

Observations of a new colony of Ruvu Weavers *Ploceus holoxanthus* near Morogoro, Tanzania

The Ruvu Weaver *Ploceus holoxanthus* was first described by Karel Hartlaub in 1891 and has been recently reinstated as a unique species following genetic analysis by Fjeldså *et al.* (2020). Prior to this it had been mistakenly regarded as a junior synonym of the African Golden-Weaver *Ploceus subaureus* for over a century (Oschadleus *et al.* 2021). The Ruvu Weaver is known from only a handful of riverine sites in northeastern Tanzania, with the published distribution including the Ruvu and Wami Rivers, as well as the Selous Game Reserve from Lake Tagalala to the Rufiji River (Oschadleus *et al.* 2021). However, current knowledge of this species is limited by a lack of studies and data. While the weaver's plumage, nest and eggs have been documented, there are no formal descriptions of its vocalizations, and most aspects of its life history remain unknown (Oschadleus *et al.* 2021).

On 4 March 2023, while visiting the wetlands of the Mindu Dam on the Ngerenge-re River in Morogoro, Tanzania (6°52'37" S, 37°36'55" E), as part of a study conducted by McGill University, AL photographed a pair of *Ploceus* weavers which we identified as Ruvu Weavers. Here we document the discovery of this previously unknown breeding colony and provide additional information on the vocalizations and courtship behaviour of the Ruvu Weaver.

Field observations

Three individuals were seen around the dam wetlands on 4 March 2023. One male flew into papyrus beside the water's edge, and a pair were seen together in a bush among tall grasses 30 m from the water's edge. The wings of the males were noticeably pale yellow, particularly palest on the tertials, and matched closely with images of other Ruvu Weavers archived at the Macaulay Library (e.g., catalogue numbers ML540100211 and ML211766521). Dark brown eyes also distinguished the Ruvu Weavers from the African Golden-Weaver, which has a red eye (Craig 2020). The female showed a bicoloured bill with a dark maxilla and pale lower mandible, as well as dark lores, which are known field characters for this species (Oschadleus *et al.* 2021). We are familiar with African Golden-Weaver from elsewhere in Tanzania, and none were seen at the site.

Two days later on 6 March 2023 we returned to the location of the initial sighting to obtain additional documentation of the presence of the weaver, and to search the area more thoroughly for any possible signs of nesting. We succeeded in locating additional birds to those found the day before, as well as a number of nests, and males actively nest-building. We found a total of 14 individuals on a transect of 100 m along the edge of the wetland, including an aggregation of three males and two females in reeds near the water. The remaining birds were seen as individuals and pairs around the colony. Subsequently, we observed a male exhibiting courtship behaviour towards a female, and we recorded a number of vocalizations including the song and calls. These represent the first audio recordings of this species and have been archived at the Macaulay Library (ML542910381, ML542910351 and ML542910341). The vocalizations were very similar to those of the African Golden-Weaver, especially a one-note call which was indistinguishable to a call of that species to our ears. The song, consisting of continuous varied metallic notes sounded similar in tone, yet slightly lower in pitch, to the song of the African Golden-Weaver.

Nests were positioned at the tips of the lower branches of a bush, at a height of about 2 m, which was just above the height of nearby grass and reeds (Fig. 1). As described by Oschadleus *et al.* (2021), the nests are untidy, round, woven balls made of reed blades with one entrance on a bottom corner. There were four nests in the colony, which were all located in the same bush, approximately 30 cm from each other but on separate branches. One nest had a few green grass stalks woven into the outside, while the nest material of the other nests had already dried out.



Figure 1. Several nests in a colony of Ruvu Weavers *Ploceus holoxanthus*, positioned on tree branches at a height of approximately 2 m, just above the height of grass growing beneath the trees (Joshua C. Brown).

Courtship behaviour of the Ruvu Weavers was observed when a male and female flew one after the other into a low bush near the colony. The male's courtship behaviour was similar to that of many *Ploceus* weaver species that display while hanging below the nests they have built, including the African Golden-Weaver (Jacob 2019, Craig 2020). Perched half a metre from the female, the male Ruvu Weaver began calling rapidly (ML542910351) while fluffing its body feathers. The wings were lowered and partially extended, while the tail was fanned and the bird swayed back and forth with gradually increasing intensity, again while calling continuously with a series of sharp notes. After 10 seconds of this behaviour, the male flew to a nearby nest, the only one in the colony with fresh grass, and hung upside down from the nest while continuing to display (Fig. 2). The female watched the male for 10 more seconds before flying off, followed closely by the male. A male returned 30 minutes later to add fresh grass to the same nest, most likely the same individual as had been displaying.



Figure 2. Courtship display of a male Ruvu Weaver *Ploceus holoxanthus*, hanging upside down from the nest with wings fully extended and fluttering rapidly (Amicie Lavault).

Discussion and conclusions

The colony size of four nests is smaller than a colony of 15 nests observed by Oschadleus *et al.* (2021), which was also located in a tree, unlike the colony we observed. Observations of other colonies are needed to help determine the average colony size for Ruvu Weavers, keeping in mind that other *Ploceus* weaver species can vary the extent of nest aggregation in their colonies (Lahti 2013). Habitat preferences for nesting Ruvu Weavers may be more specific than for the African Golden-Weaver as the former have only ever been found in riverine areas whereas the African Golden-Weaver nests in a wide variety of habitats, including wetland, savannah and woodland (Craig 2020, Oschadleus *et al.* 2021).

Much about Ruvu Weaver breeding biology remains to be studied, such as parental care at the nest, mate selection, and feeding preferences. As the species is restricted to only three river basins, the total population size is likely to be small, and therefore locating and conserving as many colonies as possible may be necessary to safeguard its conservation. Future reservoir and dam infrastructure projects may also degrade the weaver's riverine habitat, including for the colony described in this account, which may be threatened by planned expansion of the nearby Mindu Dam (M. Bayo, pers. comm., March 2023).

With further coverage of the surrounding area by birders and researchers, additional colonies of the Ruvu Weaver are certain to be located, and we encourage comparative studies with the colony described here. A comprehensive population assessment and additional details of the Ruvu Weaver's ecological requirements would also further the conservation of the species.

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