

Sexing Madagascar Red Fody *Foudia madagascariensis* in the non-breeding period

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Introduction

The Madagascar Red Fody *Foudia madagascariensis*, in the family Ploceidae, is widely found all over Madagascar but mostly in savannah regions. This relatively small passerine barely measures 14 to 15cm long (tail included). During the breeding period, males completely change colour, their plumage becomes red, hence their beauty and the popularity of the species.

While endemic to Madagascar, the Fody was introduced to different islands in the Indian Ocean such as Mauritius, Seychelles and Amirantes, Chagos, Rodrigues and Providence. The species is also found in La Réunion (Barré & Barau 1982). However, it is not ascertained if it occurred naturally there or was introduced there. This second hypothesis would be confirmed by the writings of Dubois as far back as in the 17th century (Dubois 1674).

The present work concerns the sexing of individuals outside the breeding period (December to May). Previously this was not possible. This work is particularly addressed to all ornithologists who, for scientific reasons, have to capture the birds and so work "in the hand". The basic plumage descriptions of the 2 sexes within and outside the breeding period are (from Langrand 1990):

Adult. Sexes *differ*, plumage varies seasonally.

Male breeding plumage. Head vermillion, except for black lores and triangular patch behind eyes. Vermillion chin and throat, conical black bill, brown iris. Upper parts vermillion streaked with black, except for

solid red rump and upper tail coverts. Under parts red, lighter at belly and under tail coverts. Pink tarsi and toes. Dark grey-brown tail. Some individuals may have orangy yellow coloration instead of vermillion.

Male non-breeding plumage. Similar to female.

Female. Green brown forehead, front and top of head, and nape delicately streaked with black. Solid green-brown cheeks, lores, chin and throat, green-yellow supercilium. Pale brown bill, brown iris. Upper parts green-brown streaked with black, except for uniformly green-brown rump and upper tail coverts. Under parts: greenish chest and flanks, green-grey belly, yellowish under tail coverts. Pink-grey tarsi and toes. Wings and tail as in breeding plumage.

Immature. Similar to female.

Some closely related species live on different islands of the Indian Ocean. They are all described by Sinclair & Langrand (1998).

Forest Fody- *Foudia omissa*, Madagascar
Aldabra Fody- *Foudia aldabrana*, Aldabra
Mauritius Fody- *Foudia rubra*, Mauritius
Comoro Fody- *Foudia eminentissima*, Comoro Islands
Rodrigue Fody- *Foudia flavicans*, Rodrigues
Seychelles Fody- *Foudia sechellarum*- Seychelles

As shown further, this work could also be used for the sexing of the other species. This was tried for the sexing of Forest Fody (*Foudia omissa*) although on a small amount of captures (13 individuals).

Methodology

A certain amount of biometric data was taken during the capture, using Svensson's methods (1984). Then, an analysis was undertaken depending on the season of capture. The results of the nesting and non-nesting periods were compared and are presented hereafter.

Biometric data taken into consideration for the analysis: Eye colour, emargination of outer web, wing length, head length (with bill), tarsus length.

Results

From 2003 to 2005, the number of captures amounts up to 1503 (Table 1). These captures were in rainforests, dry forest gallery as well as in the savannah in the north-western parts of Madagascar.

The two first characteristics (eye colour and emargination of outer web) were not useful in the final analysis. All individuals had brown iris or brown-reddish, regardless of sex or age. The emargination of the outer web is somewhat negligible by age or gender. This is due to the emargination of the 3rd to the 6th primary wing feathers. Of 290 controlled individuals, 6 had the 2nd and 3rd primaries emarginated. 79 had the 3rd, 4th and 5th primaries and 205 had the 3rd, 4th, 5th and 6th primaries.

Wing length was the most obvious. 1252 of the 1503 Madagascar Red Fodies trapped were measured. This wing length ranges from 60 to 71 mm. Prior to analysing

the sexing of adults during the non-breeding period, we will examine the length of folded wings during the breeding period, when males have their red colour and consequently are easily recognized.

As mentioned above, 387 birds were trapped from October to May, of which 371 were sexed for certain. This allows sexing 73.0% of them throughout the year. 27.0% of the captured birds showed overlapping wing lengths. Wing length ranging from 64.5 mm to 67 mm will not be valid for sexing outside the nesting period (Figure 1).

Figure 2 confirms that birds with a wing length under 64.5 mm are females, whereas those with wing length above 67 mm are males. The results show that so far 85.6% of the birds were sexed for certain.

Two other biometric measures were also used in the attempt to sex the birds all year long. *This takes into consideration elements during the breeding period, extending them to the rest of the year.* These measures being: the length of the tarsi and the head length (skull and bill). Figure 3 shows that head length is not that relevant whereas the tarsus length allows 65.0% sexing of individuals.

This measure is reliable only in about 65% of cases. It will only be used in the case that the wing length is not significant enough, and only in this case.

Discussion

We definitely affirm that it is possible to sex most individuals throughout the year, considering the folded wing length. This method is the only one recommended and could eventually be reinforced by taking the tarsus length. As mentioned, this method was also used to sex the Forest Fody but only for a small quantity of individuals (14). There were 8 males and 6 females. The males all had a folded wing length of 68 to 72 mm while the length for the females ranged from 65 to 67 mm.

We hope that this work allowed another approach to sexing the Madagascar Fody which could be used in the future. Hoping that this approach will be more precise and

Table1. Summary of captures.

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|-------------------------------------|-------------|
| Birds in non-breeding period | 1116 |
| Females | 173 |
| Males | 181 |
| Not sexed | 662 |
| Birds in breeding period | 387 |
| Females | 141 |
| Males | 130 |
| Not sexed | 116 |
| Total traps | 1503 |

