis. ‘Beyond’ indigeneity, in other contexts too, culture – by which I mean the multiple ways through which not only humans, but also multispecies communities, constitute associations to make a living and organize social life – and conservation may be just as entangled as they are for the Bribri of Talamanca. In sum, then, the film seeks to represent Justo’s lifeworld as a multiply-inhabited world concerned with conserving and sustaining life and lives.

Where, then, is the ethnography in my film? The answer is obvious to me, but it is also important to explain to others what I consider ‘ethnographic’ in my film project, and what it has, ultimately, helped me to achieve in the wider framework of my research. This relates to the previous question: what do we ask stories to do for us? I asked my film, and the story it makes flow, to bring back life and lives as lived experiences. What emerged is a sense of restlessness and togetherness, an extensive collective process of becoming, of movement and transformation. The ethnography in the film thus lies in the textures of living bodies; in the relations between father, mother and daughters; in the work required to clean farms and repair traditional Bribri conic houses; in the movements between places; in the boat journeys on the river towards the sea; in the taste of food; in the cycle of light and darkness that characterizes everyday life for all living beings. Moreover, the ethnography lies in the relation between the filmmaker and the characters, between the filmic eye and the filmic device, which is able to see things differently, without forgetting that ethnography is also about writing difference. The ethnography lies in the attunement to place, which is necessary to explore lifeworlds in intimate terms with the people being filmed and their private spaces. It lies in the use of ethnographic experiences as moments in the process of being alive with others and within lively surroundings. The ethnography is present throughout the encounters by which relations transform and inform organic and cultural forms; it is also present in what the filmic process can elicit – staging performances and escapades to the sea, away from the heavy weight of theoretical articulations (at least for a while), while engaging through the camera with what is around. Finally, the ethnography lies in those forces and vibrant matter that are obscured when we focus only on humans and forget that life in the world is characterized also by water in all its forms, by the force of gravity, by the enchanting presence of the moon – which affects life on Earth – and by the cadence of time that pushes life and lives forward every day, consolidating what has been done today for tomorrow.
Ultimately, addressing articulations of life and lives in filmic terms has helped me to cultivate, in the rest of my research, inclusive modes of analysis tailored to the multiple layers of living experiences. It has also reminded me that there is no one theoretical approach and no single dwelling perspective that can exhaustively comprehend the dense sociality and vitality of lifeworlds. In sum, then, my film has worked as an invitation to explore diverse lifeworlds ethnographically, in search of different articulations of the imperative of life, that is, of what must be done to keep oneself alive, and to conserve and consolidate lives.
Chapter 2: Monitoring life in the waterworld of Talamanca

Introduction

During my fieldwork, as I highlight in the film, I lived immersed in the waterworld of Talamanca (Caribe Sur, Costa Rica). In general, this meant experiencing entire days of tropical rain, while learning to accept humidity as part of my new daily life in the forest. Moreover, the waterworld was constantly evident in the sound of the ocean waves, through walks on slippery mud, and across the large rivers and creeks I had to cross by boat or on foot to reach locations and friends. Throughout Talamanca, water is sensed everywhere, to the point of becoming taken for granted, yet persistent. Therefore, my attunement towards aquatic forms of life and life forms (Helmreich, 2009) was literally atmospheric, and almost inevitable. As such, the wetness of my fieldwork rapidly became a research challenge that pushed me to embrace and imitate the state of the things around me, and absorb water ethnographically – like the fur of the dog I had adopted, and like my clothes and camera lenses, which showed fungus and rust spots after a few weeks. Finally, this also marked the beginning of a challenging question. How can we get to know about water, which is constitutive of our world, which nurtures all species’ life, which is ubiquitous yet also slippery, which, though contained within bodies is also circulating in the open?

With these questions in mind, the ANAI Stream Biomonitoring Program (ASBP) represented an opportunity to consider simultaneously the atmospheric presence of water, multispecies entanglements and the material consistency and vitality of the world around me.
When I approached ANAI’s personnel to discuss the possibility of studying their activities, I only knew that their programme was led by a team of biologists engaged in monitoring rivers, and that it also involved and trained locals living around the sites that were monitored. Soon, I learned that these relations with local people were an intimate part of the ASBP’s presence and work in the area, which had been underway for more than 10 years. The relationship was also, in terms of the participation of local communities in environmental conservation, a direct legacy of the previous two decades’ work by ANAI, a Costa Rican non-profit organization founded by US biologists and local people who were interested in conservation and social development. Today, the ASBP is a core activity of the Biological Corridor Talamanca Caribe (BCTC), an umbrella NGO of which ANAI is a founding member. The BCTC coordinates the various conservation initiatives undertaken by local indigenous development associations (the ADIs, Asociaciones de Desarrollo Integral) and by owners of farms and forests, and by other organizational outcomes of ANAI’s past work, such as the Asociación de Pequeños Productores de Talamanca (APPTA) and the Asociación Talamanqueña de Ecoturismo y Conservación (ATEC). Given this history, ANAI is one of the key actors in environmental conservation in Talamanca (and in Costa Rica), and the ASBP is a unique long-term initiative of scientific river biomonitoring with local involvement.

The first time I entered the ANAI offices, as I waited for Maribel – a Colombian-born biologist, long-term resident of Costa Rica and on-site coordinator of the project – I had a few minutes to look around. My attention was immediately drawn to a series of posters on the walls, which instantly catapulted me into the life of the Talamanca rivers.
Figure 2: A picture of the tropical river continuum poster on the wall of ANAI’s offices (photo by the author).

The larger poster, to one side of the entrance, represented, as a triptych, a *tropical river continuum*. The three sections showed the continuity of the river across different zones of life. As the water surface is at the same level across the frames, ‘continuity’ is represented clearly. I could also perceive the different populations, colours, morphologies and surrounding vegetation across the sections. Most importantly, I could track water from the source of the river from a mountain waterfall to its mouth in the ocean. Thus, the river appeared as a populated, interconnected world, constituted under and around flowing water.
On the opposite wall there was a series of smaller laminated sheets portraying different types of fish. Looking closely, I learnt that they were parts of a ‘guide for freshwater fish identification in the Caribe Sur of Costa Rica and Changuinola of in Panama’. Glancing through them, I was quickly drawn into that vivid multitude of differences in kinds, forms and details. Those fish were all different, yet all fish. Although it was represented only two-dimensionally, that variety served as an indicator of the local biodiversity, revealing the existence of entire unseen populations.

Looking back on those images, I now realize that those posters on the walls of ANAI’s offices were there to manifest the foundational pillars of the ASBP’s work and world: the continuity, complexity and diversity of riverine life. When Maribel joined me, I already had a vague understanding of the programme’s ‘worldview’, and I was very excited to get to know more about it. After I had explained to Maribel that I was looking for human entanglements with the lives of other species, she invited me to join the monitoring sessions and help out as...
part of the team. Accordingly, from February to May, during the relatively ‘dry’ season of the Caribe Sur, I travelled with the team to 10 river sites, offering various forms of help during the activities: carrying nets and buckets, fishing (although with poor results), extracting tiny macroinvertebrates from their habitat, and also contributing to the formulation of assessments about the state of the river site through observation-based questionnaires. I was also invited to take part in the environmental education meetings that ANAI holds with local schools in collaboration with the BCTC. Furthermore, I visited ANAI’s headquarters in Hone Creek several times, to experience office and laboratory life, to observe the supplementary work done with the collected samples of macroinvertebrates, and to learn more about personal biographies and about ANAI and the local history of its biomonitoring programme. In this chapter, I focus mainly on the ASBP’s field activities at the river sites, but I also refer to other information and understandings that I acquired during the time I spent with the ASBP team in different places and on various occasions.

In sum, in this chapter I address how rivers and lives become entangled through the articulations and concerns that shape the ASBP. First, I describe what it means to monitor the life of rivers in and as practice, what activities this entails and what sorts of tools, procedures, classifications and measurements are used. Secondly, I explore what binds the ANAI team (and the work of the project) to the lives of those living beings inhabiting the rivers of Talamanca, namely the possibility of a future characterized by overlapping but antithetical infrastructures. Thirdly, I consider how rivers emerge as waterworlds, and what this means in material and ethical terms in relation to the multispecies association constituted through the ASBP.

1. Monitoring life at the river

After the last drops of the rainy season in early February, I was invited to the beginning of the 2015 biomonitoring season. I met the ANAI group around 6:00am in a location near their headquarters in Hone Creek. Near a small bridge on a minor river, they had already parked their vehicle – a pick-up full of instruments, nets and khaki wetsuits. Maribel at once introduced me to Bill, an old man who spoke perfect Spanish with a US accent, and to the rest of the group: Ana was another Colombian-born biologist, and Julio, another biologist, was the only Costa Rican in the group. They were all long-term acquaintances and staff of the programme. I was invited to put on my dry-suit, and I immediately felt insulated and very hot. Together, we started walking down to the river, then waded in. Walking through the water, I could feel its freshness on my feet, although they were kept completely waterproof. The contact between the boots and the ground was soft and cushioned, due to the layer of non-
slip compressed felt. After a while, we reached a shadier area, where we stopped, putting all our equipment on a dry surface on the riverbank. While Bill and Maribel started making some initial tests with a peculiar device, Ana began to fill out a form with our names, starting time, and the name and code of the site. Then she stood up, and placed a thermometer between two stones in the water to record initial and final temperature.

She then explained the plan of the day to me. First, she told me that a study of the river would be implemented, clarifying that it would concern fish and macroinvertebrate populations, as well as river habitats. To accomplish this, three different methodologies were to be used at different stages. I was also told that, for the first time, this year the study was going to focus specifically on eels (*Anguilla rostrata*), because, Ana said, these were a relatively understudied ‘catadromous’ species (that is, a species that habitually migrates from the sea to fresh water and back again to complete their life cycle). To conclude, and familiarize me with the surrounding environment, Ana gave me a quick overview of the river habitats and coordinates: the riverbed (*el cauce*); the isolated pools (*pozas aisladas*), which were full of “stagnant water hosting plenty of life”, she said; and the fast-flowing stream (*corriente pulsante*), where the current was more sustained.

Meanwhile, Maribel, Julio and Bill were ready with the electro-fisher, the peculiar device that looked like an orange security backpack, which had a small alarm and an emergency security switch on top of it. The device also had two connectors at its base. One was plugged to a yellow stick about 2 metres long, with a red tumbler switch at the centre, and a metal ring (the anode) at its end, which transmitted electricity through water. The other connector was a metal cable resembling a tail, long enough to touch the riverbed. In response to my enquiry, Maribel said that was the ground lead, and she warned me against stepping on it. Ana explained to me that the electro-fisher allowed them to generate an electric field underwater, which worked to stun fish temporarily, so that they could be caught with our nets. At one point, Julio asked for my help, and we hammered two wooden stakes into the banks, and stretched a wide net between them, covering the entire width of the riverbed at a point behind us. The net functioned as a barrier for any fish that managed to avoid the electric field, so as to keep the samples as representative as possible. Finally, before starting, Maribel warned me against putting my hands into the water while the electro-fisher was working, which, she said, people sometimes did spontaneously as they tried to collect the fish that had jumped out of the bucket with their hands, resulting in an electric shock. After all, I was told,
we were in the middle of an electric field. That was why, Ana suggested, if I slipped, I should immediately shout “Stop!”

So, pushing the switch, Julio inaugurated the beginning of the 2015 biomonitoring season, which drew a loud cheer from the entire group. Almost immediately, I found myself walking along behind the group, holding a bucket filled with water, which was quickly becoming the temporary limbo for tens of fishes of different shapes, colours and sizes. In front of me, Julio led the group, moving the stick along underwater, while Ana, Bill and Maribel followed, scrutinizing the water carefully and awaiting any movement or activity. Every few seconds, one of them would ask for ‘el balde’, the bucket, to empty their net into it. With a quick movement, they would flick their nets over just above the bucket, or into the net of the person nearest me, who would then empty all the fish into the bucket. I often had to use my fingers to extract fishes that had got trapped in the nets. Touching them out of the water, I could feel their slight movements in the palm of my hand.

Observing more closely, I noticed how the electric field affected the fish. Sometimes, they would collapse on one side of their bodies, and become unable to swim away easily without being noticed. Their presence clearly visible, in a few seconds they would become ‘sitting ducks’ for the nets, which the team members would deploy rapidly with impressively clinical precision. Indeed, the group’s fishing skills were obviously well-developed. The ability consisted in being able to spot any minimal glittering, and immediately immersing the net at exactly that point. At the beginning, I thought that their sunglasses helped them see through water reflections much better. But then, when the waters became turbid because of our movements, I realized that they could simply see what I could not see. Furthermore, the group was very coordinated, and acted as a team. They often exchanged information, suggesting where to place the anode or the net, in case somebody had seen something somewhere. Finally, there was a degree of entertaining competition within the group. Maribel was with no doubt the quickest, the loudest and the most battle-hardened. At one point, she shouted three consecutive times, very excited, that she had seen an eel. Suddenly, the whole group burst into a euphoria of movements and small lunges, until Ana caught the eel in her net. The rest of the group looked crestfallen, but Maribel reminded her and the others that the ‘competition’ had just started.

During the session, we conducted a circular tour, finishing in front of the wide net that had been behind us at the beginning. We then turned and stretched the net to form a sort of hammock full of fish trapped in its meshwork. We collected them and carefully transferred
them into the buckets with the other fish. After that, Julio suggested with a nod that I approach Bill, who was starting to examine and count what they had caught. Before starting, Bill had taken a small aquarium, which he now filled with one specimen of every species encountered. Extracting fish from the bucket with a small blue net, Bill counted them in his head before telling Julio the number of individuals of each species, while Julio recorded numbers and species on a grid. Nearby, Ana and Maribel were doing the same. After being counted, examined and recorded, fish were released into the water. Still dazed, they took a few seconds to swim away. For each species, Bill provided me with exhaustive references to their bodily features and ethological peculiarities. Sometimes, he also described individuals as not being in good shape, distinguished between males and female, and sometimes identified a couple. The species included Eleotris Picta, Alfaro cultratus, Aganostomous monticola, Poecilia agulli, Archocentrus mynae, Awaous banana, Astyanax aeneus. These scientific names were unfamiliar to me, and there were so many of them that it became hard to take notes of all the names and characteristics. Actually, there was no point in doing so anyway, as I was rather called to experience the differences and learn with my eyes. I still recall how vivid the images of their differences appeared. Meanwhile, Bill was giving comprehensive masterclasses on life-forms and their ways of life, which he knew inside out. When, during the counting process, Bill encountered an individual of a species he was not expecting to find there, he declared it his “first surprise of the year”.

We then repeated the same operation in two other sections of the river, to include all the three habitats, moving up against the current. At the end of the three electro-fishing sessions, Bill checked a yellow notebook he had in his pocket, and, using a calculator, confirmed that the numbers of fish caught were in line with those of previous year. Meanwhile, Maribel and Ana had already embarked on the next activity, the benthic macroinvertebrate collection. To do this, Ana would immerse a different net with a narrower meshwork for a given amount of time (30 seconds), to collect a sample of soil, leaves, stones and rubble, while also turning over sediments, small stones and sand. Once this was done, she and Maribel carefully analysed small quantities of the sample with tweezers in a white flat bowl, extracting very small living beings that could hardly be seen. Visible only through their movements, they would be snapped up and immediately transferred into a small flask similar to the hundreds I had seen on ANAI’s shelves the day of my first visit. Unlike what was done with the fish, these macroinvertebrates were taken away, and their lives sacrificed. To clarify, Ana explained me that the sample was an irrelevant loss for the river, because the population of macroinvertebrates throughout the river habitat is vast. She added that, once collected, given
their sizes and embryonic larval stages, macroinvertebrates would be further studied in the laboratory at the ANAI offices, because a microscope was needed to identify and classify them. Meanwhile, I could appreciate Ana and Maribel’s skills, which allowed them to spot incredibly small larvae and insects mixed in with sand and sediment. By disturbing the water, they could detect the small movements of those beings, which they would chase with the tweezers as soon as they signalled their presence. Entranced by their art and skills, I came to understand how all that material and these tiny living beings were food and a source of life for the fish we had caught, counted and released before. Minute by minute, operation by operation, I was starting to grasp the river as a world where everything was all deeply entangled.

This sensation became even stronger when we moved on to the last part of the monitoring session, the study of river habitats through the Stream Visual Assessment Protocol (SVAP) methodology. At one point, Julio gave me some laminated sheets, which were SVAP’s paper guide. Then, he introduced me to the SVAP, defining it as a questionnaire based on empirical observations of precise characteristics of the river environment. On the sheets, there were written questions, and also representations of what was asked to help with the assessments. Each question had to be marked on a scale of 1 to 10. Questions referred to the riverbed sedimentation, the hydrogeological alteration and degradation of riverbanks, the depth of pool, the amount of shaded area, barriers to the movement of fish, the quality and quantity of habitats, the presence of solid waste, observable signs of fishing activities and animal access to the river. While the first part focused more on the river itself, the second part enlarged the horizon to encompass human activities and their impact on the river. After the first couple of questions, the SVAP had become very engaging, and I felt that I could observe the river with new eyes.

After we had all finished our assessments, Julio inserted our marks into the grid for comparative evaluation. We then started to re-examine together questions whose assessments differed by three or more points. In general, it was my assessments that differed most from those of the rest of the group. As I came to understand my mistakes, I realized the importance of ‘relative knowledge’ built through experience, comparison and expertise, which I was clearly lacking. For instance, when asked to count river habitats, the indications suggested to mark 7 for “3 or 4 types of different habitats”, and 10 for “5 or more than 5 types of habitat”. Julio had counted six different kinds of habitats, and marked a 10. I had counted four different types of habitat and given 7. Ana, Maribel and Bill gave it 9. My mark was the lowest and Julio’s the highest, and there was too much difference between our assessments.
So we had to re-count the habitats, and it emerged that I had not considered a few trunks on the edge of the riverbed as a kind of habitat. However, Maribel suggested giving that a half-point, since it was a highly marginal habitat compared to other sites. So, having now counted 4.5 habitats, I could increase my mark to 8 and Julio lowered his 10 down to 9. Finally, a consensus was reached. Once this was done, Julio calculated the average marks for each question, added them up, and divided the total by fourteen, the number of questions in the SVAP. This gave a result of 7.6, corresponding to ‘Good’ on the SVAP index. At that point, Bill intervened with a positive remark, saying that on the IBI index (used to evaluate fish population) the provisional result was 6, or ‘Regular’. After clarifying that he needed to double-check the results in the office, he stated that the provisional results of both the SVAP and the IBI were in line with those of previous years.

After that, Bill and I arranged all the equipment we had brought down to the river, and then we sat with the rest of the group to share some sandwiches and drinks before leaving. Out of curiosity, I asked them how they had joined the team. Julio said that he had worked with ANAI from the beginning of their activities in the area, and that he was the previous on-site programme coordinator of the ASBP. Ana said she had initially joined the programme from Colombia to do an internship, and after the first year she was asked to stay, taking charge of the macroinvertebrates investigation. Next, Maribel told me that she came from Colombia to Costa Rica to do a study about hunting practices within certain indigenous communities. After she had completed that, she decided to go to Gandoca, a local community, to work for a previous ANAI project about turtle conservation. There she met Bill, who invited her to join the biomonitoring programme for one session. At this, Bill intervened, saying that on her first day Maribel had caught plenty of fish and was still full of energies at the end of the session. Finally, with a hint of pride, Maribel joked, “It’s very simple! I thought: si no hay pesca no hay almuerzo! [No fishing, no eating!]”

As I heard Maribel’s words after all that effort to catch, count and release the fish, I appreciated her sense of humour. However, that statement, ‘no fishing, no eating’ also sounded like an amusing camouflage for something more. Evidently, Maribel was referring to her need to find a job through using her survival skills to perform well, catch as many fish as possible and convince Bill to give her a salary. However, I would also suggest that Maribel’s ‘no fishing, no eating’ is one of the most significant spoken manifestations of the entanglements, both ethical and material, with the species whose lives nourish the ASBP’s life, and the lives of those who work in it.
2. On species and numbers

One day, I was invited to attend a biomonitoring session not far from BriBri, a small town located a few kilometres away from the ANAI headquarters in Hone Creek, and the administrative capital of the Talamanca canton. For the occasion, the group had invited two workers and the owner of a large platanera (plantain) farm of several hectares, located very close to the river site that was going to be examined that day. The invitation was strategic, and was motivated by the fact that a few years ago the river had been slightly diverted and canalised to serve the plantation, causing a marked impact on the river hydrology and ecology. After a few years, the river had returned to its original course. However, the team wanted to ensure that the people owning and working at the farm understood clearly what had happened and realized that, though things were now going slightly better, the river was still recovering, so as to reduce the risk of anything similar happening in the future. The two salaried workers were Costa Ricans, one man and one woman, in their late 30s. The owner of the plantation was a German expatriate in his 60s, who had lived there for more than 20 years, with a strong sense of humour and critical curiosity. At the beginning, he asked Bill who was funding the programme, and also commented on the novelty of involving lay people within the programme. After the first session of electro-fishing, in which the invited guests participated, helping with buckets and nets, Julio told them to get closer to Bill, so they could observe the variety of fish and learn about them. Bill started to count as usual, extracting fish from the bucket and giving abundant information about each single species. During this process, the owner and the workers of the plantation showed their interest, commenting and asking questions. However, whatever species Bill was talking about, the owner of the plantation kept asking: ‘Is this edible?’ At the beginning, Bill and Julio took his question seriously, and told him which ones were consumed locally, such as the Joturus pichardi (commonly called ‘bobo’) and the Astyanax aeneus (commonly called ‘sardina’). Over time, however, it became evident that his question was meant to challenge and provoke the conservationist logic of the programme, showing another way of thinking about fish – in terms of edibility. At one point, Julio said he considered all fish to be edible, ‘with some fresh lemon juice on it’.

I mention this vignette, because we were all entertained by somebody repeatedly asking if those species were edible, after patiently waiting for Bill to finish his explanations, full of details about the shapes, habitat and ethology of each species. All this was happening while the fish were being carefully monitored, caught, counted and released (so much work for nothing, he may have thought!). As I recall, it was as though two conflicting ‘appetites for fish’
were expressed: Bill’s appetite for numbers and details about the bodies of those species, and our guest’s appetite for tasty meat. This is one of those ethnographic situations that pushed me to think about what species actually are: as the above vignette should make clear, in the various formalizing practices and collective interactions enabled by the ASBP, species are different things. They are not simply different at different moments, but different at the same moment. To understand better how species are framed within the ABSP, I will refer to a ‘species box’ – one of those used throughout ANAI’s reports and documents. In particular, I will consider the *Bryconamericus sclerioparius* (BS).

<table>
<thead>
<tr>
<th>Familia: Characidae</th>
<th>Nivel trófico: Omnívoro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nombre científico: Bryconamericus sclerioparius</td>
<td>Tolerancia: Asociado con aguas bien oxigenadas</td>
</tr>
<tr>
<td>Nombre común: Sardina de Quebrada</td>
<td>Hábitat: Se encuentran en pozas de todos los tamaños incluyendo pequeñas pozas en medios de rápidos.</td>
</tr>
<tr>
<td>Tamaño adulto: 110 mm de longitud.</td>
<td>Tamaño adulto: 110 mm de longitud.</td>
</tr>
<tr>
<td>Características: La principal característica es poseer una mancha morada en el opérculo. Todas las aletas tienen un color amarillo anaranjado muy tenue, excepto en la época de celo cuando se intensifica el color.</td>
<td></td>
</tr>
<tr>
<td>Ecología: Esta sardina está asociada con cobertura boscosa y buena estructura de pozas, se encuentra entre común y abundante en casi todas las aguas de la cuenca Yorkin.</td>
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</tr>
<tr>
<td>Comentarios: Es considerada una especie de quebradas, pero en Yorkin abunda en los grandes ríos hasta la fecha se han podido muestrear, y siempre es más abundante que Astyanax aeneus. Así que la relativa abundancia de las dos sardinas son el mejor indicador de alta calidad de agua en la cuenca, además de la presencia de bosque en las orillas de los ríos. Es decir la calidad de agua en los ríos grandes de la cuenca el Yorkin se asemeja a las quebradas más limpias de otras partes.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4: *Bryconamericus sclerioparius* (Source: McLarney, Barquero and Mafla [2003], Biomonitoreo en la cuenca del Río Yorkin, Territorio indígena BriBri Panama/Costa Rica, p. 37, courtesy of ANAI).

Each of the small boxes within the large box visibly constitute a layer. Indeed, this is a highly appropriate representation of what species are within the ASBP: multi-layered ensembles of meanings associated with them. Let us break down the big box, the whole, into its parts. Starting in the top left, we are told that the BS belongs to a family, ‘familia’ (Characidae), that it has a scientific and common name, and we are also shown its ‘image’ and informed about its measurements (‘tamaño adulto’). Next, the BS is defined on the basis of its position in the food chain, as an omnivore (‘nivel trófico: omnívore’); its ‘tolerance’ to pollutants (it is ‘associated’ with oxygenated waters); its habitat (pools); and its bodily features, which are in part fixed (such as the black spot on its operculum), and in part susceptible to
change (such as the tonality of its yellow fins during the mating season). Furthermore, we are informed about the BS’s ecology, a set of favourable conditions for flourishing, such as forest coverage and pools with a rich structure. Moreover, as a species, the BS is framed in relational terms. Through various dispersed information and commentaries across the sections, the BS is presented ‘in relation’ to the work led by the ASBP (the sites where the BS has been encountered, ‘sitio(s) de recolecta’), and also in relation to other species, clarifying that the BS is ‘always more abundant than Astyanax aeneus (AA)’. As a final remark, the BS is identified as “the best indicator of water quality and the presence of forest contiguous to the river”.

This should be enough to show that through scientific enterprises like the ASBP, species come into being as multi-layered standard classifications, but also as signs and references of wider ecological dynamics and relations. Considering the BS’s species box above, it is evident that details not only mark species differences, but also signal patterns of homogeneity of kinds of species. However, not only the differences and particularities of species matter to the ASBP: species numbers are also of critical importance. Examining how the IBI (Index of Biotic Integrity) works elucidates why this is. I was often told that the IBI ‘asks questions’ to fish numbers. It does so through an assemblage of metrics (the questions), and works through numbers, proportions and marks. The assemblage of these questions is designed to provide an assessment related to the ‘biotic integrity’ of the river site monitored that day. The tables below detail how the IBI works, what it asks (Figure 4), and what kind of classificatory results it produces (Figure 5).
Cuadro N° 3. Métricos (IBI) provisionales para el desarrollo del Biomonitorio en los ríos y quebradas de la cuenca del Yorkin.

<table>
<thead>
<tr>
<th>Métrico</th>
<th>Valores observados y puntajes.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.2</td>
</tr>
<tr>
<td>N°. Especies nativas.</td>
<td>&lt;10</td>
</tr>
<tr>
<td>% individuos omnívoros.</td>
<td>&lt;25</td>
</tr>
<tr>
<td>% individuos detritívoros.</td>
<td>&gt;45</td>
</tr>
<tr>
<td>% individuos de especies que dependen del bosque.</td>
<td>&lt;5</td>
</tr>
<tr>
<td>% individuos, como especies de poza.</td>
<td>&lt;10</td>
</tr>
<tr>
<td>No. especies intolerantes.</td>
<td>0</td>
</tr>
<tr>
<td>% individuos tolerantes.</td>
<td>&gt;60</td>
</tr>
<tr>
<td>% individuos como Awaous banana.</td>
<td>&gt;3</td>
</tr>
<tr>
<td>% “sardinas” como Astyanax aeneus.</td>
<td>100</td>
</tr>
<tr>
<td>% individuos con enfermedades, parásitos y/o anomalías.</td>
<td>&gt;2</td>
</tr>
</tbody>
</table>

Métrico 5. Omnívoros son Astyanax, Bryconamericus, Oreochromis.
Métrico 7. Las especies que dependen del bosque son Astyanax orthodus, Brycon, Bryconamericus, Alfaro, Priapichthys.

Figure 5: IBI metrics (source: McLarney, Barquero and Mafla [2003], Biomonitorio en la cuenca del Río Yorkin, Territorio indígena BriBri Panama/Costa Rica, p. 29, courtesy of ANAI).

Cuadro No 2. Características del IBI y el rango de puntajes para catalogar un río según su clase biótica.

<table>
<thead>
<tr>
<th>Clase Biótica</th>
<th>Simbología</th>
<th>Atributos</th>
<th>Rango de puntajes IBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excelente</td>
<td>Ex</td>
<td>Comparable a las mejores situaciones sin impactos humanos; incluye todas las especies esperadas (según tipo y tamaño del río), hasta las especies menos tolerantes se encuentran en su rango entero de tamaño y edad; estructura trófica balanceada; baja incidencia de enfermedades, parásitos y anomalías.</td>
<td>58 - 60</td>
</tr>
<tr>
<td>Bueno</td>
<td>B</td>
<td>La diversidad de especies podría ser un poco menos de lo esperado, especialmente en cuanto a formas intolerantes; algunas especies con abundancia o distribución de tamaños menos que el óptimo; alguna distorsión de la estructura trófica.</td>
<td>48 - 52</td>
</tr>
<tr>
<td>Regular</td>
<td>R</td>
<td>Faltan algunas especies intolerantes; estructura trófica distorsionada; en algunos casos escasean los individuos grandes de carnívoros.</td>
<td>39 - 44</td>
</tr>
<tr>
<td>Pobre</td>
<td>P</td>
<td>Dominancia por especies tolerantes a contaminación; escasez de especies que requieren hábitats especiales; escasez en carnívoros; son comunes las enfermedades, parásitos y anomalías.</td>
<td>28 - 35</td>
</tr>
<tr>
<td>Muy Pobre</td>
<td>Mp</td>
<td>Los peces pueden ser escasos o muy abundantes (cualquier tipo de pescado); dominancia de especies tolerantes, son comunes las enfermedades, los parásitos y las anomalías.</td>
<td>12 - 23</td>
</tr>
</tbody>
</table>

En los casos cuando el puntaje cae entre los rangos definidos, una clase biótica será asignada al juicio del biólogo.

Figure 6: IBI score range (source: McLarney, Barquero and Mafla [2003], Biomonitorio en la cuenca del Río Yorkin, Territorio indígena BriBri Panama/Costa Rica, p. 29, courtesy of ANAI).
The classification of species is central to the IBI’s metrics visible in Figure 4 (e.g. ‘native’ species, species ‘depending on the forest’, ‘pool’ species, ‘intolerant’ species). However, the number of individuals marks points of difference and determines results. Each metric is a part of the whole: the metrics compose the index. In this way, the proportions of the parts determine the whole, the ‘biotic integrity’ of the river. Since metrics work through numbers and percentages, through their assemblage operated by the IBI they all work together to produce a final mark, which is then translated into a comparative assessment (Figure 5). On the mark range, the highest result refers to the ecological standard of a river whose conditions are “comparable to the best situation without human impact, as it includes all the species expected, with the less tolerant found in their full range of size and age, a balanced trophic structure (energy and provision to food chain), and low incidence of disease, parasites, and anomalies” (Biotic class: ‘Excellent’ – see Figure 5). This ‘ideal’ state is not what is expected by the ANAI team, but is rather a reference point to guide them about what is happening in terms of biotic integrity, ecological equilibrium and tendencies to change across those sites which they are monitoring each year. For the IBI’s metrics, therefore, species are significative numbers. Given what I witnessed while participating in a dozen monitoring sessions, these numbers are extremely accurate. While the ASBP may be a set of unusual practices and activities aimed at monitoring, measuring and assessing the health of river sites, what is less unusual here is the association between numbers and water. In this context, I refer to recent ethnographic contributions that take into account the ‘fluid’ relation between numbers and water. In particular, the works of Verran (2010), Ballestero (2014, 2015) and Brooks (2017) can help us apprehend the ASBP through its ‘watery’ numbers.

Exploring different, simultaneous types of enumeration in the monitoring and management of Australian water resources, Verran (2010) shows that numbers represent both materialized and semiotic relations. Numbers materialize relations at the moment when numbers are ‘realized in specific practical ways’, in place and time, *in situ*, as happens through the ASBP monitoring activities. In this sense, numbers materialize encounters. From a semiotic perspective, numbers materialize and represent the relation between one and many, between unities and pluralities, such as that between individuals and their species in the case of the ASBP. However, Verran is also interested in tracking how the numerical one/many relation is technically transformed into economic enumeration, through which numbers perform a different kind of work, representing the relation between the whole (the Australian water market) and parts (the measurement of its water resources). Therefore, Verran argues, numbers can work as ‘symbols’ (representing the one/many relation), and also as ‘icons’,
which means they do not serve to represent but rather to constitute the whole. In her analysis, therefore, the Australian water market emerges as the sum of its numerical parts, incorporated into a whole as marketable products and services.

In this vein, although the ASBP does not generate economic enumerations (that is, it does not use numbers to generate wholes and market its parts), the programme uses numbers both as symbols, counting individuals of species, and as icons. When these numbers are processed through metrics, which are parts of the whole, the entire assemblage emerges as the result of the proportions of the different parts. Moreover, in the case of the ASBP, through the IBI’s formula, numbers also become indexes, as the final mark (another number) represents a specific value on a comparative scale of biotic integrity. This ‘integrity’, which I argued above should be thought as an ideal stable standard, constitutes the ‘ethics’ of the IBI formula.

My reference to ‘ethics’ draws on Ballestero’s (2015) ethnography of water pricing in Costa Rica, which addresses its complex ethics of calculation. Ballestero (2015) explores how Costa Rican regulators transform the human right to water into water market price through a complex ‘calculation grammar’. This ‘grammar’ refers to what “governs the relative weights and proportions of the elements that constitute a price” (Ballestero, 2015, p. 265). In the case of the ASBP, the ‘grammar’ is what determines the value on the scale of river’s biotic integrity. So, for Ballestero (2015, p. 266), ‘calculation grammars’ are characterized by “aspirations of regimenting signification”. Closer inspection of the IBI’s metrics reveals that they are all there to ask something that is meant to be significative, or, to put it differently, to transform a percentage into something significative within a wider assemblage of questions. Next, as noted above, percentages define the relation between the whole and parts: how significant is a particular part (e.g. the percentage of tolerant or intolerant species) in the whole? Combining the ideas of Ballestero (2014) and Verran (2010), I thus propose considering percentages as numeric devices that translate the whole/parts relation into a temporal perspective, indexing both the history and the future of a river site’s biotic integrity. To be precise, percentages work to shape a new whole; as Ballestero (2015, p. 46) notes, “that whole is humanity”. In the case of the ASBP, that whole is humanity’s anthropogenic impact on the health of the river’s site, on its past, present and future situation.

Thus, drawing together past, present, and future forms the basis of a narrative. In this perspective, Brooks (2017, p. 34) has coined the expression ‘number narratives’ to denote “numerical stories about how an environmental object works in a particular place and time”.
Drawing on three overlapping narratives about water abundance, scarcity and sustainability in the desert town of Smoketree, California, Brooks (2017, p. 36) argues that “number narratives reflect the authority of the numerical practices that produced them, but also simplify and make numerical sense of relations between people, places, things, and practices in particular water worlds”. In this sense, she continues, “number narratives also indicate aspects which escape the number’s grasp: the phenomenologically huge, the experientially small, and the unknown and unexpected” (Brooks, 2017, p. 36).

In the next section, I will shed light on one of the narratives corroborated and supported by the ASBP’s ‘watery’ numbers. At the same time, this narrative gives back sense, value and urgency to species numbers, and to what is associated with those numbers.

3. Diadromy and hydroelectric dams in Talamanca

Once, near the end of the monitoring activities, I had a walk with Bill. Maribel asked me to follow him, as he wanted to explore the course of a nearby tributary river. When we found the confluence, we turned right, to follow the tributary river upstream. The waters were not very deep, but the riverbed was very pebbly. We had to proceed carefully and slowly. Bill was walking ahead, with a machete in one hand. In my opinion, we did not really need a machete, which was in fact dangerous as we were walking very close one to the other. However, having learnt about each character in the group, I could interpret that machete as a sign of Bill’s urge to explore and seek adventures. In the walk, we also crossed some deep pools. The water was up to our stomachs, and we needed to test the riverbed with our feet before moving ahead, to avoid falling.

When we had reached a safe point, I thought that I had earned the right to ask Bill some questions. In particular, I was curious to know what action-oriented and problem-solving strategies the programme used to intervene when needed. Very promptly, as he was expecting that question, Bill told me they had different options depending on the issue. Sometimes, he continued, they intervened by discussing publicly with the community about the excess of water pollutants. In other cases, as in the case of livestock’s access to the river, they informed the landowner about the ecological consequences. For other issues, he continued, they trained people living near the sites so those ‘educadores’ (educators) could act autonomously to address issues with their community. Then, with more animation, Bill concluded by saying that the worst-case scenario was the possibility of the ICE’s (Instituto Costarricense de Electricidad) hydroelectric development plan in the region becoming reality.
Briefly, he explained that the hydroelectric dams must be considered permanent barriers for the diadromous species, which move and migrate between the sea and fresh water to complete their life cycles. With respect to this problem, Bill said that ANAI was trying to act “on a different level”. Basically, ANAI intended to emphasise the fact that diadromous species can be found inside the PILA (Parque Internacional La Amistad, a UNESCO World Heritage site), a protected area where dams must not be built. ANAI would argue that dams must also not be built outside the PILA, because the PILA diadromous populations would be affected as such dams would obstruct their journeys to and from the sea. With this argument, he concluded, they thought they could put some pressure on UNESCO to oppose the plan.

Through Bill’s words I introduce the ethnographic emergence of diadromy as a vivid manifestation of the programme’s concerns for the lives of those beings through which they monitor and understand riverine life. Indeed, diadromy was a recurrent theme in each session, and one of the first issues I learned about during my participation in the programme’s activity.

One day, during an environmental education session with young school pupils, Maribel became extremely excited when one of them showed that he knew what diadromy was about. When Maribel asked everybody what it meant to be a diadromous species, the young boy said that fish coming from the sea were diadromous. Although the explanation was only partially complete, Maribel clapped her hands and commended the pupil enthusiastically, saying that he knew that because he had been ‘attentive’ during previous sessions at school. Observing Maribel’s reaction, I quickly understood what a significant achievement for her the boy’s response was, as the ASBP’s main matter of concern was ‘spoken’ and explained by somebody else. Indeed, Maribel kept repeating all day how happy she was about it. Moreover, whenever guests were invited to help with biomonitoring activities at the river sites, diadromy was explained to people as the vital migration undertaken by certain species that need to move between fresh water and seawater for their reproduction. Often, the related threats represented by hydroelectric dams as permanent barriers were also part of the discussion. In this sense, diadromy worked also as a camouflaged political-ecological statement against hydroelectric developments in Talamanca. This means that diadromy emerged both as a life process involving several species of fish encountered during the sessions, but also as matter of concern about the local environmental future.

To understand more about diadromy, and the related threats constituted by the ICE-sponsored hydroelectric development plan in Talamanca, I extensively consulted a fairly recent report written and published by ANAI for UNESCO: *The threat to biodiversity and ecosystem*...
function of proposed hydroelectric dams in the La Amistad World Heritage site, Panama and Costa Rica (McLarney, Mafla, Arias and Bouchonnet, 2010). For the whole discussion here, I am deeply indebted to this document, without which I would not have been able to recompose the puzzle by myself or to access privileged information that is hard to obtain on a simple request. To remain within the boundaries of my fieldwork – and because of space limits – I must summarize and simplify many crucial points of this report, which includes the results of more than a decade’s work of the ASBP, as well as a large body of references to national and regional research about the effects of hydroelectric dams on riverine ecologies.

In the opening of the document, diadromy is defined as ‘migration’, and Northcote’s (1979) definition of migration is quoted, to explain its peculiarities:

 [...] the movement resulting in an alternation between two or more habitats, occurring with regular periodicity, but certainly within the life span of an individual and involving a large fraction of the breeding population. Movement at some stage of this cycle is directed rather than a random wandering or a passive drift, although these may form part, or one leg of a migration. (Cited in McLarney et al., 2010, p. 13).

The report explains that diadromy can be divided into three categories. The first is constituted by anadromous species, which spend almost their entire existence in the sea, and migrate to fresh water to reproduce. This category is rare in the tropics. The second category is represented by catadromous species, which spend the majority of their life spans in fresh water, and migrate to salt water to reproduce. This is the case of the Anguilla rostrata, the eel which triggered the team competition and is of broad interest to the programme. The last category – which is the dominant form of diadromy in the tropics – is amphidromous species, which spend time in salt water outside the reproductive period. After these clarifications, the authors explain that “any obstruction placed in a flowing stream will function to some degree as a barrier to up and downstream movement by aquatic animals, and thus to some degree fragment the ecosystem” (McLarney et al., 2010, p. 13). For this reason, they continue, “high dams can function as nearly absolute barriers, dividing a river into two isolated segments, separated not only by the dam, but by a third and extremely different environment in the form of a reservoir lake” (McLarney et al., 2010, p. 14). Focusing specifically on the ICE’s intentions, the report highlights the difficulties of mitigating dams’ effects, alluding to the Changuinola (Panama) and Telire (Costa Rica) watersheds, “which potentially face the effects of multiple dams in sequence, thus likely negating even the slight possibility of long term survival of some diadromous species” (McLarney et al., 2010, p. 13).
In relation to this, the most worrying of the planned dams, from both a human and non-human perspective, is the largest one, the Talamanca Dam. As the authors explain, this dam would be sited 80m above sea-level, generating a reservoir of 37,000 ha and flooding the entire Talamanca Valley, which comprises the braided and interconnected channels of the Telire, Coen, Lari and Uren Rivers. The map of the project shown in the report shows that the Talamanca Dam reservoir would submerge the communities of Boca Uren, Tsuidi, Katsi, Amubri, Cachabri, Tsoki, Bajo Coen, Coroma, Sepeque, Shiroles and Suretka, thus displacing over half of the population of the Talamanca Bribri Reserve, the territory with the largest concentration of indigenous people in Costa Rica. Therefore, they continue, the Talamanca Dam would completely eliminate access by diadromous animals to all the Uren, Lari and Coen watersheds, both inside and outside the PILA. At the moment, 16 diadromous species (eight fish and eight shrimps) have been identified and encountered by the ASBP which “will probably be extirpated from major portions of the World Heritage Site if existing dam plans are realized” (McLarney et al., 2010, p.6). The following crucial passage summarizes the entire contribution and argument of the report:

We argue that the ecological effects of predictable species extirpations will not be limited to a loss of biodiversity at the species level and that, in fact, secondary effects will be more significant. In addition to noting the implications of loss of species of seed dispersers and alteration of predator-prey relationships, we draw on a large, long term body of research from Puerto Rico (where rivers have a similar diadromous fish and shrimp fauna) and elsewhere to show how elimination of omnivores, herbivores and detritivores (categories which include all the shrimp and the most abundant fishes of the La Amistad region) affects sediment dynamics, breakdown of allochthonous vegetable matter, water and substrate chemistry, algal biomass and diversity and structure of the benthic macroinvertebrate assemblage. We apply the principles of the River Continuum Concept to show that loss of these “ecosystem engineers” would have profound negative effects on the fluvial systems of the La Amistad area within and downstream of the World Heritage Site, all the way to the estuaries. (McLarney et al., 2010, p. 6).

These explanations clearly project the ecological impacts of hydroelectric dams on river ecologies across Talamanca. Moreover, these statements explain that the river continuum concept is a foundational theoretical assumption of the ASBP precisely because rivers are sedimented continua of lives and movements, with a high volume of traffic. In addition, these words tell us that ‘species’, whether or not diadromous, tend to ‘make sense’ as part of complex relations and ecological stratifications. In this sense, the text reference to diadromous species as “ecosystem engineers” (ibidem, p.6) sounds like an encouragement to consider rivers as ‘ecological’ infrastructures. Where else do engineers intervene, if not in the
maintenance and calibration of infrastructural processes?

In the following section, I will take these ideas further, proposing that we can make sense of diadromy as a ‘theory machine’ that works to explain interspecies associations in their material, ecological and ethical becoming – all this without forgetting Maribel’s logic: ‘no fishing, no eating’. It should therefore now be clear that by addressing the future of diadromous species as an instrument to oppose ICE’s hydroelectric prospects, the ASBP’s team is trying to defend and preserve the lives of those that are food for thought and analysis for the biomonitoring programme itself, which are also the lives upon which a group of biologists are drawing a living through making ecological claims on their behalf.

4. Multispecies infrastructures and environmental futures

In one of her fascinating discussions about water, Strang (2013) highlights that dam proposals usually condense around them a heterogeneous spectrum of opposed and allied bio-political positions. Indeed, dams, she argues, raise complex ethical questions about relations between human groups, as well as between humans and other species: “few things express human dominance over (or disregard for) other species and their agency as clearly as dams redirecting freshwater into the needs and desires of human communities” (Strang, 2013, p. 165). Therefore, frictions over dams reflect the extent to which interspecies relations configure themselves as collaborative, or unequal and exploitative. Indeed, as Strang argues, the allure of dams relies “on their aspiration for control over life itself” (Strang, 2013, p. 161).

This is precisely why dams concern the ASBP, in particular in relation to the pathways and future of diadromous species in the rivers they biomonitor. In this situation, diadromous migrations and movements are the basis upon which a claim for the life and lives of these species can be made, and also the basis upon which an argument against hydroelectric dams in Talamanca is articulated. In Kohn’s *How forests think*, as he reflects on the “continuous flow of water” across the Amazonian forests of Avila, in Ecuador, he declares “[b]lock the river’s flows and the form will disappear” (Kohn, 2014, p. 166). His words seem appropriate for ASBP’s position against dams, and in defence of diadromous species: dam the river, and diadromous species will disappear – and, by extension, the river itself will disappear.

However, as expressed in the report above, the ASBP’s argument is more complex and compelling. Both hydroelectric dams and rivers emerge as multispecies infrastructures, which might overlap in the near future. My use of the term ‘multispecies infrastructure’ is taken from the work of Morita (2015), particularly inspiring for its approach to infrastructures in more-
than-human terms. Carse (2012) has engaged with similar issues, as discussed below. These works are particularly useful, because they allow both dams and rivers to be considered as infrastructures, which I argue is something very close to the strategic (and convenient) operation the ASBP does.

Studying the political-ecological assemblage of the Panama Canal, Carse (2012, p. 2) advances the idea that nature “is – or might become – infrastructure”. By this, he means that under certain regimes of government and administration, such as the Panama Canal, “forests, wetlands, reefs, and other landscapes, if appropriately organized, deliver services (water storage, purification, and conveyance; flood alleviation; improved air quality; climate regulation; and so on) that facilitate economic activity and development” (Carse, 2012, p. 2).

For Carse, infrastructures are not a class of artefacts, but processes of relationship building, which intertwine techno-politics and environmental politics. From this perspective, the Panama Canal appears an entanglement of dams, locks and surrounding forests that “are connected and become water management infrastructure through the ongoing work – technical, governmental, and administrative – of building and maintaining the sprawling socio-technical system that moves ships across the isthmus” (Carse, 2012, p. 18). In other words, what surrounds the Panama Canal becomes part of it through the relational and connective processes triggered by the very same infrastructure.

Even more radically, Morita (2015), who examines the Chao Praya delta in Thailand, highlights how floating rice has always played a crucial role in the maintenance of the delta as infrastructure. Floating rice has become interlocked with extensive canal networks, with the seasonal necessities of local farmers, and with the ecological changes following the construction of the Chao Praya Dam, which has affected seasonal flood patterns. Hence, for Morita (2015, p. 10), “the infrastructural role of floating rice rests almost solely on its elongation capacity; that is, its capacity to grow its stem quickly, keeping pace with the swift rise of floodwater”. Morita explains this as the result of a long history of seed and variety selection by local farmers; through this process, he continues, “the boundary between infrastructure and its environment has become increasingly blurred” (Morita, 2015, p. 3). Whereas for Carse, nature is encompassed by infrastructure, for Morita, the Chao Praya delta reveals “the existence of multispecies relations within the infrastructure” (Morita, 2015, p. 3).

Most importantly, Morita talks about ‘infrastructural inversion’ to make sense of those moments of breakdown where the work of infrastructure becomes suddenly visible to the observer, and its ramifications manifest. Infrastructural inversion is for Morita the analytical
strategy to sort out technical relations, while also stressing the externalities these have on their environment. Such strategies, continues Morita, are made up of involutionary entanglements. With this expression, he refers to Hustak and Myers’ (2012) use of Deleuze’s and Guattari’s expression ‘creative involution’ to make sense of alliances and relations constituted through affinities; creative involution is thus the “very momentum through which organisms reach toward one another and involve themselves in one another’s lives” (Hustak and Myers, 2012, p. 96).

As such, ANAI’s biologists are performing strategies of infrastructural inversion when they project and challenge the impact of hydroelectric dams on the ecology of tropical rivers. They do so by explaining publicly, on-site and hands on, the ramifications and effects that dams will have for the lives and movements of diadromous species, and consequently for rivers as ecological infrastructures. What is interesting here is the ecological disjuncture between two different kinds of infrastructure that could potentially overlap in the near future. In this sense, ANAI’s opposition to the ICE’s hydroelectric plan in Talamanca is based on the argument that a certain kind of infrastructure (dams) will affect what comes before – the basic infrastructure of the river, which works as life corridor for several populations, providing them with connection, habitats, food and water, that is life itself to lives themselves (cf. Helmreich, 2009).

Thus, although diadromous species do not want anybody to speak for them, and do not seek to build alliances with human beings – which might be responsible in the future for the loss of their life forms and forms of life in Talamanca - ANAI’s biologists are extremely concerned about their lives, movement, work and function across riverine ecosystems. These concerns are the involutionary entanglement through which the future of diadromous species becomes the future of the ASBP. It is at this point, in projecting a future – a scenario of disappearance, with its ecological consequences on the river ecologies – that the programme associates with diadromous species.

Lately, environmental scholarship has focused on environmental futures and their making. Anthropologists, in particular, have recently addressed this issue in terms of prognostic politics (Mathews and Barnes, 2016) – from Greek prognosis, meaning ‘prediction’, ‘anticipation’ (pro- signifying ‘before’ and gnosis ‘knowledge’) – to refer to situated processes of making predictions about the future. For Mathews and Barnes (2016, p. 9), prognostic politics are giving rise to “new forms of nature, framing of time and spaces, and modes of politics”. Prognostic politics address the future in various forms. One is to project scenarios,
formulations of credible futures that “introduce a crucial new relation to an uncertain future event” (Mathews and Barnes, 2016, p. 13), such as the impact on diadromous species of building hydroelectric dams in Talamanca. Mathews and Barnes (2016, p. 13) suggest that, in order to formulate a scenario, “it is necessary to select a set of reference-points [what is to be expected, which is why Bill always kept an eye on previous years’ data], modes of observation [methodologies, such as the IBI, the SVAP and the macroinvertebrate benthic collection], and objects of discourse [rivers, dams, diadromous species]”. Moreover, Mathews and Barnes (2016, pp. 13-14) also propose that, “like other stories, scenarios do the work of classifying which agents and objects are to be considered, where the story is to begin and end [cf. the Tropical River Continuum], and what kinds of major narrative structures are to be employed [cf. diadromy]”. In this vein, diadromy works as a narrative structure that can frame rivers as ecological continua, and strengthen the ethical and material relationship between those who care for rivers and those whose lives directly depend on their uninterrupted flows, namely diadromous species.

Finally, Mathews and Barnes (2016) argue that making future predictions about the environment, asking ‘what will happen if’, is often used to establish legitimacy and authority. This is true also of what happens in the ASBP, as ANAI biologists use the diadromy narrative not just to inform and warn UNESCO and to oppose the ICE hydroelectric plan, but also to legitimate their presence in space and time. Mobilizing their scenario, ANAI biologists are already finding a place for themselves in the future. They are showing – to communities, people, and institutions – that on the Atlantic slope of Talamanca, inside and outside the PILA, there are diadromous species, whose vital migrations have to be considered if dams are built. The ANAI team is therefore presenting its scientific work to say that they are and will be there to monitor what will happen. But for how long? Once, Ana Maria told me that Bill, the ‘mind’ of the ASBP, had projected that the ASBP would last 500 years. As we discussed this, we agreed that Bill was trying to estimate how long it would take to assemble a solid corpus of knowledge calibrated on the extended rivers’ temporalities. Of course, through that temporal extension, Bill was also making the point that the ASBP’s work and efforts must be long-term if they are to be effective. Although Bill’s estimate might appear bizarre, long-term projections, as noted by Mathews and Barnes (2016), respond and correspond to the temporal scales upon which contemporary prognostic politics build their claims and previsions.

To recap, in this section I have focused on the modalities through which concerns about diadromous species and hydroelectric developments in the Atlantic slope of Costa Rica,
in Alta and Baja Talamanca, are articulated inside the ASBP. I have dwelt on diadromy because it manifests the extent to which ANAI biologists are entangled with – and cannot afford to lose – diadromous presences. This is for the sake of their jobs, and for the health of rivers as ‘ecological corridors’. Indeed, ‘corridors’ is the term ANAI biologists use in many of their reports to define the rivers they study ‘infrastructurally’. But the term ‘corridor’ is not just a reference to a space of mobility that mimics the tropical river continuum. It is also the ecological ‘vision’ behind the constitution and the work of the Biological Corridor Talamanca Caribe, the local NGO created through more than 10 years of ANAI’s work in the area, of which the ASBP is a key component and activity. So, the ASBP is opposing the ICE’s hydroelectric plan with the intention of securing a flourishing future for diadromous species, while also legitimizing biomonitoring efforts, as well as the wider ecological organizational principle of the BCTC’s constitution and local initiatives.

Therefore, as the ASBP deploys a strategy of arguing that rivers are ecological corridors that allow mobility for diadromous species, while dams prevent such mobility, both rivers and dams feature as multispecies infrastructures that might unhappily overlap in the future. As such, ANAI’s attempt to act politically consists of making claims in association with diadromous species, through proposing a scenario in which dams would affect the basic infrastructure of riverine life, and the lives of the many species that make a living through that infrastructure. If the hydroelectric plans have further developments, this would also unsettle the programme’s authority and legitimacy to speak in the name of diadromous species and in defence of rivers as ecological corridors.

In sum, then, the issue of diadromous and hydroelectric futures shows how engagements and entanglements – between the ASBP and the life forms and forms of life the ANAI’s team encounter throughout the rivers – are coming into being. Thus, it seems that ANAI biologists associate with diadromous and other aquatic species on the basis of both ecological and material issues. Diadromous presences are crucial for healthy rivers, but also, from another perspective, the presence of diadromous species in the future becomes an ideal indicator that the ASBP is having some sort of conservation impact (also measured in preventing hydroelectric developments), and that it thus deserves funding and support. Nevertheless, the associative entanglement in which diadromous species find themselves co-opted is diffused, and used politically to negotiate a different environmental future, expressed also in the form of an ethical claim to secure their lives and reproductive pathways along the tropical rivers’ continua.
5. Rivers as waterworlds

After a few weeks’ participation in the ASBP’s activities, I realized that ‘monitoring’ was about performing (Lavau, 2011) the river as a whole, combining three different approaches and methodologies of data collection and analysis. Monitoring rivers’ life also entailed fishing and identification skills, the presence or absence of species, teamwork, coordination, indices, metrics, assessments, discussions and negotiations. For more than a decade, all these elements have fitted together like pieces of the puzzle, for the ANAI team and their instruments to keep track of riverine life, at certain sites and through time. In this way, rivers emerge as multiple entities, intended differently in different situations. Within the ASBP’s framework, rivers are living entities that constantly find their own equilibrium, but also objects of study and field-sites. Rivers also emerge as multiple instantiations. In relation to this, as Barnes and Alatout (2012, p. 484) have noted, “aquatic features such as rivers are not givens, but are rather shaped through the intertwining of human and non-human natures”. The combinations of this ‘intertwining’ are thus multiple and dynamic, and so are rivers, as they are shaped by relations between different ‘natures’.

In this vein, Kortelainen (1999) has described the Pielisjoki River in eastern Finland as an actor-network. In his view, the river is not just the combination of human and non-human actants that shape the river in a material, social and cultural sense. As an actor-network, Kortelainen (1999) argues, rivers are not permanent, given that they constantly respond to local interventions, and are also affected by transnational forces and circumstances. In his case study, the Pielisjoki River appears to be simultaneously a transportation route, a source of hydroelectric power, a sewer for waste, and, more recently, also a catalyst of environmental conservation initiatives.

Ingold (2009) may challenge the usefulness of the network metaphor to read the social life of rivers; his metaphor of ‘meshwork’ may be more helpful to make sense of rivers as they emerge and are shaped throughout the ASBP. For Ingold (2009), a network entails externally connected points, but fails to consider the paths and relations between nodes as constitutive of the web of life. By contrast, the meshwork is about “interwoven and complexly knotted strands” (Ingold, 2009, p. 37). Across the meshworks, Ingold (2011, p. 70) argues:

[...] the relation is not between one thing and another – between the organism ‘here’ and the environment ‘there’. It is rather a trail along which life is lived. Neither beginning here and ending there, nor vice versa, the trail winds through or amidst like the root of a plant or a stream between its banks. Each such trail is but one strand in a
tissue of trails that together comprise the texture of the lifeworld. This texture is what I mean when I speak of organisms being constituted within a relational field.

In this sense, considered from within the ASBP, rivers are meshworks of living paths, and this is what the ANAI’s team tries to make public when, for instance, they insist on the presence of diadromous species and their lines of life.

However, it is important to note that rivers’ multiplicity, which makes it possible to define them as actor-networks or meshworks, is directly related to the intrinsic multiplicity of their basic component, water. After all, rivers are peculiar forms of flowing water, and the flow is as important as the substance flowing. To a certain extent, there seems to be a transitive property between the multiplicity of water and of rivers.

Drawing on Illich’s (1986) statement “I shall refuse that all waters might be reduced to H2O”, the anthropologist Helmreich (2010) has argued that water is in a sense a virtual issue. He points to the fact that “water multiplicity is not finally anchored at any one scale, at any one register” (Helmreich, 2010, p. 14). For him, water is rather a kind of Latourian actant, which “emerges from multiplicity, from relations, not from a priori ontologies” (Helmreich, 2010, p. 14). Similarly, Barnes and Alatout (2012) talk about water as a singular object with multiple ontologies (contextualized realities). They thereby seek to stress that water is not only multiple in the meanings associated with it, but also in its very materiality: “water is not a singular object of epistemology for which abstract knowledge can be produced and circulated in all times and places without interruption” (Barnes and Alatout, 2012, p. 484). That is, water properties are not fixed; rather, for Barnes and Alatout (2012), water in the world is contingent on the assemblages (DeLanda, 2006; Deleuze and Guattari, 1987) in which it finds itself. They thus define what water is at a given moment in a given place.

Elsewhere, Krause and Strang (2016, p. 663) focus on the ‘vitality’ of water, arguing that “rather than treating water as an object of social and cultural production – something produced through social relationships and imbued with meaning through cultural schemes – we consider water as a generative and agentive co-constituent of relationships and meanings in society”. Social relationships emerging through water are thus shaped by “engagements with animals, places, things, and materials that contribute actively, through their properties and behaviours, to the formation and transformation of these relations” (Krause and Strang, 2016, p. 634). Thus, they argue, thinking relationships through water allows us to take into account simultaneously the ‘materiality of social relations’ as well as the ‘sociality of material relations’, given that “water flows are fashioned by a combination of topography, power
relations, built infrastructure, institutional arrangements, property relations, money and market forces, ideologies, social networks, and the properties of water itself” (Krause and Strang, 2016, p. 635). Most importantly, they argue, water itself has its own agentive force. Water has life in the sense that it does particular things, in accordance with its unique properties and capacities.

In similar vein, Bakker (2012) argues that water is produced by and produces political relations. As such, water is political “not only because it is an object of conventional politics, but also because of its imbrication in the socio-technological formations through which political process unfold” (Bakker, 2012, p. 618). Furthermore, for Bakker, water is also connected with bio-politics, because it binds bodies to the body politic. This means that water is bio-political matter, which “implies a link between the constitution and consolidation of political and economic power, on the one hand, and the control of socio-natures, on the other” (Bakker, 2012, p. 619). For Bakker then, water allows us to engage simultaneously with the socio-technical and the socio-natural, since “by materially connecting individuals to the collective, and by linking humans so integrally to the non-human world, water poses the problem of collective action in a particular way” (Bakker, 2012, p. 620).

Hastrup and Hastrup (2015, p. 17) have similarly considered the possibilities of analysis related to waterworld-making projects, namely those moments of social life when “water and other fluid features become vehicle for the imagination and creation of place and value”. In this sense, the idea of water refers to the outcome of relations and happenings taking place ‘around’ water, but it also considers the “outcome of analysis, carried out by people acting some sort of anticipation” (Hastrup and Hastrup, 2015, p. 3). Indeed, across the ASBP, rivers emerge as the outcomes of analysis carried out by a group of biologists, volunteers, neighbours and passionate local conservationists. Together, these groups participate in the formulation and anticipation of what is happening and what could happen in a world with the river at the core of social life. Moreover, Hastrup and Hastrup (2015, p. 12) suggest, waterworlds “call for a relational ethics that may embrace the inter-subjectivity of radically different kinds of subject”. From this perspective, if we reconsider Maribel’s statement ‘no fishing, no eating’, we now have more elements to make sense of the entanglement taking place between the ASBP and the life of rivers, with their fish and macroinvertebrate populations. However, while for Hastrup and Hastrup (2015), ‘relational ethics’ are intrinsic to waterworlds, in Maribel’s words and world, ‘relational ethics’ appear quite ‘materially’, along the lines of ‘I need to fish to eat’. Nevertheless, for her, fishing is actually not directly about
eating, but rather aliments a scientific endeavour aimed at river conservation, which includes the possibility for diadromous and other species to flourish, so that she can fish and eat through her job. Given the concrete engagements between species across waterworlds, ‘relational ethics’ also emerge as ‘material entanglements’. In this sense, Hastrup and Hastrup (2015) helpfully suggest that the fluidity and liquidity of waterworlds might help us to see that natures (human/non-human), as well as modern assumptions of solid categories (for instance the ‘material’ and the ‘ethical’), are volatile concepts. So, waterworlds, and rivers as waterworlds, might help us to think more fluidly about our own (strictly human) concepts, and the way we adapt them to the social worlds we are interested in as multispecies researchers.

What is peculiar about ‘rivers as waterworlds’ is their emergence as scientific outcomes and representations. That is, as they are monitored and studied, rivers work as ontological experiments, which means experimental systems. Drawing on the work of Rheinberger (1994), Casper and Morita (2016) explain that experimental systems are designed to generate previously unforeseen effects and understandings. This “dimension of surprise” (Casper and Morita, 2016, p. 5) deserves particular attention. These considerations resonate with the ASBP’s scientific endeavour, which is constantly looking for any little surprise. In this respect, I remember that during my first day of participation in the programme’s activities, Bill was very concerned by the unexpected appearance of a fish whose presence represented “the first surprise of the year”. This ‘surprise’ was discussed, and it was ‘explained’ as possibly connected to the heavy rain of the previous days, which had caused some turbulence in the streams. Seen through the ASBP, then, rivers are framed and work as experimental systems that produce, under solicitation, practical ontologies, contextualized explanations of surprises, behaviours, presences, absences, numbers, signs and species.

Thus, as an experience of science in the making, while the ASBP is particularly attentive to surprises, it also performs and socializes them. As I have explained, keeping the samples as representative as possible and the evaluations as accurate as possible is something the ASBP’s team really cares about. Every single detail, individual, habitat, and sign of ecological degradation or improvement is taken into account. This is crucial, since, as Bill once said, only minor changes and adjustments are perceived every year. Given the level of care and precision, the ASBP’s scientific enterprise would become boring for those who have to do the same process every year, which is why experimental systems need to make efforts more enjoyable and fun, breaking routines and glimpse surprises.

In relation to this point, one of the most visible manifestations of the ASBP’s concerns
with diadromous species was a prolonged competition staged between the team’s members to establish who was able to catch most eels (*Anguilla rostrata*) during the 2015 season. This was also the first time in the history of the programme that they had decided to study eels specifically, so the competition had a scientific purpose. Evidently, in order to make any claim in the name of or for the sake of species, one needs to know about them. This is why, as a catadromous species, eels became bodies of data. However, in the eel competition, it is worth highlighting the funny and exciting moments of rupture in the monitoring routines, as well as in the team’s collaborative logics, in which a certain degree of competition emerged to establish who was ‘the best’ eel fisher. From the opposite perspective, if it was a competition, there was something very funny and playful. As soon as somebody spotted an eel, instead of keeping the information secret to gain some sort of advantage, the information was shared, triggering a noisy chaos of screams, movements and confusion. While this enforced the competition, it was also a waste of energy just for the sake of fun, disturbing the peace of the river sites.

I remember once being surprised and almost shocked by the vehemence of the show. The expression on my face must have expressed this, because Bill picked up on it and said enthusiastically: “This is science!” Initially, I laughed, very entertained, thinking that, being so passionate and doing strange things in those sites, they had the right and the possibility to have fun. However, after a few seconds, taking Bill’s words more seriously, I realized that this was the first time that ‘science’ had appeared on the scene, stated so clearly, but also so unexpectedly. To prove that he was having fun seriously, Bill concluded by saying that given the high degree of competition among the group, he had thought about manipulating the competition by going to the river site the day before and releasing some eels, so as “to redistribute success among the group”, and increase motivation. He was clearly joking, but that was in tune with the funny and competitive spirit that characterized the eel competition.

I conclude with this ethnographic vignette to argue that monitoring rivers as if they were waterworlds is an experience articulated halfway between sedimented knowledge, methodologies, standards and concepts, and the team’s responses to the messiness and unruliness of life happenings. In this sense, the *bios* of the stream *biomonitoring programme* expresses the gap between the expected and the unexpected.

**Conclusion**

Throughout this chapter, I have been profoundly inspired by Helmreich’s (2011)
definition of water as a ‘theory machine’. Helmreich here draws on Gallison’s (2003) notion of ‘theory machine’ to frame water in the guise of “an object in the world that stimulates a theoretical formulation” (Helmreich, 2011, p. 2). He notes that the use of water as a theory machine resonates with how water has worked historically within anthropological analysis. However, for Helmreich, this idea also efficiently renders how people use water to anchor their own analysis in the real world. He takes this reflection further, inviting us to work ‘athwart theory’, by which he means “taking back and forth between seeing theories as explanatory tools and taking them as phenomena to be examined” (Helmreich, 2011, p. 18). In Helmreich’s proposition, this approach is convenient because it “does not separate meaning and materiality” (Helmreich, 2011, p. 18); that is, it does not separate nature and culture, life forms and their forms of life.

What, then, is the result of working ‘athwart’ theory? What emerges and what is explained? To answer these questions in relation to my analysis of the ASBP, I need to think with others.

Scaramelli (2013, p. 158), whose work engages with a group of water monitors in Boston, argues that “water quality operates as malleable concept that connects different social contexts, organisms, ways of knowing, technologies, and institutions, but also creates divides between them”. She describes the dynamics of entanglement between monitors, herring, water lilies and bacteria along the Mystic River, shedding light on a series of attunements mediated by both sensorial modes of attention and science practices, which constantly respond one another. Scaramelli’s (2013, p. 156) analysis also seems to fit what is happening through the ASBP, especially when she declares that, for Boston water monitors, “what is considered a proper flow is as important as the life-enabling biochemical properties of water”. She goes on to argue that “the river, for the monitors, is made of those living encounters mediated by matter and flows” (Scaramelli, 2013, p. 159). Reconsidering Scaramelli’s words through the prism of the ASBP, it is crucial to note that flows are not simply water flows, but also the paths and vectors of movement for the lines of those lives that shape the river as a ‘meshwork’ (Ingold, 2009).

Researching river dwellers in northern Finland, Krause (2010) emphasises the importance of ‘thinking like a river’ for those who are variously engaged in living on and making a living from the Kemi River. For Krause (2010, p. 14), thinking like a river:

[...] means imagining the world in terms not of permanence and solidity, but of
movement and flow. People, places and things are not seen from the superior vantage point of a panoramic view, but as integrated along the flows of life, like the integration of the hydrological cycle.

Along the Kemi River, this is true of fishing activities (which interrupt fish movements), boat travels (that navigate flows and currents), timber floating (possible because water flows downstream), and also hydropower management (given the force and movement of the flow that is transformed into electric power). Thus, Krause argues that riverine ‘forms of life’ (to use Helmreich’s [2011] expression) are characterized by a “delicate tension between flow and friction, between a general movement and specific forms and negotiations of this movement” (Krause, 2010, p. 14). Thus, Krause’s considerations resonate strongly with the ASBP’s view of rivers as continua which are full of traffic. This is why they must not be interrupted at any point. Finally, for the ASBP, ‘thinking like a river’ also means thinking like those species which navigate the river continuum to affirm their existence and which are crucial for the ecosystems they inhabit and travel through.

In this sense, the ASBP and its members also ‘think like a fish’. I draw this expression from Bear and Eden’s (2011) work on recreational angling. Following anglers in northern England, the authors investigate how humans encounter fish, and also the modalities through which fish are both aggregated and individualized. Bear and Eden (2011) argue that ‘thinking like a fish’ is the outcome of engaging with non-human difference, which entails a process of attunement to peculiar lifeworlds and ways of life, that is, learning to read the behaviours, patterns and preferences of fish, and to use this information to calibrate fishing practices and observational skills. They also stress that ‘thinking like a fish’ is a way of becoming that engages with ‘individual’ fish, ‘species’ of fish and ‘generic’ fish. Individuals matter to anglers because the same fish can be caught several times, and also because anglers might target one specific individual they have observed for a while. Species also matter, for each species ‘fights’ differently and has a different ‘intelligence’. Moreover, anglers also generalize about fish behaviours (they all breed, eat and sleep), which is how they assemble the multiplicity of the collectivity they are interacting with. Interestingly, the ways in which anglers endeavour to ‘think like fish’ is not that dissimilar from what the ASBP does in order to collect individuals, species and numbers for their methodological tools. Moreover, for the ASBP, fish are individuals, a collectivity and an assemblage of species. Finally, Bear and Eden (2011) consider that ‘thinking like a fish’ is a process of becoming that is responsive to difference and differences, but is also about formulating regroupments and generalizations. The extensive use of species and other classifications and regroupments within the ASBP’s framework goes in
Kirksey’s (2015) work on the ‘praxiographies’ of species is helpful for this discussion. Drawing on different examples, including species of cythrids (the *Batrachochytrium dendrobatidis*), frogs (the *Leptolalax botsfordi*) and figs (*Ficus macrophylla*), Kirksey remarks that, despite the risky anthropocentric assumptions of the concept of species, its use is very alive within a range of settings. Indeed, the use of species is alive within the ASBP’s monitoring activities considered in this chapter. As we have seen, within the ASBP, species are crystallized standards associated with meanings, as shown in the *Bryconamericanus sclerioparius* box above. However, species might also be unexpected surprises, such as the *Anguilla rostrata* when it appears during the monitoring sessions. Once, to reach a river site in the community of Gandoca, our car got stuck in the mud. Luckily, we received some local support from a family the team had known for a long time. However, while we were waiting for them, we tried several times to get the vehicle out of the mud. After one of the failed attempts, Bill looked carefully into a mud puddle and then he said to Julio that he had just spotted a ‘saltón’ (*Lepidosiren paradoxa*), adding that they now knew that the ‘saltón’ would be an ideal indicator of car limits on mud pathways. Here, it is worth mentioning that the whole team considers Bill to be obsessed with fish, species and rivers. Nonetheless, it is important to notice the work that species do. In relation to this, Kirksey (2015, p. 760) writes, “as boundaries are enacted, or drawn, these lines can twist objects into new configurations”. So, when a species is noticed after it has signalled its presence, a classification of this manifestation is enacted. That presence, that body, that life form with its specific form of life, is framed as species, defined according to its evolutionary sedimented characteristics. However, this classification is not stuck like the vehicle in the mud, but is always generating new configurations, new meanings, becoming associated, for example, with mud tracks that a car should not pass through. Therefore, Kirksey (2015) adds, species come into being as ‘entangled agents’. Their ‘praxiographies’ – a term drawn from Mol’s work (2002) on multiple bodies – are meant to shed light on what we humans do with species, how these are “isolated and stabilized by our technologies and practices” (Kirksey, 2015, p. 776). Finally, the key point of Kirksey’s argument is that praxiographic studies of species allow us to consider how “members of different species grasp each other even if there are gaps in their gaze and disjunctures in their interests” (Kirksey, 2015, p. 776). This neatly characterizes what happens throughout the ASBP.

Finally, to return to Helmreich’s proposal, what is the outcome of working ‘athwart’ theory, of using water and theories (such as the river continuum concept and the ecological
engineering theory) as objects in the world and phenomena to be analysed? In this chapter, working athwart theory has laid the ground for another theory: an ethnographic theory of interspecies association. This theory explains that, when threads of entanglement between species are woven, what is at stake is what is yet to come, what could happen in the future. This theory also shows that classifying is human (Bowker and Star, 2000), and, moreover, that classifications produce effects, narratives, scenarios. In this theory of association, humans are drawing boundaries, entanglements and connections between parts and wholes, but they are doing so on the basis of what is sedimented, what is out there, what is coming into being through bodily engagements with the stratifications of worlds: presences, flows, matter. This theory of association is halfway between material and abstract instances, speculative projections and encounters, past experiences and future predictions, ethical and material claims. So, as these principles constitute the premises of multispecies associations, variations on the theme are endlessly performed, sustained, projected. Moreover, since the ‘real’ is neither completely bounded nor always predictable, and is experienced from different bodies and modes of being, these associations are profoundly and multiply variable. To test and enrich this theory of multispecies associations, in the following chapters I will explore the intrinsic similarity and inextricable diversity of their configurations. In doing so, I will suggest that a theory of interspecies association refers to material and ethical entanglements, to the meanings and responses ‘associated’ with lively manifestations, and to the forms, forces, matter and substances of lifeworlds. In this sense, a theory of association is also grounded in the semiotic meshworks of signs and responses, of movement and encounters, of beings and becomings.
Chapter 3: Rescuing lives at the Jaguar Rescue Center

Figure 1: Ilda, a JRC volunteer babysitting King-Kong, a baby mantled howler monkey (*Alouatta palliata*) (photo by the author)

**Introduction**

On my first day in Costa Rica, I was ready to leave my hostel in San José when a young guy from Norway asked me if we could share the taxi to the bus station. The receptionist had just told him that I was leaving for the same place he was, Puerto Viejo de Talamanca. I was curious, and I asked him about his plans there. He told me he intended to volunteer at the Jaguar Rescue Center. It took me a few seconds to process the information, to confirm that my ears had really heard three words that were key to my research: ‘jaguar’, a species; ‘rescue’, a form of engagement; and ‘center’, a social experience. As an anthropologist and researcher, I explained to Louis, I was interested in studying social experiences like the JRC, so I was encouraged by the encounter to think that I was going to the right place.

We thus travelled together to Puerto Viejo by bus. After a couple of hours, we passed the Zurquí Tunnel, leaving the Braulio Carillo National Park behind us. The vegetation became less dense, while the fog and the thin rain completely disappeared after a few curves. Quickly, the air entering through the bus windows became warmer, more humid and sticky, a sign that we were descending from the Valle Central to the Caribbean coast. We had a few minutes to appreciate the landscape before it became dark. As we arrived in Puerto Viejo and disembarked from the bus, a slight breeze from the ocean mixed with the humid air that had enveloped us during the last couple of hours. I said goodbye to Louis, promising to visit him at the Jaguar Rescue Center in the weeks to come.
Just a few days after that encounter, I was waiting to catch a bus at the crossroads in Hone Creek, a few kilometres from the communities of Puerto Viejo and BriBri, when, just in front of me, I saw an enormous billboard advertising the Jaguar Rescue Center and La Ceiba reserve. I could not but be affected by the touching image of a young spider monkey (Ateles geoffroyi) lying and gazing straight at me with a wounded eye. Needless to say, that vision reminded me of my unexpected encounter with Louis a few days before. I at once remembered my promise to him, and decided that it was time to visit the JRC the following day, to start enquiring about multispecies socialities.

My initial visits to the JRC provided rich insights into my research concerns about the entanglements between people and other species, including their more problematic aspects. The JRC is a wildlife rehabilitation centre located between the coastal communities of Puerto Viejo de Talamanca and Manzanillo, which I visited almost every day for three months. As a researcher and volunteer, I was given little time to take notes and observe what was going on around the centre. On the contrary, I was constantly given tasks and asked to fulfil duties: I cleaned animal units while they were inside; I took part in volunteer meetings every morning; I searched for animal food outside the JRC; and for several weeks I accompanied a group of howler monkeys to the forest behind the JRC. I often felt that all this human presence was too much for the rescued animals, but on many other occasions I witnessed the successful rehabilitative outcomes of those encounters for animals’ lives. Moreover, I realized how rewarding the interspecies encounters at the JRC were for visitors, volunteers, staff and managers. During my stay at the JRC, I talked with fellow volunteers and staff members about animals’ and people’s living and working conditions at the JRC, often in very critical terms. I became familiar with animals’ routines and behaviours, as well as the fact that their unexpected reactions to human care and caretakers were an everyday occurrence.

In this chapter, I use my experience of volunteering at the Jaguar Rescue Center (JRC) to enquire about social life between different species. I frame the JRC not as a circumscribed space where wild species are given care in the process of their rehabilitation for returning to the wild, but as open to the facts of the world, that is, as an experience – which is also staged and consumed. This is important to understand what the JRC – as an experience of proximity across a multispecies community – materializes, sustains, cultivates and produces. In particular, I focus on what is happening between humans and howler, spider and white-faced capuchin monkeys; I ask how these kin species are entangled and interact in a process of reciprocal understanding and adjustments, sustained care, and affective encounters. Somebody might
wonder why I focus on monkeys at the ‘Jaguar’ Rescue Centre! This is because, despite its name, which refers to the first animal rescued and released, the JRC is very monkey-oriented. For every jaguar that comes and goes, dozens of monkeys have passed through the centre. I therefore approach the JRC as a catalyst of happenings, which means that JRC staff and their animal guests must, on a daily basis, confront adverse conditions and manoeuvre the circumstances of life.

For this reason, I focus on the peculiarities of ‘emergent ecologies’ (Kirksey, 2015) such as the JRC, where ‘staying with the trouble’ (Haraway, 2016) of rescuing injured wild animals, triggering a process of habituation to humans so as to reintroduce them ‘into the wild’, is a problematic, unpredictable affair. Therefore, thinking through the prism of social life at the JRC, I ask: what, despite its ambiguities and uncomfortable contact zones across species difference, keeps the JRC so alive? That is, how is ‘staying with the trouble’ made meaningful to both people and other species? What force is the engine of multispecies entanglements at the JRC? Where does the JRC end, and where does wild life start?

To answer these questions, first, I will consider how people make sense of the JRC’s work, focusing in particular on the kind of reasoning that managers, workers and volunteers elaborate within such a multispecies community. I will then bring in electric infrastructures and atmospheric phenomena, which are manifestations of the world humans share with other species (life forms) and their ways of life (forms of life). Next, I consider the JRC as a workplace, questioning the conditions under which the ‘JRC experience’ is actually being produced, commodified and consumed. I proceed to discuss how reintegration takes place, arguing that this is generally a partial achievement, given that what is at stake at the JRC is a ‘familiar’ wild.

1. Unusual living together

The JRC is located on the paved road (under constant repair) that connects the small maritime towns of Puerto Viejo de Talamanca and Manzanillo. In the past two decades, this road has sustained the accelerating, unruly development of the area, which is mostly inhabited by Afro-Caribbean Costa Ricans, as well as expatriates attracted by its pristine lush forest, warm Caribbean waters, easily accessible real estate investment and its cosmopolitan, laidback atmosphere. Inevitably, this has also put increasing environmental pressure on local natural resources, and created new dangers for local wildlife. On the side of the road, new houses and tourist facilities are constantly popping up like mushrooms. Nevertheless, it is still
very common to encounter sloths, toucans, macaws, howler monkeys, small frogs, agoutis, leafcutter ants and pizotes crossing the road, as the asphalt passes through tropical vegetation.

As I cycled towards the JRC on my first visit, I encountered a group of tourists on the side of the road observing a sloth (*Choleopus hoffmanni*) that was crossing the road, taking photographs with their cameras and smartphones. For those living in the area, it is common to see both sloths and the visitors watching them as they climb trees or cross the road. Knight (2010) suggests that the main characteristics associated with wild animals are their mobility and their evasiveness: wild animals are difficult to locate, as they dwell and forage over large areas; and the closer we want to approach them, the more they run away. When these two conditions are loosened and unexpected encounters with wildlife happen, the fascination is so powerful that visitors and residents tend to forget the dangers of standing on the road gazing at the passing wild animals.

I continued along the road until I came to two small metal panels showing four dramatic images of monkeys, which advertised the entrance to the JRC to visitors from both directions. I entered through the main door, and talked to Shirley, a local girl working at the reception. I briefly explained the aim of my visit. She quickly called Noelia, the managers’ assistant, who took a few minutes before joining us at the entrance. In the meantime, I was lucky enough to meet Louis, the guy I had travelled with to Puerto Viejo from San José. We did not have much time to talk, but it was enough for him to tell me that he wanted to leave the JRC because he did not have enough time to surf. I wanted to ask more, but Noelia joined us. I briefly discussed my research project with her, explaining that I was interested in relations between humans and other species. When I had finished talking, Noelia appeared very enthusiastic, saying, “*Vamos a ver lo de que estamos hablando* [let’s go and see what we are talking about]!” We proceeded directly towards one of the metal structures the other side of a wide tropical garden, where visitors and other people were looking around in groups.

That day, Noelia decided to show me only one place in the JRC before returning to her activities. A few days later, I heard an experienced volunteer saying, as he showed a group of visitors this same place, “*Ahora vamos a ver el plato fuerte* [Now let’s go to see the main dish]!” I then understood that Noelia had taken me there to delight me with the most significant and interactional experience available at the JRC, effortlessly convincing me that I was in the right place to start my research.
From the front, the structure appeared to be a mix of metal units with a thatched roof. When we approached the entrance, I glimpsed different species of monkeys moving about inside and jumping all over the place, watched by a group of visitors. The interaction I was witnessing was a magnet for my eyes, but at the same time, I was also trying to pay attention to Noelia, who was explaining why these monkeys were at the JRC, and what they were trying to do to rescue them and reintroduce them into the wild. She explained to me that some had previously been pets, and others had suffered various accidents and mistreatments. In particular, she referred to the electrocution accidents that happen almost everywhere in Costa Rica, including around the JRC. Most of the monkeys, she continued, were rescued by officials from the Ministerio de Ambiente y Energía de Costa Rica (Ministry of Environment and Energy of Costa Rica, MINAE), others by the JRC’s staff, and sometimes also by local inhabitants. Before going into the unit, Noelia concluded by saying that the JRC had been working in close collaboration with the national electric company (Instituto Costarricense de Electricidad [ICE]) in order to address the issue of electrocution accidents. I wanted to know more, but as the visitors had just left the unit, it was time to enter.

After opening the first door, Noelia invited me to come in, and closed the door behind us. We found ourselves in a sort of waiting room, where another gate separated us from the group of monkeys inside the main room. From there, I could see that two young girls were staying with the monkeys inside the enclosure, sitting on green plastic chairs. Noelia invited me to leave all my belongings there, and to disinfect my hands with a liquid gel before entering the room. “This is important because of the germs we bring with us. We don’t want our monkeys to be in trouble,” she said. She also told me to stay calm inside the unit, to avoid exciting the monkeys too much. As we entered the unit, I was overwhelmed by the medical smell of the disinfectant.

When we were finally in, Noelia introduced me to the monkeys. She presented them by their names, and then clarified their species. In the room, there were two mantled howler monkeys (Alouatta palliata), a vivacious spider monkey (Ateles geoffroyi), and a baby white-faced capuchin monkey (Cebus capucinus). At the beginning, the whole group seemed largely unconcerned by our presence; they seemed more focused on eating pieces of banana, papayas and boiled eggs served on ‘plates’, which in reality were plastic plant saucers clipped securely inside a flat wooden surface a metre above the ground. The two babies were playing with baby toys on a coloured blanket on the brown sand of the enclosure.
Suddenly, the oldest howler monkey started to hold Noelia’s leg. In a few seconds, he had climbed up her body to perch behind her head, his toe rubbing her neck, and his hands on her forehead. “This is Sergio,” said Noelia; “here we all have very personal relations with animals!” Noelia went on to explain that a disease was causing Sergio to gradually go blind. Also, she added, being in the middle of his adolescence and with heavy peaks of testosterone, Sergio was hard to manage because he wanted to explore and mate. “Esta muy deprimido [he is very depressed],” Noelia said as she caressed him. When we went out of the unit, I asked Noelia what she would find ‘interesting to study’ at the JRC if she were in my position. She reflected for a moment, and then she said she was interested in the coexistence of three different species of monkeys (howler, spider and capuchin) which would not be in contact and interact in the wild, where they tend to inhabit different zones of the forest.

That encounter with the monkeys, Noelia’s words and her ‘study interest’ inflected from the start my understanding of the JRC as an experience where ‘unusual’ configurations and odd things were taking place between different species, including humans. After all, what Noelia found interesting to study was not that far from my own interests, and from those of other scholars. However, as an anthropologist, I also wanted humans to be part of the story.

In his recent book, Emergent ecologies, Kirksey (2014, p. 295) has studied multispecies communities “that have been formed and transformed by chance encounters, historical accidents, and parasitic invasions”. For him, what is relevant across these socialities is that they are “diverse but invaded, neglected but resilient, anthropogenic but wild” (Kirksey, 2014, p. 295). In such socialities, humans and other species inhabit a shared world, “navigating together circumstances and forces” (Kirksey, 2014, p. 15). ‘Emergent ecologies’ are thus “the result of people whose instrumental use of certain critters, or love for some kind of life, has led them to construct novel ecosystems – bringing machines, industrial supply chains, and biological elements together into unusual assemblages” (Kirksey, 2014, p. 3). ‘Unusual’ is precisely how Noelia defined the cohabitation of three different species of monkeys in the same unit. Noelia’s and Kirksey’s words, at different stages, thus encouraged me to analyse the JRC as an emergent ecology, the result of people’s actions, care and love, but also the result of how other species, such as those monkeys Noelia introduced me to during my first visit, experienced and responded to those encounters with humans and their unusual companions.

After my first visit to the JRC, I decided that there was no better site of enquiry for exploring the entanglements of multispecies communities. I immediately told Noelia that I
would visit on a daily basis and acquire hands-on experience of the JRC’s daily life. After our encounter, Noelia said that she was going to prepare a research contract, and that I had to come back with the results of a TB test if I wanted to work with monkeys. This chapter describes my experiences at the JRC, explaining how I became familiar with monkeys and other species, and what I learned about the JRC through being exposed to its contradictions, daily efforts and crowded spaces. However, I start the story by discussing the circumstances that cause monkeys to be brought to the JRC in need of care and rehabilitation.

2. Multispecies electricity

After a few weeks of volunteering, I decided it was time to ask about monkeys and their electrocution accidents. One day I joined Sandro, the manager and founder of the JRC, near the place where he parked his cars, including a collection of three sparkling old Mercedes-Benz. On my enquiry, Sandro began explaining that the electrocution accidents involving monkeys (and other wild animals) should be considered not just in terms of single individuals, but more broadly, as a social issue. When adult females are electrocuted, baby monkeys are left alone in the dangerous life of the forest, where they need guidance and protection. Moreover, when adult males are victims of electrocution accidents, the entire group is immediately left without protection. This is why, he continued, in the past decade the JRC has spent much energy trying to make the ICE (the national electric company) “aware of this tragedy”, asking them to take concrete action by installing insulation technologies in the area. To this end, continued Sandro, the JRC paid for a risk-assessment study in order to locate the most sensitive points in the area, a dozen locations where it was urgent to intervene in order to prevent further accidents. In that discussion, Sandro highlighted several times the high cost of the study, paid for entirely by the JRC.

Sandro emphasized the fact that there was a national law in Costa Rica obliging public and national enterprises to update their infrastructure after a certain amount of time. However, when reminded of this obligation, Sandro said, the ICE responded that they did not care about further legal action, saying that for the company one more legal action was not going to make any difference, as they already had many pending. After hearing that response, continued Sandro, “through them we started to spread some very shocking photos of electrocuted monkeys via Facebook” (‘them’ refers to the local staff working at the JRC. “It took time, but the photos reached public opinion”, and at that point, Sandro said with a certain satisfaction, “the ICE could not ignore the issue anymore”. Expanding on the technical aspects, Sandro explained that the ICE’s interventions entailed a change of the entire
operating logic they had previously used to prevent wildlife electrocuting accidents. Insulation technologies, explained Sandro, are generally designed to take into account animals that climb up from the ground. For monkeys, he clarified, things are different, because they jump from tree branches onto the cables, or they fall onto the cables when the branches crack (heavy rain and constant humidity makes branches fragile).

I have recounted Sandro’s explanation of the electrocution accidents to give a sense of what lies behind what happens at the JRC. In a sense, Sandro’s explanations allow us to frame the JRC as a response to human impacts on the lives of other species. However, Sandro’s explanations also locate electrical infrastructure as a nodal point of the story. In this vein, recent anthropological debates about electricity can enrich our understanding of the infrastructural dimension of these disruptive accidents that affect monkeys and other species in contexts where humans have invaded animals’ habitats, such as Alta and Baja Talamanca.

Inspired by Mitchell’s (2011) seminal *Carbon democracy*, in recent years anthropologists have focused their attention on energy, and on how it generates socio-political arrangements in people’s lives. For example, Gupta (2015) has noted that electricity has the potential to transform human social and material life in important ways, while retaining its property of being an immaterial object: “[i]t cannot be seen, smelled, or heard, and for all practical purposes, it cannot be tasted or touched without lethal consequences” (Gupta, 2015, p. 556).

Within debates about electricity, Boyer (2015) has argued that electricity represents the very foundation of the process of modernity, having been, to a certain extent, a success of ‘domestication’. That is, humans have managed to transform electricity, wild matter that vibrates and circulates across the atmospheric and material world, into something reliable and stable. As an infrastructure, Boyer continues, electricity is of anthropological interest because it is social by nature, given that infrastructures are “things and also the relation between things” (Larkin, 2013, p. 329).

In this vein, in their ‘charge’ against electricity, Anusas and Ingold (2015) discuss its properties, calling for a distinction between ‘electricity as infrastructure’ and ‘electricity as a property of life itself’. They argue that, while electricity has always been embedded in the organic and non-organic world as vibrant matter, it has been channelled into infrastructure only very recently. When we look at electricity as infrastructure, as it emerges today in our daily lives, four properties are crucial to understand how it has been channelled, stabilized and precariously ‘domesticated’ into power stations, cables, wiring and plugs. The first two, remoteness and conduction, have made it possible to separate, and then to connect, sites of
production and of consumption. Next, insulation, the ensemble of ways through which contact with potentially deadly matter is prevented, has reduced the dangers of electricity. Finally, the sensorial subtlety of electricity – its odourless, invisible and silent properties – have allowed it to be constantly present without drawing attention to itself. Taking these reflections together, we can consider electricity as energetic matter precariously domesticated that we experience as material infrastructure.

While timely, these reflections are too human-centred for what is being discussed here. Indeed, at the JRC, electricity is a multispecies affair, both as infrastructure and as vibrant, potentially deadly, matter. In their inspiring book What is life?,Margulis and Sagan (1995, p. 214) propose that ‘life’ should be considered “matter gone wild, capable of choosing its own direction in order to forestall indefinitely the inevitable moment of thermodynamic equilibrium – death”. Life and death, then, in Margulis and Sagan’s view, are the process and destination of matter ‘gone wild’. However, to take this invitation seriously and to relate it to what is happening with the monkeys’ electrocution accidents, something livelier emerges. Electrocuton accidents involving monkeys take place because electricity is running through power lines and pylons that lack proper insulation for those who, unlike humans, live at the height of that infrastructure. To put it another way, inspired by Margulis and Sagan’s suggestions, electrocution accidents happen when monkeys confront the harmful and often deadly consequences of apparently domesticated vibrant ‘matter’. In fact, given the human-oriented design of its infrastructure, electricity has gone wild again, taking an unexpected direction, a more-than-human direction that questions its precarious domestication and therefore the infrastructure itself.

Thus, if the study of electrification, as Winther and Whilite (2015, p. 576) argue, is likely to “provide food for thought in conversations about modernity, materiality, and sustainability”, encounters with the social consequences of electrocuted monkeys at the JRC show that its reach and effects extend beyond humans. In this sense, electricity is not just a human affair, a point which becomes extremely visible when its encounter with wildlife reveals its unstable and precarious domestication through infrastructure. After I discovered that electrocution accidents had often triggered the entanglement between humans and monkeys that I was witnessing every day at the JRC, I started to pay closer attention to the electrified world above my head.

After my conversation with Sandro, as I was returning home on my bicycle, I was still thinking about his words when I saw something astounding. It was sunset, and the warm red
rays of light drew my attention upwards. There I saw that a community of spiders had built its dense web using electric wiring as support, for a length of more than a hundred metres, just where the road, and also the wires, turned slightly round a bend. I cycled past that point every day, but what I was admiring was perhaps visible only during a few minutes in the afternoon, when the sun’s rays passed right through the spiders’ webs. So, thanks to that warm light, at that precise angulation in that precise moment, I could appreciate the thick, dense weaving of spiders’ webs, which appeared as an extended collective floating aerial fishing net, parasitizing the immobility of the cables to anchor itself against the aerial flows followed by the insects that it was catching. After my discussion with Sandro, that view seemed to be a revelation about the endless possibilities of life. What was lethal and dangerous for monkeys was, under different arrangements, an opportunity to make a living for others, such as the spiders, which were using the electric infrastructure to build their own collective infrastructure to secure a life and a living at altitude.

I wonder whether Corsín-Jiménez (forthcoming) witnessed something similarly revelatory, given that he engages with the epistemic and ontological intersections of spider webs, infrastructures and ecologies. In particular, Corsín-Jiménez is interested in spider webs because they work as metaphor and method of description, but also as traps, “interfaces between worlds” (Corsín-Jiménez, forthcoming, p. 1). Spider webs are ecologies, sites of entanglement between prey and predators, but also infrastructures, materializing “the interface between environmental and social relations” (Corsín-Jiménez, forthcoming, p. 9). Drawing on Uexküll’s (2010) pioneering reflections on the bio-semiotics of animals’ experiences of the world (the Umwelts), Corsín-Jiménez (forthcoming, p. 10) explains, “[i]t is the trap that entangles ecology in its self-determining vocation. Nature is a trap and ecology is its infrastructure. And the spider web is the interface that mediates their entanglement.” Put differently, in Gell’s (1999, p. 201) terms, “traps are lethal parodies of the animal’s Umwelt”. Finally, for Corsín-Jiménez (forthcoming, p. 12), spider-webs-as-traps offer new opportunities for description, because they elicit and embody a relationality “based on the intensive assembling of affects, capacities and energetics”.

So, I am profoundly inspired by Corsín-Jiménez’s attention to spider-webs-as-traps, as descriptive and analytical powerful instruments to track entanglements between worlds, “worlds captured in the turbulence of double relations; worlds that crack in-between perspectives – quite literally, by cracking perspectivalism itself open” (Corsín-Jiménez, forthcoming, p. 7). With this in mind, I propose that spider-webs-as-traps tell us something
extremely important about the JRC. That is, the JRC is itself a multispecies entrapment, where the “predators and preys collapse under the catastrophic pressure of an exterior force” (Corsín-Jiménez, forthcoming, p. 21); such exterior forces include electrocution accidents. Therefore, in the rest of the chapter, I will look at the JRC’s entrapments to describe and interpret what Corsín-Jiménez (forthcoming, p. 1) calls “a world that holds itself in precarious balance, that tenses itself with violence and catastrophe but also grace and beauty, and that calls out and silhouettes promissory worlds of entanglements”.

3. Multispecies rain

In and around the JRC, entanglements and entrapments happen in the open, where we share the world with living matter and beings. Daily life at the JRC takes place within an atmospheric surrounding that also deserves description and attention. Rain is undoubtedly the configuration of water and weather that most frequently affects what is happening at the JRC. Rain is also an atmospheric phenomenon that exemplifies simultaneously a world of difference and a world in common with other life forms and forms of life, and with moving matter all around. Obviously, in a rainforest environment, rain is abundant. I am thus encouraged to consider rain ethnographically, in terms of its manifestations in the bodily encounters and caring relations that take place within, outside and around the JRC.

One day, I was with Jimmy, the JRC’s gardener, a local man in his forties with whom I spent a lot of time during my stay at the JRC, learning much about how local residents and workers critically engage with the JRC’s ambiguous work. On that occasion, Jimmy was talking to me rather argumentatively about the JRC, when it started raining. He announced: “God created humans under a roof. Not monkeys! They use leaves to protect themselves from the rain. You cannot put monkeys under a roof!” (Monkeys are in fact put under roofs in their units at the JRC.) What was interesting in Jimmy’s words was that the need to find a shelter when it is raining equates us to monkeys, but also distinguishes us from them: we were created under the roof, while they were created under the leaves. But God provided both of us with protection against the rain. Jimmy’s words thus draw our attention to the materiality of surfaces, to what can protect us from the rain, but also to the rain as a shared condition between us and monkeys, in the world that we co-dwell in.

Ingold (2007, p. 32) makes the perceptive observation that when the world is described, written and thought indoors:

[it is often] remodelled as if it were already set up within an enclosed, interior space.
In this as if world [...] those fluxes of the atmospheric medium that we experience as wind and rain, sunshine and mist, frost and snow, and so on, are simply inconceivable.

Ingold develops his point beyond this criticism to propose that dwelling in the world means to inhabit the open. This means that every being is destined to deal with the fluxes of the atmospheric medium such as wind, rain, sunshine and the materiality of the earth. Therefore, the ‘weather-world’ is for Ingold both a material reality and a transformative process for those that make a living in the open. Jimmy’s words thus resonate with Ingold’s (2007) critique of Gibson’s theory of perception. For Gibson (1979), in a world immersed in the fluxes of the atmospheric medium, most of the action happens on surfaces. By contrast, Ingold shifts the focus from substances and surfaces to the media in which they take shape, and through which a process of dissolution is always ready to take place. For Ingold, most of the action is in the medium and not on the surface. In light of this discussion, I set out further ethnography to understand more about rain as an atmospheric phenomenon that can, as bodies are immersed and soaked in it, dissolve or amplify distinctions between species.

In general terms, while living ‘in the wild’ of a rainforest, monkeys are used to living under the rain. As Jimmy said, monkeys usually parasitize the waterproof qualities of leaves to protect them. From what I have observed, monkeys often take advantage of the whole canopy of a tree, whose vertical growth of branches provides several layers of leaves. Several layers create a system of leaves, which monkeys use to protect themselves, finding a position where they are covered and safe from any drips. In my experience with monkeys at the JRC, I witnessed several kinds of reactions of monkeys to the rain.

Every day for more than a couple of months, I brought monkeys to the forest behind the JRC on my shoulders, holding them by their tails. This is a crucial ‘enrichment’ during their process of being reintroduced, as it keeps them familiar with forest life, even though the forest is highly familiar, nearby and in fact rather deforested. Once there, normally in a one of a couple of fixed sites, the three or four howler monkeys used to jump away from my shoulders, and climb a very high tree they had become familiar with. From there, they enjoyed sitting at altitude for several hours. From my vantage-point on the ground, they would be invisible. On one of my first days with monkeys in the forest, it started raining. After our arrival, I heard some other monkeys howling very close to us from the canopy of a nearby tree. Monkeys’ howling can be extremely strong and repetitive, and it normally sounds to human ears like a complaint, protest, warning or call of attention. The volume and repetition of the howling increased as soon as the first drops of rain started to fall, suggesting that the monkeys disliked
the rain. Manina, an adult howler monkey who had spent the past few years at the JRC, had already climbed down, and was playing with the duvet that volunteers bring to the forest, because, as I was told, monkeys like it.

As soon as the rain started, Manina went under the duvet, covering herself and disappearing from my view. I could only see her silhouette under the cover. After a while, Pappetta and Rocky, the other two howler monkeys in the group (the matriarch and her ‘adopted baby’), climbed down to the lowest branch of the tree, and started looking at me. It was hard to understand if they wanted to leave, or if they had come down to check if Manina and myself were still there. Soon after, they climbed the tree again, disappearing into the canopy. That day, the rain did not stop, and I had to wait under the tree for a long time, because all my attempts to convince Pappetta and Rocky to go back to the JRC, which is what usually happens when rain comes, failed miserably. In fact, I had to return to the site with Rachel, a more experienced volunteer. She convinced Pappetta to climb down, showing her, from the ground, the small Sergio, another baby howler monkey who Pappetta, as matriarch, could not resist. All soaked, they returned to the centre.

On another occasion, things were rather different. After a couple of hours at the forest site, it was time to go back to the JRC, and I started to call the monkeys. As usual, Manina was already down and on my shoulders, having been waiting to go for a while. Pappetta and Rocky, the other two howler monkeys, climbed down a few minutes after my call. Normally, they would use a cacao tree as a bridge to jump onto the higher Manú tree (*Minquartia guianensis*), on whose huge branches they would spend their mornings. When leaving the forest to come back to the JRC, that cacao tree was the point where they would decide whether to stay or return. When we arrived in the forest, by contrast, the cacao tree was the bridge to a zone of free movement where they would again become arboreal beings. That day, lying on the flexible branches of the cacao tree, Pappetta and Rocky did not want to climb down, preferring to enjoy my failures at persuasion.

Suddenly, the rain started, and, within a few seconds, we were in the middle of a heavy shower, which was so heavy that I could feel its intensity even under the trees’ canopies. Without a moment’s hesitation, Pappetta and Rocky grabbed my arm and my head with their hands, and my neck with their tails, and we left. The way back to the JRC was torture: the path was impassable, and the monkeys were impatiently trying to find a way to protect themselves by grabbing different parts of my body and clothes. Rocky, the smallest one, found shelter under the duvet, while Manina and Pappetta found different ways of using me as an umbrella.
Manina grabbed my neck with her tail, lying upside down on my shoulders and using the back of my body to protect herself from the rain. Pappetta, on the other hand, grabbed the back of my calf, hoping to find some protection in that position. Under those conditions, walking was almost impossible. Fortunately, when we reached the back of the JRC, Pappetta and Manina jumped away to find coverage under the roof of the closest unit. I brought Rocky to the unit with the other monkeys – we were both completely soaked.

At the JRC, humans too look for shelter when it starts raining. Once, I was helping Jimmy clean the roof of the monkeys’ units, which were completely covered by leaves. He asked me to hold the staircase he needed to reach the roof. While cleaning, Jimmy kept complaining all the time, saying that it was very dangerous because the surface was slippery; being made of plastic, the roof could break at any time. Suddenly, it started raining, and within a few seconds it had become a thundershower. Jimmy stopped immediately, and climbed down as quickly as possible. We found shelter under a metal roof nearby. Jimmy smiled broadly, and his attitude to the rain changed at once. Paradoxically, the intensity of that rain was much more convenient for him than a few drops, as he had a proper excuse to stop doing that dangerous work, which he could postpone to the next sunny day.

So, to return to Ingold and Gibson, where does most of the action happen when it is raining? Is it on the surfaces, in the substances, or in the medium of the weather-world? I suggest that it is the encounter between substances and surfaces throughout the medium that really matters. Perhaps a more suitable question would be: what is the action about, and what is happening with rain, in particularly from a multispecies perspective?

Vannini, Waskul, Gottschalk and Ellis-Newstead (2012) discuss personal experiences in the coastal regions of British Colombia, Canada. For the authors, weather is also a verb, in the sense that ‘to weather’ means to dwell in atmospheric conditions through which “people make and remake dynamic places and selves in a performative ecology of movement” (Vannini et al., 2012, p. 361). In particular, they argue, the entanglement between bodies, weather, place and self is inextricable. The meanings of rain, they suggest, are “orientational, indexical and embodied” (Vannini et al., 2012, p. 370), which means that, like a map, they shape senses of place. For the discussion here, the authors’ interest in the relationship between rain and placemaking is less important than that between rain and selves. In particular, they refer to Saito’s (2005, p. 163) observation that the experience of the weather “is intensely personal in the sense that it is circumstance- and person-dependent”. They also cite Ingold’s (2000, p. 98) argument that “different beings, whether or not they qualify as persons, have characteristic
patterns of movement – ways of being alive – which reveal them for what they are”. However, Vannini et al., 2012, p. 369 add that, “while the weather has obvious symbolic meanings, its primary manifestations are practical affordances for the performance of our common ways of life”.

These lines of thought are, I suggest, highly suitable for framing what happens with the rain at the JRC. On the one hand, as Jimmy remarked, rain marks differences between ways of being alive within a rainy medium. In this sense, species differ significantly. As humans, we have roofs, while monkeys have trees, leaves, branches and canopies. However, the affective force of the ‘medium’ can also dissolve differences, and show different species’ shared ways of dealing with rain. At the JRC, monkeys have become more human, in the sense that they are given a roof, and they have also learned to use volunteers’ bodies as umbrellas. On the other hand, when volunteers are with monkeys in the forest, they are also obliged to find shelter under the trees, waiting for the monkeys until they want to go back to the JRC. On the way back to the JRC, volunteers and monkeys desire the same, a shelter from the rain. Finally, this shows how rain affects species’ entanglements at the JRC, where living beings become companions of life in the open. Reciprocal habituations at the JRC pass over surfaces, through substances and through the medium.

4. The premises and the promise

At this point, it is time to define what the JRC actually is. I have delayed this question because there are many possible answers, as the JRC is in fact many things. I briefly discuss some of these possibilities, to reflect more deeply on what keeps this experience alive and visited daily, and, most importantly, what makes the JRC work as a multispecies entrapment.

First, the JRC is a foundation. In Costa Rica, foundations have a juridical personality as private non-profit entities with public utility status. Their objective is to encourage, support and sustain activities related to social welfare. So, through donations, gifts, animal adoptions, volunteer fees (volunteers pay to work at the JRC) and guided tours, the JRC keeps itself materially alive. As a foundation, the JRC invests its income for the wellbeing of the animals. “Help us help them” is the JRC’s motto. However, the issues of non-profit, private entity, public utility and collective social welfare are delicate and controversial topics. First, the JRC is located within the founders’ garden, which is de facto a private property. Secondly, the many visitors pay to have tours. Private tours, allowing more contact with animals, cost almost twice as much as standard tours. At the JRC, profits are substantial, but expenses for interventions,
blood tests, food, maintenance and salaries are also high. Moreover, collective social welfare is another critical issue. It is hard to work out who benefits most – managers or workers, people or animals – or indeed whether there is any benefit at all for both humans and other species. Are people satisfied with their working conditions at the JRC? Do animals feel well while receiving care at the JRC? These are problematic issues, because the answers depend on different perspectives (some, those of the animals, inaccessible), and working conditions which are not all the same.

Wright’s (2013) recent ethnographic account of employees in non-profit entities in Tennessee contains certain reflections that are partially relevant to the JRC as a workplace. According to Wright, non-profit employees are often an unprotected category of workers, since that their rights are defined ambiguously within legislation. It also seems in Wright’s study that the management of funds and internal governance are often in the hands of high-ranking staff, which maintains internal inequalities in terms of pay, power and prestige. Furthermore, Wright notes that non-profit programmes have multiple uses apart from their public missions, and that employee satisfaction is often sacrificed for the sake of the services offered. Wright’s reflections are helpful for highlighting that, while non-profit entities may ‘externally’ deliver their promises of social wellbeing, ‘internally’ the situation may be rather more complicated, especially in terms of wellbeing. For instance, few months after my arrival, Noelia, the managers’ assistant, left her job at the JRC, saying that her work did not receive adequate recognition, that it was too demanding, and that the managers were very stressed. When she left the job, she was told, “You left, and you are out now.”

This discussion highlights a further point: the JRC is also, in practice, a workplace, as well as a site of consumption of volunteering and visiting experiences involving endangered and injured wild animals which would otherwise be hard to approach. Volunteers pay to be involved in the JRC’s daily maintenance and sustain its provision of care. In fact, volunteers are assisting a group of people who work at the JRC as permanent staff. The permanent staff are mostly people in their 30s from Spain, who help the managers with veterinary, logistics and administrative tasks; there is also a local gardener and a local woman in charge of food preparation. There are other occasional workers, but permanent staff receive a salary (around 400-600 dollars). The young staff working as manager assistants also supplement their wages with additional donations they receive after guided tours. There are different scales of work and workers at the JRC, with various levels of risk, duties, privileges, treatments, forms of
‘exploitation’ and stress.

What, then, is performed and consumed at the JRC? Parreñas’ (2012) definition of ‘custodial labour’ is highly relevant to the social life of the JRC. From her research on an orangutan rehabilitation centre in Malaysia, Parreñas (2012, p. 674) defines custodial labour as “the process in which affective encounters between bodies fill a demand for meaningful purpose among professional workers (usually from the Global North) who engage in commercial volunteerism or other efforts that at first glance appear to be altruistic”. Affect here is not the product of immaterial labour, as argued by Hardt and Negri (2004). Rather, in Parreñas’ field-site, affect emerges through encounters, “in the space between bodies, in the interface of bodies, and it is spontaneous, unpredictable, and in some ways unreadable” (Parreñas, 2012, p. 683). To think through this argument in the context of the JRC, custodial labour is simultaneously remunerated and commodified. This means that the JRC itself by offering to volunteers, who pay for it, inspirational, motivational and experiential ‘capital’ through hands-on contact with and care of animals, while also remunerating other people for their work at the JRC. So, at the JRC custodial labour is ‘consumed’ by short-term volunteers, and at the same time it is remunerated for long-term workers and permanent staff.

To understand the JRC, it is important also to refer to its founders’ visions. For them, the JRC is a dream of interspecies care, reciprocal flourishing and human redemption. It is interesting to read what the co-founders Sandro and Encar decided to publish on the JRC’s webpage:

As for any human, a happy childhood with contact, love and affection assures a happy future. Encar.

As a kid my dream was creating a paradise on earth where men and women could coexist with animals in maximum harmony and here, in the Jaguar Rescue Center, we are achieving it. Sandro.

These statements evidently shed light on the founders’ ideals, their personal commitment to animals’ lives and to their reciprocal flourishing with humans. The statements also tell us about the parental and utopian sparks behind its success and growth. Nevertheless, they do not tell us much about what it means to ‘stay with the trouble’ (Haraway, 2016) of such a project, about its concerns, precarious achievements, failures and collisions.

1 http://www.jaguarrescue.foundation/about/, retrieved on 20/03/2016. The JRC’s website was completely redesigned in January 2017, and these statements are not reported on the website anymore.
It is thus crucial to consider the JRC’s promise, which is also what sustains the centre and makes it meaningful for humans and other species. To tease out what this promise is about, I will describe a moment during my stay at the JRC when the promise suddenly became apparent.

One day, I was awaiting Jimmy, the JRC’s gardener, as I was going to accompany him while he was collecting edible leaves for the monkeys. I was having a look round when, near the monkeys’ units, I saw Ilda, a volunteer in her 40s who had been working at the JRC for a few weeks. We had already talked on a few occasions. She was doing some monkey-sitting with a baby howler monkey, and I joined her, seeking food for thought. As I drew closer, I noticed that the baby monkey she was holding, which in turn was holding her neck and red hair, was actually very small. The monkey, called King-Kong, had been born only a few weeks previously, and seemed very fearful and distrustful. I had the camera with me, so I asked Ilda if I could film. She agreed, and I started recording. Our moment together, and her moment together with the baby monkey, was now on stage. Ilda told the camera that she was trying to keep him away from people because he was extremely stressed. She also explained that the baby had come to the JRC a few days ago, because this mother had been electrocuted, and he was crying a lot, being wholly unused to humans. At one point, Ilda started to talk with the baby monkey that was ruffling her hair, caressing him and saying, “It’s going to be ok, it’s ok, trust us, and you will be back to the wild again.”

I refer to this episode because Ilda’s words clearly captured the tacit agreement between her and King-Kong. Tacit agreements might be hard to identify in contexts like the JRC, where animals’ lives need to be constantly sustained materially, through practical work and tasks. But they are the essence of the ethics that sustain the JRC’s daily work. Moreover, from a human perspective, it is hard to understand what monkeys feel when they are brought to the JRC, where they have to learn to deal with humans and the forms of regimented care imposed on them. However, there could be no better expression than Ilda’s to explain what is ‘asked’ of them when they arrive at the JRC. They have to learn to trust humans, suspending their ‘nature’, to embrace it again in a possible future. What is asked of the monkeys at the JRC is to agree to a promise of a possible better future. Considering Ilda’s words again – “Trust us, and you will be back in the wild” – what does this statement tell us about the politics of species’ lives at the JRC?
The JRC “is not a zoo, but rather a rescue, rehabilitation and reintroduction of wild species center with the end goal of releasing the animals back into the wild”. This is another statement found on the JRC’s webpage. However, between the moment that species are brought into the JRC and the moment that they are released ‘back into the wild’, what happens at the JRC is not dissimilar from what happens in a zoo. When animals enter a space such as the JRC, all aspects of their lives start to be controlled, monitored, regulated: their diet, their interactions, their enclosures, their daily routines. Essentially, this is what the promise is about: the animals have to make concessions and learn to accept that their life is now regulated for a purpose that entails an adaptive process of understanding and trusting humans. They are asked to become a companion species.

From this perspective, Chrulew’s (2011) exploration of zoo bio-politics and logics is relevant here. Chrulew draws on authors such as Foucault and Agamben to think about zoos as ambiguous experiences that delimit a space of ‘bare life’ entirely controlled by humans and their technologies. For Chrulew (2011, p. 145), zoo regimes are ‘unnatural’ because they do not just imitate nature, but seek to improve it, offering their hosts “a blessed life free of the harsh realities of the wild”. As such, zoos are framed as bio-political institutions devoted to the sustenance of ‘docile bodies’ that are unable to cope again with the complexity and hard realities of life beyond care. So, for Chrulew (2011, p. 145) zoos implement a sort of “pastoral regime, devoted to the flourishing of all and each, [which seeks] to enact the biblical utopia of Eden”. Thus, if we re-read Sandro’s statement above, we can understand how similar the JRC actually is in its intention to a zoo. Nevertheless, it is also important to understand the peculiarities of multispecies experiences such as the JRC, which differentiate them from zoos. I thus suggest going beyond Chrulew’s considerations, so as to grasp what the JRC is sustaining, promoting and making happen through intimate bodily and affective entanglements with animals in need of care, or, to use Knight’s (2005) expression, with ‘animals in person’. At the JRC, wildlife is not simply made ‘viewable’ (Knight, 2009), but is also available for intimate experiences of care, bodily encounters and affective responses.

Kirksey (2015, p. 124) refers to Ahmed’s (2010) The promise of happiness to remind us that “having someone to care for, and thus caring for what happens, caring about whether there is a future or not makes it easier to sustain happiness”. In this vein, I suggest understanding the JRC as an experience through which life and lives are sustained and maintained through encounters and custodial labour, that is, as a multispecies entrapment in

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2 See note above.
which despair for the lives of wild species is transformed into hope, by caring not simply about animals’ life, but also about the ‘hap’ – the chance, fortune or possibilities – of what can happen (Ahmed, 2010; Kirksey, 2015). For Kirksey, postponing the death of animals, or even the extinction of their species, is an attempt to control the ‘hap’ of what can happen in one’s own life. This might entail the sustenance and maintenance of living beings which might be no longer happy in certain circumstances, so as “to hold on to happiness” (Kirksey, 2015, p. 125), waiting for the moment they will join the wild again. Was Ilda’s promise to King-Kong not about precisely this?

In sum, the JRC, I suggest, is not a place where ‘docile bodies’ are produced, where death is postponed in favour of life at any cost, but rather a collective multispecies experience of care, sustained by affective, imaginative and bodily encounters. These encounters are all unique, unpredictable and contingent. Indeed, despite the attempts to regiment the lives of recovering and rescued wild species, the ‘hap of what can happen’ is always ready to happen at the JRC. In fact, this is what keeps the community alive, and, to a certain extent, also ‘happy’.

5. The wild out there

One day, I approached Encar, Sandro’s partner and co-founder of the JRC, to ask her to tell me more about the process of monkeys being reintroduced into the wild. At the JRC, Encar is considered ‘the mother of monkeys’. Every night, baby monkeys sleep with her and Sandro in their house, and it is also her who prepares a small breakfast for them early each morning. Every morning between 5am and 7am, she spends time with baby monkeys in the large unit, before the cleaning and the visits start. Both Franklin, an experienced Costa Rican biologist who has worked at the JRC for many years, and Sandro told me that she was the best person to ask about monkeys. In saying this, they not only recognized her knowledge and expertise, but also marked their respect for her ‘maternal’ position within this extended monkey community.

That day, we sat around a table in front of the office on the ground floor of their house. This is also the place where volunteering activities are coordinated. As usual, there was a continuous coming and going of people. As we started to talk, I perceived from the restless movement of her eyes that, though Encar was with me, she was also with everybody else. Anyway, she assured me that she was with me, and gradually she became immersed in our conversation. She quickly clarified that reintroducing monkeys was an unstable, unpredictable process. In general, she said, two variables had to be considered: the age of the monkeys, and
their individual ‘characters’. In practice, continued Encar, monkeys wanted to leave the JRC when they reached a certain age, although it was unpredictable. “Some people stay in the house with their parents until 35 today,” she said, comparing the process of humans leaving their families. She continued that it was highly dependent on different characters. Some of the monkeys appeared very autonomous from a young age, while others preferred to spend more time in the group. Once they have left, she added, it is still impossible to understand if their departure is definitive, or just the beginning of a transition through which they gradually expose themselves to the wild again. When this transition begins, she explained, monkeys start to refuse to come back to the centre, preferring instead to remain with the troop they have met in the forest. In this case, they might come back later, or just sleep outside one night, and return the day after. However, she concluded, this is enough to understand that they are familiarizing themselves with a troop, and that they are being partially accepted (though monkeys might return even when she and Sandro are convinced that the troop has accepted them).

When Encar left, I realized she had addressed my enquiry by focusing on the most critical, delicate moments for both the monkeys and those who take care of them – when monkeys leave the JRC – as well as the instability of what happens during this process. For Encar, the ‘mother of the monkeys’, and also for the staff, a monkey’s departure is an achievement, but also a reconfiguration of a relation that has been built. Actually, this is a risky reconfiguration because when monkeys leave the centre and its cocoon-like environment, they become exposed to a series of dangers and dynamics with which they have become unfamiliar. If there is any ‘wild’ out there, for both humans and the monkeys, entering it is the moment of embracing life beyond the care, love and protection of the JRC, its units and domestic spaces of security and attention. However, since Encar described reintroduction as something gradual, precarious, variable and sometimes hard to achieve, it is necessary to see what actually happens when monkeys are released from their units and are given the chance to experience life ‘in the wild’. During my stay at the JRC, I witnessed several such events, but, for the sake of space, I will refer to the most dramatic one.

During my stay at the JRC, I went a few times to La Ceiba, a private reserve located a few kilometres away. La Ceiba is the JRC’s releasing site, where the ‘wild’ begins again for many of the species that spend time at the JRC. I was there with other volunteers, and I was taking care, together with Ben, a French volunteer, of Gancho, a white-faced capuchin (Cebus capuchinum) that had been kept as a pet for a couple of years, and then rescued by MINAÉ
officials and brought to the JRC. After just a few days there, Gancho was transferred to La Ceiba, to attempt an immediate release, which had no success, as Gancho wouldn’t leave the unit. That day we were told by the volunteer coordinator at La Ceiba to stay with Gancho inside the unit. However, after a few minutes, Ben and I felt completely useless, and we decided that Gancho had to familiarize himself with his surroundings outside the unit, not from the inside. So, we took him for a walk along a minor creek running inside the property, until we reached an ant colony, where we sat down. Soon, many of those ants became food for Gancho, as Ben spoon-fed Gancho, using leaves as a spoon. In the afternoon, after the lunchbreak, we went back to Gancho’s unit to have a larger tour with him. And there, something unexpected was already happening. On the roof of the unit there was another capuchin monkey jumping insistently on the fence. Both of them were very excited, Gancho from inside the unit and the visitor on the outside, jumping frantically above Gancho’s head. It was obviously impossible for us to understand the meaning of that interaction, but it seemed to be both a territorial confrontation and an invitation to the freedom available outside the unit.

Meanwhile, Phin, a research herpetologist living at La Ceiba for a few days, had joined us. We briefly discussed what was going on. Then he moved closer to the unit, opened a small window of Gancho’s enclosure and stepped back. We had noticed that the visitor was not alone: another capuchin monkey was standing on a tree close to the units. After less than a minute, Gancho came out of the unit, ran towards us, and climbed the body of one of the volunteers, Tim. Tim remained completely motionless, while the visitor was still on the roof, observing what was going on. Then Tim moved towards a tree with Gancho on his shoulders to encourage him to jump away, but this did not work. So, Phin told Tim to walk towards the enclosure with Gancho; the prospect of re-entering the unit prompted Gancho to approach the visitor on the top of the enclosure. However, after a few seconds of proximity, Gancho attacked the visitor, biting him. The visitor reacted violently, and Gancho ran away from the roof across the branches of the trees, disappearing quickly into the forest. The visitor ran after him, and we ran after both of them. After some time searching, we thought we spotted them interacting on a branch. Pleased at this encounter, we walked back towards the unit. However, on the way back, we saw one of the workers coming down towards us with Gancho on his shoulders, holding his tail. We now understood that the two white-faced capuchin monkeys we had just seen were the two visitors, neither of whom was interacting with Gancho. Contrary to what we had thought, Gancho had escaped in search of humans, towards the main house. On the way back, Phin blamed what had happened on the fact that La Ceiba is too close
to humans, which makes it a less than ideal release site. Rescued animals, he said, especially those who had previously been pets, had established a strong bond with the humans, whom they consider their references in terms of security and protection. That was also why, he added, Gancho and the wild monkeys had ‘communication problems’, and could not easily understand each other. As I heard his words, I understood that Phin’s reasoning was pointing to something crucial and double-sided. On one hand, he was arguing that the wild at La Ceiba was not ‘wild enough’, because of human presences. On the other hand, he was also remarking that Gancho was ‘too domesticated’ to permanently leave his unit and human companions, to enter the wild again.

Although used rarely, the words ‘wild’ or ‘wildlife’ appeared at the JRC and at La Ceiba as a kind of reminder, a reference to something ‘external’ that both preceded and followed the JRC’s interventions; sometimes it figured as a sort of ‘achievement’, at other times it evoked the freedom opposed to life in captivity. However, in practice, during my experience at the JRC, I witnessed a blurred interface between what can be considered life in the wild and life in captivity. This is true in at least two senses. First, monkeys, like other rescued animals, are never either fully ‘domesticated’ or fully ‘wild’. They can always react unexpectedly and aggressively, in spite of their habituation to humans. Secondly, at the JRC, ‘the wild’ is intended as something not necessarily ‘too far’ from humans. ‘Too far’ can be ‘too much’ for species that have learned to live with humans and feel closer to them than to their ‘wild’ companions. The wild suitable for many rescued animals is a ‘familiar wild’, neither inside the JRC, nor fully outside, out of reach. As argued by Cassidy and Mullin (2007), the wild is not therefore ‘out there’, far from humans, but it is actually more ‘domesticated’ and close than what we tend to think. Finally, the wild which emerges at the JRC responds to encounters between bodies and their unpredictable outcomes.

In this sense, monkeys’ bites are probably the most frequent manifestation of ‘the wild’ at the JRC. I became accustomed to bites very quickly. After I had become familiar with the group of howler monkeys at the JRC, I was often asked by Lucia, a Spanish volunteer and a veterinarian, to enter their unit, where female volunteers have no access, and bring out the small Rocky, so she could feed him and check his health. On one occasion when I went inside to grab him, he was particularly reluctant. After a few attempts, he bit me on my hand. Lucia seemed quite happy at what had happened, saying that the ‘real Rocky’ had come back, ready to attack to defend himself from being grabbed by humans.
On another occasion, I was walking with the monkeys on my shoulders, holding their tails, heading for the forest at the back of the JRC, when I met Maria, who I knew as a friend of a volunteer at the centre. She asked me if she could follow us to the forest. I thought that was not the best idea, but she seemed so curious that I decided to give her the chance to come and see. I told her to keep clear, to follow us slowly, and to maintain a safe distance. However, when I arrived at the cacao tree and released the monkeys, Maria was just a few metres behind us. Manina and Rocky climbed the tree, while Pappetta jumped on her shoulders, and, within a second, had taken off Maria’s sunglasses. Then I saw Pappetta directing her mouth close to Maria’s forehead, and I instinctively realised I had to intervene. Without a moment’s hesitation, I vigorously grabbed Pappetta’s tail and pulled her away. Maria stepped back and told me that Pappetta had bitten her. Still holding Pappetta’s tail, I saw a small wound very close to Maria’s eyelid. I asked her to leave immediately, find a doctor and dress the wound. While she was walking away, Pappetta turned against me too, escaped my hold, and went to sit on the ground, visibly irritated. After that episode, I realized that these monkeys were far from being a domesticated companion species. On the contrary, monkeys’ instinctive logics of protection, defence and attack – their ‘wild nature’ – was always there, ready to emerge under certain conditions.

A few weeks later, I received a phone call from Rosanna, a middle-aged volunteer from the US who came to the JRC most years, in which she told me that a spider monkey had just bitten her. I invited her to come to my place to tell me more, and she arrived early the next morning, with a deep wound on her arm. Rosanna was still somewhat shocked. After some tea, she started to explain me that, the day before, a group of volunteers was cleaning the monkeys’ units, when she was asked to help them take away the bins filled with all the organic material collected inside the units. She opened the first gate to access the corridor between the units and to take out the bins. But then, as soon as she went in, Laura, a female spider monkey, ran quickly towards the unit door, opened it, and jumped on Rosanna’ shoulders, biting her on the arm. When she felt the pain, she said, she realized that something had gone wrong, but she could not understand how it had all happened so quickly, and how Laura could have opened the door so easily with her fingers. Most importantly, she seemed very concerned at the concatenation of events that made that happen. She had been assigned to another task that morning, when the volunteer coordinator had suddenly asked her to help the others clean the monkeys’ units, although there was actually no need for her. She repeated several times that she did not understand that decision, and obviously resented it after what it had made happen.
However, monkeys were not the only biters in and around the JRC. One day, Poo, the volunteer coordinator, asked me to go out of the JRC, to find a piece of termites’ nest for the blind anteater hosted at the JRC. Arboreal termites (*Nasutitermes corniger* is the most common endemic species in Costa Rica) are anteaters’ favourite food. Their nests are woody formations that can normally be found on tree-trunks, near the branches or closer to the roots. I took the machete and walked outside. Poo probably thought that it was my first time doing this, and assured me that termites did not bite, so I would not need to carry any bag or bucket. Outside, after a few minutes of searching, I saw something that looked like a termites’ nest, suspended between two branches. It was not easy to reach, but I had the machete, so I could give it a try. However, when I hit it, the blade sliced right through the nest without resistance. I at once realized that there was something wrong, because I remembered from previous times that nests were much harder to cut. Before I could understand my mistake, hundreds of ants rained down all over my body. Within a few seconds, I started to feel the pain of their bites, even inside my boots. I had to sit down to take off my shoes and T-shirt and brush the ants off.

After the attack, I walked back towards the JRC with the intention of telling Poo that I had not found any nest nearby. On the way back, I met a group of workers and carpenters with whom I had shared some lunchbreaks during the previous weeks. I told them what had happened, and they burst out laughing mockingly. One of them, Teja, who I knew best, told me he was going to help me, and we went in search of a real termites’ nest together. During the search, which lasted more than half an hour, Teja made fun of me, saying that from now on my nickname would be ‘termitas [termites]’. I made fun of myself too, deciding that I really liked my new nickname. I also thought about Haraway’s (2009) contention that ‘becoming human’ is a response to the mundane encounters with other species. By contrast, my new nickname offered the possibility that, in encountering other species, we might become like them, rather than human. Or, perhaps, Haraway is suggesting that being human is also being like other species. Through those bites, I had become ‘termitas’, termite-like, even though I had been bitten by ants. Also, ants have become termites, which I was looking for and failed to recognize and find.

Finally, in referring to bites as manifestations of the wild, I seek to highlight the affective dimensions of social life at the JRC. Indeed, bites are not just bites (cf. Massumi, 2012). Rather, they are painful materializations of connected circumstances that follow life happenings. The experiences of ‘the wild’ at the JRC are both immanent and transformative. These are immanent because they do not precede the concatenation of events that cause
them; and they are transformative, because these experiences involve and affect bodies, thus generating embodied understandings of specific ways of dwelling the world. Finally, what happens at the JRC tells us that ‘the wild’ is between relations and circumstances, across becomings with bites of affection.

**Conclusion**

In this chapter, I have situated the JRC in its material, political, ecological and atmospheric surroundings. I have shown that rescuing lives through social experiences such as the JRC may be understood in terms of a sort of entrapment, which entails the experimentation of unusual living together, in which species have to ‘learn’ and ‘unlearn’ about others, accommodating difference so as to sustain life and lives. How, then, does this happen?

Kohn (2014) conceptualizes *life* in the Ecuadorian rainforest semiotically, as an extended set of interpretative exchanges and adaptations, the reciprocal noticing and signalling that occurs throughout a complex web of relations between the Runa people and the species around them. Within this web of relations, both people and other species experiment in what Kohn (2014) calls the ‘open whole’, life as sign process. From the Runa’s perspective, forests, species and bodies are immersed in a web of signs, meanings and relations that constitute the world they share, understand and deal with to make a living and affirm existence. Drawing on Kohn, I suggest that social life at the JRC too is an intrinsically semiotic process. That is, at the JRC, volunteers, staff visitors and the different species – each from their own perspective – learn to understand difference, becoming skilled in performing and communicating through encounters and reciprocal adjustments.

Beyond semiosis, there are two other crucial dimensions to what happens at the JRC. First, there is commodification, primarily in terms of the experiences made available for consumption for volunteers and visitors, but also in terms of the partial compensation to staff members for low-paid jobs. Clearly, the JRC’s animal guests aliment the encounters and experiences that sustain the JRC financially. Comparisons may be drawn with Hurn’s (2017) analysis of a multi-faith community in a Welsh ashram, where livestock are interpreted as ‘producers’, ‘consumers’ and ‘consumed’. The animals, which are rescued from livestock markets, are enrolled in the production of dairy products for consumption in the ashram, and are also offered the opportunity “to ‘be’ cows” in their spiritual life pathways; while they produce and are consumed, they are also consuming “spiritual as well as physical substance”
The idea of animals as ‘producers’ and as ‘consumed’ in some ways resonates with what happens at the JRC. However, it is problematic to consider monkeys as ‘consumers’ of something, unless we perhaps consider them consumers of care. Indeed, in Hurn’s (2017) account it is actually not clear how and what herd animals ‘consume’ in her field-site.

I therefore find Fuentes’ (2013) arguments about commodification in human-primate interfaces more relevant to the JRC, especially since primates are also the JRC’s ‘main dish’. Fuentes (2013, p. 110) shows that in Southeast Asia, especially Indonesia and Thailand, macaques are commodities of various kinds, as “something of use, advantage, or value to a given society, something whose presence and/or use can provide added ‘good’ in a social and/or financial sense”. In this sense, Fuentes argues, monkeys are ‘pet’ commodities when they are kept in the house as playmates for children and for general companionships. Also, macaques can be ‘financial commodities’ for monkey trainers, since their shows also configure macaques as cultural commodities. Furthermore, in the case of coconut picking, macaques become ‘partners’ in human labour, and for many temple communities, macaques are considered part of the community and associates that attract tourists and donations. Similarly, the JRC monkeys are simultaneously ‘pets’ that live in a private garden, and also ‘partners’ and associates for attracting visitors, volunteers, donations and money. To view the JRC’s monkeys as ‘property’ is more problematic, because the monkeys will generally leave the JRC eventually. Nevertheless, when opposed to ‘wild monkeys’, they are considered the JRC’s property: people at the JRC often talk of ‘our monkeys’ to refer to those that live, eat and sleep at the JRC.

The final dimension to what happens at the JRC, beyond semiosis and commodification, is perhaps the most subtle; it concerns the affective forces that entrap into emergent ecologies (Kirksey, 2015) social experiences where humans and other species learn to navigate the circumstances of life together. Affective forces shape and cause encounters, emergences, relations and possibilities. Affect is ‘the hap of what can happen’ within and around social ecologies such as the JRC. For Mazzarella (2009, pp. 291-292), affect is “pre-subjective without being pre-social [...] not already semiotically mediated [...] constitutive and corrosive of life in common [...] embodied and impersonal”. According to Mazzarella (2009, p. 305), “any social project that it is not imposed through force alone must be affective in order to be effective”. This is a crucial point in relation to the JRC, where monkeys live within closed units, but also have a degree of freedom of movement, and numerous possibilities of escape.
Affect at the JRC is thus what holds together different species in spite of their difference. Therefore, ‘affect’ at the JRC is the result of unexpected and unpredictable encounters and happenings, through which the volunteers, staff, managers and animals have the possibility to affect and be affected across species lines (Massumi, 2015; Archimbault, 2016). So, affect, affective encounters and happenings between humans and non-humans at the JRC suggest that multispecies life at the JRC is an extended process of learning to make a living together with other species and to confront the ambiguities and challenges that zones of encounter between species intrinsically entail. Finally, the notion of affect – encompassing pre-subjective but not pre-social forces, beyond individuals, but part of their shared world – prompts us to consider the materiality of the physical world that we share with other species.

For these reasons, I have also discussed rain and electricity – as they emerged ethnographically, the first as constitutive of the weather-world in Talamanca, the second as vibrant matter precariously domesticated through infrastructure. They are relevant precisely because these material forces trigger happenings. In the context of my fieldwork, overhead electric wires are a lethal danger for monkeys. At the same time, electricity has also improved the life of local people, bringing communication services and technological devices, such as Internet connection and computers – through which donations and volunteers arrive at the JRC. Moreover, it is through the web that the diffusion of images about electrocution accidents involving monkeys in Talamanca were shown to Costa Ricans, so as to push the national electric company to act. Electricity, then, can be deadly, but can also be a source to sustain lives. There is also something ambivalent about rain, an atmospheric phenomenon that affects humans’ and other species’ experiences of the world. Heavy showers can disrupt volunteers’ experience with the monkeys out in the forest, but they also often encourage volunteers to stay with monkeys in their enclosures, thus enforcing proximity and intimate bonds. Monkeys can perhaps enjoy a few drops of rain, but, faced with tropical storms, they prefer the roof of the JRC to the canopy of a tree. This is a risky habituation, as it can make them feel more comfortable in the constrained and regimented life of the JRC than in the forest, a forest that is far but not too far from the people at the JRC, where the entrapment must go on, in spite of bites of affection.
Chapter 4: Alimenting flight ways at the edge of extinction

Figure 1: A flock of great green macaws eating on the feeders at the Ara Project release site in Manzanillo (photo by the author)

Introduction

In this chapter, I examine how a collective of critically endangered great green macaws (Ara ambiguus) are sustained and reintroduced at the Ara Project (AP) site in Manzanillo, in the Caribe Sur of Costa Rica. I look at the strategies, actions and happenings that characterize daily work at the AP, as well as the lives, interactions and relations of its hosts and guests. Drawing on my experience of volunteering at the AP every day for about two months, I close the circle of reflections about the ‘associations’ taking place between different species that I witnessed and participated in during my fieldwork. I suggest that the AP’s hosts and guests can help us explore encounters across differences between species — and it is the ‘across’ that I would like to address in this chapter, in terms of its importance at the AP. This chapter is more theoretical than the previous ones, as it proceeds towards the conclusions and the formulation of an adaptive theory of association which can begin to make sense of conservation entanglements across species differences. In keeping with the main argument of this chapter, I parasitize ethnographic fragments and notes written by others, to do justice to the multiple observations of others observers and volunteers which have enriched my comprehension of social life at the AP.

I always intended to conduct research at the Ara Project site in Manzanillo, which I was familiar with from my pre-fieldwork research about the area. So I visited the AP site at the
beginning of my fieldwork, and met a few times with the site coordinator, a Belgian named Peter, and with Ike, a German fund-raiser, both of whom lived on the site. However, time passed after our initial meetings, and in spite of my insistence, I was not invited to visit the project site and stay there to participate in everyday management and research. Nevertheless, the vivid experience of my first encounters with macaws remained with me. When I was nearing the end of my research, several months after my first visit to the AP, one of my ANAI friends told me that a friend of hers was working there, and said that he could mediate and ask her if I could join. The connection worked, and a few days later I met Tirza, educational officer of the AP in Manzanillo, and tourism and cultural broker, who asked me to contact Sam, the new AP director, a UK ornithologist, who soon authorized me to join as volunteer.

At the AP, I spent most of the time with the project’s personnel: Tirza; Sam, who visited while I was there; Duaro, a Bribri certified naturalist guide, bird lover and birdwatcher; Tom, a French expatriate who has recently come to live in Talamanca; and (a few weeks before I left) another Tom, who had been appointed field-site manager. However, there were also times when I was at the AP alone with macaws all around me, usually very close to me. My main tasks at the AP consisted of cleaning the macaws’ aviary (where they live while awaiting reintroduction) and searching for, preparing and serving food (and water) to the already reintroduced macaws, which still live around the site. During this time, I also explored the farm where the station is hosted; I slept in the small volunteer house; I participated in meetings; and I also had enough time to observe the multiple inhabitants and visitors of the place and the collective entanglement that was happening there.

In a meeting while I was volunteering at the AP, Duaro referred to the macaws at the AP as “las mantenidas [the kept ones]”. In response, Sam made it clear to all of us that macaws bred in captivity, such as those being reintroduced by the AP, had to be considered generations “bred to fail”, in terms of autonomy from humans, their familiar caretakers. “But in the future, this is going to be different,” he concluded, explaining that this was why the project had to prioritize the installation of nest boxes on the trees – especially on almond trees (Dypterix panamensis), macaws’ companions for life. For the macaws, it was time to reproduce on site in order to aliment the possibility that future generations will re-inhabit the forests of Talamanca – where they once used to fly before being confined to a small portion of the country, on the brink of extinction. Inspired by Sam’s words, and to emphasize her commitment to the cause, Tirza said loudly: “Para eso es la vida [this is what life is for]!”
I use these statements to introduce what is done, what is experienced and what is at stake at the Ara Project. I start by showing how macaws are sustained and supported by the project, how their reintroduction is taking place, and what kind of responses and signs are expected and interpreted. I thus emphasize the delicate ambivalence about macaws’ dependency on humans versus their emancipation, captured in Sam’s words about the problematic experience of supporting a generation ‘bred to fail’. Next, addressing Tirza’s expression, *para eso es la vida*, I will ask: what is ‘life’ actually meant for at the AP? What is at stake in the project and process of reintroducing macaws in Manzanillo? If this is a story of ‘staying with the trouble’ of our ecological time, in Haraway’s (2016) terms, what is the ‘trouble’ about and how it is collectively experienced at the AP in Manzanillo?

Therefore, this chapter will reveal how the efforts and concerns in keeping a flock of macaws alive are taking place at the complex intersection of meanings, manifestations, requests, routines, encounters, atmospheric conditions, and foreseen and unforeseen events. From the perspective of the AP in Manzanillo, *keeping alive prospects for life* is about more than reintroducing, caring and alimenting macaws. Rather, it is the continuous making and remaking sense of what is happening within and around the reintroduction site of the AP, where ‘the lives’ of macaws, trees, other animals, visitors, local inhabitants, volunteers and managers became deeply entangled in a sort of association in the name of ‘life’ itself, an emergent ecology of implicit and explicit alliances.

In this chapter, I argue that sharing a project or a plan for life means being *associates*: while associations are made across difference, there is enough shared ground to envisage diffused benefits for all the parties involved, although to different degrees. Therefore, considering the AP as a lively multispecies association, as well as a sentient project, I interrogate the possibilities and realities of interspecies reciprocal flourishing that are cultivated on site. This chapter will present ethnographic evidence that not only do humans support the lives of macaws (together with and through other species), but macaws are also keeping the project alive with their charismatic presence, vivacious flights, curiosity, needs, behaviours and requests. From this perspective, macaws no longer figure as the ‘kept ones’, but rather as the *charismatic* co-providers and supporters of a project in which several species are entangled through semiosis (signs, meanings, interpretations), ethical concerns and material instances.

Thus, following Serres (2007), I use ‘parasitism’ as an idiom for the reciprocal exploitation between the AP’s hosts and guests. This is the apparently paradoxical and
ambiguous collective logic and bonding force expressed in the pursuit of a reciprocal flourishing. Finally, going back to Duaro’s definition of macaws as ‘the kept ones’, I am inspired by Kelly (2012) to ask who are the guests and who are the hosts at the AP? This chapter therefore develops insights into the importance of parasitic relations in keeping a multispecies world alive and flourishing. I will argue that ‘life’ at the AP is meant to keep associations alive, favouring kin-making across species boundaries. Making this happen necessarily entails and elicits parasitic relations.

1. A project at the edge of extinction

The AP was founded as Amigos de las Aves in 1982 in Alajuela, on the Pacific slope of Costa Rica, by a couple of American expatriates and bird lovers, Margot and Richard Frisius. After Mr. Frisus died in 2010, Amigos de las Aves was restructured as a non-profit organization named Asociación El Proyecto Ara. According to the website, the organization’s primary purpose is “to reintroduce the macaws to their former ranges throughout the country, while also encouraging and facilitating their reproduction”. In organizational terms, the AP is “a Costa Rican licensed, government-supervised, conservation organization operated by the non-profit organization Asociación El Proyecto Ara”. It is striking that the conservation organization (the AP) is operated by another organization (the Asociación El Proyecto Ara), while also being government-supervised. AP, then, is no exception to the complexity of the institutional articulations of conservation, with its Chinese boxes, internal restructuring, state supervision and transnational alliances.

Throughout the chapter, I will refer to the AP in Manzanillo as the release site (‘sitio de reintroduction’), where great green macaws (Ara ambiguus) have been reintroduced since 2011. To put it in context, the Manzanillo station is one reintroduction site of a multi-sited national project (the Ara Project) which involves passionate conservationists from Costa Rica and abroad, and the two species of the Ara genus native to Costa Rica – the great green macaw (Ara ambiguus) and the scarlet macaws (Ara macao). Scarlet macaws are bred and released at the Islita field station, where the great green macaws are also bred and raised before being transferred to the Manzanillo field station, which is surrounded by the last remaining Atlantic tropical rainforests in Costa Rica. Probably the last of the local population of great green macaws was spotted several years ago in Suretka, a Bribri indigenous community located on the Cordillera de Talamanca, not far from the Manzanillo station. As a species, Ara

1 http://thearaproject.org, retrieved on 05/10/2017.
2 http://thearaproject.org, retrieved on 05/10/2017.
*ambiguus* is ambiguous in its taxonomic classification. Often, *Ara ambiguus* is treated as conspecific with *Ara militaris*, but, despite interbreeding, their characters remain differentiated (Eberhard et al., 2015). Furthermore, *Ara ambiguus* comprises two subspecies: *Ara ambiguus ambiguus* (which is released at the AP in Manzanillo) and *Ara ambiguus guayaquilensis*. Mitochondrial DNA data shows no divergence between the two (Eberhard et al., 2015), so subspecific distinction is based only on areas of distribution, with the *guayaquilensis* population living in western Ecuador and the *ambiguus* population living from Honduras to north-west Colombia, including the Atlantic slope of Costa Rica.

The AP Manzanillo field station, located between the communities of Puerto Viejo de Talamanca and Manzanillo, is a relatively small area with a house at its core, where just a few people can sleep and live. There is a large aviary in front of the house, where macaws spend their quarantines recovering, or pass a few months adapting to the new site prior to being released. Surrounding the site is a circuit of trees, on which feeders are installed through a system of pulleys and ropes. It should be noted that the Manzanillo AP site is located within a private *finca*, which maintains a generous regime of conservation; it was a pleasure to live as a volunteer and visitor on the *finca*, because of its peaceful location far from the main road and high up on a hill. The site is very forested, with high canopies; from the highest point (where visitors sit) it is possible to appreciate how macaws’ flights blend with the surrounding forests.

Centuries-old trees abound throughout the property, and the unthreatened presence of these trees, as well as secondary forest, constitutes a comfort zone that provides macaws with fertile ground for learning how to inhabit the logics of the forest, while still being able to refer on-site to the humans who care for them. However, during my volunteer experience, I rapidly become familiar with food collection, preparation and serving routines, and I understood that humans do not care for macaws alone. Humans and macaws receive support from other species and their fruits. Within the property, especially around the house, there are a few high mountain almond trees, as well as several new, recently planted ones. This small detail makes a huge difference for both macaws, who eat the hard-to-crush almonds of the *Dypterix panamensis* and nest inside its cavities, and for the almond trees, which, in exchange, have their seeds dispersed by macaws. Therefore, macaws’ synchronicity with, and predilection for, almond trees (Powell et al., 1995; Juniper and Parr, 1998) makes a huge difference in the life of this collective experience. Without other species, humans would have little to offer to macaws.
The presence of several almond trees inside the property that hosts the AP is thus the reason why macaws are transferred and encouraged to start their new adventure there. However, the entanglement between macaws and almond trees has been a risky affair in the recent past. In recent decades, despite its national and international narratives of conservation achievements, Costa Rica has seen high rates of deforestation and illegal logging, which have dramatically reduced the formerly abundant numbers of the *Dypterix panamensis* across the country, such that trees are now rare and dispersed. This loss has had a tremendous impact on great green macaws, contributing substantially to their risk of extinction. As such, great green macaws are included today in the list of endangered species in CITES (Convention on International Trade in Endangered Species), appendix I.  

On the other side of the entanglement, *Dypterix panamensis* is now more protected than it was a few decades ago, and may slowly recover in the future, since national legislation has prescribed extremely selective logging for its trees.

However, macaws’ livelihoods at the AP in Manzanillo must also be framed within a wider process of extinction that is already taking place, in which the loss of a flight way, to use van Dooren’s (2014) terms, is seriously at risk. I introduce the terms ‘flight way’ and ‘extinction’ together, because I am profoundly inspired by the work of van Dooren (2014), who has elaborated on the concept of ‘flight way’ within the framework of avian extinction stories that ‘implicate’ people. Van Dooren draws on the work of Helmreich (2009) to further expand the understanding of other-than-human beings as simultaneously life forms (organisms) and forms of life (sedimented ways of life). For van Dooren (2014, p. 4), the concept of ‘flight way’ expands our understanding beyond biological facts, since it includes “learning and development, social practices and the cultures that are formed out of these processes” of evolutionary relations. Van Doreen (2014, p. 4) argues that “relations produce the possibility of both life and any given way of life”. Looking at species as ‘flight ways’, he suggests, attunes us to “different temporal horizons” (van Dooren, 2014, p. 22), and to the “embodied temporality of species” (ibid., cf. Rose, 2012), by which he means the way their evolving ways of life “are shared, produced, and nurtured in the world through the work of successive generations of living beings” (van Dooren, 2014, p. 22).

This focus on temporalities is relevant to the issue of extinction, because it allows us to grasp the “significance of the coming to an end of a way of life” (van Dooren, 2014, p. 23). As van Dooren (2014, p. 12) explains:

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[...] extinction is never a sharp singular event – something that begins, rapidly takes place, and then is over and done with. Rather, the edge of extinction is more often a ‘dull’ one: a slow unravelling of intimately entangled ways of life that begins long before the death of the last individual and continues to ripple forward long afterward, drawing on living beings in a range of different ways.

In this sense, it is the intimacies and entanglements of evolutionary relations that are really at stake at the edge of extinction. Most importantly, this perspective reveals that it is never one species alone that is at risk of extinction, but rather the entangled multiple ways of life that species weave between them in the course of their evolutionary pathways. In this view, individuals are not stable and static ways of life, but rather “participants” (van Dooren, 2014, p. 27) in ongoing ways of life. These are ways of life that do not just take place, but “must be achieved” (van Dooren, 2014, p. 27). And so, because ways of life ‘must be achieved’, I suggest thinking in terms of ‘the imperative of life’, which at the AP motivates the continuous work of making a living where a flight way is at the edge of extinction.

Therefore, this chapter is located not only in the space of the field station in Manzanillo where I volunteered, but also in time, at the edge of Ara ambiguus extinction, where humans (who are largely responsible for this situation), are also committed to reversing the process of loss, while dealing with the uncertainty, concerns and stakes that this entails. As such, this is also a story of commitment and care, of a way of life that is reintroduced – if not remodeled – to be ‘achieved’ in new terms. Moreover, from a relational perspective, the AP in Manzanillo is a story of forms of life and life forms negotiating together about how to deal with their imperative(s) of life at the edge of the multiple losses that the absence of one might entail for the others. It is a story of biosocial entanglements and mundane preoccupations for life. At the AP, almond trees, macaws and humans are associates. But they are not alone, as many others too approach the site, in search of encounters, exchanges, favours and entanglements.

The AP can thus not be reduced to the infinitesimal patch of proximity between humans, macaws, almond trees and countless other species represented by field station in Manzanillo. The lines of life that meet there are alive as they pass through and as they move on, beyond, in space and time. So, whether the AP in Manzanillo is a site, a field station or a location, it dilutes and blurs into forests and movements, but also into the past, present and future of the project. This is why the AP should be considered a ‘project’, where different species, as well as different temporalities, interface. Etymologically, a project is something stretched out and thrown forth: it is about plans, and causes things to move forward.
Interestingly, similar to what Ingold and Pálsson (2013) and Haraway (2008) say about (to) *human* and (to) *world*, (to) ‘project’ can also be a verb. Therefore, as a noun, a *project* tells us about plans and causes, while the verb *to project* tells us about what is in the making, what is happening: stretching out, throwing forth, projecting. Certainly, at the AP in Manzanillo, ‘to human’, ‘to world’ and ‘to project’ are verbs, actions in the making. Therefore, the AP is a human projection that creates an entire world of meanings and circumstances in the name of the Ara macaws, of their past flights above the forests of Talamanca, of their delicate and endangered present, and of a better possible future which is always in mind and also in the making. So, framing the AP as a project – a project of life which responds to encounters and entanglements between life forms and forms of life, but also to past, present and future contingencies – offers us the possibility to reflect on the two patterns of time which are always present in projects that entail some sort of commonality. These two patterns are synchronous and generational time (Rose, 2012).

Rose (2012), an anthropologist and environmental philosopher, grounds her reflections in Margulis and Sagan’s (2000, p. 89, cited in Rose, 2012, p. 128) point that life is always “preserving the past, making a difference between past and present; life binds time, expanding and creating new problems for itself”. Margulis and Sagan (2000, p. 191, cited in Rose, 2012, p. 128), think of life as “a network of cross-kingdom alliances”. In this vein, Rose seeks to help us to think about ‘ecological time’ as a time of continuity between past and future (Salleh, 1997). If the ‘ecological time’ is thus an enduring one, for Rose it is also, in Hatley’s (2000) terms, an ‘ethical’ time: relational, responsive and responsible, generational and synchronous at the same time.

In Rose’s (2012, p. 129) words, “[g]enerational time involves flows from one generation to the next”, while “[s]ynchrony intersects with sequential time, and involves flows among individuals, often members of different species, as they seek to sustain their individual lives”. However, in her analysis, generational time and synchronous time are not abstract patterns, but are embodied and embedded in the flesh of bodies, and in the logics of association that sustain evolutionary arrangements and ecological mutualism between Australian flying foxes and their preferred myrtaceous trees. The basis of her reflection is very similar to the entanglement of great green macaws and their *Dypterix Panamensis* trees at the AP in Manzanillo.

Drawing on the work of Hatley (2000), a Levinas scholar, Rose examines the links between sequence, death, birth, and generations. In Hatley’s terms, Rose (2012, 124) argues,
“generational gifts constitute the genos”, which means that the group (or race, or species) is the result of “an on-going series of ethical relationships” (Hatley, 2000, p. 60). In Rose’s (2012, p. 134) view, “groups and gifts come together in an ethics of time”. She here alludes to Hatley, for whom “time is articulated as a differentiation across which and by means of which responsibilities are born” (Hatley, 2000, p. 61). For Hatley (2000, p. 219), we are currently living in a time of aenocide, “the murdering of ethical time through the annihilation of all the following generations”. Extending this argument, Rose proposes that extinction is an interspecies aenocide. She argues that, in Levinas’s and Hatley’s propositions, ‘ethical’ time is a ‘human’ time, in which the proximity of the other’s face is what calls us into question and into relations. For her, by contrast, ethical time is not only about ‘faces’, but also about “interfaces” (Rose, 2012, p. 136) of generations and of synchronous lives. Rose (2012, p. 135) thus poses the pertinent question of “how we may encounter ethics in the world of multispecies differences and connectivities, which is to say – in the world of ecological death, gifts, but also synchronous flows?” In response to this question, Rose (2012, p. 136) declares:

If we were to hold ourselves open to the experience of nonhuman groups, we would see multispecies gifts in this system of sequence, synchrony, connectivity, and mutual benefit. We would see that every creature has a multispecies history – it came into being through its own forebears and through others. Within this wider world of multispecies knots, ethics may be understood as an interface – a site of encounter and nourishment.

These reflections about temporalities allow me to frame the AP as a project-oriented interface of past, present and future temporalities, but also of exchanges, flows, connectivities and multispecies entanglements. As Rose reminds us, this interface is embedded and embodied in a world that is made up of mundane encounters and relations. As the ethnographic details will show in the following pages, it is across encounters and relations that stakes and concerns arise.

2. Reintroducing *Ara ambiguus*

At the Ara Project site in Manzanillo, after macaws are released, they are offered natural food near the release site for as long as it is required. Although this might sound like a short period, my volunteering experience suggests that this phase constitutes most of the AP’s daily work, and also its raison d’être after macaws are released. In fact, given the impossibility of predicting whether the macaws will be able to survive autonomously, without human support, the project cannot take any risks, and must therefore guarantee that macaws’ livelihoods will always be well supported. Today, most of the AP’s macaws were released since 2011 and are
still reintroduced today, many of them were bred in the Islita station on the Pacific slope of Costa Rica, and they are still regularly fed and cared for every day. This means that, when release takes place, macaws’ bonds with humans persist. To a certain extent, their life in common takes a turn, but human commitment is not over, but rather reshaped by the new contingencies. However, feeding is only a part of the story, as it happens together with other practical activities such as cleaning, feeding, observing, recording, intervening, counting, and explaining things to those who come to visit the site. This means that reintroducing macaws entails care and commitment translated and expressed into practices, skills, discourses, tasks, concerns, and work.

During my volunteering at the AP, I had to prepare and serve breakfast and lunch to the macaws, normally comprising sunflower seeds, horse or chicken food (which is nutritionally very suitable for macaws’ diet requirements), beach almonds (from *Terminalia catappa*, when *Dypterix panamensis* almonds are not available), and some local fruits such as papaya, banana, pejibaye or finely chopped coconut. I would collect almonds from a nearby beach, bring them to the project’s station and carefully clean them with fresh water, to remove as much sand and rotten parts as possible. Beach almonds are part of the diet of scarlet macaws, but for the experimental practices of the AP, what is eaten by a different species might also be suitable for a similar one. One day, I was cleaning beach almonds, while Tirza would choose the best, driest almonds. Suddenly, she turned her head to follow a toucan, which had come to eat some small berries from a nearby tree. As soon as the toucan left, Tirza walked towards the tree, and broke off a small little branch full of berries, saying, “If toucans are eating these berries, let’s give them to macaws to see if they have similar taste and also like them.”

Offering food is a prime instance of attempts to constantly establish new entanglements between macaws and their surrounding environment, but providing food is also what establishes entanglements with and dependence on humans. As such, food is a lure, as well as the most proximate contact zone of encounters, between human and macaws. It is therefore problematic. Tirza often complained to me that the new field-site coordinator was giving too much food to the macaws, after we had just discussed that we had to be more attentive about the quantities. Often, when I would go back to clean the aviary and pull down the feeders, I would realize that the macaws’ left-overs were more than what they actually eat, and, sharing my concerns with the team, I would discover that everybody had noticed the same. For my part, when that happened, I would always try to reduce the amount of food
given to macaws next time, making an extra effort to find fruits, such as bananas and papayas, across the farm. From the beginning, I was told that we had to integrate the macaws’ diet with what they could find autonomously within and around the project’s site. Also, during the first days of training, when Tirza assisted me more frequently, she repeatedly told me that I should also be careful with water quantities, as she had noticed when pulling down the feeders that there was often water left in the bowls, which was not good because it meant that the macaws were being given too much, meaning they were not going around to search for water by themselves.

Serving food to macaws is an intense bodily experience. Feeders need to be pulled down, cleaned and pulled up again. This operation requires certain skills and strength, which I acquired progressively. On my first days, I slipped several times because the soil at the foot of the tree is very muddy owing to all the human footprints. Also, at the beginning it was not easy to pull up the feeders, because macaws anchor themselves to the ropes as soon as the food is served, and some of them start to help themselves before others, while the feeders are still going up. At the beginning, I thought that was something to be expected, but, in our first meeting, Tirza said that the problem had worsened since a Brazilian volunteer had stayed there, since he had used that moment to interact with macaws. I thus understood that there was a sort of implicit rule at the AP, whereby humans expected macaws to wait until the feeders were finally secured above the tree. This rule involves certain empirical assumptions that I will refer to later.

Feeders are rectangular flat surfaces, with a dog bowl full of water secured to them. During my stay, feeders were made of wood, and prone to deterioration, meaning that dangerous splinters could easily be exposed and hurt macaws. For that reason, new metallic ones were ready to be installed soon. When feeders are finally secured, macaws fly over from nearby branches, and start a noisy shared eating ritual, involving discontent, squabbles and feathers flying; some macaws fly away, waiting for the next feeder to be pulled up, and perhaps for more generous dining companions. While I was in charge of the feeding tasks, I was asked to start the feeding operations every day from a different tree, in order to make it somewhat more unpredictable for macaws. After a few days, this request seemed quite bizarre to me, since the macaws had been used to those routines for a long time now. When I slept at the AP, I could hear macaws in the early morning making a noise on the metallic roof above my head, and sometimes also browsing inside the room through the window from the edge of the roof, perhaps to see if somebody was inside. When I said this to Tom, who had
also slept there sometimes, he said that the macaws were doing that because they were claiming their daily food, which they expected somebody to deliver for them.

Crucially, then, feeding macaws generates a certain degree of habituation and related concerns. Food routines constitute the most frequent moments of proximity between humans and macaws. Therefore, they are also responsible for creating and reproducing certain contingencies and conditions. There is something apparently highly contradictory that happens every day at the AP, which feeding macaws throws into sharp relief: what does it mean to reintroduce macaws into the wild, if they have still to rely on humans for food? What kind of reintroduction is this, if they are, as Duaro said, ‘kept ones’?

This question should prompt us to query our understanding of what being reintroduced into the wild, into macaws’ former ranges, really means. My experience as participant and volunteer allowed me ‘to unlearn’, to grasp these terms progressively and contextually, in relation to the project. To make this clear, we have to consider that macaws at the AP have been ‘imprinted’ on humans. As van Dooren (2014) remarks, the term imprinting is not the same as taming, but refers to the way that birds might be profoundly influenced in the understanding of their world and social group after prolonged contact with members of other species. For macaws at the AP, humans are their reference. They have been raised by them and fed by them throughout their lives. On the other hand, people are also aware that this practice fosters proximity to and dependence on humans. This is a paradoxical and delicate issue.

Once, I travelled with Tirza to Punta Mona, near the Panamanian border, to visit a farm where one of the macaws had spent more than a week. Tirza had heard about this from a tourist who had visited the farm, and, the very next day, she asked me to go with her and her friend to see what was happening. When we went there, we understood that people were feeding the macaw on a daily basis. So, Tirza had to convince the owners of the farm that they had to stop doing that, and that it was necessary to bring back the macaws to the Manzanillo station, where the rest of the flock was. One of the owners said that they were only doing what the project was doing, but Tirza explained to him and the other farm visitors that this was not the case, because at the AP the food was given to the entire flock, and portions were shared rather than individual. But at the same time, they had no animal food in Punta Mona, so they were feeding the macaw mostly with fruits, which was much better for their diets. After a couple of hours, Tirza managed to put her hands on the macaw, which had no problem with being near humans, and we brought it back to the AP inside a small bird cage.
So, while the project is working extensively through its educational programme to inform surrounding communities about macaws’ threats of extinction, their proximity to and dependence on humans still needs to be discouraged for reasons of safety and autonomy. Slowly reducing the ratios of food provided would probably help to achieve this, because macaws would need to search for it by themselves, or with other members of the flock. However, given that macaws associate food with humans, and humans with food, if they were to search for additional food, they might be exposed to the dangers of getting too close to humans and their companion species, in their farms and near their houses. This suggests a crucial point: food – or, more precisely, the peculiar double register of action and thinking that operates at the AP and is most evident with food – is deeply problematic.

In their ethnographic works, Alcayna-Stevens (2012) and Candea (2010) highlight a striking point which resonates strongly with what I am trying to point at here. From her volunteering and research practice in a chimpanzee sanctuary in Spain, Alcayna-Stevens (2012) develops the heuristic concept of ‘doublethink’ to make sense of the coexistence of the apparently contradictory modes of thought that characterize keepers’ reflections. On one hand, volunteers are convinced of the impossibility of ’knowing the chimpanzee world and its emotional articulations, because worlds are inalienable. However, in other circumstances, volunteer keepers argue that they can empathize with chimpanzees’ feelings, and thus access their world of meanings and experience. In a different context, Candea (2010) describes the dynamics of interaction between humans and meerkats in the research activities of the Kalahari Meerkat Project, in South Africa. In his account, humans and meerkats are “cultivating polite distance” (Candea, 2010, p. 244) through a very peculiar form of “inter-patience”, a “mutual suspension of action” (Candea, 2010, p. 249) operated by both people and meerkats. This shared agreement of inaction, achieved at a proper safe distance, allows researchers to observe and report on meerkats’ behaviours and social lives, while meerkats feel sufficiently safe and distant that they can volunteer themselves without running away. Strikingly, in Candea’s account, engagement and detachment are intertwined postures, which create a specific mode of relationality.

In light of these two works, I want to highlight the apparent contradiction of relationality at the AP. The project routines create patterns of interactions that attract and tempt macaws to draw closer and be cared for. However, these same patterns discourage them from being too close to and dependent on humans. Of course, this makes sense, because the project wants macaws to be self-sustaining in the long term. However, crucially, these
macaws have been imprinted on humans, and also parented by them – and these same humans now want macaws to be start doing things on their own, to be independent and make their living, while also providing them with food every day. These two attitudes might appear contradictory and ambiguous – in part, because they are. Nevertheless, my ‘unlearning’ has led me to see these different postures not only as contradictory, ambivalent or ambiguous (as they are), but also as co-present and part of the same project.

Feeding macaws is a human manifestation of care and interest for their existence. As we have seen, it is also a pattern of connection that entails a delicate balance and related concerns. The tools used in feeding routines reflect the same problematics that feeding entails. For instance, volunteers and staff take a water pistol with them while feeding macaws. The water gun is a pistol, but at the AP it has become an interspecies tool that shapes relations, opens up interpretations and reveals contradictions. On my first day of training at the AP, Tirza explained that the water pistol was an innocuous arm of defence, a way to protect ourselves from macaws when cleaning inside the aviary or when filling and pulling the feeders, while her son who came with her was spraying macaws inside the aviary to have fun. Therefore, the water pistol became part of my working arsenal: on a few occasions, I had to spray the macaws that jumped on the feeders while I was still filling and cleaning them. However, when we discussed macaws’ impetuous behaviour at the feeders with the project director, he questioned our repeated use of the water pistol. Sam explained to us that when macaws adopt a certain behaviour, it is very easy to reinforce it. They know that being sprayed in response to their provocation is also a pattern of interaction that they have configured with us. So, they also know how to deliberately elicit it when they want to interact with us. We thus came to understand that using the water gun reinforced this pattern, and that we should be aware of what that meant for macaws when using it. Finally, the use of the water pistol to show macaws how to behave reveals how difficult is to find a balance between attachment and detachment, proximity and distance, care and autonomy.

In this situation, then, there are multiple attempts to establish patterns of relations at work, which do not exclude but rather entail precarity, uncertainty, interruptions, distance and questionings. At the AP, this is everyday work.

3. Experiencing charisma and encounter-value

At first glance, macaws are the ‘beneficiaries’ of the project. However, my immersive experience at the Manzanillo field station suggested that I should explore the matter less
naively and in more collective terms. Therefore, I will look not only at how the AP is the main contributor to macaws' wellbeing, but also at how the project benefits from their progress in terms of reproduction, their presence at the site, and the general health of the flock. If macaws are doing well, the project too is doing well. A more careful examination thus suggests that the AP is to a certain extent the beneficiary of itself. This means that it is a sentient project where sentient beings meet, intersect, and respond to one another, in space and time, but also in economic terms. It is necessary here to clarify that the AP field station in Manzanillo is a collective experience in which energies and money are invested, work is performed and remunerated, achievements are pursued and measured, key information is recorded, and tasks are fulfilled on a daily basis. The economy of the project depends on all these dimensions, which in turn depend on the economy of the project, the number of visits to the site, donations, ordinary and extraordinary expenses. Therefore, in order to make sense of the AP as an interspecies association, it is important to analyse how value is produced and distributed.

Aesthetically, *Ara ambiguus* macaws are mesmerizing beings. Just in terms of what is immediately visible, their plumage is an evolutionary masterpiece of beauty and majesty that condenses the colourful shades of life on the Earth: green forests, blue waters and warm red light. I use these terms because macaws are living beings that will hardly leave the viewer feeling indifferent. During my fieldwork, I had the chance to appreciate their charm very closely. It took me only a few days to understand that their charisma was the unseen force behind the passionate engagement and care that drove the project, as well as the attention that people give them.

For Lorimer (2007), non-human charisma is a relational affective affair, which emerges between bodies. He identifies three different kinds of charisma: ecological, aesthetic and corporeal. Ecological charisma refers to the “properties of an organism that allow its identification and differentiation from others (the Jizz)”, as well as “the concurrence of its ecological rhythms with those of humans” (Lorimer, 2007, p. 917). Aesthetic charisma refers more explicitly to the “aesthetic properties of an organism’s appearance and behaviour when encountered visually by an observer either in the flesh or as a textual inscription” (Lorimer, 2007, p. 918). Finally, corporeal charisma refers to the “affections and emotions triggered in practical, corporeal interactions with an organism in the field”, or to the “visceral becomings involved in tuning in to an organism over a longer period of time” (Lorimer, 2007, p. 918).

While Lorimer’s types work well to highlight different nuances of charisma, I am not convinced that typology alone is a productive tool for understanding what really happens (with
charisma) at the AP in Manzanillo. I would be tempted to use Lorimer’s distinctions to make further distinctions and ask which kind of charisma affects who and how. We will discover that visitors, volunteers and long-term staff members are affected by different nuances and degrees of the charisma of Ara ambiguus in different ways, especially because of different degrees of temporal exposition and proximity, and a connection to macaws which might even be ‘spiritual’ for some people. But the ecological, aesthetic, corporeal and ‘spiritual’ types often blur one into the other. My direct experience at the AP suggests that Lorimer’s types are concurrent layers of different affective, perceptive and emotional responses.

However, one episode revealed a further point about macaws’ charisma. One day, I was finishing my feeding operations while a group of three visitors was having a tour with Tirza. At the end of the tour, they all sat on a wooden bench to admire the macaws flying above their heads. I joined the group, and stayed with them. The visitors were very impressed by their proximity to the macaws, and kept taking pictures with their camera most of the time. At one point, one of the three visitors stood up and showed her other friends an astounding picture she had managed to capture between a dozen of shots. In the photograph, the backdrop of forest canopy was blurred, and in the middle of the frame there was a macaw, which appeared very sharp yet brilliantly captured with the wings open. Another of the visitors – the most vivacious – implored her friend that she really needed that picture. She insisted and said that was the picture she “had paid for”.

It is striking that, despite her degree of humour, she admitted that she had ‘paid’ to have that picture, a pictorial representation of macaws’ vivid corporeality surrounded by the forest. Certainly, she had paid for the experience of having those beautiful macaws flying just above her head in the shadow of the forest. But this confirms that charisma – the charisma of a certain kind of experience – is what is sold to people who come to visit the project, as well as to those who decide to work and volunteer there. What I find interesting is that macaws’ charisma works, and is sold, because, being also an affective force, it has transitive properties. It is acquired through proximity, encounters, senses, and it can also persist as memory and emotion. When charisma affects you, it stays and remains with you beyond the encounter, as long as you can remind yourself of that encounter. Therefore, macaws support a commodified experience which in turn sustains the economy of AP, since guided tours at the AP generate some of the income needed to pay staff, to buy food and medicine, to maintain structures and to repair vehicles. Therefore, macaws’ charisma is promoted, offered, sold and used to keep the project alive and financially self-sustaining.
So, then, macaws at the AP have become, or been transformed into, commodities. But if this is so, what kind of commodities are they? I draw on Barua (2016) to answer this question. Barua argues that ‘charismatic’ or ‘flagship’ species might become lively commodities if considered as active participants within specific political ecologies and conservationist modes of production, such as is the case for the Asian lion and the Asian elephant in India. In his argument, Barua (2016) puts Haraway’s interest in encounter value to work, which she considers an under-analysed axis of capital. For Haraway, encounter value differs from Marxist ‘use value’, being rather a “trans-species relation” (Haraway, 2008, p. 46), whereby “social meanings of all the ‘partners’ produce definite value in lively capital” (Haraway, 2008, pp. 62-63). Therefore, according to Barua (2016, p. 278), “encounter value can be thought of as that process of value generation where bodies, ethologies and liveliness of an animal makes a difference to, and is constitutive of, those very relations that render or mobilize it as a commodity”.

Furthermore, Barua’s argument is political in the way that it highlights technologies of detection, the ways and modes through which animals are spotted and made available to experience; these technologies, which sustain encounter value, “far from being neutral, are instrumental in forging the very relations of capitalist accumulation” (Barua, 2016, p. 732). Hence, “encounter value matters in political economic analysis when actual processes of production and circulation are considered” (Barua, 2016, p. 737). He proposes that political ecologies are “constituted by liveliness from the outset, rather than being ‘embedded’ into some material or ecological base as certain analysts suggest” (Barua, 2016, p. 737). Barua is thus concerned with questions of who is producing value and who is accumulating capital, which are also suitable ethnographic questions at the AP.

At this point, Barua reminds us how, for Ingold, farmers and herdsmen are hardly alone in their work, because they “set up certain conditions of development within which plants and animals take on their particular forms and behavioral dispositions” (Ingold, 2000, p. 77). In Barua’s interpretation of Ingold, “productive activity is about processes of growth, where human beings do not so much make the material world as play their part along with other lively creatures in the world’s transformation of itself” (Barua, 2016, p. 279). In this regard, for Ingold, “both humans and the animals and plants on which they depend for a livelihood must be regarded as fellow participants in the same world” (Ingold, 2000, p. 87). If, then, I apply this to my ethnography, Ingold’s ‘world’ corresponds to the oiled association going on at the AP between fellow participants, associates. And this holds true also in
economic and labouring terms. Above, I partially described what humans do for macaws. But macaws are not inert. They are noisy, curious, habituated, and fly about. They are establishing their presences and livelihoods around the Manzanillo site. During the annual vulture migration, which takes place in September in the sky above their heads, the volume of macaws increases, to make clear to passers-by that is their territory. Therefore, it is clear that macaws are active participants, but it is also problematic to assign any form of agency to them, or intention from a human perspective. It would be more useful for the analysis here to understand how their charisma, presences, behaviours are transformed into a commodified experience, in which they become lively commodities.

Crucially, macaws’ charisma, in order to produce encounter-value, has to be relationally experienced; it has to be ‘circulated’, meaning that specific forms (macaws’ bodily features) have to be ‘transfigured’ as charismatic and be recognized as such. In this interpretation, I am referring to the invitation of Gaonkar and Povinelli (2003) to explore what they call, following Lee and LiPuma (2002) ‘cultures of circulation’, to analyse how public forms “become palpable and are recognized as such” (Gaonkar and Povinelli, 2003, p. 386). Gaonkar and Povinelli’s (2003) argument centres on the point that forms – that as discussed here are intended as life forms, such as macaws and humans, and forms of life, such as species lifeways (and the AP sociality as an emerging form of life) – “are bound to the contingencies of audiences, occasions, and the material nature of the sign” (Gaonkar and Povinelli, 2003, p. 388). However, the authors continue, within and across cultures of circulation, forms “are bound by the analytic mode by which they are tracked” (Gaonkar and Povinelli, 2003, p. 388). This position resonates with Barua’s focus on technologies of detection, but cultures of circulation do something more: they do not merely detect forms, but also organize them in specific experiential ways, into “circulatory fields populated by myriad forms, sometimes hierarchically arranged and laminated but mostly undulating as ensemble” (Gaonkar and Povinelli, 2003, p. 391). So, ‘cultures of circulation’ are shared social experiences which “captivate” (Gaonkar and Povinelli, 2003, p. 388) publics in a particular way, not by translating meaning “across the chasm of two language codes” (Gaonkar and Povinelli, 2003, p. 394), but rather through “the functions of indexicality and mimesis (iconicity)” (Gaonkar and Povinelli, 2003, p. 395). This means that the ‘transfiguration of forms’ (the translation necessary to circulate forms across publics) works through ‘demanding environments’ that “demand, entail, seduce, intoxicate and materialize, rather than simply mean” (Gaonkar and Povinelli, 2003, p. 395). This makes sense at the AP, because what initially appears to be macaws’ charisma actually belongs neither to macaws nor to those who are affected by their bodies, flight and
noisy presences when they visit the AP. Rather, the charisma experienced at the AP belongs to the social atmosphere of a demanding environment in which “the local conditions of the entire assemblage are experienced and manifested” (Gaonkar and Povinelli, 2003, p. 392), and circulated among beings and publics, human and non-human.

This reminds us that experiences such as the AP are shaped and regulated by complex dynamics, through which value and forms are produced, reproduced and circulated. Many actors are at work in this process, but while they act from different positions, perspectives, ethologies and bodies, there seems to be a common idiom of reciprocal interexchange that works to mitigate and cross over otherwise irreconcilable differences. I will conclude this chapter by explicitly elaborating this logic.

First, however, I would like to focus more on the patterns that connect, while still being attentive to their precarious, malleable, ambivalent and always-in-the-making form. To address forms, I return to the work of Kohn (2013). For Kohn, forms are semiotic affairs: they manifest and signal their presence as signs in the world. For Kohn, life is taking place in the ‘open whole’ in which forms are living signs, following evolutionary pathways on the basis of what is meaningful for their future. I consider Kohn’s approach to be particularly useful for understanding why and how the relational patterns connecting humans and macaws at the AP take particular forms. In the next section, I will thus ground form and forms in the world of the AP, through the prism of care, which is the engine of social life at the AP’s site in Manzanillo.

4. Signs of care

Because of research constraints, my experience at the AP only lasted a few months. To compensate for my relatively short stay, I also conducted some interviews with the AP staff to understand more about the project. However, despite my efforts, I was not fully satisfied, because my informants tended to focus on their experience of the project and their fascination with macaws, giving me little information about how the project and its personnel kept track of the macaws once they are reintroduced. This is why, from the moment I first found it, I felt that the diary project had done the work for me, thanks to the careful observations of those who had been there before me and for a longer time. I thus parasitized the project’s diary as a source of information for additional understanding of the project. Although what is reported in the diary is not my own first-hand data, I have been lucky to access that information. During my last days, I started an exegesis of what previous volunteers and site-coordinators had recorded prior to my arrival. At first, I had to make some efforts to decipher the personal
calligraphies that often appeared very complex signs. However, once I had succeeded in deciphering them, other signs beyond language suddenly appeared – which profoundly enlarged my horizons, and also those of the project.

I thus find Kohn’s (2013) semiotic approach useful in relation to the signs recorded in the diary, to render manifest what the project cares about. Kohn’s reflections on signs might sound abstract, but both humans and other species actually care very much for the signs that are manifest around them. Signs are not abstract things, but are experiential manifestations, which in Kohn’s view are signalled and interpreted in the present, to be absorbed in evolutionary terms (for the future) by sentient beings. If signs thus yearn for the future, Kohn’s argument resonates strongly with the purpose of a diary at the AP, and most importantly with the signs that have been recorded in it.

In general terms, a diary records meaningful information, and meaningful information is something one cares for. In particular, the diary at the AP is meant to record critical information about the different things that the project cares about, which are so numerous that is important to keep track of them. What is reported in the diary is meaningfully happening in the present, but, at the same time, recording it might help in the future to orient actions, decisions and interpretations about the project’s uncertain life. Simultaneously, keeping track of certain signs makes the AP a lively entity, affirming in the world what I consider its multiple manifestations of care. In the process of caring for macaws, interpreting and recording signs is key. This is what the AP’s diary shows us.

Here, I assemble a representative puzzle of notes, fragments extracted from various pages of the diary.

Rains at night, anybody roosting on the aviary roof; Bird 383 with a poached eye (insect bite, fight?). No more mountain almonds available, beach almonds in Punta Uva, almonds everywhere.

Bird 182 coming back, she seems well eating on feeders with others. Some of them are missing. Call from Mike (chicken farm Paraiso), seen a bird in his property, young and acting weirdly, we come to see but was night.

Lots of vulture migration. Diet: pejiballe+beach almonds; Everybody eats them. 9 birds are eating in tree n/3. First day anti-parasite in water. 381 with a leg problem (fight?). 16:00 one of the released bird flying over site, others calling him he tries to slow down and lie on the tree n/3 but doesn’t succeed, so he flies again too high and disappear.

Birds aviary don’t eat too much seeds. Exercise flight with them: calling birds and
encouraging them but results are disappointing. Report from Manzanillo, several people saw macaws these last days, 2 reports of one flying with vultures, and 2 reports of a lonely bird low on a tree.

Flight exercise much better: some start to fly alone now but a small group is still reluctant. 3 birds eating balsa’s flower. With Heike...visit at the finca de Aquiles. RM327 is 3-4 days in the finca is down eating beach almonds. I try to catch him but flies away.

Call of Julio Barquero: 2 tourists rescued 1 lapa bird in Cocles the 2 tourists bring the bird to the JRC, bring him back to the site RM342. 5 birds at the iguana center in BriBri (Kekoldi), source Teresa.

Dorothy [one of the macaws] found on the ground at Visitor’s Hill, seemed exhausted. Gave food and water to her, she ate very well, flies well, tries to eat on different feeders, but the others attack her. Same for Koko, seems healthy and has problems integrating with the group. Both like to be on the top of the aviary.

Couples fighting over nest. I saw two couples arguing about who goes into the bird nest. One couple won. Maybe more bird nests are necessary? Sandy was on feeders on the side and did not want to leave, so pulled him up with the food. He seemed to get bullied by other birds (they do not let him eat).

Sandy comes to the aviary to ask for almonds separately, others birds still not let him feed and they throw him off feeders. Many of them sitting on the aviary waiting for food very impatient sitting on feeders before feeders pulled up. 12 on one feeder very hard to pull the feeder up. 2 birds stole almonds before the feeders pulled up.

7AM. Many sitting on the top of aviary waiting to be fed. When they saw me with food they started to produce very loud noises, like an alarm. Much louder than any day so far. 2 lapas tried to get to bananas that are hanging inside the aviary.

I am sure these notes explain very well how the AP works, with its informants, inspections, concerns, relations. Most importantly, these notes clearly reveal what ‘to care for’ macaws means at the AP. Furthermore, these notes tell us that macaws have been given names and numbers, as have almond trees. Moreover, these notes tell us that macaws have specific ways of behaving amongst themselves, with humans, and in response to what is happening around them. Additionally, these notes tell us that the project is tracking and controlling their movements, as well as their diet, individual health and their degree of integration into the wider collective. Finally, these notes tell us that someone is even trying to teach them how to fly, as if humans knew what that meant!

These notes therefore manifest care as the process of being in the world, for both macaws and for those who took notes on a daily basis. I thus refer to care as the interest that
sentient beings have in life signs. This implies that being interested in, affected by and concerned with certain signs also configures specific relations and ways of being in the world: signs make one’s life. So, what is reported in the diary renders tangible both the work of the project and the fact that macaws are making a living in the world. Moreover, those notes have become signs because they attribute meanings and interpretations to what they stand for – the events, behaviours, atmospheric conditions, accidents, alarms, and concerns that they have recorded – which are finally contextualized and made sense of within the framework of the project. If specific meanings are attributed to specific manifestations, this is because care is at work: there is attention and concern towards something that matters in relation to something or somebody.

However, this remains a static view of the vitality of the logics of care at the AP, and also of its limits. In their introduction to their edited collection, Care in practice, Mol, Moser and Pols (2010), reflect on a highly diverse body of literature related to care practices. Their theoretical effort seeks to trouble distinctions such as those between care and technology, care and control, care and economics, care and killing. Rather, they suggest that care is “a way of working” (Mol et al., 2010, p. 7) made up of practices and embodied experiences. What therefore emerges within the diverse works of the volume is that care practices entail complexities, ambivalences and shifting tensions. This happens, Mol et al. (2010, p. 13) suggest, because the ethics of care are specific, as they “never sought to answer what is good”, or bad. On the contrary, the ethics of care constitute themselves as experimental and “practical tinkering”, in which “qualification’ does not precede practices, but forms a part of them” (Mol et al., 2010, p. 13). From this perspective, care involves constant experimentation, which entails zones of moral opacity and uncertainty. Most importantly, the authors invite us to think about those who “receive” (Mol et al., 2010, p. 9) care, about their position within wider “collectives” (Mol et al., 2010, p. 10) rather than “collections” (ibid.) of individuals, and about their practical work and contributions to the relational and embodied nature of care practices. Mol et al. (2010) argue that care is not practiced neutrally on people and other animals. Those who receive care (such as the macaws at the AP), together with technologies which help deliver care (binoculars, feeders, water pistols), are also caring actively for things to happen. If they are inanimate things, they are also mediating by responding to care stimuli, and becoming signs of care which are actively perceived in the world.

At this point one might ask: do macaws also care for? And if so, what do they care for? Do they care for humans, for the project, for the forests that surrounds them? The diary
suggests that macaws do care for all these things. They care about their food, about what is going on around them, and they care and respond to those who practise with them. They care for exploration, for their nest and for their flock. The list is endless, and is only partially recorded in the diary. Probably, there is something different to ask to think about care through its intersubjective practices. More thought-provoking ethnographic questions would be: what degree of care is good or bad for macaws? What degree of care are macaws allowed to express and manifest? Where are the limits of care at the AP?

The impatient and impolite behaviours of macaws, jumping and sitting on the feeders before time and before the other members of the flock, can help us answer such questions. From a semiotic perspective, feeding routines and practices are unequivocal signs for the macaws. They are signs of free, gourmet food, which also represent the care humans have for them. So, it is understandable that macaws care very much about those signs. On the human side, feeders, food and macaws are the most tangible and corporeal experiences (as well as signs) of care. This is also why people working at the AP care very much about feeding macaws. In this situation, care is on both sides. Ideally, people and macaws should then be free to express as much care as they want. However, it is precisely at this point that care establishes its limits. Concerns arise, and safe distances are quickly negotiated.

In fact, macaws’ behaviours at the feeders are risky, for various reasons. First, when macaws pounce and sit on the feeders, operations become very difficult – because those who operate the pulleys and the ropes need to sustain all that weight, their balance is already precarious. One day, when I was not wearing gloves and it was raining, because of the weight of the macaws, the feeder rope slipped between my bare hands, and I slipped in the mud. All the food I had just put on the feeder poured over me. Luckily, the feeder fell to the side of my shoulders, and everything was fine. Secondly, that kind of behaviour exposes them to consequential disputes with the wider collective, and its specific rules and punishments, as the diary notes reveal. Finally, if macaws care too much for humans and for their food, this is a partial failure for the project, which ultimately wants macaws to stay away from humans, in particular, to stay away from those humans outside the AP. It is not an easy task to explain this subtle difference to macaws. Indeed, as Sam explained, their proximity to us is also a request for meaningful interaction. This is something which is hard to discourage, not least because the project is every day encouraging the proximity of macaws to the meaningful interactions that sustain and nurture them.
The manifestations of interspecies care are thus highly problematic. Far from being univocal, they are demanding sense-making and decision-making experiences. While it is clear and acceptable that macaws are also caring (whether for us, the providers, or for the food itself), it is also understandable that their (excessive) care needs to be repressed and discouraged. If they care too much about the food given to them at the AP, this means that they are not getting their own food in the forest. As a sign, this represents the point that they are relying too much on humans, which means that they are (still) too far from autonomous, independent livelihoods. Assuming that this is what the project wants for them, certain behaviours that signal too much proximity and too much dependence are therefore problematic. Possibly, they need to be avoided, and also recorded, to keep constant attention on their manifestations. Therefore, the uncertainty of outcomes at the AP requires constant attention to the signs of care. Sometimes, certain signs need to be repressed for specific purposes. Thus, care establishes its limits – which is also a practice and a sign of care.

I draw on the work of de Bellacasa (2012) to draw my final conclusions about care at the AP. For de Bellacasa (2012, p. 197), “thinking with care is a vital requisite of collective thinking in interdependent worlds”. In her terms, to care for something inevitably creates a relation, a relation made by “layers of labour” (de Bellacasa, 2012, p. 210) in which “many are trapped” (ibid.). This relation is “often associated with exploitation and domination” (de Bellacasa, 2012, p. 198). De Bellacasa seeks to trouble idealized models of care, showing that to care for is not a “hygienic moral task” (de Bellacasa, 2012, p. 210). On the contrary, care engages with the “inescapable troubles of interdependent existences” (de Bellacasa, 2012, p. 199), the constant effort to avoid “falling in a too much” (de Bellacasa, 2012, p. 211). This is why, she argues, care has a “subversive character” (de Bellacasa, 2012, p. 202), as “our cares also perform disconnection” (de Bellacasa, 2012, p. 204). De Bellacasa (2012, p. 204) further invites us to examine “how our cuts foster relationship, more than how they isolate figures.”

In this sense, care entanglements and ‘cuts’ at the AP are rendered as simultaneous becomings.

To conclude, I combine Kohn’s and de Bellacasa’s ontological statements, to propose that when and where “forests [or humans, macaws or projects] think” (Kohn, 2013), they are “thinking with care” (de Bellacasa, 2012), with its signs and its limits. At least, this is what happens at the AP.

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4 Drawing on Strathern’s (1995) *Partial connections*, de Bellacasa (2012, p. 204) wants to draw our attention to “how ‘new’ patterns inherit from a web of relationalities that contributed to make them possible”.

5. Making kin, not just babies.

Throughout the year, the AP runs an environmental education programme (EED). Consisting of diverse activities, it is the project’s social arm, aimed at making people aware of the serious threats to macaws, including extinction. Tirza is the coordinator of the programme. During my volunteering I had the chance to help her with the educational visits she organized to receive young pupils from local schools at the Manzanillo field station. The visits to the site were the conclusion of a wider formative experience, whereby Tirza visited local schools to offer students an overview of macaw ethology, while also informing them about their risks of extinction, and about what the AP was trying to do for them. These visits, a core activity of the EEP, are one of the occasions (as reported in the diary) when macaws make kin (familiarize themselves) with the outside world. I use the expression ‘making kin’ for ethnographic and theoretical reasons, to explain something very specific that happens at the AP. First, let us consider the ethnographic reasons.

One day, during one of these visits, Tirza as usual invited the students to approach the feeders where the macaws were being fed. For the EED, younger generations are future local inhabitants. Their visit is thus an attempt to make them familiar with macaws, and with the urgency of protecting them in the present and the future. The group observed the operations from a safe distance, while I cleaned the feeders with a small soft brush, and filled them with beach almonds I had just washed, some sunflower seeds and a couple of bananas chopped into small pieces. When I pulled up the feeders, the pupils kept watching macaws eating together in their symphony of noise and disputes over food. Some pupils also managed to see an agouti (*Dasyprocta punctata*, a small rodent which plays a crucial role in dispersing seeds across the forest) passing to collect a few of the beach almonds that had fallen onto the ground from the feeders. The agouti is one of the parasites of the AP, and it seldom passes unnoticed by those feeding the macaws, as it is there every day, always rushing about. Tirza told the group, “Chicos, las lapas hay que cuidarlas, ellos son como ninos [guys, macaws need care, they are like babies]!”

This was not the first time I heard Tirza using that expression. Yet this moment was crucial for developing my understanding of the peculiar sort of parenting that is performed and sustained at the AP. Its peculiarity lies in the involvement of different species, such that it is problematic to use ‘parenting’ as a term here. This is why I suggest the expression ‘making kin’, which I consider more suitable for the analysis here. I understand ‘making’ as the process of building and establishing, and ‘kin’ in its meaning of one’s relatedness through (family or
familiar) similarity. Let us therefore consider further discursive contexts, to see how kin making, understood as parenting and establishing similarity, takes place at the AP.

One day, during a meeting, we were discussing upcoming changes to macaws’ diet, since the breeding season was ready to start. Sam, the new project director and an experienced ornithologist, was telling us we had to be extremely careful with the ratios of sunflower seeds:

It’s pure fat, and extremely addictive for macaws. It’s like chocolate for them, we need to use sunflower seeds to pass them other kind of food... It’s like what we do with children: we give them French fries together with fresh vegetables.

This is one of many occasions where macaws were compared to children. However, closer examination reveals something more. Certainly, Sam’s words vividly express the need for parenting macaws (across species lines), but they also establish a range of similarities (again across species lines). Sunflower seeds are similar to chocolate (cacao), and cacao is similar to French fries (potatoes). Moreover, what accompanies sunflower seeds is similar to the fresh vegetables that accompany French fries, unwanted but nutritionally crucial. Finally, macaws are considered similar to human children, as they require adults to use stratagems to complement their diets.

I saw ‘kin making’ at work on many other such occasions. I am not just referring to the endless discussions about how the next step of the project must involve macaws finally breeding and parenting new generations. With the expression ‘making kin’, I also refer to something that might sound like an anthropomorphism – looking at macaws as if they were humans. But there is something more to explore.

I often heard visitors being told that macaws’ life expectancy is similar to that of humans, just over 60 years. Also, in many of the private conversations I had with the project staff, some confessed that they loved how macaws were monogamous. Once they find a partner, they stay together all their life, as in a human love story. However, it is important to note that establishing similarities does not take place only between humans and macaws. It takes place across multiple species lines. In this sense, beach almonds are similar to mountain almonds when the latter are not available. Chicken food or horse food is nutritionally similar to more expensive bird food. On the face of it, there is a vast difference between humans and macaws, beach and mountain almonds, chickens and macaws, macaws and toucans, sunflower seeds and chocolate, chocolate and French fries. Yet similarity is the bridge that constantly
establishes connections across these differences. In this sense, difference is also the beginning of something else: experimental similarities that retain specificity. Macaws are like children, but they are still macaws: they have to reproduce and become parents. As humans, we can do the best to make it happen, but macaws will still have to do it, and in their own way.

In April 2016, a few months after I left the project, the first couple of macaws bred and, soon after, the first egg hatched. I can only imagine the euphoria and enthusiasm generated at the site by the event, as well as the tremendous satisfaction for all those who contributed to making this happen with their daily work and personal energies. A special mention goes to Duaro and Michael, the two volunteers I saw most often taking risks by climbing up to install the nest boxes on the top of more than 30-metre high trees. In one of these nest boxes, Pewe became the youngest macaw of the project. As I was not there when Pewe started to discover life, with everybody’s attention on him, I will briefly let one of those who was present speak. These extracts are taken from a blog entry published by a volunteer (Buffie Biddle) on the AP’s blog,\(^5\) entitled ‘Parenting macaw style’:

There is a saying about children making the best teachers. Indeed, this is true. At ARA Manzanillo, we have learned the most from our youngest flock member, Pewe, and his family... It is amazing to notice how many similarities exist between human parenting and macaw parenting.

Much like our human parents, Pewe’s macaw parents teach him using many different methods. They model specific behaviors and actions while perched directly in front of or very close next to Pewe, such as using their hands/feet to hold food to their mouths, they use their beak to balance up and down surfaces. They also use vocalizations as sort of verbal cues. They gesture with their beaks and use eye contact. They use touch, directing Pewe with a foot, wing or beak in the proper direction or alerting him to something nearby.

Pewe’s parents also used a form of behavior modification for the cessation of feeding Pewe, designed to increase Pewe’s independence when feeding. Rather than simply stop feeding him altogether they decreased the feeding a little bit over a period of time. At first, the less they fed Pewe the more frequent and loudly he begged.

Observing Pewe and his parents, it is impossible not to remark on the ways in which his parents teach him how to go about being a macaw. Being a very loquacious species, they naturally use their voices when communicating with him. Macaws use over 500 sounds in the wild (even more when they are involved in life with other species). But they also use non-verbal cues such as gesturing, touch, and modeling.

But he is going to be an exceptionally handsome adult macaw, and it is a gift to be able to watch him grow and learn, while we learn about him.

These vivid descriptions may at first sound extremely anthropomorphizing. And I am convinced that they are so, to the extent in which they render macaws parenting similar to human parenting. At a deeper level, however, there is more to these words and to what has been observed and recorded. First, there is the vivid witnessing of a flight way affirming itself, thanks in part to the work of humans. Secondly, certain overlapping forms of parenting are being articulated and related: we see how the macaw’s parents (with the help of the flock) are parenting Pewe ‘macaw style’, within a specific animal ontology and ethology. They are signalling to him how to go about being a macaw. However, the staff at the project is also constantly monitoring the situation, ready to intervene if any difficulty arises. So, although trying to avoid direct contact as much as possible, humans are also ‘parenting’ macaws from a distance, and sometimes accessing the nest while parents are away, to make sure everything is going well. However, if we read the blog entry carefully, macaws are also ‘parenting’ humans and the destiny of the project. How? They are showing to the project, as parents do with their babies, the opportunity to witness and understand what being a macaw means (being able to do things their own way), what ‘autonomy’ means in their terms (encouraging active behaviours through imitation and endurance), and how all this matters for their progeny (who will integrate into the wider collective and face vital issues in the world).

This is not therefore just a story of parenting and progeny. As Rose (2012) reminds us, this is an interface that also involves synchronous times. Synchronous times are the patterns of connection that extend and connect everywhere around, but not without friction, discomfort, loss and death. At this point, it is useful to enter into conversation with the work of Haraway. In her latest work, Haraway’s (2016) previous call for ‘worlding otherwise’ (Haraway, 2009) sounds now like a mature invitation to ground scholarly practice in the problematic experiences and urgencies of interspecies reciprocal flourishing. The results of these engagements, Haraway argues, will always be uncertain, precarious, and problematic. But we cannot afford to wait any longer. We are in the right ecological time to call for “response-ability” (Haraway, 2016, p. 2), the ability to generate adequate responses to the signs of life and death, of growth and loss, that are calling our attention. In her argument, the troubled present of this coexistence is the only time that matters. In the here and the now of interspecies entanglements, we need to stay with, and remain focused on, expanding kin across species boundaries. “Make kin, not babies,” is Haraway’s (2016, p. 102) motto for what will come after the death narratives of the Anthropocene.
At the AP, where things are already going in this direction, making not just babies but kin across species boundaries is under experimentation. This experimentation is not without trouble, but is conducted by staying with the trouble that it entails. However, troubles are not only interspecies concerns. Troubles are tortuous experiences created by interpretive shifts and opacity. As such, troubles also concern the way in which one makes sense of experiences such as the AP. While everything around seems to be in the making, adaptive, responsive, ambivalent and emergent, there are also troubles in finding certainty of terms and interpretations. This is because the uncertainty of life processes, entanglements and the ethics of care is also reflected in the instability of language, whose limits and ambiguities are laid bare by the semiotic complexity of the world we inhabit with others and their embodied worldviews.

Conclusion

Patterns that connect are unstable becomings. In this chapter, I have referred to various patterns that connect: ecological and temporal interfaces, charisma, encounter value, semiosis and care. But the story does not end with them. In this sense, Bateson’s (1979) reflections on ‘the pattern [singular] that connects’ is very timely. I assume that Bateson was interested in the generative logic behind the patterns (plural) that connect sentient beings and life processes. I now realize that Bateson’s reflections have been the issue at stake in my enquiry into the AP. I have sought to identify some sort of logic, or meta-pattern, that holds the participants together in the association which takes shape through the AP. But at this point, I find myself in a difficult position because things at the AP are not clearly readable and univocal. We cannot simply say that humans are the ‘providers’ and macaws the ‘kept ones’, because macaws are also sustaining the project through their enchanting, curious and noisy life form and form of life, through which the charismatic and rewarding experiences offered to visitors and project staff are valued, articulated and circulated. If we say, more politely, that the project is ‘hosting’ macaws, and that therefore they are the ‘guests’, we are also wrong, because the AP is in turn hosted on a private property. The project is somebody else’s guest, not the host. The landowners are not the hosts either, because they have formally donated part of their property to the AP.

Faced with such conceptual troubles, where the line between host and guest is blurred, I am in a similar position to that of Kelly (2012) and Kirksey (2012), which is relieving, because I

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6 As Bateson (1979, p. 6) asks, “What is the pattern that connects the crab to the lobster and the primrose to the orchid, and all of them to me, and me to you?”
am no longer alone, and I can parasitize others.

Reflecting on her collaborative experience of research with a group of entomologists in Tanzania, Kelly discusses the overlapping reciprocal hostings – the “forms of hospitality” (Kelly, 2012, p. 156) – which intercure between the multiple inhabitants of an experimental hut. This hut is designed “to preserve the dynamism of the malaria vector” (Kelly, 2012, p. 157), and is inhabited and socialized in order to transmit the disease. In her account, the hut works as trap and incubator of interspecies encounters between mosquitos, local volunteers and scientists. The hut, situated on the margins of the village, quickly becomes a domestic and familiar space “that generates facts” (Kelly, 2012, p. 147) for all the associates. However, what emerges from Kelly’s argument is how carefully and collectively the malaria vector is given the most favourable conditions for crossing species boundaries. The plasmodium microorganism that Kelly defines as ‘the parasite’ is responsible for transmitting the disease between mosquitos and humans, which are both hosts in the hut. At the same time, humans and mosquitos are also both guests of the parasite itself, which move across them for its own life cycle’s needs, even if this may entail its own and somebody else’s death. For Kelly (2012, p. 156), then, the parasite is the “instigator of multiple hostings”.

From a different perspective, Kirksey (2012), exploring parasitic relations in the Palo Verde National Park in Costa Rica, classifies as ‘parasites’ those species which interrupt “human dreams and schemes” (Kirksey, 2012, p. 27), and which have managed to exploit “emerging opportunities in novel circumstances” (ibid.). Kirksey reconsiders the accommodation of cattle, fringe-toed foam frogs, black-bellied whistling ducks, even cattails and its fibres, across the Palo Verde landscape, to show how these species manage to flourish despite adverse conditions. Most importantly, Kirksey notices that while the flourishing of parasites poses problems to humans, their presences and consequences inevitably become part of human trajectories and political ecologies. In Rotman’s (2008, p. 104, cited in Kirksey, 2012, p. 49) terms, parasites in the Palo Verde National park are “para-selves”: they maintain a “subsidiary relation” (Kirksey, 2012, p. 50) to one’s own multiple composed self, as they “take on different values depending on their positions with respect to other beings who live with them in common systems” (ibid.). So, in Kirksey’s (2012, p. 50) understanding, “humans and parasites, who flexibly became para-selves of one another in Palo Verde, maintained an abiding presence in the landscape by being beside themselves in a multiplicity of symbioses”.

Kelly’s and Kirksey’s works thus suggest that the parasite might be one or many, but their considerations are more useful for revealing an idiom of relationality that helps make
sense of those entanglements where it is problematic to define who is the host and who is the
guest, who is the parasite and who is not. Their ethnographic accounts make clear what is
actually at stake with the parasite and its social idiom: the forms through which living beings
become constitutive (para-selves) of one another, and the importance of these forms in
establishing the multiple symbioses which guarantee one’s presence in the world. It is
therefore not pertinent to ask who is the parasite at the AP. In fact, it is not about who is the
‘one’; rather, in Serres’ (2007) terms, we should ask who is the ‘third one’.

In his seminal philosophical monograph, The parasite, Serres (2007) tries to define the
parasite in as many ways as possible. Serres’ parasite cannot be a single individual, but
perhaps a living logic (Brown, 2004) of some sort, something non-mutual (‘abusive’, in Serres’
vocabulary), which is nevertheless diffused and shifting, rather than exclusive and stable. The
most convincing indication of what Serres means by the term parasite lies in his argument
about the ‘third one’. In Serres’ terms, A and B, two given entities in the world, can exist only
with reference to a third entity, which is what allows A and B to entertain any form of relation.
The parasite is thus the signal of communication and exchange, but also of the noise produced
by the medium of transmission and relation between two entities. The noise is the
reverberation of the mediation and transmission work operated by the third one, its presence
and its purpose ‘across’ the relation between A and B. Serres thus suggests that signals and
signs have parasitic attitudes. As long as they connect and relate (humans and macaws, for
instance), they also reinforce their meaningfulness and presence in the world. In this sense,
the AP is a sign of itself in the world. By signalling its own presence and the presences of
others, it exists meaningfully for itself and for others.

To conclude my story about the AP, I pose the rhetorical question: who is the parasite
at the AP? I would argue that the parasites at the AP are neither macaws nor humans, but that
the relations taking place between them are parasitic, as are the relations between all those
others around them. The parasite is the project itself. At the AP, there is a multiplication of
gain and collective benefits, as relations aliment encounters that further sustain and foster
other relations. So, as long as relations and encounters are sustained (in the present, yearning
for the future), they keep growing and reinforcing themselves in the present, becoming
increasingly meaningful in the world over time and possibly for new generations. Therefore,
what really counts and matters at the AP is the constant relational circulation of value
between its associates, which is also what keeps, and perhaps will keep, the association
ongoing and alive. In my version of the story, this is what life means and is meant for at the AP.
Conclusion

1. The facets of conservation in Talamanca

As I near the end of this fieldwork journey, I must retrace what brought me to Talamanca, in the Caribe Sur of Costa Rica, and explore my decision to align life and conservation by focusing on lives and world vitalities. On this journey, I encountered various distinct multispecies associations held together by life happenings. These associations are, in their own terms, defined by a shared concern, captured in my friend Justo’s words, “Los bosques hay que conservalos [we have to conserve the forests].” But ‘los bosques’, the forests of Talamanca, are densely populated, interconnected ecosystems consisting of multiple layers. To conserve the forests in Talamanca therefore inevitably entails broader engagements and collective flourishing emerging from forest inhabitants and from what is given in the world – what is out there, in the open; other living beings; and also the matter and forces of life.

It thus follows that ‘conservation’ is a term that subsumes different experiences and ecological responsibilities; as such, it is an abstraction about lively worlds which may share little in common in terms of forms (life forms and forms of life, as Helmreich [2011b] would put it), but which share the vocation of ‘staying with the trouble’ of human use of, and impact on, the world, while projecting and cultivating different possibilities of making a living with and through other creatures. My reading of anthropological works on conservation has left me with a sense that ethnography could do more to explore the consistency of conservation realities.¹ By ‘consistency’, I mean a visual, filmic sensation of intimacy, proximity, detail and intermingling which sustains the lives involved in social expressions of conservation in Talamanca – as I show in my film.

If, then, my research is about ‘conservation’, it is specifically about the facets of conservation in Talamanca. ‘Facets’ is a word that expresses perfectly the different perspectives of my research approach, through which I look at what I have called ‘the imperative of life’. By ‘imperative of life’, I mean what must be done to keep oneself alive

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¹ I refer to a corpus of works which address environmental conservation from different angles and in different locations: Hayden (2003), West (2006), Vivanco (2007), Brockington et al. (2008), Mathews (2011), Tsing (2011), Lowe (2013), Kirksey (2015). My interest in conservation responds to the analytical articulations developed across these works. However, my thesis is more atttive to the liveliness of the conservation experiences I had access to during my fieldwork. As such, I develop a path of enquiry more engaged with the project of bringing life and lives back into conservation. This is something Kirksey (2015) does with mastery in his Emergent ecologies, which is a pioneering ethnographic response to recent invitations by political ecologists (Brockington et al., 2008), to explore conservation more radically through multispecies relations.
when one ‘does’ conservation or when one is involved, as a species, in the material, semiotic and affective entanglements of cultivating biosocial flourishing and becomings. But facets also refer to implications, to what living beings have to arrange and negotiate to make a living and to affirm their existences on a daily basis. In the framework of this research, the contextualized arrangements that I describe in each chapter are variations of the imperative of life, which sustains conservation initiatives, projects and lifeworlds in Talamanca.

Drawing the different chapters together, what can the analytical interrelation between these different manifestations of conservation experiences, mediated by the researcher, tell us about ‘conservation in Talamanca’?

In general terms, the field of conservation in Talamanca appeared to me almost as densely populated as its forests are. I came across a countless number of organizations, private farms, community initiatives, eco-tourism promoters, local guides, individuals (residents and visitors) – let alone the different species – which together make up the well-oiled machine of conservation experiences in Talamanca. I use the term ‘experiences’ to refer to the availability of many of these conservation initiatives/manifestations to be lived, experienced. The density and variety of ways of doing conservation, and their openness to visitors, was what drew me to Talamanca, and reverberates throughout my research. How, then, is conservation stratified in Talamanca, the ecological fortress of the Costa Rican ‘conservationist’ state?

First, conservation in Talamanca today is a living outcome of the way in which indigenous people – including the Bribris, for whom Talamanca is ancestral land – have taken care of what they have around them. Without them, there would not be so much to conserve today, nor would there be a past reference to put contemporary conservation in perspective. Once, in his office in San José, I met the director of ANAI, a US biologist who had lived in Costa Rica for many years. As we were chatting in the garden about the Biological Corridor Talamanca Caribe, he told me:

I can’t explain to you what Talamanca looked like when I first came in the 70s. From an airplane, everything was deeply forested, from the mountains to the sea. For me, those images aliment the vision of the Biological Corridor Talamanca Caribe.

This is the ecological past that is manifested in a troubled present. In the 1970s, it was because of the conservation efforts of local people over the centuries that everything appeared from above as primary forest. Today, they are joined by many others who are taking care of Talamanca’s forests, farms, living beings, aquatic ecologies, biodiversity and human lives,
seeking to repair tears in the mesh. However, if commercial farming (whether of plantain or of cacao) has become the only way for the Bribris to make a living, what is left of conservation for those who have historically conserved? In this sense, the Bribris in Talamanca have been expropriated not simply of their ancestral lands, but also of their generative relation to the forests. The implementation of REDD+ schemes across the Kekoldi Reserve, where the priority for the Bribris is not climate change but the urgent need to reclaim illegally occupied lands, clearly demonstrates this paradox.

Secondly, local inhabitants in Talamanca are generally intensely involved in conservation experiences, and are familiar with conservation priorities, constraints, possibilities and political articulations in their lives – especially since they live at the margins of the forests, and witness the abundance of life in them. However, conservation in Talamanca is predominantly made up of transcultural and transnational encounters. Generally, conservation initiatives in Costa Rica respond to interventions devised by individuals, mostly foreigners who have found in Talamanca a fertile ground to realize their conservationist vocation, and who have invested significantly in their conservationist visions and projects. Indeed, when I was speaking with one of the founders of the Ara Project’s Manzanillo field station, he explained that because conservation projects and organizations offer their workers relatively poor remuneration, Costa Ricans usually prefer other pathways; this was why, he said, it was mostly expatriates with extra income who could take on the precarious, poorly paid jobs at the AP. Moreover, from my volunteering experience, I realized that it can be uncomfortable to actively support initiatives as a free workforce, while also knowing that permanent staff should be paid more for the work they do. The presence and the work of volunteers do not improve the situation, because offering their support to long-term workers may perhaps reduce their amount of work, but it does not generate better pay.

Thirdly, although this research is not intended to be an ethnography of a conservationist state, it tells us something about ‘the state’, and also about the state of conservation in Costa Rica. Once, when I was talking with Julio Barquero, the only Costa Rican biologist working for the ASBP, I asked him if the numerous local organizations engaged in conservation all over Talamanca were substituting or complementing the work of state. In response, he said that local initiatives and organizations were cultivating “una base de conocimiento [a basis of knowledge]”, which served to highlight the ecological richness of Talamanca and to promote local biodiversity to outsiders, while also achieving local results in terms of awareness and livelihoods. Julio went on to describe the difference in ‘agility’
between the ‘rhythms’ of the state and those of local organizations, such as NGOs: ‘different rhythms’ responded to ‘different interventions’. The state in Costa Rica, he said, intervened only if obliged to do so (‘obligaciones’), while local organizations would deal with everyday urgencies (‘urgencias’). To conclude, Julio said that in the past, the state used the achievements of local organizations to attract international funds, but today, because of its shrinking bureaucracy, the state had to rely on non-state actors to carry out activities such as environmental education.

To return, then, to my initial question of who benefits from conservation in Talamanca, a partial answer can be formulated on the basis of the understanding generated through my fieldwork.

It seems that the state is the first beneficiary of the liveliness of conservation in Talamanca. The numerous local actors who engage with ecological priorities and concerns are performing socio-ecological work that is very convenient for the state, which can leave ‘urgencies’ to others, and use their work to consolidate its international conservationist reputation. At the same time, those who are addressing the urgencies of conservation are often contesting and opposing the state, in particular – as emerges in my thesis – its infrastructures, which disrupt life and lives in forests and rivers. From another perspective, beneficiaries include those individuals with the social and economic capital to buy land, and to invest in the consolidation of ‘experiences’ that can be sold to visitors, volunteers, funders, journalists and nature lovers. These individuals and their ‘experiences’ are evidently benefiting more than those with marginal access and visibility. And those who have less access to visitors’ circuits are those who are most affected by the territorialized governmentalities of conservation – those who live within the Talamanca-Bribri and Kekoldi indigenous reserves, in the Cahuita National park and in the Manzanillo Wildlife Refuge. These people live within protected areas, where the use of natural resources is strictly regulated, but they must still rely on the use of local resources to make a living. Furthermore, conservation inevitably benefits those who make a living through the numerous encounters that allow them to intercept the visitors who come to Talamanca for its lush, well-conserved forests, its beaches, its protected areas, and also for its conservation projects. So, to be fair, conservation in Talamanca is benefiting many. I am sure that when my friend Justo changed his mind about the forests, thinking now that they must be conserved, it was precisely because he understood that he could now host people who wanted to experience and walk through the forest pathways he knows so well from when he used to hunt regularly in them.
Then, my research shows that the circulating culture of conservation in Talamanca concerns many, and that it has multiple facets, multiple angles and multiple implications. Indeed, I am dissatisfied with the umbrella term ‘conservation’, which is problematically used to cover a diverse array of local organizations, projects, initiatives, protected areas, actors and collectivities, which in different ways are caring for what happens to what they have around them, for what they call ‘la naturaleza’ (nature). As I explained in the introduction, while searching for conservation, I found social worlds soaked with life and lives. And ‘conservation’ slowly dissolved into its facets, into experience and experiences.

Finally, before proceeding to further concluding remarks, it is necessary to reconsider my ethnographic findings in relation to political ecology as an interdisciplinary field of study and analytical perspective. The political ecology of Bennett (2009), to which I refer in the introduction of the thesis, is my theoretical reference-point in the wider field of political

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2 I use the term ‘circulating culture of conservation’ to refer, first, to processes of cultural circulation, as discussed and problematized by Gaonkar and Povinelli (2003), who draw their expression from the work of Lee and LiPuma (2002, chapter 4). To be circulated, they argue, cultural forms are embroiled with specific frameworks of experience and interpretation, which constitute ‘demanding environments’. However, my thesis also intends to look at what is redistributed, and therefore circulated, when conservation projects and ecological entanglements are operating. In this vein, I relate my ethnographic contribution to the work of those who have discussed conservation and the ‘redistribution of privilege’ (Anderson and Berglund, 2003). Discussing the ethnographic material in their edited collection, Anderson and Berglund (2003, p. 3) take into account the “broader ecology of relationships” that informs conservation organizations, projects and initiatives, arguing that “eco-politics involves the redistribution of resources and costs”. To probe further in this direction, they invite anthropologists “to understand the ecology of the organizations themselves, their internal relationships and the constraints under which they operate” (Anderson and Berglund, 2003, p. 6). My thesis proceeds in this direction, as I engage with the ecology of organizations (or individuals) and their projects (life projects) in extensive terms, considering them as multispecies associations and shared emergent ecologies. But it also goes further, as I focus on the way in which the benefits of being associates are circulated and redistributed across species lines. This perspective is more helpful for understanding the evidence of my ethnographic findings, and reanimates (in multispecies terms) the social analysis of the ‘privileged’ or ‘underprivileged’ of conservation initiatives and projects. This perspective does not neglect the uneven distribution of environmental hazards and ecological crises, but it focuses on the associations that come into being to overcome and manage these emergences and urgencies.

Secondly, referring to the relation between culture and conservation (through terms such as ‘culture of conservation’ and ‘culture as conservation’), I not only consider the work of Borge and Villalobos (1997, chapter 1) in Talamanca, but also engage critically with and build on the seminal work of Milton (2002, via Kohn (2013). For Milton (2002, p. 23), the uniqueness of anthropologists studying conservation is that they can treat “environmentalism as a cultural phenomenon”, but only if this entails a reconsideration of ‘culture’ as analytical tool. In this sense, she continues, “the task of analyzing human-environment relations throws the spotlight on culture in its more general sense, as a universal component of human experience, and requires us to consider whether established anthropological models of culture are entirely appropriate for the study of human ecology” (Milton, 2002, p. 214). In this direction, Kohn’s semiotic approach pushes us to conceptualize ‘culture’ as an ‘open whole’ of signs and signalling, meanings and interpretations, which are human and more-than-human. Indeed, the concept of culture I use here does not refer to something stable or bounded. As I argue in my thesis, there are emergences and happenings that constantly orient and reorient the culture and cultures of conservation. Culture and cultures in this sense are fields of social forces and material arrangements, generated by multiple perspectives and ‘natures’ – I draw on Viveiro de Castro’s (2012) perspectivism here – as well as tensions and frictions that pull in diverse directions. Milton also thinks along these lines when she refers to cultural variation, stating that “cultures can differ radically in the way they allocate power within the universe, the way they perceive or conceptualize time, the way they define humanity and the relationship between life and death” (Milton, 2002, p. 223). However, Milton is not a ‘multispecies’ or ‘perspectivist’ scholar; otherwise she would expand further, shedding light on how cultures themselves are shaped by multiple and overlapping ‘natures’, and are therefore far from being stable (merely human) social arrangements.

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ecology. However, Bennett’s ‘vitalist’ re-visitation of political ecology is a recent turn of a longer track. Historically, as Campbell (2018) argues, political ecology has “attended to interactions of local livelihood systems with capital penetration and to uneven development across space and scales that produce ‘contradictory’ landscapes”. In this perspective, the work of Peet and Watts (2004), Escobar (2008), Brosius et al. (2005) and, most recently, Brockington et al. (2012) has consistently shed light on the patterns of inequality, exploitation and social exclusion that conservation-as-development (West, 2006) manifests and reproduces at a local level. However, while political ecology has recently focused on neoliberal conservation as a power-laden apparatus that has costs and impacts on local inhabitants, in this thesis I have worked in another, complementary direction, to address what has hitherto been left unexplored by political ecologists.

In this respect, more than a decade ago, Latour (2004) convincingly remarked that human exceptionalism (a product of modernity) entailed neglecting non-human hosts and a multitude of actants that in a way or another make us humans. So, my attempt to ‘rescue’ the presences of all those beings we would define as ‘non-human’, and of those entities that we would define as ‘non-living’ (water, electricity, infrastructures), has ‘political’ and ‘ecological’ intentions. In this enterprise, I am particularly inspired by Hinchliffe (2008), who calls for a ‘careful political ecology’ of conservation. He argues that conservation (in its various forms and manifestations) is not simply about making presences (such as rare species or endangered ecosystems) ‘eternally present’. There is also significant effort in managing emergent relations and entanglements. This is why, he suggests, a careful political ecology should not only be attentive to differences (of lifeways, livelihoods and positions throughout assemblages), but also to moments and spaces of instability, uncertainty and experimentation. Hinchliffe makes the argument, with which I concur, that these often unexplored circumstances are fundamental to understanding how socio-ecological assemblages are learned and reworked by conservationists across the globe. In my thesis I intend to offer a view of what a careful political ecology looks like when it is enmeshed with ethnographic accounts that emerge through practice, proximity and engagement with those who do and live conservation.

However, at this point, further critical discussion is necessary of the ‘non-human’. Following Menon and Karthik (2017), it is important to recognize that political ecology is not prevented from embarking into enquiries that are sensitive to multiple agencies, presences, positions, species, occurrences and vitalities. However, they continue, being ‘more’ attentive to the ‘non-human’ would undermine the critical potential of political ecology. As they explain:
A political ecology approach militates against this kind of simplistic inversion by considering both the human as well as the non-human within the entangled assemblages that they constitute. A political ecology approach calls into question the very nature of these binary oppositions – human and non-human – and their limits by examining the epistemological basis of these categories. (Menon and Karthik, 2017, p. 92)

Therefore, Menon and Karthik (2017, p. 91) frame political ecology “as an approach that problematizes attempts to protect/conserve non-humans as themselves part of developmental logics”. This is a reminder of the attention paid within political ecology to the nexus between conservation and development as politics or an ‘anti-politics’ (cf. Ferguson, 1990) machine. Most importantly, framing political ecology in these terms is extremely pertinent in the Costa Rican context, in which, as Bozzoli (2000) argues, conservation and (sustainable) development are politically entangled, two sides of the same coin.

Finally, this suggests that I must be more critical at a local and also at a global level, considering Costa Rica’s reputation as a success story as a conservationist state, pioneer in the implementation of payments for ecosystems services (such as REDD+) and, by 2020, also a carbon neutral country! To do this, it is necessary to think through somewhat more the local realities of conservation in Costa Rica and its global image as an environmentalist state. As I have explained, I had the impression that conservation in Talamanca benefits many. And in this sense, conservation in Talamanca (and most probably also elsewhere in Costa Rica) is a vector of social and economic development. For instance, the BCTC, one of the organizations I learned about during my fieldwork (while working with ANAI, which is part of it), is strongly committed to promoting conservation as a trigger of economic development. Many of the people I worked with consider conservation beneficial for their income and also for the economy of local communities, through eco-tourism or organic farming for instance. However, this should not leave us with a sense of satisfaction, because in Talamanca ‘conservation’ and ‘development’ also have costs and generate inequalities. So, what makes Costa Rica a global icon of state environmentalism, and therefore a global success story? What makes the decade-long work of conservation in Talamanca, presented and marketed as the ‘Talamanca Initiative’, worth the prestigious UN Equator Prize for its inspiring and consolidated results in both conservation and sustainable use of biodiversity?

My research does not focus on the work conducted by national elites and experts at different scales to translate conservation results in Costa Rica, from the local through the national to the global, as successes and achievements. While I am certain there is considerable potential to investigate in this direction, this is another story. Relating my fieldwork findings to
those of others who have conducted research in Costa Rica, such as Castree (2003), Pearson (2009) and Campbell (2007), suggests that what makes conservation initiatives in Talamanca and in Costa Rica ‘success stories’ is their adherence to market-based mechanisms and to processes of commodification of natural resources and local wildlife. Most critically, they are ‘successful’ by hiding what is ‘unsuccessful’, and this is increasingly made possible by the fact that Costa Ricans, those most in need of economic development (let us not forget that Talamanca is the poorest canton in Costa Rica), are ever more marginalized through dispossession of their lands and forests. Indeed, this often happens through transnational capital mobilized by foreigners or national and global institutions, which can therefore sustain, promote or put in place conservation initiatives and projects which may be good business, but are not a priority for local people. This is the case with REDD+ mechanisms throughout indigenous territories. Moreover, as Jimmy (the JRC’s gardener) once told me, locals would probably not spend so much energy and money rescuing injured monkeys and sloths. Furthermore, infrastructures too are important to think through, as they manifest the inequalities of both conservation and development in Talamanca. The JRC cares very much about monkeys being electrocuted, and insistently asks the ICE to intervene and update insulation technologies to prevent accidents. Similarly, ANAI biologists care for the future of diadromous species, threatened by the possibility that hydroelectric dams will be built. However, in their report addressed to UNESCO, there is only a very short paragraph on what will happen to humans if dams are built (to their landscape and livelihoods), in particular the Bribris, who have relied for centuries on their fertile lands, and whose traditional ecological knowledge and livelihoods strategies are today considered and sponsored as ‘sustainable’.

Finally, all this tells us that conservation in Talamanca, as development machine and circulating culture, is very much oriented to the ‘non-human’, so to speak. This should therefore warn anthropologists, also ‘multispecies’ ones, on the dangers of separating ‘the human’ and the ‘non-human’. (cf. de Wolff 2017, on the dangers of separating the ‘living’ and ‘non-living’). This is why with my work I focus intentionally on what I call multispecies associations. I do so because conservation in Talamanca can be thought and considered through the multispecies associations that animate its different manifestations, in a materially alive world. Most importantly, I adopt this perspective on associations, sustained relations, material arrangements and vitalities because my research suggests that conservation policies and politics should think more radically about collectives and entanglements, and not just about (bio)diversity. This is particularly necessary if conservation, development and environmental justice are to coincide in the near future in Talamanca, and in Costa Rica more
generally.

2. Multispecies associations and vital happenings

In this thesis, I have reconsidered and given additional meanings to some of my moments of life in Talamanca. These moments of life occurred within various sites and multispecies collectives, immersed in a biodiverse, lush, watery and multiply inhabited ‘open’, which I lived in, sensed and related to throughout my research, both alone and with others. This is tricky, because the boundary between what is ‘felt’ through sensorial immersion and what is ‘understood’ through analytical thinking can become blurred: what I understood through my research is also something I sensed in the open. Thus, what I have discussed in this thesis is the outcome of sensations and noticing, a cumulative process of highlighting through lived experience the richness of what keeps life forms and forms of life entangled and adaptive through the adventures of life, of a vital, uncertain, contended life in the open. This thesis primarily focuses on these two aspects of social life: encounters across species difference (a biosocial difference), and the matters and forces that inform and transform life as lived experience. These two aspects are relationality and happenings, organization and emergence, consolidation and change, connectivity and uncertainty – with these last two terms, I am in conversation with Rose (2011).

To bring life and lives back into conservation, I mobilize ‘multispecies associations’ and ‘vital happenings’ as analytical concepts. Throughout this thesis, I have used the expression ‘life and lives’ or ‘lives and life’ quite instinctively, to point to multispecies associations (lives) and to vital happenings (life). However, I now realize that multispecies associations (lives) are also vital happenings (life), as lives are expressions of life. But the term vital happenings is there to remind us that not all lives have life, in Kohn’s (2013) sense of having living semiotic ‘selves’. So, we might simply talk about vital happenings, focusing on the facts of life – but then we need lives to remember that there has to be somebody out there to affirm life by witnessing and conceptualizing it. Thus, I think of these two terms of analysis as simultaneous reminders rather than distinct configurations.

My ethnographic experience suggests that ‘to conserve’ means different things in different situations. The chapters are critical explorations of different ways of doing conservation, which have become ways of making a living through multispecies collectives. I now discuss what these different situations tell us about conservation. I find Gluckman’s (1940) analytical tool of ‘social situations’ useful, which he defines as “several events which were
linked by my presence as observer, but which occurred in different parts of Northern Zululand and involved different groups of people” (Gluckman, 1940, p. 9). This term can thus be used to explain what I explored, described and analysed in different research settings, and what emerges from the interrelation of these different ‘social situations’. Gluckman (1940, p. 10) further explains: “I call them social situations since I am analysing them in their relationship with other situations”. The aim is to “[abstract] the social structure, relationships, institutions, etc. of that society” (Gluckman, 1940, p. 2). Following Gluckman’s modus operandi, I work towards the interrelation of different social situations – those that compose my ethnographic material – to draw abstractions about the forms of social organization that characterize the circulating culture (and the ‘cultures of circulation’ [Gaonkar and Povinelli, 2003]) of conservation in Talamanc.

It would appear that the ‘social situations’ described in the chapters above are coming into being as multispecies associations which respond to vital happenings. To elaborate this point, I will first clarify what I mean by ‘multispecies associations’. The term ‘multispecies’ has already been used throughout the thesis, so it is more important here to focus on what ‘associations’ refer to. Associations are alliances, partnerships, consociations, organizations and interdependencies, as well as the joint purposes, causes and contingencies which sustain social cohesion. My four chapters show that multispecies associations take different material and semiotic forms, and can be thought of as lifeworlds, entrapments, projects and interfaces between species’ lives across species lines. Associations arise when species become concerned with their life and the lives of others – including those of other species – so that the ‘togetherness’ of lives becomes urgent and emergent. The multispecies associations that I have presented in my chapters are thus the urgencies and emergences that humans and other species have to deal with as a result of living life together. While associations necessarily concern their participants, the definition of associations refers to the relations between participants, their mundane arrangements. As such, multispecies associations tell us that encounters between species are made possible through the problematic accommodation of difference, which is necessary to sustain the relation and redistribute different benefits to different associates. Accordingly, thinking through multispecies associations must attend to species differences (in terms of ecological impact, ethologies, affordances, power, agencies and lifeways), but it should also look further, to engage radically with the gathering, rather than with the participants. Therefore, a multispecies association emerges when different lines of life move somewhere, which is not merely a place (cf. Aisher and Damodaran, 2016), but also a possibility of reciprocal flourishing (Rose, 2011; Tsing, 2015; Haraway, 2016).
Associations thus come into being when collective benefits can be pursued and distributed. Finally, thinking through multispecies associations highlights that ‘the whole’ absorbs differences, and condenses the multiplicity of ‘the parts’ in the name of something that is collectively relevant.

In chapter 1, the multispecies association entangles the Bribris and their ancestral lands and forests, but it extends further, to Justo’s farm, to his conic house covered with dried süita leaves, and to all those living beings that move around and inhabit his house. From the perspective of Justo’s lifeworld, the multispecies association revolves around the principle of sustaining others to be sustained by others; this is the result of trans-historical and trans-species relations (Kohn, 2013), which nonetheless are immersed in processes of material becoming in response to experiences of life in the open, where matter and forces – including historical ones – are alive in their own terms, and always reorienting life and lives. I am curious to know how life has changed since electricity arrived in Alto Katsi, where Justo lives, a few days after I left my field site.

Chapter 2 shows more clearly how matter and forces – such as water and its tendency to flow (responding to the force of gravity, one of world’s vitalities) – affect the life and the lives of multispecies associations. I argued that the rivers monitored by the ASBP are more than forms of flowing water: they are also meshworks of life lines that sustain multiple associations between those who inhabit the rivers (such as fish and macroinvertebrates) and those who make a living monitoring the lives and life of these rivers. Meanwhile, mundane preoccupations emerge from concerns about what can happen to the meshwork because of overlapping infrastructures, and about whether this might affect the associations and the lives that sustain them and are sustained by them.

In chapter 3, the multispecies association constituted around the JRC is one in which staff, managers, volunteers and injured animals are entrapped and navigate the troubles of a multispecies community which is on a daily basis occupied in performing an ‘experience’ that is commodified and consumed. What sustains the multispecies association at the JRC seems to be a tacit agreement, an interspecies promise of a future (and a present) in ‘the wild’, albeit a very familiar ‘wild’. The collective entanglement of lives at the JRC shows that multispecies associations produce and foster encounters and intimacies that trigger reciprocal becomings, as humans and other species have to develop precarious arrangements by learning and unlearning about others and about themselves.
In chapter 4, the multispecies association takes the form of a project-oriented association that extends in time and space. This also works as an ecological interface of synchronous and generational times that reaffirms the past-present-future continuum of a flight way across its human-defined habitats, the forests of Talamanca. Through the demanding process of sustenance operated by the association, which apparently benefits the macaws (as they are the ‘kept ones’), the AP produces and circulates encounter value, which is ‘transfigured’ (transformed), to be publicly experienced as charismatic experience. Most importantly, at the AP the multispecies association reveals itself through its parasitic relations. These relations are hard to decipher, because rather than benefiting one or the other, humans or macaws, they work to reinforce the meaning of being associates around an emerging form of life, that is, the association itself.

Since I have already presented in-depth chapters about these different social situations, I here want to emphasize that, despite their differences, what is meaningful for the social life of one association might also be significant for the others. In this sense, future projections and the uncertainty of everyday happenings are something at stake for my friend Justo, for the ANAI biologists and their programme, and for those (not only humans) who live and work at the JRC and at the AP. Furthermore, all these associations are made up of relations that are both trans-historical and, of course, trans-species. Therefore, the encounters, mutualisms, uses, dependencies and entanglements between species have to be understood as being sustained by multiple histories and evolutionary pathways. Crucially, it should also be clear that parasitic relations do not occur only at the AP, but are a shared feature of multispecies associations, which are continuously investing collective energies to reinforce themselves. These are just a few of the shared patterns between the diverse multispecies associations considered here. While it would be possible to expand more in this direction, I wish now to explore a further line of enquiry. Having argued that multispecies associations ‘absorb’ species differences in the name of a possible reciprocal flourishing, I am now interested in understanding what triggers their emergence, and what ailments them. At this juncture, thinking through vital happenings can suggest a different set of abstractions about the circulating culture of conservation in Talamanca from that suggested by multispecies associations.

With the term ‘vital happenings’, I condense a wide set of vitalities that do not fit into terms such as ‘species’ or ‘multispecies’, or indeed ‘associations’. Vital, as an adjective, comes from the Latin vitalis, meaning ‘of or belonging to life’ (vita meaning ‘life’). I refer to the
etymology of vital to stress that life as a noun, and vital as an adjective, are words, and that we humans use words to frame concepts in symbolic terms, which do not have direct reference to what they represent – which is also Kohn’s (2013) concern. I connect this point to Helmreich’s (2011b) remarks about the shadows of ‘life’ as an anthropological concept, inspired by the insightful contribution of Corsín-Jiménez and Willerslev (2007). Helmreich (2011b) argues that the shadows of life are manifest in his ethnography as the absence of a unifying theory for life facts, forms and limits. For me, what lies in the shadow of life as a concept – and also as an attribute, property, force and manifestation – is its restlessness, its continuous uncertain transformative becoming, with endless possibilities. On the basis of this consideration, I suggest that the terms I am using here are concepts that have ‘shadows’; that is, they explain things and experiences ‘of’ the world, but they also create ambiguity – shadows – by crystallizing processes and realities that are constantly responding to the world in its material and affective manifestations, in its vital happenings.

In this sense, while multispecies associations can be framed in semiotic terms – that is, they can be understood as collective, enmeshed and nested processes of reading other species’ signs in order to affirm one’s life for the future – vital happenings are better framed in material and affective terms. While multispecies associations work towards a problematic and demanding ‘consolidation’ of biosocial life, vital happenings are constantly causing emergence and urgency. In referring to ‘vital happenings’, I might have used the term ‘material becomings’ (Ingold, 2007b) or ‘vibrant matter’ (Bennett, 2009), or ‘affective forces’, those circumstances of social life which for Mazzarella (2009) are pre-individual but not pre-social. However, I have used the term ‘vital happenings’ because it refers simultaneously to material happenings and to affective forces – indeed, it is their concomitance that interests me here. Vital happenings are conjunctures of matter – which as Barad (2003, p. 828) argues, “is not a fixed essence; rather, matter is substance in its intra-active becoming” - and those forces that shape, disrupt and question social life, causing extra work in resettling lives that are already dwelling in a very uncertain world.

Throughout Justo’s lifeworld and in the film journey, there are many vital happenings. First, the combination of encounters that led me to meet Justo is in itself a vital happening, and a crucial one for my research. The flood that happened in 1995, which gave Justo the opportunity to become a plantain farmer, is another vital happening in his life. Furthermore, the rains that characterize everyday life in Talamanca, as well as the many occasions on which with Justo and his friends we had to cross (or navigate) rivers to go home or somewhere else,
are also vital happenings. Last but not least, Bribri history in Talamanca has been shaped by vital happenings: colonial encounters, the arrival of the UFC, commercial farming and global influx of tourism and transnational capital.

For the ASBP too, vital happenings are also of crucial importance and emerging everywhere. Finding a fish species that should not be there was for Bill the first surprise of the year, a key encounter that reminded us of the uncertain gap between what is expected and what happens, what emerges through the monitoring – which is therefore also the main reason to keep monitoring rivers. Most importantly, seen through the ASBP, vital happenings emerge as future possibilities – something that can happen may affect what is already happening and has been happening for a long time. If hydroelectric dams as material infrastructures become vital happenings of the future, in the present, diadromous migrations are already ‘vital’, since they are essential to the life cycle of species that are functional for riverine ecologies, where water as flowing matter is the vital happening that makes life possible for many species.

Additionally, at the JRC vital happenings are manifested as accidents as well as everyday affairs. In this sense, the JRC is where I most witnessed the disruptiveness and cohesive sociality of happenings, which are ‘vital’ precisely because they reorient and reconfigure lives and relations. Furthermore, at the JRC the material and affective concomitance of vital happenings is very evident in the intermingling of matter that expresses itself (electricity), material becomings in the open (through rain and encounters between bodies) and also the painful and exciting experiences of bodily proximity to wild animals. This proximity is what transforms us humans from poison into cure (Kirksey, 2015). It thus seems that what is happening at the JRC, and what can happen, is what sustains the centre, its relations and the promise of a future back in the wild, a familiar wild where further unpredictable life experiences may occur.

Finally, at the AP Manzanillo field station, the diary that records happenings tells us how important they are for the life and lives of a multispecies association. Because of heavy deforestation, great green macaws had gradually disappeared from Talamanca, when something happened: a group of macaws was bred and reintroduced where they used to live and fly. Furthermore, at the AP, things happen at the feeders, where macaws engage in noisy rituals of food sharing while vultures pass over their heads on their annual migration and agoutis collect their portions from the ground below the feeders. However, something more is happening at the AP: charismatic experiences are being enacted and circulated, while a flight
way at the edge of extinction is reconfiguring itself in a strategic alliance with humans. Thus, the birth of the first macaw on site was definitely a happening that will sustain the AP and the macaws for the near future.

As with multispecies associations, the interrelation between vital happenings in various social situations not only reveals their differences, but also their shared resonances. For the parties involved in multispecies associations, vital happenings are continuous reminders of the work their association is doing to entangle courses of life. Most importantly, the vital happenings I have referred to in the chapters of the thesis and recorded through my film are theoretical and ethnographic tools. These tools can enlarge the horizon of analysis by embracing the multiple vitalities of social life, whether water (Krause and Strang, 2013; Strang, 2014, 2015), lithic (Harvey, forthcoming) or earth vitalities (de la Cadena, 2014, 2015), whether semiotic (Kohn, 2013) or material (Ingold, 2007).

Acknowledging that the multiple vitalities of happenings disrupt, consolidate and shape the ‘social situations’ that I have assembled in my thesis, it is possible to address the effects they have on actual lives. This is particularly visible where what Bennett (2009) calls ‘vibrant matter’ is present – something that interferes by entering or leaving the assemblage. In my ethnography, prime examples of vibrant matter are water (floods or rainfall) and electricity (electro-fishing or electrocution accidents). Many of the happenings and social facts related to water and electricity show that these two energetic matters have force and vitality in their own terms, so expressions of their physical/material properties are alive in the world while also responding to circumstances of the world: fortuity, chance, unexpected encounters. Before concluding, I should mention that multispecies associations and vital happenings are also what I familiarized myself with through making my film, while I was carefully filming and editing the more visible and less visible details that comprise diverse expressions of both life and lives. In this sense the film has incubated a bifocal attention to multispecies associations and vital happenings that helped me find interpretative keys for my ethnographic material.

In sum, then, multispecies associations and vital happenings are concomitant and entangled. Within the framework of my research, these two analytical tools can be combined to draw abstractions about conservation in Talamanca, and to extrapolate what is shared across different life forms and forms of life, and across different ways of making a living ‘doing’ conservation. This is what I call the ‘imperative of life’. In the following section I will elucidate how this imperative emerges through the social situations I have referred to in this dissertation.
3. The imperative of life

The main interpretative outcome of my research is that people and species dwell within emergent ecologies (Kirksey, 2015), which are shaped not only by multispecies associations and vital happenings, but also by social processes, historical realities and political concepts. These concepts include ‘species’, ‘indigenous’, ‘volunteer’, ‘wild’, ‘biodiversity’, ‘habitats’, ‘reserves’, ‘corridors’ and, of course, ‘nature’ and ‘conservation’. In a world significantly affected by human impacts, the significance of such terms now extends also to all the living beings and diverse vitalities that animate the facts of life in Talamanca and beyond. I use the term ‘imperative of life’ to capture the possibilities for negotiation that lives have within the given constraints of their social worlds. The ‘imperative of life’ refers to the vital tension whereby individuals, with their projects of life, must negotiate their flourishing across lifeworlds already partially settled by categories, political circumstances and natural histories. This perspective resonates with existentialist anthropology (Jackson, 2012; Jackson and Piette, 2015), but in this work it extends also to multispecies lifeworlds and socialities. I enlarge further on the given constraints of lifeworlds by also focusing on the vital happenings (the interferences) that orient and reorient projects of life, as lives respond to (and are not in opposition to) ‘life itself’ (Helmreich, 2009, p. 28).

I consider the imperative of life – what has to be done to make a living in the world and to make sense of the world, to affirm existence in messy, uncertain, materially vibrant and ecologically troubled lifeworlds – to be the most ubiquitous ethnographic emergence of my fieldwork in Talamanca. To draw my conclusions about the imperative of life, I will discuss its variations in the different chapters.

In chapter 1, I reflected on the outcomes of my film project, which has negotiated its place in the research project through Justo’s lifeworld. In particular, I argued that within the given constraints (framework) of my research, my film incubated forms of attention. Both within the film and beyond, these forms of attention have become sensitive to multispecies associations, to vital happenings and, finally, to the imperative of life. Thanks to the film, the imperative of life is manifested in all its sensuousness and restlessness; most importantly, it comes into being as the experience of farming, making kin, repairing, walking, cooking, eating, sleeping, swimming. In this sense, in the film and in the first chapter, conservation appears as a socially extended process of living and perishing, of use, maintenance and consolidation, involving multispecies associations situated in place and time, settled and unsettled by life happenings that aliment and disrupt life and lives. Seeking to identify where is the
ethnography in my film, I asked where the imperative of life could be found, imagined, materialized and conceptualized. I argued that relations are the vector through which diverse imperatives of life are socialized between humans and other species. Moreover, making the waterworld of Talamanca manifest in filmic terms, I subtly suggested that the imperative of life is not simply about being or becoming species, but also about being or becoming matter.

In chapter 2, the imperative of life was clearly expressed by Maribel: “Si no hay pesca no hay almuerzo [no fishing no eating].” This statement seems to suggest that there is no life without lives. Seen through the ASBP, the imperative of life is about searching for food (‘is this edible?’) – not a food that is ingested without digestion, but one that is digested, absorbed as vital resource, without ingestion. Through the programme, Maribel’s imperative becomes entangled with the ‘diadromous’ imperative of life, that of having to migrate ‘imperatively’ between fresh waters and salt waters, not to have a swim, but to affirm life. In these circumstances, it should be clear that ‘conservation’ refers to the weaving of a meshwork in which different imperatives of life, that of Maribel and that of diadromous species, converge in the possibility of reciprocal flourishing. Last but not least, the ASBP also reveals that matter, such as water, has an imperative in its own terms. The river’s flow is the river’s life: to maintain the flow is to maintain the river as a tropical river continuum, which is ‘imperative’ if lives are to be conserved. From a different perspective, hydroelectric dams too have their imperative, which is that of being inevitably nested in the ecological infrastructures of rivers as ecological corridors. In this sense, the ASBP’s opposition to hydroelectric dams tells us that ‘conservation’ is also about the collisions of antithetical imperatives of life.

In chapter 3, at the JRC, the imperative of life is a daily loop, a sort of script performed on daily basis, with everyday variations and shifting actors. At the JRC the imperative of life is an ‘entrapment’. Indeed, I had the impression that the JRC was literally a trap, for both humans and animals, a trap of reciprocal becoming, and not necessary an idyllic one. The imperative of life at the JRC is the need to sacrifice mice every day as food for owls, or the need to keep monkeys within enclosed units, so that constrained spaces might encourage them to find a troop outside the centre, and leave. Moreover, the imperative of life at the JRC reveals itself in its ambiguities: once they have become familiar with humans, wild animals might become habituated to a more comfortable life (under a roof and with free food), and decide that they prefer the JRC imperative (to receive visitors and volunteers on a daily basis)

\footnote{For Sagan (2011), “[w]e [humans] come messily from a motley. Indeed we literally come from messmates and morphed diseases, organisms that ate and did not digest one another, and organisms that infected one another and killed each other and formed biochemical truces and merged.”}
to the imperative of life in the forest. At the JRC, the imperative of life is manifested in its care articulations – which respond to affective circumstances and happenings (such as electrocution accidents) – and in its economic configurations, since the JRC transforms ‘care’ into a commodified and consumed experience of proximity and engagement with wild animals that would otherwise stay away from humans. Once, Sandro, one of the founders, told me that he and Encar had only had a few weeks of holidays in the last ten years. Their tired faces and daily energy express perfectly the imperative of life, as an experience that is both demanding and rewarding.

In chapter 4, the imperative of life emerges in its parasitic logic, which explains its cohesive force in holding together multispecies associations. At the AP, the early morning and late afternoon imperative is to aliment the macaws, and, possibly, to receive visitors to sustain the imperative of the project in economic terms. In several meetings, Sam, the AP director, said it was a priority to install nest boxes on the trees, so that macaws (and through them, the project) would have the best opportunities to breed and reproduce, which, in Tirza’s words is “what life is meant for”, affirming the imperative of life through new lives and generations. However, as at the JRC, at the AP the imperative of life is based on care, and too much care risks being detrimental to a flight way which has just been reintroduced and needs to find autonomous pathways of life. There is therefore a need to establish limits, so that sustenance does not cause the project to fail. Moreover, at the AP, the project itself is the imperative of life, what remains while volunteers, staff, managers and visitors come and go. However, since a few months ago, the imperative of life at the AP has had a name, ‘Pewe’ – the name of the first macaw to be born at the Manzanillo field station. This incarnation in a new life turns the imperative of life from a philosophical speculation into a mundane occurrence that drives forward life and lives – the life of the project and the lives of those that coalesce around it.

It is now time for concluding remarks. In this thesis, I have laid the groundwork for an interpretative theory of conservation as (globally and locally) circulating culture. This circulation generates a mosaic of social experiences (which are also cultures of circulation) that entangle the lives of different species in the pursuit of a reciprocal flourishing. The ‘bifocal’ theory that I propose ‘associates’ multispecies knots and vital happenings, and therefore combines semiotic, material and affective processes, becomings and responses. What, then, does the imperative of life tell us about conservation? I would argue that the imperative of life brings our attention back to what it means to do conservation in practice, what it means to respond through engagement to the ‘ethics’ of conservation (‘we have to conserve the
forests’), which are constantly made and remade, thought and rethought in a world in which living beings make a living in response to the given constraints of their lifeworlds and to vital happenings. The term ‘imperative of life’ thus encompasses both multispecies associations, which are the most basic imperative for lives, and vital happenings, which make these associations stories ‘of’ the world rather than ‘in’ the world.

When people are doing conservation, then, they are negotiating their ecological responsibility and ethics with other living beings and with the matter and forces of the world. As soon as ethics become mundane engagements, they cease to be merely human prerogatives (cf. Kohn, 2013), and thus become multispecies affairs. This means that ethics become ‘of’ the world. Therefore, as species become entangled in the name of life itself, what is conserved, sustained and nurtured is neither their courses of life nor their lifeways, but rather the possibilities of a reciprocal flourishing which generates something new, relationally emergent. These possibilities always respond to and depend on the parts involved, on species differences, but they are also always converging on the imperative of life, the multispecies shared experience of making a living within the constraints of spatially and temporally situated political ecologies, and of the uncertainty of life happenings.

Finally, to explore life and lives as social facts, we as anthropologists need more attention and more awareness. Further attention might show us that our thick descriptions are often exclusive, and should be more inclusive of what makes us human. Additional awareness is needed, because we should never forget that “to classify is human” (Bowker and Star, 1999, p. 1) or that, whatever we are defining or classifying, “we humans are the definers” (Hastrup and Hastrup, 2015, p. 12). And it is at this point that ethnographic film might be our best associate for developing more attentive and aware anthropologies of life – not reductively as a methodological and theoretical tool, but as a contemplative experience through which we can learn to stay in the here(s) and the now(s) of life as lived experience. If our analytical concepts have hitherto isolated parts of the open whole, which is multiply inhabited and in constant restless becoming, the temporalizing and materialising experience enabled by ethnographic film can help us recover the multiplicity and simultaneity of imperatives of life and lives.
Bibliography


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