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Syntropic agriculture and affective labour: The 'becoming' of environmental subjects

Case studies from the Atlantic Forest and the Cerrado, Brazil

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Abstract

Human motivations for becoming environmentalists and to start caring for the environment are crucial issues in the politics of environmental conservation. Recently, academics have referred to Foucault's concept of 'governmentality' to comprehend the connection between technologies of power and technologies of the self in forming 'environmental subjectivities', that is, people who manifest a sense of responsibility towards environmental conservation and regeneration. This thesis starts from Singh's (2013) perspective, according to which the reference to governmentality tends to focus on technologies of power at the expense of aspects such as emotions, affects and embodied practices. These aspects are essential elements in human choices and decisions; hence, they shape human subjectivities. In addition to Singh's work, I rely on Spinoza's philosophy of affects and Hardt and Negri's (2004) notion of 'affective labour' to better understand the processes by which people shape themselves and the roles of affects and environmental, embodied care practices in the formation of subjectivity.

In this context, I carried out ethnographic research on three syntropic agriculture farmers who combine food production with nature conservation and regeneration in the Atlantic Forest and the Cerrado, Brazil. The resulting ethnographic evidence gave me the basis to argue that economic, rational and political motivations are not sufficient for understanding human decisions, behaviour and action. The analysis shows that the efforts of syntropic agriculture farmers in preserving and regenerating nature involve affective labour – a type of labour which brings together reason and passion. In fact, I found that the affects of syntropic agriculture farmers arise from relations with both humans and non-humans such as nature, family members, the market and the broader collective. These elements can be seen as part of the lifeworld of humans, influencing their affective relations and ways of engaging with the environment. The tension between different affects leads to continuous processes of 'becoming' of farmers' subjectivities, which is in contrast with the idea of the human mind and body as static.

Through daily activities of caring for nature – helping plants and trees grow – syntropic agriculture farmers not only modify landscapes but also change their ecocentric view of nature and their collective and individual subjectivities. To conclude, since syntropic agriculture farmers mobilise their affects to create alternatives to capitalist modes of producing and existing, the affective labour involved in these environmental, embodied care practices can have significant biopolitical potential.

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1. Introduction

Agriculture, which began as a common subsistence practice, has expanded and industrialized to the point of becoming a global business network and a political instrument, all the while inflicting significant damage on the planet's natural resources. The United Nations has acknowledged that planetary boundaries present a challenge to contemporary science, and this scenario stimulates dialogue among different disciplines and various approaches to alternative agricultures, as well as heightening the debate between scientific knowledge and other knowledge systems. Concurrently in the late 20th century, the alternative agriculture that had been developed by Ernst Götsch, farmer and researcher, over a 40-year period in Brazil, started to gain visibility (Pasini, 2017). The concepts and practices underlying Ernst Götsch´s agriculture, now known as syntropic agriculture, is the subject of my research as it relates to affective labour. Immaterial or affective labour is used to indicate the non-material outputs of labour such as 'knowledge, information, communication, a relationship, or an emotional response', and to focus on the potential of such work activities in the creation of 'social life itself' (Hardt & Negri, 2004 p. 109).

Syntropic agriculture is based on the realisation that entropy is diverging energy and syntropy is converging energy. Rather than these two forces being opposites, they are indeed complementary. Syntropy, a term coined by Luigi Fantappiè in 1942, gives rise to a constant increase in complexity (Di Corpo & Vannini, 2015). As an example, the forest is the most complex system in the plant kingdom, much more so than a monoculture field. Syntropy, rather than creating disorder through an increase in differentiation, pulls individuals and systems together based on their similarities. Accordingly, syntropic agriculture is guided by the principle that life is created by the drive of natural processes that lead from simple to complex systems. Therefore, it fits into the realm of sustainable agriculture as a type of successional agriculture or agroforestry system, but with the peculiarity of being based on natural processes of building fertility. Moreover, it dialogues with scientific knowledge through classic principles and concepts of community ecology, ecophysiology and functional ecology, which are, although often intuitively, part of the conceptual and practical logic of syntropic agriculture (Pasini, 2017).

Research problem and objectives

It is increasingly relevant today, within the context of current global environmental crisis, to radically transform our modes of involvement with nature. This crisis, along with the advent of the Anthropocene, presents us with the challenge to devise a new approach to 'caring for nature' (Milton, 2002), and a different concept of humanity. Syntropic agriculture has a significant role to play in this since it offers strategies and novel ways of caring for nature and creating a diverse society. A growing number of anthropologists and human geographers are providing instruments to rethink a new ontology of humanity and to re-examine human modes of being, subjectivity and motivators of human action (see Braun, 2008). Nevertheless, academic theorizers and policymakers for nature conservation have yet to embrace the significant potential of this approach.

Furthermore, as argued by Singh (2013), there are data deriving from disciplines such as behavioural economics, evolutionary biology and neurosciences, which demonstrate how affect, relations and empathy have an impact on shaping actions and behaviour. Nevertheless, policymakers continue to regard mankind as 'rational economic actors and rely on economic incentives to transform human behaviour' (Singh, 2013, p 189). From this perspective, human preferences and positions are considered as given and static and defined by self-interest, while the 'self' that moves self-interest is not questioned.

Studies on affective labour (Hardt & Negri, 2004) are pertinent to this new understanding of human actions and behaviour and there is a need to foster new opportunities for this kind of labour. Therefore, analysing

syntropic agriculture from the perspective of affective labour contributes to the debate over the relevance of affects and relationships versus rational and economic motives as drivers of human action. Indeed, affective relations involved in syntropic practices transform farmers through their engagement with nature, shaping their environmental subjectivity.

Syntropic agriculture systems, as agroecosystems, can be studied and evaluated on a sociological level. The role of humans in the system is a recurring argument in the syntropic agriculture narrative, as highlighted by ideas such as 'We are part of an intelligent system' or 'It is about sharing, not competing. In this system, all living beings fulfil their biological function with joy and unconditional love' (Pasini, 2017, p. 48). Thus, it is critical to investigate the way that nature affects the syntropic farmers who care for it. These interrelations require further research, also from a sociological perspective focusing on ontological aspects like the impact of affective labour and embodied practices on their process of 'becoming' environmental subjects.

To contribute to such a debate, using ethnographic research on three syntropic agriculture farmers in Brazil, I analyse the farmers' subjectivities using Spinoza's view on affect and Hardt and Negri's notion of affective labour. I highlight the potential that affects in day-to-day syntropic practices and work have on forging new ways of cooperation and communication, new subjectivities and new modes of being. In this thesis, I investigate the reasons why syntropic farmers have invested their labour (and care) in protecting nature and biodiversity even when more profitable and stable work options were offered to them. Economic motivations and dependence on nature offer a limited answer, but they do not lend clarity to how the subjectivity of the syntropic farmer is formed through the 'becoming' at work and the rapport between nature and people that develops through syntropic care practices.

The two geographical areas investigated in this thesis are of special interest because the link between syntropic agriculture and local social movements has brought a new understanding and relationship with nature, which in turn has led to the formation of environmental subjectivities. Both areas are located in Brazil, in the southern part of the State of Bahia and in the Federal District. In both of these regions, a conflict exists between environmental preservation and economic development associated with food production.

In the case of southern Bahia, the Atlantic Forest is undergoing intense deforestation (Santana et al., 1990) due to both wood exploitation and farming activities. At the beginning of the Portuguese colonisation, this coastal forest, known as the Atlantic Forest, occupied an area of approximately one million square kilometres (Peneireiro, 1999). In addition to being recognised as the most ancient formation of Brazilian vegetation, the Atlantic forest is also known as the region with the most endemism and biodiversity in Brazil (Peixoto, 1991/92; Dean, 1996). According to SOS Mata Atlântica/INPE (2008), only 10.6% of the pre-colonisation Brazilian Atlantic forest remains intact.

The syntropic farmers I met in the first area are primarily occupied with cocoa production which impacted the area differently than other parts of the Atlantic Forest. Indeed, deforestation started later because cocoa was planted in the understorey of the native forests where the canopy had been thinned out. Consequently, the condition of this forest region was spared for a longer period because the cocoa plantation depended on the shade of forest species. The syntropic farmers plant their cocoa trees in the middle of the forest according to the traditional system, called *'cabruca'*. Nevertheless, research brought forth an alternative method for cocoa production (i.e., improved germplasm has been available since 1965) and the practice of completely felling the forest to create technically oriented plantations became

preferable. With the fall in cocoa prices and decline of the crops from witches' broom disease caused by the fungus *Moniliophthora perniciosa*, the recent trend in the region has been to substitute cocoa plantation with more profitable crops or even livestock farming (Peneireiro, 1999). This caused a considerable increase in the deforestation rate of the Atlantic Forest in the southern Bahia and nowadays, the production of the area is based on eucalyptus farming for environmental and economic reasons.

The second area of research is situated in the Federal District, in the area surrounding Brasilia, the capital of Brazil. Here lies the Cerrado, the Brazilian Savannah, which is located in the centre of Brazil where there are the headwaters of the three main ideographical basins of Latin America (Amazonica/Tocantins, Sao Francisco and Prata). The Cerrado is defined the 'cradle of water' of Brazil because the soil has good draining capacity and the rain accumulates in the deeper soil layers. Nevertheless, drought is on the rise due to deforestation and changes in rainfall (www.embrapa.br). Considered one of the world's biodiversity hotspots (Padovesi-Fonseca et al., 2015), the Brazilian Cerrado is recognised as the richest savannah in the world in terms of biological diversity, hosting 11,627 catalogued species of native plants (Reis Rosa et al., 2007). Nevertheless, it is one of the most threatened biomes of Brazil, mainly due to the agricultural expansion pushed by the Green Revolution, the predominating model in Brazil over the last 50 years (Costa, Sauer & Balestro, 2013).

In the Federal District located in the Cerrado biome, the syntropic farmers I met focus primarily on fruticulture and horticulture. Although there is a significant deficit of products in fruticulture, the Federal District is self-sufficient in many vegetables (EMATER/DF, 2010). According to Emater (2009), there is still unexploited potential for rural growth in the Federal District and this is one of the efforts of the technical assistance to incentivise the adoption of more sustainable practices such as syntropic agriculture, mainly among smallholder farmers.

Due to the threat to both the Atlantic Forest and the Cerrado ecosystems, it is fundamental to further stimulate and enhance the traditional sustainable activities developed by rural communities and to promote innovative forms of landscape management which combine food production with restoration and conservation of natural resources. As shown in the Picture 1.1, syntropic agriculture proves to do this very effectively.

Picture 1.1. The agroecological transition including syntropic agriculture practices at the Terra Vista *assentamento* between 1997 and 2018. Source: Oliveira, 2017.

Within this framework, the main objective of this thesis, is to analyse the role of affective labour in the world of syntropic agriculture, how care practices and affect are involved in the formation of the new subjectivities of syntropic agriculture farmers, and evaluate whether their daily practices of preserving nature can be considered as affective labour. Accordingly, using the concept of affective labour and affective relations, and looking beyond economic, ecological and political motivations, my purpose is to analyse how affect and embodied practices influence the decisions of syntropic agriculture farmers in growing and taking care of nature.

Structure of the thesis

The introduction of the thesis begins with a short excursus on syntropic agriculture followed by an analysis of environmentality and its pitfalls. Then there is a discussion of Spinoza's view on affects, Hardt and Negri's affective labour concept and its biopolitical potential, and Singh's approach to embodied practices and subjectivities. These topics are explored in terms of their relation to syntropic agriculture. The concepts of *buen vivir*, ecocentric vision and lifeworld are briefly introduced. The introductory chapter ends with the research questions and methodology.

The following three chapters report the results of the three ethnographic case studies. The thesis explores and narrates how each farmer engages and relates differently with nature and identifies the drivers behind their actions to take care of it. Their everyday activities and affective relations intertwined in the labour of caring for nature are described. There is a discussion of how elements of their lifeworld influence their affective labour and attention to the collective. The analysis also illustrates the biopolitical power of their affective labour changing local subjectivities. In the concluding discussion chapter, firstly, comparing the three different cases I answer the research questions. Secondly, syntropic agriculture is further compared with agroecology. Finally, I analyse the potential and limitations of syntropic agriculture care practices to form new environmental subjectivities and to challenge the capitalist way of production and living through positive resistance of new modes of existence – overcoming environmentality and resonating also to *buen vivir* principles.

Introduction to Syntropic Agriculture

The origin of Syntropic Agriculture

The concept of syntropic agriculture emerged from a knowledge system developed by the Swiss farmer Ernst Götsch during 45 years of lived experience and practices. He has lived in Brazil since 1982 and he defines syntropic agriculture as a conjunction of principles and techniques making the integration of agricultural production viable to the dynamic of natural regeneration of forests (Andrade; Pasini, 2014). He coined the term 'syntropic agriculture' in 2013. Until then, his work had been recognised as successional agroforestry (Peneireiro, 1999) or regenerative successional agriculture (Vaz Da Silva, 2002). I use these terms as well throughout the thesis when referring to syntropic agriculture.

Natural succession is briefly explained as the process of natural regeneration, which presupposes changes in species composition in space and time towards the increase of quality and quantity of life (Peneireiro, 1999). Instead, agroforestry can be summarised 'as a dynamic, ecologically based, natural resource management system that, through the integration of trees on farms, diversifies and sustains production for increased social, economic and environmental benefits for land users.' (FAO, 2015). A popular name for agroforestry is food forest, which also is used throughout the thesis to refer to agroforestry.

Syntropy is a complement to the term 'entropy'. According to Götsch (1996), the concept defines one of the fundamental syntropic agriculture principles, that is, the objective of a positive energy balance measured by the increase of the consolidated life quantity and the development of successional processes in the intervention places. Despite the scientific tone, both in the choice of the term and its definition, the knowledge system of syntropic agriculture did not emerge from academia. Since Götsch conducts his experiments independently from formal research institutions, his work is still not very structured, defined or explained by science. The type of knowledge system to which syntropic agriculture belongs is unclear. It is neither indigenous, since Götsch is Swiss, nor local, since it has been developed during his life in Switzerland, Namibia, Costa Rica and Brazil (Pasini, 2017). Instead, it is multicultural knowledge, apparently *personalist*, essentially practical, and potentially innovative (see Appendix 1 for further information about the theoretical base, principles, and technical functioning of syntropic agriculture).

Syntropic Agriculture, affective labour and relations

The process of building knowledge, especially in agriculture, coexists with many variables. In this sense, it is expected that the farmer/observer, being a member of the syntropic agriculture scenario, try to understand natural phenomena in their totality. Certainly, syntropic agriculture is more related to complexity studies and to a system approach, rather than to linear causality and mechanical thinking (Pasini, 2017). Differing from technological packages that offer guidelines related to local particularities, syntropic agriculture is not a series of instructions to be followed. It is more of a logic orientating the application of methods, from farming plantation to future management.

Therefore, the reasoning which regulates a syntropic farmer's behaviour and actions is based on observation of natural dynamics. In fact, Ernst Götsch says "when I arrive in a place, the first question in my mind that I ask of a species is 'which good activities are you carrying out?', trying to identify the contribution that each plant makes to the environment" (*apud* Pasini, 2017). Furthermore, according to Pasini (2017) Peneireiro, (1999), Götsch (1995), and the syntropic farmers I met, this alternative agriculture has essentially two ethical principles: first, the farmer's relation with the environment and other forms of life and second, the ecocentric vision where the centre is nature, including, of course, the human being. Nature is considered as a valuable subject, regardless of the utility or the uses which are attributed to it. These principles are clearly expressed by Götsch's statement "In nature there is no competition. All inter- and intra-specific relations occur unilaterally moved by unconditional love and cooperation." (*apud* Pasini, 2017).

As illustrated in the excerpts above, and as I show throughout this thesis, although syntropic agriculture is a conjunction of principles, the specific needs and practices vary in each field and for each plant. In fact, syntropic farmers consider daily care activities, observation and experimentation the only ways to improve the management of syntropic fields. Specifically, *consortia*, the combination of different plant species in the same area, are central practices in syntropic agriculture and they require the understanding of relations between different natural elements. Such comprehension is obtained through daily practices of taking care of plants and trees. Accordingly, syntropic farmers consider it essential to learn from nature and they view nature as a teacher. For instance, ants are 'lived' as 'helpers' telling farmers what to do. According to Götsch (1995) animals are helpers, distributors, intermediaries, dispensers or transformers stimulating the natural processes. Cutter-ants have often been considered in this role because they cut plants which create tension in the *consortium* (*Ibid*.). Thus, they can indicate which plants have to be pruned or removed from the system.

In syntropic agriculture, 'caring for nature' involves daily activities in which each seed and plant requires attention. Each plant necessitates hours of assistance to grow and plants must be checked every day if they are healthy or sick. On a daily basis, a syntropic farmer harvests, devotes time to plants by watering and removing weeds, engaging in a cyclical caring process. More generally speaking, these daily care practices are also modes in which nature is perceived (Ingold, 2000) and through these activities, farmers build an understanding of nature that is lived and intimate (Raffles, 2002).

In such a context, the relevance of analysing syntropic agriculture through the lens of affective labour becomes evident. Indeed, these farmers form bonds with nature through this caring cycle. Affective relations are essential motivators of their actions and behaviour. Syntropic agriculture entails hard work, requires time, attention and care which are fundamental to have 'intuitional knowledge' of how the natural processes function. Consequently, passion and affects for nature are often the drivers of a personal decision to practice agriculture in this way.

Moreover, some people choose this alternative because they care for ('love') the environment, and syntropic agriculture is a way of producing food while being part of nature as well as improving the life of the environment towards forestry systems. Even when the reason is of a more material and economic nature, the bonds created through time and syntropic activities are the motivators to continue practicing this agricultural method, as expressed by one of the farmer's story reported in the thesis. If passion for agriculture or affective relations with nature are not involved in daily syntropic agriculture practices, it is probable that the farmer will shift to another activity, as presented in another case of this thesis. Therefore, daily care practices and relationships play an essential role in practicing syntropic agriculture: they are necessary to strengthen the farmers' motivation in doing what they do, and to understand how nature works in syntropic terms "through intuitional knowledge," as these farmers refer to it. Finally, their ties with nature, in some cases, spur them on to get involved in the formation of new collective environmental subjects, which express the biopolitical potential of the affective labour of these farmers.

Theoretical framework

From environmentality to affective labour and embodied practices

Although 'subject formation' (Singh, 2013, p. 189) has long been examined in philosophy, it has just currently been explored in nature-society studies. To analyse the role of local farmers' communities in nature conservation, Foucault's concept of 'governmentality' has been used to explain how technologies of power meet technologies of the self to produce 'environmental subjects'. Governmentality is defined briefly as the 'conduct of conduct'; government tries to shape human conduct by distinct methods. Different from discipline seeking to reform specific groups through intense supervision in restricted spaces, the purpose of government is 'the wellbeing of the population at large' (Murray Li, 2007). Its objective is to guarantee the 'welfare of the population, the improvement of its condition, the increase of its wealth, longevity, health, et cetera' (Foucault 1991a:100, *apud* Murray Li, 2007). Agrawal (2005a), based on Foucault, creates new ways of understanding environmental subjectivity 'beyond the limited perspective of structure and agency' (Raffles, 2005). He shows that, in opposition to the idea that actions are the result of beliefs, actions often lead to different beliefs and, therefore, new subjectivities, through what Agrawal defines as 'environmentality', that is, governmentality applied to the context of the environment.

Notwithstanding Foucault's later studies of the analysis of how humans make themselves, Agrawal's work stays closely linked to 'rationalities of governance' and disciplinary actions to produce subjectivity. Agrawal's work has been criticised for its lack of attention to local agency, and for lack of consideration of

embedded and situated practices through which environmental subjectivities 'make themselves and are made' (Singh, 2013, p. 190). Consequently, in line with Singh (2013), this thesis goes beyond the concepts of governmentality and environmentality that focus on technologies of power, but give little importance to affect, emotions, and embodied practices. In fact, these are essential elements in our choices and decisions shaping human subjectivities. Spinoza's philosophy based on affects, as taken up in the work of Deleuze (1988), Massumi (2002), and Hardt and Negri (2004) through the term 'affective labour', proved to be the tools to better understand the 'becoming' of people who care for their environment.

Clearly, syntropic farmers' daily practices of caring for and preserving nature can be seen as affective labour which brings together reason and passion. Their affects stem from relations with both humans and non-humans, i.e., nature, the market, family members or the collective. The tension between different affects not only leads to formation of new identities, but also, through the care practices of 'growing nature', farmers change their collective and individual subjectivities.

In the next sections, I elaborate on the Spinozian philosophy of affects and subjectivities, Hardt and Negri's (2004) terms of affective labour, its biopolitical potential to change subjectivities, and the relevance of embodied environmental practices. Furthermore, I discuss how these analytical tools offer the possibility to redefine syntropic farmers' identity and better comprehend the creative dynamics of their 'becoming' and the processes of relating with the environment. Then, I analyse how this syntropic farmers' relationality pertains to *buen vivir* principles regarding the ecocentric view. Finally, the role of the syntropic farmer's lifeworld in influencing affective labour is introduced.

Subjectivities, affects and affective relations

Within the social sciences, there is currently a wide interest in the function of affects (Clough and Halley, 2007; Hardt, 1999, 2007; Negri, 2000; Pile, 2010 *apud* Singh 2013). This 'affective attention' is partially motivated by the involvement with Spinoza's philosophy about affect (Ruddick, 2010; Hardt, 2007). Spinoza affirms that affects are a subgroup of 'affections' that increase or reduce the body's power of taking action (Deleuze, 1988). Spinoza's ideas promote a theory in which mind and body are on the same level. He refuses to give a predominance of the one over the other and highlights that an activity in the mind is unavoidably an activity in the body too, and a feeling in the body is unavoidably a feeling in the mind (Ethics III, 2 cited in Singh, 2013). Affect involves reactions of the body and the 'visceral perception preceding perception' (Massumi, 2002). With these analytical tools in hand, I look at the nature-care practices of syntropic farmers. These activities can be considered as affective labour including the body and the mind at the same time. This type of labour is motivated by relations and affects and creates new subjectivities and sociality. Indeed, syntropic farmers develop affect of enjoyment from environmental regeneration and care, and they reduce the suffering and sorrow related to the impoverishment of their territories.

Spinoza's idea of the body understood as affect makes its capabilities emergent rather than innate (Braun, 2008). His provocation 'We do not know what the body can do' draws attention to what a body can become (Latour, 2004) and creates a place for dialogue about the unfixed nature of the body (Deleuze, 1988). Therefore, Spinoza offers a new ontology of the human that is 'constantly open and renewed' (Hardt, 2007) and in which bodies are comprehended in terms of affect and relations (Braun, 2008). This ontology connects to the syntropic farmers' perception of nature as a teacher in which they learn through observation and daily practices: not only their perception of nature but also their becoming of environmental subjectivities occur through the process of getting involved with nature through everyday intimate relations with the whole environment.

As discussed in greater depth below, this syntropic farmer ontology and approach to social transformation through a new positive relationship with nature and agricultural work connect to the general posthuman concept of power as *potentia*. As shown by Ruddick (2008), Spinozian philosophy deals with 'dialectics of the positive' that substitutes 'negation as the driving force of social transformation with an understanding of essence based on affirmation, or *potentia*, i.e., the impulse to preserve and expand our powers to act' (p. 2589, cited in Singh p. 191). Recently, many scholars have considered the connection between empowerment and enjoyment (Ruddick, 2010).

Even though some theorists have referred to a Spinozian stamp on Foucault's theory (Juniper and Jose, 2008), there are relevant variations in the two academics' philosophies, particularly in their understanding of the subject and power. Spinoza creates a separation between *potestas*, the power to control, or alienate, which manipulates and 'separates something from what it can do' and *potentia*, interpreted as empowerment, or an 'indwelling capacity to act' (Ruddick, 2010, p. 24). In the Foucauldian philosophy, these powers are conceptualised as 'technologies of power' and 'technologies of the self', and theorists of governmentality have focused more on *potestas* than on the human capability to take action. The separation between these powers creates the centre of Hardt and Negri's reversal of Foucault's thoughts about biopower, as argued below. Thus, I refer to Spinozian philosophy and to the potentiality of affective labour to create space for local agency of syntropic agriculture farmers in ways that are life-affirming and creative. I use these theories to more fully understand and clarify how the sense of the self and the subjectivity of syntropic farmers are entangled with their natural environment and with the ways of syntropic farmers' cooperation that arise from the modifications in the environment.

Spinozian theory, as considered by Deleuze (1988), also leads to new forms of understanding subjectivities and the 'self' as 'spatialized, decentred, multiple and nomadic,' as opposed to the 'conventional self' understood as 'coherent, enduring and individualized' (Rose, 1998). Virno (2004) exposes this alternative notion of subjectivity very persuasively by utilising the concept of an 'amphibian subject.' Starting from Simondon's (1989 *apud* Virno 2004) theory, Virno argues that subjectivity is a complex assemblage of 'I' and 'one' bringing together 'unrepeatable uniqueness but also anonymous universality' (p. 78, cited by Singh, 2013).

Indeed, Virno affirms that Simondon's thesis helps to reformulate the subjectivity and to work on the principle of individuation. The thesis affirms that the individuation is never completed, which proposes that 'the pre-individual, that is, the universal or the generic, is never fully translated into singularity' (Singh, 2013, p. 191). In the process of individuation, the 'pre-individual reality', that is, the 'common, universal and undifferentiated', (Virno 2004, p. 74) leads to individuation. Virno recognised three elements of the individual: the prevailing relations of production, the language, and the biological basis of the species (e.g. sensory organs, motor skills apparatus, perception abilities) among many other options (p. 76–77). This analysis links with the insight into the subjectivity of syntropic agriculture farmers' as formed by their interaction with not only their social environment, but their whole environment. Their relations with nature, the market and the collective influence the continuous becoming of their identity and their daily practices. In some cases, they believe that there is no individual without the community; the individuality exists as a function of the collective. Finally, belonging to a collective reinforces the individual environmental subjectivity of the syntropic farmer.

To conclude, Spinozian philosophy based on affects, as analysed in the work of Hardt and Negri, Deleuze and Massumi, provides useful elements to bring more insight into the 'becoming' of syntropic farmers who care for their environment: new modes of caring and relating to nature come into existence, modes which

engender new subjectivities – and which relate to *buen vivir* principles (Acosta, 2016). In contrast to the formation of subjects in Agrawal's notion of 'environmentality', the Spinozian view of affect helps to comprehend how the sense of self is formed by people's affective ability to react to other bodies, both non-human and human.

Affective labour and its biopolitical potential

In my research, I consider it pertinent to use the concept of 'affective labour' (Hardt & Negri, 2004) to highlight the importance of affect and relations in syntropic agriculture practices. As I argue, these farmers utilise the understanding, intelligence and creation of affective labour. Beyond the physical work, agriculture is a science, and syntropic agriculture farmers renew their knowledge through practices, observation and intelligence. As Ingold (2000, p.85) states, the 'produce of the farm is neither made nor found but grown'. Farmers help animals and plants in their growth and development: Ingold (2000) associates children to plants in a farmer's fields. In the same way, through everyday activities of taking care of nature, syntropic agriculture farmers strengthen embodied relationship with plants. This reflects the feminist theorist approach of engaging with the idea of affective labour as caring or 'emotional labour' (Singh, 2015). The qualitative hegemony of affective labour in the current work situation forces society and labour to 'become communicative and become affective' (Hardt & Negri, 2004 p. 109).

Hardt and Negri's utilisation of 'immaterial labour' has been criticised for being too extensive since it doesn't adequately clarify the difference between material and immaterial labour. They mainly highlight the 'biopolitical potential of labour to produce society and subjectivities' (Singh, 2013, p. 192). For my objective in this thesis, this lack of clarity is useful. Indeed, the features of affective labour that I use are its ability to create and transform affects and relations, its biopolitical power to form subjectivity, society and sociality, and the uninterrupted current between life and work of syntropic agriculture farmers.

Hardt and Negri's analysis addresses this issue of the biopolitical power of affective labour. Hardt's (1999) conceptualisation of biopower inverts Foucault's notion of biopolitics; in a similar way, Negri (2004) reformulates Foucault's use of biopower to make it a Spinozian term and defines it as the power to create social life (Negri, 2004). Referring to Spinoza's division of power between *potential* and *potesta*, Negri distinguishes Foucault's term of biopower as *biopotere* and his interpretation of biopower as *biopotenza* (Negri, 2004). The former he defines as a power that produces life; instead the latter he defines as the 'potentiality of constituent power' and the 'bios that creates power' (Casarino and Negri, 2004, *apud* Singh, 2013 p. 192). Essential in Negri's conception of biopower is the Spinozian idea of productive life – that is, the capacity of human beings to produce a social reality that increases not only the capacity to exist but also the objective of its existence (Singh, 2013).

The biopower of syntropic farmers' affective labour is expressed by their employment of affects and environmental identities for collective action. This thesis discusses how their affective relations with nature motivate them in mobilising their environmental identity for community development and formation of collective environmental subjectivities. Moreover, the mobilisation of new collective syntropic subjectivities can lead to the creation of wider environmental networks.

Although affective labour is included in the capitalist project, Hardt (1999) affirms that attention to affect in labour and social practices can offer functional tools to challenge capitalist production. Not the entire production of affective labour is incorporated into capital, and the biopolitical potential of affective labour is always something more than the value that capitalism can take from it since capital cannot contain all of life (Hardt and Negri, 2004). A part of the extra value expressed in enhancement of minds, creation of ideas

and formation of relationships, leaks from capital's hold even as it constantly plans new forms of including it.

In particular, syntropic agriculture and the related new human-nature relation offer possibilities for alternative modes of being and living. Some syntropic farmers articulate a positive resistance to the capitalist project through not only a new way of production but also new forms of education and work related to a novel understanding and relationship with nature. This process can result in the formation of syntropic environmental subjectivities and even societies. To conclude, Hardt and Negri's idea of affective labour – as biopower that produces subjectivities – provides useful methodological tools to increase the comprehension of syntropic farmers' social transformation.

Intimate and embodied 'environmental care practices'

With 'embodied practices of care' (Singh, 2013, p. 195) I mean the day-to-day embodied practices in nature, through which the individual *sees* the flowers, *smells* their scent, *feels* the pleasant shade of the tree canopy: these are 'affects that depend on senses'. Through everyday activities of gathering in nature and assisting plants and trees to grow, syntropic agriculture farmers develop embodied and intimate relationships with nature, similarly as a person can create affective bonds through taking care of pets or plants at home. My point here is that this participation with nature is embodied and the performances are 'intimate.'

Although environmental discourse influences syntropic farmers' perceptions, the daily intimate activities with nature play an essential role. Surely, in syntropic agriculture narratives, farmers point to affective relations with nature through daily embodied activities of caring for and assisting nature. In this tie, intimate relations and embodied practices with plants and trees are much more important than social identities such as gender. Indeed, referring to her experience with farmers in India, Singh (2013, p. 194) stated, 'Their invitation to walk in the forest with them, I believe, was also a means of extending me an invitation to be part of the network of relations that flows and connects them to each other, and to their forest.' My research associates with Singh (2013) since syntropic environmental care practices exemplify the everyday activities and affective space intertwined in the labour of caring for nature. These nature-care practices can be analysed as affective labour.

Buen Vivir principles

Buen vivir is roughly expressed as the 'good life', and it is a model of a changing narrative mainly in Latin America. It characterises a starting point from the conventional development narrative towards a more collective, relational and ecocentric comprehension and existing in the world (Gudynas, 2011). Central to *buen vivir* is the pursuit of what signifies a good life. It is defined as integrative and collective well-being, 'where the subject of wellbeing is not the individual, but the relation between an individual and his/her specific cultural-natural environment' (Gudynas, 2011; Guardiola, 2011 *apud* Chaves et al. 2017).

Therefore, traditionally, *buen vivir* is a normative concept and I use it to refer to its principles about an ecocentric and relational vision of life (Acosta, 2008; Farah and Vasapollo, 2011; Escobar, 2011; Gutierrez, 2012). Surely, these principles link *buen vivir* with affective labour, embodied relations and the ecocentric vision of syntropic farmers. Furthermore, my respondents mention this concept as an alternative to wellbeing, and they consider it as a term which surpasses wellbeing, thanks to its attention to renewed relationship, vision and understanding of nature.

In this thesis, *buen vivir* is used to analyse the syntropic farmers' vision of nature, that is, an ecocentric view resonating to the literature of *buen vivir*. Some manifestations of their affective labour most certainly share

the same relational focus of *buen vivir*. More specifically, *buen vivir* connects to the affective labour of syntropic agriculture farmers' in its principle about promoting intuition and feelings over rationality, individualism and commodification. Indeed, *buen vivir* can be understood as people living in harmony with themselves, with other people in the community, harmony within the community and between humans and nature (Acosta, 2016) and this is also a recurrent argument among syntropic farmers. Another principle of *buen vivir* relating to affective labour is the creation of space for existence and affects. *Buen vivir* can have a material base, but it is not limited to that; in its expressions, there are protagonist roles for affects, the experience of emotions and relations. The fact that materialism is not enough for *buen vivir* links clearly this concept with the affective labour of syntropic farmers.

Lifeworld

The concept of 'lifeworld' is traditionally used in phenomenological terms, and it is a concept used in philosophy, sociology and anthropology. The concept expresses a set of concerns and circumstances in which the world is known and lived. For Husserl (1936; translated 1989), the lifeworld is the cornerstone for epistemology, a fundament that is necessary for phenomenological inquiry.

I adapt this concept to use it in relational terms. I consider people's lifeworld as an assemblage of their life elements arising from the interaction with both human and non-human beings and influencing their affects. Particularly, I consider the following as lifeworld elements: farmers' culture, socio-economic and political contexts, family history, relation with family members, involvement with nature, relation with the collective and with the market. For each case, I choose lifeworld elements which repeatedly came up in conversations and during participant observation, and which I believe best represent the influence of lifeworld on their affects and relationality.

With such analytical instruments in my hands, now I proceed to analyse the nature-care practices of syntropic farmers in Brazil, between the Atlantic Forest and the Cerrado. The regeneration of nature through syntropic agriculture is 'collective action' in which the 'coming together' is not only among people, but also plants, trees and animals as a consequence of the affective capability of a body to create relations with other bodies, relations that change subjectivities and landscapes.

Research questions

On the basis of the research problem, research objectives, and theoretical framework I have identified the following general research question:

How do affective relations shape syntropic agriculture farmers' practices and environmental subjectivities in the Brazilian Atlantic Forest and the Cerrado?

In order to operationalize this question, I have explained affective relations in the sections above and I have considered four categories of affective relations: farmers' relationships with nature, family members, the market and the broader collective. Subsequent to that, I have formulated the following sub-questions:

- How do the above four categories of affective relations shape the subjectivities of syntropic agriculture farmers?
- How are the above four categories of affective relations embodied in syntropic agriculture farmers' daily practices?
- How do the lifeworlds of syntropic agriculture farmers influence the way in which they see and engage with the environment?

Research methodology

I conducted the fieldwork between the end of August and November 2018. Since my research focussed on how affective labour shapes new relations with nature and new environmental subjectivity, an ethnographic case study method was called for. Thus, I chose as units of analysis three farmers living in different environments and embedded in varying social and economic contexts. The three farmers were chosen through snowball sampling (see the next Section). I employed participant observation, and informal interviewing as the main data gathering methods.

The method of participant observation (Van Maanen, 1988) gave me the opportunity to delve deeply into farmers' daily lives, their affects, perspectives on growing food and forests, and affective relations with nature. Indeed, I was able to observe and experience with them the practices of caring about nature. To understand why and in what ways they do what they do. To gain insight into the care and attention needed to practice syntropic agriculture, I lived their daily lives with them, shared their spaces, worked alongside them in their activities, went together to the market and the meetings with other farmers, listened to what they said, observed how they acted, etc. Working as a 'volunteer' in the farms, I dedicated half of the day to working in the fields and the other half to writing my field notes and reflections.

I used the informal interviewing method for recording the affective labour and the knowledge associated with syntropic agriculture. I let them speak with their own concepts about what they do in their everyday life setting. Through conversations, starting from an ethnographic encounter, with a dialogical and reflexive method, I harvested the fruits of my thesis. Empathy was fundamental during the interaction with people, making it possible to capture and reveal feelings, perceptions and reflections of people who were deeply implicated in the existences under study. The richness of information was thanks to the 'informants' being subjects with real implication with the topic of my research, and they were profoundly involved in the lived experience. In a relationship of empathy, they brought their subjective meanings, particularly, their reflections, cosmovisions, emotions, values and ideas resulting from the subjective configuration of each subject. These are fundamental 'ingredients' so that meaningful learnings can emerge from the research.

The conversations with farmers were oriented through the following "routes": their dreams, meanings and purpose in life; their motivations to be farmers and the reasons why they like to be agriculturalists; their definitions of syntropic agriculture and how they practice it; the challenges and compromises of being farmers and putting syntropic agriculture into practice. Then they shared their relationship with nature, the way they speak about it and why it is important for them to practice this agricultural method. Finally, I discussed with them the importance they give to involving more people in these alternative modes of existence created through syntropic agriculture.

In my research I wanted to engage in challenging and recreating the forms of knowing within scientific research, recognising the subjectivity and individuality of each case study as well as my own context, embeddedness, and implication in what can be known. While participant observations in the field, particularly of single individuals, do not present the (expected) repeatability of laboratory experiments, they at least create new possibilities for recognising the value of innovation, improvisation and personality (Van Dooren, 2016). Ethnography is about recording notes on different facets of a group or an individual, from the history to the varying personalities to the types of clothes they wear. It is also about documenting the terrain, the climate and about the relationship between places walked and the people who walked them. Through broad observation, ethnography resembles holism – a way of experiencing – a method of study in which eyes and ears need to be trained in new ways.

Selection of the units of analysis

As already mentioned, I chose three cases through snowball sampling. I decided to go to Gudrun's farm in the state of Bahia first, because she is Ernst Götsch's daughter (see 'Introduction to Syntropic Agriculture'). I considered it a good example and a reference for syntropic agriculture. The initial idea was to do an in-depth ethnography about affective labour with Gudrun and another syntropic farmer living in the same area to compare two different farmers. During the research process, I realised that there is not much knowledge about syntropic farming, especially from a sociological perspective. As a result, I decided to go 'broad' rather than 'deep' to better understand the heterogeneity of the syntropic agriculture realm and how it relates to affective labour, but also how it is linked to social, environmental and political issues. Therefore, I reformulated my research by looking for syntropic farms in different environmental and social contexts.

While I was on the first farm, I learned from Gudrun and some volunteers working with her that the syntropic agriculture scene in Brasilia is characterised by many people involved in social projects that put this farming methods into practice and this was particularly interesting for my research. In Brasilia, I did research with Osmany who had been referred to me by the people on the first farm. Since the farmers' relation with social projects became an important element of my thesis, I had the possibility to visit an MST (Landless Workers Movement) rural community where Osmany has developed a syntropic agriculture project (this project is presented in Chapter 3).

As a consequence, I decided to continue my research in an MST rural community in the state of Bahia to increase my knowledge regarding the tie between syntropic agriculture and social projects. The visit to this MST community allowed me to compare how social and communitarian projects concerned with syntropic agriculture are developed differently in two diverse areas of Brazil according to their social, economic, political and geographical characteristics. Although the last case is located in a rural community, my unit of analysis remained the household and I focused primarily on Joelson, the leader of the community. Nevertheless, his practices and arguments were primarily oriented towards the collective.

Differing rural policies, social context and access to the market in the two areas of research are also pertinent issues that affect syntropic agriculture. In the case of Gudrun, being in a very isolated place influences her preference to focus on chocolate bars rather than on horticulture due to the lack of a local market for alternative farming production. In Joelson's story as well, the absence of agroecological local markets has an implication on his community preference to invest in cocoa production rather than in horticulture. The lack of a collective movement to organise alternative market channels reflects the political situation of southern Bahia. It is noticeable that the region develops with irregular patterns, where municipalities have a great political influence and concentrate on the majority of resources, favouring localism rather than collectivism (Pinheiro, 2009). These dynamics show that this area is fragmented due to the traditional behaviour of both local and national politics.

In Osmany's case, on the other hand, since Brasilia has a great consumer market for sustainable products and research institutions (e.g., Embrapa[1], the University of Brasilia and the Federal Institute of Education) are located there, Osmany has had the opportunity to create partnerships in the construction of new knowledge and practice in the field of syntropic agriculture with smallholders as well. Nevertheless, Oliveira Faria-Wehrmann & Sauer (2015) argue that, in the Federal District, issues regarding the sustainable use of natural resources still need to be advanced.

[1] 'The Brazilian Agricultural Research Corporation'.

In summary, the choice of the selected units was based on (I) the possibility to practice syntropic agriculture myself, (II) to be involved with farming social programs or at least with wider syntropic agriculture networks and (III) to be located in an environmental, social, economic and/or political dynamic different from the previous units of analysis.

To conclude, it is important to highlight that, during the fieldwork, I spoke with all my informants about my research objectives and they gave me written consent to publish personal information and images of them. Furthermore, the selection of units and the research process were adjusted during the fieldwork to better answer my research questions and to be able to have a broader view of the relation between syntropic agriculture and affective labour.

Methodological pitfalls

It is important to recognise the methodological pitfalls of research on affective labour. Firstly, recording and sharing about relations and affects requires the researcher to build an empathic rapport with the research subject. Therefore, close contact with the subject is necessary and this requires the constant presence of an active listener as researcher. Conducting research such as this, over a short time, can be quite energy consuming because each word seems to be relevant and essential for research purposes and the researcher needs to memorise it to write down it later on. Moreover, two or three weeks per case is a very brief time to share and understand deep personal issues such as affects and relations. It is also a limited amount of time to engage in 'passionate immersion' as a research methodology, which was my plan at the beginning of the study. In fact, passionate immersion highlights the essentiality of observation and the need to cultivate 'arts of attentiveness' (Van Dooren, 2016). In short, it means becoming curious and so entangled, 'learning to be affected', so as to understand and care a little differently: it requires long periods of observation, sharing and research.

Secondly, another pitfall is my position and influence as a researcher. In particular, my subjectivity as a young white woman limited my access to people and information during the fieldwork. Furthermore, having little practical experience about both syntropic agriculture and fieldwork research could limit the understanding and interpretation of what I was listening to and observing in some situations. Thus, there are objective limitations due to my perspective influenced by my 'subjective eyes' or point of view, my interpretation of words and behaviours. The involvement with the subject of study also comes from the fact that I lived and slept in the same place where I carried out the research. As a result, my personal life as non-researcher was intertwined with my life as a researcher.

2. Gudrun and her syntropic chocolate bars

Figure 2.1. The 'Selva & Paz' farm, located between the small cities of Gandu and Ituberà (60 km away from the seaside). Source: Google Maps image edited originally by Alice Fassò.

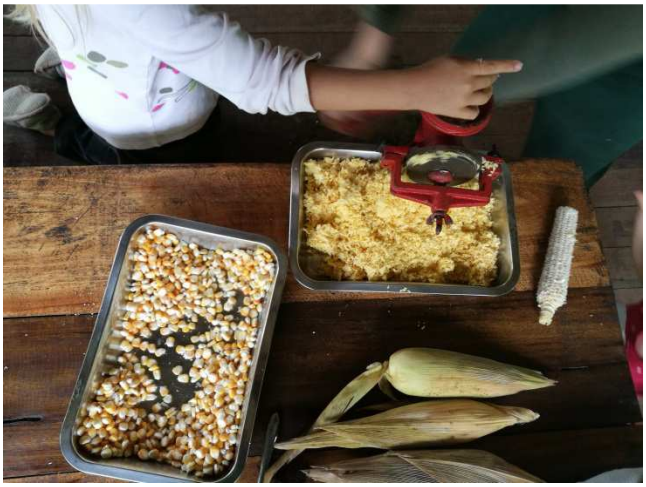
Gudrun is a young woman, mother of two, and she runs her syntropic farm and small-scale artisanal chocolate bar production. Her farm is called 'Selva & Paz'. As shown in Figure 2.1., it is located near the little town of Piraì do Norte, in the Atlantic Forest (Picture 2.1). It lies between two small cities, the nearest being Gandu, with 30.000 inhabitants, and the other Ituberà, both are twenty kilometres from Piraì do Norte. Gandu is located 314 kilometres south of Salvador, the capital of the state of Bahia, Brazil. The road runs mainly through the Atlantic forest with some little towns here and there. Many areas have been transformed into open fields mainly for livestock (Ruf & Schroth, 2003) and monoculture production of eucalyptus (Rocha, Viana & Zikán, 2012). Indeed, according to SOS Mata Atlântica/INPE (2008), only 10.6% of the Brazilian Atlantic forest remains intact. Gudrun's farm is located in an isolated place that is difficult to reach at an altitude of 350 meters. The local rolling terrain exhibits a high level of weathering, the soil is rich in iron oxides and aluminium, considered poorly fertile, originating from gneissic and granitic rocks of the crystalline plateau of the Precambrian time (Peneireiro, 1999). The surrounding landscape consists of pastures, cocoa plantations (some abandoned), cassava plantations mixed with other subsistence cultures, besides scrub at various stages of development. It is possible to find typical tropical cultivation such as African palm oil (*Elaeis guineensis*), Rubber tree (*Hevea brasiliensis*), Clove (*Syzygium aromaticum*), and Guarana (*Paullinia cupana*), among others.

Picture 2.1. The Atlantic Forest around Gudrun's land. Source: Alice Fassò.

Gudrun chose this place because it was her mother's land, and nearby there is her father's syntropic agriculture farm, where she lived most of her life. The climate is tropical; it rains all year allowing cocoa growing for six months, while the syntropic agriculture fields produce yearlong without any irrigation system.

When I was there, her mother and her two young daughters were living with her, while her partner was often away for business affairs. Her mother was German and mainly looked after the little girl but she also did hard jobs like cutting the wood and killing chickens. Gudrun has six employees: two girls work in the chocolate production, a man works in the field, while a cook and a nanny take care of the house. In addition to this staff, Gudrun also works with volunteers during most of the year.

Gudrun and her husband have been supporting their family with the chocolate bar production for two and a half years. Beyond the chocolate bars, she also produces and commercialises cocoa nibs, dried banana, cassava *silagem* (cassava flour obtained through anaerobic fermentation of ground cassava) and whole corn flour (Picture 2.2), as well as other agroecological products (Table 2.1). They are marketed in the agroecological sales network of 'Povos da Mata' (http://povosdamata.org.br/) of the state of Bahia. Other fruits and vegetable are produced in her syntropic agroforestry systems and used only for her family consumption. All farming production is organic, but only cocoa is certified as organic while chocolate bars are still not.



Picture 2.2. Homemade production of whole corn flour at Selva & Paz. Source: Alice Fassò.

Table 2.1. Agroecological production on sale at Selva & Paz.

Crops	Yearly sales
Cassava	3000 kg
Yam	500 kg
Corn	500 kg
Tomato	1000 kg
Chilli	50 kg
Bell pepper	100 kg
Fruit	
Banana da Terra	3000 kg
Banana Prata	1500 kg
Grains	
Cocoa	1000 kg

Gudrun's perspective on Syntropic Agriculture

Gudrun does not want to define syntropic agriculture because, as she has highlighted several times, "Syntropic agriculture is in the process of being defined." In reality, only few theses exist about it, such as Pasini (2017), Pinereiro (1999) and Götsch (1995). The Brazilian Agroforestry Movement of Syntropic Inclusion (MAIS) has been defining syntropic agriculture, but Gudrun explained that Ernst Götsch and Felipe Pasini, a researcher, are the ones who have been really systematising syntropic agriculture through writing a PhD thesis and a book about it.

Ernst Götsch, Gudrun's father, was the first to identify syntropic agriculture as a specific alternative agriculture (see 'Introduction to Syntropic Agriculture'). In Gudrun's arguments about the subject, she always refers to her father and it seems that Gudrun's opinion of syntropic agriculture is conditioned by her father's knowledge and her relationship with him. Indeed, she affirmed, "My father's method can lead syntropic agriculture to an excessively narrow approach. He teaches and approaches syntropic agriculture in a very rigid and fixed way: for instance, he argues that the spacing between rows has to be exactly the calculated to achieve the best production."

Another example of Ernst Götsch's rigidity is shown in Gudrun's comment, "He claims that animal manure should not be used in syntropic agriculture because it is an external, highly-energy-consuming input." However, firstly, in all syntropic agriculture farms visited during the research, people use animal manure in small quantities and secondly, it would not be viable to not use it at all. In fact, as Gudrun stated, if farmers cannot use animal manure during the first years of production, they would have no production at all, therefore, what would they eat or sell? Not using animal manure would be not feasible for the majority of farmers. If this is a constraint in syntropic agriculture, she argued that only people with lots of money would be able to practice it because they do not need to sustain themselves with their own production; hence, they can wait the time necessary to make the land fertile without animal manure. "Therefore, I prefer to do so and to be defined as 'agroforestry', if being a syntropic farmer is so strict and not viable, " she concluded. Finally, although Ernst Götsch does not want animal manure to be used in syntropic agriculture, "He uses it as well because he wants to harvest beautiful and tasty corn," Gudrun stated.

Gudrun's opinion about syntropic agriculture expresses that she believes in the importance of considering the specific social and environmental context when developing a syntropic agriculture system. It cannot be based on general and strict rules applicable in any context.

Syntropic Agriculture in Gudrun's practice

Gudrun's land occupies an area of 132 hectares. Ten hectares are cultivated with agroforestry of cocoa, called 'ca*bruca* system', in which, cocoa trees are mixed with native trees in a forestry environment, and Gudrun's cocoa trees are more than thirty-year-old. One hectare of the land is cultivated with more recent syntropic agroforestry systems at different stages. The youngest was established at the beginning of 2018 and the oldest agroforestry is four-year-old. 95% of the land is covered by secondary native forest and Gudrun wants to keep it wild to preserve the biodiversity of the area. There are numerous springs on her land and they are protected with native riparian forest. Instead, most of the neighbours' land around Selva & Paz farm has been cleared for intensive planting of cocoa and banana trees.

I clearly observed syntropic agriculture in a six-month-old field. Since this field was in the first stages of development, it was possible to distinguish all the different tree layers and rows of plants (see Appendix 1). Gudrun's employee, three volunteers and I worked there daily, and we harvested corn from that field (Picture 2.3). In the rows, small banana trees, eucalyptus, corn and cassava were mainly planted (Picture 2.4), while between the rows there were vegetable beds with *consortia* (see 'Introduction to Syntropic Agriculture') of tomatoes, cabbages, coriander, beetroots and salads, as well as other leafy plants (Picture 2.5). The more developed agroforestry systems are located in the area surrounding the house, and they are planted with over ten different tree species, such as moringa, coffee, citrus, banana, papaya, açai, avocado and jackfruit (Picture 2.6). Recently, Gudrun has started the first hectare of ecological pasture in which she cultivates according to syntropic principles: she has planted species that can be used both to enrich the soil through pruning and to feed the cows, because they are Leguminosae, such as *margaridão* or tree marigold and gliricidia. These plants are interspersed with plants for human consumption such as corn, tomato, eggplant, cassava and banana. When Gudrun buys the cows, they will be kept in this ecological pasture (not in stalls) separated from the plants by an electric fence, so that the cows can graze without completely destroying the plants.

Picture 2.3. Different varieties of corn harvested in Gudrun's farm. Source: Alice Fassò.

Picture 2.4. Six-month-old field with different tree layers and rows of plants. In the rows: small banana trees, corn, eucalyptus and cassava. Source: Alice Fassò.

Picture 2.5. Six-month-old field with different tree layers and rows of plants. Between the rows: vegetable beds with consortia of tomatoes, cabbages, coriander, beetroots and salads. Source: Alice Fassò.

Picture 2.6. On the foreground, avocado and jackfruit seed. On the 'out-of-focus' background, developed syntropic agroforestry systems in the area surrounding Gudrun's house with over ten different tree species, such as moringa, coffee, citrus, banana, papaya, açai, avocado and jackfruit. Source: Alice Fassò.

Following syntropic agriculture principles, Gudrun uses farm waste products as input, such as cocoa shell, ash, macerated banana skin, straw, white rock dust and animal manure. Species to produce biomass – e.g. Mombaça grass pastures (*Panicum maximum*) – are planted in the syntropic agriculture systems to improve the fertility of the land. Gudrun creates *consortium* of plants, diversifying production and agroforestry systems to improve the biodiversity of the area. Finally, as syntropic agriculture suggests, pruning is the main technique used to control insects and plant diseases.

The shaping of Gudrun's subjectivity by affects and affective relations

In 2011 Gudrun decided to change her life and go back to live on her mother's land, near her childhood farm, because she had been questioning for some time the meaning of her work as a customs controller in Switzerland. Although it was a job with a permanent contract and a good salary, she wanted to do work that was more meaningful for her life, her daughters and the world. Even though she liked her previous job, Gudrun understood that money and her own satisfaction were not enough as a purpose in life: "I want to try to make the difference in the world through preserving and regenerating the forest – that is life," she told me once. For Gudrun, environmental preservation and regeneration are important not only for rational reasons but, as she said, "I have developed affects and care for the forest since my childhood simply because I have lived in the forest most of my life. I learnt how to take care of nature by following, observing and listening to my father who was in the fields even on Sundays."

Therefore, care for the forest and environmental regeneration have been essential motivators of Gudrun's choice to start a new life, hence, in shaping her 'individual subjectivity' (a concept used by Singh, 2013, p. 190) as a 'guardian of biodiversity,' as she defines herself. Consequently, her dynamic relations with nature have driven her decision to change professions and to start taking care of nature rather than earning easy money in Switzerland. They have shaped her 'becoming' as a guardian of biodiversity.

Furthermore, Gudrun practices agriculture according to syntropic and organic principles to be better positioned in the market but also out of her love and caring for nature. "With these farming practices, I can preserve and regenerate the native forest and the biodiversity which are part of my family," she explained. In general terms, economic and rational reasons offer a partial answer to people's choices, but they do not clarify how the subject is produced through 'processes of becoming at work' (Singh, 2013, p. 190) and through the dynamic relations between nature and people. Surely, on the one hand, Gudrun developed affective relations with nature through spending time in the forest since childhood, and these ties drove her to consider regeneration of nature as her main long-term purpose in life. On the other hand, as it is shown in the next sections, her subjectivity is also shaped by the affects stemming from the market.

Currently Gudrun's attention is on her own business and this determines her daily choices and behaviour. Gudrun's chocolate bars are 100% produced with her organic cocoa and banana, but she wants to start buying organic raw material from other producers. She is focused on chocolate bar production rather than agriculture. In reality, she stated that producing chocolate bars brings her more satisfaction than farming because it is more profitable. Furthermore, before making chocolate bars she used to work many hours a day in the fields, even training volunteers, but currently she says, "I do not want to work with nature, it is not my vocation. I am not a farmer." In fact, she went out into the fields only a few times when I was there with her.

The role that affective relations with nature have on shaping the subjectivity of Gudrun is evident in her vision of nature. She has an ecocentric view expressed by her words which are highly attentive and caring for nature. She frames the natural world as if it has an intrinsic value. Certainly, in syntropic agriculture the

centre is nature which, of course, includes the human being (Pinereiro, 1999). As argued by Acosta (2016) in the context of *buen vivir* principles, nature should be considered as a subject of value, independent of the utility or the uses which are attributed to it. This is the essence of an ecocentric vision.

Gudrun expressed her ecocentric view many times with comments like, "As my father says, we [humans] are not intelligent beings, we are part of an intelligent system." She perceives nature as an intelligent network in which each organism improves the life of the environment. On another occasion she claimed, "Humans are the only destroyer of nature. All other living beings moved by unconditional love work to improve the life of the environment." Indeed, while normally farmers consider ants a problem, Gudrun explained that ants ate all leaves of her moringa (*Moringa oleifera*), but they chose the leaves of the weaker plant that would have died anyway to leave space for a stronger plant and therefore, ants favoured the natural processes. Moreover, in support of the importance of ants, Gudrun explained, "Ants create their formicary in the soil that is poorer in nutrients and they bring organic substances to that soil." Expressing both an ecocentric view and a learning process based on observation of nature, she suggested another time, "Humans cannot control nature. Humans can only help it through reproducing the natural dynamics and interaction occurring in different environments – such as forests."

Gudrun cares for her trees and vegetables and speaks about them as family members, using adjectives which are normally associated with people. For instance, when I asked her about how she feels practising syntropic agriculture, she answered, "I feel as if I look after my babies." While we were harvesting the turmeric, she affirmed, "It is necessary to remove the turmeric with lots of care [*cuidado*] to not hurt them [the roots]. I did with extreme care, but still, I hurt them. I am happy to collect the turmeric that I planted." It is relevant that Gudrun said 'hurting' rather than 'breaking', showing that she considers plants to be alive and sensitive. Gudrun's narrative mirrors Singh's (2013) study, because it is as though the farmer brings nature into his consciousness and brings it to life through care. Moreover, in a general context, Ingold (2000) referring to Turnbull, (1966) and Bird-David (1990), highlights that to refer to nature as a human being 'is not to model object relations in terms of primary intersubjectivity, but to recognise that at the root, the constitutive quality of intimate relations with non-human and human components of the environment is one and the same' (p. 47).

To summarise, on the one hand, her affective relations with nature drive her vision and spurred her initial choice to change her life. On the other hand, affects deriving from the market and profit shape her current subjectivity and daily decisions, as shown in the following sections. Therefore, her subjectivity is formed by the tension caused by different affects originating from her relations with both humans and non-humans, such as nature and the market. Since Gudrun's everyday activities focus on her chocolate bar production rather than on agriculture, I discuss below her mode of working and relating to workers and volunteers so as to understand how affects are involved in her daily labour.

Affects in Gudrun's daily work practices

During the three weeks that I spent at "Selva & Paz" farm, Gudrun had an efficient way of going about her daily work. She started her days with a quick breakfast, then worked in her chocolate bar production which is located in a room on the ground floor of her house (Picture 2.7). She spent most of the day there. As she worked many nights until ten o'clock, she had almost no social interaction with people in the house. "Working at home is good, but it is always here, so it is hard to stop doing it or thinking about it, even at night," she told me once. In fact, there were no moments of sharing either, such as having dinner together in the evening. Everyone prepared their own food and just one night we went together after dinner and had fun and some friendly interaction. When her partner was at home, they spent most of the day

discussing how to improve the efficiency of the business. Their discussions were centred around the word 'money' mainly. Even her oldest child often created games that were about earning money and being fast, "Fast, fast! We have to make money and go to do the shopping," she shouted once while she and I were playing together. Gudrun's behaviour demonstrates that efficient work and money are important affects shaping her choices and daily practices, hence her subjectivity.

Picture 2.7. Artisanal chocolate bar production located in a room on the ground floor of Gudrun's house. Source: Alice Fassò.

When I was at "Selva & Paz", Gudrun was strong and behaved independently. She did not ask for help. She did everything by herself in her daily work activities, and she expected new volunteers to know what to do with little explanation of their tasks. While I was at the farm, Gudrun dedicated only a small amount of time to sharing knowledge or building relationships either with volunteers or with the worker, Beco, who has taken care of her land for two years. Gudrun likes Beco because he used to work on her father's land, and, as a result, he knows how to take care of the land with syntropic agriculture principles. "I like how he works because he is independent, and he knows what to do," she affirmed. Nevertheless, Beco has been thinking about quitting this job because it is physically strenuous and he is not motivated to continue. I perceived that Gudrun did not motivate her workers much during their daily practices either with money or affective relations. Indeed, she said, "Beco deserves a higher salary because he does great work." On the other hand, she was a bit desperate about the idea that Beco might go away because, as both Gudrun and Beco explained to me, there are no other local people who are experienced in syntropic agriculture or who want to learn about it.

Volunteers are part of Gudrun's daily work practices as they are at her farm all year around. She considers volunteering mainly as an economic advantage. From her perspective, "Volunteers become useful after the second week. I work with volunteers to have someone always around." Furthermore, Gudrun said that she had felt stressed when she had to train volunteers, telling and showing them what do to. So, she is happy that Beco takes care of this training now. Anyway, she told me, "I am not sure about continuing to work with volunteers because often they have no work experience and knowledge about syntropic agriculture. I might prefer to work with people from the syntropic agriculture family network (referring to MAIS, see Chapter 3) who have already some practical knowledge about syntropic agriculture."

It is relevant to highlight that I experienced only three weeks with Gudrun. This thesis states my perspective on what I heard and observed about her daily practices during that short timeframe. Actually, the last day she explained me, "These weeks have been particularly difficult and stressful for me because I will be away from the farm for almost a month. I will participate in a syntropic agriculture course in San Paulo and I have to get ahead of the production by making a thousand chocolate bars in two weeks."

Gudrun's story shows that, during the time I was with her at least, she cared for her business and money which guide her decisions, therefore, affect her sociality. Furthermore, Gudrun's affective relations with her business and money could be seen as non-material outcomes of her affective labour, while communication and knowledge were not relevant immaterial results of her work in that time of her life. Moreover, as discussed in the next section, her 'market-affects' derive from her relationships with other family members.

Since affects are always 'hybrids' made up of relationships and emotional responses coming from disparate domains, it might be that Gudrun has been more affected by social relationships, sharing of knowledge and collective in other moments of her life. Definitely, Gudrun believes in environmental collective subjectivities, and she expressed it in a statement, "Syntropic agriculture people are a big family following the same purpose of preserving and regenerating forest, and we are motivated by our affective relations [*amor*] with nature." Therefore, she sees syntropic farmers as new collective subjectivities of being nature conservationist. She also says that the world of syntropic agriculture is based on the exchange of knowledge and seeds. Nevertheless, in her daily practices, she focuses on improving her chocolate bar production while little time remains to create relations and exchanges with other people and nature. To conclude, this story shows, in general, that everyday practices of care play an essential role in creating, maintaining or strengthening affective relations. "Intimacy relationships arise from everyday interaction with affects that these interactions produce" with both humans and non-humans (Singh, 2013).

The influence of Gudrun's lifeworld on her affects and subjectivity

In this section, I analyse the influence of Gudrun's lifeworld on her subjectivity, hence, on her way of seeing and engaging with the social and natural environment. I consider the location of Gudrun's farm, her social context, culture and relationships with her family as elements of her lifeworld.

Firstly, the location of Gudrun's farm influences her daily choices and her affective relations with market and nature. Since her farm is far away from any big centre, she cannot have daily relations with social organisations or people employing syntropic agriculture for social change through, for instance, education or involvement of smallholder farmers. Indeed, Gudrun, her father and their respective families are the only foreigners in the area, and they are the only farmers practicing syntropic agriculture, while most of the surrounding land is planted in an intensive and conventional way.

Furthermore, there are no local networks of people paying attention to social issues. Gudrun participates in a group named 'Fartura Ecologica – Nucléo Pratigi' linked to the agroecology network 'Povo da Mata[2]'. Her group is made up of farmers who are very far away from each other and they aim at the Participatory Organic Certification (OPAC) and their own farming production. They have created a network among people who already have an environmental subjectivity, and they do not aim at spreading knowledge and awareness among smallholders who have had no access to knowledge about alternative agriculture yet. Besides, as already discussed, Gudrun lived in the farm next to Selva & Paz during her childhood and adolescence, and she and her four siblings were home schooled by their mother. Thus, as her mother said, "I regret that they did not have many friends when they were children." As a consequence, her social and geographical context affects Gudrun's decisions of focusing primarily on her own business.

Accordingly, her limited contact with local people and social movements relates to the contrast of her farm with the villages close by (e.g. Massaranduba). It gives the impression of being an "oasis" (Picture 2.8) in

[2] http://povosdamata.org.br/

the middle of a poor area where people struggle between a dangerous life involved in drug trafficking and a hard life with an underpaid legal job that only few people choose, as Beco told me. Moreover, although her employees are local people, they live in extreme poverty in the village nearby as I observed when I visited them in their houses. In fact, since I realised these cultural and social differences between Gudrun's family and the people working with her, I decided to spend time with them to understand and observe how people live in the villages near Selva & Paz.

Picture 2.8. Contrasting social environments. Left picture, Gudrun's kitchen. Right picture, houses in the village of Massaranduba. Source: Alice Fassò.

Secondly, it is relevant to question if Gudrun's cultural identification plays a significant role in her story. Her affects for the efficiency of her business are associated not only to her market-affects but also to her identification with Swiss culture. As she said, "I am Swiss, and what I like of Swiss culture is the rigour." Definitely, she tries to do everything in the best and most efficient way. These affects also come from her German mother who had a strong and independent way of accomplishing all tasks as well. Therefore, her Swiss-German cultural background has encouraged Gudrun's rigourous and efficient approach to life, and it has influenced her affects stemming from the market.

Thirdly, the ties with her family members are essential elements driving her affective relations towards the market. Firstly, both Gudrun and her mother confirmed that she devotes most of her time to the business efficiency and profit because of the entrepreneurial approach of her partner who is focused on money issues. Secondly, she is following in her father's footsteps through working with syntropic agriculture and chocolate production. Since he is the initiator of syntropic agriculture, gives courses about it in many countries and has a global impact, he affects Gudrun. As a result, she wants to have a broad influence with her chocolate bars as well, as she argued, "If I do not try to become bigger and bigger, I will not make a relevant change in the world." Accordingly, she wants to make a change through focusing on her own business and environmental subjectivity.

Consequently, the elements of Gudrun's lifeworld shape her 'affects-assemblage' which drives her care for profit and for the broad impact of her business. The assemblage of her affective relations motivates her to do what is better for the business and for others. For instance, she affirmed, "I make chocolate bars because people like them. I only like white chocolate. I like the process of fermentation and processing the cocoa beans." She further attributes her motivation to growing the business to the following concern: "If my production is too small, I cannot even share the recipe because someone might start producing it in a more efficient way for a lower price."

In general, this case demonstrates that humans are never “disembodied rational economic actors” guided only by self-interest (Singh, 2013), not even when affects associated with business efficiency and market are the main drivers of human choices. Instead, as stated by Singh, (2013), it is necessary to recognise that the “self” is formed through active involvement with other human and non-human beings. Indeed, I showed that the subjectivity of Gudrun is geared towards efficient behaviour and choices by her relations with the market, her family and nature. Thus, the complexity of Gudrun’s subjectivity has emerged; struggles and compromises exist among her contrasting affects as exemplified by her intuitional feelings and her economic-affects. Through this struggle, her subjectivity comes into existence.

3. Osmany and his holistic approach to syntropic agriculture: Caring for plants and for people

Figure 3.1. The 'Fazenda Bella' farm, located in the satellite city of Brazlandia, 50 km away from Brasilia. Source: Google Maps image edited originally by Alice Fassò.

Osmany is a young farmer, with a degree in architecture, and father of a new-born child. He defines himself as a landscape designer, eco-constructer and specialist in permaculture. Since the beginning of his studies, Osmany has tried to combine theory and practice through a holistic approach. Osmany is specialised in sustainable eco-construction using local and renewable resources. Osmany attended some syntropic agriculture courses with Ernst Götsch and now he is an agricultural consultant in rural and urban projects implementing agroforestry systems using syntropic agriculture.

Osmany and his family have managed the business of their farm, 'Fazenda Bella', since 2015. It is not easy to reach Fazenda Bella without a car because, as shown in Figure 3.1, it is located in the satellite city of Brazlandia, fifty kilometres away from the bus station of Brasilia, the capital of Brazil. Moreover, there are several kilometres of unpaved road to reach the farm and the nearest bus stop is ten kilometres away. Fazenda Bella is the realisation of Osmany's grandparents' dream of living off the land, in harmony with nature. Today, their daughter and grandchildren continue to live that dream using syntropic agricultural methods to produce food which goes beyond the concept of 'organic'. They promote courses and training on syntropic agriculture, permaculture, eco-construction and holistic management. The farm is situated on a seventy-hectare parcel of land where the syntropic fields currently occupy four hectares. Additionally, Osmany is in the process of realising an ecological pasture of 800 square meters and he wants to expand the production of native Cerrado fruit trees in a two-hectare area that was destroyed by a spontaneous fire.

The vision of Fazenda Bella, as expressed by Osmany, is, “To create, research and develop regenerative syntropic agriculture and eco-construction systems which promote the improvement of emotional well-being, environmental and economic aspects. I also want to facilitate the replication of these systems around the area.” Instead, the mission is to provide healthy food, to offer education about syntropic agriculture and communitarian development to smallholders, clients, workers, students and partners. Osmany and his family carry out this mission through direct commercialisation of their products, courses, lectures, training and guided visits. Osmany operates in partnership with other third sector entities to reconcile social sustainability based on communitarian development and environmental sustainability with commercial production.

Syntropic Agriculture in Osmany’s vision and practice

From Osmany’s perspective, syntropic agriculture is,

> “An agriculture of regenerative processes that restores the soil and increases hydric potential through the dense consortium of different species. As a consequence, it provides alimentary abundance. The volume and diversity of production makes it feasible to increase income and guarantee food security for small and big producers.”

In accordance with syntropic agriculture principles (see Appendix 1), in the first three syntropic systems, Osmany arranged the tree lines at a distance of five meters with vegetable beds in-between (Picture 3.1). Osmany did not focus on any specific tree species when he established these three systems. His intention was to diversify the plant species on his land to accelerate his learning process by observing the response of nature to his syntropic agriculture methods: this approach shows his view of nature as a teacher which is developed further in the next sections. As Osmany asserted,

> “What I have learnt is that with good growing conditions and with this spacing, the tree canopy of the highest layer of trees can close very fast (approximately in two years) hindering the vegetable production and demanding a lot of pruning to optimize the entrance of light. I have also perceived that the vegetable production required more organic matter for the bed cover and more frequent applications than I had expected.”

Picture 3.1. First syntropic agriculture system developed in March 2015 at Fazenda Bella. The tree lines are at a distance of five meters and there are citrus, eucalyptus and banana trees. In-between the lines: coffee plants and Brazilian grapetree. Source: Alice Fassò.

Learning through experience and observation of his syntropic agriculture fields, Osmany realised that a positive aspect of this garden bed layout was that citron (*Citrus medica*) (medium layer – see Appendix 1) and coffee (*Coffea arabica*) (low layer) developed very well. In these areas, he added some jabuticaba or the Brazilian grapetree (*Plinia cauliflora*), interspersed every two coffee plants (Picture 3.1). Thanks to the understanding attained through the implementation and management of the first syntropic agriculture systems, during the year 2017, Osmany implemented an area of approximately 4,000 square metres. The tree lines are at a distance of eight meters to optimise the entry of sunlight, resulting in the possibility to produce vegetables for a longer period (Picture 3.2). Syntropic agriculture approach is also found in Osmany's choice of establishing these new tree lines starting from seed rather than seedlings and this technique has led to optimal results in tree growth. Particularly, he decided to focus on high specific trees such as drumstick tree (*Moringa oleifera*). The consortium of vegetables in-between the trees have grown well too. He has planted mainly beans, corn, cassava, pumpkin and okra and produced jack bean (*Canavalia ensiformis)* and pigeon pea (*Cajanus cajan*) as well, to be used as fertiliser and organic matter to cover the soil.

Picture 3.2. Syntropic agriculture system developed in 2017 at Fazenda Bella. The tree lines are at a distance of eight meters to optimise the entry of sunlight, resulting in the possibility to produce vegetables for a longer period. Source: Alice Fassò.

To conclude, Osmany considers syntropic agriculture as a confluence of principles, while the specific needs and practices vary in each field and for each plant. Improving the management of the system is learnt and enhanced through observation and daily care practices. In the next section, I present the role of affective relations with nature in shaping the subjectivity of Osmany as an environmental subject.

The shaping of Osmany's subjectivity by affects and affective relations

"I have had a relation with this land since my childhood. The land where I now live and work is the only part of my grandfather's land that has remained in my family. He sold six hundred hectares of land to buy an apartment in Brasilia." Osmany was really sad when telling this story and recounting childhood memories of his grandfather's land and the unique nature of the Cerrado (Pictures 3.3 and 3.4) and its waterfalls.

Picture 3.3. The unique nature of the Cerrado at sunset in Osmany's farm. Source: Alice Fassò.

Picture 3.4. The unique nature of the Cerrado: The dry environment of the Cerrado after six months of drought at Fazenda Bella. Source: Alice Fassò.

His grandfather lived on that land for fifty years and was one of the first goat cheese producers in the area of Brasilia. He also bred many cows. According to Osmany,

> "The fact that my grandfather planted in a conventional way for a while was something really remarkable for our family. When he produced in a conventional way, he started reading the label of poison bottles that he used. As he discovered the poison content, he stopped eating what he planted, and after a month he stopped even selling it because he did not have the courage to sell something that he didn't have the courage to eat himself. Then he started producing in a natural way, without poison."

His grandfather made a mark on Osmany, "As my grandfather passed on to me his love for nature and the Cerrado, I decided to study permaculture," he asserted. As a consequence, he began to go to the farm more often and decided to start planting. Additionally, he attended various courses with Ernst Götsch and

other syntropic agriculture teachers, such as Juà, Namaste and Fabiana Peneireiro, “People who taught me a lot about planting,” he explained. On the one hand, his possibility to attend these courses shows an economic stability typical of very few small farmers; on the other hand, as seen in the following section, he shares this knowledge with low-income farmers through social projects.

Certainly, Osmany’s choice to take care of the land and grow trees and food is linked to his relationship with nature strongly and this passion (love) for nature was transmitted by his grandfather. Osmany made a decision to change his life; he studied architecture, but he wanted to go back to the land of his family to take care of nature. His family land is an important element of his life and he even identifies with the Cerrado biome. In fact, Osmany affirmed,

> “I decided to become a farmer to preserve the local biodiversity because I love it, I love this place and this nature: the Cerrado soil is among the oldest in the world, and only few samples of some species are left. I want to make my contribution to saving and regenerating this nature because it has been an essential part of my life.”

Osmany’s narrative demonstrates that his affect for the Cerrado has shaped his environmental and ‘caregiver’ subjectivity and his identity as a syntropic being. This identity is expressed in his belief of belonging to nature and having the role of spreading seeds, with the objective of regenerating and caring for nature, improving life and creating abundance. As he explains in his own words, “As Ernst Götsch says, in a very objective way in relation to agriculture, my role is to spread and multiply seeds, and I believe that is the purpose of the human being. Thus, in my opinion, the objective of a human, as a syntropic being, is to optimise life in all its aspects: from the soil to the water, and the quantity of biodiversity.” Indeed, Osmany plants local seeds collected in the native Cerrado around his area to preserve and regenerate the local biodiversity in his own syntropic agriculture fields. Although he does not know what some of the seeds are, he plants them to see which tree species they are, to produce more seeds that can be spread around. Mostly the native seeds are planted together with cassava and banana in the ecological pasture (see Chapter 2), where he avoids planting the non-indigenous eucalyptus substituted by native trees which have similar characteristics to eucalyptus of pushing water and producing green manure.

Osmany’s role in nature is associated with the reason why he likes to be a farmer. I argue that the subjectivity of Osmany as well as his motivation resonate with Rose’s (1998) theory because they concern the becoming of environmental subjects as an open dynamic, as opposed to the conventional picture of the individual as ‘coherent, enduring and individualised’. In accordance with Singh (2013), attention to affects is a suitable lens to acknowledge and comprehend this human becoming as an open dynamic. In support of this, Osmany asserted,

> “I plant because, differently from women, this is the only moment in which a man can comprehend what the fecundation of life really is: to give birth to a living being from its little seed until the time of perceiving the fruits that it can give us, the life that can be generated together with us [humans]. It is the only moment in which a man can understand the power and intelligence of fertility because mother nature is this, a feminine being that gives life, gives birth. And when a man learns how to plant, how to cultivate, he can understand a bit more about the magic to generate life, which in our species only women can understand deeply. When a man plants, he can perceive and better comprehend the significance of generating life.”

Similar approaches to the subjectivity and the self can be found in the studies of anthropologists Milton (2002) and Ingold (2000). Ingold (2000), taking up Gibson’s analysis of human perception (1979), explains that human perception is not only a result of a mind, but of the whole body in its environment, and that

forms of actions in the environment are also forms of perceiving it. They both state that human subjectivity is made by people's involvement with their whole environment, not exclusively the social one. Surely, Osmany's affirmation above illustrates his perception of nature as both a mother – a living being creating life – and a teacher. With this perception, he considers learning as a process happening through observation and daily practices with nature. Consequently, not only his perception but also his becoming of an environmental subjectivity occur by getting involved with nature through everyday intimate relations with the whole environment. In the next section, I show how these affective relations are strengthened through embodied practices of caring for nature.

Affective relations in Osmany's embodied care practices of 'growing' nature

In the previous section, I introduced the role of affective relations with nature in shaping the subjectivity of Osmany. On the one hand, his grandfather guided him in creating these ties with nature while on the other hand, Osmany's daily care practices of "growing" nature strengthen them. He actually uses expressions like "I am looking after nature" or "I am growing plants" to refer to his actions of planting and increasing natural life, and, in general, as observed by Singh (2013), these kind of terminologies in some ways bring nature into the person's territory of consciousness or render it living through attention and care.

"Caring for nature" [*cuidar da natureza*] involves daily activities in which each seed and plant requires lots of attention. As Osmany said, "I have to treat plants with a lot of attention and love [*cuidado*], if I want them to grow beautifully." When I worked with him, I experienced that each plant needs hours of assistance to grow. They must be checked every day if they are healthy or sick. On a daily basis the syntropic farmer has to harvest, to give attention to plants through watering them and removing weeds. He has to fulfil a cyclical process of preparing the soil, covering it with straw, planting seeds, preparing seedlings, observing the health of the whole ecosystem, and harvesting over and over again every day.

Referring to Ingold (2000) and Raffles (2002), these daily practices can be understood as modes in which nature is perceived and through which the farmer creates an awareness of nature that is lived and intimate. Indeed, Osmany stated, "My bond with the land has always been very intimate [*proxima*]. My grandparents lived on the farm all their lives, planting, harvesting and taking care of animals. Thus, for me, it is normal to have a relationship with nature. It is an intrinsic part of my being." From a broader perspecitve, while Agrawal (2005a) analyses the function of involvement in regulatory activities in changing subjectivity, here I want to highlight that such involvement is performed and embodied, and the performances are 'intimate'. Osmany's story also reflects Singh (2013), because, through these everyday activities of gathering in the middle of nature and assisting plants to grow, the farmer creates (or reinforces) intimate relationships with nature, in a similar mode as one creates affective bonds through 'taking care of pets at home'.

These relations are intimate in the same logic as Raffles (2002) considers local knowledge as intimate. Raffles (p. 326) declares that this intimacy is a place for the reconstruction of 'human-nature boundaries.' Further, he says, 'It (intimacy) is always within a field of power. It is always in a place. It is always embodied. And it is always, above else, relational.' Accordingly, Osmany's embodied practices of care and intimate relations with plants shape his ecocentric vision of nature, as he affirmed, "I can understand life only as a cohabitation of space of all vegetal and animal beings. Humans are included in this vision in which we are part of something bigger. We belong to the natural environment, nature is not aside from humans: we are part of it." He asserted as well,

> "Nature is my lung, nature is part of my soul: we [humans] exist because we are part of it. If nature did not exist, the human being would not exist. We are part of a much greater and intelligent system: some people call it Gaia, others the planet earth, and many individuals have not perceived that it is paradise."

Osmany's relation with nature also expresses Simondon's (1989) approach to individuation since it suggests that the subjectivity of the caregiver is an intertwining of the individual 'I', and a collective 'one'. The latter is based on 'sensory perceptions of the species', the collective language, ways of cooperation, and the intellect. During the everyday embodied practices with nature, the syntropic farmer *sees* the flowers, *smells* their magical scent, and *feels* the pleasure under the shade of the trees in the heat. As Singh (2013) tell us, these kinds of perceptions are 'all affects which depend on senses that are part of a generic biological endowment' (p. 195).

Furthermore, Osmany's perception of nature and life relates to his ecocentric vision connected to *buen vivir* principles. He considers that the centre is nature, and of course, it includes the human being. Both in *buen vivir* principles and from Osmany's point of view, nature has a value in itself, independent of the utility or the uses which are attributed to it. This represents an ecocentric vision where what matters most is defending the maintenance of life systems or 'life assemblages'. Attention is directed towards the whole environment and collectives, not towards individuals (Acosta, 2016). Osmany's ecocentric view is evident, for instance, in his idea, "The best plant harvested should not be eaten, it should be kept to save its seeds because the best seeds should be multiplied," (Picture 3.5). Certainly, he thinks about improving the assemblages of life and does not focus exclusively on the growth of the single species that he wants to harvest. Pertinent to this opinion, he believes that it is essential to be detached from the harvest itself to be able to improve all life assemblages inside the environment. "You have to practice *desapego* [detachment]," or "The purpose should not only be the end product for human consumption. It is necessary to strengthen the whole environment," these are Osmany's answers regarding his loss of the entire tomato production due to some nutrient deficiency of the soil. "In any case," he commented, "the tomato plants will feed the soil." Thus, Osmany's ecocentric view and attention to assemblages of life arise from his embodied practises of care in which he assists nature to grow.

Picture 3.5. Osmany and the biggest gourd (*Cucurbita pepo*) ever produced at Fazenda Bella; he kept it to save its seeds. Source: Alice Fassò.

Osmany confirms his ecocentric view in his understanding of human bodies as associated with natural cycles that human beings should follow in their daily decisions and actions. This is reflected in his words:

> "There is this craziness of always wanting the same food without considering the right season of production. This behaviour makes people not conscious of their body's need for diversifed nutrition and for those products that each specific season offer them. For instance, during the dry and hot season in the Cerrado, it is the time to grow refreshing greens and leafy vegetables with high fibre. While, in the rainy period, there are enough potatoes to get through the wet weather. Definitely, our body is closely connected with the food that grows in each season, but we have lost this awareness."

Surely, in Osmany's vision the centre is nature and humans should listen and pay attention to what nature 'tells' and offers them, rather than controlling and dominating it to make it produce what they want. His consideration is attuned with Acosta's (2016) idea, according to which at the base of ecologism there is not only a scientific understanding but also an admiration and identification with nature that approach it with curiosity and love, far from the feelings of possession or domination.

Osmany's sense of fulfilment from helping smallholder farmers suggests how affects of joy arise from embodied daily practices of growing plants. Indeed, from his point of view, it is the same satisfaction derived from planting and being a farmer itself. As he said, "It is a job that gives a lot of contentment." Beyond the farm, he works in a project of the organisation "Mutirão Agroforestal" financed by the Foundation Banco do Brasil and organised by the World Wildlife Fund (WWF). The project aims at planting food forests with some family-run farms inside three *assentamentos* Sem Terra (see next Section). Osmany's summarises what he hopes to 'obtain' from this social work,

> "First faith, I gain faith in what I do, I see plants growing, and my faith increases, my will to work and to grow plants increases, the sense of fulfilment is very great. The profitability exists too, even if many things have to be improved, researched and studied. I think that beyond profitability, what planting

> gives me is the satisfaction of planting itself and seeing nature growing with my care and love, the satisfaction of eating healthy food coming from my work together with the land."

Osmany's statement expresses the importance of care practices not only in creating affective relations but also in understanding and appreciating the value of a farmer's work. Furthermore, it connects to Singh (2013) because the link between empowerment, joy and the formation of new subjectivities could not have been better explained. Finally, it clearly ties in with Coleman's (1989) statement that 'farming is hard work, and the rewards at the start are measured more in satisfaction and pride than in large salaries. The farm family will do the work because it is their dream. It is their canvas, and they are painting in the way they have always wanted it to look' (p. 32).

Osmany's 'market-affect' and the influence on his choices and subjectivity

While in the previous sections I presented how affective relations with nature have driven Osmany's processes of becoming as an environmental subject, his rapport with the market affects his daily decisions and actions as well.

Although Osmany criticises the current capitalist market system (to be discussed in the next Section), he depends on it. On the one hand, he recognises the necessity to pursue money in order to pay, for instance, for a health insurance, a car or a tractor, "You need gasoline, you need to have many things," he said. On the other hand, he believes that people have to understand what money really needs to be spent on because, as he argued, "Today many people living in rural areas buy vegetables at the supermarket."

Nevertheless, Osmany grew up in Brasilia and has lived in the capitalist system all of his life. As a result, he consumes food from conventional markets. Moreover, to sustain his family, he diversifies his production and sources of income. Firstly, he gives courses about syntropic agriculture, bioconstruction and permaculture, both in the field and in the university, courses that are addressed to an elite clientele. Secondly, he is involved in rural development projects in which he works as farming consultant and also dedicates volunteering hours to giving further help to small farmers who are part of the project (see the next Section). Finally, to make farming production economically viable, Osmany considers it essential to have a better market position through attaining organic certification since syntropic agriculture does not have any specific market recognition. From his perspective,

> "The organic label is good at bringing producers with similar ideals closer through the realisation of a major alternative market. I think that the organic market is like the traditional market and production which have determined the flow of products inside cities in all cultures and civilisations. Nevertheless, organic food per se does not include any cultural meaning, and it means being a small and competing against conventional production. For this reason, I believe that 'being organic' is not the conclusion of our search but only a first step."

Accordingly, Osmany creates alternative market channels for his products. After my visit, he organised a CSA (community-sustained agriculture) with 16 families and a restaurant. Before that, for two years, he directly sold his produce in weekly open-air markets (Picture 3.6) and he harvested only what consumers requested via text messages, in order to avoid waste. Osmany placed a stand in Brasilia at the residential neighbourhood where his mother lives. He also sold some processed food produced by his mother, such as banana dough – made of bananas from his farm – and a vegan dessert made of cacao and banana dough. Sales were good, but it limited his farming production because he needed urban consumers' approvals in order to sell his produce at food markets. This was opposed to his production objective of restoring the soil and nutritional diversity. Consequently, as he declared, "To sell my specific food production, I need an

alternative clientele that can appreciate the originality of my products which are different from conventional standards."

Picture 3.6. Osmany at open-air markets in Brasilia. Left picture, his weekly stand. Right picture, a random market event. Source: Alice Fassò.

To conclude, Osmany has a complex two-sided relation with the conventional market affecting his choices and his subjectivity. On the positive side, he sustains his family through the conventional market, but on the other hand, he tries to oppose the capitalist system. His criticism of the system causes inner conflict which stimulates him to create alternative market channels to deal with and, at the same time, positively resist the conventional system in which he lives and depends on. As discussed in the following sections, his syntropic agriculture production is, per se, a way to positively defy the conventional market and that mode of existence. How affects stemming from political and social issues influence his subjectivity is presented along with his way of engaging with both natural and social environments.

The influence of Osmany's lifeworld on his affective labour and subjectivity

The passion for nature and the environmental–caregiver identity of Osmany are employed at the collective level. Indeed, his lifeworld and affective labour motivate him in mobilising his individual environmental subjectivity for community development: he shares syntropic agriculture practices with smallholders and makes them aware of their possibilities as syntropic farmers. Thus, affective labour drives him to create a local social change through the formation of collective environmental identities. Especially, his passion for his work and for nature inspires him in spending four hours every Thursday with *assentados's*[3] families living around his area. Osmany picks up their harvested vegetables and answers their questions about their recently implanted syntropic systems. These systems were created during a participatory development project about syntropic agriculture carried out by the organisation called 'Mutirão Agroforestal' and the WWF. Osmany sells the products of *assentados* together with his own in Brasilia. He does not get any financial contribution to do this weekly activity, but he wants to help them in making an effective syntropic agriculture production.

He has successfully shared his care for nature with *assentados* during the time spent together in the farming fields, as he said, "Now they have a different relationship with nature and with agricultural work."

[3] *Assentados* belong to the Landless Workers Movement or Movimento dos Trabalhadores Sem Terra (MST). MST's objective is access to the land for poor people through (I) land reform and (II) activism on social issues such as unequal income distribution, racism and sexism making land ownership more difficult to be achieved by people in vulnerable conditions. MST strives to achieve a self-sustainable way of life for rural people. Lands occupied by the MST are called *accampamentos* or camps; when the MST obtains the ownership of a land, the area takes on the name of MST *assentamento* or settlement, and *assentados* are the people who start living on that land. This movement is threatened by the decisions of the current Brazilian president Jair Bolsonaro (http://www.mst.org.br).

Besides, mirroring Raffles (2002), this example highlights that the activities in the fields offer opportunities for 'affective sociality' where nature becomes a place for creating and reinforcing social relations. Furthermore, pertaining to Singh (2013), I observed that this affective sociality among Osmany and *assentados* is revealed in those experiences in which the knowledge about nature and the attention for its health are interlinked into the care for the other and the creation of social relationships.

Osmany's lifeworld strengthens his tie with nature and his affects coming from social and political issues stimulating him to work on community development. For this reason, I take into consideration the following elements of his lifeworld: his involvement with social movements working with agriculture, his family story (presented in the previous Section), his local social context, wider Brazilian social and political issues and his comprehension of syntropic agriculture as a mean to transform society. These components have contributed to building his affection for nature, sensitivity to social injustice and attention to the link between environmental and social sustainability. As a result, they have guided his attention and care towards spreading knowledge and consciousness among small producers. As Osmany stated,

> "There is no sustainable food production if there are no farmers who are conscious of how to practice it. They need to know that it is possible to live in abundance through practising a type of agriculture based on processes. That is syntropic agriculture. They need to be aware of the richness of the land."

Actually, Osmany's view of syntropic agriculture is similar to Coleman's (1898) who argues that sustainable agricultures are 'based upon a philosophy that aims at stability by establishing long-term, self-perpetuating, low-input systems of production as opposed to short-term, high-input systems."

Belonging to a collective

Osmany's lifeworld reinforces his affects because he collaborates with organisations, such as the Agroforestry Movement of Syntropic Inclusion (MAIS), and the Mutirão Agroflorestal, which share Osmany's same focus on social issues and care for nature. Indeed, Osmany explained to me that, firstly, MAIS started in March of 2016 during a course about agroforestry systems in the farm called Sitio Semente, in Brasilia. In this occasion, a group of students perceived that there were few or no real farmers in most syntropic agriculture courses taking place in Brazil. Nevertheless, according to Osmany, they shared the idea, "If we want to change food production into a smarter and more sustainable system, we have to reach the people who really live off the land, through education, culture and awareness."

As a result, "Through collective funding, MAIS has the mission to spread syntropic agriculture for the education of small rural producers or traditional communities, which are trained to become multipliers of syntropic agriculture in their regions," Osmany affirmed. Thus, MAIS is defined not as a paternalist project, but as a support-network for syntropic agriculture farmers who want to connect with other producers, and exchange information about this diverse and abundant farming system created with syntropic agriculture. MAIS aims at helping smallholders who really live off the land and have neither the knowledge nor the economic conditions to start the transition by themselves.

Secondly, the subgroup of the 'Mutirão Agroflorestal' NGO located in Brasilia is formed by members who operate in the region and develop different activities related to agroecology and syntropic agriculture. "Among the tasks," Osmany clarified, "There is the creation and development of successional agroforestry areas. The group organises community-based projects, and it does consultancy together with traditional populations and smallholders." During recent years, they have developed projects financed by international institutions and addressed environmental regeneration through syntropic agriculture, food sovereignty and productive inclusion aimed at farmers belonging to the MST.

From Osmany's perspective, the vision of the Mutirão Agroflorestal is to contribute to the construction of a sustainable society through a network integrating people, a network which helps farmers learn, share experiences, experiment and stimulate agroforestry production through syntropic practises. It aims as well at building new forms of relations in which the human being acts in the natural processes as an integral part of nature, generating biodiversity and abundance of life through fundamental principles like love, cooperation and solidarity. This vision relates to the ecocentric view shared by Osmany (see the previous Section).

As a result, belonging to these wider networks not only strengthens Osmany's care for the environment, but also drives his attention to social issues. He employs his environmental subjectivity and affective relations for community development, expressing that belonging to a collective reinforces the individual environmental subjectivity. Consequently, it is linked to Virno's analysis of Gilbert Simondon's (1989) thesis. It explains the principle declaring that the collective is not, as we think, the terrain in which the relevant characteristic of a specific subject is reduced or vanishes. Instead, it is the sphere of 'a new and more radical individuation' (p. 78). In fact, Simondon's conclusion is that, within the collective experience, we aim to improve our singularity 'to bring it to its climax' (Virno, 2004, p. 79). Osmany's association with his broader collective also reflects the argument – resulting from the above mentioned principle – of the individual as the intertwining of pre-individual factors and 'individuated characteristics' (Virno, 2004, p. 79. For further explanation see the 'Theoretical framework' Section).

In the following section, I discuss how Osmany's vision and mission are closely associated with the two organisations mentioned above. Up to this point, I have focused on how Osmany's involvement with social organisations influences his affective relations, subjectivity and attention to social injustice. Instead, in the next section, I introduce how the social environment around Osmany's area and the wider Brazilian socio-political context drive his subjectivity and affects towards social change based on smallholders' awareness about their possibilities.

Local and national socio-political context

As mentioned above, Osmany invests a lot of time in helping other farmers who have fewer opportunities than him to produce and sell their agricultural products. His work at Fazenda Bella has aimed at, "Producing soil, and planting water with abundance," he declares. It means regenerating the fertility of the soil by planting and pruning and increasing the water availability through planting trees which push water from the subsoil. Furthermore, Osmany is thinking about ways of associating this objective of vegetal abundance with animal breeding and with his knowledge of architecture. Particularly, he wants to build some structures to house a knowledge training centre. Considering the social context of Osmany's farm, which is located 55 kilometres from the city in an area where 90% of people have low income, his purpose is not to create a "middle-class" ecovillage. Rather, he stated,

> "In my reality, considering the specific social context, I think that the great triumph is to transform people living around my land. They have an extreme lack of spirit, food and love for the others. In fact, when you live in the rural area you tend to isolate yourself. Rural life is complex because you get pretty disconnected but at the same time you really need others, like when a fire is burning nearer and nearer to your fence, or you have run out of sugar and you have to walk twenty kilometres to buy it. I think that the rural area needs more consciousness [*consciência*] to manage itself because the reality is that the city cannot live without the rural area for even one day, but the rural area does not need the city, at least in an utopian view. Nevertheless, in the current situation, farmers cannot earn money without the city."

The fundamental importance of counting on others and the indispensability of rural areas links to *buen vivir* principles (Acosta, 2017), according to which people have to accept that the human being is created in community, with and in function of other humans, as an integral part of nature. Additionally, people have to assume that human beings are nature, without intending to dominate nature (*ibid*.).

Besides, in the above observation, Osmany expresses his awareness and how he is affected by the difficulties of smallholders living a dignified life, and he desires to transform their lives through education and development of consciousness. Indeed, he continued,

> "If you really think about the quality of life of a person who lives in the fields, there is the possibility of abundance, through awareness and biodiversity. I think this is essential: to wake up the consciousness of rural people about the possibility to have a quality of life without being in this insane race to make more money."

He does not think that people do not have to pursue money, but it is necessary to understand what this money really needs to be spent on. Today the rural context is sickened by an urban life ideology that is about earning money every day, without recognising the benefits which are in the soil and forgetting the richness of the land. Thus, Osmany affirmed, "My relation with *assentamentos* is about social consciousness."

Osmany associates the importance of social awareness and education also with wider elements of his lifeworld, specifically the broader Brazilian social context and public politics. He lives in a third world country where quality public politics are rare, while paternalism rules in its worst expression as it is a palliative paternalism. "In Brazil, there has never been a quality paternalism which favoured the improvement of quality of life for low-income people. That which the last left-party government promoted was the nearest we have come to it, nevertheless it was a palliative paternalism which does not get to the root of the problem," Osmany stated.

Beyond this, small-scale agriculture, known as family farming, accounts for up to 70 per cent of Brazilian staple food production, employs three quarters of the farm labour force and is responsible for one third of agricultural income (IFAD, 2016). As a consequence, in Osmany's opinion, smallholders have everything in their hands to have a higher quality of life without depending on any kind of governmental paternalism, but they often do not recognise the richness of the land.

> "My belief is that we have to help the farmer to understand how alternative agriculture based on processes (syntropic agriculture) works since it is a production system in which the farmer starts planting less demanding plants and correcting the soil with vegetation. Then, he starts planting products with more aggregated and nutritional value such as vegetable and legumes, and after a short time he can already harvest fruits. 'Soon' he even eats Brazilian nuts which are protein pills. Undoubtedly, this alternative agriculture enables a farmer's lifestyle to enhance progressively as well: it enriches not only their diet but also their understanding of belonging to nature and their relation with it; and all the while, their quality of life and the income condition rise."

Manifestations of *buen vivir* principles are evident in Osmany's ideas and beliefs. In fact, *buen vivir* is understood as people living in harmony with themselves, with other people in the community, harmony between humans and nature (Acosta, 2016).

Both the local and the national socio-political context are elements of Osmany's lifeworld affecting his subjectivity and motivating la his march toward social change. Since he recognises the difficulties of living in

rural areas and is affected by these local and national social injustices, he helps the people living in his surroundings to create alternative modes of living by practicing syntropic agriculture.

Thus, Osmany's approach to social transformation through a new relationship with nature and agricultural work connects to Ruddick's (2008) analysis of Spinozian philosophy because Osmany exemplifies the 'dialectics of the positive' that substitutes 'negation as the driving force of social transformation with an understanding of essence based on affirmation, or *potentia* – that is, the impulse to preserve and expand our powers to act' (p.2589 cited by Singh, 2013).

Additionally, Osmany's dedication to social change mirrors both Ruddick's (2010) realisation of the link between empowerment and enjoyment, and Deleuze's (1988) recognition of affirmative life as central in Spinoza's studies. Finally, Osmany's story proves the affirmation that we create encounters to increase joy and this idea is a cornerstone in many current studies about the formation of subjectivity (Ruddick, 2010), especially in Hardt and Negri's arguments regarding the biopolitical potential of affective relations (2000, 2004). Indeed, he employs his affects of joy and satisfaction associated with planting for community development and this is an expression of the biopower of Osmany's affective labour forming new collective environmental subjectivities.

In the next section, I present how this positive social transformation and farmers' awareness tied to Osmany's view of syntropic agriculture is seen as positive political resistance. The manner in which this vision arises from Osmany's affects from nature are analysed.

Syntropic Agriculture as positive resistance

Osmany believes that syntropic agriculture is a form of resistance to the current capitalist system because it eliminates the need to depend on poisons and firms such as Bayer. Moreover, he thinks that the greatest resistance is the perception that plant diversity and planting density produces a more abundant harvest. Syntropic agriculture plays a relevant role in this type of production. As Osmany explained,

> "Syntropic agriculture is a form of resistance because it is a way to not depend on the current capitalist system in which people have to buy everything. With syntropic agriculture, we [farmers] have enough quantity to feed ourselves healthily, and still, a part of the production can be sold. Therefore, it improves our income. The amount of production is a differential of syntropic agriculture; this volume is produced through planting density within the basic syntropic agriculture concepts of stratification, rotation, and spacing."

Thus, this is the key for Osmany: to produce in greater abundance. Syntropic agriculture abandons the western concept of scarcity, that is irrelevant to Brazil, a tropical country where there is a lot of good soil and with a perfect climate to produce all year around. Furthermore, this 'productive richness' bonds with the creation of collective subjectivities in *assentamentos*, but also in other contexts. Indeed, when the small farmer 'produces abundance', it is possible that he harvests fruits without the adequate storage period for the market standards because they are extremely delicate such as pitanga or Brazilian cherry (*Eugenia uniflora*) or mora (*Rubus Glaucus*). Taking this dynamic innumerable times and multiplying it by innumerable parcels of land, "The result is that the collective is the only mode to produce and stay in the market with this kind of alternative abundant production," Osmany asserted. Actually, the collective gives the possibility to organise food processing (e.g. jam and liqueur), hence, to diversify the production and increase the shelf-life. Osmany stated, "If we teach small farmers how to produce in abundance, the collective is the consequence."

The 'Canaa' *assentamento* is a clear example of this relation between rich production and the creation of collective subjectivities. In this settlement, Osmany, together with a Mutirão Agroflorestal team, carried out the development project about syntropic agriculture systems that I introduced previously: it began with twelve families, then another thirty families joined. I visited the *assentamento* when the first systems had been under development for six months. Before this project started, the settlment was known for conflict and fighting among the families living there, and the difficulty of organising the settlement through structure and projects. It was such a chaotic situation that even the MST decided to abandon the settlement.

Briefly, with this syntropic agriculture project, the MST has come back after years of absence to create an organisational structure within the *assentamento*. In particular, the MST has helped women of Canaa in their decision of developing a cooperative to diversify the food processing making access to the market more viable (Picture 3.7). Such a cooperative was unthinkable just six months before. This example shows that, as Osmany argues, the creation of collective environmental subjectivities is related directly to the practices of syntropic agriculture producing abundance: the only way to manage its rich production is through the collective, fostering cooperation and a new relation with nature. Actually, in the *assentamento* Canaa, many families were amazed by the variety and bounty of vegetables, medicinal plants and trees in such small gardens after only six months (Picture 3.8).

Picture 3.7. A meeting between the MST and women of the Canaa *assentamento* to discuss their food cooperative. Source: Alice Fassò.

Picture 3.8. Six-month-old syntropic agriculture fields at the Canaa *assentamento* with abundance of vegetables, medicinal plants and trees. Source: Alice Fassò.

Thus, organisation and communication among *assentados* engaged in syntropic agriculture have helped in the formation of collective subjectivities of being environmental subjects. These collective identities have merged at multiple scales, from the individual, to *assentamentos* and NGOs, through national movements. This manifestation of the biopolitical potential of syntropic farmers' affective labour expressed in communication and organisation can be associated with Singh (2013) arguing that at the community level, everyday practices and cooperation for regeneration of nature help in the creation of collective environmental subjectivities. Accordingly, Osmany's story suggests that when the subject belongs to networks and the collective, the identity of being a syntropic subject is mobilised for collective action. On a broader scale, new environmental subjectivities can be 'employed for strengthening cooperation and communication, which leads to a deepening of these environmental subjectivities and a realization of their potential to create new forms of being and new visions for nature-people relations' (Singh, 2013).

To conclude, I have illustrated that Osmany considers syntropic agriculture as a means to transform society since it is a mode to escape from the scarcity paradigm, and to reach a paradigm of abundance. This vision about syntropic agriculture arises from affective relations with nature and an ecocentric view, as Osmany affirmed,

> "We [humans] can perceive that all living beings, plants, animals and insects are infused with the duty to increase life and the possibility of life itself. Through this perception, the human being can become an agent with the objective of increasing life on our planet, rather than diminishing diversity of species, and, consequently, lessening the purpose of humans. As a result, we are part of the paradigm of abundance, that is based on the creation of more and more life. In such a paradigm, the human being has all the tools to be a kind living being beloved by nature and planet earth: this transforms society."

Osmany's perception of human-nature relation within the paradigm of abundance relates to the following story in which the farmer Joelson and his MST community try to create a new society through not only syntropic agriculture practices but also education based on a new rapport with nature and aimed at transforming human subjectivities.

4. Joelson and his community of the 'Terra Vista' *assentamento*

Figure 4.1. The 'Terra vista' *assentamento*, located in Arataca, in the southern part of the state of Bahia. Source: Google Maps image edited originally by Alice Fassò.

I decided to do research at the Terra Vista *assentamento* (see Chapter 3) or settlement, because everyone I encountered during the fieldwork considered Terra Vista an exemplary case of agroecological transition, a point of reference for other *assentamentos* where syntropic agricultural practices are also carried out.

The Terra Vista *assentamento* is located in Arataca in the southern part of the state of Bahia, as illustrated in Figure 4.1. Officially founded in 1994, this settlement was the outcome of a fight for the Agrarian Reform by the MST (Landless Workers' Movement, see Chapter 3). The land, located at the side of the main road BR-101, was settled on the 8 March 1992 in honour of International Women's Day. The MST wanted to make Terra Vista a reference for other *assentamentos* to demonstrate that the Agrarian Reform is a process to transform the impoverished regional social situation. Thus, a cooperative model was required. In 1994 at Terra Vista, the MST, together with *assentados* (see Chapter 3), formed the Cooperativa de Produção Agropecuária Construindo o Sul LTDA (Cooperative of Farming Production Building the South) (COPRASUL), organised according to the political and ideological orientation of the MST. The objective was fighting the current capitalist system of individual work through promoting the autonomy of producers and the emancipation of workers towards new sociability based on collective work and new social relations (Lima, 2010, p. 26).

The agricultural projects focused on bringing back cocoa production and diversifying farming by introducing coffee, banana, cassava and pineapple. Between 1995 and 1998, they set up an artisanal chocolate production and a '*casa da farinha*' or 'house of flour' to process cassava for consumption and sale. Horticulture for family consumption was a parallel activity: coriander, salad, pumpkin, tomato and cabbage

were the main plants cultivated in the small family-owned parcels for household consumption (Oliveira, 2017).

Nevertheless, the MST's attempt to transform the *assentamento* into a great model project was unsuccessful because the movement's leaders copied a project that was highly dissimilar to the real situation of the community. As a result, in 2000 there was a profound crisis and the cooperative was heavily in debt. The first mistake was that the project addressed the collective, forgetting the individuality of the social group of *assentados*. In fact, they were employees in cocoa farms or unemployed in the urban area and had an extremely low level of education. Most of them were illiterate and had an individualistic vision, dreaming of becoming cocoa entrepreneur farmers on their parcels of land inside the settlement. Moreover, as they became *assentados*, their life conditions changed from employees to independent farmers: their new autonomy demanded organising and planning the production. It was a demand that had no relevance in their previous life because before that, they 'only' had to obey orders and execute tasks (Lima, 2010).

Secondly, the involvement of technicians and agronomists serving the agribusiness caused the failure. These technicians and agronomists decided to follow an agriculture model based on intense use of chemicals and in the end, they established an agriculture production at Terra Vista that was oriented to competing in a capitalist market in which the profit is measured in cents. As a consequence, the production had to be on a large scale and in high volume so as to be a lucrative activity, and it had to be a productive model based on monoculture. The third factor was the presence of leaders without the proper skills to lead and the lack of *assentados*' political consciousness about the importance of a collective project. All these factors contributed to the failure of the collective model imposed by the MST's leaders on Terra Vista (Oliveira, 2017).

As time passed, many things changed. Learning from the crisis during the period between 1997 and 2000, and without any state financing, the *assentados* reorganised Terra Vista. The transformation was possible, first of all, thanks to a change in mentality by the leader of the *assentamento*, Joelson. As a matter of fact, he distanced himself from the MST leadership, and dedicated himself exclusively to this settlement and to the project of founding a school at Terra Vista. Second, the national MST started engaging in new debates about the *assentados*' requirement to develop a new model of agriculture based on the principles of rural sustainability. Third, *assentados* understood that the conquest of the land was the means, not an end, "We understood that the fight for agrarian reform does not finish by knocking down the fence but by constructing a new society," Joelson affirmed.

According to farmers living at the *assentamento*, the first indication of an agroecological change at Terra Vista was a joint meeting. In this meeting, the administrative group of the settlement defended putting an end to some practices such as deforestation, burning, hunting and the use of chemicals in farming fields. And so, community-based protection and care for nature started with the creation of rules. As Joelson stated,

> "We worked with conventional agriculture due to lack of knowledge. In 2000 we sat, we discussed, and we started working with another vision. Now we cannot burn anymore; we cannot kill ants. We started working in a system in which we live together with nature and agriculture."

Moreover, through a learning process based on practices and theory, *assentados* started comprehending the importance of alternative agriculture to guarantee food security and sovereignty by improving the dietary habits of the youth. Santos (2017) explains that this understanding was fundamental to building

agroecological transition project and to reaching a strategic objective, that is, 'to transform the settlement into a unit of agroecological reference with a project of education and production to emancipate *assentados*,' (p. 29).

Today, with 905 hectares and 48 settled families (Oliveira, 2017), Terra Vista is a reference for environmental preservation, agroecology and the production of native species of the Atlantic Forest such as Jacaranda (*Jacaranda mimosifolia*), Yellow Trumpet Tree (*Tabebuia aurea*), Redwood Tree (*Paubrasilia echinata*), Jatoba (*Hymenaea courbaril*) and Cedar Tree (*Cedrela fissilis*). Over the twenty years, the *asssentados* have restored 90% of the ciliary forest of the Aliança River and now the river flows through the middle of the *assentamento* (Picture 1.2). Additionally, they maintain 34% of their area as natural reserve which is located within the Conservation Unit of the National Park 'Serra das Lontras'. Terra Vista also has fish farming, cultivation of fruit trees, vegetable gardens, and a nursery which, according to Joelson, can produce 150,000 seedlings each year. It is also a reference for the production of organic cocoa.

In the introduction, I presented how an agroecological transition including syntropic agriculture as farming practices started at Terra Vista from necessity and subsistence issues and evolved towards the formation of new environmental subjects in which education has played an essential role. In the next section, I present how the relationship and affect coming from the market have influenced the syntropic agriculture practices and this agroecological transition: a transformation which also influences *assentados*' subjectivities.

The role of 'market-affect' in the agroecological transition at 'Terra Vista'

The Terra Vista *assentamento* offers education from primary school to a master program in agroecology (see 'Education project'). Nevertheless, as stated by Joelson, when the new project started, *assentados* perceived that investing in education alone was not enough because it did not reach out to all generations. Therefore, they needed to build a model that would generate income for *assentados* so that they would remain on the land, thereby closing the productive and formation cycles without leaving anyone behind.

It was crucial to establish an education system for the transition from conventional agriculture to agroecology. Many types of research, courses, practical classes and debates took place inside the settlement with the participation of experts in syntropic agriculture and agroecology such as Ernst Götsch and Ana Primavesi. The training activities were made possible thanks to the partnership with the Water and Climate Management Institute (INGA) and the Cabruca Institute[4]. The first challenge of the *assentados* was the production of organic cocoa for the market. They started this by using syntropic agroforestry practices to bring back the cocoa production in their parcels of land.

With these new production practices, they needed to build a nursery to produce and distribute seedlings with high agronomic value and genetic viability. This has become a source of income for the youth working at the nursery project. Currently, the nursery has two objectives: first, to distribute plant stock of forest species, fruit trees and cocoa trees among *assentados*, and, second, to produce quality seedlings in abundance to be sold at a lower-than-market price to small local farmers living in the surrounding area. As a result, not only does the nursery produce seedlings to recover parcels of land, natural reserves, and the ciliary forests of Terra Vista, but it is also a source of income for the youth involved in the production.

It is important to highlight that the improvement in cocoa production leads to the requirement to have control of the entire production and processing chain, from cocoa beans to chocolate (Picture 4.1). As Joelson stated, "*Assentados* have learnt these processes based on an agroecological approach, that is,

[4] http://inga.org.br/ ; https://www.cabruca.org.br/

respecting the human being and nature." Hence, a transformation dynamic has emerged to overcome the problem of the middleman and the issue of *assentados* being mere producers of cocoa bean. Joelson affirmed that farmers keep only 7% of the entire profit coming from the chocolate production chain. "Who does the hardest job inside the production chain is the one who earns the least, and this dynamic shows the perverse side of the capitalist market," Joelson remarked.

Picture 4.1. Chocolate bars produced by *assentandos* at Terra Vista. Source: Alice Fassò.

Cocoa bean production is still the *assentados*' main source of income. They sell their fine cocoa beans for 320 reals per arroba, while their common cocoa beans sell for 180 reals per arroba. In addition to the middleman problem, another difficulty is the price instability of the cocoa bean market, which can vary up to 50 reals per arroba (15 kilograms) in one year (for example, in 2018, it varied from 110 to 155 reals). Furthermore, they sell their chocolate mainly at events because, according to Joelson, they still do not produce enough raw material to have a stable sales rate throughout the year.

In this case, it is evident how affect arising from the need for subsistence and market forces, has influenced the becoming of new environmental subjectivities through a collective learning process among *assentados* at Terra Vista. We can see that the 'becoming' of new 'agroecological' subjects is shaped, on the one hand, by affects generated from market and economic issues and, on the other hand, by affective relations with nature (to be discussed in the following Sections). In this first part, I introduced the economic and material motivations of the agroecological transition leading to new subjectivities at Terra Vista, while in the following sections, I focus on Joelson, the leader of the settlement, and his point of view. This is because my unit of analysis is the farmer and not the community. Nevertheless, in this case, the separation between the individual and the collective is often blurred. I often observed that the individual lives for and thanks to the collective. Specifically, in the next section, I analyse Joelson's view of syntropic agriculture within the agroecological realm.

Syntropic Agriculture and Agroecology in Joelson's fields

Within the agroecological production at Terra Vista, syntropic agriculture fields are present. In this case, syntropic agriculture is manifested and expressed as a practice in the broader scenario of agroecology. Specifically, Joelson understands syntropic agriculture as the practice of regenerative successional agroforestry based on natural processes (see Chapter 1). In his fields, I observed syntropic agriculture mainly in the cocoa *cabruca* system. "The production of cocoa trees in the native forest is the most agroecological and syntropic expression that we have here," Joelson confirmed (Picture 4.2). As discussed in the next sections, Joelson believes, "Agroecology is about creating an agroecological society: it is not only

agriculture production," while syntropic agriculture regards the agroforestry systems and the cocoa *cabruca* systems which are part of the agroecological transition.

Picture 4.2. Joelson in the middle of a '*cabruca*' system in the Terra Vista *assentamento*. Source: Alice Fassò.

Syntropic agriculture plays an essential role in farming care practices at Terra Vista. Undoubtedly, Joelson's primary goal for the *assentamento* is to plant 200,000 hectares of syntropic agroforestry systems and 200,000 hectares of cocoa *cabruca*. As he affirmed,

> "At Terra Vista, within the PRODESEMA[5] program, my dream is to regenerate 200,000 hectares of cocoa *cabruca*, and 200,000 hectares of syntropic agroforestry systems to create an economy of the Atlantic Forest: so that we can a have a peaceful and harmonious coexistence with the Atlantic Forest. Thus, we have to build 400,000 hectares of trees to do an exchange with the Forest through giving back trees to it. An exchange for strengthening the forest, and it will strengthen us giving us many natural products. I think that we complement with nature through this learning process and research of harmonious coexistence with all the other beings living. I believe that PRODESEMA can make us become the reference for syntropic agroforestry systems."

This statement links this agroecological and syntropic project to Joelson's care and relationship with nature through a harmonious co-existence, as analysed in the following section.

The shaping of Joelson's subjectivity: From necessity to affective relations

Within the communitarian context of Terra Vista, I analyse how the community leader's environmental subjectivity is shaped by the intertwining of affects coming from disparate domains such as subsistence necessity, the market, education and affective relations with nature. Furthermore, I discuss how this new identity is fully expressed at the collective level. Joelson's individual environmental subjectivity is completed inside the collective in which he lives: the key objective of his action is improving his community. Joelson always speaks for his community and he aims at a social change through a pedagogy that

[5] Socioeconomic Development Program of the Atlantic Forest (PRODESEMA). Partnership among the Company of Development and Regional Action (CAR), the Rural development Secretary (SDR), Teia dos Povos, ECOBAHIA Institute and Biofábrica de Cacau Institute.

establishes a new relationship with nature. Hence, he believes that the real humanisation of people is possible through the creation of affective relations with nature.

As Joelson said, he shifted from conventional agriculture to agroecology because he had no other option. He changed his decisions and actions related to his work with nature because he was affected by necessity, subsistence reasons and by a learning process making him aware of the importance to practice a different kind of agriculture.

Since this new approach to agriculture required heightened attention and care for nature, Joelson started creating affective relations with nature by taking care of it. As a result, he began to care differently for nature through daily practices of growing plants, trees and forest. From Joelson's point of view, agroecological and syntropic understanding of nature is about considering the earth as a mother, the soil as a living being, and understanding that humans do not exist without nature. As he said,

> "We [*assentados*] are in a process that we call 'reconciliation' with nature through an agroecological transition. This transformation is not complete; it is permanent: each moment there are challenges that we have to comprehend. We started understanding the basic principles, and now we know that agroecology is the right direction to take. First, it is necessary to recognise nature as a living being and there are many creatures living in it. Then, we have to respect it and be satisfied with what she gives us because nature is a mother, it is amiable, and it likes taking care of her children respecting her."

Certainly, Joelson has developed affective relations with nature through the discovery and application of agroecological and syntropic principles to nature and agriculture. He started caring differently for nature while his agroecological and syntropic vision was taking shape; he 'decided' to become an environmental subject while before he was more of a political subject caring for social justice within the MST movement. During this transition, Joelson started dedicating himself exclusively to his *assentamento* and its land in order to change how *assentados* utilised and related to nature at Terra Vista. "Before it was about benefiting from the land without interacting with it," Joelson said. Education has promoted this change in his subjectivity and it has led to a new understanding of nature through theory and practices. As Joelson argued,

> "The first step of my fight is the necessity of the land for people and the responsibility and respect for nature. Indeed, our existence depends on this natural land, good varieties of seeds, good nutrition and healthy soil. As Ana Primavesi says, in healthy soil, healthy plants and healthy people. So I have to start from this issue of taking care of nature and soil. In this way, I establish a relationship with nature, and in this relation, I feed myself, and I feed the environment: it is an exchange. It cannot be just about taking without giving back: this new approach builds a new culture. We came to this land to serve nature, not to be served. I consider serving nature as the human role in this world."

This statement illustrates Joelson's view about the close rapport between human existence and nature; he affirms that taking care of the natural world is necessary to live well. Moreover, he expresses his identity as a servant of nature. Taking on this new identity as caregiver means a shift in subjectivities. Undoubtedly, the MST and experts' environmental narratives have helped this transformation, but daily involvement with forest regeneration and preservation, and the following moral narrative has influenced this shift as well. Joelson affirmed many times how he felt better in the new environment, with more shade and healthy food, "Conventional agriculture is like a drug. When you are addicted to drugs, it is difficult. It is better to have less but favouring the natural environment and maintaining our health." Further, he commented, "It is not paradise, but it is better than staying on other people's farms, working for others. Now we have freedom." This dynamic connects to Singh's (2013) research in Odisha, India, where she found that in his

landscape, the farmer 'experiences changes in his environment in embodied and material ways' (p. 193). In fact, in many situations, Joelson tied microclimate and tree cover and associated his experience of changes in heat or rains with the regrowth of trees. His attention about transformations in the landscape also concerned with worries about the new generations and their future. Once, he said,

> "We have to go to the direction of respecting the land and nature because nature does not have an owner; nobody owns it. The earth is a living being that is there to be given to future generations. As a result, we have to take care of our land to leave something better to the next generations, but we [humans] are doing the opposite, destroying everything."

Accordingly, even though the environmental narrative influenced Joelson's perception, the daily lived modifications in the landscape had the same, if not more relevant, function. His comprehension of environmental changes did not result from narratives merely regarding the environment; they were lived and understood in affective relations. Several times he affirmed, ''The shade of the trees feels pleasant. It feels great to have regenerated all these green areas.'' Similar to Singh's reference (2013) to the connection between 'joy, empowerment, and the production of new subjectivities' (p. 195), Joelson's perception of the regenerated forest declares this link perfectly. In the next section, I analyse the role of affective relations in his embodied daily practices of taking care of the forest and the affective labour of nourishing nature.

Affective relations in Joelson's embodied care practices of 'growing' nature

Among the activities carried out at Terra Vista, Joelson points out the work at the nursery as having an essential role in the agroecological transition and producing 100% of seedlings for the forest regeneration (Picture 4.3). Thanks to that, the Terra Vista *assentamento* was the first in the state of Bahia to have an environmental regulation recognised by the Brazilian Institute of Environment (IBAMA). In fact, *assentados* preserve 313 hectares of the native Atlantic Forest area located within the National Park 'Serra das Lontras'. In addition, Terra Vista already has 300 hectares of cocoa *cabruca* system enriched with native forestry species, and 95% of the ciliary forest and springs recovered.

Picture 4.3. The nursery producing seedlings for forest regeneration at the Terra Vista *assentamento*. Source: Alice Fassò.

> "We take care of cocoa trees, but we also respect native trees, nature, and all living beings. We also give attention to the soil and all beings living in it. When I see these matters [the soil], I perceive that there are many living beings inside it: this is an extraordinary relationship that we start to create. There are pieces of trees in the living soil; when trees die, they become life for other living beings. This is already a meaningful relationship that we are building with nature, with the soil and even with ants. I will show you that all places here present great respect for ants, birds and all biodiversity. We have not utilised chemicals for eighteen years."

As shown by this Joelson's statement, he establishes intimate relationships with trees through these care functions of assisting trees to grow, as a person establishes affective ties through caring for pets at home or plants in the garden. He forms affective bonds with the growing trees, plants and birds through these daily activities where his ability to be affected and affect is developed in the 'in-between' space of these relations. Similarly, the subjectivity of a caregiver arises from that in-between region: in general, nature is converted 'from nature out there and become a part of the self that is nurtured through care' (Singh, 2013, p.194).

Subjectivities can also be lived and formed by different modes of performing tasks (Butler, 1990). A*ssentados* experience growing trees in different ways depending on how they participate in the embodied care activities. Hence, I want to highlight that this partaking is performed and embodied, and the relations and activities are 'intimate'. These relationships are intimate in the manner that, in another context, Raffles (2002) gives to 'local knowledge as intimate'. Raffles argues that such intimacy is a space for the social construction of knowledge and the renewing of borders between humans and nature. The following affirmation by Joelson expresses this space created by intimate practices, "Before we were at war against ants, until an old woman [Ana Primavesi] told us that if we make war against such an intelligent being, there will always be war. Thus, in this process, we decided to make a deal with ants because they are millenary intelligent beings and help us to remove sick plants."

I observed that Joelson, like other farmers, tends to make daily trips to their syntropic agroforestries and to the preserved forest to nurture their growing plants or look for wood, leaves, medicinal herbs or mushrooms, spending many hours there. Such excursions also offer opportunities for 'affective sociality' (a term coined by Raffles, 2002): nature becomes a place for creating or reinforcing social relations.

I experienced this 'affective sociality' with Joelson and other *assentados* when I got an invitation to have a walk in the forest with them. This walk lasted the entire day, with my guides taking the longest route to show me all the magic of their forest such as a big liana where they love to play (Picture 4.4). It became a moment of learning and socialisation with them. They often stopped to point out ancient trees, all the native tree matrixes catalogued by them and medicinal herbs; to pick wild fruits; to remark the route with new laces entwined on trees, or to clear the path with their axes. They demonstrated to me the results of years of hard work and protection. During the walk, the affective ties that Joelson and other *assentados* have with nature and the vegetation of their forest was visibly apparent. In such a relationship, social identifications such as gender are not as relevant as the intimate daily rapports and practices with nature and the wild.

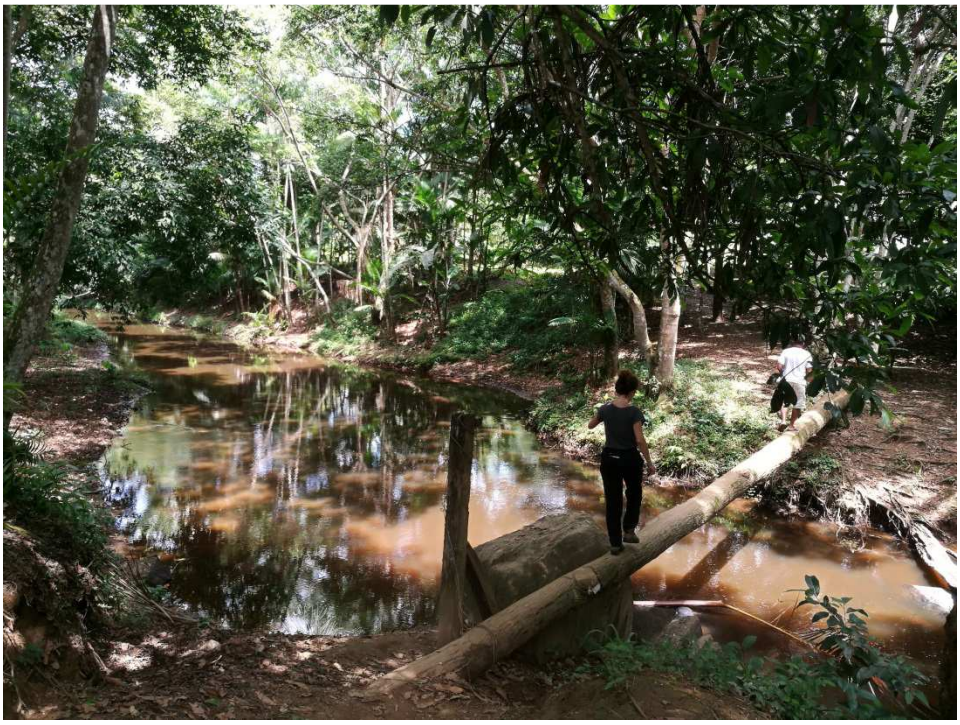
Picture 4.4. The magic forest of the *assentamento* Terra Vista. Source: Alice Fassò.

Day-to-day activities in nature can also be considered the forms through which nature is perceived (Ingold, 2000), and through which the individual builds up knowledge that is lived and embodied (Raffles, 2002). For instance, during the long walk, Joelson showed me his in-depth knowledge of the forest, and I observed that he learns through direct experience with nature. Joelson strengths his relationships with other *assentados* and with nature through their intimate day-to-day practices. In fact, during the walk, the rapport between us changed and it became friendlier and more spontaneous. Such affective sociality is also manifested in narratives in which the understanding of nature and preoccupation with its health are intertwined into the creation of care for others and social relationships. In many situations this affective sociality emerged. As Joelson declared,

> "We speak about this transition from conventional agriculture mistreating the soil, the health, and treating the human being carelessly to return to a kind of agriculture helping to be always part of nature, to have healthy plants and food. As a result, we can also favour the improvement of the food choices of people and their health through caring for nature: because health comes from the mouth. Health comes from the food that we eat and need: it is in this direction that we learn and work together with nature."

Furthermore, these subject roles as environmentalists are not manifested only at the individual level. This performance becomes fully effective at a collective level when Joelson and other *assentados* mobilise their roles to claim moral values over nature and affirm their dignity derived from their work of nature regeneration. Joelson definitely shows a considerable sense of pride in the forest regeneration and conservation through the *assentados*'s nurturing, and in having accomplished this together as a community. Indeed, in the process of forming new subjectivities as 'agroecological' or environmentalist people, *assentados* re-appropriate and transform the colonial construction of nature as wilderness and rural people or *assentados* as uncivilised; and they re-defined themselves as 'the community of the rural land' that it is not uncivilised or wild, but rather 'environmental'.

For instance, when speaking about the regeneration of the ciliary forest, Joelson made statements such as, “No forest, no water: we restored our springs through growing these trees.” He added further, “Each tree planted on the river banks has a story, the story of the person who planted it.” He also commented, “We solved infant malnutrition through growing these trees. Children climb up trees to eat fruit; they know how to appreciate fruit more than adults.” *Assentados* also expressed how proud they are of increasing the genetic variability through planting native trees on river banks and in the gardens (Picture 4.5). In fact, they often said, “Seeing our fields full of abundance give us satisfaction, pride, pleasure, and it has inspired us to continue and to share our new knowledge with others.” Finally, they are proud of preserving the native forest. Indeed, in the extreme heat, *assentados* took me on a long walk to introduce me to ‘their forest’ for an entire day.



Picture 4.5. Ciliary forest on the banks of the Aliança river flowing in the middle of the Terra Vista *assentamento.* Source: Alice Fassò.

In the following section, I discuss how elements of Joelson’s lifeworld favour the mobilisation of the new individual and collective subjectivities of being nature caregivers. The elements of Joelson’s lifeworld to be discussed are firstly, his political environment and background as it relates to the MST and to broader environmental networks and discourses, secondly, the collective in which he is embedded, and third, the education project at Terra Vista. In this last section, Joelson is still the unit of analysis but a relevant position is also given to the collective in which he is embedded. The role of politics, collective and education in shaping the affects and the subjectivity of Joelson is discussed with regard to the function of these elements in stimulating the becoming of collective environmental subjectivities of his community.

The influence of Joelson’s lifeworld on his affective labour and subjectivity

Political context and background: A new humanity beyond capitalism

At Terra Vista, the role of environmental discourse was critical in influencing the nature-conserving community’s perception of the *assentados*’ efforts. Just as in Singh’s (2013) research, the *assentados* represented themselves to outsiders as ‘*environmental* actions benefitting the rest of humanity, and not as *territorial* conflicts with the state for claims to forests. This was an important repositioning,’ (p. 193).

As a matter of fact, the agroecological transition at Terra Vista started at the beginning of 2000, also impelled by the new debates within the national MST about the *assentados*' requirement to develop a new model of agriculture based on principles of rural sustainability. The debates of the national, state and regional MST pointed out the necessity of creating a new alternative based on a novelty model of sustainable agriculture, one that would be viable for the *assentados*. Thus, with the 'decision' of an agroecological transition, Joelson and other leaders of Terra Vista started looking for a different partnership to guarantee food sovereignty of the *assentamento* through a continuous process of education. Joelson expresses the new MST political vision of a new alternative for Terra Vista. He goes beyond the sustainability and food sovereignty discourse towards the establishment of a new humanity and society based on a new relationship with nature, a relation that he does not consider possible inside capitalist production,

> "We cannot think in a perspective of humanity inside capitalism due to its unacceptable and impossible passive rapport with the natural world. Consequently, our society is outside and beyond the capitalist system. We have to learn to live together with nature. We have to put technology and science at the service of the environment for the construction of a new humanity. The socialism manifested in the Russian experience is also not sustainable because it does not escape from some principles of capitalism. It is a society exploiting nature and based on materialism. It does not value this pursuit of great humanity in harmony with all living beings. As a result, it is not possible to create a society living together with nature in these two systems."

In this discourse, it is evident how Joelson's vision of nature manifests a fundamental political influence: he is affected by politics in his decision of creating environmental subjectivities through harmonious coexistence with nature. He believes in the creation of new humanity through the mobilisation of the new collective agroecological subjectivities.

With the agroecological transition proposed by the MST coordinators, many advancements were realised in the community. However, the issue of food sovereignty continued to be worrying and was difficult to solve. The productive improvements increased the families' incomes, but they did not achieve food sovereignty. Indeed, families sold their cocoa beans to the conventional market and bought food at the supermarket with their earnings. The nutritional problem grew worse because they bought highly-processed food products containing lots of chemicals and with low nutritional value.

The core problem of food sovereignty was faced head on in 2012 during the First Agroecology Day of the State of Bahia, promoted by the organisation Teia dos Povos[6]. According to Joelson, the agronomic engineer Ana Maria Primavesi's teaching and participation at the event had an essential role in the learning process and changing the *assentados*' mentality. Her experiences and research about soil conservation and diversification of production towards subsistence farming stimulated a new relationship with nature among the *assentados*. Therefore, a new rapport and care for the land was promoted by external factors such as environmental and agroecological discourses shared by Ana Primavesi and other teachers, including Ernst Götsch. Through different dynamics, the *assentados* learnt about the importance of taking care of nature for their own existence.

The exchange of experiences is another critical factor affecting the becoming of new environmental subjectivities at Terra Vista. As Joelson stated,

[6] http://teiadospovos.redelivre.org.br/

> "I believe that before sensitising other people, we have to sensitise ourselves: we have to reconnect urgently, and dialogue with people who also have this view of nature and life to unite forces and efforts. Today, with technology and science we can make fast revolutions with great success. However, when I speak about revolution it is not as a takeover, rather it is a construction, a process of respecting nature as a fundamental for this transformation."

The networking has started with other *assentamentos*, indigenous communities, students from different universities and social movements. This exchange has enabled progress in the *assentados*' studies, practices and understanding for building a path towards food sovereignty. This cooperation among communities has been made possible by the Teia dos Povos network, which espouses the creation of alternative societies and modes of positive resistance to the attempts of capitalism to weaken small rural communities and social movements (Oliveira, 2017). The Teia dos Povos provides a political space where rural communities meet to strengthen their territories, organisations and subjectivities to achieve agroecological production and 'educational sovereignty'. Its mission is to organise a network joining communities and social movements led by agroecology and considers this an essential tool in overcoming the current model of exploitation of natural resources (Viana, 2017). Accordingly, the mobilisation of new collective agroecological subjectivities leads to the creation of wider environmental networks as an expression of the biopower of affective labour.

Belonging to collective and formation of collective subjectivities

From Joelson's perspective, there is no individual without the community, and he expressed it with an inspiring metaphor,

> "This dichotomy between the individual and the collective does not exist. The spring falls into the creek, the creek falls into the river, and the river falls into the ocean. The ocean does not fit into the river, the river does not fit into the creek, and the creek does not fit into the spring. However, each component exists in relation to the other elements. It is not about individuality but oneness: everything is summed into one. The single element or the individual does not exist without the others. This dichotomy has been created but does not exist."

Joelson lives for his community. He has dedicated much of his life to the communitarian project at Terra Vista and he identifies with the *assentamento*. He is focused on a common and collective change, and he does what is best for the community. Joelson decided to concentrate on Terra Vista rather than on broader political and social issues to create a new model of local society based on coexistence with nature. Therefore, his actions and behaviour, hence his subjectivity, are affected by the collective in which he is embedded, and he invests his attention and care in the formation of collective environmental subjectivities.

Organisation and communication inside the community have contributed to the emergence of collective subjectivities of 'agroecological' environmentalist subjects. Furthermore, the cross-scale organisation (expressed by the 'Teia dos Povos') played a relevant part: these collective identities have merged at multiple scales, from the *assentamento* to the state-level, thanks to building wider network and actively participating in it. At the *assentamento* level, daily activities and cooperating together in nature regeneration and preservation have helped the formation of such environmental subjectivities. As explained by Joelson, the subject identity of being agroecologists was mobilised for collective action at the broader network and state levels. Then the new conservationist subjectivities were employed for reinforcing communication and cooperation, which led to a strengthening of these agroecologist subjectivities.

In such mobilisations, the newly formed subjectivities, identities, and affect are employed strategically at the collective level. Joelson affirmed that in political sessions such as meetings of their Teia dos Povos network, the *assentados* would typically appeal to their 'love' for nature that they have regenerated and protected and would define themselves as 'nature-lovers or caregivers'. Their love is not the love for nature in a Western conception, which is grounded on considering 'nature' as outside and separate from the self.

To conclude, the Terra Vista *assentamento* is in a transition that structures the *assentados*' dream of their territory, and it shows that, as Joelson stated, "The united and organised working class can live in a dignified way: indeed, nature generates richness and feeds the dream of being autonomous." Nature gives them the opportunity to produce and harvest their food and sustenance, guaranteeing a dignified and sustainable production: so that the *assentados* do not have to 'sell' their work to another person. In such a way, they aim at creating a new model of life where boss and employee do not exist; instead people live off the land and their work, forming a new model of society, free from man's exploitation by man.

Education project

Joelson believes that the formation of a new society of collective environmental subjectivities must be based on the establishment of a pedagogy centred around the relation with nature. In his words,

> "I believe in the creation of a pedagogy intertwined with nature, all its elements and with existence in this territory. We have to create this pedagogy together with and for the work, so that work can extraordinarily humanise people. With our existence and our network, we can build humanity with this new relationship with the land: such society can establish itself inside nature and feel good in it."

Therefore, as seen in the introduction, the process of training and education was one of the first steps in the agroecological transition of Terra Vista. Already in 1997, the educational project inside the *assentamento* Terra Vista was a reality with the construction of the Integrate Centre Florestan Fernandes (Picture 4.6). Even though it was a success, it was still very limited. The Centre was only dedicated to teaching children, youth and adults to read and write, but this goal was too modest for the new horizons and challenges that had been undertaken since 2000.

Thanks to fights and claims of the MST, *assentados* succeeded in founding the Primary School Florestan Fernandes and the Technical High School Milton Santos with six technical courses: agroecology, agroindustry, zootechnics, information technology, environmental studies and agronomy. The education project is also open to the local community, offering anyone the opportunity to study in the settlement. The school was inaugurated in 2008 and is accredited as the State Centre of Professional Education of Milton Santos Camp serving eight municipalities of the region.

Picture 4.6. Educational Integrated Centre Florestan Fernandes at the Terra Vista *assentamento*. Source: Alice Fassò.

Today the Florestan Fernandes Centre provides a Master course in Agroecology Applied to Family Agriculture, as an Extension of the University UNEB[7] and UESC[8], thanks to the National Program of Education for Agrarian Reform (PRONERA). This was the fulfilment of the 27 families' dream, proposed by their leader Joelson, on Christmas Eve in 1993, when the *assentamento* was still an *acampamento* (a camp). On that night, Joelson promised that the children of the community would study and achieve greater goals.

The following statement by Joelson's son expresses how this education project affects the relations with nature and shaping the new environmental subjectivities, "As I am a young part of the *assentamento*, I am the fruit of this fight. I highlight the important role of schools existing inside the settlement as an alternative for the future of new generations. They can help to achieve food sovereignty in the near future." According to him, these schools played an essential role in his formation as an individual and as a person. He studied from elementary school to the high school for agroecology at Terra Vista. He continued, "The agroecological course gave me the knowledge about various techniques regarding manure, *consortia* and polyculture. However, more than that, it taught me to believe that it is possible to produce respecting the environment and the human being, and another type of society is possible as well."

Finally, in the case of Terra Vista, it is relevant to highlight how a learning process based on practices and examples influences affects and the becoming of new subjectivities. In fact, Joelson argues that it is necessary to give practical examples to involve the local community because the *assentado*/farmer only learns and believes when he sees. "*Assentados* do not want words, but facts," he claimed. The following words further clarify Joelson's position:

> "In the past, we [the MST] wanted to reach great conquests through the forced collective. Then, we understood that it works differently: we become a reference through our example. We involve other people by giving the example in our garden, house, or little area. Moreover, when we involve free men and women with responsibility, with duty, these people become millions in a short time. This is the lesson given by Confucius: make a good idea for the eyes of the world, for the ears of the world, and it transforms by itself into millions."

To conclude, the Terra Vista *assentamento* and its schools have fought for education based on the transformation of subjectivities. They have created an education program centred around work, with the premise that knowledge is built in the collective actions and discussions; a school for emancipatory work, with processes of permanent formation and a school dialoguing with nature. Having explored education, networking and belonging to nature in the context of Terra Vista, it becomes evident how human subjectivity is formed by the person's engagement with its entire environment, not only its social one.

[7] University of the State of Bahia (UNEB)

[8] State University of Santa Cruz (UESC) http://www.uesc.br/noticias/?acao=exibir&cod_noticia=2751

5. Concluding discussion

In this thesis, I have discussed the following research question: 'How do affective relations shape syntropic agriculture farmers' practices and environmental subjectivities in the Brazilian Atlantic Forest and the Cerrado?'. In order to operationalise this question, I have considered four categories of affective relations, specifically, the farmers' relationships with nature, family members, the market and the broader collective. In fact, in all three of my case studies, affects of syntropic farmers come from relations with both humans and non-humans belonging to the four above mentioned domains. In particular, I have showed that farmers' day-to-day care activities of preserving nature can be considered as affective labour (Hardt & Negri, 2004) concerning the mind and the body, bringing together reason and passion. Moreover, both the tension between different affects and the farming care practices of 'growing' nature transform syntropic farmers' collective and 'individual subjectivities'. I have also argued that farmers' lifeworlds, enmeshed as they are in the social, political, economic and geographic contexts, impact affective relations of farmers and their concern in creating individual and collective environmental subjects. Finally, the thesis has illustrated that the connection between syntropic agriculture and affective labour is in continuous dialogue with a discourse about agroecology.

In the following discussion, I compare the three cases with regards to affective labour, subjectivity, embodied care practices and social sustainability. Then, I link this discussion to broader and theoretical discourses, first to *buen vivir* and syntropic agriculture as alternatives to modernity and their associated limitations and secondly to the relation between agroecology and syntropic agriculture and to how they complement each other. Finally, I conclude by putting in dialogue affective labour and environmentality.

Comparing the stories of three Syntropic Agriculture farmers

The three farmers of my thesis present essential differences in their social, economic, ecological and political contexts. Their activities range from production based mainly on cocoa in the southern Bahia to fruticulture and horticulture in the Federal District, from family-owned businesses to MST (Landless Worker Movement) community settlements. Such disparities drive the farmers towards different affective relations with nature and agricultural work. All three can be seen as environmental subjects but for quite different reasons and aspects. Undoubtedly, affects coming from these domains (nature, family members, the market and the collective) are involved in their subjectivities and daily activities in various ways. The three stories recount the situation of syntropic farmers who are positioned in the midst of contrasting dynamics between affective relations, embodied daily practices and the becoming of individual and collective subjectivities.

Specifically, in Gudrun and Osmany's family-run businesses, affective relations with nature and family members drive their decisions to change modes of living and being, and to start caring for and preserving the land by growing plants and trees in syntropic ways. In Gudrun's story, affective relations with plants and trees are not a significant part of her daily work practices, despite her discourses express an ecocentric narrative. Therefore, tension and compromises exist between Gudrun's narratives and practices. Since her father is the founder of syntropic agriculture and he has had a global impact through spreading his knowledge and marketing his fine chocolate worldwide, she feels pressured by his success expressing a case of 'nobless oblige'. On the other hand, her husband's focus on growing the business also has a significant influence on Gudrun's choices and determines her 'market-affects'. As a result, she aims at making profits and having broad impact with her chocolate bar production. Certainly, contrasting affecting relations pull her subjectivity towards different purposes and she tries to deal with all her affects. In this

dynamic, sometimes she gives the impression of not clearly distinguishing her own dreams and affects from those of her family.

In contrast, Osmany's affective relations with nature, handed down by his grandfather, are strengthened through his embodied care practices, and the dependence and affects deriving from the market also influence his daily choices and actions. He certainly has to make compromises between social, environmental and economical sustainability. Indeed, he is affected by his local social context, so he aims at employing his environmental subjectivity and affects with nature to create a social change among smallholders. Nevertheless, due to economic reasons, he often chooses to conduct expensive courses about syntropic agriculture, bioconstruction, permaculture for an elite audience. Additionally, Osmany has an ecocentric view and he tries to be coherent to it in his practices. Although Osmany criticises the current capitalist market system, he depends on it and he recognises this dependence. For instance, he uses financing, insurance and conventional food markets, but he sells his syntropic agriculture products at alternative markets.

Joelson's story is different from the previous ones because, first, he is located in a communitarian setting which guides his actions and decisions, and, secondly, because economic necessity was the reason to start practising syntropic agriculture and agroecology. Moreover, he considers syntropic agriculture within the broader realm of agroecology and he has formed affective relations with nature through daily care practices of 'growing' trees.

Therefore, Gudrun, Osmany and Joelson's subjectivities result from the tension existing among various affects. The complexity of the 'subjectivity formation' deriving from contrasting relations and affects that cause inner struggle is quite evident. From this struggle, human subjectivity emerges. Thus, relations and affects are always involved, even when subjectivities, choices and behaviour are driven by rationality. As Raffles (2005 p. 326) suggests, 'affect though inconstant, is ubiquitous and the perpetual mediator of rationality.' Moreover, the continuous becoming of subjectivities analysed in my cases is similar to Deleuze's (1988) considerations of Spinozian theory. In particular, my results can be interpreted as Deleuze's new understanding of subjectivities and the 'self' as 'spatialized and decentred' as opposed to the 'conventional self' comprehended as 'coherent and individualized' (Rose, 1998). My analysis goes further by proving that compromises and tension that exist among contrasting affects are intertwined in the becoming of subjectivities and that affects are always 'hybrids', made up of disparate relationships and emotional responses.

The patterns of family- (or community) and market-influence on the formation of Gudrun, Osmany and Joelson's subjectivities can be understood using Virno's (2004) 'amphibian subject' and its pre-individual reality, i.e. the relation of production. In fact, in keeping with Virno's theoretical analysis on subject formation, I have showed that the subjectivity of the syntropic agriculture farmer is a complex assemblage of 'I' and 'one', a process in which the individuation is never complete and, in Virno's terms, 'the pre-individual, that is, the universal or the generic, is never fully translated into singularity' (Virno, 2004, *apud* Singh, 2013, p. 191).

Although the three cases are set in contrasting contexts and backgrounds, they have some commonalities. Most significantly, they all have a similar understanding of nature, that is, an ecocentric vision linked with *buen vivir* principles. I have found that in their ecocentric vision, not only do syntropic farmers consider nature as a mother, as a living being that creates life, but they also perceive nature as a teacher and learning happens through observation and daily practices with nature. Both their perception and their

becoming of an environmental subjectivity occur through getting involved with nature in everyday intimate relations with the whole environment. Firstly, my analysis of the syntropic farmers' perception relates to the studies of anthropologists Milton (2002) and Ingold (2000) regarding the subjectivity and the self. Following Ingold (2000) who takes up James Gibson's analysis of human perception (1979), I have explained that the perception of syntropic farmer is not only a result of the mind, but of the whole body in its environment, and that forms of action in the environment are also forms of perceiving it. Secondly, my understanding of the subjectivity and the self of syntropic farmers can be found in Spinoza's idea of the body understood as affect making its capabilities emergent rather than innate (Braun, 2008). Thus, my stories dialogue with the new Spinozian ontology of the human that is 'constantly open and renewed' (Hardt, 2007) and in which bodies are comprehended in terms of affect and relations (Braun, 2008).

This process is the most evident in Joelson's story because it clearly demonstrates that everyday activities of taking care of plants play an essential role in creating affective embodied relations with nature, not just in maintaining or strengthening them. Coherent with Ingold (2000, p.85), arguing that the 'production of the farm is neither made nor found but grown', I have found that syntropic farmers help plants in their growth and development. This also mirrors the approach of feminist theorists who engage with the idea of affective labour as caring or 'emotional labour' (Singh, 2015).

Moreover, syntropic farmers manifest a sense of fulfilment from helping smallholders and a considerable sense of pride in the forest regeneration and conservation. This suggests how affects of joy arise from embodied daily practices of growing plants and expresses the importance of care practices in appreciating the value of a farmer's work. It connects to Singh (2013) because the link between empowerment, joy and the formation of new subjectivities could not have been better explained. Finally, it clearly ties in with Coleman's (1989) statement that 'farming is hard work, and the rewards at the start are measured more in satisfaction and pride than in large salaries. The farm family will do the work because it is their dream. It is their canvas, and they are painting in the way they have always wanted it to look' (p. 32).

Syntropic farmers' social sustainability and biopower

Within this shared view of nature, during their daily practices, farmers aim at four complementary dimensions that are individual and collective interest, as well as environmental and social sustainability. They pay attention to these domains in a varied way, depending on their embodied activities. In fact, their activities are situated in the farmers' specific context and lifeworld. Throughout the thesis, I have discussed how the local social context and embeddedness to it as lifeworld's elements (related to the family history as well) have a meaningful influence in driving care and affects on the collective or the individual. This consideration can also link with the social sustainability of the farmer's action. First, Gudrun's story has showed that her minimal contact with local communities and social movements relates to her limited integration with local people, and lack of creation of collective ecological subjectivities with them. Consequently, my understanding of her project is that it presents a consistent focus on environmental sustainability, but shows modest concern for social issues.

As a contrast, Osmany's lifeworld such as the belonging to wider networks, not only does this strengthens his care for the environment but it also drives his dedication to social issues. He employs his caregiver subjectivity and affective relations with nature for community development and formation of collective environmental subjects through education and consciousness building among small farmers. This dynamic shows that belonging to wider networks reinforces the individual identity.

Finally, Joelson's relationship with his community is an essential element of his lifeworld affecting his choices and behaviour and therefore, his subjectivity. Joelson's credo is that, "An individual doesn't exist without the collective." His story can be seen as the antithesis of Gudrun's and it goes beyond Osmany's attention to communitarian issues. In fact, Gudrun's discourses and vision about cooperation and networking are not very apparent in her practices. Instead, Osmany views the collective as something outside of his subjectivity. His business and family take first priority and then there is the situation of the rural communities around his area. While Osmany employs his individual environmental identity to shape the rural collective subjectivities of smallholders, Joelson's decisions and affects, hence, his subject, are shaped by his rapport with the community and he identifies with it.

These stories reveal political discourses about syntropic agriculture or agroecology as a means to change society. Firstly, Gudrun wants to influence the current world consumption and market dynamic through actions with a broad impact. She aims at reaching as many people as possible with her syntropic chocolate bars. Secondly, Osmany considers syntropic agriculture as a means of social transformation through agriculture production leading to a new mode of using, understanding and relating to nature. Finally, Joelson considers agroecology, including syntropic agriculture as a practice, a means of transition not only through the agriculture production but also through the creation of an agroecological society and humanity involving new education and work based on a new relationship with nature. Currently, in Joelson's case, schools inside the communitarian settlement fight for learning based on the transformation of subjectivities.

The political objectives of syntropic farmers show the 'lessened' biopower of their affective labour. This biopolitical potential is particularly expressed by their application of affects and environmental caregiver subjectivities for collective action. The three stories clearly illustrate that not only environmental discourses but also caring practices lead to the development of affects and relations with nature and the formation of caregiver subjectivities. Their affective relations with nature motivate them to mobilise their environmental identity for community development and formation of collective environmental subjectivities. Moreover, the mobilisation of new collective syntropic subjectivities leads to the creation of wider environmental networks. This is an exemplary manifestation of the biopolitical potential of affective labour in creating new subjectivities and even sociality and societies.

Finally, the approach of syntropic farmers to social transformation through a new positive relationship with nature and agricultural work connects to the general posthuman concept of power as *potentia*. Indeed, my analysis resonates with the Spinozian philosophy dealing with 'dialectics of the positive' that substitute 'negation as the driving force of social transformation with an understanding of essence based on affirmation, or *potentia* – that is, the impulse to preserve and expand our powers to act' (Ruddick, 2018, p. 2589, cited in Singh p. 191). Therefore, I have referred to Spinozian philosophy and to the potentiality of affective labour to create space for local agency of syntropic agriculture farmers in ways that are life-affirming and creative. I have used these theories to more fully clarify how the syntropic farmers' sense of the self and subjectivity are entangled with their natural environment and with their modes of cooperation arising from modifications to the environment.

Syntropic Agriculture and *Buen Vivir*: 'An alternative to modernity, or a modern alternative?'

Defined as an alternate to conventional development by many scholars (Gudynas, 2011; Acosta, 2016), *buen vivir* involves many expectations. The uncertain nature of *buen vivir* has led many researchers to question if the concept really proposes an alternative to development (Walsh, 2010; Escobar, 2010; Villalba, 2013). In particular, Escobar puts forth the question (2012), 'Is *buen vivir* an alternative modernity, or an alternative to modernity?'. Most research on *buen vivir* has occurred at the state level (Acosta, 2008; Farah and Vasapollo, 2011; Villalba, 2013), while Escobar (2010) refers to the narratives and approaches of farmers and social movements mobilising the concept to look for the radical opportunities deriving from different modes of connecting culture and nature.

In line with Escobar (2010), I have questioned if syntropic agriculture and agroecology expressions of *buen vivir* can be understood as alternatives to modernity. In this context, it is relevant to argue that farmers in my stories are continually challenged by the significant work needed to achieve their daily objectives of making a living in a dignified way. However, they exemplify the constant dynamics of compromise, effort, sacrifice and cooperation, where visions – hence, opportunities and objectives – are always adapted to real, practical and material life including a willingness to change habitual ways of life. Accordingly, as explained by Chaves et al. (2017), I observed that even though *buen vivir* principles of harmonious coexistence among cultures and with nature are reflected in many visions, making them become a real practice stresses the oppositions and contradiction of transformations into new forms of being and living. To arrive at a conclusion, I consider it relevant to refer to what Gudynas (2011) highlights about *buen vivir* – it is a concept still under construction. It can have the power to organise different groups such as non-indigenous and indigenous ones around common values and principles of *buen vivir*, enriching discussions about new ways of forming harmonious relations between nature and people.

There are many challenges in these new visions and relations with nature where syntropic farmers still have to deal with a capitalist society in conflict with their attention to relationships and the collective. Specifically, within the realms of syntropic agriculture, agroecology and affective labour, farmers might have to put their own business and material interests before collective, relations and sustainability. In fact, in terms of environmental sustainability, while Pasini (2017) frames syntropic agriculture as an alternative sustainable agriculture based on natural succession (see Appendix 1), what I found through my research is, firstly, syntropic farmers may keep vegetables for more extended periods rather than going towards forestry systems; second, they are significantly dependant on the city still to this point in time. Moreover, with regards to social sustainability, syntropic farmers sometimes conduct expensive courses for an elite clientele rather than promoting more accessible training for small producers.

Currently there are difficulties in practising syntropic agriculture mainly due to its economic viability. Undoubtedly, there is often no access to alternative markets since there still is not any recognition or certification of syntropic products (Pasini, 2017). On the other hand, even if agroecology is more recognised and valued (*ibid*.), I still observed that small agroecological producers often prefer to sell their products for a lower price to a conventional supermarket middleman rather than selling them at the open-air market at a fair price. As a consequence, the small producer competes with big supermarkets. The reasons are twofold: firstly, the difficulty to approach agroecological markets, and secondly, the consumer's unequivocal acceptance of market standards (everything has to be the same size, colour and in plastic bags also at the open-air market). As a result, everything is complicated for the small producer because he must have an agricultural production adapted to a 'Americanised' food chain which is standardised.

Another critique about syntropic agriculture and *buen vivir* is that an ecocentric vision can lead to a focus only on environmental sustainability – paying little attention to social sustainability. Yet syntropic farmers' *buen vivir* is not an alternative modernity either. Indeed, as shown in my research and in Pasini (2017), syntropic agriculture farmers are at least explicitly or implicitly questioning what a new relationship with nature entails, and forming new relationships to the best of their abilities, challenging modern understandings of the good life. If we think of *buen vivir* and affective labour as concepts to build upon, then it is possible to understand alternatives to modernity in a similar way: dynamics where learning based on practices and critical thinking is necessary to discuss and propose diverse modes of being and knowing.

Relating to Gudynas' (2011) definition of *buen vivir* as a 'fracture' with the tendency of modernity where no space is left for a transformed modernity, some sceptics, due to the syntropic farmers' challenges of putting principles and visions into practice, may question how valid their manifestations of *buen vivir* really are. My affirmation is that lived and embodied experiences and the processes of becoming involved should be much more important than achieving 'the' *buen vivir* or 'advocating truer *buen vivires*' (Gudynas, 2014; Chaves, 2017). Through comparing different realities, I found out that syntropic agriculture can be applied in very different ecosystems (Götsch,1995; Pasini, 2017), and it can produce affects with nature in diverse social environments in spite of the many challenges that face putting it into practice. I argue now that the inclusive approach of both affective labour and *buen vivir* creates opportunities to adhere to common meanings while offering the freedom to experience variants depending on ecological and social environments.

Syntropic Agriculture and Agroecology

The relevance of creating a dialogue between syntropic agriculture and agroecology relates to the fact that agriculture and environmental conservation should be practised in parallel. The reconciliation between ecologic and agronomic sciences opens up opportunities for the systematisation of biodiverse, resilient, and socially fair agroecosystems (Altieri, 2004; Gliessman, 2001). In particular, systems based on syntropic agriculture prevent the degradation of the soil while increasing agricultural production (Pasini, 2017).

In the academic field, ecology-based farming systems meet agroecology on the epistemological basis which supports the inherent multidisciplinary approach (Caporal, 2005). Although the political dimension of agroecology is expanding more and more, gaps still exist in its operational capacity. Academic production is still far from systematising and managing agroecological practices which must be adapted to specific rural environments (Duru, Therond, Martin, Martin-Clouaire et al., 2015). The study of real experiences dealing with environmental and agronomic urgencies is fundamental for the construction of theoretical and technical knowledge about the planting and management of agroecosystems (Walker; Sinclair, 1998). If, on the one hand, empirical studies offer analysis of high academic value, on the other hand, they are limited by the restrictions of their investigative framework. The impossibility to measure all the contingencies, which simultaneously influence specific ecological and social events, produces relevant contextual gaps and feeds the formulation of simple, passable scientific dichotomies of multiple dissonant interpretations (Pickett, Meiners & Cadenasso, 2015). In this aspect, the challenge of agroecology is to interact with farming knowledge and practices reflecting the complexity of agroecosystems and their dynamics (Altieri, 2004; Gliessman, 2001; Walker; Sinclair, 1998).

On the other hand, syntropic agriculture can be a successful alternative method to combine food production, recovery of degraded land, and social sustainability. As stated by Götsch, "We could be working on restoring degraded soils around the country. It would be cheaper than all social programs. Like this, we

could harvest food while creating jobs… every individual would have a function again; he would be happy and proud" (Götsch *apud* Pasini 2017).

Consequently, it is appropriate to argue that not only can practical methods of syntropic agriculture be useful for the agronomic aspects of agroecology but, conversely, also that the agroecological social movement and the science of agroecology could be beneficial for the social aspects of syntropic agriculture. In fact, while the role of humans in the environment is a recurrent argument in the narrative of syntropic agriculture farmers (Pasini, 2017), little research exists on this issue. Instead, in agroecology, the issue of social sustainability plays an essential role in both its scientific and political development. In fact, from an agroecological perspective, rural development requires participatory strategies to obtain a productive social sustainability (Guzmán, 2002). Actually, aiming at a participative technological development, agroecology promotes the dialogue between farmers and research institutions regarding services of technical assistance (Oliveira, Faria-Wehrmann & Sauer, 2015). In a likewise manner, syntropic agriculture could improve by taking as example the organisational mechanism of agroecology whilst positively dialoguing with all of agroecology's dimensions.

6. Beyond Governmentality: Further research and Recommendations

Examining the answers to the research questions, in the first part of this section I present a theoretical reflection for further academic research and, in the second part, I propose some ways in which Brazilian society could start imagining and creating a politics of life and alternative forms of being that take into account affective labour and syntropic agriculture.

Our modes of defining the world are also modes of representing it and 'bringing it into existence' – so attempting to comprehend the world in order to transform is an essential goal. Just as important, however, is that we should consider that to 'change our understanding is to change the world' (Gibson-Graham, 2008 *apud* Singh, 2015, p. 59). Thus, for alternatives to intensive agriculture based on capitalist production to be successful it is crucial to develop not only joint-action strategies but also 'alternative theorising'. I hope to have played a part in this exploration for 'alternative imaginaries' by using sociological theories about affects and relations.

While Foucault's analysis of biopower brings attention to how affective relations are factors useful for disciplining and biopolitical purposes, Hardt and Negri's (2004) argument suggests that affective life is the 'outside through which new ways of living may emerge' (Anderson, 2012, p. 28). I have tried to shed light on the 'affective life' of syntropic and agroecological farmers in different cultural and social settings. Specifically, my research with syntropic agriculture farmers in Brazil has shown how affective relations involved in their farming care practices transform farmers through their engagement with nature, shaping their environmental subjectivities. Therefore, further developing the analysis of syntropic agriculture from the perspective of affective labour in different socio-political and geographical contexts will contribute to the debate over the relevance of affects and relationships versus rational and economic motives as drivers of human action for nature conservation.

While the biopower potential of affective labour offers possibilities for the radical politics discussed in the following paragraphs, these openings interweave with the necessity of rethinking frameworks, ideas and concepts that are taken as constants. Nonessentialist ontologies require a new vocabulary, new methods and tools to analyse subjectivities and affects. During my research, I have only begun to face this challenge, trying to bring out farmers' words and perspectives on their embodied practices with nature and agricultural work. To achieve this objective, I firstly carried out research while I lived the farmers' daily lives to have a direct experience of what it means to be a syntropic agriculture farmer; secondly, I took pictures and videoed their daily lives (which I wish to use in future projects) and finally, I reported their modes of speaking and acting in my thesis. My hope is that the ways in which they represent, frame and relate with nature and farming can become a tool to help building affective relations at different scales and in diverse locations and foster new collective subjectivities that stimulate a new politics of life.

This thesis has shown that, on the one hand, life can be broadly explained as what flows through bodies, populations and other-than-human worlds, and transcends endeavours to structure and control it. On the other hand, it has shown that life can be rendered productive through methods of intervention that the governmentality approach has favoured. Nevertheless, I suggest now that we should go beyond political-economic rationalities and consider how affective relations and syntropic embodied activities create new subjectivities and forms of involvement with the environment. Following this direction, we should rethink human ontology and motivators of human action to enlarge the repertoire of policy options. In fact, I have shown how caring for nature through daily syntropic practices is essential in this process of shaping human behaviour and subjectivities.

Opportunities for such affective labour and ways of engaging with the environment must be fostered instead of shot down by 'environmental conservation' policymakers who continue to regard mankind as economic actors and consider economic incentives as the main means to change human behaviour. From this perspective, human preferences and positions are taken as given and static and defined by self-interest. It is necessary, instead, to recognise that the 'self' is shaped through constant active involvement with other human and non-human beings.

I want to stress the potential relevance of context-based policies grounded in affective labour research. In the context of Brazil, currently run by a government that explicitly does not favour social movements, alternative agricultures, small producers and marginalised people, new nature-human narratives are necessary to create alternatives to the oppressive dynamics of a fragmented society. Networks related to sustainable agriculture may play a significant role in organising and encouraging new visions and relations not only among Brazilian multicultural societies but also with nature, land and territories. Syntropic agriculture and agroecological experiences can be relevant assets to create positive resistance to the current situation.

For this reason, public policy should promote local, smallholder production of the Atlantic Forest and the Cerrado, the cultural importance of these regions, and the sustainable development of their landscapes. To empower local producers and to achieve the conservation and regeneration of their territories, public policy should be based first and foremost on the new human-nature relation discussed in this thesis. My results have shown that farmers' rapport with nature and ecocentric visions can be the motivating factors to spur them to take care of nature and involve more people in this process of nurturing. To create and reinforce this novel relation among smallholders, public policy should be based on a bottom-up approach and on the creation of spaces for dialogue where farmers and local people can make their voices heard – expressing their opinions while 'using their own concepts'. It is important to establish the groundwork and increase opportunities that give birth to local networks supporting sustainable agriculture and strengthening local knowledge so that they can influence wider policies.

As a consequence, public policies should encourage sustainable development not through a paternalistic approach but rather by encouraging farmers to share their knowledge about their lived experiences. This sharing can favour the development of smallholders' awareness about their possibilities as farmers and the importance of their knowledge for the rest of society.

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Appendix 1 – Syntropic Agriculture principles and techniques

Recently the interest to identify the theoretical base orientating syntropic agriculture has arisen. Despite Götsch having dedicated his career to developing farming hypothesis and techniques, it was just in 2013 that he coined the concept of 'syntropic agriculture' as the definitive name. Until then, his work was recognised as successional agroforestry (Peneireiro, 1999) and similar to regenerative successional agroforestry (Vaz Da Silva, 2002): terms that I use throughout the thesis referring to syntropic agriculture. Although the concept of syntropy was incorporated as the title of such agricultural practice only in 2013, Götsch was referring to the term already in the 1990s when he published a book called 'Homem e Natureza: cultura na agricultura' (1995). In a section entitled 'Life and Syntropy', Götsch defines some of the fundaments orientating his practice,

> 'Life is based on principles that are processes which bring from simple to complex, where each species, included the human one, has a role within a major concept. Life on this planet is only one; it is a macro-organism in which the metabolism turns in a positive energy balance by processes which go from simple to complex, through syntropy.' (Götsch, 1995).

According to Götsch (1995), the concept of syntropic agriculture derives from his intention to name an observed characteristic in his experiences, and it became the methodological fundament for any intervention inside this farming practice. This characteristic relates to the living beings' tendency of increasing organisation and complexity, that is highlighted by 'the increase of resources such as nutrients, energy (…) and water' (Götsch *apud* Zanela, 2013). Therefore, according to Götsch, syntropy is related to natural succession directly, being an expression of it; 'Plants are strongly syntropic since one of their main characteristics is to transform, organise and optimize factors like water, minerals, solar energy in life systems' (Götsch, 1996). This perception about plants is extended in Ernst's following writings to explain the entire mechanism of life on the Earth. 'Life is a complementary part for another part of the universe that we know. That part which turns in the processes of disaggregation, from complex to simple, that we know as entropy' (Götsch, 1995).

Science and philosophy have been part of Götsch's life since his youth, and they are impressed in the cosmovision building syntropic agriculture. The logic orientating his decision-making follows a path that was born in Kant's ethics and it crosses physics, Greek philosophy and mathematics (Pasini, 2017). In syntropic practices, there are references to biology, chemistry, ecology and botany, and Götsch also uses disparate technologies developed for other areas (Pasini, 2017).Not only does it follow a logical narrative but it also presents practical and concrete expressions. From planning to execution of planting, there are different methods of syntropic agriculture and these experiences are corroborated by researches which directly or indirectly investigated aspects of syntropic agriculture theory and practice (Schulz; Becker; Götsch, 1994; Milz, 1998; Peneireiro, 1999; Vaz da Silva, 2002; Zanela, 2013; Hoffmann, 2013; Andres et al., 2013; and Miccolis; Arco-Verde, 2016).

The fundaments and concepts of Syntropic Agriculture - Natural succession

> 'The critical and determinant factor of health, rate of growth and productivity of the system is not the initial quality of the soil, but the composition and density of individuals of the plant community.' (Götsch, 1995).

> 'Even in advanced stages, the dynamic of natural succession of species is always a force that direct the system and secure the health and vigour of plants.' (Götsch, 1995).

> ‘Each step is a tentative to enter and be conducted by the flow of life called natural succession’ (Götsch, 1995).

The fundamental concepts of syntropic agriculture (or agroforestry systems directed by natural succession Pineireiro, 1999) must make the elaboration of different production systems possible. They have to be adaptable to each particular situation, to any place of the planet because they have to be always inspired by the local native ecosystem. Götsch (1995) clarify,

> ‘if we want to follow the natural process of succession of species, or intervene in natural forests successfully, it is necessary to have an intimate knowledge of the biotopes where we want to interfere. It is necessary to identify the niches of plants that we want to cultivate. And we need to know which plants have to be removed and understand the interactions among cultures and native species with all the other elements of the community.’

The fundaments and concepts involved in the elaboration and realisation of syntropic agriculture are: i) replicating processes that occur naturally; ii) comprehending the functioning of the original local ecosystem; iii) understanding that as a form of life generates another through creating satisfactory environmental conditions, a consortium also generates another consortium (based on natural succession); iv) inserting the species useful for humans inside the production system through following the succession logic and the evolutionary origin of that species (original environmental conditions, consortia that generally accompany the species, its ecophysiological necessities, etc.) (Peneireiro, 1999; Pasini 2017).

The method used in the elaboration and realisation of syntropic agriculture systems, essentially, is an attempt to replicate the strategies used by nature to increase life and improve the soil. In nature, plants occur in consortia (and not isolated) and require other plants for optimal development. In a similar way, in syntropic agriculture cultivated plants are introduced in a consortium, to fulfil all niches. Inclusively, in this combination, holdover or reintroduced native species are considered. Beyond combining species in space, consortia are combined in time, as it occurs in the natural succession of species, where consortia ensue one after the other in a dynamic process (Götsch, 1995). It is possible to refer to more or less predatory or degrading production systems: when the objective is the environmental sustainability, it is a *sine qua non* condition to follow the logic of nature itself, understanding its life strategy, acting in the direction to permit more and more life. It means to become inspired by natural succession and natural agents modifying the system (wind, insect, etc.). Syntropic agriculture is an example of these processes based on nature. Indeed, through management strategies, it restores depleted soils and re-establish native forests in degraded areas (Peneireiro, 1999; Pasini, 2017).

This process of natural regeneration is defined as natural succession. It presupposes changes in species composition in space and time towards the increase of quality and quantity of life. Succession is defined as the ‘universal law’ in which ‘every empty space develops with new communities, except the ones which present extreme conditions of water, temperature, light or soil’ (Clements, 1916 cited in Peneireiro, 1999). One of the universal characteristics of all ecosystems is the continuous change to which they are subjected. (Kennard, 2002). According to Kennard (2002), the classical process of secondary succession involves the substitution of groups of species throughout time as the predecessors offer more favourable conditions to the development of species being already present in the area, but characterised by slow growth and delayed establishment.

It is interesting to note that farming techniques used in conventional agriculture, inclusively in conventional agroforestry (use of chemicals to control weeds, insects and diseases, use of synthesized fertilisers) are not

considered as management techniques in syntropic agriculture, because it is based on another paradigm. Even the concept of competition, strongly present in conventional agriculture, is redefined in syntropic agriculture. In the forest, it is possible to observe the coexistence of different species of enormous trees that occupy different stratification layers and live together healthily side by side, almost in the same space. Therefore, to avoid competition it would seem necessary to combine species correctly, respecting the stratification layer of each plant, its relation with the others in the succession process, its environmental needs (light, nutrients, etc.), and the synergy among plants (liberation of hormones), etc. As it happens in the forest, in syntropic agriculture, two or more species can occupy proximate spaces (for instance the same hole). It is important that they carry out different functions and occupy different niches and stratification layer in the consortium. Götsch has developed further this thought. In his vision, the processes of assimilation and elimination of substances, enacted by organisms for energy production, are a strategy through which those organisms promote direct transformations in the sense of syntropy, accordingly, contributing to the increase in complexity of the ecosystem (Pasini, 2017). 'In nature, there is no competition. All inter and intraspecific relations occur unilaterally moved by unconditional love and cooperation' (Götsch *apud* Pasini, 2017).

The optimisation of syntropic production systems based on natural succession depends on several steps: i) to identify the adequate species, consortia of species and succession of consortia which occur in the region, in similar soils or climates; ii) to create as much biodiversity as possible in the system to fulfil all generated niches to optimise the life processes; iii) to identify the most appropriate moment to start each cycle, that is, to plant or manage a more advanced consortium: in such a way, each species can find the best conditions to establish itself and grow; iv) to accelerate the rate of growth and the succession process of the system through pruning and removal of plants (Götsch, 1995; Pasini, 2017). Furthermore, it is interesting to assort species naturally occuring in consortia or functional classes to make the identification of certain patterns possible. It also helps to better understand this apparently chaotic complexity of nature as a mosaic of different ages and successional stages. According to Götsch (1995), it is possible to characterise species in their successional groups based on information regarding: i) duration of the life cycle; ii) height of the stratification layer normally occupied; iii) pattern of space occupation; iv) architectural characteristics; and v) system role of the species. Consequently, it is necessary to know the needs of each species in relation to the quality and quantity of consolidated life as it can establish itself and arrive to dominate (Götsch, 1995).

Most of the plants for human consumption are part of consortia of abundancy systems, that is, systems in advanced succession stages because, generally, they are more exigent. Curry & Good (1992) observed that animal succession occurs parallel to vegetal succession. Furthermore, they argue that big animals are maintained by abundancy system. Human species depends on systems rich in resources, capable of supporting exigent animals and plants, that is, system with great quality and quantity of consolidated life (Peneireiro, 1999). In such a context, animals can be seen as 'helpers', distributors, intermediaries, dispensers or transformers stimulating the successional process (Götsch, 1995). 'Cutter-ants' have been considered often in this role because they cut plants which create tension in the consortium (Götsch, 1995). As a result, they can indicate which plants have to be pruned or removed from the system. According to Götsch (1995), ants cut leaves of species whose relation among stratification layers is not coherent. It is necessary to introduce and develop correct consortia and practice adequate management to make the successional system of syntropic agriculture evolve.