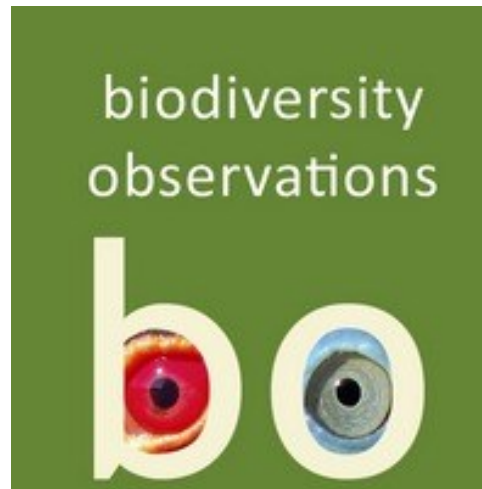


Moult records for tropical bird species trapped in Angola

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Moult records for tropical bird species trapped in Angola

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Abstract

Between 21 and 27 July 2015 a total of 43 birds of 15 species were caught with mist nets at Kissikina, Malange, Angola. Thirty-two of those, of 11 species, were moulting primaries and their moult was recorded. In this note, I present the data collected hoping to add some information on the moult patterns of these species in this part of the world.

Introduction

Several papers on the moult of southern Africa birds have been published with data collected in different countries, especially South Africa (Craig, 1983). However no detailed information on moult and its timing could be found for Angola.

In 2015 as part of monitoring studies carried out in the province of Malange, Angola, a number of birds were caught for identification. Because many of them were moulting primaries we kept records in order to make this information available to those who are studying moult in this region of the world.

Materials and methods

The birds were caught at Kissikina, Malange, Angola (9°47'43"S; 15°14'27"E), about 250 km east-south-east of Luanda. We used mist-nets which were set up on the edge of an abandoned farming area near the River Kwanza between 21 and 27 July 2015. (Figures 1 and 2).

A total of 43 birds of 15 species were caught of which 32 birds of 11 species were undergoing primary moult (Appendices 1). Moult was recorded following the standard system used by Ginn & Melville (1983). This system scores the moult status from 0 (old feather) to 5 (new feather fully grown). Absent feathers were considered as stage 1.



Figure 1. View of the Kwanza River, north of the ringing area at Kissikina, Malange, Angola.

For names and systematic order we followed Mills & Melo (2013) who in turn had followed version 3.1 of the International Ornithological Committee's recommended names (Gill *et al.* 2012).

Results and discussion

Detailed results for the moult of each bird are given in Table 1. The ordering of species in the table is replicated below.

Emerald-spotted Wood-Dove *Turtur chalcospilos* – Two birds were caught. Both were in active moult. One bird, possibly an adult, already had five new feathers followed by a stage 4, three old and a stage 1. The other bird, possibly a juvenile, was at the early stages of its moult with two stage 4 feathers followed by eight old. This dove clearly showed marked buff tips to the tertials (innermost secondaries). Apparently, there is a difference in moult timing between adults and first year birds as suggested by the data collected.

Blue-spotted Wood-Dove *Turtur afer* – The two birds caught were possibly in suspended moult. One of them was showing five new and five old feathers while the other showed the existence of two moult centres with three new feathers, followed by four old and another three new.

Red-backed Mousebird *Colius castanotus* – Five birds were caught, all of which were moulting. However, moult varied considerably from bird to bird. One bird was starting its moult showing one new feather, the following feather was at stage 3 and the remainder were all old. Two birds were a bit further on in their moult, one with seven new feathers followed by a stage 4, a stage 1 and an old feather. The second had six new feathers followed by a stage 4 and three old. Finally, two birds showed two moult centres in the sequence. One had a sequence of two completely new feathers followed by three

old, another two new, a stage 2 and another old. The other bird had five new feathers. then a stage 4, an old, a new, an old and a stage 4.

For *Colius striatus*, Moreau *et al.* (1948) suggested that “moult is irregular and proceeds indefinitely”. Rowan (1967) analysed samples of *C. striatus*, *C. indicus* and *C. colius* from South Africa and noted that 80% of the *C. striatus* taken between November and April that were examined were moulting primaries but only 25% of the birds taken during the remaining months were in active moult. In *C. colius* moult seems to occur mostly between February and May (Moreau *et al.* 1948). Finally, for *C. indicus* these authors suggests that replacement of feathers is seasonal with most birds moulting between November and April. No information is given by these authors for *C. castanotus*.

The moult pattern of the birds caught in Angola in July suggests that moult takes place at least during a period of time covering the months



Figure 2. The habitat at the ringing site at Kissikina, Malange, Angola, in July 2015.

Table 1. Primary moult protocols of 43 birds trapped at Kissikina, Malange, Angola. Dates are all in July 2015. The order of the feathers follows the standard moult sequence from the inner to the outer primaries.

Date	Species	Age	Sex	Moult
24	<i>Turtur chalcospilos</i>	Ad ?		5 ⁵ 4 0 ³ 1
24	<i>Turtur chalcospilos</i>	Juv		4 ² 0 ⁸
27	<i>Turtur afer</i>	Ad		5 ⁵ 0 ⁵
27	<i>Turtur afer</i>	Ad		5 ³ 0 ⁴ 5 ³
27	<i>Colius castanotus</i>			5 3 0 ⁸
27	<i>Colius castanotus</i>			5 ² 0 ³ 5 ² 2 0 ²
27	<i>Colius castanotus</i>			5 ⁷ 4 1 0
27	<i>Colius castanotus</i>			5 ⁵ 4 0 5 0 4
27	<i>Colius castanotus</i>			5 ⁶ 4 0 ³
23	<i>Dryoscopus cubla</i>		F (?)	no active moult
22	<i>Pycnonotus tricolor</i>			no active moult
22	<i>Chlorocichla flaviventris</i>			no active moult
23	<i>Chlorocichla flaviventris</i>	Ad (?)		no active moult
23	<i>Chlorocichla falkensteini</i>	Ad		5 ⁵ 4 0 ⁴
24	<i>Psalidoprocne pristopectera</i>	Ad (?)	M (?)	5 ⁵ 4 3 0 ³
24	<i>Psalidoprocne pristopectera</i>	Ad (?)	F (?)	5 ⁴ 4 ³ 0 ³
24	<i>Hirundo angolensis</i>	Ad		no active moult
24	<i>Hirundo angolensis</i>	Ad (?)		5 ⁸ 4 1
22	<i>Iduna natalensis</i>	Ad (?)		5 ⁹ 4
22	<i>Iduna natalensis</i>	Ad (?)		no active moult

Date	Species	Age	Sex	Moult
21	<i>Cisticola bulliens</i>	Ad		5 ⁷ 4 ³
22	<i>Cisticola bulliens</i>	Ad		5 ⁸ 4 ²
22	<i>Ploceus ocularis</i>	Juv (?)		no active moult
22	<i>Ploceus ocularis</i>	Ad	F (?)	no active moult
22	<i>Ploceus ocularis</i>	Ad	M	no active moult
21	<i>Pytilia melba</i>	Ad	M	5 ² 4 1 0 ⁶
22	<i>Pytilia melba</i>	Juv		no active moult
22	<i>Pytilia melba</i>	Ad	M	5 ² 4 0 ⁷
27	<i>Pytilia melba</i>	Ad	F	5 2 0 ⁸
27	<i>Pytilia melba</i>	Ad	M	5 ⁵ 4 3 0 ³
22	<i>Lagonosticta rhodopareia</i>		M	5 4 3 0 ⁷
22	<i>Lagonosticta rhodopareia</i>		F (?)	5 3 0 ⁸
23	<i>Lagonosticta rhodopareia</i>	Ad	F	5 ³ 4 2 0 ⁴ 1
27	<i>Lagonosticta rhodopareia</i>	Ad (?)		5 ³ 4 0 ⁶
27	<i>Lagonosticta rhodopareia</i>			5 ² 4 2 0 ⁶
22	<i>Estrilda melpoda</i>	Ad (?)		5 ⁶ 4 0 ³
23	<i>Estrilda melpoda</i>	(?)		no active moult
23	<i>Estrilda melpoda</i>	Ad		5 ⁵ 4 0 ⁴
23	<i>Estrilda melpoda</i>	Ad		5 ⁸ 4 0
23	<i>Estrilda melpoda</i>	Ad		5 ⁶ 4 0 ³
23	<i>Estrilda melpoda</i>	Ad		5 ⁸ 4 0
23	<i>Estrilda melpoda</i>	Ad		5 ⁷ 4 0 ²
23	<i>Estrilda melpoda</i>	Ad		5 ⁵ 4 0 ⁴

of June to August, given the stage of moult in the birds caught. These data also suggest some irregularity in the moult of this species.

Regarding the sequence of the moult, Rowan (1967) drew attention to the fact that Moreau *et al.* (1948) had mentioned the irregularity of the moult in mousebirds but both Verheyen (1956) and Stresemann (1966) “describe the moult as descendant”. The author states that in the South Africa specimens most birds (90% of *C. striatus* and *C. colius* and 75% of *C. indicus*) show a regular moult pattern, from the inner to the outer, but that the remaining birds have a wide variety or irregularities. The moult observed in the five *C. castanotus* caught in Angola suggested that moult patterns are irregular and at least some of the birds undertake an eccentric moult and/or might suspend moult.

These findings are broadly supported by a study of the primary moult of the three species of mousebirds that occur in South Africa (Craig *et al.* 2014). This study confirmed that the mousebirds have an extended moult period, both as individuals and as populations. They concluded: “There is still a lot to learn about the annual cycle of South African mousebirds.”

Black-backed Puffback *Dryoscopus cubla* – One bird was caught which did not show signs of moult. Its primary feathers showed a certain amount wear. Craig (1983) does not mention a period for the complete moult which adults undertake yearly. According to Verheyen (1953) the species does two complete moults a year but no date is given. The feather wear of the bird caught suggests that the bird had moulted some time previously.

Dark-capped Bulbul *Pycnonotus tricolor* – One bird was caught and it was not in active moult. The flight feathers were slightly worn. According to Craig (1983) in East Africa and Malawi the species seems to moult between December and July. In KwaZulu-Natal and Eastern Cape moult was recorded from January to June. The feather wear of the birds caught in Angola during our monitoring work suggests that the bird had completed its moult recently. This corroborates the dates above mentioned.

Yellow-bellied Greenbul *Chlorocichla flaviventris* – Two birds were caught but none showed signs of recent moult. The tips of

the primaries showed a certain amount of wear on both birds suggesting that moult will take place later in the season.

Falkenstein's Greenbul *Chlorocichla falkensteinii* – One bird was caught and it was half way through its moult. The first five primaries were new and were followed by a feather in stage 4. The remaining feathers were old. The moult pattern found in this bird suggests a feather by feather moult sequence but this assumption will have to be confirmed by a more extensive set of data. According to Sekercioglu and Riley (2005) at the Kumbira forest, Gabela, Angola, not far from the site where the bird was caught, this species was breeding in January so the bird caught was probably undertaking a post-nuptial moult.

Black Saw-wing *Psalidoprocne pristoptera* – Two birds were caught, both in active moult (Figure 3). One bird, possibly a male, had five new feathers followed by a stage 4, a stage 3 and three old. The other bird, possibly a female, had four new feathers followed by three



Figure 3. Releasing a Black Saw-wing *Psalidoprocne pristoptera* at Kissikina, Malange, Angola. The wear of the outermost flight feathers is visible in the image.

stage 4 feathers and three old. The birds caught seemed to be in the middle of their moult at this time of the year.

Angolan Swallow *Hirundo angolensis* – Two birds caught, one of them in active moult with eight new feathers followed by one at stage 4 and one at stage 1. The primary feathers of the other bird seemed to be fresh.

African Yellow Warbler *Iduna natalensis* – Two birds caught, one was at the end of its primary moult with nine new feathers and the outermost at stage 4. The unmoulted feathers were more pointed at the tip and showed some wear. The different moult pattern found on the two birds caught maybe related to these birds' age as the tips of the flight feathers of the two were slightly different. The more pointed ones showed some wear whereas the more rounded ones were new. One possibility is that the bird not moulting was a juvenile.

Bubbling Cisticola *Cisticola bulliens* – Both birds were moulting. One already had eight new feathers and the two remaining feathers were at stage 4. The other was only slightly behind with seven new feathers and the remaining three feathers were also at stage 4..

Spectacled Weaver *Ploceus ocularis* – Three birds were caught but none were in active moult. The flight feathers of all birds were slightly worn suggesting that moult had recently been completed. In KwaZulu-Natal, South Africa, the estimated duration of primary moult is 114 days, between February and May (Oschadleus & Underhill 2006). The July observations are consistent with this.

Green-winged Pytilia *Pytilia melba* – Five birds were caught (four adults and one juvenile). All adults were in active moult. Two male birds had two new feathers and one stage 4 feather followed by seven old or one missing and six old (Figure 4). Another bird, possibly a female, was starting its moult with one new feather, another at stage 2 and the remaining eight were old. Finally, another male already



Figure 4. Adult Green-winged Pytilia *Pytilia melba* in moult at Kissikina, Malange, Angola.

had five new feathers followed by a stage 4, a stage 3 and three old. The juvenile bird did not show primary moult.

According to Bonnevie & Oschadleus (2012), this species undertakes two complete moults each year in Botswana; one pre-breeding, in December–January, and the other post-breeding in July. The data collected in the frame of the present work corroborates the calendar for the July moult. Tyler (2001) suggests suspended and irregular moult patterns on birds of this species caught in southeast Botswana during the summer 1996/1997 and April 1998. No irregular moult was noted in the birds caught. The data suggest that moult extends is not synchronized because birds were caught in different moult stages.

Jameson's Firefinch *Lagonosticta rhodopareia* – All five birds caught were in active moult and they were all at the first half of primary moult with only one to three new feathers. Two birds with one new feather, one with two new feathers and two birds with three new feathers. All birds had at least 2 growing feathers. One of the birds with three new feathers was replacing the outermost feather out of the normal sequence as the four previous feathers were still old.

In Zimbabwe this finch does a complete moult in July–August while in Zambia it has a complete pre-breeding moult from October to January, according to Bonnevie and Oschadleus (2012). As all five birds caught were in active moult and all were at the first half of primary moult the timing in this part of Angola seems to be similar to that of Zimbabwe.

Orange-cheeked Waxbill *Estrilda melpoda* – Eight birds were caught and seven were in active moult. These were in an advanced phase of moult showing five to eight new feathers. They had new feathers followed by one feather in stage 4, and with the old outer primaries.

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