

PROJECT UPDATE: NOVEMBER 2025

Upscaling conservation awareness and compliance campaign for Conservation of the endangered Manyara Tilapia (*Oreochromis amphimelas*) in Lake Manyara - Tanzania

Rufford grant number: 46504-2

Name of leader: Gordian Rocky Mataba

1. PROJECT INCEPTION

I received funds for project implementation in May 2025. The project is executed in selected ten (10) villages located in two districts which are Babati rural (five villages) and Monduli (four villages) districts. The villages were selected because they are directly adjacent to lake Manyara. We began project activities by launching the inception event in May 2025 which aimed at introducing the second phase of the project to key stakeholders. Using indoor meetings, we invited and met with village leaders, fisheries officers, forest officers, representatives of farmers, fishers, and pastoralists and other stakeholders. In these meetings we presented the objectives of this second phase of the project and the envisaged. We also re-discussed in a new dimension existing challenges pertaining to conservation of Manyara Tilapia and on how our project setup can be improved subject to the prevailing economic challenges and land use practices. The goal of the inception stage was to make stakeholders fully aware of the second phase of the project, its main activities and expected benefits. In general, the project was well received by the local community. We also had an opportunity to introduce our funder “Rufford Foundation” to stakeholders. We discussed in detail about the Rufford Foundation and its main role in conservation of biodiversity in Tanzania and globally. We also repeated this introduction every time we meet with a new group or people for the first time.

2. IDENTIFYING AND MAPPING BREEDING AND NURSERY GROUNDS

Identification of breeding and nursery grounds for Manyara Tilapia is important because knowing where this fish breeds and nursery its young helps to establish Manyara Tilapia reserve areas in the lake (i.e., where fish propagules will be available) where intensive conservation efforts can be directed by managing authorities. The exercise for mapping breeding and nursery grounds for Manyara Tilapia was conducted during the fish breeding season in June 2025 where we visited 11 out of 14 landing sites. These sites are Mayoka A, Kambi ya fisi, Kisese, Zimbabwe, Paris, Mfuru wa ng'ombe, Minjingu, Oltukai, Burudika, Ngogolo, and Migunga Mitatu.

We began by pre-identifying the breeding grounds of Manyara Tilapia by employing a participatory mapping approach where fishermen at each visited landing site were directly involved and where central to this activity. After fishermen were gathered, they were asked to say where Manyara Tilapia breeds and where they catch them. Then using indigenous knowledge and experience they have on Lake Manyara, fishermen were allowed to draw a Map of the lake on flip charts and marked the locations of where they catch fish and where the fish breeds. We then delineated the locations by sailing (together with them) to these places on the lake and marked them using a GPS unit. We confirmed the sites by inspecting the fish landed by fishermen during their normal fishing trips for presence of juveniles or eggs in their buccal cavities (Manyara Tilapia is a maternal mouth brooder) as an indication of parental care, but also to establish that they have been caught from a said breeding ground. During this survey several fish were found with eggs and young fish in their buccal cavities. In a sample of 150 fish landed by a canoe/fisherman, 40 had eggs and very few had young fish in the buccal cavity. It seemed that majority of fish were not breeding either because it was not a peak breeding season. However, Trewavas (1983) observed that the breeding season of Manyara Tilapia in Lake Manyara is from April to June.

Trewavas E (1983) Tilapiine fishes of the genera *Sarotherodon*, *Oreochromis*, and *Danakilia*. British Museum (Natural History), 1, 583.

Figure 1 below shows the mapped fishing sites which are also breeding sites. Based on the methodology we used, our results show that the breeding and nursery ground of Manyara Tilapia is the inshore water of Lake Manyara (0-2km). Although some fishermen said Manyara Tilapia breed in inshore water very close to the beach, while others said the fish breeds everywhere in the lake, all answers meant same thing that Manyara Tilapia breeds in the inshore water because the distance from the shore to where fish are caught by fishermen is not more than 2km (it is 0.4m - 1.3km) (width of lake Manyara is about 16km). This also indicates that fishermen are taking fish from breeding grounds rather than from foraging grounds, and the situation gets worse when small mesh size nets are used. Since Tilapia fish with eggs in the buccal cavity do not forage, it is evident that fish did not come to these sites to forage but to breed. Therefore, our results suggest that the whole shoreline (about 2km in shore) of Lake Manyara deserves protection as a fish breeding ground.

Our findings are useful to the local fisheries authority for planning conservation strategies for Manyara Tilapia and for sustainable fishing in the lake. Thanks to the Tanzanian Government that through its fisheries act of 2003 and associated fisheries regulations of 2009, it forbids fishing in critical habitats such as fish breeding habitats. This ensures that fish breeding grounds in lakes are protected to allow fish reproduction. However, this does not apply to Lake Manyara as Lake Manyara is not stipulated in the list of critical habitats to be protected by these regulations. Therefore, regular sensitization of the local communities to willingly protect breeding habitats in Lake Manyara is required. Coupling this with evidence-based data of the locations where fishermen fish and where fish breed can enhance voluntary knowledge uptake by communities. The results from this survey will be shared with the local fisheries authority and other fisheries stakeholders in the Lake Manyara basin to save as baseline data and information for fish conservation planning and sustainable fishing decision making.

Limitations

Three landing sites (i.e., Mawe ya ajabu, Pakstani, and Mayoka B) on the shore of Lake Manyara were not visited due to fund limitation. Despite this we ensured that the collected data is as representative as possible and allowed accurate identification of the breeding sites. One another methodological limitation is that we were supposed to fish ourselves all over the lake to get the accurate picture of what are breeding sites and which ones are not. However, this was not done due to funding and time limitations. Nevertheless, we were still able to obtain results that are representative as possible.

Field team

The field survey involved the following people.

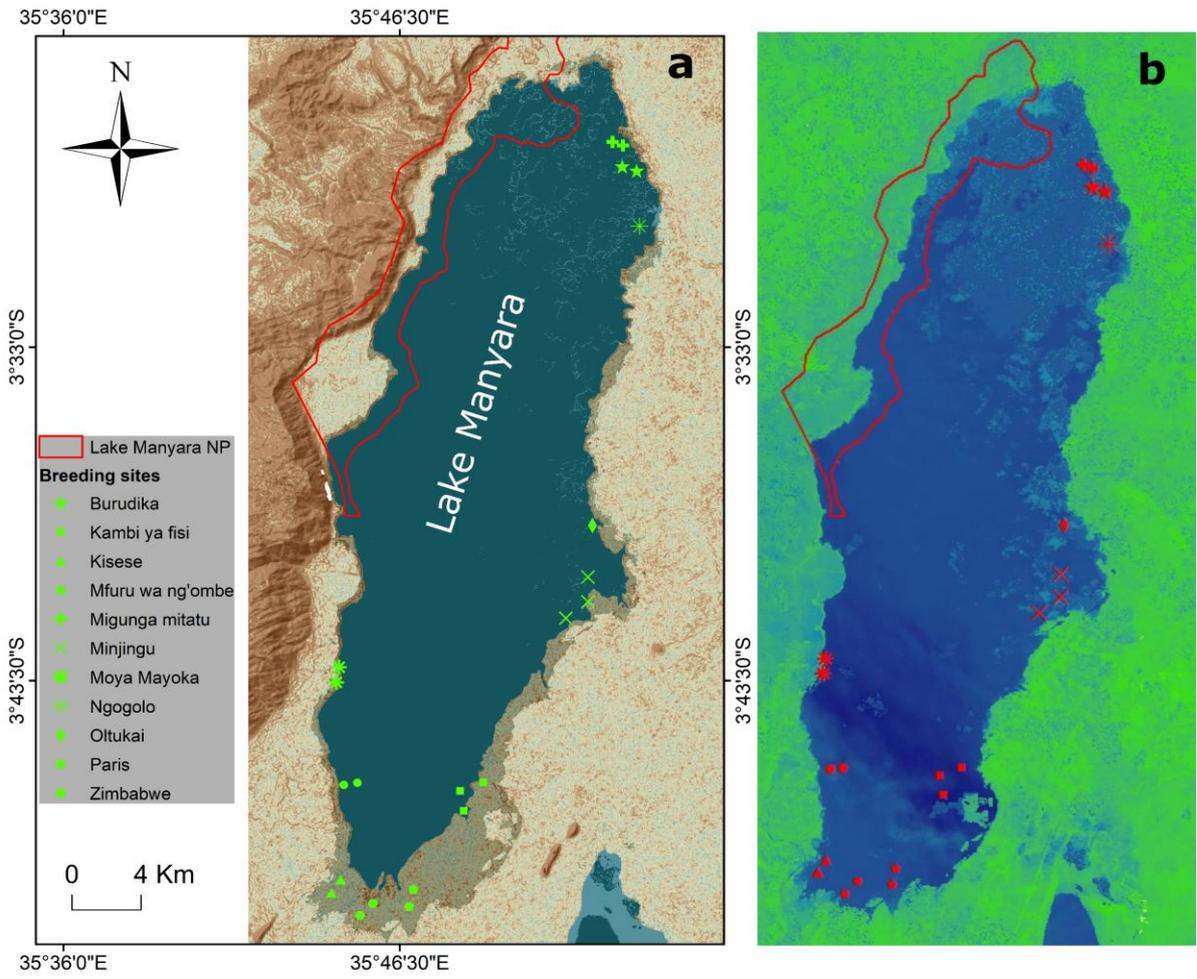
1. Dr. Gordian Mataba (Nelson Mandela African Institution of Science and Technology).
2. Mr. Joseph Kigoda (Fisheries officer – Monduli district).
3. Mr. Haji Deus (Fisheries officer – Babati rural district).
4. Mr. Alfian Rashid (Livestock officer - Babati rural district)

Remaining work

Identification and mapping of breeding and nursery grounds for Manyara Tilapia as part of the project is completed and Figure 1 below is an output thereof. The results will be further synthesized and developed into a publishable manuscript. Also, a map showing a 2km demarcation of breeding ground from the shore will be produced.

Below are photographic records

Figure 1: Map of breeding sites for Manyara Tilapia. (a) The current Lake Manyara water (the shaded part) has overflowed the lake basin (dark blue part). (b) The current lake size as of June 2025. The image was prepared using Sentinel 2 imagery.



Manyara Tilapia with eggs in the buccal cavity



Manyara Tilapia with young fish in the buccal cavity

