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# From food to offspring: engagement between humans and sea turtles in two communities on the north coast of Espírito Santo

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## Abstract

This article is the result of a research conducted in the villages of Regência Augusta and Povoação, in the State of Espírito Santo, Brazil. The objective is to contribute to knowledge concerning biodiversity conservation projects and the relationships between these, local communities and emblematic species in the midst of socio-environmental conflicts. We intend to highlight some of the ways that human agents interact with each other through the relationship with other non-human agents, developing conceptions and actions in and with the world around them. The empirical analysis addresses the case of sea turtles and the environmental agents who deal with them. Those who patrol the beach are prominent in this text, but we will also consider the way in which these works form an ambiguous relationship with other knowledges and practices. The region is going through political, economic and environmental divergences related to resources and the local landscape, aggravated by the arrival of Samarco's *mud*.

**Key words:** Sea turtles; Tamar Project; socio-environmental conflicts.

# De alimento à prole: engajamentos entre humanos e tartarugas marinhas em duas comunidades do litoral norte do Espírito Santo

## Resumo

Este artigo resulta de uma pesquisa realizada nas vilas de Regência Augusta e Povoação, situadas no Espírito Santo, Brasil. O objetivo é contribuir para o conhecimento sobre projetos de conservação da biodiversidade e as relações entre eles, comunidades locais e espécies emblemáticas, em meio a conflitos socioambientais. Apontamos algumas das maneiras pelas quais agentes humanos interagem entre si, através da relação com outros agentes não-humanos, desenvolvendo diferentes concepções e ações no e com o mundo. Abordamos empiricamente o caso das tartarugas marinhas e dos ambientalistas que com elas trabalham no litoral norte do Espírito Santo. Os que realizam trabalhos de monitoramento da praia receberam o maior enfoque no texto, mas também a forma como esses trabalhos constituíram-se em relação ambígua com outras práticas-e-conhecimentos. A região passa por divergências políticas, econômicas e ambientais relacionadas à utilização de recursos e da paisagem local, agravadas pela chegada dos agenciamentos da *lama* da Samarco.

**Palavras-chave:** Tartarugas marinhas; Projeto Tamar; conflitos socioambientais.

# From food to offspring: engagement between humans and sea turtles in two communities on the north coast of Espírito Santo<sup>1</sup>

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## Introduction

This article forms part of our reflections on research conducted since 2011 in Regência Augusta, State of Espírito Santo, Brazil, with special attention given to two field immersions that the first author undertook in two different sea turtle spawning seasons, March and November 2015. They took place in the villages of Regência Augusta, and Povoação, in the municipality of Linhares, also located in Espírito Santo.<sup>2</sup>

Regência Augusta is located on the right bank at the mouth of the River Doce and houses a main base of one of the most famous of Brazilian conservation projects, the Tamar Project, which has been active since the 1980s. The Tamar Project considers this base to be the second among the top three, the other two are in Pirambu, Sergipe, and Praia do Forte, Bahia (Tamar 2000).<sup>3</sup> The project has a visitor's centre in the Comboios Biological Reserve (ReBio Comboios), as well as an administrative structure and ecological centre in Regência Augusta. On the other side of the river, there is a seasonal research base, less well known than that of Regência Augusta and less sought after by volunteer interns. It includes a relatively large house, three kilometres from the community, between Monsarás Lagoon and Povoação Beach. It is possible to reach it by crossing the River Doce and following a well-developed sandbank path by jeep, quad, or even on foot. The Povoação base is a mixture of accommodation, materials' storage, an office, and a laboratory.

The overall objective of the article is to contribute to knowledge concerning biodiversity conservation projects devoted to species that are emblematic for environmentalism, through which human and non-human relationships are constructed based on management and protection initiatives: specifically, that of sea turtles and/in their spawning areas. The article explores the manner in which environmental agents construct themselves, individually and institutionally, around this actuation with species that have become charismatic, and with which they frequently establish material and symbolic relationships beyond the working relationship. Examples of these include relationships of affection, such as those of mushroom researchers in Tsing (2010)

<sup>1</sup> The first author's research has been funded by the Espírito Santo Research and Innovation Foundation (FAPES); the actions of the second author were funded by the FAPES, initially, and the university extension programme coordinated by Professor Aline Trigueiro – the Research Study Group on Fishing Populations and Development (GEPPÉDES) – between 2016 and 2017. This group received funding from the Ministry of Education through its call for projects, Proext-2016.

<sup>2</sup> For further details on the field research and immersions conducted in 2015, see Fontinelli (2016). We opted to differentiate between the terms “field research” and “fieldwork”; the former refers to periods in which presence in the field was more closely linked to the first author's research, and the latter to periods in which the second author has operated more freely in the field, from 2011 to the present. The fieldwork took place both within a research format, and in university extension activities, and included individual and collective immersions. Information on the funding for this research is explained in footnote 1.

<sup>3</sup> Currently, the project is present in nine Brazilian states. According to the project's official website and information obtained in the field, 1,100 kilometres of beaches are monitored in all 23 research bases. In Espírito Santo, it was present in six locations according to data from May 2018 (website: [www.tamar.org.br](http://www.tamar.org.br)), but the bases have been reduced since then.

and primates studied by Silva and Sá (2013). The case discussed here also involves asymmetric relationships (Suassuna 2005), and numerous socio-environmental conflicts and uncertainties that involve the initiatives and consequences of economic development, particularly mining, together with series of environmental restrictions, such as those related to fishing.

In this sense, the crime-disaster that hit the coastal area of Espírito Santo at the end of 2015, following the rupture of the Fundão dam, operated in Mariana-MG by the companies Samarco, Vale and BH Billiton, was dramatic: the mining tailings were, and continue to be, drawn down the River Doce, and first reached the coast of Espírito Santo and the ocean waters at the end of 2015. The arrival of the tailings at the mouth of the River Doce occurred when the first author was at the end of his last field stay, and we will return to this event in the final section of the article. The second author also followed part of this process in extension and research activities conducted between 2016 and 2017 (Amboss et al. 2017; Creado & Helmreich 2018; Creado et al. 2018; Trigueiro & Creado 2018; Silva 2018).

The article combines the participant research of the first author inside the Tamar Project and semi-structured interviews conducted by the second author with residents of the region and members of the Tamar Project, which were conducted more intensely and systematically, especially between 2013 and 2014, in individual research activities or in the company of other researchers and interlocutors (see: Trindade de Freitas 2014; Campos 2014; Torres et al. 2017).

Although we chose not to provide an extensive history and contextualisation of the region at this time, we would emphasise that before the Samarco crime-disaster, pressures to develop the mouth of the River Doce and its surroundings were already present, from the oil and gas industry, from eucalyptus trees used in the production of cellulose, and the establishment of a port structure (Torres et al. 2016; Creado 2018). Likewise, other changes brought about by development were already present, though more subtle, influenced by an environmentalist bias in income generation initiatives focused on the conservation of sea turtles and nature tourism. In addition, similar to other conservation projects, the Tamar Project establishes links with other partners and companies that are not strictly local in order to sustain itself financially, including Petrobras (Tamar 2000; Torres 2016; Trigueiro & Creado 2018).

For this article, we identified movements, trends, conventions, categories and divergences shared, or otherwise, by the participants of the space-times in which relationships with sea turtles were mediated by activities of the management, research and conservation of the species present at the mouth of the River Doce, prior to and immediately after the arrival of the *mud*, without delving too deeply into the post-mud context, given this has been addressed in other works (Amboss et al., 2017; Creado & Helmreich, 2018; Creado et al., 2018).

Our starting point was the discussion already presented in Fontinelli (2016), with greater focus on the human agents who carry out the work of beach monitoring, especially the interns, and the way in which this work was constituted in an ambiguous relationship with other practices and previously existing knowledges in the area, (re)inventing them, which has also been explored in a different form in Campos (2014).

In the first section of the article, we reflect on the (dis)continuities between the human and non-human, in dialogue with different theoretical influences – authors devoted to studies on science and technology, authors associated with symbolic anthropology or analysis of social conflicts, as well as Brazilian authors who study relations between humans and animals – and some of the concepts and relationships established with the sea turtles at the mouth of the River Doce, illuminated by the environmental initiatives. In the following section, we deal with the work-and-affection relationships fulfilled in the beach monitoring by the Tamar Project. In the penultimate section, without going into too much depth, we discuss some of the changes brought about by the Samarco *mud* at the mouth of the River Doce, which made it easier for researchers to listen to voices critical of the project's actuation, since the project and the federal environmental management acted as important mediators of environmental management in the aftermath of Samarco's technological disaster.

## (Re)inventions and theoretical-empirical dialogues

The concept of humanity and, by extension, that of animality, shared in most Western societies is what prevails in the Tamar Project. They are human agents associated with modernity, in the manner in which it is portrayed (and deferred) by Latour (2000). However, to study their relations with marine turtles, we also seek inspiration from authors who have studied other, non-Western peoples,<sup>4</sup> including Wagner (2010), Descola (2012; 2014) and Strathern (2011; 2014), and in Brazil, Sautchuk (2016).

One of the motivations for this stems from the fact that the boundaries between humanity and animality established and transgressed by the human agents are not considered to be the only ones in the region studied, and, moreover, are not valid in all instances of actuation, even their own, since individual and situational oscillations exist. Likewise, these agents work alongside other human agents, who are not necessarily or exclusively guided by the concept and conception of species, nor by knowledges and practices of an environmental inspiration. Our goal is not to fix different ontological categories, but to show how they can serve as evidence that even individuals educated and immersed in a naturalistic logic transit in different forms of conception, awareness and action in the world, even if momentarily and without being fully aware of this.

The conservationist human agents of the Tamar Project, who we can more broadly call environmentalists and who carry out the monitoring of the beaches, for the most part, have training in biological sciences, ecology, oceanography, veterinary and related disciplines. For them, the predominant concept of humanity is linked to that of the human species, in other words, that which is not part of the human species is generally considered non-human, such as non-human animals, objects, machines, wind, sand, etc. In the relationships which we highlight here, the main alterity from the interspecific point of view is the animal (Ingold 1995), while the main alterity from the intraspecific point of view is the fisherman; however, these two references are not constituted as absolute and static poles. In dialogue with Descola's approach (2012; 2014), more typological in nature, we generically affirm that the environmentalists from the Tamar Project are predominantly naturalist in their mode of identification.<sup>5</sup>

Other authors, in turn, reinforce the entanglements and bonds between beings, in a non-dichotomous way, emphasising the existential continuities between them, including Haraway (2016), Stengers (Pinheiro Dias et al. 2016; Stengers 2015 and Swanson et al. (2017). In contrast, Sautchuk (2016), and the authors with whom he aligns, defends the use of the notion of domestication, because it is more dialogical with other areas of knowledge outside of Anthropology, and provides greater temporal extension to the analyses and greater power to the doing of ethnography.

In the current approach, we consider that the work of agents of the Tamar Project occurs through different forms of material and symbolic engagement that are not reduced to interspecific relationships with the sea turtles that spawn on Comboios Beach – which extends from Barra do Riacho to Regência Augusta –, even with regard to beach monitoring in the strictest sense. Thus, at the same time that they are guided by the classification of species present in naturalism, the ordering principle of research, bibliographic production and academic training, they also subvert it without this becoming an absolute counterpoint, or the principle ceasing to exist: rather, in the field, as in other cases, there is a lot to deal with. Indeed, according to an environmental analyst involved in the coordination of the project, in an interview in January 2011,<sup>6</sup> the beach monitoring was the historical origin of the project's work in Regência Augusta, recorded in the myth of the project's origin which assumed a textual form (Tamar 2000; Rodriguez 2005).

4 Western and non-Western qualifiers are used here in general terms to facilitate communication; however, without ignoring the existence of variations, some of which we discuss below.

5 For Descola (2012; 2014), there are four different modes of identification: naturalism, animism, totemism and analogism, in order to schematise experience in the world, according to the arrangement of existing beings and their ontological properties. The author also discusses the relational modes, considered to be closer to the empirical than the identification modes, namely: exchange, predation, gift, production, protection and transmission.

6 In an interview with E. Creado, P. L. Trindade de Freitas and C. C. A. Torres.

In this myth, it is evident that the encounter with the fisherman, in the 1980s, and his own manner of relating to sea turtles, regarded as predatory, was a crucial element for the origin and identity of the project (Tamar 2000). Thus, in terms of Donna Haraway's (2008) becoming-with, we affirm that these human agents, among whom we found scientists and governmental and non-governmental technicians, often (re)invent (Wagner 2010) the relationships with the sea turtles, their own relationships and those of other human agents, recreating themselves in this process (Campos 2014): sometimes, through confrontations, impositions, and even through alliances and compromises. Precisely because relationships between these humans and non-human animals occur among other humans, in addition to those that occur among other non-humans.

We also assume that they take place in the midst of different knowledges and practices, in line with other authors. Osório (2015), for example, pointed out that ethology is not the only valid source of the material existence of non-human animals, while Velden (2015) highlighted the importance of the knowledge of technicians and field agents about animals, specifically, chickens in an indigenous context.

Using the idea of symbolic (re)invention, from Roy Wagner (2010), also allows us to consider objects as symbols, whose meanings are the product of relationships and the ways in which symbolic contexts are created and experienced, which frees us from an excessively typological use, as well as from an opposition between the material and the symbolic. The uses of symbols extend their associations and allow the meanings of different symbolic contexts to undergo innovations, in individual and collective spheres. This is what occurred regarding the beach monitoring over time (Rodríguez 2005; Tamar 2000; Campos 2014), such that the *carebar*,<sup>7</sup> that exist on Comboios Beach, underwent a symbolic (re)invention (at the very least).

It is also worth emphasising that the project focused more intensely on those whose *locus* of action occurs in the same territory, namely the residents of the region, and, in particular, the fishermen. Other bonds were created as part of these relational entanglements, some of which truncate, without necessarily breaking, the relationship the Tamar Project has established with the residents and fishermen; and some of the other links can be triggered in times of socio-environmental crises.

Regarding the (re)invention of *carebar*, we re-examined the book that narrates the story of the project (Tamar 2000), to comprehend the management and conservation activities conducted on the beach; furthermore, we indicate the work of Campos (2014) for her ethnographic descriptions. The book on the project focuses mainly on the initial studies on turtles in Brazil at the end of the 1970s and in the early 1980s, while emphasising the history and formation of the first three research bases (Rodríguez 2005). The project is considered to have arrived in Regência Augusta in 1982, and from 1985 onwards, the team lived there all year, not only during the reproductive cycle of sea turtles from September to March. The federal government created the Comboios Biological Reserve (ReBio Comboios), which protects some of the spawning areas on the beach that the reserve is named after, on September 25<sup>th</sup> 1984 (Tamar 2000; Trigueiro et al. 2018).<sup>8</sup>

In contrast to the community of the Faia Brava reserve and the members of the Rewilding Europe project (Silva and Sá 2017), at the time, no promises were made regarding a new approach to nature, to rebuild with the intention of repopulating the area with non-human animal species. However, there are similarities, in that the Tamar Project aimed to reinvent human practices, as a way to rehabilitate a prior natural state, allegedly destroyed by excessive predatory practices. Like that described in Silva and Sá (2017: 61), the project presented the option of the symbolic exploration of sea turtles, which would result in resources for the region and employment for members of the community (Silva and Sá 2017: 61).

7 Locally, the sea turtles that spawn in the region were called *carebas*: (1) soft or leather *careba* (*Dermochelys coriacea*); (2) yellow or hard *careba* (*Caretta caretta*); (3) Green *careba* (*Chelonia mydas*) (Tamar 2000: 54; see also Campos 2014; Trindade de Freitas 2014; Rodríguez 2005). Hence the verb *carebar*, and the name given to those who performed the most intense extractivist activities, *carebeiros*, related to turtles in this region.

8 For a more complete history of this protected area, which has progressively lost territorial area since it was initially considered in the 1950s, consult Tamar (2000) and Duarte (2018).

In this narrative, the project sees itself as the emissary of the most valid way to approach the worlds of the sea turtles, compared with the previous forms of knowledge and practice among the fishermen and residents who live in the regions of the first three bases (Tamar 2000), which involves commensality. It is as if, from their naturalist position, the distance from these other knowledges and practices and the personal worlds of other animals allowed for better access to the ontologies of sea turtles. Despite this, the sea turtles' agencies took researchers by surprise. However, as we verified in Regência Augusta and the literature, part of what the project does in the field and on the beach was elaborated from the very techniques performed by the fishermen before the arrival of the Tamar Project agents, and it is often called by the same name. According to the naturalists' version, *carebar* was 'the right verb to define the *carebeiros* practice of searching for and killing the *carebas* during spawning on the beach, to eat the meat and for their shells' (Tamar 2000: 55-56; see also: Campos 2014; Trindade de Freitas 2014; Rodriguez 2005).

Sautchuk (2016) has made a series of observations and considerations concerning the processes, concepts and benefits resulting from domestication, without pre-determining it and highlighting the particularities of its occurrences. The case raises reflections concerning the ambiguous character of the interaction between two carnivores, fishermen and piranhas, which involves commensality, to ponder and challenge dichotomies like domestic/wild or protection/predation. The author exposes the controversy over issues of mutual domination or domestication that involve reproductive and territorial issues, and he questions even intermediate approaches like familiarisation.

In Regência Augusta, the place where the Tamar Project has a stronger presence, the commensal relationship between fishermen and sea turtles used to be present, but with the arrival of the project it was first controlled, then later avoided or eliminated by the residents. Thus, the reinvention of *carebar* was an attempt to unilaterally protect sea turtles through reproductive, territorial and symbolic control, which made them a flagship species<sup>9</sup> and a taboo food, such that today, the relationship between the turtles and the environmentalists is also manifested within the sphere of familiarity, a theme discussed in the next section. However, there are limits to this, due to the broad cycles of territorial and seasonal reproductive behaviour of sea turtles, and the project needed to adapt to these limits, even with regard to its physical structure, which it does through locating its bases and the actions of human agents in certain places favourable for the spawning and birth of individual sea turtles.<sup>10</sup>

At present, in Regência Augusta and Povoação, turtles can still be killed in fishing nets, but even when this happens, they cannot be consumed or foraged by fishermen, who either hand the dead turtles over to the project or simply discard them in the sea.

In an interview conducted in 2013, an elder *carebeiro*, employed by the Tamar Project, said that, in the past, 'the turtle was only caught for consumption, for ourselves, we salted the turtle meat; the more you caught, the more you had'. This was different to the fish they caught, which have been sold for a long time. His reference to abundance was related to the species *Caretta caretta*, also known as the loggerhead or yellow turtle, 'but this other one, the leathery one [*Dermochelys coriacea*], was more difficult to find'.<sup>11</sup>

Previously, *carebeiros* killed the turtles. Although this was criminalised and/or gained a clandestine connotation over time, the technique of locating the nests used by the project is still the same as that used by the elder *carebeiros*. As one of them who worked in Regência Augusta explained to us in 2013, the procedure is basically this: follow tracks in the sand made during spawning; locate the eggs by sticking a short stick in the sand, digging and marking the spot; the presence of the nest is confirmed by the softer sand at the bottom.

9 Sea turtles are considered flagship species in conservation projects, since they are charismatic, they raise funds and raise awareness for their cause. They are also key species, since their preservation leads to the preservation of other species in their ecosystem.

10 Turtles usually spawn on the same beach on which they were born.

11 Walking interview with E. Creado and A. C. O. Campos.



Even today, as it was for the elder *carebeiros*, it is more difficult to perform the procedure with the giant turtle, as explained by other *carebeiro*, working with the Tamar Project, in 2013, in the Comboios Indigenous Territory (IT), where the consumption of sea turtles and their eggs for food remains legal:

‘... only the giant turtles are more complicated, even some biologist friends of mine can’t figure out where she’s gone. It’s because she lays her eggs very deep, not like other species where it’s very shallow...’<sup>12</sup>

There is a meeting of agencies here, because, as shown in Felipe Sussekind (2016) in the context of cattle raising in the Pantanal, you need to know how to read the marks left by sea turtles, so you can enter into and participate in the world of these non-human animals, which, like humans, are agents in their own right. The human agents often use such readings to implement their own actions, such as management aimed at conservation. Thus, the *carebeiro* continued to exist, but was (re)invented through the monitoring of Comboios Beach, with distinct characteristics in each of the three stretches. The nests found both on the left bank of the River Doce, on the Povoação side, and inside the Comboios IT were transferred to the vicinity of the base at ReBio Comboios. The view was that they were subject to anthropic or other risks: regarding the left bank, in Povoação, the problem was the instability of the river mouth; regarding the indigenous territory, it was the consumption of eggs. In 2013, and for at least two years after, part of that work was performed by two of the elder *carebeiros*, who, on their walks at dawn were responsible for the initial identification of the nests and beds. Later they notified the beach interns, who, in turn, conducted the removal of the eggs to the vicinity of the base inside the biological reserve.<sup>13</sup> The same concerns and measures were not undertaken in the middle section, between the right bank of the River Doce and Comboios IT, which was accessed and covered several times during the day by the beach monitoring interns, but more frequently at night and at dawn during the spawning and hatching of the baby turtles. There, the beach monitoring are performed more intensively by project agents, interns and the seasonal trainee;<sup>14</sup> they take turns on the quadricycles or jeeps – when the quadricycles break – at night, at dawn, and in the morning, during the spawning and hatching period of the young. Considering all three stretches, we can affirm that monitoring became an activity performed and controlled by the project, and is no longer being passed on to the new generation of *carebeiros* (for details on the Tamar (*neo*)*carebar*, as experienced and described by its authors, see also: Campos 2014; Trindade de Freitas 2014).

This is a historical contrast, since the elder *carebeiros* were initially very important for mediating relationships between the residents of the village and the Tamar Project. By ceasing to kill sea turtles or collect their eggs, or, at least reducing these practices over time – not without causing some difficulties for themselves – and being inserted in the field activities of the conservation project, they began functioning as examples of environmentally positive conduct. The material and symbolic mediation of relationships is still performed by some of the third and fourth generation descendants of the elder *carebeiros*, who, if on the one hand were not affected by the same negative connotations, having changed their practices, also had not lived through the experience and prestige of the knowledges and practices of the elder *carebeiros*. These descendants grew into adulthood having had no immediate physical engagement with the sea turtles, and there was a certain resentment towards those who hold university knowledge.<sup>15</sup> Without further application of the idea,

<sup>12</sup> Interview given to E. Creado, A. C. Campos and C. Llanes, at the Comboios IT in December 2013. Even where the extraction of sea turtles is legal, the subject is talked about with caution.

<sup>13</sup> Sea turtles usually spawn at night and early in the morning. The *carebeiro* from Regência Augusta, active on the left bank of the River Doce, retired about two years after the interview. Unfortunately, we have not returned to Comboios IT, so we do not know whether the indigenous *carebeiro* has also retired, but it is very likely given his age in 2013.

<sup>14</sup> The trainee is an intern who participated in a previous sea turtle breeding season, and is considered more experienced.

<sup>15</sup> During field activities in 2013, we met two grandchildren of a former *carebeiro*, elder Aloy, who were attendants at the Tamar Visitors Center. The Tamar Project book (2000) mentions Aloy, who we did not meet, because when we began visiting the region he had already died. He is also mentioned in the work of Rodriguez (2005). Among the oldest *carebeiros* in Regência Augusta and Comboios IT, the second author met only those she interviewed in 2013, having had more contact with a resident who still lives in Regência Augusta.

because it refers to another context (Africa) and other types of conflicts (colonial), we emphasise that the belonging of individuals in relation to multiple affiliations has already been highlighted in the literature as a means of mediating conflicts (Van Velsen 1987; Gluckman 1970; Ferreira 2004).

Another point of distancing is related to parental care among the sea turtles themselves, which exist, according to fishermen, but do not exist according to the Tamar Project and naturalistic, technoscientific knowledge (Rodriguez 2005). From the project's point of view, the lack of parental care allows for the spatial rearrangement of the nests; based on this perspective, after leaving the eggs and the nests, the hatchlings proceed to the sea and no longer seek out their parents. Even so, transferring the nests began to be avoided, based on another argument: it can lead to an increase in the genetic malformation of the hatchlings and the number of stillbirths, depending on how and when it is done. It is somewhat paradoxical, as we examine below, that in some manner, parental care has (re)appeared in the relationship of some members of the project with the spawn nests on the beach, though through more individualised and interspecific relationships.

### **A family of workaholics with interspecific parental care**

During his stays in the field, Fontinelli prioritised everyday conversations and dispensed the performance of the anthropologist who writes down everything he observes and hears. He conducted a few formal interviews, when these proved to be indispensable, and used a small pocket notebook to write down the information he considered most important and likely to be forgotten later.<sup>16</sup> Therefore, writing in the field diary was a mandatory and unavoidable activity, even on days that involved a greater demand for activities in the Tamar Project, when he performed beach monitoring and worked at the two bases. One thing that should be highlighted is that, whenever he asked about the onset of research on turtles in Brazil, he was commonly told, in slightly different forms, that it was linked to the creation of the project and the expedition conducted in 1977 by a group of oceanology students at the Federal University of Rio Grande (FURG), in Rio Grande do Sul, as recorded in the book on the project (Tamar 2000).<sup>17</sup>

Some of the points highlighted in the book and in everyday conversations served to (re)work symbolic-material engagements with project managers and volunteers, such as the passion and self-sacrifice for conservation work. Annually, during the spawning season between September and March, the Tamar Project marks, monitors and records of the number of nests, eggs and hatchlings produced. The interns were recruited on a voluntary basis and were mostly undergraduate students linked to some course in the natural sciences. The selection and subsequent allocation of students were made after analysing the 'candidate's profile', performed by the base manager in each season. The trainee, from the 2014/2015 season, said that trainees would not even question the few hours of sleep and almost 16-hour days during the reproductive season, if the need to commit to the work had been assimilated. Indeed, the majority saw their duties as a privilege, given that volunteers paid to do similar quantities of this quality of work at other turtle management centres around the world.<sup>18</sup> However, the trainees at Povoação were more critical regarding Tamar than the trainees from Regência, they did not view the many hours of work with such joy and were often irritated when they went out in the field, not due to dissatisfaction with the quality of the work, but due to its intensity.

It is possible to draw some observations on this issue, based on the work of Roy Wagner (2010: 57-58), who distinguished between concepts that separated the issues of work and family in Western American culture:

<sup>16</sup> Between 2013 and 2014, with regard to beach monitoring, the second author conducted interviews with five interns and two base managers from Regência Augusta, and followed a quick nest opening in Povoação and other openings in Regência Augusta.

<sup>17</sup> The second author knew about the publication before going to the field, and through Rodriguez (2005), who analysed the book as a narrative of the genesis of the Tamar Project.

<sup>18</sup> He had worked on monitoring fisheries and handling turtle nests in Tortuguero National Park, Costa Rica.

**Table 1.** Hegemonic dichotomies about work and family in Western American culture, according to Roy Wagner (2010):

<b>WORK (PRODUCTIVITY)</b>	<b>FAMILY</b>
PUBLIC	PRIVATE
MONEY	LOVE
FAMILY INCOME	NOT BASED ON MONEY OR WORK
IN EXCHANGE FOR CREDIT	SHARING RELATIONSHIPS
“DUTY IS ABOVE PERSONAL CONSIDERATIONS”	“LOVE IS THE ONE THING MONEY CANNOT BUY”

**Source:** Fontinelli (2016)

The two columns in the table above did not always seem so different during the two stays that Fontinelli made in the field and that took place at two different stages of two reproductive seasons: the first in 2014/2015, during the nest opening phase, during March of 2015 in Regência Augusta; and the second in 2015/2016, at the peak of spawning, during November of 2015 in Povoação.

He found very different relationships of familiarity regarding the relationship with sea turtles. In Regência Augusta, the ‘perfect family’ predominated, with romanticised visions of work, declarations of love for the turtles, in which they appeared as members of the family, statements that the trainees would not choose to do anything else with their lives and that the money was not important as long as they could ‘save’ turtles. On the other hand, they also shared the belief that project members should do everything possible to ‘tag’<sup>19</sup> the turtles and get as much data as possible. This included turning them in the opposite direction, using the shell, so that they could not return to the sea, confusing them with flashlights so that they became disoriented, and even ‘mounting’ them to add weight and tire them out. They believed that this did not result in any harm to the animals and that these were brief moments of stress after which the turtles would be monitored by the Tamar Project, which would have more data available to conduct their conservation and management plans.

Fontinelli did not see any turtle spawning in Regência Augusta, but he did in Povoação, because at that moment in his stay it was a period of nest opening. Creado saw none, because when she did her most extensive field research, she was on maternity leave, alone and with a four-month-old baby, and was unable to accompany the beach monitoring. They also wrote, based on what they were told in Regência Augusta, for example, by one of the interns from the 2014/2015 season, Gisele,<sup>20</sup> who became a trainee in Povoação, which was one reason for disagreements in the ‘family’ of Povoação and made it possible to discern differences between the two models.

In Povoação, the scenario was different: the base manager sought to spare the turtles from any stress. Even when he occasionally used some of the disorientation techniques, like the flashlight, he never used the ‘mounting’ technique when dealing with an unmarked giant turtle, for example, and recommended that the remaining interns follow suit. Thus, in addition to personal differences, variations in management practices were at stake, with their respective forms of engagement.

When we think about Donna Haraway’s (2008) becoming-with, the interesting thing is that, in the first situation, the stimulus for body contact was aligned with the act of ignoring the subjectivity of the sea turtles, with being more radical and forcing the turtle to collaborate with the collection of supposedly objective

<sup>19</sup> Tags are small pieces of metal with an engraved number; preferably attached to the front flippers to identify different individuals, if caught more than once. The tag is attached to the rear flipper in giant turtles. Tags are placed on both flippers, in case one of them comes loose.

<sup>20</sup> Names have been changed throughout the text to protect the identity and privacy of the individuals concerned.

scientific data. In contrast, avoiding body contact and letting the turtle move as it pleased, at most using a flashlight to direct it, meant giving up some potential data so that the turtle had a less stressful experience with the researchers.

The coexistence between the trainees of Povoação was as good on a personal level as it was in Regência Augusta. However, in relation to fieldwork and the manner of handling the turtles, things were different, and thus we can consider them to be a 'maladjusted family', in the sense that they partially contested the discourse of the Tamar Project: in short, the former accused the latter of being 'insensitive' and the latter accused the former of being 'lazy'. In this sense, therefore, the relationships of gift between interns and other project members were sometimes established with a view to future exchanges, such as recognition and future recommendations. The trainees from Povoação said they were aware that, for Tamar staff linked to the ICMBio or Fundação Pró-Tamar, they were no more than a labour force for field data collection. They said that their names would not appear in future articles and scientific publications produced with the data they collected during the season. We also translated the situation as a cutting of the network (Strathern 2011), accomplished in the project's publications.

Regarding the researchers housed in these bases, their presence represents an expansion of networks, as they are commonly linked to post-graduate programmes. However, not all researchers are particularly fond of the Tamar Project – the majority of the criticisms were related to the fact that the project does not share its database, while some say that the project 'does not do research, only marketing', and that some of its members have gotten rich at the expense of the charisma of the sea turtle. However, there are those who claim that the project does conduct scientific activities, that most staff have good intentions, and the charisma of the sea turtles has been constructed precisely due to the conservation project, through a lot of effort. The most shared criticism concerns resistance to the sharing of data with the wider scientific community. Thus, when a researcher gets involved in the project, to a certain extent, they become a cut-off point in the network (Strathern 2011), in relation to scientific research with reptiles; at the same time, they become a possible point of expansion, by taking the project with them to the university environment, despite the criticisms highlighted, such that the work with sea turtles depends, in good measure, on good relationships with the conservation project. In general, researchers who are authorised to use the infrastructure and accompany project activities need to share their data and help with fieldwork. Thus, these relationships are considered asymmetric.

On a daily basis, working with sea turtles was associated with love unrelated to questions of a financial nature, in forms of relationship close to the relational modes of protection or gift (Descola 2012). This does not mean that financial issues do (or did not) exist, nor that they are irrelevant, but that they are erased within the daily dimension of the beach monitoring by interns. It is as if individuals set out with feelings of love and sharing to arrive at results that represent 'duty over personal considerations'. Good results were associated with the successful conservation of sea turtles for the next generations, and with future financing for the conservation project for these species. However, even the interns who proclaimed their affections for these non-human animals seemed, from time to time, more interested in a good letter of recommendation, capable of resulting in future exchange relationships, mediated by labour relations.

Another episode caught Fontinelli's attention in the field. In the main room of the accommodation in Regência Augusta, there was a table with the name of all the interns of that season. Serial numbers were placed in front of each name, referring to certain nests found by the respective trainees. During a lunch break at the lodge, one of those involved in the beach monitoring in the 2014/2015 breeding season said that he was very anxious about a particular nest that he had transferred, due to expectations regarding the birth rate of this nest. These expectations were common to others, and he said that some interns spent weeks talking about a specific nest, and were either very happy or very sad, depending on the results. This is because the transferred nests tend to generate a greater number of stillbirths and hatchlings with malformations, because the embryo cannot be

rotated in the period between its fixation on the inner wall of the egg and its advanced stage of development. In addition, the transfer is a source of local controversy, because fishermen claim that it prevents parental care of the group of sea turtles over their young, information that is considered to be without scientific merit by the staff and technicians of the Tamar Project (see also Rodriguez 2005).

The success rate of births from the nests also influenced the hierarchical status of the interns. Those whose nests always showed a high rate of births were considered the most skilled in management practices, while the least skilled trainees were those whose nests involved many stillbirths. Irrespective, the emotional aspect was present and reflected back to the care and bonds established between the interns and the nests for which they were responsible, which was associated with the condition of maternity or paternity.

The pattern of a feeling of pride in relation to a particular nest transferred by a particular trainee was repeated in Povoação. Apparently, the transfer of nests and their consequent success attests to the competence of the trainee who carries out the transfer. There were particularities, however. In Povoação, where criticism of the intensive management of turtles in the sand was established, the aim was to transfer as few nests as possible; some of the more active staff in Regência Augusta believed that nests near the sea would be destroyed by the tide if they were not transferred, while others would be destroyed by onlookers, when they were very close to the villages. Once again, one of the groups was accused of being 'lazy', Povoação, and the other of 'wanting to appear busy', Regência Augusta.

In Povoação, only nests at high risk were transferred. Fontinelli asked an intern if this type of nest management was a way of fixing negative behaviour – that of spawning in risky places and not being able to leave the nest alone – in the turtle populations in Brazil. He agreed, and pondered that the project defends this type of management with the argument that the population is small and at risk, and that if that were not the case, the right thing would be to allow the nests to be carried away by the tide and the hatchlings that remained to serve as food for other animals in the ecosystem.

Thus, considering the symbolic (re)invention (Wagner 2010), but not this alone, these (human) individuals constantly (re)categorise the symbols without realising that they are doing so. At times, the sea turtles are scientific data that, in the form of numbers, indicate the success or failure of the Tamar Project; at others, they are beings that have survived the extinction of the dinosaurs and should be considered very resilient (Creado 2017; Fontinelli 2016) or they are in danger of extinction and need protection – and here, they can be the 'children' of the trainees; at the same time, for other human agents they constitute or have constituted a source of food and the bond of closer relationships with neighbours (Rodriguez 2005).

Despite the predominance of the naturalistic identification mode (Descola 2014) in the Tamar Project, for brief moments and without realising it, beach trainees raise sea turtles to a level of familiarity (Sautchuk 2016), referring to relationships of kinship different from that commonly expounded in books on biological evolution. Knowledges and practices concerning the behaviour of sea turtles emerge from the trainees' contacts with these non-human animals, and we highlight the importance of physical-emotional engagement present not only in the beach monitoring, but also in the exhibition and rehabilitation tanks. Thus, although the knowledge associated with beach monitoring is guided by protocols assembled over time, and based on the knowledges and practices of the fishermen, they are continually tested in the field and experienced idiosyncratically by each of the interns (Fontinelli 2016).

Regarding the beach monitoring, the bonds are more prolonged with the nests, while encounters with female turtles during spawning are more ephemeral, although especially impactful for interns, particularly encounters involving giant turtles. These are combinations that allow sea turtles to pass, at certain times, from endangered species to entities that deserve dedication and unconditional love. Love that can be recorded on the body of the interns, in the form of tattoos and other inscriptions, or through the use of artefacts inspired by non-human animals, especially marine animals (Campos 2014; Trindade de Freitas 2014; Torres 2016).

In a less radical manner than the Rewilding Europe project proposal, the Tamar Project conveys a feeling that we are, as humans, morally responsible and that we have the competence to intervene positively and actively in the recovery of the environment, just as we affect it negatively (Silva and Sá 2017: 64).

## Relationships and(in) critical situations

In Regência Augusta, between January and February 2013, we heard very little criticism of the Tamar Project, similar to other briefer opportunities for field research that occurred up to 2015. One or two things were mentioned, but when the person was asked explicitly about the subject, the discourse often changed. This demonstrates people's caution in talking about the project, as well as a distrust of researchers in general. As indicated above and in Rodriguez (2005), the gift relationships between Tamar and the Regência residents were (and remain) very strong.

However, when mining tailings reached and stained the mouth of the River Doce and the Atlantic Ocean in late 2015, they brought changes. To understand these changes, we will take a step back in time, since we believe that these are due both to the critical event (Das 1999) and to other non-innocent relations constituted by the project (Haraway 2016), commonplace in the period called Chthulucene, Capitalocene or Anthropocene by several authors (including: Latour 2014; Haraway 2016; Tsing et al. 2017; Kolberth 2015). Links in which we are all enmeshed, even though in different ways.

Throughout its 40 years of existence, the Tamar Project has expanded in terms of infrastructure and areas of activity and has undergone changes related to its governmental/institutional links and in its strategies and means of financing. In 1988, a non-governmental organisation (NGO) was created, the Foundation for the National Centre for Research and Conservation of Sea Turtles (*Fundação Centro Brasileiro de Proteção e Pesquisa das Tartarugas Marinhas, Fundação Pró-Tamar*). From then on, the Tamar Project has officially presented itself as a hybrid configuration of State-NGO (Suassuna 2005: 522). The project has been based at the Chico Mendes Institute for Biodiversity Conservation (ICMBio) since its creation in 2007, maintaining the prior relationships with the State. Regarding the structural positions within the project, the coordinators we interviewed were also employees of the ICMBio.<sup>21</sup> In addition to the employees, the leadership positions of ReBio Comboios, occupied by an ICMBio employee, and that of 'base manager', a term used then in reference to employees hired sometimes by the Fundação Pró-Tamar and who supported the intensive, daily patrols of beach monitoring, were also important. The latter position was generally held by more experienced young adults who dealt with the interns and trainees during the reproductive period of the sea turtles.

The creation of the Fundação Pró-Tamar allowed the project to diversify its funding sources. Sponsorship by Petrobras, for example, has been received regularly since 1983:

'Twenty years after being founded the Tamar Project aims to be self-sustaining, a concept that fits perfectly with its reality and philosophy. It has been begun to find new ways to raise funds, including through ecological tourism and the commercialisation of services, in addition to products. All the resources are fully invested in priority actions for research on and the conservation of Brazilian sea turtles – including the salaries of the fishermen and residents of coastal communities directly involved in the Project's activities.' (Tamar 2000: 92)

Fundraising inserts the project within the capitalist logic and turns nature into a product to be sold (Silva and Sá 2017), in different material and symbolic degrees. Similar to the issue of the relationships with researchers and/or interns, the trends of expansion and contraction are also present when the project assumes such links. This is particularly problematised in critical events/situations, and can curtail the relationship between the

<sup>21</sup> Four semi-structured interviews with two project coordinators, employees of the ICMBio at the *Centro Tamar*, have been conducted by the second author since 2012.

conservation project and other (socio)environmentalists, local residents and fishermen, while raising doubts concerning the influence of these links on the actions and intentions of the project as a whole. This raises the question regarding the extent to which the project controls these relationships or these relationships control the project (Strathern 2011).

Until 2015, fishermen were very cautious about how they positioned themselves regarding the project and the environmental management bodies. Only one, very articulate fisherman assumed an incisive, confrontational position in an interview conducted in 2013. His position was widely known, in part due to the seizure of some of his gillnets, when, it should be highlighted, project members acted as mediators. In 2013, the fisherman criticised the fact that the project and environmental agencies treat the fishermen and large enterprises operating in the region differently. The latter include Petrobras, which operates exploration and logistics in the vicinity, and Fibria (now Suzano Aracruz), whose vessels can damage fishing gear when operating in the vicinity of the mouth of the River Doce. The material-symbolic commercialisation of the sea turtles has been criticised, in contrast to the subjection of fishermen to environmental regulations, which concern not only sea turtles, but other species like shrimp and fish:

‘they use the turtle to do business, which sells clothes, sells, I don’t know, t-shirts, and whatever (...) they don’t want us to catch them but they also use the turtle as a means of business for themselves (...) So, if you can’t catch them, you can’t tell anyone about them either (...) And today man, God forbid, I don’t eat turtle anymore, I don’t, I don’t really care, if it’s on the beach, if it’s dead, or it’s free, for me, no, it doesn’t matter anymore, I have resources, I have a supermarket next to my house, there’s a butcher shop in the supermarket, there’s choice, I don’t need turtle anymore, not for me’<sup>22</sup>

During Fontinelli’s two field stays, during the sea turtle breeding seasons of 2014/2015 and 2015/2016, almost the entire community perceived the researcher as one of the members of the Tamar Project, even though he rented a house in the village of Regência Augusta and did not board with the interns. The impression was more intense in Povoação, where he stayed at the accommodation, participated in *carebadas* and environmental education activities, when he was sometimes asked to wear the project uniform.<sup>23</sup> Generally speaking, he did not hear many opinions from community members about the project, but, as mentioned above, he heard internal criticism from the Povoação interns; these confirmed the impressions gleaned by Creado, in 2013 and 2014, that the gift relationships and the daily presence of the project were comparatively lower in Povoação.

Despite this, two people reported criticisms more intensely to Fontinelli, both residents of Povoação. One of them, Benjamin, was contacted in both villages, and the other was a former project employee, Rodrigo, born in Povoação. Both knew that Fontinelli was not part of the Tamar Project, while they were also not closely related to the conservation project at the time.

During the first meeting with Benjamin, in Regência Augusta, he asked not to be identified. He commented that the sea turtles received more care than the inhabitants, and that the project used the funds for environmental constraints to expand its own infrastructure, instead of training the community. He added that the jobs offered to residents consisted of subordinate activities, such as seamstresses, attendants (the ‘new *carebeiros*’) and support staff, that the village had numerous problems with the project and that the interns barely communicated with the residents. Despite this, when the first author stayed at the base in Povoação, he realised that some residents were more critical than others, there were dissatisfactions and complaints, as well as positive coexistence and friendship.

<sup>22</sup> Interview given to E. Creado and P.L. Trindade de Freitas, in February 2013.

<sup>23</sup> The Tamar Project places as much value on environmental education activities, especially with children in the communities, as on its beach monitoring activities.

Fontinelli's second stay took place just as the Samarco *mud*, as the mining tailings drawn down the River Doce are called locally, arrived in late November and December 2015, and covered a period in Regência Augusta and later, in Povoação. He met with Benjamin again, in Regência Augusta, who criticised the project again: he said that new environmental initiatives, such as conservation units would not work in Regência Augusta because of the 'trauma' that the Tamar Project had inflicted there, due to ReBio Comboios, and that the resentment was greater in Povoação, because after the installation of the project and ReBio Comboios in Regência Augusta, Povoação had lost its prominence in the region. Regência Augusta had received an Ecological Centre, investments and more tourists, while for Povoação, merely a research base outside the community. In his opinion, this explained Povoação's support for large developments, such as Port Manabi (now MLog) (see Torres et al. 2016).

As for Rodrigo, he worked for the Tamar Project for many years, and was generally regarded as the person with the greatest practical knowledge of the field in Povoação. However, he requested a leave of absence due to disagreements with some of the coordinators. Despite this, he was a field consultant, respected for his knowledge, which demonstrates the breadth of knowledge production beyond the laboratories and scientists (Velden 2015), also present in another conservation project devoted to charismatic animals (Torres 2016).

He could be considered a (*neo*)*carebeiro*, a bearer of local knowledges and practices and mediator of relationships. Moreover, in the same manner as the presence of the project's older staff and graduates in Regência Augusta, he influences local interns to see themselves as part of a family. Rodrigo's presence and comments on the project were partly responsible for the critical sense that permeated the discourses of the interns from the Povoação base. He criticised the hierarchy within the Tamar Project and how the village served as a large support group for the project to function. Even so, he praised it, saying that in the 1990s, throughout the State of Espírito Santo, around 300 turtles were found per season, and that currently, 500 were found at the mouth of the River Doce alone. Regarding the feeling of distrust in Povoação in relation to the conservation project, he associated it with the closing of bases in the region between 1998 and 2002, attributed to the economic crisis, which resulted in the maintenance of bases only in Regência Augusta and Guriri. According to Rodrigo, nowadays, Povoação tries not to depend on the project for fear of something similar happening again.

In the Tamar Project beach monitoring accompanied by Fontinelli, concern for the collection of data that associated problems in the conservation of sea turtles with large developments was only perceived after the arrival of the Samarco *mud*, in late 2015; a lack of problematisation highlighted in Creado (2017). In the context of the post-crime-disaster, beach monitoring included the installation of nets to prevent tailings brought downstream from entering the mangrove, and some researchers and veterinarians from an institute based in Vitória, partners with the Tamar Project, came to the region to collect blood and eggs from turtles in order to analyse the effects of the mud for the next two years. The direction of the wind directly affected the direction in which the mud moved, momentarily uniting the terrestrial, marine and aerial worlds (tailings, marine currents and wind currents, respectively), reflecting the influence of the climate on the movement of humans and non-humans (Azevedo & Schroer 2016). Thus, the turtles avoided the beaches with the highest concentration of mud, determining at that moment whether it was worth crossing a wall of tailings to reach the sand. All the logistics, the transport of equipment, personnel and infrastructure, were contingent on the agency of the sea turtles.

Thus, with the arrival of the *mud*, the region endured a moment of intense and abrupt changes that contributed to the incitement of wide-ranging controversies and conflicts. In this context, the Tamar Project and ICMBio exercised an important role in the initiatives of the context of the post-crime-disaster, including the mediation of judicial initiatives that Samarco and its partners had to implement in the area,



and that attempted to mitigate the socio-environmental changes in the region. This included a ban on fishing along part of the coast of Espírito Santo, which began in February 2016 and which also affected Regência Augusta and Povoação.

Following the crime-disaster, between 2015 and 2017, Creado heard more incisive and explicit problematisations regarding the links between the Tamar Project, environmental managers and large companies.<sup>24</sup> Project Tamar's gift and exchange relationships in the Regência Augusta community have been weakened, at least temporarily, at the same time as the project's networks have strengthened on a broader scale outside the community. In contrast, in Povoação, these gift and exchange relationships were not even that strong beforehand, which when added to the crime-disaster further contributed to the criticisms heard by the first author in the field.

The non-innocent relations of the Tamar Project and ICMBio in this new context allowed for the inclusion of a provision of financial support for the creation of a new conservation unit at the mouth of the River Doce, among the measures to be implemented by Samarco and its partners in the area. A project that has existed since 2002, but that had been paused. This revival contributed to intensify the problematisations compiled here (Amboss et al. 2017; Creado et al., 2018; Duarte 2018; Trigueiro et al. 2018).

## Final considerations

This article analysed the relationships established between the technicians/scientists of the Tamar Project and the sea turtles and communities of Regência Augusta and Povoação, located on opposite banks of the mouth of the River Doce, on the northern coast of Espírito Santo. The main focus was the period prior to the arrival of the mining tailings, resulting from the rupture of the Fundão dam (MG), at the coast of Espírito Santo, which occurred on November 21<sup>st</sup>, 2015, and in the period immediately after, particularly regarding the beach monitoring. This past context was already marked by political, economic and environmental divergences concerning the use of resources and the local landscape, in which sea turtles could (and still can) be seen as diverging and converging poles of innumerable relationships that are, directly or indirectly, pertinent to the understanding of these tensions.

In this sense, it was possible to perceive changes in the relationships between the parties, related to different material-symbolic and physical-emotional engagements practiced in beach monitoring (though not only there). The relationships established by human agents – environmentalists, on the one hand, and fishermen and residents to whom the mediation actions of coexistence are directed, on the other – and sea turtles are not static and/or homogeneous. Among the project's staff and interns, there were disagreements regarding the field approach and the forms of engagement that should be used. Some prioritised data collection and liked to touch and handle sea turtles and their nests, like those in Regência Augusta, others just preferred to contemplate them from afar and let the nests develop on their own, in an attempt to save them the stress caused by field protocols, even though this resulted in a reduction in data collection, like those in Povoação.

Therefore, the conservation project interns that we exemplify as guided mainly by a naturalistic identification method, according to Descola (2012; 2014), modified this orientation, often without realising it, through small material and symbolic (re)inventions (Wagner 2010), in association with individual actions and trajectories. They thought and acted at times as if humans constituted a species apart from all others, at times as if everything in the universe connected non-hierarchically, with oscillations between a defence of human singularity as a species and a realisation that we are nothing extraordinary, doomed to oblivion within the immense scale of geological time.

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<sup>24</sup> With the GEPPEDS-UFES: The Research Study Group on Fishing Communities and Development (GEPPEDS) of the Federal University of Espírito Santo (UFES).

Interns are also important from the point of view of the networks they establish between the Tamar Project, ICMBio, researchers, universities, laboratories and civil society, based on sea turtles. Strathern (2011) talks about moments when networks expand and when they are cut off. Interns are, simultaneously, points of network expansion and cut-off. Expansion, because they come from different locations in the country, go through different experiences at different bases and then return to their places of residence and studies, where they share the knowledges and practices acquired at the bases. At the same time, they are mainly responsible for the field collections, translation and registration of the data, and form the lowest level of the Tamar Project hierarchy, and the majority do not even participate in the production of technoscientific texts.

When we consider the residents, including the fishermen, from the villages of Regência Augusta and Povoação, the impasses shift to the field of local management and the alleged centrality of sea turtles in the environmental restrictions to which they are subject. Some appreciated the presence of the conservation project, and the sea turtles, due to the increase in tourism and the income generation initiatives brought by the project, along the lines of gift relationships, according to Descola (2012) and Rodriguez (2005), even while criticising the project. Others believed that the project and consequently the sea turtles, as a charismatic species, only brought regression and that the region would be better, more developed, without them. Thus, when a developmental enterprise sought the support of the villages, it found those who quickly accepted it (Torres et al. 2016), while a proposal for a new area for conservation brought divisions and positions against it.

The villages can also be seen as a simultaneous point of cut-off and expansion of the networks constructed around the sea turtles. When the Tamar Project describes itself, in scientific conferences and congresses, one of its great assets is the involvement in the community and the alternatives for income generation, which sets them apart from other conservation programmes. These relationships of gift and exchange are presented as substitutes for other relationships, in which engagements between the human residents and sea turtles took place without the project's mediation and in the form of commensality. However, many residents complained that the project did not qualify them for less subordinate and more qualified activities and functions, and that the greatest beneficiaries of the work with sea turtles were the members of Tamar Project itself.

Richards (2000: 97) says that scientists who work with chimpanzees in Sierra Leone should be aware that they work with a stigmatised animal in the region in which they work. In our case, sea turtles are also occasionally stigmatised. For a long time they were seen as a source of food, and according to one of Fontinelli's interlocutors, when the Povoação base was deactivated, some people returned to the capture of females and eggs for a brief period. There are also those who say that they are still a food at Comboios IT, south of Regência Augusta. There were residents who blamed the sea turtles, accusing them of receiving all the investments in the region because they are a charismatic species; we also heard some reports about fishermen who, angry at the restrictions on fishing of certain species of fish, especially in the summer, threatened to kill sea turtles that got entangled in their nets.

There is mistrust on all sides, coexisting with strong gift and exchange relationships, which were more pronounced in Regência Augusta up to the end of 2015. The arrival of the Samarco *mud* at the mouth of the River Doce has aggravated the mistrust, and this event can be viewed as representing broader ontological conflicts (Almeida 2013).

Some of the project's not-so-innocent relations, aimed at financial self-sustainability, are also triggered in the sense of highlighting the potential social injustices. The Tamar Project are associated with environmental inspection acts, due to historical issues and functional proximities with the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA), as well as for relationships about (and with) the fishermen. The Tamar Project and its managers are sometimes also seen as the biggest beneficiaries of the environmental constraints, rather than the residents of the region.

Here, as with the actions in the Samarco post-mud context, there are relationships that extend the project's actuation to less localised areas, while curtailing relationships at the local level. Bearing in mind that non-innocent relations, like those with sponsors and other agents, in the terms of Haraway (2016), are not the privilege or exclusivity of those who work with sea turtles, but of all cohabitants of Chthulucene.

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