

Community-based Monitoring of Saltwater Crocodile (*Crocodylus porosus*) in Timor – Leste

Progress Report

Sebastian Brackhane¹, Flaminio Xavier², Octavio Araujo¹, Mirko Mälicke¹ & Marcal Gusmao³

¹Albert Ludwigs-Universität Freiburg, Tennebacherstr. 4, 79104 Freiburg, Germany; ²Ministry of Commerce, Industry and Environment (MCIA), Edificio do Fomento, Rua Dom Boa Ventura No 16, Mandarin, Dili, Timor-Leste, ³Center for Climate Change and Biodiversity, Universidade Nacional Timor Lorosa'e, Avenida Cidade de Lisboa, Dili, Timor-Leste

Introduction

This is a preliminary report to show activities and selected results of the first phase of the project “Community-based Monitoring of Saltwater Crocodile (*Crocodylus porosus*) in Timor – Leste” funded by a Rufford Foundation Small Grant and the IUCN CSG Student Research Assistance Scheme (SRAS).

Community-based Monitoring and Habitat Mapping



Timor-Leste lacks the financial and technical capacities to conduct professional and comprehensive crocodile monitoring, especially since much of the habitat is situated in remote areas in rough terrain.

Figure 1: Meetings to inform local and regional governmental agencies about crocodile management activities are a crucial task in Timor - Leste.

Here, community-based monitoring (CBM) may be a cost-effective alternative to compile data on Saltwater Crocodile distribution and hotspots of human-crocodile conflict (HCC). In the project phase in February 2017, the scholar, together with the Crocodile Task Force (CTF), tested a CBM approach in the rural communities of Baucau (Watuboro), Com and Los Palos (Lake Iralalaro).



Figure 2: Local authorities such as the Xefe Suku (Village headman, black shirt, standing) and Lia Na'in (Traditional elder, green shirt) are key persons within a CBM regime as they often hold the local ecological knowledge in the rural community.

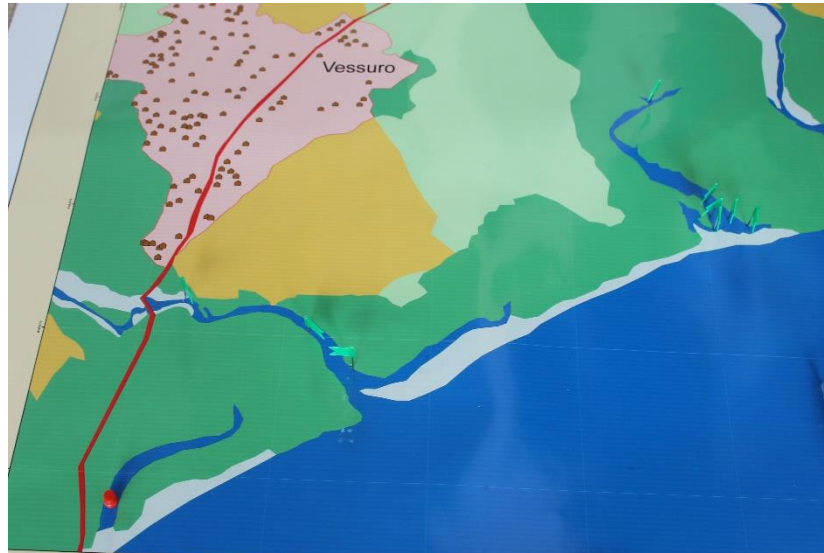


Figure 3: CBM in Vessuro, Viqueque district. Each pin shows the location of a crocodile attack. In a second step, a detailed description of every incident is compiled including the date, age and sex of the victim, as well as the activity performed when the attack occurred. Every green pin shows the location of a crocodile attack. The red pin indicates a spot where feral livestock is frequently taken by crocodiles (Photos by Sebastian Brackhane).

Survey on cultural attitudes towards crocodiles in Timor-Leste

Saltwater Crocodiles are of cultural significance for many Timorese, but cultural attitudes differ among communities. Knowing the attitudes of local community members sharing the same habitat with crocodiles is crucial to develop tailored management activities. A survey was conducted online using the web tool SurveyMonkey.

In addition, 60 questionnaires were distributed to local authorities in the districts of Baucau and Lautém. Here, results are expected for the second project phase. The results illustrated in the following graphs are exclusively based on the online survey. They are thus not representative, but may indicate attitudes towards crocodiles, particularly among Timorese with a university degree and residents of the capital Dili (All graphs by Octavio Araujo).

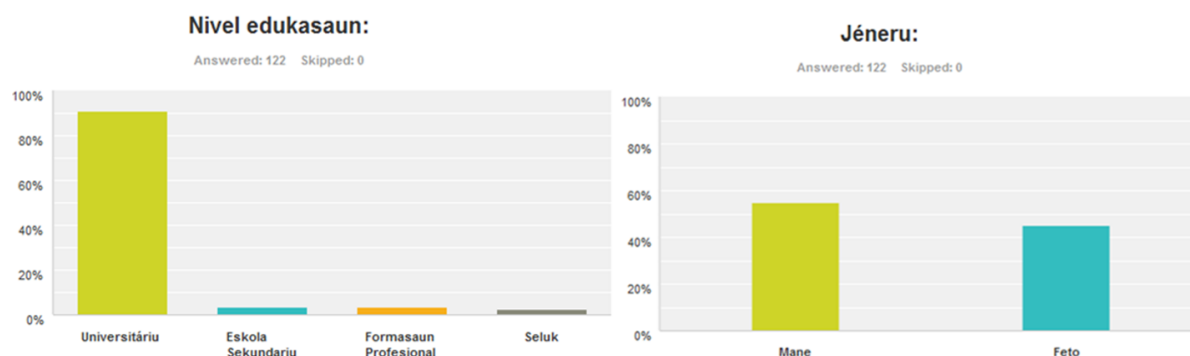


Figure 4: Most of the responders hold a university degree. Respondent's gender was equally distributed.

Answer Choices	Responses	
Lautem	7.38%	9
Baucau	17.21%	21
Viqueque	4.92%	6
Manatuto	5.74%	7
Dili	44.26%	54
Aileu	2.46%	3
Manufahi	1.64%	2
Liquica	0.00%	0
Ermera	2.46%	3
Ainaro	1.64%	2
Bobonaro	3.28%	4
Cova Lima	2.46%	3
Oecussi	1.64%	2
Fatin seluk (Favor espesifika iha okos ne'e)	4.92%	6
Total		122

Figure 5: Most respondents came from the capital Dili (44%).

Hau fiar katak lafaek hanesan animal ida ne'ebé espiritual/sagradu ida.

Answered: 107 Skipped: 15

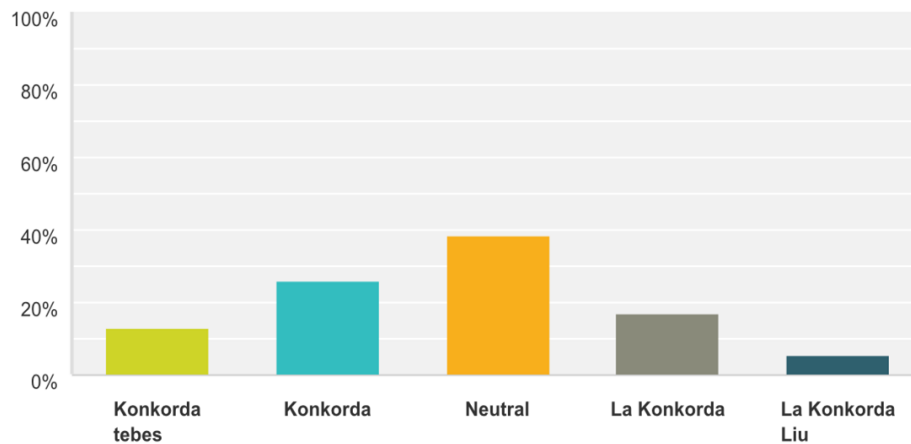


Figure 6: More than 30% of the respondents expressed that crocodiles are sacred animals for them, whereas some 25% did not have any specific cultural value towards crocodiles.

Presiza fo atensaun ba kestaun seguransa wainhira maluk balu fó aihan ba lafaek iha tasi ibun, mota ibun no fatin públiku seluk.

Answered: 122 Skipped: 0

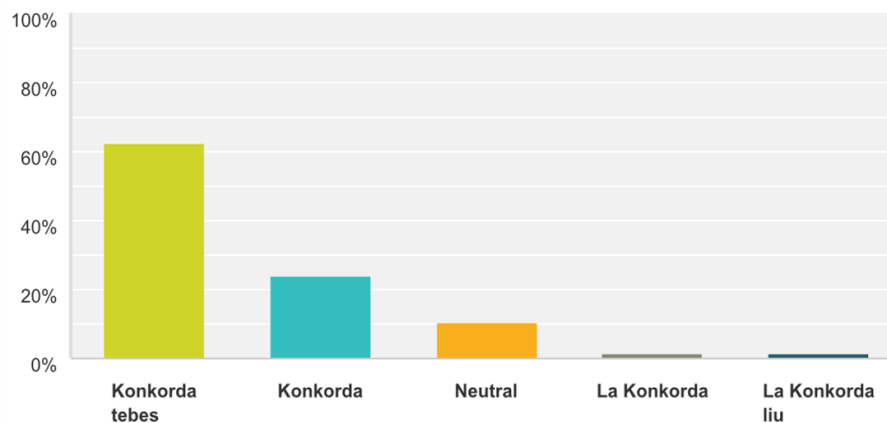


Figure 7: Many people (86%) express the need for a management regime ensuring public safety.

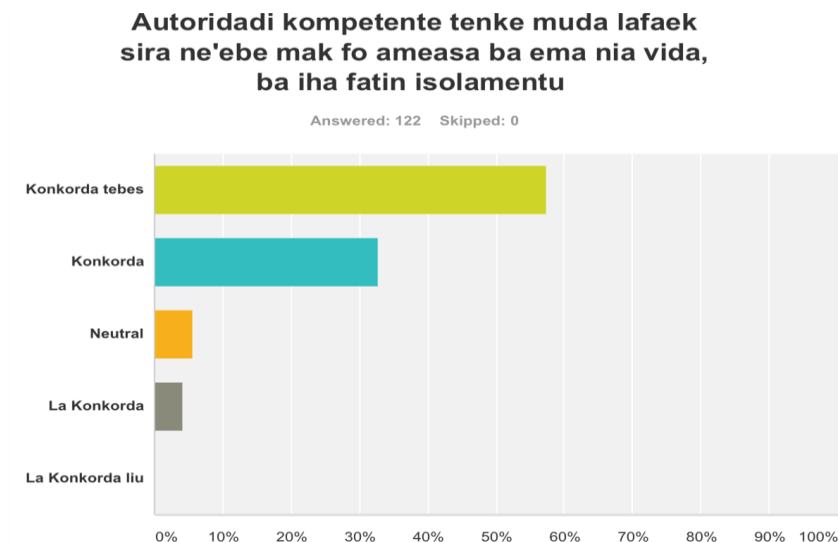


Figure 8: High percentage of people (90.1%) agree that problem crocodiles should be transferred to an isolated site (such as captivity).

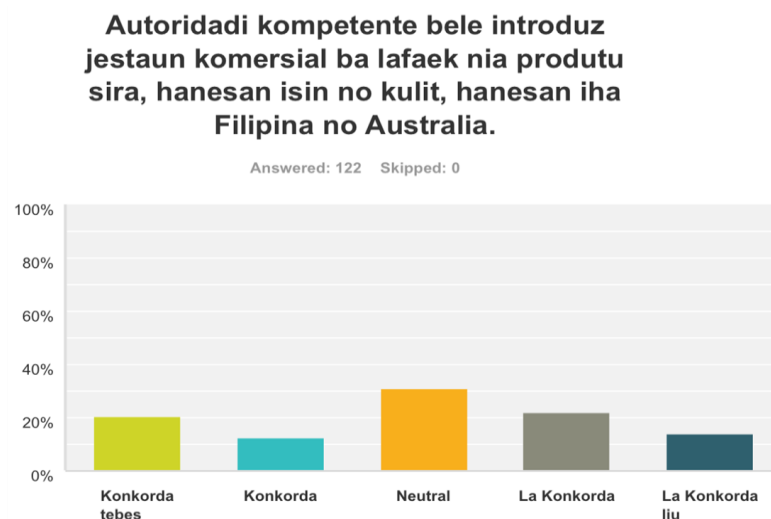


Figure 9: Only 32.7% agrees that commercial management of crocodile products should be introduced whereas 36% disagree with that concept.

Cultural attitudes towards crocodiles tend to be stronger among communities in rural areas, especially in the Posto Administrativo of Lautém. Crocodiles are worshipped in ceremonies which usually take place in sacred places, and are part of the traditional belief system *Lulik*. Ceremonies usually include crocodile feeding by the traditional elder who “owns” the sacred place and is believed to be able to communicate with the crocodile. The pictures below show a sacred waterhole in Lautém where regular ceremonies take place.



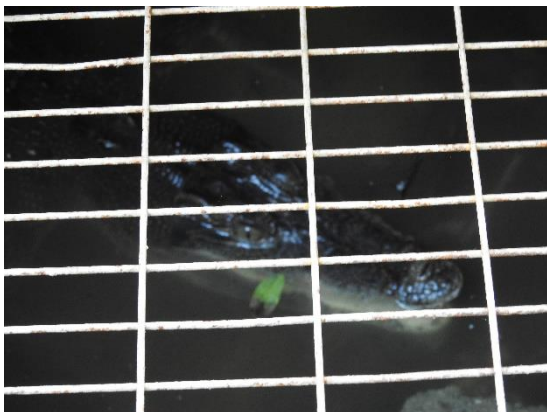
Fig. 10: A sacred waterhole in Lautém where ceremonies worshipping “Grandfather Crocodile” (Avo Lafaek) take place on a regular basis. Ancestor worship is widely distributed among many, but not all coastal communities in Timor-Leste (Photos: Sebastian Brackhane).

GIS-Training



Geographic Information Systems (GIS) are a strong tool to analyze and visualize data compiled during field surveys. In February 2017, members of the Crocodile Task Force (CTF) participated successfully in a course provided by the scholar to learn about the open source GIS software QGIS. Creating risk maps and crocodile habitat maps were a major content of the course (Photo: Yusuke Fukuda).

Crocodile Removal and Husbandry



(Photos: Yusuke Fukuda, MDF (right))

Many Timorese citizen keep crocodiles as prestigious pets in their properties. However, cages are often too small so that the humane treatment of these animals cannot be guaranteed. In addition, the growing crocodiles pose a risk for the neighborhood. The CTF has established an enclosure for these animals. The scholar visited the facility and is currently developing a strategy with the CTF to improve its potential, especially in regards to its use for tourism.



Fig. 11: Professionally constructed enclosures ensure the humane treatment of crocodiles in Timor-Leste (Photo: Sebastian Brackhane, Yusuke Fukuda (right))

Website



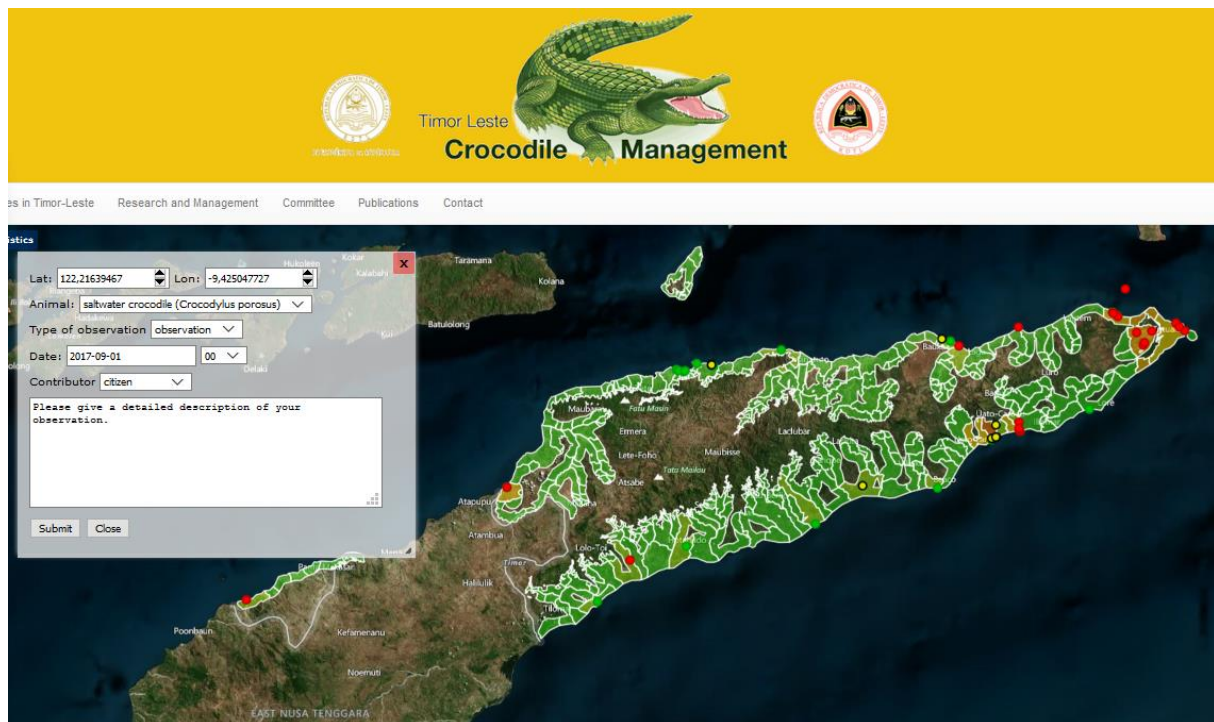
A website is a crucial tool to inform the public about crocodile risk and management. The website was developed by the scholar and is currently translated into Tetum. It will then be transferred to a Government server.

Further information:

www.common-environment.org



The web tool “Crocodile Mapper” was developed to allow for standardized data assessment in the field through local authorities and citizen scientists. All information submitted is validated by the task force and considered to be integrated in national risk and habitat maps if scientifically valid.



Next steps

- To conduct crocodile attack and habitat mapping in the communities of Irabin de Baixo, Uani Uma and Hera
- To translate the website developed into Tetum
- To draft a concept with recommendations of how to integrate crocodile management into the traditional legal system *tara bandu*
- To develop a national crocodile risk map and a national crocodile habitat map as basis for a Timorese crocodile management plan 2018 – 2022
- To strengthen the ties between Timorese crocodile management authorities and the IUCN Crocodile Specialist Group, especially with expert from the nearby Northern Territory in Australia, to ensure long-term international support

Funded by:



Student Research Assistance Scheme
(SRAS)