
**Project Dates:** September 2016 to August 2017

**Date of Report:** December 2018

Prepared by Emmanuel Fidelis Mgimwa and submitted to the African Bird Club


1.0 Acknowledgements of collaborations and sponsors

We thank and acknowledge the African Bird Club for their dedicated and committed support to the conservation of African birds and for supporting this project. It should be noted that, without their support the implementation of this project would be a total nightmare. We therefore ask the organization to continue to support conservation work in Africa especially to the committed young people who are willing to take the conservation wheel but are challenged by financial support.

We also thank the management of the Shume Magamba Nature Forest Reserve especially Mr Mlemba and the management of the Mazumbai Forest Reserve for their support during project implementation. We look forward to the same support in other projects and trips and by other researchers and conservationists as well. We acknowledge and thank Mr Neil Baker of the Tanzania Bird Atlas, Dr Nobert Cordeiro of the Roosevelt University and Dr Jasson John from the University of Dar es Salaam for their technical inputs, guidance and mentoring supporting since project development and implementation. Last but not least, we would like to thank the following for their technical and logistical assistance and support which has led to successful implementation of this project: Mr Mohamed (Lushoto), Adah Waigama (field assistant), and Alloyce Mkongewa (field assistant).
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3.0 List of acronyms/abbreviations
ABC - African Bird Club
CR – Critically Endangered
EAM – Eastern Arc Mountains
EN - Endangered
NGO – Non-Governmental Organization
TAWIRI – Tanzania Wildlife Research Institute
VU – Vulnerable
WUM – West Usambara Mountains
4.0 Background to the project

The West Usambaras, as for other Eastern Arc Mountain (EAM) blocks, are characterized by high endemism. Bird diversity is significant with endemic species for the block including the Usambara Weaver (*Ploceus nicolli*) and Usambara Akalat (*Sheppardia montana*). There have been several researches in the area but no-one had focused on estimating the population and distribution of Usambara Weaver. This ABC funded project studied the Usambara Weaver in the West Usambara Mountains by using point transect and play-back methodology.

Usambara Weaver is an endemic and threatened bird species in Tanzania. The species is endemic to the Eastern Arc Mountains especially the West Usambara Mountains (WUM). The main threats include on-going forest degradation and quality deterioration of the species habitat. This has been calling for urgent conservation action. Assessment of the population size, distribution, habitat status and threats of the bird population on the ground were the priority actions. The aim of this project was to provide up-to-date information on the Usambara Weaver population size, distribution, assess their habitat status and threats in Magamba Nature Reserve, Shume and Mazumbai Forest Reserves in WUM, Lushoto district in Tanga region and produce conservation and management measures towards conservation of the bird species and its habitat.

The project was also to provide an overview of the conservation status of other bird species of conservation interest. This included the Banded Sunbird (VU), Long-billed Tailorbird (CR), Usambara NightJar, Swynnerton’s Robin, Amani Sunbird and Usambara Akalat (EN). These species data will be combined with the existing information and those available from other parts of their range, with the aim of updating BirdLife factsheets, and will be shared with relevant stakeholders.

![Figure 1: Camp set up at Shume Forest Reserve](image-url)
Fieldwork survey was conducted in Magamba Nature Reserve, Mazumbai and Shume Forest Reserves in the West Usambara mountains in December 2016 and January 2017. The survey focused on key transects used in previous surveys as well as exploring other new forest sites. Communication with University of Dar es Salaam, The Tanzania Bird Atlas Project and the Magamba Nature Reserve were made before commencement of the survey. This was mainly to find areas where the species had been confirmed before and for recommendations related to Usambara Weaver. Bird tour guides with experience of the species were consulted for information and for recommendations.

Further initiatives for awareness raising to local communities, restoration of the forest habitat especially areas affected by wildfires is of immediate need. Emmanuel Mgimwa has therefore continued developing project proposals for funding to ensure sustainability.

Figure 2: Field team coming back from the data collection survey at Mazumbai Forest Reserve
6.0 Objectives of the project

- Train 2 bird enthusiasts on basic scientific research skills and data collection techniques
- Produce new and current data about Usambara Weaver species population trend
- Produce conservation and management recommendations towards conservation of the bird species and its habitat.
- Produce posters for awareness raising and attend the TAWIRI Annual Conference

7.0 Methodology

This Usambara Weaver survey was conducted between December 2016 and January 2017. Census points were made using stratified-random sampling method (Bibby et al. 2000) and were recorded by GPS. Point count methodology was used in the established transects for each site. Census points were established after every 200m. In the established points, the survey team spent at least 15 minutes recording all birds seen or heard. Special attention was given to Usambara Weaver movements and activities in the canopy. Special attention to Dark-backed Weaver mixed species flock was also made, by relying on sound. An mp3 playback device connected to a loudspeaker was used to play the Usambara Weaver call (downloaded from Xeno Canto website). The call was played for at least 5 minutes with 2 minutes interval while recording all species seen or heard. Breeding records i.e. nests, hatchlings or juveniles were recorded.

Tree species composition was also recorded in every established bird count point. The team also recorded any forest disturbance i.e. illegal logging, fire, encroachment, invasive species, mining and agriculture activities in every established census point. Photographs and habitat description for points where Usambara Weaver was confirmed were taken. Data and information collected were analyzed and established a current population estimate, trend and were used to propose for further conservation actions and recommendation on species management and conservation. Selection of field assistants was based on their enthusiasm for birds especially the Usambara Weaver as well as previous experience in birdwatching in the West Usambaras.

Figure 3: Field team providing feedback after survey in Shume forest (L) and forest fire (R)
Total days spent in the field was 28 days

Project Team;
1. Emmanuel Fidelis Mgimwa (Team leader)
2. January Nicholaus Ching’ena (Researcher)
3. Alloyce Mkongewa (Field Assistant)
4. Adah Waigama (Field Assistant)

Training of field assistant
On the 19th and 20th December 2016, Emmanuel Mgimwa and January Ching’ena conducted training to the field assistants i.e. Ms. Adah Waigama and Mr. Alloyce Mkongewa at Lushoto town, Tanzania. The training focused on introducing the project objectives, data required to be collected, methodologies and the usage of equipment i.e. GPS, camera, tape measure, estimation of tree height, Diameter at Breast Height (DBH) and in estimating ground cover. The training was aimed at capacitating the field assistants to ensure that data collected were accurate.

8.0 Results
8.1 Usambara Weaver population size and distribution
Table 1; Magamba and Shume forest results

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<th>POINT ID</th>
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<th>No. of Indv.</th>
<th>Distance (m)</th>
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The survey was able to confirm the presence of 11 Usambara Weaver (UW) individuals at Magamba Nature Reserve only. Their distribution was mainly in the primary forest with an average 46% canopy cover. One pair was seen in a mixed species flock with the Dark-backed Weaver confirming their association. Ocotea usambarensis species was the most preferred tree species for the Usambara Weaver. This tree species was found in 80% of all census points confirmed to have the UW species.
Despite the efforts invested at Mazumbai Forest Reserve, no Usambara Weavers were seen. The same is for Shume forests. The team was able to observe Dark-backed Weaver feeding hatchlings at Mazumbai Forest Reserve.

### 8.2 Usambara Weaver habitat status

During the assessment of Usambara Weaver, in each transect where the Usambara Weaver was located the team conducted in-depth vegetation and habitat status assessment. Key threats observed included animal traps, trails which we were told are used by people collecting miraa/khats/mirungi in the forest. The Shume forest was found to be the reliable route for transportation of illegal alcohol by Shume communities. The illegal alcohol is usually transported to Lushoto and its outskirts. The business is said to have been active for more than 30 years. It was however noted that most of the couriers smoke cigarettes and there are no proper disposal of the remains (please see Figure below). This maybe one of the reason for the ongoing forest fires in the forest. Littering in the trail is also rampant and the need for awareness raising and law enforcement is of high priority.
It should also be noted that the forest fire outbreak in recent years may have resulted in loss of suitable habitat for the Usambara Weaver. Forest fires should therefore be considered as a key threat to the Usambara Weaver in the West Usambara Mountains.

**8.3 Other Bird Species recorded during the study**
White Starred Robin, Usambara Akalat, Grey Cuckoo-shrike, Olive Pigeon, African Crowned Eagle, Black fronted Bush-shrike, Spot Throat, Usambara Akalat, Dark-backed Weaver,

**9.0 Discussion**
Magamba Nature Reserve is an important forest for the bird species followed by the Shume Forest Reserve. During this field study, no Usambara Weavers were recorded in the Mazumbai Nature Reserve but it may be an important site for intensive survey as favorable habitat is available. In Magamba Nature Reserve the species was mostly found along transects near the main road. This area is characterized by good primary forest. It was however noted that the forest interior had secondary and disturbed forest. The area is suspected to have been faced with logging. The forest interior was therefore concluded not able to provide suitable habitats for the Usambara Weaver.

The West Usambara Mountains are largely threatened by forest fire and the expansion of the invasive tree species *Acacia melanoxylon*, which was found to cover large parts of the burnt area, outcompeting native tree species. *Acacia melanoxylon* is not favored by most species especially birds, chameleons etc. This could be due to its physiology with thin leaves or due to chemical composition but further study is needed on this.
The Magamba Nature Reserve was found to be the stronghold for the Usambara Weaver population during our survey. However most of the population was located alongside the road where there is a primary forest. It maybe latter concluded that the species doesn't colonize inside the forest due to previous disturbance. Shume forest has been playing a central role in all forest fire break in the West Usambara. This could be because of not only ongoing agricultural activities in boundaries and but also use of the forest trails by Shume village to transport local alcohol to Lushoto town. Transports usually smoke cigarettes on trip, please see Figure 5 above.

As the survey was conducted during the breeding season, the Usambara Weaver did respond to our playback call. This is an important observation that will inform future survey and research for the species. However care should be taken not to affect species activities or behavior. This is by playing the call not more than 10 minutes and by stopping the playback once the species has been confirmed to respond to the call.

**Breeding data**
During the survey several breeding events were recorded. This included the Shelley’s Greenbul which was incubating eggs; and eggs of a Shelley’s Greenbul species were recorded in the Shume forest, December 2016.
Figure 7: Breeding data recorded at Shume forest, Lushoto, Tanzania on December 2016.

Figure 8: Pied wagtail feeding a juvenile at Mazumbai Forest Reserve, January 2017
Figure 9: The African Crowned Eagle had no place to perch for hunting other than this burnt tree

10.0 Challenges

For very unfortunate reasons, the field team were not able to receive the £400 from the Tanzania Bird Atlas Project. This affected some of the planned activities including production of posters and attendance at the TAWIRI conference.
Figure 10: basic needs for the camp were shuttled from Lushoto using motorcycle hire

12.0 Conservation and management recommendations

Forest fires in the West Usambaras are a big threat to forest resources, bird species and their habitat. Establishment of fire breaks in all areas where the forest borders with community land is key for prevention of future fire disasters. Establishment and maintenance of the already established fire breaks is required to help decrease spread of fire in the larger forest areas when they occur. Moreover, local fire brigades should be established which will be used in reporting and supporting firefighting when incidents happen. The incidents have been occurring frequently in the past 20 years and most of them are thought to be caused by human activities especially farming activities near the forest borders.

Development and implementation of a single Species Action Plan for the Usambara Weaver should be prioritized, considering the little conservation attention the species is receiving from conservation institutions, government and local communities. This might be influenced by the lack of a guideline document showing key threats and challenges and proposed interventions for the species. Nature Tanzania and BirdLife International can be very supportive in achieving this. Together with that, there is an urgent need for the appointment of an Usambara Weaver Species
Guardian by BirdLife International. This will ensure a coordinated fundraising program and awareness raising for the species which could be achieved through an interested and committed person.

Participatory Forest Management should be strengthened in the forest block to ensure local communities receive tangible benefits from forest resources. Discussion with the respective forest management authorities on benefit sharing with the surrounding communities needs to be prioritized. This will help raise awareness of the communities on the benefits of the forest resources. Awareness on ecosystems services need to be emphasized and conducted by the respective forest and nature reserve authorities. Communities’ participation in conservation of the forest and the ecosystem services needs to be improved as well.

The Magamba Nature Reserve management should conduct and communicate with the public on the causes, severity and impact of fire incidents. This will help the general and scientific communities understand the level of impact. This will be key in determining the amount of effort needed to support conservation and management of the forest resources and hosted biodiversity in the area.

Government institutions and other NGOs need to invest in the sustainable management and conservation of forest resources and bird species in the Eastern Arc Mountains. This includes thorough implementation of the above recommendations as well as annual monitoring of the Usambara Weaver and other endemics in the forest block.

13.0 Conclusion

Magamba Nature Reserve was found to be the stronghold of the Usambara Weaver population in the forest block. Further extensive fieldworks and investment are needed to conduct more exploration in the forest visited as well as in other forest blocks of the West Usambaras. Forest fire should be noted as a major threat to Usambara Weaver and their habitats in WUM. There is a need for engaging local communities in forest management through Participatory Forest Management. Key future actions needed include development and implementation of single Species Action Plan for the Usambara Weaver, and the appointment of a BirdLife Species Guardian for the Usambara Weaver.

Moreover, it is very important for the respective forest authorities to establish and maintain fire breaks in the area where forest borders community farm land. Nature Tanzania needs to include the Usambara Weaver in their conservation priorities and ensure fundraising for the species is prioritized. This can be done and coordinated closely with BirdLife International Africa Partnership Secretariat and the Tanzania Project Office.
14.0 Annexes

Annex 2. Data sheet for Mazumbai Forest Reserve

Available on request