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# Preliminary observations of birds of Songo Songo Island, Tanzania

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## Introduction

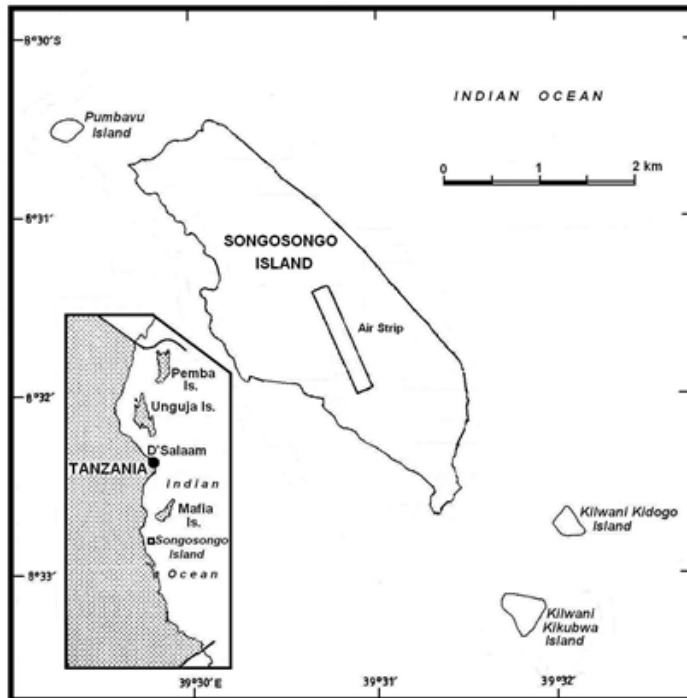
While the bird fauna of many East African islands is relatively well known (e.g., Wasini: Ryall 1994; Zanzibar: Moreau & Pakenham 1941, Pakenham 1979; Pemba: Moreau & Pakenham 1941, Pakenham 1979, Archer & Turner 1993, Catry *et al.* 2000; Latham: Gwynne *et al.* 1970, Gerhart & Turner 1978; Mafia: Moreau & Pakenham 1941, Moreau 1944, Mlingwa & Msuya 1992, 1994), ornithologists have paid little attention to Songo Songo Island, Tanzania. Herein, we provide a preliminary checklist of its avifauna, aspects of relative abundance of each species, and information on some breeding species. This paper provides baseline data for the conservation of birds on the island and we invite comparisons by other ornithologists now and in the future. This is particularly important because the island is small and already heavily populated (Darwall *et al.* 1997, URT 2013). It is possible that in the future, habitats such as coral rag thickets may be cleared for human habitation and cultivation as has happened on Mafia Island (Greenway *et al.* 1988).

## Materials and methods

### *Study area*

Songo Songo Island is the largest island of the Songo Songo Archipelago (Darwall 1996, Darwall *et al.* 1997), and lies approximately 20 km off the east coast of Tanzania (8°31.5'S, 39°30.5'E; Fig. 1), separated from the mainland by water not more than 30 m deep (Moreau & Pakenham 1941). The island rises some 10 m above sea level and is c. 1.8 km across at its widest point and 4.5 km long (Darwall *et al.* 1997). It is formed from coral limestone bed-rock that is overlaid with a sandy substratum in some parts (Darwall *et al.* 1997).

To our knowledge, a detailed description of the vegetation of Songo Songo has not yet been published (but see Nahonyo *et al.* 2008). We made observations in several distinct habitats: (1) coral rag thicket and bushland on the western, northern and southwestern sides of the island; (2) coconut palm, composed mainly of coconut and some scattered trees on the eastern side of the island; (3) a small grassland area at the airstrip; (4) shrubland on the southern side of the island; and, (5) a littoral zone of tidal flats that surrounds the entire island.



**Figure 1.** The location of Songo Songo Island along the coast of Tanzania.

### Methods

Data were collected over 12 days during December 2007. We used mist nets (two 12-m and three 9-m, each 2.5 m high, mesh size 30 mm, four shelves) in thickets on the coral rag plus audio-visual observations (AVOs) of birds over the entire island, making sure that all the major habitat types present were covered. Because Pumbavu and Songo Songo islands are connected by a sand-bar that is usually exposed at low tides, birds were surveyed as far as Pumbavu, which is located c. 750 m northwest of Songo Songo (see Fig. 1). Also, during low tide, we surveyed Kilwani Kikubwa Island, c. 1.5 km south-southeast of Songo Songo Island (see Fig. 1). Notes of breeding birds were based on the presence of active nests, birds seen in breeding plumage, or parents attending young.

In order to assess the relative abundance of birds, we developed a simple index based on our observations as follows: a = very common, observed daily and usually >50 individuals; b = less common, frequently observed, but not daily, 11–50 individuals; c = scarce, occasional, 3–10 individuals; and d = rare, seen/heard only once, only 1–2 individuals. Common and scientific names follow Britton (1980). However, Burchell's Coucal *Centropus burchelli* was considered a full species rather than a distinctive race of White-browed Coucal *C. superciliosus*.

### Results

Thirty-five species in 19 families were recorded (Table 1). Approximately 42% of these were Palearctic migrants and three species – Madagascar Bee-eater *Merops superciliosus*, Didrik Cuckoo *Chrysococcyx caprius* and Paradise Flycatcher *Terpsiphone viridis* – were intra-African migrants (Table 1).

Of the species observed, Little Egret *Egretta garzetta* and Cattle Egret *Bubulcus ibis* were found on active nests on a baobab tree *Adansonia digitata*. Black-headed Weavers *Ploceus cucullatus* were nesting in coconut palms. Other breeding birds were Red-eyed Dove *Streptopelia semitorquata* (one active nest was seen) and Amethyst Sunbird *Nectarinia amethystina*, where a female was seen feeding chicks in a nest in the thicket habitat.

**Table 1.** Bird species recorded on Songo Songo Island. Also included are methods of detection and habitat type. Obs = species observed. MN = mist netting, number of individuals caught in parentheses where applicable. Palms are coconut palms. PM = Palearctic migrant, IM = intra-African migrant, R = resident. The letters a-d indicate indices of relative abundance where a = very common, daily observed, > 50 individuals; b = less common, frequently observed but not daily, 11-50 individuals; c = scarce, occasional, 3-10 individuals; and d = rare, seen/heard only once, only 1-2 individuals.

Species	Detection method	Habitat type	Migratory status	Relative abundance
Grey Heron <i>Ardea cinerea</i>	Obs	Littoral	R	b
Purple Heron <i>Ardea purpurea</i>	Obs	Littoral	R	b
Cattle Egret <i>Bubulcus ibis</i>	Obs	Thickets, palms	R	b
Little Egret <i>Egretta garzetta</i> *	Obs	Littoral, thickets	R	a
Oystercatcher <i>Haematopus ostralegus</i>	Obs	Littoral	PM	c
Ringed Plover <i>Charadrius hiaticula</i>	Obs	Littoral	PM	a
Greater Sandplover <i>Charadrius leschenaultii</i>	Obs	Littoral	PM	a
Mongolian Sandplover <i>Charadrius mongolus</i>	Obs	Littoral	PM	a
Common Sandpiper <i>Actitis hypoleucos</i>	Obs	Littoral	PM	a
Whimbrel <i>Numenius phaeopus</i>	Obs	Littoral	PM	a
Greenshank <i>Tringa nebularia</i>	Obs	Littoral	PM	a
Terek Sandpiper <i>Xenus cinereus</i>	Obs	Littoral	PM	a
Curlew Sandpiper <i>Calidris ferruginea</i>	Obs	Littoral	PM	a
Little Stint <i>Calidris minuta</i>	Obs	Littoral	PM	a
Turnstone <i>Arenaria interpres</i>	Obs	Littoral	PM	a
Water Thicknee <i>Burhinus vermiculatus</i>	Obs	Thickets	R	c
Sooty Gull <i>Larus hemprichii</i>	Obs	Littoral	PM	c
Common Tern <i>Sterna hirundo</i>	Obs	Littoral	PM	b
Saunders's Tern <i>Sterna albifrons saundersi</i>	Obs	Littoral	IM	c
Red-eyed Dove <i>Streptopelia semitorquata</i>	Obs, MN(1)	Thickets, palms	R	a
Laughing Dove <i>Streptopelia senegalensis</i>	Obs	Thickets, palms	R	a
Didric Cuckoo <i>Chrysococcyx caprius</i>	Obs, MN(6)	Thickets	IM	b
Burchell's Coucal <i>Centropus burchelli</i>	Obs	Thickets	R	c
Palm Swift <i>Cypsiurus parvus</i>	Obs	Thickets	R	a
Red-faced Mousebird <i>Urocolius indicus</i>	Obs, MN(1)	Thickets	R	a
Madagascar Bee-eater <i>Merops superciliosus</i>	Obs	Thickets	IM	b
Golden Oriole <i>Oriolus oriolus</i>	Obs	Thickets	PM	d
Pied Crow <i>Corvus albus</i>	Obs	Coconut palms	R	a
African Reed Warbler <i>Acrocephalus baeticatus</i>	Obs, MN(6)	Thickets	R	b
Spotted Flycatcher <i>Muscicapa striata</i>	Obs	Thickets	PM	b
Paradise Flycatcher <i>Terpsiphone viridis</i>	Obs, MN(13)	Thickets	IM	a
Richard's Pipit <i>Anthus novaeseelandiae</i>	Obs	Grassland	R	c
Amethyst Sunbird <i>Nectarinia amethystina</i>	Obs, MN(1)	Thickets	R	b
Black-headed Weaver <i>Ploceus cucullatus</i>	Obs, MN(1)	Thickets, palms	R	a
Common Waxbill <i>Estrilda astrild</i>	Obs	Thickets, palms	R	d

\*both white and dark morphs

## Discussion

With only 35 species, Songo Songo Island seems to have an impoverished avifauna compared to Zanzibar (Moreau & Pakenham 1941, Pakenham 1979), Pemba (Moreau & Pakenham 1941, Pakenham 1979, Archer & Turner 1993, Catry *et al.* 2000) and Mafia (Moreau & Pakenham 1941, Moreau 1944, Mlingwa & Msuya 1992, 1994) islands. The island lacks several families and species found on Zanzibar, Pemba and Mafia islands and along the coastal areas of mainland Tanzania. Because large islands tend to have more bird species (Lack 1969), the low species richness found on the island is likely to be due to its small area.

None of the species we detected on Songo Songo Island is endemic, and all are a subset of those found on mainland Tanzania. Songo Songo is about 20 km from the mainland, the presumed source habitat. The presence of continental species on Songo Songo concurs with the findings of Adler (1994), who reported that proximity of an island to the mainland promotes the diversity of continental species. Elsewhere along the East African coast, similar observations have been made by Ryall (1994), who detected 123 species of birds, all “continental species” on Wasini Island, Kenya, located 1.5 km from the mainland and slightly smaller than Songo Songo Island.

Our study has provided a preliminary checklist of the terrestrial and aquatic avifauna present on Songo Songo. Although the island does not contain any endemic or globally threatened bird species, the presence of both migratory and breeding species signifies its importance and suggests that there is a need for protecting its habitats, particularly the coral rag thickets.

We recommend further ornithological surveys to help predict whether species relaxation and extinction are occurring. An increase in the human population on the island (URT 2013) is likely to have negative impacts on the avifauna and of particular interest would be the effect of the ongoing natural gas exploration.

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