

## Mixed Results: Conservation of the Marine Turtle and the Red-Tailed Tropicbird by Vezo Semi-Nomadic Fishers

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**Abstract:** *The operating factors surrounding the preservation of marine turtles (the green turtle, *Chelonia mydas*) and the red-tailed tropicbird (*Phaethon rubricauda*) at the same location in southwestern Madagascar reveal the process of nature heritage preservation as it is organised by political lineages, arranged by the Malagasy concept of tompontany (masters or guardians of the land), and managed by the descendants of the Sara clan among the Vezo ethnic group. Official attempts to protect marine turtles date back to 1923 when six small islands distributed all around the coast of Madagascar were designated as reserves. These attempts have included the ratification of international conventions in 1975 and 1988. Yet the preservation of the turtle remains uncertain. The red-tailed tropicbird, on the other hand, first observed only twenty-five years ago in the Toliara region, has garnered enormous attention and support from the villagers and members of a local grass-roots conservation association. Whether local populations support and adhere to environmental policies or have consideration for growth in tourism and scientific knowledge depends on economic, social, and religious factors. It also depends on the power structure built around the exploitation of certain species.*

**Keywords:** Madagascar, Vezo, conservation, marine turtles, red-tailed tropicbird

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## INTRODUCTION

THROUGH THE EXAMPLES OF THE marine turtle (*Chelonia mydas*), *fano* in the local Malagasy dialect, and the red-tailed tropicbird (*Phaethon rubricanda*), referred to in the Vezo dialect as *vorom-paly* (province of Toliara), I will attempt to understand, from an anthropological point of view, the rationales of local stakeholders and their different motivations towards environmental protection. Exogenous environmental policies can range from being completely ignored (prohibition against the exploitation of marine turtles) to being enthusiastically embraced (protection of the Nosy Ve Island red-tailed tropicbird).

The observations provided in this article come from the observations carried out during my dissertation research. The subject relates to a comparative anthropological study between two villages of fishermen, one in the Comoros Archipelago (Itsamia, Moheli Island) and the other in Anakao, Madagascar. This research was carried out through the auspices of the Centre of Study and Discovery of Marine Turtles (CEDTM), Réunion, studying the biology of sea turtles, this organisation's social science objective has been to understand the reports of littoral populations with this species and the possibilities of its conservation. The anthropological study required an eight-month presence in the village of Anakao. During the fieldwork, I engaged with various environmental and tourist organisations of the village as well as with fishermen and with the spiritual leaders of three principal lineages of Anakao. The research methods included semi-directed conversations, questionnaires and participant observation. In order to identify the attitudes toward local environmental problems, I collected data on oral traditions and dreams, took part in ceremonial activities, and questioned the fishermen on their activities.

The village of Anakao is particularly well placed for an analysis of the process of nature heritage preservation. Nature heritage protection is an interpretation of reality, a collective reappropriation of the past and of past space which is the result of signed agreements and decisions (Rakotonirina and Cooke 1994; Cormier-Salem and Roussel 2002; Goedefroit 2002). As R. Hewison writes, 'heritage', the English equivalent of 'patrimoine', has become what people want to protect and, for many, it is not just material objects but it is what can be termed a sort of ethnic recovery. Heritage protection is the product of selective social representation (Ost 1995: 311 in Aubert 2002: 106).

Anakao is considered the most important village of the Sara clan within the Vezo ethnic group and is the last major village before entering Madagascar's far south. The village contains their *hazomanga* (lineage sacrificial pole) and represents the patriarchal domain for the community of fishermen located along the coast. Its proximity to Toliara (one hour by motor boat and between three and six hours by dugout canoe) has led to growth in tourism over the last six years. The management association FiMiMaNo [*Fikambanana Miaro sy Mampandroso an'i Nosy Ve*, (Association for the Protection and Development

of Nosy Ve]) and the creation of an ocean reserve ‘Aquarium Nord’ (Northern Aquarium) have created an interplay between international regulations, tour operators, and local collective agreements between the traditional consensus building process known as *dina* and the local clan organisation.

In 1998, FiMiMaNo, (was created after a dialogue initiated by EMC/ONE (the Coastal and Marine Environment branch of the National Office for the Environment). The village association is geared towards the protection of the island of Nosy Ve, a small island four kilometres by sea west of the coastal village of Anakao. The association groups together form the six villages of the Soalara commune. Rural communes are run by a council of elders from nearby villages who elect a mayor of the rural commune to perform administrative duties for the collection of villages. Anakao acts as the management base for FiMiMaNo since it is the largest in population density, it is located closest to Nosy Ve, it is the home of the commune president, and finally it holds the ritual sacred pole of the Sara from the *Lazahira* lineage. The ritual specialist for all Sara, the *mpitankazomanga* Sara, is a political figure too. His oldest son is the director of the school in Anakao and his youngest son is the president of the FiMiMaNo association. The Lazahira are the master-guardians of Nosy Ve by means of the *vorombe* (literally ‘great bird’), an annual ritual celebrated by Sara to bless the start of the fishing season.

The rural political structure permits the local community to join ranks with the national government in a joint effort at conservation. Since 2001, SAGE<sup>1</sup> (Service for the Development and Management of the Environment), which in 2001 replaced the Service of the Marine and Coastal Environment, has organised workshops in order to bring the different stakeholders together. A guard was hired to watch over the island and the marine reserve.<sup>2</sup> Almost all of the association members know some French and can communicate with foreign contacts.

The fact that, since its creation in 1998, the FiMiMaNo association has been led by the son of *mpitankazomanga* Sara (the spiritual leader of the lineage)<sup>3</sup> and that the spirit of *vorombe* resides on the island of Nosy Ve inform us of the type of symbolic approbation necessary for the management and protection of natural resources. As I demonstrate below, the Malagasy concept of *tompontany*, ‘masters or guardians of the land’, shed light on the notion of natural heritage protection in Anakao.

## **Background**

### ***People and the Sea***

Vezo live on the southwest coastal perimeter of Madagascar. Originally, the term ‘Vezo’ did not refer to an ethnicity or a territorial group but a way of life, an activity (Koechlin 1975; Marikandia 1988; Astuti 1995). There are several semantic variants of the linguistic expression yet all authors agree on

the translation of Vezo as the imperative of the verb *mive* (to row). Vezo expresses the action of paddling a fishing vessel and using a dugout for transportation. A fisher from Anakao specified that in order to be Vezo, one has to know how to row, swim, and fish and so, in theory, any new migrant can become Vezo as long as he possesses these nautical skills. While conducting research, Marikandia discovered this ability and ease of integration and the heterogeneity of the clan groups which had formed along the coast of Fiherena river (Marikandia 1988, 2001).

The coast was populated by autochthonous residents and a mix of migratory groups fleeing former upheaval and wars in the interior. As the latter were integrating into groups that already live on the coast, it was only natural that the newcomers would become Vezo. Certain groups, however, kept their original ethnic identity intact—as long as they were located north of the Manombo river. According to Goedefroit (1998), this is the case for the Sakalava of Menabe who can be *Sakalava Vezo*, *Sakalava Masikoro*, or *Sakalava Mikea*.<sup>4</sup> In the case of the Vezo Sara of Anakao, south of the Manombo River, they associate strongly with fishing and the coastal environment, but the designation Vezo may have arisen from a true identification with a nautical heritage. Thus the term Sara suggests a clan or grouping of lineages with its own identity since all members are understood to be related even though the common ancestry (or ancestor) is not known. If not they would be called Sara Vezo similar to Sakalava Vezo. People identify themselves both by their clans (such as Sara) and their historical/cultural/subsistence 'ethnic' groups (such as Vezo).<sup>5</sup> The same process holds for Mikea, many of whom also live south of the Manombo River. Identity and the ethnonym 'Mikea', and the history of that ethnic group, work very much like identity among Vezo. People can become Mikea by taking up the hunting and gathering lifeway in the forest (Yount et al. 2001).

Marikandia maintains that Vezo ethnic identity was forged in the 19<sup>th</sup> century along the Fiherena river against attempts by the Merina kingdom of the High Plateau to control the coastal region (Marikandia 1988, 2001). Vezo share the same myth of creation between a fisherman and a mermaid *ampelamananisa*, a story repeated among different lineages along the coast (Engelvin 1937; Marikandia 2001).<sup>6</sup> The Vezo people believe they embody the fruit of this union. Three other characteristics symbolise their connection to the sea: Semi-nomadism; the practice of throwing the umbilical cord in the deep sea, beyond the lagoon; and most importantly, for the purposes of this paper, the rituals linked to the hunting and consumption of the marine turtle *fano* (Grandidier 1910; Lilette 2002; Pascal 2003).

Vezo do live in primary villages but also participate in seasonal nomadism on small coral islands or in secondary villages. This semi-nomadism is characterised by the setting up of family encampments: The sails and masts of their boats are arranged in the form of a protective tepee.<sup>7</sup> They follow the migratory patterns of *lamatra* (tuna) and other fish which are dried for ex-

change or sold for other food products.<sup>8</sup> Fishers working out of these encampments also capture marine turtles, another type of activity which is highly valued.

### *Vezo and the Marine Turtle*

Numerous observers have recounted the rituals surrounding the hunting of the turtle. In the 1920s, Georges Petit presented an account (previously documented by A. Grandidier at the turn of the century) of these practices which have disappeared in part or have been readapted. The turtle is not or no longer a sacred animal for the Vezo as it does not represent a relative (kin) as it does for the Moken of Malaysia, for whom the turtle and the dugong are considered relatives. However, within the Indo-Austronesian socio-linguistic family to which a high percentage of Malagasy belong, the relationship between humans and animals is quite strong. Indeed in the texts written by Grandidier and Petit, strong ties exist with these two species. In Madagascar it seems, however, that only the dugong has developed this close relationship. The concept of anthropomorphism together with legends about a fisherman who engaged in an incestuous liaison with a female dugong could be at the origin of the myth of the mermaid. Such perceptions of relationships with animals may indeed have developed from scratch after Madagascar was settled two thousand years ago rather than, as Grandidier and Petit assumed, passed down from pre-Malagasy ancestors.

The status of the turtle remains altogether different, even if the two species were once part of the same rituals and *faly* (taboos). The *faly*, an integral part of the turtle hunt, deal with the techniques of use and of sacrifice. They represent the manifestation of vital forces which interact with respect to certain *vo* (vital parts) of the *laka* (dugout), of the *teza* (harpoon), and of the *fano* including the aorta, the chest, the liver, and the muscles of the plastron. After its capture, the turtle is carved up and distributed to all members of the community. This act of distribution and generosity is transmitted by the fisherman to the community just as he benefited from the 'spirits of life' who assisted him during the hunt (Figure 1). Certain rituals must be respected in that they guarantee a positive flow of communication among the spirits, nature, and men. The *hazomanga* (lineage sacred pole) formerly installed on the bow of the dugout for all marine expeditions, today symbolised by the *kerato*, allowed for the sacrifice of the turtle as the *mpitankazomanga* (ritual leader in charge of *hazomanga*) gave thanks to the ancestors. The sacrifice itself took place on the beach before an alter (*ranjo*, the diminutive form of *ranjam-pano*: 'alter to the turtle' [Koechlin 1975]). This is the reason that the marine or green turtle is called *fano aomby* (zebu turtle) since, because of its size and quality of meat, it represents a sacrificial animal for people of the sea comparable to the zebu for those who live on the land.

Figure 1

*Traditional harpoon hunting in Nosy Hao, Andavadoka, north of Toliara.*



Photo Courtesy: Valérie Lilette

**Note:** The removable point of the harpoon pierced the carapace of the green turtle (*Chelonia mydas*).

### ***Old Rituals–Modern Life: The Example of Anakao***

Anakao is the largest Vezo village on the southwest coast. It has a population of 4100, 3200 of whom are Vezo and 900 Tanalana. The village has often been labelled the Vezo capital due to the presence of the Vezo Sara sacred pole. However this is a mislabel since Vezo are not a unified people and as one travels north along Madagascar's long western coast one soon encounters Vezo who would acknowledge no allegiance to the Sara clan or to Anakao. The village's reputation for its great hunters of the marine turtle has declined, even though it still counts among its inhabitants one of the best hunters in the Southwest, Aurélien. But here the status of the turtle has changed. Faublée and Battistini studied the village in 1948 and 1960 and still observed the hunting rituals along with numerous alters or *ranjo* placed along the length of the beach and in the courtyards of certain houses (Faublée 1953; Battistini 1964). In eight months on site I never observed this phenomenon. The elders say that they stopped these practices thirty or forty years ago. This time period corresponds to the arrival of collectors and programmes sponsored by the FAO (Food and Agriculture Organization of the United Nations) to improve fishing techniques in Madagascar. In 1975, Koechlin noted the enormous impact that nylon lines and nets had had on the fishing industry. Today, under-water guns,

nets, and the monetary collection agents/networks have modified Vezo–animal relationships.

There is a strong link between Vezo people and the turtle. Based on one of Aurélien’s dreams, I learned how he became reinvested with power from his ancestors and the spirits of life by planting a tree on ancestral ground and by eating a leaf from this same tree before fishing in the sea. This tree planting thus recreated a positive flow of energies (Figure 2), he explained, which formerly circulated from the *hazomanga* installed in front of the dugout at the intersection of two shackles. This energy flowed out of the bow smeared with blood, from the harpoon and then to land at the alter and to the cutting of the turtle’s *uza’e* (aorta).

Nowadays, these rituals are respected only when cutting up the animal (Figure 3). Before it was the fisher, the harpooner specifically, who butchered the live turtle. This exercise was extremely taxing for the fisher as he was not supposed to sever the aorta until the very last moment in order to maintain its vital energy and force. If one severed the aorta too soon, he would never hunt another turtle; the powers bestowed on him by his ancestors would be lost, along with his honour (Astuti 2000). Today, hunters pay great attention to the person who cuts up the meat for sale, relieved to no longer be required to perform this act. If the turtle is going to be eaten by the family, the fisher must still fulfil this perilous but status-enhancing duty.

**Figure 2**

*Aurélien’s new ranjo at Anakao, at the foot of which blessings are made before the turtles are killed and consumed.*



Photo Courtesy: Valérie Lilette

**Table 1**  
*Comparison of estimated annual rate of turtles per fisherman*

	<i>Rakotonirina</i>	<i>Pascal</i>	<i>Lilette*</i>
Data	1989	2003	2003
Location	Toliara	South region	Anakao
Fishermen	9	53	2
Estimated annual rate	202	200	165

**Note:** \*My data were collected from the two principal hunters of turtles specialised in this practice at Anakao.

The sale of a marine turtle in today's market is significant for the fisher. It brings in between 100,000 and 140,000 Ariary in Toliara for a large-sized one (1 meter 30 cm long). This sum would buy a medium-sized dugout. A turtle sold in Anakao to well-established resellers would bring between 50,000 and 70,000 Ariary. If they are caught with nets it is possible to capture three or four at a time (see Table 1).

It is not possible to look further into the analysis of the rates of captures within the framework of this article but note that data were regular between 1989 and 2003. The number of fishermen declined but, with the use of new technologies, they captured more animals.

While in earlier times its sale was forbidden and its consumption represented a gift to the community, *kinanga fano* (turtle sales) have become a real business. Portions are sold in shops in Toliara but some turtles are transported in bush taxis from the South and must suffer two days of unbearable transport. Shipping routes used by collectors of octopus and squid also sustain the turtle trade. Either by motor or sail boat or by truck, turtles are captured most often in the Androka region where they are seen frequently. Their numbers have diminished in the Toliara lagoon, and when they still come to feed on the reef fringes of Anakao, no egg laying has been observed since 1986 in Nosy Ve.

## **Marine Turtles**

### *A Conservation Failure since 1923?*

The first decree issued for the protection of the turtle on May 23, 1923 was at the request of G. Petit and H. Perrier de la Bâthie (Louvel et al. 1927). It set aside six island reserves: Nosy Anombo ('wooded island' in the province of Diego Suarez), Nosy Iranja (province of Nosy Bé), Chesterfield (province of Morondava), Nosy Tronoza, Nosy Ve, and Europa (province of Toliara). From the beginning of the century, Petit was worried about the high capture rate of this species. The most profitable species was the *fano hara* (hawksbill turtle, *Eretmochelys imbricata*) for its beautifully mottled shell:



*‘Due to over-fishing and to the systematic destruction of their eggs, marine turtles are becoming increasingly scarce along the Malagasy coast. They have abandoned the island shores in favour of the outskirts of smaller neighbouring islands, hunted once more they emigrated towards larger islands slowly leaving Malagasy waters altogether. The size of the turtles caught in Madagascar has also clearly decreased...’* (Petit 1925: 103).

The only island which represents true protection for turtle egg laying remains Europa. Since its requisition by the French army during World War II, it has become a tightly-supervised military and meteorological station. Along with Nosy Ve these are the two oldest experimental sites of natural reserves in the Toliara region.

The ratification by Madagascar of an international convention in 1975 paved the way for a new regulation in 1988 which prohibited the exploitation and sale of the marine turtle throughout Madagascar.<sup>9</sup> International trade of turtle meat is non-existent even though in the 18<sup>th</sup> century regional trade had developed with Réunion Island. For almost 2000 years, Arabs and then later Chinese merchants have traded internationally turtle shells from the Indian Ocean. Europeans entered into the trade only in the 19<sup>th</sup> century.

**Figure 3**

*Traditional ranjo on the beach of Nosy Hao, Andavadoka, north of Toliara.*



Photo Courtesy: Valérie Lilette

In 2003, turtle shells from the hawksbill turtle were stored and collecting dust in the huts of fishermen waiting to find a buyer. Several years earlier the shells were bought by the kilo by Arab, Indo-Pakistani, and European merchants. Fishermen know that they cannot sell them in Toliara without a fine or even imprisonment. They are keeping them in the hopes that one-day the law will change or that a passing tourist will be interested. If the regulation of this species is enforced by the Malagasy government, it is because of its prohibition at the international level.<sup>10</sup> Trade of the green turtle, however, is an outcome of a lax enforcement of game and other regulations due to indifference, corruption, and the desire of the law enforcement agents to eat the prohibited game, and, to some degree, to the understanding on the part of local authorities that this species has always been part of Vezo foodways. They know that its sale can bring large sums of money.<sup>11</sup> And while laws prohibit the exploitation of a certain species, there are also clauses which allow for its exploitation by local residents for traditional use.

The prohibition on the capture of turtles on Nosy Ve has never been enforced. The island guard who is paid by FiMiMaNo to keep watch over the island during the day seems more concerned with checking that the tourist excursion tax has been paid. Vezo have always used the southern islands to capture marine turtles and to take them back to their villages. And if those who live farther north come to camp on Nosy Ve they return home with turtles.

Nosy Ve does benefit from regulations dictated by the spirit of *vorombe*. FiMiMaNo has made a record of the principal prohibitions tied to the taboos formerly established by the ancestors. I will come back to this in detail in the following pages. However, it must be pointed out that one of the taboos is that no one is allowed to live on the island or to camp overnight, except in the case of a storm. The coral island serves as a refuge protected by its ring lagoon. This interdiction does protect the nocturnal visits of the turtle and the laying of its eggs. It is not possible to confirm whether this *faly* was created for this reason but it does underscore the possibility of ecological benefits from taboos in terms of creating an environment conducive to reproduction. Nonetheless one fact still remains: Vezo love turtle eggs. And in the morning it is not difficult for them to find the turtle nests by following the tracks left in the sand.

But the most harmful factor to their continued existence on Nosy Ve is, without a doubt, the use of Petromax lamps and flash lights for squid fishing. Scared off by the lights the turtles flee and search out other beaches on which to lay their eggs. There are no regulations which address the harmful effects of night fishing.

### ***The Association FiMiMaNo***

Interest in establishing Nosy Ve as a nature reserve is not new. Located near the Toliara lagoon, its protective fringing reef conceals a large variety of coral

and fish. Biologists want to conserve this area from over-fishing through the use of the latex of *Euphorbia laro* as a poison.<sup>12</sup> The coral reef is being damaged by a variety of sources, such as the use of nylon nets and dropping rock anchors for mooring and trampling during the collection of holothurians (sea cucumbers) and octopuses. In addition to anthropogenic degradation, strong ocean currents carry northward to the lagoon some alluvial sediments out of the mouth of the Onilahy River. The ecosystem is also affected by rising sea temperatures in concert with the phenomenon of coral bleaching. Studies in marine biology have been carried out on Nosy Ve within the context of the great Toliara barrier reef since 1967. Since 1993 the University of Swansea in England (Rabesandratana and Ralijaona 1999) and COUT (Cellule des Océanographes de l'Université de Toliara) have conducted further studies on Nosy Ve with a view to designating it as protected land and for creating a marine park. The Institute of Marine Sciences in Toliara has supported additional studies. Others have concentrated on fishery practices in the lagoon (Paine 1993). One area of conflict has arisen between fishermen and hoteliers.

Before the last El Niño, hotel operators promoted Nosy Ve and Ifaty as renowned sites for underwater diving. At the time the only hotel in Anakao was Safari Vezo but those in Ifaty<sup>13</sup> could organise day-long excursions for scuba diving and for visiting the island with the tropicbird. The place with the best diving (shallow water with the fewest currents) and the most beautiful in terms of coral and ichthyologic fauna was also ideal for fishing. This created tension between fishers and hotel operators as the first one to arrive had the right to use it. Negotiations took place between the two groups with the hotel keepers asking for the creation of a marine reserve to protect coral that had been deteriorating. The 2500 square meters ocean reserve, Northern Aquarium, was the result of an agreement reached between the hotel owners and Anakao's *fokonolona* (council of elders) under the leadership of the president of the *fokontany* (village). The villagers for their part asked that a tax be paid by each visitor to the island amounting to 200 Ariary per tourist and 1000 Ariary per diver (at the time, approximately equal to a quarter of a dollar US per tourist and a dollar US per diver).

The establishment of these taxes as a sort of 'right of way' or 'social donation' began with the first hotel built in Anakao. As local stakeholders perceive these taxes, they serve to remind outsiders who come to visit this reserve and who want to enjoy its sights and natural wonders that local people are the *tompontany* (rightful guardians). Such a 'reminder' may not, in fact, be recognised by foreign visitors. They may not even know that Vezo Sara are '*tompontany*' and what that means. Moreover, the taxes may also be seen locally as simply a source of money for the local power interests, which are independent of any simultaneous statement of tenure.<sup>14</sup> Often, the hotel keepers consider that the sum of money that they give does no good and merely goes into the pockets of the members of the *fokonolona*. Here the 'social gift', the tax demanded of visitors and collected by the hotel owners is shared between

three *hazomanga* of three clans (*Tetsivoky*, *Tenkaroka* and Sara) who take a portion which is equal to their standing in the hierarchy of the group. Afterwards, the rest of the money is distributed in small sums of 100–200 Ariary per person or per family, in order to reinforce social cohesion. Today it is the FiMiMaNo association that has taken over community management of the resources vis-à-vis the hotel owners and the villagers.

One major difficulty in managing the island of Nosy Ve and the marine reserve comes from the fact that neighbouring villages also make use of them. In order to make all of the neighbouring fishers aware of the changes in the area, it was necessary to group together six villages which all use Nosy Ve within the management association FiMiMaNo. In reconfiguring its coastal management system, the Malagasy state combined all six communities which would ultimately be involved in this new venture for protection of the island and its reef system.

***Regional and International Collaboration: CEDTM<sup>15</sup> and FRONTIER<sup>16</sup>***

Because marine turtles are a migratory species, cooperation is essential in the Indian Ocean region in order to exchange information on their behaviours and changes in their exploitation. It is within this context that the CEDTM of Réunion Island participated in educational training in 2001 in Anakao. CEDTM also works with the Biodiversity Conservation Project in the Comoros Islands (Projet pour la conservation de la Biodiversité aux Comores). Its objective is to offer support to conservation projects already in place. In order to do this it works in collaboration with Institut Halieutique des Sciences Marines (IHSM) which presently houses the centre for data collection on marine turtles in Madagascar. One expert on this topic is Bertin Rakotonirina who also stayed at CEDTM in Réunion for three months to exchange information on the turtles in the region (Rakotonirina 1989). He has assisted in the creation of local regulations banning the capture of turtles during their period of reproduction, managed by FiMiMaNo, and he also attempted to put in place sponsorship of turtle eggs on Nosy Ve but unfortunately without economic success.

Members of CEDTM and IFREMER showed a film about marine turtle management in the Comoros to Anakao villagers. In a different socio-economic and religious context, the villagers of Itsamia (island of Moheli in the Comoros) were able to take advantage of the total prohibition against turtle capture by creating eco-tourism with the aid of IUCN (International Union for Conservation of Nature) and UNPD (United Nations Program for Development). Reaction to the film was positive in the sense that gaining information on marine life is important to the Vezo. They were able to understand that the reproductive cycle for the turtle takes care and time. They preferred, however, the idea of prohibiting the capture of the turtles during their reproductive cycle as is already the case for the lobster.

In 2003, CEDTM and FRONTIER, acting as intermediaries, assisted in returning a turtle to the ocean which had been captured by a local fisher. The fisher came to the author seeking information about the band the turtle was wearing. Inscribed was the statement of a reward to whomever captured the turtle. The band was from Réunion. Heightening awareness of the decreasing numbers of marine turtles is not unique to CEDTM. The British group FRONTIER located three kilometres from Anakao has tried to make local populations aware of this problem and to record numbers of captures.

Over a period of two years (2001–2003) FRONTIER undertook a study to gauge capture rates and the economic value of the turtle to the fishermen. The analysis revealed that out of seven villages studied, Anakao was the largest in terms of capture, primarily due to the presence of four resellers. In August 2001, a play put on by the village school told the story of two turtles, one which was captured and sold and the other which was free and observed by tourists, thus emphasising the possible benefits of future tourist revenues. The play also discussed the difficulties that the marine turtle faces in reproducing and tried to promote a responsible approach to its exploitation rather than convincing the community to stop hunting altogether. In March 2002, a Chinese shadow play which brought together school children and turtle resellers promoted ‘using resources responsibly’. The first show’s audience had 100 children and 30 adults, the second 160 attendees. In June 2002, a visual, musical, and oral presentation was given on the life cycles and migration of large marine fauna, including the turtle, with 150 in attendance. An instructional manual on the biology and ecology of turtles was also passed out with an oral explanation and translation in Malagasy for the resellers and their families.<sup>17</sup>

All these initiatives are well received by a population many of whom participate in watching a film or attending a presentation on the marine wildlife of their region. Further research is needed to understand how these populations actually interpret these presentations.

All the studies conducted so far by FRONTIER and other organisations have come to the same conclusion: Fishers cannot go without the income generated from the sale of turtles and there is not yet a good system in place which controls their sale. In addition, nesting sites no longer exist close to the village, and the hotel owners have not organised eco-tourism in the same fashion as in the north on Nosy Iranja.

### ***Local Adaptation of International Law***

With regard to fishing in the Nosy Ve lagoon and surrounding areas, a regulation has been formulated which takes into account the cultural and socio-economic necessity of turtle hunting and trade for the Vezo. At the time that FiMiMaNo was first getting off the ground, Bertin Rakotonirina, professor at IHSM in oceanography and a specialist in marine turtles, proposed no hunting between November and April which is the nesting period (Rakotonirina, per-

sonal communication). The remaining period would be open to hunting as long as the size was no smaller than 50 cm. This collective agreement was created in cooperation with the Anakao fishers. But during my investigations, I observed turtle capture regularly for personal consumption or to be sold in Toliara which has no policy in this regard. It is difficult to accept the idea that fishers from villages farther away can capture turtles without fear of punishment. The regulation, however, includes six bordering villages which are also members of FiMiMaNo. But on the rare occasion when someone is stopped, it creates tension and arguments regarding the inequity of only one lineage dominating the association. I will return to this topic which is one of the determining elements in environmental heritage management in Anakao, specifically concerning Nosy Ve.

### **Red-Tailed Tropicbirds**

#### ***Nosy Ve and the Red-Tailed Tropicbird: Tourism and Ecology in Harmony***

Although the protection of turtles has not found major support from villagers, in spite of a somewhat loose local adaptation of national and international regulations since the beginning of the 20<sup>th</sup> century, the tropicbird has benefited from a growing interest in the last 10 years (Rix et al. 2003).

Nosy Ve was mapped for the first time by Cornelis de Houtman in 1595 (Houtman 1903; Marikandia 1988). Located four kilometres west of Anakao, Nosy Ve Island is a coral sand reef 1.3 kilometres long and 300 meters wide, protected by a fringing reef and elongated by a cay to the north, it is regularly covered with spring tides. The island was chosen for the establishment of the vice residency of France in effect from 1888 to 1897 before being moved permanently to Toliara.

As a stopping point on the India trade route, the island offered an ideal trading post at a time when the rest of coastal Madagascar was already colonised. However, it was difficult to establish profitable trade in the Mahafaly region due to taxes imposed by coastal kingdoms. Nosy Ve was an exception, however. Even so, General Gallieni inspected Nosy Ve and Toliara in 1897 and opined that local restrictions to trade could not continue. He garnered military support to defeat the King of Manombo. At the king's defeat the decision was made to move the vice residency of France to Toliara. The island was abandoned.

After the colonists departed, Vezo did not continue to inhabit the island. It is highly probable, nevertheless, that they returned to the traditional rhythms of fishing with over-night encampments as observed in the 16<sup>th</sup> century by Cornelis de Houtman. Subsequently, a change took place with regard to the spiritual nature of the island and the rites of *vorombe* (great bird). It became taboo to inhabit the island, along with a host of other prohibitions imposed by the ancestors.

**Vorombe Spirit Possession on Nosy Ve**

It is not possible to know the exact date of the first ritual *vorombe* sacrifices on Nosy Ve. Colonial records do not make mention of such a ritual on the island. The ritual of *vorombe* summoned once a year during a *sorontao* (annual sacrifice) is unique to the Vezo Sara. There are two *vorombe* ceremonies: One in April which invokes the social and familial realm and a second in August which appeals to fishing and the natural world. This latter ceremony is named *Tsanala* for the spirit of the *vorombe* family which lives on Nosy Ve and interests us most. The *vorombe* symbolises the *razambe* (great ancestors), common to all Sara, who has a close connection to the supernatural world or what Faublée called ‘the spirits of life’ (Faublée 1953). Each spirit has its unique characteristics and to offer a sacrifice each year during the *Tsanala* ceremony means to ask for an abundant production and source of marine life. The women sing and pray for the spirit’s help to assure the group’s subsistence: ‘[G]ive us what we need for survival, rain and food. If you are satisfied with the ceremony you will respond through people who possess his spirit. Don’t worry you will find what you need to eat.’<sup>18</sup> The *vorombe* assures male fertility and fertility of the sea and thus brings about successful fishing expeditions as long as certain prohibitions are respected. The celebration of *vorombe* on Nosy Ve in August corresponds to the appearance of birds who announce the arrival of large schools of fish. Vezo engage in migratory fishing during the dry season from July to November. The ceremony occurs at the beginning of the dry season to assure a successful ‘hunt’.

The *vorombe* ritual relates to Vezo Sara environmental concerns, especially territorial appropriations that are associated with *vorombe* and the Sara clan which observes the ritual. The *mpitankazomanga* Sara who, when asked why it was forbidden to live on the island, said that the island was shrinking, and it was after this had been recognised that the *vorombe* had forbidden any encampments and had established *faly*. There must be a feeling of belonging to the land. This relates directly the hypothesis outlined against the backdrop of spirit possession as described by Althabe (1969).

Spirit possession rituals developed in response to foreign occupation during colonial times. Vezo and other territorial groups of Madagascar map the natural world via spirits. Invested with spirits of the supernatural world, this ‘mapping’ serves to instil in the collective memory the dangers of a place, food and medicinal plants, as well as history, sacredness, and tenure (see also Feeley-Harnik 1991). Certain taboos must be respected to protect these spaces. As spiritual guardians, ritual specialists among the *tompontany* have the power to intercede between spirits and humans. It is quite possible, by local understanding, that the cult of *vorombe* of Nosy Ve began when the *razambe* (founding ancestral spirits) washed away a portion of the island because they were angered by the presence of strangers on their territory. This outcrop of land in the middle of water is also important to Vezo fishing out of

Anakao as it serves as a refuge during storms at sea just as it served as a refuge when coastal groups were attacked by kingdoms from the interior.

### ***The Vorom-paly or Tropicbird***

The colony of red-tailed tropicbirds (*Phaethon rubricauda*) (Figure 4) that came to nest on Nosy Ve for the first time over twenty five years ago (F. Sueur 1994 in Rabesandratana 1999) gained regional recognition and international attention from scientists and tourists alike. Since it is the only colony to nest on the ground, when others typically nest atop steep cliffs, it became accessible and observable. It is the only group of its kind in Madagascar, and it is the most southern colony of its species in the world. Regulations were quickly put in place for its observation and protection.

A new bird species taking up residence on Nosy Ve did not go unnoticed by the Vezo of Anakao who baptised it *vorom-paly* (forbidden bird, tabooed bird, or sacred bird). Community support and the efficient manner in which association members worked to protect the bird, unlike the marine turtle, can be explained. We have seen that the island is inhabited by the *vorombe* Tsanala and that the period of the *sorontao* corresponds to bird migration which heralds the arrival of schools of fish. In the women's songs to *vorombe*, birds that 'bring news' should not be caught as they are only 'passing through'. For the

Figure 4

*Red-tailed tropicbird (Phaethon rubricauda), Nosy Ve.*



Photo Courtesy: Rémy Ravon



*vorom-paly* it is easy to create a spiritual association since the tropicbird 'chose' to inhabit what was already a sacred space. This motivates local interest in the bird as it is considered a blessing sent by the ancestors. Interest in the bird from powerful outsiders (conservationists) has reinforced local interest, which in turn has helped the village economically. As a result, it was decided that this newly inhabited space should be protected by a *faly*.<sup>19</sup>

The importance of this bird, from an economic point of view, is significant for the residents of Anakao who collect a tax on each island visit made to Nosy Ve. The bird's celebrity benefits the village directly. Even before the creation of FiMiMaNo a tax had been imposed with the construction of the first hotel Safari Vezo in 1988. Radio advertisements in Toliara and excursions organised by hotels and tourist businesses in Toliara and Ifaty have brought in more and more tourists. Attempts at poaching followed, however, since rare species always give rise to avid collectors ready to pay any price for such a treasure. But the villagers, recognising the risk to their economic security, organised against the poachers. Today, protection of tourist and scientific interests are managed by FiMiMaNo.

### *Vezo Nature Heritage*

For the Malagasy conscience, belonging to the human rather than to the animal world means respecting taboos (Astuti 2000; Marikandia 2001). A primary type of taboo concerns certain species which have saved lives in the past. It is believed that dolphins, rays, and turtles brought fishermen back to shore when their boats had capsized. To give thanks, these men established taboos which were passed down through the generations prohibiting the destruction of these species. Other types of taboos were created for certain species such as whales and for certain fishing areas. This is the case for the fishing zone near Itampolo which is said to provide a good catch for any fisher who enters it. In those waters it is forbidden to say its name, and, on the return home it is forbidden to claim that you have caught a lot of fish there for fear the bounty will disappear. Similar stories exist regarding whales (Astuti 2000). Out of respect of whale's enormous size and their harmless nature towards fishers, they should never be pointed at or named for fear of making them angry. These creatures and places are venerated because of their imposing size, their beneficial behaviour towards humans and their nutritious bounty. It is possible to associate these taboos with a sort of environmental regard on the part of the fishermen, whether it be for whales, for turtles, or for fishing areas.

Today we see some transformations in the relationship of Vezo and these taboos towards creatures and symbolic spaces. Being able to make money as part of the new capitalist enterprise has changed these former relationships and has necessitated renegotiations with the ancestors. The diversity of products which are now available in the Anakao market has created new perceived

needs. The systematic sale of the largest catches and of turtles raises money from collectors or resellers in Anakao or Toliara for the local or international market. The profit motive has depleted turtle numbers and decreased the quality of diet among the fish-eating Vezo. This is verified by doing a quick analysis of consumed species. There is a preference for certain species over others but those that used to be considered less desirable or inedible are now being consumed. Vezo consumer choices have changed as they chose to eat other fishing products that have less nutritional value. The decrease in fishing resources is another factor which is influencing this change in attitude. This is why dolphins that used to be taboo are now sought. Dolphins represent a sizeable culinary resource or ensure a considerable sum of money, at least on the local level, since their sale is prohibited in Toliara.

When the *mpitankazomanga* Sara was asked why the taboos towards dolphins were no longer respected, he answered that the young people no longer wanted to be restricted by taboos from ancestors, whose power only resides in memories of past generations. The new generation would only accept taboos from ancestors who had accumulated spiritual and political power, meaning those from the *mpitankazomanga*, the *ombiasa* (sorcerer), or the *mpsikily* (diviner), and other possessors of such power. Taboos are not normally established by the lowest status group, or the uninfluential community members, or the outcasts from society. The local administrative authority, with its limited power and overstretched obligations, plays a role in this change among the youth. However, my key informant, the *mpitankazomanga* Sara and historical authority—a remarkable man and gifted narrator who also has a memory unmatched anywhere in Anakao—often remarked on the fear that young people have of going to prison. Yet, renegotiations with the ancestors occur when a taboo restricts the families financially in the new economic reality, one that the ancestors could not have conceived in their time period. This is how it is possible to sell turtles, a practice that had been in the recent past taboo. Even for fishers for whom selling turtles was not taboo, in earlier times the money from such sales was considered *vola mafana* (hot unhealthy money).

Another factor which assists in changing taboos is when it is in contradiction with new priorities such as using foreign materials for hunting. Using imported nets and underwater guns made abroad is acceptable since they are not made from the ancestors' materials.<sup>20</sup> At the same time this change to the current *faly* demonstrates how traditional authority and belief systems can adapt to changing realities and modes of resource use and thereby maintain themselves. For example, a locally famous turtle hunter who specialises in underwater hunting with guns, had been requested in a dream by an ancestor of his clan to plant a tree in his courtyard and to eat a leaf before each trip to the sea in order to always assure a good hunt. A descendant of a line of turtle hunters who now uses foreign materials to fish, this hunter was able to reinvest himself with the power of the blessing from his ancestors.

Respect for FiMiMaNo agreements goes only so far. Certain *faly* can be lifted by ritual specialists overseeing blood sacrifices to ancestor spirits, as in the case of tropical storms. This is also the case, however, for FRONTIER when it camps out for three nights every three months on Nosy Ve to observe the red-tailed tropicbird in its habitat. This practice does not seem to pose a problem for the association members nor for the traditional leaders who have given their consent to the campers. But one hotel owner complained that this went against local tradition that did not allow hotel owners to take their residents to camp out on the island. A meeting was organised to discuss this complaint with all of the FiMiMaNo association members and SAGE. After a revote, FRONTIER was once again allowed to continue its overnight observations. It is worth noting that FRONTIER pays a large sum to the association that never appears in their accounting records because it is paid to the *mpitankazomanga* Sara. However, this is not the only reason that the association members gave their consent. They also want to learn more about this species and to ensure that it stays on Nosy Ve. For the moment the bird population and nests are increasing.

Vezo are capable of establishing new interdictions towards certain species if they judge them to be important for the community. This would be the case for the red-tailed tropicbird for whom traditional and administrative powers have found a common interest. Just as the Sara established the ritual of the *vorombe* which gave them governing authority over Nosy Ve once the colonisers had left, establishing *faly* with regard to this new species assures them financial gain within a new environmental and tourist context. In this case environmental conservation and political power have merged.

### ***The Management of FiMiMaNo by the Lazahira Line***

‘Tsifutihariva’, literally the evening is not bright, is the name of the Sara ancestor from Anakao of the Lazahira line painted on the wall of the Maison Nosy Ve. This notice reminds everyone about the *faly* which forbids camping overnight in the island, except in case of a problem at sea and also a reminder that the authority and power linked to Nosy Ve belongs to the Sara, and in particular to the lineage of the *mpitankazomanga* Sara.

A demonstration of the political power of this clan was revealed during the re-election of the FiMiMaNo president in September 2003. The elections were to take place every two years, and several representatives of the six villages hoped to be able to change presidents in their favour and to effect a more democratic system of management by alternating presidents from the groups. At the start there were protests about the possibility of the re-election of the current president and the office members who had originally been designated and not elected. The legitimacy of the president was called into question which necessitated a mediator from the Tenkaroka clan known for his verbal authority. The mediator reminded everyone that the protection of the island was only

possible if Sara were in charge and could, if they so desired, compromise its protection. Confronted with such an assertion which aimed to clearly re-establish the former power structure, the president was re-elected with 80% of the vote, an act which frankly perplexed members of SAGE who were present. At the end of the meeting certain office members avowed to the researchers their displeasure at such anti-democratic practices. What surprised me most was the fact that they were less concerned with the election of the president than with a member of the Tenkaroka clan reaffirming Sara power. One possible explanation for this relates to the status of the clan member who as a collector of ocean wildlife defended his own network of alliances and his clientele. The role of collectors in the village is an important one as, in addition to economic power, they provide the link between fishers and outside commercial interests.<sup>21</sup>

During my research in other villages in the association that had also been declared to have tenure (property and users' rights) on Nosy Ve, one of the active members complained that a fisher from his village had received a fine from the Anakao association while the president's family and friends benefited from total impunity. This phenomenon of power grabbing by one clan line within associations is a common practice and problem facing attempts to merge Malagasy socio-political reality with conservation ideals.

#### ***Emergence of the Phenomenon of Heritage Preservation***

Due to the success of tourist visits to Nosy Ve, the economic spin-offs and the recognition for Sara, their long-time Tetsivoky allies,<sup>22</sup> and the Tenkaroka are planning to create their own association for the management of the small island of Nosy Satrana, located south of the village. The Tenkaroka bury their dead on this island. As such it is under the control of the *mpitankazomanga* Tenkaroka. FRONTIER has documented the island's fauna and vegetation as well as surrounding marine life and hopes to publicise its ecological and cultural finds for visitors in the form of guide posts or signs and a published guidebook. During a discussion with members of SAGE who had come to organise the election of the new offices of the FiMiMaNo, the head of FRONTIER submitted the idea of opening up Nosy Satrana to tourism and even suggested financial backing via state organisations such as SAGE, the World Conservation Society, and the World Wide Fund for Nature (WWF). The idea elicited some interest but also caution as to the need for creating a new association. When the idea was suggested directly to the association members it received very little response. Nosy Satrana is the business of the Tenkaroka. It seems that certain members, however, do not look favourably on the emergence of a new power structure that could undermine their own. This new commercial venture could produce conflicts in the future. It also intersects the idea of heritage preservation in Madagascar with the concept of *tompontany* and its ramification on who is determined the rightful guardian of the land.

## CONCLUSION

### *Limits and Stakeholders of Nature Heritage Preservation*

The two examples of the marine turtle and red-tailed tropicbird in Anakao are representative of the interplay between the different stakeholders of environmental conservation and local power. If the case of the tropicbird promotes the interests of the scientific community, tourist trade, and local power, that of the turtle and the Northern Aquarium are all the more problematic. There are no financial incentives to limit exploitation of the marine turtle. That could change from president Marc Ravalomanana's declaration at the 5th Park Congress in Durban, South Africa in September 2003 that Anakao's turtles would be included in Madagascar's enlarged protected areas network.

At the same time I have witnessed adaptive mechanisms which justify its exploitation in terms of a reinvestment of symbolic power and blessing by the ancestors. Although sale of turtle meat had formerly been banned by the ancestors, it could happen again if the financial means and political will justified such interdiction. Growth in its trade grew primarily because of new technologies for hunting and trapping and the increase in market value of all sorts of fishing products. Anakao village is well known in southwestern Madagascar for its exploitation of turtles but it is also the most populous and the most dependent on that trade. In other villages in the south the ritual of the *ranjo* is still practised, notably in the region north of Toliara, which is also the least exploited by the trading networks. In Anakao, we are witnessing the birth of a new 'town' with the construction of more permanent housing in concert with modern signs of wealth and comfort such as a television, a generator, electricity, and new clothes.

Heritage protection evolves with the needs and interests developed at a given period (Grenier 2000; Blanc-Pamard 2002). Several fishers told me that if they could earn more money by protecting the marine turtle then they would certainly do it. Traditions associated with the animal are conserved as they provide economic stability and buying power. Increases in the price of the sale of turtles have encouraged its trade. *Faly* concerning its sale have fallen by the wayside with the growing interest in acquiring purchasing power for symbols of wealth for celebrations, for weddings and funerals, for building houses, and for buying better fishing nets.

Conservation projects are dependent on local authorities who are *tompon-tany*. The direct and indirect effects of fishing using a Petromax lamp at night near Nosy Ve, for example, should be studied and better controlled. Moreover, studies on the rates of capture, nesting sites, and turtle behaviours are to date insufficient to indicate changes in the local population's behaviours or sources of livelihood. Very little training exists on marine ecology for the FiMiMaNo members and for the island guard. This should be undertaken by SAGE with a view to furnishing the association members with information re-

lating the consequences of human actions on nature as well as the fishing lifeway. At present it seems the only prohibitions that are successful have been the *faly* for Nosy Ve as they are respected and have evolved in a local political context that is meaningful for the villagers.

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### Notes

1. Service pour l'Aménagement et la Gestion de l'Environnement.
2. Park guards, who are paid very little for their work, sometimes having to wait months for their pay, are notoriously ineffective in Madagascar. It remains to be seen if the guard working for FiMiMaNo proves to be effective.
3. The term *hazomanga* designates both the sacred pole planted in the ground and the statue of the spiritual lineage leader; the founding lines have their own sacred pole (see Marikandia 2001).
4. Each of these names corresponds to a type of activity in relation to the environment, fishing for Vezo, husbandry for Masikoro, and hunter-gathering for Mikea. It should be pointed out that most Mikea and Masikoro feel very strongly that they are not Sakalava. The Masikoro and Sakalava kingdoms were at war at the time of colonization. The French inaccurately labeled the Masikoro as a subgroup of Sakalava and the Malagasy government perpetuates this error (cf. Angot 1961; Faublée and Faublée 1950; Petit 1923). I thank an anonymous reviewer for this clarification.
5. This important distinction was pointed out by an anonymous reviewer.
6. In Anakao there is also a variation of this myth.
7. B. Koechlin states that the coastal populations are organized in close relation to the environment. The west and southwest coasts are favourable to semi-nomadism. Setting up a village on the beaches and surrounding areas is not a problem. These journeys are organized during certain periods of the year in order to follow migratory patterns and to meet their needs. The Moken of Malaysia are true nomads who live on their boats since they live on islands where mangroves cover too large of the coastal area to permit the setting up of villages. Vezo are more inclined towards developing encampments as long as the environment permits it (Koechlin 1973).
8. As part of the India trade route Madagascar had always been a stopping point for commerce. As such Vezo have always hunted marine animals sold to Europeans, Arabs, and Asians such as turtle shells, shell fish, and shark fins (Petit 1930).
9. Order number 75-014, 1975 relative to the convention on international trade of endangered flora and fauna (CITES). Presidential decree number 88-243, 1988, fully protecting marine turtles and other animal species cited in article 1.
10. In some artisan shops in Antananarivo and tourist shops it is possible to buy turtle shell jewelry but its trade has largely been replaced by carved zebu horns.
11. The revenue from the sale of a turtle can be even greater than that of a dugout. Moreover it is difficult to police this trade when even the authorities themselves stop on the side of the road to Mahavatse to buy boiled turtle. An interview with a policeman from Toliara revealed that 'here everyone eats *fano* even the Minister', April 2003.
12. *Euphorbia laro* is a very well-known natural fish poison in Madagascar, which in a number of areas is regulated traditionally by local communities. Such traditional regulations are in many cases being undermined by contemporary pressures.

13. Ifaty grew as a tourist site on the south west coast because of a road which made it easy to reach from Toliara. Anakao has always been more isolated as it can only be reached by boat or from the village of Saint Augustin in the estuary of the Onilahy. Since 1995 Anakao has seen an upswing in tourism and whereas it only had one hotel in 1988, it now has over ten, seven of which are owned by *vazaha* or foreigners and three by Malagasy.
14. I thank an anonymous reviewer for bringing this point to my attention.
15. Center for the Study and the Discovery of Marine Turtles, based in Saint Leu on Réunion Island (Centre d'Etude et de Découverte des Tortues Marines).
16. The Society for Environmental Exploration is based in London and works in collaboration with IHSM in Toliara. This organization assists in under water biological and ecological collections (Northern Aquarium, Nosy Ve lagoon, Nosy Satrana lagoon) and on land (fauna and flora of Nosy Ve and Nosy Satrana and east of Anakao, mainly for counting radiated land turtles).
17. A study based on two of these resellers from Anakao helps to clarify reasons for their chosen profession. One is the widow of a turtle hunter and the other is married to a fisher who abandoned her because she did not bear any children. Both are elderly, and the sale of turtles guarantees them an income.
18. Interview in Anakao, April 2003.
19. That this is a new bird species to Madagascar is seen in its name, which occurs in the local Vezo dialect of the Malagasy language. During a meeting on Nosy Ve, a question was raised as to the origin of the name *vorom-paly*. One respondent of Tanalana origin gave the clearest reason: 'We don't know this bird. That is why it doesn't have a name.' The association of the term *faly* and tacit connection to vorombe seem plausible, given the phonetic similarities between [p] and [f] both bilabial fricatives and the grammatical rules governing a consonant following a consonant (which occurs when '*vorona*' and '*faly*' are joined with *-na* changing to *-m* and *-faly* changing to *-paly*). A discussion with Emile, a village merchant who speaks French, gave me another possible explanation. In French the bird (oiseau) is called a 'paille-en-queue' but Vezo only use the term 'paille' [pa-ĩ]. As in the phrase, 'You see that "oiseau paille"', (vorom paille) I don't know its exact name.' This is phonetically close to *vorom-paly* in Malagasy. This explanation seems possible as most species which are forbidden are not designated as such (Sophie Goedefroit, personal communication).
20. However, before its first use, the nets and underwater guns, dugouts made of plastic or the use of motors are always blessed by the *mpitankazomanga* or by the *ombiasa*.
21. The development role of collectors should be the object of more studies such as the one undertaken by Faroux concerning cattle owners in the Menabe whose role was key in development projects (Faroux 2001).
22. Tetsivoky benefit directly from tourism that hotel owners have developed north of the village. Passing tourists have easiest access to Tetsivoky dugouts for travel around and to the islands and to the sellers of Malagasy cloth and local sculptures.

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