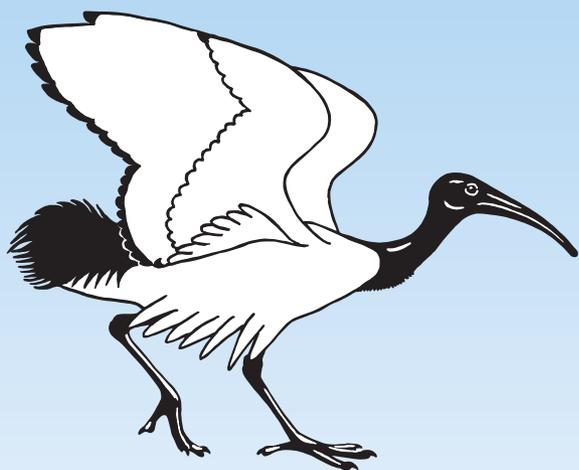


Bulletin of the British Ornithologists' Club



Volume 135 No. 2
June 2015

FORTHCOMING MEETINGS

See also BOC website: <http://www.boc-online.org>

BOC MEETINGS are open to **all**, not just BOC members, **and are free**.

Evening meetings are in **an upstairs room at The Barley Mow, 104 Horseferry Road, Westminster, London SW1P 2EE**. The nearest Tube stations are Victoria and St James's Park; and the 507 bus, which runs from Victoria to Waterloo, stops nearby. For maps, see http://www.markettaverns.co.uk/the_barley_mow.html or ask the Chairman for directions.

The cash bar opens at **6.00 pm** and those who wish to eat after the meeting can place an order. **The talk will start at 6.30 pm** and, with questions, will last c.1 hour.

It would be very helpful if those intending to come can notify the Chairman no later than the day before the meeting.

Tuesday 22 September 2015—6.30 pm—Dr Hazel Jackson—*Molecular phylogeography and mechanisms of invasion success in Ring-necked Parakeets across Europe*

Abstract: Invasive species present a major threat to global biodiversity; therefore understanding genetic patterns and evolutionary processes that enable successful invasions is paramount. Among birds, Ring-necked Parakeet *Psittacula krameri* is one of the most successful invasive species, established in more than 35 countries. However, little is known about the ancestral origins of this species and what population genetic signatures tell us concerning their patterns of invasion. Evolution and genetic diversity in Ring-necked Parakeet populations is examined across Europe, alongside data on trade, climate and population growth, to highlight how multiple introductions and patterns of climate matching between the native and invasive ranges act as mechanisms for invasion success.

Biography: Hazel Jackson is a post-doctoral researcher with the Durrell Institute of Conservation and Ecology (DICE), at the University of Kent in Canterbury. Her research interests include evolution and population genetics of both endemic and invasive birds, in particular parrots. Hazel recently completed her Ph.D., which examined the evolution and ancestral origins of invasive Ring-necked Parakeets, whilst aiming to understand underlying genetic mechanisms that have enabled this species to become one of the most successful avian invaders around the globe.

A one-day joint meeting with the Ornithological Society of the Middle East and the Natural History Museum, focused on Middle Eastern birds, will take place in the Flett Theatre, Natural History Museum, South Kensington, on Saturday 21 November 2015. Full programme details will be published shortly on the BOC website (<http://www.boc-online.org>), as well as in the September Bulletin.

The Chairman: Chris Storey, 22 Richmond Park Road, London SW14 8JT UK. Tel. +44 (0)208 8764728. E-mail: c.storey1@btinternet.com

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CLUB ANNOUNCEMENTS

The 979th meeting of the Club was held on Tuesday 10 March 2015 in the upstairs room at The Barley Mow, 104 Horseferry Road, Westminster, London SW1P 2EE. Sixteen members and four non-members were present. Members attending were: Miss H. Baker, Cdr. M. B. Casement, RN, Mr S. Chapman, Dr R. A. Cheke, Dr C. Fisher (*Speaker*), Mr K. Heron Jones, Mr G. P. Jackson, Mr G. M. Kirwan, Mr R. Langley, Mr R. W. Malin, Mr D. Montier, Mrs A. Moore, Dr R. Prÿs-Jones, Mr N. Redman, Mr S. A. H. Statham and Mr C. W. R. Storey (*Chairman*).

Non-members attending were: Mr R. Borello, Mrs W. Borello, Mrs B. Harrison and Mrs M. Montier.

Clemency Fisher, Senior Curator of Vertebrate Zoology at National Museums Liverpool, spoke on *The jigsaw puzzle with many pieces missing: reconstructing a 19th century bird collection*. Fisher has been researching the collections of the English explorer-naturalist John Gilbert for nearly 40 years. She opened her talk with a picture of Gilbert, a reconstruction based on the few comments that exist concerning his physical appearance—there is no known portrait of him. Despite this, Australians have named a major river, two mountains, a view and an airplane after Gilbert, and many species such as Gilbert's Whistler *Pachycephala inornata*, a small kangaroo and a lizard bear his name. Clem showed a photograph of the large audience, including clergymen of several denominations, who had made their way to the outskirts of Taroom in central Queensland to attend the opening of 'Gilbert's Lookout' in 2004.

Some of Gilbert's avian discoveries, such as Gouldian Finch *Erythrura gouldiae* and Noisy Scrub-bird *Atrichornis clamosus*, are now endangered, and Clem described how individuals of the latter have been successfully translocated to suitable locations based on habitat notes that Gilbert made. She also described the difficulty of pinpointing which of Gilbert's specimens of the scrub-bird was the first he collected, and the one on which Gould based the species. Her instincts tell her it is a specimen in the Museum of Comparative Anatomy at Harvard University, rather than the designated lectotype in the Academy of Natural Sciences in Philadelphia. This has important implications, especially because of the increasing ability to extract DNA from old specimens.

Clem reviewed the meticulous research that has gone into identifying the type locality of the Paradise Parrot *Psephotus pulcherrimus*, sadly now extinct, which Gilbert discovered on the Darling Downs of southern Queensland. The date (and thereby the exact locality) Gilbert and his friend Charles Coxen first collected this beautiful parrot, 17 May 1844, was discovered by Clem and Ian McAllan by reading Gilbert's faded pencil diary entry from a copy on microfilm. This could be backlit, whereas the original diary entry looks completely blank. The date, 17 May 1844, is recorded on Gilbert's original label on an adult male now in National Museums Liverpool, but the designated lectotype in Philadelphia has no original label and no collecting date, and therefore cannot be proved to have any type status.

Gilbert collected in many locations in Australia, but his most important site was the tiny British naval colony of Port Essington, on the north coast. Here he collected thousands of specimens, including many birds. A Bush Stone-curlew *Burhinus grallarius* skeleton prepared by Gilbert lay ignored in one museum because the glass lid of the box had been incorrectly swapped with that of another, data-less specimen. Gilbert collected eggs and nests; his employer, John Gould, split the clutches up and sold them to different collectors. Some clutches are now divided between museums in the Netherlands, California, Connecticut and Hertfordshire, and can only be reunited by comparing Gilbert's writing on the eggs, made difficult by the blobs of old glue that often obscure this.

Gilbert's final expedition was undertaken as a member of the First Leichhardt Expedition of 1844–45, the first party of Europeans to cross Australia. On this important expedition Gilbert collected the type specimens of a few birds such as White-browed Robin *Poecilodryas superciliosa*, but was too much preoccupied with herding bullocks and finding water to do much collecting. His sad death on the Cape York Peninsula in June 1845, aged just 33, robbed England and Australia of one of the most able bird collectors, but left us with a plethora of irreplaceable specimens and field notes. Clem has still much work to do, but due to a two-year grant from the Leverhulme Trust has been able to answer many thorny problems, and has posted the results of her research on National Museums Liverpool's website, see: www.liverpoolmuseums.org.uk/wml/collections/zoology/john-gilbert/index.aspx

Eye colour variation in Rufous-bellied Tit *Melaniparus rufiventris* in western Tanzania

by Jason Anderson

Received 25 August 2014

SUMMARY.—I report records of pale-eyed Rufous-bellied Tits *Melaniparus rufiventris* ssp. from western Tanzania, including sight records and a specimen in the Museum für Naturkunde, Berlin, from Kakoma, one of three *M. r. pallidiventris* syntypes located, for which the previously overlooked eye colour is recorded as yellow-white. Pale eye coloration has never previously been documented in *pallidiventris*. I also describe several minor plumage differences from birds east of the central Tanzanian rift (also considered to be *pallidiventris*) and provide evidence that pale-eyed and dark-eyed adults co-occur within the same population to the west. I conclude that the range of *M. r. masukuensis* probably extends to south-west Tanzania and that differences between eastern and western Tanzanian specimens assigned to *pallidiventris* may warrant separation at subspecific level through resurrection of *M. r. rooymae*, collected in eastern Tanzania and since subsumed in *pallidiventris*. However, given the small sample size of western Tanzanian birds (due to the paucity of museum specimens), I recommend waiting for more data, including phylogenetic comparison of the *rufiventris* complex as a whole.

The taxonomic status of the Rufous-bellied Tit *Melaniparus rufiventris* complex is controversial, being currently considered to comprise between three and five taxa. Fry *et al.* (2000) recognised only *M.* (then *Parus*) *r. rufiventris* (Bocage, 1877), *M. r. pallidiventris* (Reichenow, 1885) and *M. r. masukuensis* (Shelley, 1900), considering all three to be conspecific. Harrap & Quinn (1996) also recognised *M. r. diligens* (Clancey, 1979) and *M. r. stenotopicus* (Clancey, 1989), and followed Sibley & Monroe (1990) in separating the three western forms (*rufiventris*, *diligens* and *masukuensis*) as Rufous-bellied Tit from the two eastern taxa (*pallidiventris* and *stenotopicus*) as a separate species, Cinnamon-breasted Tit, based primarily on iris coloration (pale in western taxa, dark in eastern forms) and plumage (belly orange in western forms, paler cinnamon in taxa). Dowsett & Dowsett-Lemaire (1993: 369) recognised just one species, noting records of potential hybrids where the two forms meet, a lack of data from potential hybridisation zones and the argument that 'iris colour is not necessarily a biological isolating mechanism'.

Recently, Johansson *et al.* (2013), as well as placing all African tits in the genus *Melaniparus*, sampled three specimens from the *rufiventris* group; a *M. r. rufiventris* (= *diligens*) at the Naturhistoriska Riksmuseet, Stockholm (NRM 570164) collected in Namibia, and one each at the Museum of Vertebrate Zoology, Berkeley (MVZ uncatalogued, RCKB1104) and Museums of Malaŵi, Blantyre (MOM 2007.2.228), both of which they ascribed to *M. r. pallidiventris*. However, collecting locality (Ntchisi Forest, Central Region, Malaŵi; *cf.* Dowsett-Lemaire & Dowsett 2006), eye colour (cream; R. Bowie *in litt.* 2014) and plumage coloration confirm these specimens to be *masukuensis*, not *pallidiventris*. The genetic distance between the Namibian *rufiventris* (= *diligens*) specimen and the Malaŵian *masukuensis* is fairly short, as expected for conspecific taxa. Two other molecular phylogenies of titmice (Gill *et al.* 2005, Tietze & Borthakur 2012) claim to have sampled *pallidiventris*, a specimen at the Museum of Comparative Zoology, Cambridge, MA (MCZ

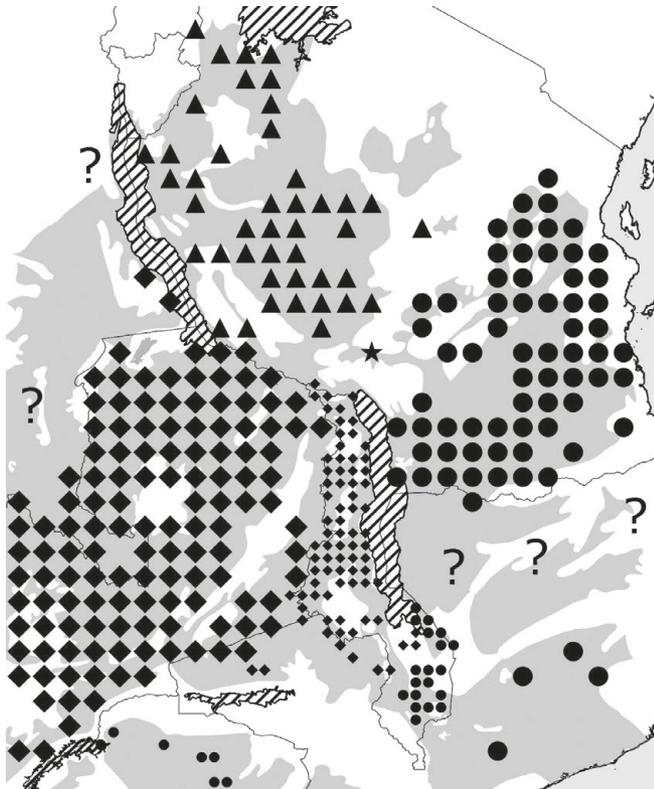


Figure 1. Atlas data for *M. r. rufiventris* and *M. r. pallidiventris* in Tanzania and adjacent countries. Diamonds = *masukuensis*, triangles = western *pallidiventris* / *masukuensis*, circles = eastern *pallidiventris*. Star indicates erroneously labelled White-bellied Tit *M. albiventris* (FMNH 216938). Question marks indicate data deficient regions. Mid grey indicates distribution of major areas of miombo woodland mapped at broad scales by White (1983).

279710). Given the collecting locality (Mzimba District, Northern Region, Malaŵi) and plumage coloration in photographs, this specimen is also *masukuensis* not *pallidiventris*. This means that no specimens of *M. r. pallidiventris* have been genetically sampled to date. In the absence of such data, given the findings described below, I choose not to treat *rufiventris* and *pallidiventris* as separate species.

Distribution

According to atlas data (Baker & Baker in prep.) and all other literature, the only taxon known to occur in Tanzania is dark-eyed *M. r. pallidiventris* (including the synonym *rovumae*). In eastern Zambia, west of the Albertine / Tanganyika Rift, the taxon involved is pale-eyed *M. r. masukuensis*, which Dowsett *et al.* (2008) suggested shows 'perhaps a slight approach to the even paler *M. r. pallidiventris* (with eye brown, rather than yellowish) in parts of the east.' Tanzanian *pallidiventris* is split into two apparently separate populations, east and west of the Gregory Rift (hereafter 'eastern' and 'western Tanzania'; Baker & Baker in prep.), with the western population apparently contiguous with *masukuensis* in Zambia, and the eastern population possibly contiguous with *pallidiventris* in Mozambique and Malaŵi, although no atlas data are available for northern Mozambique. The three known syntypes for *pallidiventris* were collected by Böhm in 1881, at Kakoma, west of the Gregory Rift, and described by Reichenow in 1885, seven years before Shelley described *rovumae*, 1892, from the Rovuma River, east of the Gregory Rift, which is now a synonym of *pallidiventris*. Fig. 1 shows the current distribution in Tanzania and adjacent countries. In Malaŵi only *pallidiventris* occurs east of the Rift and it is largely replaced by *masukuensis* on the western plateau, with a few records of *pallidiventris* from the west (Zobue and

Phirilongwe; Dowsett-Lemaire & Dowsett 2006: 419). *M. r. masukuensis* occurs in south-east Democratic Republic of Congo (Schouteden 1956).

Field observations

During the 'Filling the Knowledge Gaps Ecological Expedition' to the Itulu Forest Reserves of Tabora Region, western Tanzania, in January 2011, I saw two *M. rufiventris* ssp. with pale irides among a mixed-species foraging flock in pristine miombo woodland. My field notes are fairly consistent with descriptions of *M. r. pallidiventris* excluding eye colour and 'a grey band between [the belly] and the black of the head'. Several poor-quality photographs show birds fairly typical of *pallidiventris* except the pale eyes (Fig. 2). Other individuals in the same flock had dark irides. None appeared to be juveniles. My observation occurred c.3 months after the known breeding peak (October) for the species in Tanzania (Baker & Baker in prep.). See Table 1.

Subsequently, I contacted S. Stolberger and R. Glen, who provided details of 11 sightings between November 2006 and August 2013 of birds consistent with the then-presumed extralimital race *M. r. masukuensis* from western Ruaha National Park, Mbeya Region, in western Tanzania. All of these sightings involved birds with pale eyes. M. Baker also provided field records from Tulawaka at the northernmost extreme of the western range of *M. r. pallidiventris*. His sightings, in October 2004–November 2011, all involved birds with dark eyes ($n = 8$), including one carrying food to a nest in October 2007 (Table 1).

TABLE 1

Field records of *Melaniparus rufiventris pallidiventris* from western Tanzania in which eye colour was noted, by S. Stolberger (SS), R. Glen (RG), M. Baker (MB) and the author (JA).

Date	Minimum no. seen	Observers	Locality	Latitude	Longitude	Eye colours
11 Oct 2004	1	MB	Tulawaka	c.03°12'S	c.31°32'E	dark
14 Oct 2004	1	MB	Tulawaka	c.03°12'S	c.31°32'E	dark
6 Nov 2006	1	SS & RG	Ruaha N.P.	c.07°44'S	c.34°13'E	pale
27 Jan 2007	1	SS & RG	Ruaha N.P.	c.07°44'S	c.34°13'E	pale
2 Apr 2007	1	SS & RG	Ruaha N.P.	c.07°44'S	c.34°13'E	pale
14 Jul 2007	1	SS & RG	Ruaha N.P.	c.07°46'S	c.34°10'E	pale
22 Aug 2007	1	SS & RG	Ruaha N.P.	c.07°46'S	c.34°10'E	pale
23 Oct 2007	1 (at nest)	MB	Tulawaka	c.03°12'S	c.31°32'E	dark
21 Jun 2008	1	SS & RG	Ruaha N.P.	c.07°47'S	c.34°12'E	pale
17 Aug 2008	1	SS & RG	Ruaha N.P.	c.07°47'S	c.34°08'E	pale
20 Nov 2008	1	MB	Tulawaka	c.03°11'S	c.31°32'E	dark
20 Nov 2008	1	MB	Tulawaka	c.03°11'S	c.31°32'E	dark
21 Nov 2008	1	MB	Tulawaka	c.03°11'S	c.31°32'E	dark
23 Nov 2008	1	MB	Tulawaka	c.03°12'S	c.31°32'E	dark
17 Dec 2008	1	SS & RG	Ruaha N.P.	c.07°47'S	c.34°08'E	pale
10 Aug 2009	1	SS & RG	Ruaha N.P.	c.07°47'S	c.34°05'E	pale
11 Aug 2009	1	SS & RG	Ruaha N.P.	c.07°47'S	c.34°00'E	pale
27 Jan 2011	3	JA	Itulu Hills	c.05°59'S	c.33°36'E	pale and dark
23 Nov 2011	1	MB	Tulawaka	c.03°12'S	c.31°32'E	dark
3 Aug 2013	1	SS & RG	Ruaha N.P.	c.07°47'S	c.34°00'E	pale
17 Aug 2013	2	SS & RG	Ruaha N.P.	c.07°43'S	c.34°01'E	pale



Figure 2. Rufous-bellied Tits *Melaniparus rufiventris pallidiventris*, Itulu Hills, western Tanzania, 27 January 2011 (Jason Anderson)

Examination of specimens

I examined 23 adult specimens of *M. r. pallidiventris* from east ($n = 19$; 11 males, six females, two unsexed) and west ($n = 4$; three females, one unsexed) of the central Tanzanian rift, including seven at the Natural History Museum, Tring (NHMUK), 15 at Museum für Naturkunde, Berlin (ZMB), and one at Zoologisk Museum, Copenhagen (ZMUC 75.614). The western specimens included two of the three known syntypes of *pallidiventris* (ZMB 34759–760). I also examined all other specimens pertaining to the *rufiventris* complex at NHMUK, including *pallidiventris* from Malaŵi, Zimbabwe, Mozambique and Zambia ($n = 26$), *masukuensis* from Zambia, Malaŵi and Democratic Republic of Congo ($n = 19$), and *rufiventris* from Democratic Republic of Congo, Angola and western Zambia ($n = 12$). A fifth unsexed adult *M. r. pallidiventris* from western Tanzania at Naturalis, Leiden (RMNH. AVES.13 1226) subsequently came to light, and is a third syntype of this taxon. I examined high-quality photographs of this specimen.

Biometrics.—I measured wing chord, tail and bill length, and found that *M. r. masukuensis* averages slightly larger (4%) than *M. r. pallidiventris*, with considerable overlap, and that females of *pallidiventris* and *masukuensis* have on average slightly shorter wings and tail than males (4%), again with considerable overlap, as also found by Harrap & Quinn (1996: 339–341). The four west Tanzanian specimens averaged very slightly smaller than those from eastern Tanzania, and smaller than *masukuensis*, but, given the small sample and the fact that three were females, no significant conclusions can be drawn. The unsexed western specimen (ZMB 34759) was larger than the females, within the expected range for *pallidiventris* and *masukuensis* (wing 81 mm, tail 63 mm, bill 10.3 mm).

TABLE 2

Mensural data (wing, tail and bill) from specimens of *Melaniparus rufiventris pallidiventris* and *M. r. masukuensis* at Natural History Museum, Tring (NHMUK) and Museum für Naturkunde, Berlin (ZMB).

	wing chord (mm)				tail length (mm)				bill to skull (mm)			
	range	mean	s.d.	<i>n</i>	range	mean	s.d.	<i>n</i>	range	mean	s.d.	<i>n</i>
<i>M. r. pallidiventris</i> (eastern Tanzania)	74–85	79.4	2.97	18	57–73	63.3	4.49	19	10.3–12.1	11.2	0.57	19
<i>M. r. pallidiventris</i> (western Tanzania)	75–81	78	2.58	4	60–66	62.5	2.65	4	10.3–11.2	10.7	0.44	4
<i>M. r. masukuensis</i> (Zambia, Malaŵi, Democratic Republic of Congo)	75–87	82.2	3.57	19	62–72	66.7	3.03	19	11.0–12.3	11.8	0.37	19



Figure 3. Rufous-bellied Tits *Melaniparus rufiventris pallidiventris* from western (on left) and eastern (on right) Tanzania (Jason Anderson, © Museum für Naturkunde, Berlin)

Plumage.—Descriptions of *M. r. masukuensis* and *pallidiventris* in the literature indicate significant differences only in underparts plumage. *M. r. pallidiventris* is described as having ‘pale pinkish-buff’ (Harrap & Quinn 1996: 339), ‘pale, washed-out cinnamon’ (Fry *et al.* 2000: 96) or similar, from the lower breast to the vent, compared to darker ‘pinkish-cinnamon’ (Harrap & Quinn 1996: 339) in *masukuensis*. The head and throat are described as black in both taxa, becoming mid grey on the breast, with *pallidiventris* generally considered paler grey on the breast (e.g. Fry *et al.* 2000: 96). Some variation has been noted: Harrap & Quinn (1996: 341) stated that Tanzanian *pallidiventris* ‘average greyest (least cinnamon) on the underparts’ (i.e. belly) among all *pallidiventris* populations, and Irwin (1981: 253) mentioned that *pallidiventris* in Zimbabwe ‘appears to be unstable, with the abdomen ranging from pinkish buff to pale vinaceous’ (discussed further below). Benson *et al.* (1971: 206) noted that *rufiventris* from the eastern plateau of Zambia (near Tanzania) ‘generally have the abdomen somewhat paler [than other *rufiventris* in Zambia], but are nearer to *masukuensis* than to *P. r. pallidiventris*’. The sexes are considered identical (e.g. Fry *et al.* 2000) or very similar, with male underparts possibly averaging a ‘slightly richer rufous’ (*masukuensis*) and the ‘female’s bib averaging slightly browner’ (*pallidiventris*) (Harrap & Quinn 1996: 337–339).

My comparison of the plumage of Tanzanian, Zambian and Malaŵian specimens of *pallidiventris* and *masukuensis* revealed the following. (1) Significant individual variation in the extent of the black throat between individuals in both east Tanzanian *pallidiventris* and *masukuensis* from Malaŵi and Zambia, but *masukuensis* generally has a broader grey band between the black throat and rufous underparts than east Tanzanian *pallidiventris* (on which the black usually extends to the upper, mid or lower breast). Notably, the four west Tanzanian specimens have less black (throat alone) than either east Tanzanian *pallidiventris* or Zambian *masukuensis*, and a mid-grey breast. The Leiden specimen has a slightly more extensive black throat than other western birds. Fig. 3 compares west and east Tanzanian specimens in Berlin, and Fig. 4 compares the Leiden western specimen (RMNH.AVES.13 1226) with east Tanzanian specimens.



Figure 4. Rufous-bellied Tit *Melaniparus rufiventris pallidiventris* syntype at Naturalis Leiden compared to other *M. r. pallidiventris* skins from eastern Tanzania (© Naturalis Biodiversity Center, Leiden)

(2) Of the west Tanzanian specimens, the three syntypes collected by Böhm (the southernmost of the western specimens) exhibit the darkest belly, intermediate between east Tanzanian *pallidiventris* and Zambian *masukuensis*. The two northernmost specimens (ZMUC 75.614, ZMB 2000/2138) are paler on the belly, similar to eastern *pallidiventris* (Figs. 3–4).

(3) No consistent differences were noticed between male and female specimens of any of the taxa within the *rufiventris* complex, *contra* Harrap & Quinn (1996).

Eye colour.—According to the literature (e.g. Harrap & Quinn 1996, Fry *et al.* 2000), the key difference between *pallidiventris* and *masukuensis* is iris colour, documented as brown, dark or dark brown in *pallidiventris* and ‘conspicuously yellow’ (Harrap & Quinn 1996: 337) or ‘pale yellow to brown’ (Fry *et al.* 2000: 96) in *masukuensis*. The following was noted on specimen labels. (1) Most significantly, of the five west Tanzanian *pallidiventris* specimens, one of the three syntypes (ZMB 34760, female) had yellow-white (‘gelbweiß’) eyes. Three (ZMB 34759, ZMB 2000/2138 and ZMUC 75.614) had brown eyes. Eye colour is not known for the Leiden syntype. Eye colour on the 19 eastern Tanzanian specimens was brown ($n = 2$), russet ($n = 2$), coffee-brown ($n = 1$), yellow-brownish (gelbbraunlich) ($n = 1$) or unknown ($n = 13$). (2) Of the 22 non-Tanzanian adult *pallidiventris* at Tring, eye colour was recorded as sepia ($n = 7$), brown ($n = 2$), black ($n = 1$), ‘dark sepia’ ($n = 1$), ‘pale burnt umber’ ($n = 2$), light brown ($n = 1$), pale brown ($n = 1$: NHMUK 1946.5.766, male, from Kota Kota, central Malaŵi, discussed below), yellow ($n = 1$: NHMUK 1933.5.11.55, female, from Kazimuli, eastern Zambia, discussed below) or unknown ($n = 7$). (3) Of the 19 *masukuensis* specimens at Tring, eye colour was recorded as pale yellow ($n = 9$), pale ochre-yellow ($n = 1$), ‘pale yellow, outwardly brownish’ ($n = 1$), very pale yellow ($n = 1$), brown ($n = 1$: NHMUK 1935.10.9.150, adult female, from Fort Hill, now Chitipa, northern Malaŵi, discussed below), and was unrecorded for six specimens.

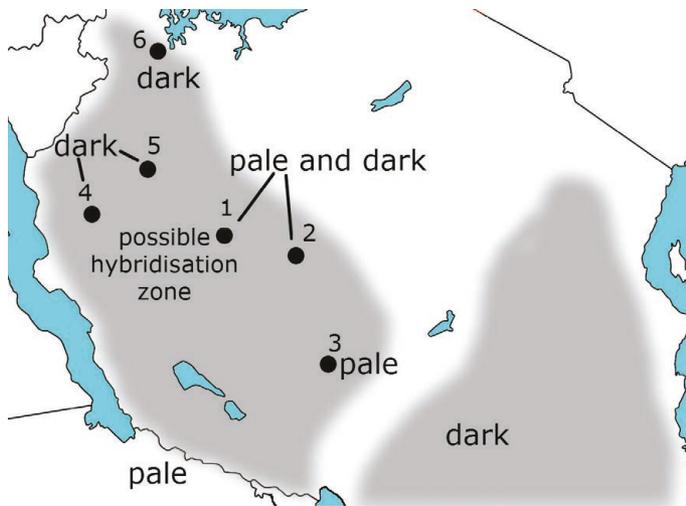


Figure 5. Distribution of eye colour and underparts coloration in Rufous-bellied Tits *Melaniparus rufiventris* in western Tanzania, including possible hybridisation zone between *M. r. masukuensis* and *M. r. pallidiventris* (1 = *pallidiventris* syntypes; 2 = sight records by J. Anderson; 3 = sight records by S. Stolberger & R. Glen; 4 = ZMUC 75.614; 5 = ZMB 2000/2138; 6 = sight records by M. Baker). Grey indicates approximate range of the species in Tanzania.

Discussion

The above records, including field observations and specimen ZMB 34760, confirm the previously undocumented presence of pale-eyed *M. rufiventris* in western Tanzania, from both Ruaha National Park in Mbeya Region, and Itulu Hills Forest Reserve, Tabora Region, >250 km to the north. Given that the southernmost records in Ruaha National Park are all of pale-eyed birds (best assigned to *masukuensis*), while the northernmost records all involve dark-eyed birds, and that records from Tabora midway between them are of pale- and dark-eyed individuals (even within the same flock), the presence of a hybrid zone between *pallidiventris* and *masukuensis* in west-central Tanzania appears probable (see Fig. 5).

Intergradation between *masukuensis* and *pallidiventris* has been suggested by several authors, including Benson & White (1957), Benson *et al.* (1962), Mackworth-Praed & Grant (1963) and Benson & Irwin (1967), who all suggested that intermediates occur in the Zimbabwe / Zambia border region where the two meet. Mackworth-Praed & Grant (1963: 423) also suggested that intermediates occur between nominate *rufiventris* and 'the Tabora race', i.e. *pallidiventris* in 'south-eastern Congo', without providing a source for this. The dark-eyed *masukuensis* specimen (NHMUK 1935.10.9.150) from Fort Hill in northernmost Malawi would also support the hybrid zone theory, if the form in adjacent Tanzania proved to be *pallidiventris*. Harrap & Quinn (1996: 341) discussed several of the above-mentioned hybrids including the Fort Hill, Kazimuli (NHMUK 1933.5.11.55) and Kota Kota (NHMUK 1946.5.766) specimens; they concluded that 'In all the 'intermediates' seen from Malawi or eastern Zambia, the underparts colouration is close to or identical to that of the paler Rufous-bellied Tits found in eastern Zambia, and their status as hybrids appears to rest on eye colouration. As this has clearly been incorrectly noted in some cases, the existence of any hybrids is still to be proven.' My examination of the Fort Hill and Kazimuli specimens is in agreement with Harrap & Quinn (1996) regarding their underparts coloration, but it is also important to note that a 'paler' *masukuensis* is already intermediate between *masukuensis* and the rather rufous *pallidiventris* in southern Malawi. Comparison of several individuals of both taxa from Malawi, arranged north to south, then across the rift and south again reveals clinal variation in underparts coloration, as Fry *et al.* (2000) suggested (see Fig. 6). Given that the Kota Kota *pallidiventris* specimen (NHMUK 1946.5.766, male) is well within the known range of *masukuensis* (Dowsett-Lemaire & Dowsett 2006) and very similar in underparts coloration to another *masukuensis* specimen from the same locality, I



Figure 6. Rufous-bellied Tit *Melaniparus rufiventris masukuensis* and *M. r. pallidiventris* specimens from Malaŵi, showing clinal variation in underparts coloration (Jason Anderson, © Natural History Museum, Tring)

suggest that this individual is best considered as *masukuensis*. Based on locality (Dowsett *et al.* 2008) and iris colour, the Kazimuli specimen (NHMUK 1933.5.11.55, female) is also safely assigned to *masukuensis*.

Alternative explanations for the co-occurrence of pale- and dark-eyed birds within the same population can be tentatively discounted, including the possibility that eye colour variation is sex-related (of the *pallidiventris* syntypes, one female was pale-eyed and two females dark-eyed) or seasonal (Böhm's pale- and dark-eyed syntypes were collected in August 1881, and I recorded pale- and dark-eyed birds together in January 2011). Seasonal movements can also be discounted. Although two references to local movements exist (Mackworth-Praed & Grant 1963: 423, Belcher 1930: 276–277), the vast majority of sources regard *pallidiventris* as sedentary (e.g. Dowsett-Lemaire & Dowsett 2006, Dowsett *et al.* 2008).

The confirmed occurrence of pale- and dark-eyed birds in the same population, even if this is a 'hybrid' form, is notable. Several sources (e.g. Hall 1960, White 1963) have suggested the presence of hybrids between two species fairly closely related to the *rufiventris* complex (Johansson *et al.* 2013), namely pale-eyed White-shouldered Tit *M. guineensis* and dark-eyed White-winged Tit *M. leucomelas* where these two meet (including in south-west Uganda and 'purpurascens' in south-west Ethiopia), although Harrap & Quinn (1996: 324) considered that evidence for hybridisation between them is still lacking.

Taking both iris colour and the degree of rufous in the belly into account, a surprising pattern is apparent among western birds. Those individuals closest to *masukuensis* were all recorded or collected in the southern half of the western range of *pallidiventris*, closer both to the known range of *masukuensis*, as expected, but also, paradoxically, to the only potential interface between western and eastern populations in Tanzania, at the southern end of the Gregory Rift, where stunted miombo may provide a conduit for gene flow between these populations. A specimen from Chimala in this area, in Chicago (FMNH 216938), proved to be an erroneously labelled White-bellied Tit *M. albiventris* (see Fig. 1). Individuals closest in appearance to *pallidiventris* were all from north-west Tanzania (Mgenda, Busondo and

Tulawaka), furthest from eastern *pallidiventris*. This unusual pattern is suggestive of a comparatively recent colonisation event, in which the slightly larger *masukuensis* has moved east from north-east Zambia into south-west Tanzania, breeding with and perhaps partially displacing the smaller *pallidiventris*. This would account for the unstable eye coloration, the slightly darker belly of the more southerly birds and the lack of records of pale-eyed birds in north-west Tanzania.

Aside from eye colour, and the probably clinal degree of rufous saturation on the belly, the comparative lack of black on the breast of west Tanzanian *pallidiventris*, compared both to east Tanzanian *pallidiventris* and *masukuensis*, could signal western birds' distinctiveness from eastern birds or *masukuensis*. This raises interesting taxonomic questions, given that Reichenow's *pallidiventris* syntypes were all collected within the suggested hybrid zone. While all three are very slightly paler in belly coloration than north-east Zambian *masukuensis*, they are also marginally darker than east Tanzanian *pallidiventris*, which was noticed by Shelley (1900: 240) when he described *rovumae* (1892, now a synonym of *pallidiventris*) as having a 'paler buffy white breast' than Reichenow's *pallidiventris*. If these differences are confirmed in future, resurrection of *rovumae* for the population east of the central Tanzanian Gregory Rift would be warranted, with differences between the two including the dark brown iris of *rovumae* compared to unstable eye colour (pale to dark brown) in *pallidiventris*, black throat and upper breast of *rovumae* compared to dark grey or black throat and mid-grey breast of *pallidiventris*, and the slightly richer orange belly of *pallidiventris*.

Conclusions

The question of whether the *rufiventris* complex should be treated as two species (Rufous-bellied and Cinnamon-breasted Tits) still requires clarification, although given that the single most distinctive feature used to justify separating them (iris colour) is now known not to be distinctive, and with documentation of a probably hybrid zone, my findings lend support to the opinion that just one species is involved. Clearly, further research is required, including molecular sampling of all populations within *rufiventris* to clarify levels of divergence between them. In addition, further records from Tanzania west of the Gregory Rift will be instrumental in helping to conclude if east and west Tanzanian forms of *M. r. pallidiventris* are distinct, thereby justifying recognition of *rovumae*.

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The chequered history of the Chattering Kingfisher *Todiramphus tutus* on Tahiti. I: type specimens

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SUMMARY.—We discuss the provenance of two specimens claimed to be the type of Chattering Kingfisher *Todiramphus tutus*: one each in Liverpool, UK, and Leiden, the Netherlands. The type was collected during Cook's third voyage. Our research indicates that neither is the type specimen, which is probably now lost, like most Cook specimens. Instead, both may have been collected by George Bass, who has been neglected as an important source of Pacific material. Bass contributed to the Baudin expedition to Australia and the Pacific that sailed under the French flag. The Muséum National d'Histoire Naturelle (MNHN), Paris, received many specimens collected during this expedition, and also had strong links with important collectors such as Temminck, the Leverian Museum and Bullock, resulting in their receiving some Pacific material via this source. This may explain the presence of the Chattering Kingfisher specimens in Liverpool and Leiden.

On Tahiti, in the Society Islands, French Polynesia, two species of kingfisher are said to occur: Society (Tahitian) Kingfisher *Todiramphus veneratus* and Chattering Kingfisher *T. t. tutus* (Pratt *et al.* 1987, Fry *et al.* 1992). The present status of the first species on Tahiti is clear, but that of the second is not (*cf.* van der Vliet & Jansen 2015). The first reports of kingfishers on Tahiti date from the three Cook voyages in the late 18th century. On the first, Parkinson (1773: 100) mentioned a blue-and-brown 'sacred' kingfisher from Otaheiti (=Tahiti) in July 1769. During the second, in August–September 1773, the ship's naturalist, Rheinhold Forster (*in* Lichtenstein 1844: 162–163), reported a kingfisher on Tahiti, Huahine, Raiatea and Tahaa. The accompanying drawing by Forster's son, George, is of a Society Kingfisher of the nominate subspecies, which is confined to Tahiti (Lysaght 1959, Medway 1979), being instantly identified by the black breast-band, which sets this taxon apart from other tropical Pacific kingfishers. On the plate, Forster noted that the bird is called 'Erooro' on Tahiti. However, Forster's work is not the type description and it is noteworthy that the Forsters neither described nor illustrated Chattering Kingfisher. During the third and last voyage, Cook & King (1784: 33) reported a kingfisher 'Eatooa' during a ceremonial at present-day Marae Atehuru in September 1777. Whether the reports of the first and third voyage referred to Society or Chattering Kingfisher is unknown.

Both kingfisher species were then reported in more detail by Latham (1782) based on specimens collected during either Cook's second or third voyage. Latham's (1782) work formed the basis of the scientific descriptions by Gmelin (1788), who formally described Chattering Kingfisher as *Alcedo tuta* (from Tahiti) and Society Kingfisher as *A. venerata* (from Apye, Insula Amici; present-day Ha'apai, Tonga).

To resolve the confusion surrounding the taxonomic history of Chattering Kingfisher, we examined the earliest writings and illustrations of the species. We focus on two extant specimens both with claims to be the type: one at the World Museum, Liverpool (LIVCM), UK, and the other at the Naturalis Biodiversity Center (Naturalis), Leiden, the Netherlands. We also discuss the routes via which these specimens may have reached these collections.

We postulate that the Muséum National d'Histoire Naturelle (MNHN), Paris, played an important role.

Description of relevant types by Latham and Gmelin

Gmelin (1788: 453) described several kingfisher species of which three are relevant for Tahiti and the Society Islands. His descriptions were almost a literal translation of the English descriptions by Latham (1782). Gmelin first described Respected (=Chattering) Kingfisher *Alcedo tuta* (his no. 28), type locality Tahiti, then Venerated (now Society or Tahitian) Kingfisher *A. venerata* (no. 29), from Apye, Insula Amica (Ha'apai, Tonga). Finally, he described several varieties of Sacred Kingfisher *A. sacra* (now *T. sanctus*), his no. 30, quoting its range as the Society Islands, New Zealand and the Philippines. In all of his descriptions, Gmelin referred to Latham (1782: 621–624). It is interesting that Latham described these three species in reverse order, first Sacred Kingfisher and Chattering Kingfisher last.

For nomenclatural purposes, it is relevant to quote Latham's descriptions in full. He first described the main variety of Sacred Kingfisher (p. 621; no. 12) from specimen(s) in the Leverian Museum: 'This species seems bigger than the common Kingfisher: the length is nine inches and a half. The bill is strong, depressed, an inch and three quarters long, and of a lead-colour: but the under part of the lower mandible is white: the head and below the eye, on each side, as well as the upper parts of the body, are of a light blue green, darkest about the ears: over the eye is a stripe of pale ferruginous, beginning at the nostrils, and meeting at the back part of the head: under the blue beneath the eye, a narrow orange ferruginous stripe; and beneath that, on the nape is a blue band: quills and tail blackish; the outer edges blue, and when closed appear wholly blue; all the under parts are white, with a tinge of buff-colour passing round the neck as a collar, the legs are black. This, and its Varieties, inhabit Otaheite, and the other Society Islands in the South Seas.'

Using specimens from the Leverian Museum (as indicated in his text), he then described four more varieties of his Sacred Kingfisher. Varieties C and D were specifically stated by Latham to originate from New Zealand and the Philippines, respectively, so these are not our concern here. Latham's descriptions of varieties A and B follow.

Variety A: 'The first variety has a white band over the eye to the hind head, instead of ferruginous: beneath this band, at the nape, is one of black, which in the other is blue: the scapulars also are much more inclined to green, and darker than in the former bird: and the white on the neck, and the sides of the breast, has each feather fringed with ash-colour: the knees of both are black a very little way up on the outside. I observed in one of these a slender black line, which divided the white collar on the neck, exactly in the middle.'

Variety B (depicted on Pl. 27): 'Another variety, said to come from Ulietea, was of the same size as the above. Bill the same: the crown of the head greenish black: over the eye a ferruginous streak, beneath, and behind the eye a broad streak of black, which passed to the hind head, and encompassed it all round: chin white: neck, breast, and belly, pale ferruginous: this colour encompassing the neck like a collar: each feather of the throat, neck, and breast, margined with dusky: outside of the thighs blackish, as in the others: back and wings like the head: rump pale bluish green: quills and tail feather blackish, with blue margins: legs dusky.'

Latham then described his Venerated Kingfisher (=Society Kingfisher) (pp. 623–624; no. 13), from specimen(s) in the Leverian Museum: 'Length nine inches. Bill an inch and three quarters long, much depressed, and of a black colour: but the base, for above half an inch, of the under mandible is white: the upper parts of the body are light brown, in some parts mixed with greenish feathers, in others tinged only with glossy green, from the

eye to the hind head, this last colour is very conspicuous, forming a kind of wreath round the back part of the head, at which place it inclines to white: the wing coverts are brown, many of them margined with green: the secondaries are also brown with green margins, and many of them as long as the greater quills, which are only edged with green for about half their length: the upper parts of the body are very pale: the tail is not quite four inches in length, rounded at the ends, and coloured as the quills: the shafts of both quills and tail are chestnut, legs dusky. This species inhabits Apye, one of the Friendly Islands, where it is held as sacred among the natives as that of Otaheite.'

Finally, Latham described his Respected Kingfisher (= Chattering Kingfisher) as follows (p. 624; no. 14), without referring to a source for the specimen(s): 'Size of our common Kingfisher: length eight inches and a half. Bill depressed, black, and an inch and a half in length; the lower mandible white: the upper parts of the body olive-green: over the eye a white streak: round the neck a collar of greenish black: the under parts of the body white: tail longish: legs black. Inhabits Otaheite, where it is called Erooro. It is accounted sacred, and not allowed to be taken nor killed.'

Some of the bird specimens from Cook's voyages ended up in the collection of Sir John Ashton Lever, with the rest in the collection of the Royal College of Surgeons, London (see below under 'MNHN and Bullock'). It is thus relevant that Latham specifically stated that the varieties of Sacred Kingfisher, as well as the Venerated (=Society) Kingfisher, were described from specimens in Lever's collection (then the Leverian Museum). For his Respected (=Chattering) Kingfisher, this is not stated and Latham may have used other sources to describe this species (Latham 1781: iv, Sharpe 1906: 90, Sawyer 1949). One such source may have been the collection of Sir Joseph Banks because kingfishers from Polynesia are mentioned in two undated catalogues prepared by Jonas Dryander of this collection (*cf.* Medway 1979). The inclusion of kingfishers in these catalogues indicates that Banks may have possessed specimens of Chattering Kingfisher. Dryander pointed out that Tobias Furneaux was the source of these kingfishers (Dryander n. d.). This points to Cook's second voyage as the origin because Furneaux served as captain on Cook's companion vessel. From the very brief descriptions in Dryander, it may be deduced that Banks indeed possessed a Chattering Kingfisher, although the species was neither described nor depicted by Forster (*in* Lichtenstein 1844). It could also be that the kingfisher in Banks' collection was a similar species like Collared Kingfisher *T. chloris* or even Society Kingfisher (*cf.* Cibois & Thibault 2009).

Some observations concerning the scientific descriptions should be made. First, they contain some errors. Latham mentioned that two species occur on Otaheite (=Tahiti), namely his Sacred and Respected Kingfishers. However, Sacred Kingfisher does not occur on Tahiti, so the type locality is erroneous. Likewise, his type locality for Venerated Kingfisher is wrong, as this species does not occur on Ha'apai, Tonga, but on Tahiti. Both errors may be the result of the often erroneous labelling of many of Cook's specimens (Stresemann 1950). Second, the description of Sacred Kingfisher represents a composite of taxa (Finsch & Hartlaub 1867). Sacred Kingfisher (as it is known now) occurs neither on the Society Islands nor in the Philippines (where it is replaced by Collared Kingfisher *T. c. collaris*). We agree with D. G. Medway (*in* Largen 1987) that the description of variety A is a good match for Chattering Kingfisher. Latham's Sacred Kingfisher thus comprises taxa that are present-day Sacred Kingfishers (main variety and variety C), Collared Kingfisher (variety D) and Chattering Kingfisher (variety A). Variety B is more difficult to identify, but Medway (*in* Largen 1987) associated it with the Tanna (Vanuatu) subspecies of Collared Kingfisher *T. c. tannensis*. The situation of Latham's Respected Kingfisher vs. his variety A of Sacred Kingfisher recalls the situation in which Latham (1801a,b, 1822) described the same

species (Yellow-tufted Honeyeater *Lichenostomus melanops*) using four different English names and three Latin binomials (Jansen & Roe in prep.).

Third, there has been doubt concerning the age of the type of Chattering Kingfisher. For instance, Lysaght (1959) was of the opinion that the type concerned a young bird based on the upperparts colour (olive-green rather than brilliant greenish blue). Because many juvenile *Todiramphus* are heavily scaled brown and grey (e.g. Sharpe 1868), Latham's type description must refer to a subadult.

Finally, because Gmelin formally described the kingfishers in reverse order to Latham, no nomenclatural problem exists with respect to present-day Chattering Kingfisher. The name of Gmelin's Respected (=Chattering) Kingfisher appears before variety A of Gmelin's Sacred Kingfisher. Although Coues (1879: 690) described Gmelin as 'the industrious but indiscriminate and incompetent compiler of the xiii. ed. of the Syst. Nat.', Gmelin was right in this case!

Plates by Webber and Ellis

In reconstructing the history of type specimens collected during Cook's third voyage, several authors have stressed the importance of paintings by John Webber and William Wade Ellis. These illustrate species collected during this voyage (Lysaght 1959). Because many type locations given by Latham (and therefore Gmelin) are as erroneous as his descriptions, Stresemann (1950) suggested that annotations on Ellis' paintings of the specimens provide the most accurate information on their type localities. Stresemann (1950) apparently based this conclusion on Sharpe (1906). Latham never mentioned the paintings by Webber and Ellis, and was perhaps not even aware of them. We examined the relevant paintings on 29 July 2014 at the Natural History Museum (NHMUK) and British Museum (BM), both in London, to determine the species depicted and to note any other information written on them, although we did not examine their reverse sides as all are framed. By these means, we could determine if Chattering Kingfisher was ever certainly recorded during Cook's voyages. If so, specimens of the species may have been available.

Following Lysaght (1959), relevant paintings are as follows, one by Webber—Pl. 135 ('*venerata*')—and two by Ellis—Pl. 22 ('*tuta*') and Pl. 23 ('*venerata*'). We now discuss these three paintings in this order.

Lysaght (1959) identified the bird on Webber's plate as a Society Kingfisher of the nominate subspecies from Tahiti (Fig. 1). We disagree and instead identify it as an example of the subspecies *youngi* of Society Kingfisher from Moorea, as the bird in the painting is very brownish with an indistinct brownish breast-band and only a greenish tinge to its primary-coverts. This matches present-day descriptions of *youngi* perfectly (Fry *et al.* 1992, Gouni & Zysman 2007). Webber illustrated just one kingfisher species for the Society Islands, as did Forster during Cook's second voyage (Lichtenstein 1844).

Ellis, on the other hand, painted two species. We agree with Lysaght (1959) that Ellis' Pl. 22 depicts a Chattering Kingfisher (Fig. 2). As deduced above, the illustration may in fact represent a subadult bird. Stresemann (1950) and Lysaght (1959), following Sharpe (1906), noted that the locality was Otaheite (=Tahiti), but we cannot confirm this. Pl. 23 was identified by Lysaght (1959) as a Society Kingfisher, perhaps of the subspecies *youngi* (Fig. 3). We agree. Stresemann (1950) and Lysaght (1959), following Sharpe (1906), noted the locality as the Friendly and Society Islands, but again we cannot confirm this. The only relevant note on the painting by Ellis is his remark that the bird is called 'Errooro' on Tahiti (similar to the name mentioned by Forster) and 'Tautoria' on Ulitea (=Raiatea). Both names compare well with Townsend & Wetmore (1919) who stated that kingfishers are called 'Ruru' on Tahiti and 'Otatari' on Bora Bora.



Figure 1 (above left). Pl. 135 by John Webber, painted during Cook's third voyage; we consider this bird to be a Society Kingfisher *Todiramphus veneratus youngi* from Moorea (© British Museum, London)

Figure 2 (above right). Pl. 22 by William Wade Ellis, painted during Cook's third voyage; we consider this bird to be a Chattering Kingfisher *Todiramphus t. tutus* (Justin J. F. J. Jansen © Natural History Museum, London)

Figure 3. (left) Pl. 23 by William Wade Ellis, painted during Cook's third voyage; we consider this bird to be a Society Kingfisher *Todiramphus veneratus youngi* from Moorea (Justin J. F. J. Jansen © Natural History Museum, London)

From our review of relevant paintings of Polynesian kingfishers, it is clear that Chattering Kingfisher was collected during Cook's third voyage as evidenced by the Ellis painting (Fig. 2), making it entirely conceivable that Latham and his contemporaries saw the type specimen(s) in a European collection. It is unclear if the species was collected during the second voyage because Forster does not mention it. The other paintings by Webber and Ellis refer to Society Kingfisher and do not concern us.



Figure 4. Specimen of adult Chattering Kingfisher *Todiramphus t. tutus*, LIVCM D2326, considered to be the type specimen by Largen (1987), but this cannot be confirmed (Tony Parker © World Museum, Liverpool)



Figure 5. Specimen of adult Chattering Kingfisher *Todiramphus t. tutus*, Naturalis, Leiden (RMNH.AVES.204880), considered to be the type specimen by Lysaght (1959), but this cannot be confirmed (© Naturalis, Leiden)

Whereabouts of the 'type' of Chattering Kingfisher

Two different specimens have been postulated in recent literature to be the type of Chattering Kingfisher. Largen (1987) concluded that a specimen now at LIVCM may well be the type specimen (Fig. 4), whereas Lysaght (1959) stated that a bird currently at Naturalis is the type (Fig. 5). These specimens could have arrived in these collections via the auctions of the Leverian Museum in 1806 (LIVCM) and Bullock's museum in 1819 (Naturalis). At

both auctions, many ornithologists bought specimens and this resulted in Cook's material being spread across various private and public collections (Whitehead 1969). Apparently Bullock was an important purchaser of ethnographic material at the Leverian auction in 1806, which explains the significance of the auction of Bullock's collection with respect to the provenance of Cook's material (*cf.* Stresemann 1951, Whitehead 1969, Kaeppler 2011). For both auctions, catalogues describing the lots were published. Several copies, sometimes annotated with buyer's names, still exist. In the annotated catalogues of the Leverian auction Bullock's name does not feature as a significant purchaser of bird material, which seems to contradict his often-stated prominent presence. However, Bullock may still have possessed Leverian specimens, acquired post-1806 (*cf.* Sharpe 1906, Whitehead 1969). Using the annotated auction catalogues, in many cases we can discover who bought which specimens, and where they ended up. We now discuss the histories of relevant kingfisher specimens sold at these two auctions.

Leverian Museum.—Several kingfishers from Cook's voyages were held in this museum, as evidenced by the plates by Sarah Stone (Jackson 1998), who worked in the museum between 1777 until its closure in 1806. Stone painted two undated plates of Polynesian kingfishers: Pl. 41 (Jackson 1998: 116) and Pl. 40 (Jackson 1998: 134).

The Leverian auction took place between 5 May and 19 July 1806, and several examples of the sale catalogue are still extant (Largen 1987, Kaeppler 2011). We used the 1979 reprint (King & Locheé 1979a), as well as original copies at NHMUK (annotated by W. Clift) and the Cuming Museum (CM), London (annotated by G. Humphrey; Jackson 1998). For each of the lots listed below, its description and the buyer's annotation per copy is presented: (i) lot 2778 'Sacred Kingfisher, *Alcedo sacra*, from New Holland'. Siviers (King & Locheé 1979a), Siviers (NHMUK), Siviers (CM); (ii) lot 4251 'Venerated Kingfisher, *Alcedo venerata*, m. and fem. Very rare'. Vaughan (=Revd. Vaughan; Kaeppler 2011) (King & Locheé 1979a), Vaughan with annotation 'White Kingfisher' (NHMUK), Vaughan (CM); (iii) lot 5612 '*Alcedo sacra*, m. and fem.'. Thompson (King & Locheé 1979a), Thompson (NHMUK), Thompson (CM); (iv) lot 6084 'a curious Kingfisher, S. Seas'. No annotation (King & Locheé 1979a), no annotation (NHMUK), Fichtel (CM); and (v) lot 6594 'Small-belted Kingfisher'. Fichtel (King & Locheé 1979a), Fichtel with annotation 'black belt across the belly' (NHMUK), Fichtel (CM). It is unclear who Siviers, the buyer of lot 2778, was (Whitehead 1978, Kaeppler 2011; A. Kaeppler *in litt.* 2014). This specimen is probably lost.

Von Fichtel represented the Imperial Museum in Vienna, Austria (now the Naturhistorisches Museum Wien; NMW) at the auction. Sources indicate that specimens pertaining to three lots (4251, 6084 and 6594) reached NMW (von Pelzeln 1873, Bauernfeind 2004, Schifter *et al.* 2007), even though lot 4251 was originally purchased by Vaughan (annotations in sale catalogues). Presumably, von Fichtel bought it from Vaughan shortly thereafter. Extant specimens that probably refer to these lot numbers are a Collared Kingfisher *Todiramphus collaris sacer*, Sacred Kingfisher *T. s. sanctus* and Society Kingfisher. However, ambiguity exists as to which specimen represents which lot number; for example, the small-belted specimen of lot 6594 is now associated with the Sacred Kingfisher, which lacks a 'black belt across the belly' (annotation in the NHMUK sale catalogue). It is beyond our scope to examine this anomaly in more detail, as none of these three specimens is of Chattering Kingfisher.

John Thompson, taxidermist at the British Museum, London, bought lot 5612, comprising two birds, having been asked by Lord Stanley to purchase specimens when the latter did not attend the auction personally (Largen 1987). According to Largen (1987) one bird in the lot was misidentified, but the other was a Chattering Kingfisher (specimen D2326). Specimen D2326 is still present at LIVCM (Fig. 4), and originated from the Leverian

Museum (according to its label). Like Largen (1987) we cannot completely eliminate the possibility that this specimen is the type, but neither can this be proven. Wagstaffe (1977) did not include it in his list of type specimens at the Liverpool museum.

Bullock's museum.—Bullock did not purchase any of the kingfisher lots from the Leverian Museum in 1806, but he may well have received or bought specimens whose origins cannot be traced (Medway 1979). Because the specimen of Chattering Kingfisher at Naturalis carries the annotation 'type' on its label (see below), we now discuss its provenance as a Cook specimen.

Temminck did not purchase specimens at the 1806 auction (Whitehead 1969, 1978) but he was a prominent buyer at the Bullock auction (Whitehead 1969). Jansen & Roe (2013) described the various extant catalogues of the Bullock auction. For this paper, we consulted the reprint (King & Locheé 1979b), as well as copies at NHMUK, Cambridge (UK) and Naturalis. The latter is the original catalogue with notations in Temminck's hand. For each of the lots listed below, its description and the annotation (of the buyer) per copy is given: (i) lot 2 (18 May 1819) 'Sacred Kingfisher, *Alcedo sacra*'. Temminck (King & Locheé 1979b), Temminck (NHMUK), Temminck (Cambridge), Temminck (Naturalis); (ii) lot 5 (18 May 1819) 'Sacred Kingfisher (male and female) *Alcedo sacra*'. Baron Laugier (King & Locheé 1979b), Baron Laugier (NHMUK), Laugier (Cambridge), no annotation (Naturalis); (iii) lot 5 (19 May 1819) 'Sacred Kingfisher, *Alcedo sacra*'. Bell (King & Locheé 1979b), Bell (NHMUK), Bell Buckingham (Cambridge), no annotation (Naturalis); (iv) lot 22 (1 June 1819) 'Sacred Kingfisher and Green Tody'. Fector (King & Locheé 1979b), Fector (NHMUK), Fector (Cambridge), no annotation (Naturalis); and (v) lot 99 (2 June 1819) 'Pair of Sacred Kingfisher (male and female)'. Vigors (King & Locheé 1979b), illegible (NHMUK), Vigors (Cambridge), no annotation (Naturalis).

Specimens purchased by Fector and Vigors went to unknown collections, and may be lost, leaving three lots whose route may be traceable. Baron Laugier purchased lot 5 on 18 May 1819, but in 1836 he specifically stated that he only possessed Sacred Kingfishers (Laugier de Chartrouse 1836). These were spread after the disposal of his collection in 1837 and it is unknown where his kingfishers are now.

Temminck made detailed notes of his purchases for Leiden University and these are available as an undated, seven-page list in the Naturalis archives (Temminck n. d.; cf. Jansen & Roe 2013). In this he crossed out lot 2 (from 18 May 1819), meaning that he probably exchanged this specimen during or soon after the auction, making the current whereabouts of this specimen hard to establish. Temminck also indicated that he purchased lot 5 on 19 May 1819 (attributed to Bell in the auction catalogues), and that it was *Alcedo sacra*. He must have bought it from Bell during or soon after the auction.

Naturalis holds six specimens of Chattering Kingfisher and the possibility remains that one is lot 5 from 19 May 1819, with the additional question as to whether it represents the species' type specimen. Of the six specimens, three adults were collected after 1823 and cannot be Cook specimens (compare the inventory in Schlegel 1863 with that in Schlegel 1875). Details of the other three follow, but note that when the collection was relabelled by Finsch in c.1890, all of the original data were lost. Finsch transcribed new labels (with his own interpretations) for all of them: (i) RMNH.AVES.204878, originated from the Cabinet Temminck (Temminck 1807) but no locality was given by Temminck (Schlegel added 'Taiti' in his catalogue and on the specimen's label). Adult. Indicated on the label as the type. Reference on the label is made to Temminck's catalogue (1807: 71, no. 963). (ii) RMNH.AVES.204879, no origin given (although Temminck indicated on the old pedestal that it originated from the Marquesas). Juvenile. (iii) RMNH.AVES.204880, originated from the

Bullock auction according to the label. Adult. Indicated as the type by Finsch. The label indicates that Temminck noted it was from Otahtiti / Society Islands.

RMNH.AVES.204879 cannot be the type specimen as it is a juvenile, whereas the type description refers to an adult or adult-type. While RMNH.AVES.204878 is labelled as being the type, it is not. This specimen originates from Temminck's private collection for which JFJJ recently unearthed an undated manuscript catalogue in the Naturalis archives (Temminck c.1805). Therein, Temminck does not mention a sacred-type kingfisher. However, it does appear in a revised list (Temminck 1807), meaning that between 1805 and 1807, Temminck acquired RMNH.AVES.204878. Note that Temminck did not state for each entry how many specimens were involved.

It is clear that, of the three specimens discussed, RMNH.AVES.204880 represents lot 5 from 19 May 1819, bought by Temminck at the Bullock auction. The specimen now bears a Finsch label with an erroneous lot number and date (lot 4, 18 May 1819; cf. Jansen & Roe 2013). We cannot certainly conclude that this specimen was collected during one of Cook's voyages because it is unclear from where Bullock acquired it. Van den Hoek Ostende *et al.* (1997) did not include the specimen in their list of type specimens at Naturalis.

Discussion

Provenance of Cook's specimens.—Our search for the type specimen of Chattering Kingfisher was unsuccessful for several reasons. First, it seems that two specimens are involved: Latham's Respected (=Chattering) Kingfisher and Latham's variety A of Sacred Kingfisher. Although two birds, said to be types, are still present in LIVCM and Naturalis, the provenance of both is uncertain. Neither was included in relevant lists of type specimens (Wagstaffe 1978, van den Hoek Ostende *et al.* 1997). Another reason for our lack of success is that many, if not most, of Cook's specimens were preserved in liquid (Burton 1969). Steinheimer (2005) mentioned that 53 birds from Cook expeditions still exist (either as skins or mounts). By far the majority are unlabeled, but they include two fluid-preserved specimens with marks on the jars dating from 1792 (Burton (1969).

The uncertainty of the type locality of Chattering Kingfisher led Stresemann (1950) to designate Raiatea. His rationale are unclear, but he apparently ignored the fact that Cook visited not only Raiatea but also Huahine and Bora Bora on the third voyage. The type specimen(s) may have originated from either of these other islands.

Muséum National d'Histoire Naturelle (MNHN) and the Baudin expedition.—Holyoak & Thibault (1982) mentioned that no collecting trip visited French Polynesia between the third Cook voyage (ending 1780) and that of the *La Coquille* in March–June 1823. However, they overlooked the explorations made by George Bass (1771–1803). Many old specimens, including the kingfisher(s), could have been taken by Bass (cf. Jansen 2014). Bass has been associated with the Baudin expedition (Bowden 1952, Estensen 2005, Starbuck 2009) and he visited Tahiti and French Polynesia. He probably collected (at least) five bird specimens in New Zealand ($n = 2$), Tahiti and Tonga ($n = 2$) in 1801–02 that were previously ascribed to the Baudin expedition (Jansen 2014). The latter returned to Europe in 1803–04 and most material was deposited at the Muséum National d'Histoire Naturelle (MNHN), Paris. Many specimens could therefore have spread via exchanges with other museums, which possibility we now explore in the remainder of the discussion.

MNHN and Temminck.—The private collection of Coenraad Jacob Temminck (1778–1858) in 1807 (Temminck 1807) shows strong similarities with that of MNHN. For example, Temminck possessed many specimens from regions (Africa, South America and the Caribbean) and collectors also well represented at MNHN. Because of the strong connection

between Temminck and MNHN, some of Bass's Pacific material could have found its way to Temminck, whose collection formed the basis of that now held in Naturalis.

The time of arrival of Temminck's Pacific specimens can be deduced by comparing the 1805 manuscript catalogue with the officially published version in 1807 (Temminck *c.*1805, 1807, 1858: 37). Several arrived in 1805–07, including a Chattering Kingfisher (RMNH.AVES.204878; Temminck 1807: 71) and four Grey-green Fruit Doves *Ptilinopus purpuratus* (RMNH.AVES.21937–940; Temminck 1807: 144). Because Temminck reworked these specimens with arsenic soap directly after receipt (*cf.* Farber 1977: 563), they are still in excellent condition and not faded. They may have originated from MNHN, because specimens from areas other than the Pacific, known to have come via MNHN, are listed in Temminck's (1807) catalogue.

MNHN and the Leverian Museum.—Pacific material from the Leverian Museum is often ascribed to Cook (*cf.* Stresemann 1953, Bauernfeind 2004: 557, Kaeppeler 2011). However, specimens may have been acquired from sources like MNHN as well. Specimens from Bass could have reached the Leverian Museum in this way. To establish a connection between MNHN and the Leverian Museum, we researched known specimens from the latter, with the watercolours of specimens and displays in the Leverian Museum by Sarah Stone, produced in 1777–1806 (Jackson 1998: 10), being our primary source.

The strongest evidence of a link between the two museums is the similarity between them in the presence of specimens from the Caribbean and Cayenne (=French Guiana). Stone depicted several species from the Caribbean including from San Domingo (=Hispaniola) and Puerto Rico in undated paintings. The Baudin expedition to the West Indies (1796–98) visited both islands and was one of the few to do so. Several specimens from this expedition are still extant (*cf.* Wetherbee 1985, Jansen 2014).

From French Guiana, MNHN received many specimens from French collectors, including Charles-Nicolas-Sigisbert Sonnini de Manoncourt, Mn La Brosse, Jean-Charles Brocheton, Jean-Baptiste Leblond and Louis Claude Richard (*cf.* Saint-Hilaire 1809, Berlioz 1938, Stowell Rounds 1990). In contrast, very few British collectors were active there. John Gabriel Stedman donated just 16 curiosities (none of them birds) in 1796 to the Leverian Museum (Kaeppeler 2011: 17), while the size of Mrs Blomefield's collection is unknown (Latham 1781: 44) and Charles Waterton only collected much later (Stowell Rounds 1990: 174–176). Thus, birds from the Caribbean and French Guiana in the Leverian Museum probably came via MNHN.

The presence of specimens from the Baudin expedition to Australia and the Pacific (1800–04) in the Leverian Museum may be the result of exchange between Parkinson (then owner of the latter collection) and MNHN, which received many specimens from the Baudin expedition on its return to France (*cf.* Jansen 2014). Unfortunately, these lack original labels like almost all pre-1800 material. It may well be that LIVCM specimen D2326 arrived via this route.

MNHN and Bullock.—Stresemann (1951: 126) regarded Bullock as an important buyer at the Leverian auction and therefore to have owned many birds collected during Cook's expeditions. In this respect, it is strange that Bullock's name hardly appears in the annotated catalogue of the Leverian auction. However, Bullock (1813) specifically referred to bird specimens from the Cook voyages, e.g. a Marbled Murrelet *Brachyramphus marmoratus* from Kamchatka (Bullock 1813: 54; *cf.* Schifter *et al.* 2007: 140–141), a Snowy Sheathbill *Chionis albus* (that arrived via the Royal College of Surgeons; Bullock 1813: 66) and several pigeons (Bullock 1813: 72). None of these was mentioned in earlier versions of his catalogue (e.g. Bullock 1809, 1812), so these probably reached him as late as 1812–13.

Several transactions of bird specimens between MNHN and Bullock are recorded. For example, a cockatoo from Australia was sent to Bullock on 31 August 1814. Bullock purchased or exchanged specimens collected for MNHN from dealers like Becou er, M. Gigot'orcia (Jansen 2014: 14) and Leadbeater (Johnstone *et al.* 2014). How birds from New Zealand (Kuhl 1820: 44, 86), Fiji (Kuhl 1820: 57), Tahiti (Kuhl 1820: 68) and New Caledonia (Kuhl 1820: 44–46) reached Bullock is unknown, nor is the original collector or the collection date of these specimens. These specimens could be birds collected either by Bass or during Cook's expeditions (*cf.* Jansen 2014). Perhaps RMNH.AVES.204880 arrived via this route at Bullock's auction, where it was bought by Temminck.

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The chequered history of Chattering Kingfisher *Todiramphus tutus* on Tahiti. II: review of status

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SUMMARY.—Chattering Kingfisher *Todiramphus t. tutus* is endemic to the Society Islands, French Polynesia, but is poorly known on the main island of Tahiti. We evaluated historic and recent evidence for the species' occurrence there, reviewing 115 specimens of Chattering Kingfisher in museums worldwide. Andrew Garrett collected most specimens in the 1870s on Huahine. We established that there are no reliable field observations of the species on Tahiti. Furthermore, we reveal uncertainties concerning at least eight specimens reportedly taken on Tahiti (of a total of 13). The locality of Tupai for two specimens is also questionable. We conclude that Chattering Kingfisher has never occurred on Tahiti or Tupai. The distribution of *T. t. tutus* should be restricted to the islands of Bora Bora, Huahine, Maupiti, Raiatea and Tahaa alone.

In the tropical Pacific, only a few islands host two species of kingfisher (Pratt *et al.* 1987, Fry *et al.* 1992, Dutson 2011). Tahiti (Society Islands, French Polynesia) is supposedly one of these. While sympatric occurrence of kingfishers is usually well documented, the situation on Tahiti is unclear. Society Kingfisher *Todiramphus veneratus* is well known and easily seen in secondary forests in lowland valleys, whereas the occurrence of the nominate subspecies of Chattering Kingfisher *T. t. tutus* on Tahiti is enigmatic because there are no confirmed recent reports. Nor can prehistoric occurrence of kingfishers on Tahiti be inferred, as no avian bones have been found there, unlike other Polynesian islands (Steadman 1995).

The lack of recent confirmed reports of Chattering Kingfisher on Tahiti adds to this confusion. Kingfishers are territorial species that respond aggressively to other species and conspecifics, and thus in general make their presence known to observers. However, the occurrence of Chattering Kingfisher on Tahiti could go unnoticed as, for this island, the species is reported to be present only in montane forest above 1,000 m (Holyoak 1974, Fry *et al.* 1992). On other islands within its range (i.e. Bora Bora, Huahine and Raiatea west of Tahiti), Chattering Kingfisher occurs from sea level to 800 m (Holyoak 1974, Fry *et al.* 1992), which makes it perhaps more readily observed. Chattering Kingfisher has never been reported on Moorea (the island closest to Tahiti), despite the species' occurrence on the other Society Islands (Fig. 1). Two other subspecies of Chattering Kingfisher have been described, but these occur on the Cook Islands and are not relevant to the present discussion.

We attempt to resolve the confusion concerning the occurrence of Chattering Kingfisher on Tahiti, by (1) examining the provenance of extant specimens of *T. t. tutus*, and (2) evaluating modern-day field observations of Chattering Kingfisher in the light of the similarity in plumage between Chattering and Society Kingfishers (Cibois & Thibault 2009). We also briefly discuss the type specimen as its type locality is Tahiti (Gmelin 1788, based on Latham 1782).

Extant specimens of Chattering Kingfisher

The taxonomic situation with respect to kingfishers in the southern Pacific in the 19th century was best described by Sharpe (1868) when speaking of Chattering Kingfisher: 'The confusion which has existed respecting the present species is probably unparalleled in the annals of Ornithological Science.' Hence, we refrain here from mentioning unsubstantiated reports and present data only on extant specimens, of which several are available in museums in Australia, Europe and North America. We collected data on specimens of *T. t. tutus* alone, because it has been reported to occur on Tahiti. Via a request to the eBeac email-group of European curators, we received information on most specimens of Chattering Kingfishers currently held in European and several North American museums. Other data were retrieved from online databases of museums worldwide and from personal requests by e-mail. Reference to Banes *et al.* (1973), Roselaar (2003) and Gill (2006) revealed several additional collections in North America, Europe, Australia and New Zealand where specimens of Chattering Kingfisher might be present, which we then contacted. Although we attempted to locate as many relevant specimens as possible, additional specimens probably exist that are not mentioned in Table 1. Nevertheless, we believe that firm conclusions can be drawn from our data. Data collated for each specimen were year and precise locality (island), collector's name, age (juvenile or adult), museum (acronyms are explained in Table 1) and collection number. If the collector is unknown, we note if the museum acquired the specimen via a well-known collector ('coll.' in Table 1) or a dealer (denoted 'via' in Table 1). For four specimens, no collector, former collection or dealer is known.

We retrieved data on 115 different specimens in 17 museums (Table 1). Most specimens are from Huahine (43), followed by Bora Bora (26), Raiatea (18), Tahiti (13), Maupiti (five) and Tahaa (three). Two specimens are labelled Tupai. For five specimens, it is unknown on which island they were collected. Specimens were collected up to 1973, when J.-C. Thibault obtained the last series (via a permit issued to MNHN: Thibault 1974). Collecting bird specimens is no longer permitted in French Polynesia.

The most important collector of Chattering Kingfisher specimens was Andrew Garrett, who worked in the Pacific for the Museum of Comparative Zoology, Cambridge, MA (MCZ; 1855–66) and subsequently (1866–79) for the Godeffroy firm (Thomas 1979, Scheps 2005). He lived on Huahine in the Society Islands between 1870 and his death in 1887 (Gräffe 1873, Scheps 2005). Garrett collected 38 specimens, all on Huahine, except three labelled Tahiti and one each Raiatea and Tupai. Rollo Beck, Ernst Quayle and their colleagues collected 14 specimens, mainly on Raiatea, during the Whitney South Sea Expedition in 1921–22, while Thibault took 13 specimens in 1973, including on Maupiti and Tahaa, where none had previously been collected.

Reports of Chattering Kingfisher from Tahiti since 1900

Two large-scale ornithological surveys of Tahiti were mounted during the 20th century: the Whitney South Sea Expedition between September 1920 and April 1923, and the other between 1986 and 1991 (Monnet *et al.* 1993). Neither recorded the species on Tahiti (Monnet *et al.* 1993).

Monnet *et al.* (1993) briefly reviewed field observations of Chattering Kingfisher on Tahiti and mentioned just two since 1900. The oldest was by Wilson (1907). Monnet *et al.* (1993) simply stated that Wilson collected the species, but Wilson's account is unclear as to what he observed. Wilson gave no description of the birds, while he clearly erred with respect to the occurrence of Society Kingfisher on Bora Bora (see below). We conclude that

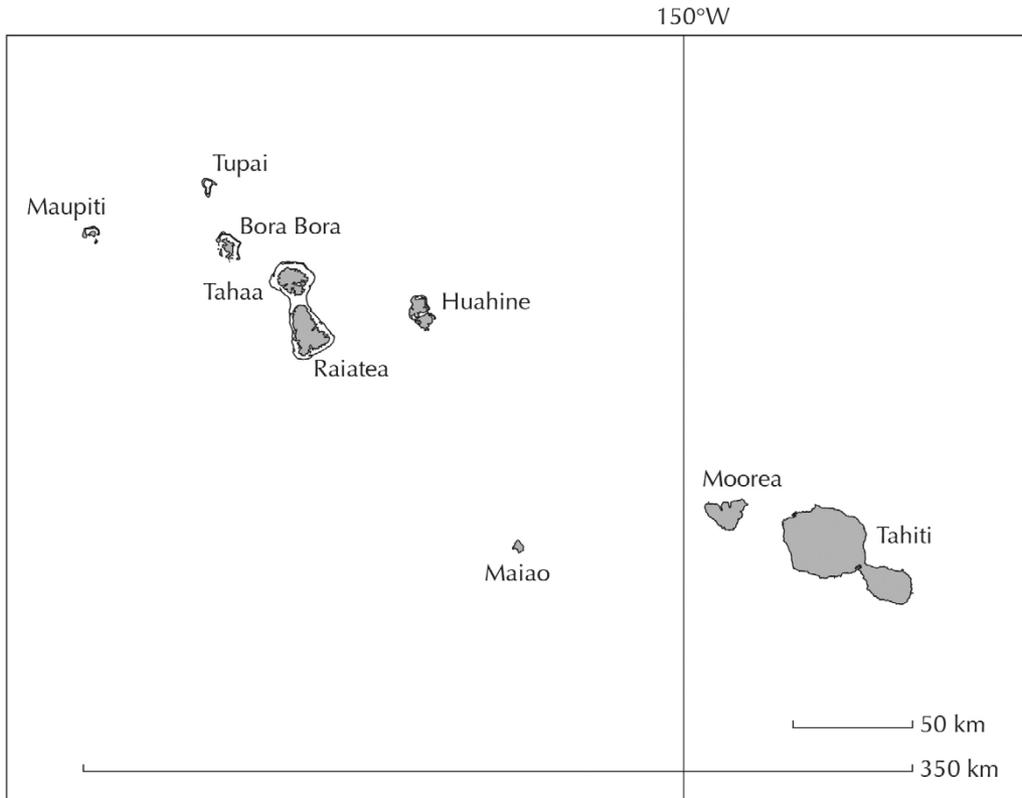


Figure 1. Map of French Polynesia showing the islands mentioned in the text.

his report of Chattering Kingfisher on Tahiti is unreliable. Holyoak (1974) is the source of the second observation mentioned by Monnet *et al.* (1993). He reported having observed 11 individuals in Mataiea district, Tahiti, in 1972, but he did not provide any description.

More recent observations of Chattering Kingfisher emanate from two sources, bird tours and observations by local birdwatchers reported in *Te Manu*. Two trip reports published on the internet mention records of Chattering Kingfisher on Tahiti. The first involved a probable heard-only in September 2006 (Morris 2006). However, the vocalisations of Chattering and Society Kingfishers are very similar (Fry *et al.* 1992), so this report can be discounted. The second is the description of a bird in the lower Papehue Valley on 3 September 2008 (Finn 2008). The lack of a breast-band, stressed as an identification character, does not exclude Society Kingfisher, while the rest of the description does not conclusively support identification as Chattering Kingfisher either.

Observations by local birdwatchers in 2002–08 fail to describe the distinguishing features well, and reports in *Te Manu* ceased following publication of Cibois & Thibault (2009) who stressed the superficial similarity in plumage between Chattering and Society Kingfishers.

Discussion

Mislabelling of specimens.—Many Chattering Kingfisher specimens are now held in Australian, European and North American museums. Most are attributed to islands

where it presently occurs (e.g. Bora Bora, Huahine and Raiatea). Thirteen are labelled Tahiti, but this locality is not without doubt. Tahiti is the main island in the group, and the annotation 'Tahiti' could just as well indicate that a specimen was collected somewhere in the archipelago, especially when collectors in Europe, or elsewhere, had never visited the region (cf. Rasmussen & Prŷs-Jones 2003). Also, when collections were transferred to museums, labelling was often performed by curators with no knowledge of Pacific avian distributions.

It is quite remarkable that three 'Tahiti' specimens are attributed to Garrett. Firstly, Garrett is primarily known for his collections of molluscs and sea life (Clench 1979). On request, he did collect specimens of other taxonomic groups like birds, but on the Society Islands he is known to have done so only on Huahine and Raiatea (Sclater 1864, Gräffe 1873). Furthermore, he collected for MCZ until 1866, but we are unable to locate any bird specimen from Tahiti attributed to Garrett in that collection. During the period he was employed by the Godeffroy firm, he did not collect birds on Tahiti because the French, who had claimed Tahiti since 1847, did not permit collecting of birds there (Schmeltz 1874). After 1870, Garrett mainly lived and collected on Huahine, so the origin of the Chattering Kingfishers supposedly collected on Tahiti is much more likely to be Huahine, where most of his specimens originated. Because of the French ban on bird collecting on Tahiti, the provenance of Reischek's Tahiti specimen also becomes suspect. Reischek was an Austrian collector and trader who was active mainly in New Zealand in 1877–89 (King 1981), during a period when the French were still present on Tahiti. Because Reischek never visited the latter himself, both his specimens could have been collected by Garrett.

Because the species' distribution only includes islands with a volcanic history, its occurrence on the atoll of Moto Iti or Tupoi (both names used for present-day Tupai), near Bora Bora, would be unusual. Two specimens are said to have been collected there. One was sent by Garrett to Canon Tristram and is now at LIVCM. As Tristram's labelling is known to contain errors (Wagstaffe 1978), the locality may represent one such. A second specimen from Tupai was collected by J. T. Reinhardt during the first *Galathea* expedition, on 15 December 1846 (ZMUC 70305). It was one of several specimens of Chattering Kingfisher that Reinhardt collected during the expedition. Although this may lead to the alternative hypothesis of a (former) population on Tupai, the collection dates of Reinhardt's specimens seem to contain an error. Table 1 shows that Reinhardt collected five other specimens, three of them on Bora Bora. One is said to have been collected on 15 December 1846 (ZMUC 49931). However, on that date, Reinhardt was on Tupai (Bille & Von Rosen 1852: 363–364). Likewise, labels of Reinhardt's Tahiti specimens indicate they were taken on 11 December 1846, but on that morning the *Galathea* set sail for Huahine and Tahaa (Bille & Von Rosen 1852: 352) making it extremely unlikely they were collected on that date and casting doubt on the precise dates and localities for his specimens.

We have similar doubts concerning the localities of two specimens of Chattering Kingfisher at AMNH collected in 1904 by Wilson and labelled 'Tahiti'. From Wilson (1907), it is clear that he was confused regarding the distribution of kingfishers in the Society Islands. For example, he mentioned that 'two species of kingfisher were common on Bora-Bora', apparently referring to Chattering and Society Kingfisher, but on present-day knowledge only Chattering Kingfisher occurs there (Society Kingfisher is endemic to Tahiti and Moorea alone). In fact, Wilson's text for *Halcyon veneratus* reads: 'this species is fairly common, especially on the island of Bora-Bora'. Furthermore, Wilson (1907) wrote under *Todiramphus tutus* (Chattering Kingfisher): 'common throughout the Tahiti group'. We therefore conclude that Wilson's specimens were not necessarily collected on Tahiti. He visited several islands within the species' distribution, so his specimens could have

Table 1

Details of specimens of Chattering Kingfisher *Todiramphus t. tutus* in museums worldwide, arranged according to chronology of collection. * = recently re-identified as Chattering Kingfisher (A. Cibois *in litt.* 2014, P. Sweet *in litt.* 2014). ND: no data. Museum acronyms: AMNH—American Museum of Natural History, New York; AMS—Australian Museum, Sydney; ANSP—Academy of Natural Sciences, Philadelphia; BPBM—Bernice P. Bishop Museum, Honolulu; DMNH—Delaware Museum of Natural History, Wilmington; LIVCM—World Museum, Liverpool; MCNM—Museo Civico di Storia Naturale, Milan; MCZ—Museum of Comparative Zoology, Cambridge; MHNG—Muséum d'Histoire Naturelle, Geneva; MNHN—Muséum National d'Histoire Naturelle, Paris; Naturalis—Naturalis Biodiversity Center, Leiden; NMINH—National Museum of Ireland Natural History, Dublin; NHMUK—Natural History Museum, Tring; NMW—Naturhistorisches Museum, Vienna; USNM—National Museum of Natural History, Washington; ZMB—Museum für Naturkunde, Berlin; ZMUC—Zoological Museum, Univ. of Copenhagen, Copenhagen.

Year of collection	Locality	Collector	Age	Museum	Specimen no.
1806	Tahiti	coll. J. A. Lever	ad	LIVCM	D2326
pre-1807	ND	coll. C. J. Temminck	ad	Naturalis	RMNH.AVES.204878
pre-1819	Tahiti	coll. W. Bullock	ad	Naturalis	RMNH.AVES.204880
1823	Bora Bora	R. P. Lesson & P. Garnot	ad	MNHN	2006-544
1823	Bora Bora	R. P. Lesson & P. Garnot	ad	MNHN	2006-545
pre-1840	Tahiti	ND	ad	ANSP	21431
pre-1846	Bora Bora	coll. F. V. Masséna	ad	ANSP	21443
pre-1846	Bora Bora	coll. F. V. Masséna	ad	ANSP	21444
pre-1846	Bora Bora	coll. F. V. Masséna	ad	ANSP	21445
pre-1846	Bora Bora	coll. F. V. Masséna	ad	ANSP	21446
pre-1846	Bora Bora	coll. F. V. Masséna	juv	ANSP	21447
1846	Bora Bora	J. T. Reinhardt	juv	ZMUC	49933
1846	Bora Bora	J. T. Reinhardt	ad	ZMUC	49932
1846	Bora Bora	J. T. Reinhardt	ad	ZMUC	49931
1846	Tupai	J. T. Reinhardt	ad	ZMUC	70305
1846*	Tahiti	J. T. Reinhardt	juv	ZMUC	49929
1846*	Tahiti	J. T. Reinhardt	juv	ZMUC	49930
pre-1847	Tahiti	via Maison Verreaux	ad	NHMUK	1847.7.8.3
pre-1847	Huahine	via Maison Verreaux	juv	NHMUK	1847.7.8.4
pre-1849	Tahiti	via J. Warwick	ad	LIVCM	D378(S)
pre-1851	ND	ND	ad	LIVCM	D2326a
1861	Bora Bora	coll. F. de Lafresnaye	ad	MCZ	84319
pre-1863	ND	ND	juv	Naturalis	RMNH.AVES.204879
pre-1864	Huahine	coll. J. H. Gurney	ad	NHMUK	1864.7.4.7
1866	ND	via Maison Verreaux	ad	Naturalis	RMNH.AVES.204883
1874	Raiatea	A. Garrett	ad	Naturalis	RMNH.AVES.204881
1877	Huahine	A. Garrett	ad	ANSP	50147
1877	Huahine	A. Garrett	ad	ANSP	50148
1877	Huahine	A. Garrett	juv	ANSP	50149
1877	Huahine	A. Garrett	ad	LIVCM	1989.66.718
1877	Huahine	A. Garrett	juv	LIVCM	1989.66.722
1877	Huahine	A. Garrett	ad	NHMUK	1888.10.20.699
1877	Huahine	A. Garrett	juv	NHMUK	1888.10.20.698
1877	Huahine	A. Garrett / H. B. Tristram	juv	AMS	O.32459
1877	Huahine	A. Garrett / H. B. Tristram	ad	AMS	O.32460
1877	Huahine	A. Garrett / H. B. Tristram	ad	AMNH	640303
1878	Huahine	A. Garrett	ad	AMNH	640299
1878	Huahine	A. Garrett	ad	AMNH	640300

1878	Huahine	A. Garrett	ad	AMNH	640302
1878	Huahine	A. Garrett	ad	Naturalis	RMNH.AVES.204882
1878	Huahine	A. Garrett	juv	NHMUK	1898.12.2.756
1878	Huahine	A. Garrett	ad	NHMUK	1898.12.2.757
1878	Huahine	coll. H. B. Tristram	ad	MCNM	Av.20082
1878	Huahine	via Edward Gerrard & Sons	ad	NMINH	1880.292.1
1878	Huahine	via Edward Gerrard & Sons	juv	NMINH	1880.293.1
pre-1880	Huahine	A. Garrett / H. B. Tristram	ad	ZMB	ZMB24770
1880	Huahine	A. Garrett	ad	LIVCM	T3479
1880	Huahine	A. Garrett	juv	LIVCM	T3480
1880	Huahine	A. Garrett	juv	LIVCM	T3481
1880	Huahine	A. Garrett	ad	LIVCM	T3482
1880	Huahine	A. Garrett	ad	LIVCM	T3484
1880	Huahine	A. Garrett	ad	LIVCM	T3485
1880	Huahine	A. Garrett	juv	LIVCM	T3486
1880	Huahine	A. Garrett	ad	LIVCM	T3487
1880	Huahine	A. Garrett	ad	LIVCM	T3488
1880	Huahine	A. Garrett	juv	LIVCM	T3489
1880	Huahine	A. Garrett	juv	LIVCM	T3491
1880	Huahine	A. Garrett	ad	LIVCM	T3492
1880	Huahine	A. Garrett	ad	LIVCM	1989.66.719
1880	Tupai	A. Garrett / H. B. Tristram	ad	LIVCM	T6093
pre-1881	Huahine	coll. J. Gould	ad	NHMUK	1881.5.1.2983
pre-1881	Huahine	coll. J. Gould	juv	NHMUK	1881.5.1.2991
pre-1888	Tahiti	A. Garrett	ad	AMNH	640305
pre-1888	Tahiti	A. Garrett	ad	AMNH	640306
pre-1888	Tahiti	A. Garrett	ad	AMNH	640307
pre-1888	Huahine	A. Garrett / H. B. Tristram	ad	AMNH	640298
pre-1888	Huahine	A. Garrett	ad	AMNH	640301
pre-1888	Huahine	A. Garrett	ad	AMNH	640304
pre-1889	Tahiti	coll. A. Reischek	ad	NMW	50642
pre-1889	Huahine	coll. A. Reischek	juv	NMW	50641
1899	Bora Bora	C. Townsend	ad	MCZ	81959
1899	Bora Bora	C. Townsend	juv	MCZ	81960
1899	Bora Bora	C. Townsend	ad	USNM	212357
1899	Bora Bora	C. Townsend	ad	USNM	212359
1899	Bora Bora	C. Townsend	juv	USNM	212360
1902	Raiatea	A. Seale	ad	AMNH	193305
1902	Raiatea	A. Seale	ad	BPBM	2433
1902	Raiatea	A. Seale	ad	BPBM	2434
1904*	Tahiti	S. Wilson	juv	AMNH	640290
1904*	Tahiti	S. Wilson	juv	AMNH	640291
1904	Bora Bora	S. Wilson	ad	AMNH	640295
1904	Bora Bora	S. Wilson	ad	AMNH	640296
1904	Bora Bora	S. Wilson	ad	AMNH	640297
1904	Bora Bora	S. Wilson	ad	MNHN	1910-796
pre-1907	ND	ND	ad	MHNG	715064
1921	Raiatea	Whitney expedition	ad	DMNH	13554
1921	Raiatea	Whitney expedition	ad	AMNH	190247
1921	Raiatea	Whitney expedition	ad	AMNH	190252
1921	Raiatea	Whitney expedition	ad	AMNH	190253

1921	Raiatea	Whitney expedition	ad	DMNH	13555
1921	Raiatea	Whitney expedition	ad	AMNH	190250
1921	Raiatea	Whitney expedition	ad	AMNH	190254
1922	Raiatea	Whitney expedition	ad	AMNH	190255
1922	Raiatea	Whitney expedition	ad	AMNH	190249
1922	Raiatea	Whitney expedition	ad	AMNH	190251
1922	Raiatea	Whitney expedition	ad	AMNH	190256
1922	Bora Bora	Whitney expedition	ad	AMNH	223585
1922	Bora Bora	Whitney expedition	ad	AMNH	190245
1922	Bora Bora	Whitney expedition	ad	AMNH	190246
1937	Bora Bora	R. W. Smith	ad	ANSP	128446
1937	Bora Bora	R. W. Smith	ad	ANSP	128447
1937	Bora Bora	R. W. Smith	ad	ANSP	128448
1973	Raiatea	J.-C. Thibault	juv	MNHN	1974-2044
1973	Raiatea	J.-C. Thibault	ad	MNHN	1974-2037
1973	Raiatea	J.-C. Thibault	ad	MNHN	1974-2046
1973	Maupiti	J.-C. Thibault	ad	MNHN	1974-2039
1973	Maupiti	J.-C. Thibault	juv	MNHN	1974-2043
1973	Maupiti	J.-C. Thibault	ad	MNHN	1974-2038
1973	Maupiti	J.-C. Thibault	ad	MNHN	1974-2047
1973	Maupiti	J.-C. Thibault	ad	MNHN	1974-2048
1973	Tahaa	J.-C. Thibault	ad	MNHN	1974-2041
1973	Tahaa	J.-C. Thibault	ad	MNHN	1974-2042
1973	Tahaa	J.-C. Thibault	juv	MNHN	1974-2045
1973	Huahine	J.-C. Thibault	ad	MNHN	1974-2040
1973	Huahine	J.-C. Thibault	juv	MNHN	1974-2049

originated there. The same conclusion can be drawn regarding his observations of the species on Tahiti.

To conclude, we have demonstrated that the locality of at least ten specimens of Chattering Kingfisher labelled 'Tahiti' or 'Tupai' is questionable. We were unable to investigate the other five specimens said to originate from 'Tahiti' because details of the collector are unknown (*cf.* Table 1). Mislabeled specimens are not uncommon in museums (Rasmussen & Prŷs-Jones 2003). For Society Kingfisher, it is easy to detect errors because the species occurs only on Tahiti and Moorea. We received data from nine museums concerning 140 specimens of Society Kingfisher with collection locality, of which 5.7% are wrong. If this percentage of incorrectly labelled specimens is valid for nominate Chattering Kingfisher, at least six specimens with a collection locality could be mislabelled, based on the 110 specimens for which a locality is mentioned. This compares with an actual number of 15 specimens that according to the label data were collected outside Bora Bora, Huahine, Maupiti, Raiatea or Tahaa (*cf.* Table 1). Because both subspecies of Society Kingfisher are single-island endemics, correcting an error in locality is easy for these taxa, presumably resulting in a lower error rate than for Chattering Kingfisher. Correcting locality errors for species with a wider range like Chattering Kingfisher is less straightforward.

Type locality for Chattering Kingfisher.—The species was first described by Latham (1782) based on specimens collected during Cook's third voyage (Jansen & van der Vliet 2015) and his work formed the basis of the formal description by Gmelin (1788), as *Alcedo tuta* (from Tahiti). The specimen(s) Latham described were perhaps in the possession of Sir Joseph Banks who owned several kingfishers from Polynesia. Evidence comes from the inclusion of such specimens in two undated catalogues by Jonas Dryander describing

Banks' collection (*cf.* Medway 1979 for a description of both catalogues). Unfortunately, many Cook specimens are wrongly labelled (Stresemann 1950) which renders relevant type localities unreliable. Furthermore, Dryander's descriptions are very brief, preventing certain identification of Banks' kingfishers.

Two different specimens have been quoted in recent literature as the type specimen of Chattering Kingfisher. Largen (1987) concluded that a specimen now at the Liverpool museum (LIVCM) could be the type (specimen D2326), whereas Lysaght (1959) claimed that a bird held at the Naturalis Biodiversity Center, Leiden, is the type (RMNH.AVES.204878). Both are the oldest extant specimens of Chattering Kingfisher that we have traced (Table 1). However, neither was included in the relevant overviews of type specimens at these museums (Wagstaffe 1978, van den Hoek Ostende *et al.* 1997), and we agree that neither specimen can be conclusively identified as being type material (*cf.* Jansen & van der Vliet 2015).

Chattering Kingfisher never occurred on Tahiti.—The occurrence of Chattering Kingfisher on Tahiti must be considered doubtful. No modern-day field observations of Chattering Kingfisher from Tahiti exist, so only specimens can prove that it once occurred there. We cannot eliminate that the type specimen originated from Tahiti, but this does not necessarily imply that the species occurred there naturally. A surprisingly large number of 18th-century authors were impressed that kingfishers were considered sacred by natives of Polynesia. For example, Latham (1782) mentioned this as a peculiarity of both his Venerated and Respected Kingfishers. Their sacredness has resulted in at least four kingfisher taxa in the southern Pacific bearing a (sub)specific epithet in reference to this: *T. tutus* (Chattering Kingfisher) and *T. veneratus* (Society Kingfisher) in French Polynesia, *T. sanctus* (Sacred Kingfisher) of Australia, New Zealand and Melanesia, and *T. chloris sacer* (Collared Kingfisher) from Tonga. Their special status may also have resulted in trade of live birds as mentioned by E. Mayr (*in* Lysaght 1959), which could also explain why several kingfisher taxa, including both nominate Chattering and Society Kingfishers, were ascribed to islands where they do not occur (Jansen & van der Vliet 2015). A similar situation involves Red Shining Parrot *Prosopiea (tabuensis) tabuensis*, a species endemic to Fiji, for which the type locality is Tonga (Amadon 1942, Medway 2010).

Several post-1900 reports of Chattering Kingfisher on Tahiti have been published. None features a description or other evidence (photograph, sound-recording, video or specimen). Ambiguous descriptions and depictions of adult Society Kingfisher (e.g. Pratt *et al.* 1987, Fry *et al.* 1992) may have resulted in such reports. Many, or most, female Society Kingfishers have white underparts without a breast-band, not unlike Chattering Kingfisher. Only males sometimes have a broad green breast-band (Sharpe 1868, Townsend & Wetmore 1919, Cibois & Thibault 2009). Furthermore, their vocalisations are rather similar (Fry *et al.* 1992). Modern-day reports contrast markedly with the results of two major expeditions in the 20th century, which failed to record Chattering Kingfisher on Tahiti. Evidence that it may have disappeared from Tahiti after the introduction of Swamp Harrier *Circus approximans* in 1885 (Gouni 2011) is unconvincing because the spread of the harrier to the Leeward Islands (e.g. Bora Bora, Huahine and Raiatea) did not result in Chattering Kingfisher declining there. For example, the harrier was noted on Bora Bora as long ago as 1922 (Holyoak & Thibault 1984), where the kingfisher still occurs (an estimated 238 individuals in 2004; Anon. 2004). Also, Chattering Kingfisher is still common on Raiatea despite the presence of Swamp Harrier on the island (Fry *et al.* 1992). We conclude that there are no modern-day records or specimens of Chattering Kingfisher from Tahiti. Field observations are not supported by evidence, while specimens labelled 'Tahiti' were either not obtained on Tahiti, or may be trade

birds. Any future report of Chattering Kingfisher on Tahiti must be clearly documented to eliminate all possibility of confusion with Society Kingfisher.

Biogeographical and conservation implications.—That Chattering Kingfisher probably never occurred on Tahiti prompts some interesting observations concerning biogeography and conservation. The nominate subspecies of Chattering Kingfisher is not the only bird taxon endemic to the Leeward Islands, there is also a subspecies of Grey-green Fruit Dove *Ptilinopus (purpuratus) chrysogaster*. On the other hand, Tahiti and Moorea are inhabited by two other subspecies of Grey-green Fruit Dove that resemble one another but apparently are not sister to *P. (p.) chrysogaster* (Cibois *et al.* 2014). Other Leeward / Windward species-pairs include (1) the extinct Raiatea Parakeet *Cyanoramphus ulietanus* on the Leeward Islands (Raiatea) and the extinct Black-fronted Parakeet *C. zealandicus* on Tahiti; and (2) the extinct Garrett's Reed Warbler *Acrocephalus musae* on Raiatea and Huahine vs. Tahiti Reed Warbler *A. caffer* and the extinct Moorea Reed Warbler *A. longirostris* (Cibois *et al.* 2008). These examples demonstrate that the avifauna of the Leeward Islands has its own history, independent of the Windward Islands of Tahiti and Moorea, making the absence of Chattering Kingfisher on Tahiti unsurprising.

The nominate subspecies of Chattering Kingfisher is certainly known only from the five volcanic Leeward Islands: Bora Bora, Huahine, Maupiti, Raiatea and Tahaa. Because the original vegetation on Tupai atoll can be presumed to differ markedly from that on the five Leeward Islands, we consider occurrence on Tupai unlikely. Furthermore, Thibault (1974) did not record the species on Tupai in 1973. For Maupiti and Tahaa, Holyoak & Thibault (1984) estimated <100 pairs and 450–500 pairs, respectively, but did not provide estimates for Huahine and Raiatea (which may be the most important islands for the species). For Bora Bora, Holyoak & Thibault (1984) estimated <100 birds (*c.*50 pairs), but this was revised to 238 individuals (*c.*120 pairs) by Anon. (2004). If Huahine and Raiatea harbour 2,000 pairs each, the world population would be <5,000 pairs.

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List of type specimens of birds in the Baillon Collection (La Châtre, France). Part 1. Non-Passerines

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SUMMARY.—The Baillon Collection (Musée George Sand et de la Vallée Noire, La Châtre, France), holds type specimens of the following non-passerine species: (1) holotypes of *Cuculus cinereus* Vieillot, 1817 (= Pallid Cuckoo *Heteroscenes pallidus*); *Nycticorax oceanicus* Lesson, 1845 (= Yellow-crowned Night Heron *Nyctanassa violacea*); *Totanus melanopygius* Vieillot, 1816 (= Pectoral Sandpiper *Calidris melanotos*); *Totanus pusillus* Vieillot, 1816 (= Spotted Sandpiper *Actitis macularius*); *Totanus guttatus* Vieillot, 1816 (= Lesser Yellowlegs *Tringa flavipes*); *Atricilla micropterus* Bruch (ex Bonaparte), 1855 (= Laughing Gull *Larus a. atricilla*); (2) syntypes of *Rallus bailloni* Vieillot, 1819 (= Western Baillon's Crane *Zapornia pusilla intermedia*); *Catarrhactes adeliae* Hombron & Jacquinot, 1841 (= Adélie Penguin *Pygoscelis adeliae*); *Ardea sibilatrix* Temminck, 1824 (= Whistling Heron *Syrigma sibilatrix sibilatrix*); *Cormoranus crassirostris* Baillon, 1834 (= Great Cormorant *Phalacrocorax carbo sinensis*); *Ædicnemus vocifer* L'Herminier, 1838 (= Double-striped Thick-knee *Burhinus bistriatus vocifer*); *Larus leucomelas* Vieillot, 1818 (= Pacific Gull *Larus p. pacificus*); *Larus cirrocephalus* Vieillot, 1818 (= Grey-headed Gull *Larus c. cirrocephalus*); *Uria francsii* Leach, 1819 (= Thick-billed Murre *Uria l. lomvia*); *Uria francsii* Ross, 1819 (= *Uria l. lomvia*); *Galbula tridactyla* Vieillot, 1817 (= Three-toed Jacamar *Jacamaralcyon tridactyla*); *Pogonia sulcirostris* Leach, 1815 (= Bearded Barbet *Pogonornis dubius*); *Picus fuscescens* Vieillot (ex Levaillant), 1818 (= Cardinal Woodpecker *Dendropicos f. fuscescens*); *Falco biarmicus* Temminck, 1825 (= Lanner Falcon *Falco b. biarmicus*); *Psittacus cruentatus* Wied, 1820 (= Ochre-marked Parakeet *Pyrrhura cruentata*); *Psittacus melanonotus* Wied, 1820 (= Brown-backed Parrotlet *Touit melanonotus*); and (3) paralectotypes of *Ibis papillosa* Temminck, 1824 (= Red-naped Ibis *Pseudibis papillosa*); *Carbo desmarestii* Payraudeau, 1826 (= European Shag *Phalacrocorax aristotelis desmarestii*). Seven specimens that are probable types, five that are possible types, and 11 that are not types are also listed and discussed.

The Baillon collection was initiated by Jean François Emmanuel Baillon (c.1742–1801, hereafter Emmanuel Baillon), and substantially increased by his son Louis Antoine François Baillon (1778–1855, hereafter François Baillon). Emmanuel Baillon was a lawyer in Montreuil-sur-Mer (Pas-de-Calais, Nord-Pas-de-Calais, France) and bailiff of Waben, who devoted most of his spare time to natural history. He regularly sent specimens to the Jardin des Plantes in Paris (which became the Muséum National d'Histoire Naturelle in 1793). The frequency with which he sent specimens and the quality of his observations earned him the distinction of First Correspondent of the Muséum in the year IV of the French Republican Calendar (i.e. between 23 September 1795 and 21 September 1796: Prarond 1857: 626). He also engaged in prolonged correspondences with Daubenton, Lacépède and Cuvier in Paris, and was one of the most valued correspondents of the Comte Buffon (see extracts from letters in Prarond 1857, Farber 1997: 18).

Given his father's interests and that he was corresponding with some of the greatest naturalists of the age, it is unsurprising that François developed a keen appreciation

of natural history at a very young age. Emmanuel Baillon taught his son mounting (taxidermy) techniques and to identify a variety of taxa that he collected or that were brought to him by local fishermen and hunters (Prarond 1857). In year VIII of the French Republican Calendar (i.e. between 23 September 1799 and 22 September 1800), at the age of 22, François Baillon was appointed assistant naturalist at MNHN under the supervision of Louis Dufresne (1752–1832). He thus spent a lot of time in Paris where he hoped to obtain a permanent position (Prarond 1857: 638). However, when his father died in 1801, he was forced to return to Abbeville (Somme, Picardie), near Montreuil-sur-Mer, to fulfil family obligations, shattering his hope of becoming one of the famous naturalists at the Paris museum. However, he continued to correspond with the institution, especially with the Cuvier brothers, Achilles Valenciennes and Geoffroy Saint-Hilaire, to whom he regularly sent observations and specimens (Prarond 1857). François Baillon also acquired fame abroad, especially through his correspondence with Bonelli, professor and director of the Turin museum, who in turn introduced him to the German explorer, the Prince of Wied (Maximilian, Prinz zu Wied)¹. When Wied travelled to France in 1814, he was greatly impressed by the vast collection of mounted animals that Emmanuel & François Baillon had amassed. In the years following his return from an expedition to Brazil in 1817, Wied became an important contributor to the Baillon collection. Like his father, François devoted much of his leisure to the study of natural history until his death in 1855.

The modesty of the Baillons should be emphasised (Prarond 1857). Indeed, beside two works published by Emmanuel (Baillon 1791a,b) and the *Catalogue des mammifères, oiseaux, reptiles, poissons et mollusques testacés marins observés dans l'arrondissement d'Abbeville* published by François (Baillon 1834²), most of the information gathered by the Baillon father and son was passed to other naturalists probably considered better positioned. This is well illustrated, for example by Vieillot and Bonaparte, who referred to the Baillon collection for some of their descriptions³.

With improvements in taxidermy and firearms, together with greater mobility and the growth of the colonies, the 19th century witnessed a real desire for natural history collections (Mearns & Mearns 1998: 79–95). From the late 18th century, the increasing number of expeditions exploring the world provided ever more natural history specimens, requiring national institutions to deal urgently with the lack of space. One means of confronting this dilemma was to exchange or release duplicates, as well as old or damaged specimens, to associates such as private collectors. Of the 463 bird specimens present in MNHN in 1793, 361 were replaced and, of the 3,411 specimens registered in 1809, 1,234 were duplicates (Geoffroy Saint-Hilaire 1809). There can be no doubt that the Baillons were among the recipients of such offerings, as attested by the numerous specimens given away by the Cuviers, Valenciennes, Prévost and Dufresne between 1801 and 1840.

Private collectors who were keen to make scientific use of their specimens had to expend a substantial amount of money to acquire reference works and, moreover, to keep up to date with new editions. The Baillons undoubtedly had some of these works but certainly not all, as attested by some confusion in the different names used on the bases of the pedestals of their specimens.

¹ There is persistent confusion in the way the Prince of Wied's name should be cited. I follow Myers (2012) by using Wied instead of Wied-Neuwied.

² This work is sometimes dated 1833. In fact, Baillon presented his *Catalogue* to the Société d'Emulation d'Abbeville in 1833. The *Mémoires* from 1833 were published only in 1834.

³ A letter sent by François Baillon to Henri-Marie Ducrotay de Blainville (1777–1850) in 1838 was published the same year in the *Compt. Rend. Hebdomadaires Séances Acad. Sci.* 7: 1021–1022. Another letter from François Baillon to George Robert Waterhouse (1810–88) in 1839 was published the same year in *Proc. Zool. Soc. Lond.* 7: 124.

Small historical collections are important for science (Steinheimer 2003) and old type material is all the more important given that the descriptions of the time often contained few details. Also, due to deterioration and negligence over time, type material in early collections is often believed lost (Steinheimer 2005c). Thus, it is particularly remarkable that the Baillons' collection has survived successive removals, wars and other disasters (see Mearns & Mearns 1998: 67–69), to be finally inventoried in 2010–11. Investigations into the history of the Baillon collection has revealed that it is highly valuable scientifically, comprising 18th-century specimens (Gouraud 2014a), specimens of extinct species (Gouraud 2014b) and specimens from famous expeditions and circumnavigations. The present paper lists the type specimens of non-passerine taxa present in the Baillon collection of La Châtre.

Methods

No written documents, logs or records of exchanges with other naturalists and institutions, nor even a simple list of the specimens present in the Baillon collection, has ever been located. The only information available is that on the labels on the pedestal bases on which the specimens are mounted.

During the inventory, each specimen was cleaned, identified to species (where possible) and given a unique number (i.e. inventory number). All original inscriptions on the underside of each pedestal, even those in bad condition, were scanned using a Canon Scanoscanner 8400F, and all specimens photographed (face on and profile) using a Nikon Coolpix 4200. The only measurements taken was exposed bill length, to the feathers (unless the bill was damaged). The complete data record, including scan and photo files, have been added to a database using ActiMuseo® software developed by A&A Partners.

The Baillon collection in La Châtre comprises a total of 2,478 mounted bird specimens belonging to 1,318⁴ species. An abbreviated version of the dataset has been added to the Global Biodiversity Information Facility (GBIF) database and can be accessed via the following link: <http://data.gbif.org/datasets/resource/14302/>.

Throughout this paper, 'the Code' refers to the *International code of zoological nomenclature* (ICZN 1999). The dating of scientific names is essential for any work relating to type material. Thus, I follow the recommendations and conclusions of Dickinson *et al.* (2011).

For each specimen, I present the following. (1) The name under which the taxon was described, respecting the original spellings (including capitalisation and diacritic marks or accents). (2) Current species name following del Hoyo *et al.* (1992–2013), which is the basis for the Baillon collection, updated according to Handbook of the birds of the world alive (retrieved from www.hbw.com on 10 October 2014). (3) The list of relevant specimens, with their type status and inventory numbers. I use 'Probable type' when I consider the evidence of type status to be strong but not certain, and 'Possible type' if I am truly uncertain concerning the situation. When certain, type status is presented in bold. (4) Where available, relevant information from the inscriptions on the pedestal bases of listed specimens, i.e. place and date of collection or when presented to the Baillons, and names of collectors or donors. In a few cases, a second label was eventually prepared by a different hand and pasted on the Baillons' original label. I render a new line thus /. Important sentences are underlined and subsequently translated from French to English. French texts on the bases of the specimen pedestals have been corrected (for accents, use of capitals where appropriate, and other small spelling mistakes). I use [X] where a word or several words are unreadable, and [?] if the preceding word is doubtful. (5) Remarks. Important sentences

⁴ Identification to species level remains undetermined for 41 specimens. Therefore, the number of species may change if the identification of any of these specimens proves possible in the future.

from original publications have been translated from their original languages to English (unless mentioned, original texts are in French). The following acronyms are used:

AMNH	American Museum of Natural History, New York
MCZ	Museum of Comparative Zoology, Harvard, Cambridge, MA
MNHN	Muséum National d'Histoire Naturelle, Paris
MWHN	Hessian State Museum, Wiesbaden
NHMUK	Natural History Museum, Tring (formerly British Museum Natural History)
NMW	Naturhistorisches Museum, Wien
RMNH	Naturalis Biodiversity Center (formerly Rijksmuseum van Natuurlijke Historie), Leiden
SMF	Forschungsinstitut und Naturmuseum Senckenberg (formerly Senckenberg Museum Frankfurt am Main), Frankfurt am Main
ZMB	Museum für Naturkunde, Zentralinstitut der Humboldt-Universität, Institut für Systematische Zoologie, Berlin

Taxa represented by type specimens

GALLIFORMES

Phasianidae

Francolinus clamosus Lesson, 1831: 504, pl. 89 [sic] fig. 2.

Current name: *Pternistis capensis* (J. F. Gmelin, 1789).

Probable syntype: MLC.2011.0.1118. Pedestal base: 'Francolinus clamosus. Less. [Lesson] / Femelle / du Cap de Bonne Espérance par M. / Delalande, donné par M. Cuvier' ['from Cape of Good Hope by Mn. Delalande, presented by Mn. Cuvier'].

Remarks: Although Lesson (1831: 504) mentioned that the specimens he described were provided by Delalande and had come from the Cape of Good Hope, I cannot be sure that this specimen was at Lesson's disposal as the original inscription is undated, and all specimens from Cuvier were given to Baillon between 1819 and 1826. The correct plate in Lesson's *Traité d'Ornithologie ou Tableau Méthodique* is 87, not 89. The MNHN has one syntype (C.G. 2013-51: Voisin *et al.* in press).

ANSERIFORMES

Anatidae

Anser Brachyrhynchus Baillon, 1834: 74.

Current name: *Anser brachyrhynchus* Baillon, 1834.

Possible syntype: MLC.2011.0.560. Pedestal base: 'Anser Brachyrhynchus, Baill. [Baillon] cat. [catalogue]'.

Remarks: As there is no date on the original inscriptions, I can neither exclude nor include this specimen in the type series. Of the two specimens sent by François Baillon to Temminck, only one has been found at Naturalis (RMNH.AVES.87331, van den Hoek Ostende *et al.* 1997: 48). Other specimens were sent to Paris, Mainz and Turin⁵ but cannot be traced. Two other specimens in the Baillon Collection, MLC.2011.0.542 and MLC.2011.0.546, cannot be types as they were collected in 1837, four years after the original description.

⁵ See the letter sent by François Baillon to George Robert Waterhouse in 1839 and published the same year in *Proc. Zool. Soc. Lond.* 7: 124.

PODICIPEDIFORMES

Podicipedidae

Podiceps Rolland Quoy & Gaimard, 1824: 133.

Current name: *Rollandia rolland* (Quoy & Gaimard, 1824).

Probable paralectotype: MLC.2010.0.229. Pedestal base: 'Podiceps Rolandi Quoy / Gaimard. Voy. [Voyage] de Freycinet / Grèbe rolandi, idem / Plumage d'été / Rapporté par M. Freycinet en 1820 / et donné par M. Cuvier / en 1821' ['Brought back by Mn. Freycinet in 1820 and donated by Mn. Cuvier in 1821'].

Remarks: This specimen was collected by or for Quoy and Gaimard, the naturalists on board *l'Uranie*, captained by Freycinet between 1817 and 1820 on its voyage around the world. As it was given to François Baillon by Cuvier in 1821, shortly after Freycinet's return from his circumnavigation, and three years prior to Quoy and Gaimard's publication (1824), it is uncertain if MLC.2010.0.229 was at Quoy and Gaimard's disposal in describing their *Podiceps Rolland*. MNHN holds the lectotype (C.G. 1994-892) and two paralectotypes (C.G. 1994-890 and C.G. 1994-891), as detailed in Voisin (1995).

PTEROCLIFORMES

Pteroclididae

Pterocles exustus Temminck in Temminck & Laugier, 1825: pl. 354 (male) and pl. 360 (female).

Current name: *Pterocles exustus floweri* Nicoll, 1921.

Probable syntype: MLC.2011.0.1184. Pedestal base: 'Pterocles exustus Temm. [Temminck] / pl. [Planches] Col. [Coloriées] 354 et 360 / Ganga ventre brûlé, Temm. [Temminck] / Femelle / de la haute Egypte / Rapporté et donné par M. Rüppell' ['from Upper Egypt, brought back and donated by Mn. Rüppell'].

Remarks: In his description, Temminck (1825) mentioned 'Specimens obtained from this country [i.e. Egypt] by Prussian naturalists and by M. Ruppel [*sic*] do not differ from those received from Senegal.' According to Art. 73.2 of the Code, all these specimens are syntypes. Naturalis has two syntypes from Senegal: RMNH.AVES.87615 (adult male) and RMNH.AVES.87616 (adult female) (van den Hoek Ostende *et al.* 1997: 82). NMW also has two syntypes from Senegal: 562 (male) and 563 (female) (Schifter *et al.* 2007: 142). Although Rüppell collected MLC.2011.0.1184 in Upper Egypt, I have no evidence that this specimen was at Temminck's disposal for his description. Temminck's name was based on birds from Senegal and Egypt, but many years later the population endemic to the Nile Valley, in Egypt, was described as *P. e. floweri* by Nicoll (1921). The type locality of *exustus* needs to be clarified. According to Arts. 73.2.3 and 76.2 of the Code, I recommend lectotypification of a non-Egyptian specimen from the *P. e. exustus* series. *P. e. floweri* had been thought to be almost certainly extinct with no records since 1979 (de Juana 1997: 52) prior to its recent rediscovery (Khil *et al.* 2012).

CUCULIFORMES

Cuculidae

POLOPHILUS VARIEGATUS Leach, 1814: 116, pl. 51.

Current name: *Centropus phasianinus* (Latham, 1801).

Probable holotype (by monotypy): MLC.2011.0.1424. Pedestal base: 'Polophilus phasianus, variegatus, / leucogaster et lathamii, Leach Misc. [Miscellany] / Nouv. [Nouvelle] Hollande, Envoyé de / Londres par M. Leach sous / le nom de Polophilus / variegatus' ['New Holland (i.e. Australia). Sent from London by Leach under the name *Polophilus variegatus*'].

Remarks: In his description, Leach (1814: 116), who worked in the British Museum from 1814 to 1822⁶, mentioned that the specimen 'is preserved in the British Museum'. The earliest relevant registers of NHMUK specimens are the Vellum Catalogues, compiled between 1835 and c.1843 (see Thomas 2012), which in vol. 25, entry 313, mentions four specimens (a–d) of *Polophilus variegatus* as being present. From the donors' names, three of these (b–d) clearly arrived too late to be Leach's specimen. The fourth (a), however, is merely listed as 'Australia', so cannot be dated, but clearly was present in the mid-1830s (R. Prÿs-Jones *in litt.* 16 February 2015). None is currently present in the NHMUK collection, and all must have disappeared before 1891 as they are not mentioned by Sclater & Shelley (1891: 341–342) or Warren (1966). Although MLC.2011.0.1424 matches the bird depicted on pl. 51 (Leach 1814), it is possible that, before he retired, Leach had access to another specimen and it is impossible to be sure which he sent to Baillon. Leach's *variegatus* represents the non-breeding plumage of the name *phasianinus* described by Latham. Vieillot (1819d: 298) subsequently described *Corydonix variegatus* from the same specimen that had probably been used by Leach (1814), commenting 'From the collection of M. Baillon', thus merely placing Leach's name in a different genus, but his account is important in demonstrating that the specimen had reached Baillon by 1819. MLC.2011.0.1424 is in poor condition as the tail and toes from the left leg are missing.

Cuculus cinereus Vieillot, 1817a: 226.

Current name: *Heteroscenes pallidus* (Latham, 1801).

Holotype (by monotypy): MLC.2011.0.1406. Pedestal base: no inscription.

Remarks: In closing his description, Vieillot (1817a: 226) mentioned 'The collection of M. Baillon'. Specimen MLC.2011.0.1406 is the sole *H. pallidus* in the collection and therefore is almost certainly that used by Vieillot.

Cuculus rufulus Vieillot, 1817b: 234.

Current name: *Cacomantis flabelliformis* (Latham, 1801).

Possible holotype (by monotypy): MLC.2011.0.1408. Pedestal base: the inscription refers to the wrong species—*Dryobates minor* (Linnaeus, 1758).

Remarks: Vieillot (1817b: 234) closed his description by stating that '[the specimen's] skin is part of the cabinet of M. Baillon'. The Baillon collection holds only two specimens of *Cacomantis*. One is a *C. merulinus* (Scopoli, 1786), from Java. Due to its very bad condition, I identified the second, MLC.2011.0.1408, only as *Cacomantis* sp. This specimen could match the description of Vieillot (1817b: 234), but the lack of data concerning its provenance (and eliminating other *Cacomantis* species similar to *C. flabelliformis*) prevents me from taking a position on the status of this specimen.

GRUIFORMES

Rallidae

Rallus Bailloni Vieillot, 1819a: 548.

Current name: *Zapornia pusilla intermedia* (Hermann, 1804).

Syntype: MLC.2011.0.1156.1. Pedestal base: 'Rallus Baillonii, Vieill. [Vieillot] / Râle Baillon id / jeune avant de pouvoir voler / et / jeune couvert de duvet / Nolettes, août 1817' ['Young unable to fly and covered in down. Nolettes (i.e. Hameau de Nolettes, Noyelles-sur-Mer, Somme, Picardie) in August 1817'].

Syntype: MLC.2011.0.1156.2. Pedestal base: identical to the previous specimen.

⁶ Although he officially retired in March 1822, Leach was on leave of absence due to ill health from July 1820 (see Gunther 1975: 178–179).

Remarks: In his description, Vieillot (1819a: 548) mentioned that he named the species after 'the naturalist to whom I owe all the details relating to it, and who was the first to discover it in Picardy'. Vieillot (1819a: 548) described the male, the female, the juvenile and the chick. Juvenile and chick descriptions closely match specimens MLC.2011.0.1156.1 and MLC.2011.0.1156.2, respectively.

SPHENISCIFORMES

Spheniscidae

Catarrhactes Adeliae Hombron & Jacquinot, 1841: 320.

Current name: *Pygoscelis adeliae* (Hombron & Jacquinot, 1841).

Syntype: MLC.2010.0.178. Pedestal base: 'manchot de la Terre / Adélie, du voyage de / M. Dumont d'Urville' ['Penguin from Adélie Land, voyage of Mn. Dumont d'Urville'].

Remarks: C.G. 2000-3295, also collected during Dumont d'Urville's voyage (1837–40), was considered the holotype by Voisin & Mougin (2002), who nonetheless pointed out that the pedestal mentions 'one of the types'. Moreover, Hombron & Jacquinot (1841: 320) mentioned both male and female in their description, suggesting that they had at least two specimens, which therefore constitute a type series (Arts. 72.1.1 and 73.2 of the Code). C.G. 2000-3295 is therefore a syntype of this taxon. The Dumont d'Urville expedition arrived in Toulon on 6 November 1840. Hombron and Jacquinot read their description to the Académie des Sciences of Paris on 9 August 1841. Therefore I believe that MLC.2010.0.178 was at Hombron and Jacquinot's disposal for their description of this taxon.

PELECANIFORMES

Threskiornithidae

IBIS PAPILLOSA Temminck in Temminck & Laugier, 1824: plate 304.

Current name: *Pseudibis papillosa* (Temminck, 1824).

Paralectotype: MLC.2011.0.503. Pedestal base: 'ibis mamelonné, Temm. [Temminck] pl. [Planche] col. [Coloriée] / 304 / Femelle / Ceylan envoyé par M. Leschenault et donné par M. / Cuvier en 1824' ['From Ceylon, sent by Mn. Leschenault and donated by Mn. Cuvier in 1824'].

Remarks: At the end of his description, Temminck (1824) mentioned that the species occurs in India and Ceylon, and that specimens are from museums in the Netherlands [i.e. Leiden] and Paris. Voisin (1993) designated C.G. 1992-376, from Bengal, as the lectotype of *Ibis papillosa* Temminck, 1824. MNHN also has a paralectotype (C.G. 1992-375, from Bengal). Naturalis has two other paralectotypes sent from Paris (RMNH.AVES.87110, from Ceylon and RMNH.AVES.87111, from India: van den Hoek Ostende *et al.* 1997: 23). The date 1824 both for the publication of *Ibis papillosa* by Temminck and the gift by Cuvier of MLC.2011.0.503 makes it highly probable that Temminck studied the specimen in Paris before Cuvier sent it to Baillon, and it is *ipso facto* another paralectotype.

Ardeidae

ARDEA SIBILATRIX Temminck in Temminck & Laugier, 1824: pl. 271.

Current name: *Syrigma sibilatrix sibilatrix* (Temminck, 1824).

Syntype: MLC.2010.0.77. Pedestal base: 'Héron flûte du soleil / Ardea sibilatrix, Temm. [Temminck] pl. [Planches] col. [Coloriées] / Des frontières du Paraguay au Brésil / Rapporté par M. de St. Hilaire et donné / par M. Cuvier en 1823' ['At the border between Paraguay and Brazil, brought back by Mn. Saint-Hilaire and donated by Mn. Cuvier in 1823'].

Remarks: At the close of his description, Temminck (1824) mentioned that the species occurs in Paraguay and Brazil, and that specimens are from museums in the Netherlands

[i.e. Leiden], Paris and that of Mn. Bonjour. Naturalis has a syntype (RMNH.AVES.87080, from M. Bonjour) from Brazil (van den Hoek Ostende *et al.* 1997: 19). Voisin & Voisin (1996) did not mention any type for this taxon. MLC.2010.0.77, donated by Cuvier, is probably the specimen that Temminck saw in Paris.

Nycticorax oceanicus Lesson, 1845: col. 970–971 (1 June 1845).

Current name: *Nyctanassa violacea* (Linnaeus, 1758).

Holotype (by monotypy): MLC.2010.0.115. Pedestal base: ‘*Nycticorax oceanicus*. Lesson. / Iles marquises / Donné par M. le Vice amiral Massieu de Clerval / et envoyé par M. Lesson avec une étiquette de sa / main et portant le nom de *Nycticorax oceanicus*’ [‘Marquesas Islands. Given by Vice-Admiral Massieu de Clerval and sent by Mn. Lesson with his handwritten label bearing the name *Nycticorax oceanicus*’].

Remarks: The handwritten label from Lesson is not with the specimen now. Either François Baillon himself might have removed it or, most likely, it was subsequently lost. The subspecies *paupera* P. L. Sclater & Salvin, 1870, endemic to the Galápagos Islands, *gravirostris* van Rossem, 1943, endemic to Socorro and Tres Mariás Islands (off west Mexico), and *bancrofti* Huey, 1927, on the Pacific coast from north-west Mexico to Nicaragua (and the West Indies), represent the species’ westernmost distribution. There appears to be no other evidence that the species occurred in the Marquesas, according to modern, historic or prehistoric records (Steadman 1989, 2006). Further investigations, including DNA analysis, should be carried out to clarify the taxonomy of this form with respect to other subspecies included in *N. violacea*. In his description, Lesson stated that ‘Mn. Lapère [also written Lapeyre], Artillery Captain, who spent a long time in Marquesas Islands, gave me several specimens [including specimens of *Egretta sacra*] when he returned...’. Thus, René Primevère Lesson (1794–1849) received his specimen from Jean Théophile Lapeyre-Bellair (1814–52). It subsequently reached Auguste-Samuel Massieu de Clerval (1785–1847), who gave it to François Baillon. The relationship between Lesson and Massieu de Clerval is unknown. Massieu de Clerval was an important naval officer, head of trading posts in Brazil and La Plata in 1841–44 and appointed Vice-Admiral on 25 June 1842 (Haag & Haag 1857: 312). Lesson became the top-ranking naval pharmacist at Rochefort (Charente-Maritime, Poitou-Charentes) in 1835, and was therefore also an important naval officer. Due to their rank, both men may have met each other after the return of Massieu de Clerval in 1844.

SULIFORMES

Phalacrocoracidae

Cormoranus crassirostris Baillon, 1834: 77.

Current name: *Phalacrocorax carbo sinensis* (Blumenbach, 1798).

Syntype: MLC.2010.0.64. Pedestal base: ‘*Carbo crassirostris*_Nob. [Nobis] / Femelle en plumage d’été / tuée en avril 1832 au Crotoi. / Le *Carbo macrorhynchus* du Jardin des / Plantes qui est entièrement semblable à / mon *Crassirostris*, pour la taille, la forme et / a été envoyé de Terre-Neuve où il y est très / commun par M. Delapylaie / Probablement variété ou plutôt race constante / et se propageant par la génération du *Carbo* / *Cormoranus*’ [‘Female taken in April 1832 at the Crotoi (= Le Crotoy, Somme, Picardie). The *Carbo macrorhynchus* from the Jardin des Plantes, which is similar to my *Crassirostris* in size and shape, has been sent from Newfoundland where it is said to be very common by M. Delapylaie. Probably a variety or rather a constant race of *Carbo cormoranus*’].

Syntype: MLC.2010.0.67. Pedestal base: ‘Carbo crassirostris_Nob. [Nobis] / jeune femelle prise au flairon⁷ au / Crotoi le 25 avril 1827. Un mâle / qui l’accompagnait et qui a été pris dans le / même flairon était semblable, mais seulement / plus grand. / Probablement variété ou plutôt race / constante et se propageant par la / génération du Carbo Cormoranus’ [‘Juvenile female caught in a *flairon* at the Crotoi (= Le Crotoy, Somme, Picardie) on 25 April 1827. A male (i.e. MLC.2010.0.208, see below) that was with it and caught in the same *flairon* was similar but larger. Probably a variety or rather a constant race of *Carbo cormoranus*’].

Syntype: MLC.2010.0.208. Pedestal base: ‘Carbo crassirostris_Nob. [Nobis] / Jeune mâle pris dans un flairon au / Crotoi le 25 avril 1827. Une femelle qui / l’accompagnait et qui a été prise dans le même / flairon était semblable ; mais seulement / un peu plus petite. / Probablement variété ou plutôt race / plus forte du Carbo Cormoranus’ [‘Juvenile male caught in a *flairon* at Crotoi (= Le Crotoy, Somme, Picardie) on 25 April 1827. A female (i.e. MLC.2010.0.67, see above) that was with it and caught in the same *flairon* was similar but slightly smaller. Probably a variety or rather a stronger race of *Carbo cormoranus*’].

Remarks: The description by Baillon (1834: 77) was based on several specimens, as juveniles and adults were compared. In the same work, but also in the original inscriptions detailed above, Baillon mentioned that *Carbo* [i.e. *Cormoranus*] *crassirostris* might represent only a variety of *Carbo cormoranus* [i.e. *Phalacrocorax carbo*]. Degland (1849: 378), Herklots (1858: 219), Degland & Gerbe (1867: 352) and Sharpe & Ogilvie-Grant (1898: 343) also considered *Cormoranus* / *Carbo crassirostris* Baillon, 1834, a synonym of *P. carbo* (Linnaeus, 1758).

Carbo Desmarestii Payraudeau, 1826: 464.

Current name: *Phalacrocorax aristotelis desmarestii* (Payraudeau, 1826).

Paralectotype: MLC.2010.0.73. Pedestal underside: ‘Carbo desmarestii. Payraudeau, an. [Annales] des S. [Sciences] Nat. [Naturelles] 1826 / Cormoran desmarest_Payr. [Payraudeau] / Jeune / de la Corse donné par M. Payraudeau / les 14 pennes à la queue dans l’individu décrit par m. Payraudeau / est une anomalie, puisque tous ceux qui l’ont décrit de la Corse / ont 12 pennes, comme ceux du nord’ [‘Juvenile from Corsica sent by Mn. Payraudeau. The 14 rectrices of the specimen described by Mn. Payraudeau are an anomaly since all specimens described from Corsica have 12 rectrices just like the ones from the north’].

Remarks: Voisin *et al.* (1998) designated specimen 00049 (adult male) at the Musée ornithologique de La Chaize-le-Vicomte (Vendée, Pays-de-Loire) as the lectotype of *Carbo desmarestii* Payraudeau, 1826. RMNH.AVES.87038 (adult male), previously listed as a syntype (van den Hoek Ostende *et al.* 1997: 15), became, *ipso facto*, a paralectotype of the same taxon (Voisin *et al.* 1998), as is specimen MLC.2010.0.73. Describing the female, Payraudeau (1826: 464) in fact described an immature (Voisin *et al.* 1998) that matches MLC.2010.0.73. Baillon had clearly carefully studied the specimen he received from Payraudeau, as he noted an anomaly regarding the number of rectrices mentioned in the description of the male (Payraudeau 1826: 464). Although cormorants and shags have a variable number of rectrices (Orta 1992: 327), I consider it must rather be a transcription or printing error than an anomaly. The number of rectrices in MLC.2010.0.73 is 12, as in both the lectotype (J. Vimpère *in litt.* 24 October 2012) and in the paralectotype at Naturalis (S. van der Mije *in litt.* 30 November 2012).

⁷ Despite research on online and in paper dictionaries, I am unable to find any definition of a *flairon*. Nevertheless, I believe it was probably the local name (in northern France at least) for a net used to catch fish or a ballast trap to catch fish and crustacea on the sea bed.

CHARADRIIFORMES

Burhinidae

Ædicnemus vocifer L'Herminier, 1838: notice 84, pl. 84.

Current name: *Burhinus bistriatus vocifer* (L'Herminier, 1838).

Syntype: MLC.2011.0.907. Pedestal base: 'Oedicnemus vocifer, L'Herminier / Magas. [Magasin] zool. [Zoologie] pl. [Planche] 84 / œdicnème vocifère idem / Llanos de Maturin petite ville sur / les bords du Guarapiche, Llanos de / la Province de Cumana / envoyé à M. Florent par M. L'Herminier' ['Llanos de Maturin, a small town on the banks of Guarapiche in the province of Cumana. Sent to Mn. Florent by Mn. L'Herminier'].

Remarks: L'Herminier (1838) used six specimens for his description: two spirit specimens given to him and probably used for dissection, two others brought to him alive and two more that were mounted. The first mounted specimen is that depicted on pl. 84. Of the second, L'Herminier remarked 'doctor Bauperthuy ... gave me another specimen that I will give to the museum [Paris]. Both [mounted specimens] came from Llanos de Maturin, a small town on the banks of the Guarapiche, in the Province of Cumana'. The second mount was received at MNHN while Florent Prévost (1794–1870) was assistant naturalist there. Furthermore, the location mentioned for MLC.2011.0.907 perfectly matches the type location given by L'Herminier. All of L'Herminier's natural history collections were destroyed in 1843 by an earthquake in Guadeloupe (de Lafresnaye 1844; F. Maddi *in litt.* 10 December 2012) and MLC.2011.0.907 is, to my knowledge, the only extant type.

Scolopacidae

Tringa minutilla Vieillot, 1819c: 466.

Current name: *Calidris minutilla* (Vieillot, 1819c).

Probable syntype: MLC.2011.0.1018. Pedestal base: 'Plumage d'été / Terre-Neuve / M. Hardy' ['Summer plumage, from Newfoundland, Mn. Hardy'].

Remarks: In closing his description, Vieillot (1819c: 466) mentioned that a specimen is in the Baillon collection. MLC.2011.0.1018 is the only *C. minutilla* therein. However, Jacques-Josse Hardy (1798–1863), from Dieppe (Seine-Maritime, Haute-Normandie, c.60 km south-west of Abbeville) apparently started his collection when he was 23 (Bouteiller 1878: 423–424), i.e. in 1821, two years after the type description. Hardy is known to have received specimens from fishermen (Vincent 1999), but I have no evidence that this occurred as early as 1819. Therefore, the type status of MLC.2011.0.1018 is probable but not certain.

Totanus melanopygius Vieillot, 1816b: 401 *nomen oblitum*.

Current name: *Calidris melanotos* (Vieillot, 1819b) *nomen protectum*.

Holotype (by monotypy): MLC.2011.0.1029. Pedestal base: 'Totanus melanopygius, Vieill. [Vieillot] / New-York M. Bécœur / C'est sur cet individu que M. Vieillot / a fait sa description de son / Totanus melanopygius' ['This is the specimen Mn. Vieillot used for his description of *Totanus melanopygius*'].

Remarks: Vieillot (1816b: 401) did not provide any details concerning the number of specimens he used for his description, but the remark on the pedestal base of MLC.2011.0.1029 leads me to believe that he used just one. *Totanus melanopygius* Vieillot, 1816, is a senior synonym of *Totanus melanotos* Vieillot, 1819. Therefore, the name *Totanus melanopygius* Vieillot, 1816, should have priority over *Totanus melanotos* Vieillot, 1819. However, Art. 23.9.1 of the Code does not permit reversal of precedence if two conditions are met, which I believe to be the case for both the first (non-use of the senior name *melanopygius* since 1899) and the second (use of the junior name *melanotos* in at least 25 works, published by at least ten authors in the immediately preceding 50 years, i.e. between

1 January 1965 and 31 December 2014—a list is available on request from the author). Thus, the older *Totanus melanopygius* Vieillot, 1816, is a *nomen oblitum* while the younger *Totanus melanotos* Vieillot, 1819, is a *nomen protectum*.

Totanus pusillus Vieillot, 1816d: 412.

Current name: *Actitis macularius* (Linnaeus, 1766).

Holotype (by monotypy): MLC.2011.0.1005. Pedestal base: ‘jeune, tué l’automne / alors c’est / totanus pusillus, Vieill. [Vieillot] / Chevalier pygmée, Vieill. [Vieillot] / New York M. Bécoeur / La description de Vieill. [Vieillot] a été faite / sur cet individu’ [‘The description (of *Totanus pusillus*) by Vieillot was based on this specimen’].

Remarks: Vieillot (1816d: 412) did not indicate the number of specimens used for his description, but the remark on the pedestal base of MLC.2011.0.1005 suggests that the author used a single specimen.

Totanus guttatus Vieillot, 1816c: 408.

Current name: *Tringa flavipes* (Gmelin, 1789).

Holotype (by monotypy): MLC.2011.0.997. Pedestal base: ‘totanus guttatus, Vieill. [Vieillot] / Chevalier moucheté Vieill. [Vieillot] / New-York M. Bécoeur / C’est sur cet individu que M. Vieillot / a fait sa description du chevalier / moucheté’ [‘It is from this specimen that Mn. Vieillot has described the chevalier moucheté’ i.e. *Totanus guttatus*’].

Remarks: Vieillot (1816c: 408) did not indicate the number of specimens he used for his description but, as in the cases of *Calidris melanotos* and *Actitis macularius* mentioned above, the information on the MLC specimen leads me to believe that he used just one.

Laridae

Atricilla micropterus Bruch (ex Bonaparte), 1855: 288.

Current name: *Larus atricilla atricilla* Linnaeus, 1758.

Holotype (by monotypy): MLC.2011.0.806. Pedestal base: ‘Larus atricilla microptera Bp. [Bonaparte] / Chroicocephalus atricilla microptera / B.p. [Bonaparte] / Ainsi nommé par le prince de / Camino lors de son voyage à / Abbeville’ [‘So named by the Prince of Camino (i.e. Bonaparte) during his journey to Abbeville’].

Remarks: In his *Notes sur les Laridés* Bonaparte (1854, 1855) never referred to *microptera* and I am unable to locate any description by Bonaparte of this name published in the sense of the Code. Nevertheless, Bruch (1855: 288) in referring to *Atricilla micropterus* Bonaparte, provided a short description.

Larus leucomelas Vieillot, 1818b: 509.

Current name: *Larus pacificus pacificus* Latham, 1801.

Syntype: MLC.2010.0.309. Pedestal base: ‘Gabianus leucomelas, Vieill. [Vieillot] / Ile Maria, voyage de M. Labillardière / à la recherche de la Peyrouse, donné / par M. Cuvier’ [‘From Maria Island, Labillardière’s voyage in search of La Peyrouse, donated by Mn. Cuvier’].

Remarks: In his description, Vieillot (1818b: 509) reported that the specimens found by Mn. de Labillardière on Maria Island, near Van Diemen’s Land [Tasmania], were in Paris. Two other syntypes are indeed housed at MNHN (C.G. 2011-122 and C.G. 2011-123; Voisin & Voisin 2011b). All specimens that came from Cuvier to Baillon were donated between 1819 and 1826; MLC.2010.0.309 was therefore most probably at Vieillot’s disposal while describing his *Larus leucomelas*.

Larus cirrocephalus Vieillot, 1818a: 502.

Current name: *Larus cirrocephalus* Vieillot, 1818a.

Syntype: MLC.2010.0.295. Pedestal base: 'Mouette à tête cendrée, Vieill. [Vieillot] / plumage d'été / Rio Janeiro. Rapporté par / Delalande et donné par M. / Cuvier' ['From Rio de Janeiro. Brought back by Delalande and donated by Mn. Cuvier'].

Remarks: Vieillot (1818a: 502) also mentioned that the species was brought back from Brazil by Delalande. Although Vieillot did not mention how many specimens he studied, Voisin & Voisin (2011b) considered the MNHN specimen C.G. 2011-126, also brought from Brazil by Delalande, to be the holotype by monotypy. As all specimens that came from Cuvier to Baillon were donated between 1819 and 1826, it is highly probable that Vieillot saw MLC.2010.0.295. The assumption by Voisin & Voisin (2011b) that *Larus cirrocephalus* Vieillot, 1818, was based on a single specimen was published after 1999; therefore, designation as the lectotype is invalid (Art. 74.6 of the Code), and both C.G. 2011-126 and MLC.2010.0.295 are syntypes (Art. 73.2 of the Code).

Sternidae

Sterna bengalensis Lesson, 1831: 621.

Current name: *Thalasseus bengalensis bengalensis* (Lesson, 1831)⁸.

Probable syntype: MLC.2010.0.331. Pedestal base: 'Sterna bengalensis, Cuv. [Cuvier] / gal. [galerie] / Plumage d'hiver / Du Bengale. / M. Leschenault, donné / par M. Cuvier' ['From Bengal, Mn. Leschenault, donated by Mn. Cuvier'].

Remarks: Although Lesson (1831: 621) mentioned the specimens he studied came from the coast of India (sent by Leschenault in 1818, see Pucheran 1850: 542) and were at MNHN, I cannot be sure that MLC.2010.0.331 was at Lesson's disposal as there is no date mentioned on the inscription. MNHN has two syntypes: C.G. 2011-139 and C.G. 2011-140 (Voisin & Voisin 2011b). Contrary to the pedestal label, Cuvier never described any *Sterna bengalensis* (Voisin & Voisin 2011b).

Sterna affinis Cretzschmar, 1827: 23, pl. 14.

Current name: *Thalasseus bengalensis bengalensis* (Lesson, 1831).

Possible paralectotype: MLC.2011.0.330. Pedestal base: 'Sterna affinis, Rüppell / Plumage d'été / Des bords de la mer Rouge. / Donné par M. Rüppell' ['From the Red Sea, presented by M. Rüppell'].

Remarks: Eduard Rüppell collected birds in the Red Sea region during his journeys in 1822–27 and 1831–34 (Steinheimer 2005b). There is no evidence as to whether MLC.2011.0.330 was collected during the first or second journey, and therefore whether it was at Cretzschmar's disposal in describing his *Sterna affinis*. SMF houses the lectotype (SMF 12705) and two possible paralectotypes (SMF 14859 and 14860), all from the Red Sea and collected by Rüppell (Steinheimer 2005a), and Naturalis possibly holds two additional paralectotypes (Steinheimer 2005a).

Alcidae

Uria francsii Leach, 1819: 202.

Current name: *Uria lomvia lomvia* (Linnaeus, 1758).

Syntype: MLC.2010.0.191.1. Pedestal base: 'Uria francsii, Leach / Plumage d'été / De la Baie de Baffin, rapporté par le capitaine / Ross dans son premier voyage en 1819 [sic] / Donné par

⁸ Mlíkovský (2011) argued that *Sterna media* Horsfield, 1821, has priority over *Sterna bengalensis* Lesson, 1831, but this was not adopted by Dickinson & Remsen (2013: 232).

M. Leach en 1819 ['From Baffin Bay. Brought back by Captain Ross from his first journey in 1819 (*sic*). Given by Mn. Leach in 1819'].

Remarks: During the Ross Expedition, both Captain John Ross (1777–1856) and Captain Edward Sabine (1788–1883) assembled natural history collections (Mlíkovský 2012). After the expedition returned to London on 16 November 1818 (Mlíkovský 2012), Ross' collections were transferred to the Admiralty and then to the British Museum, where William Elford Leach (1790–1836) was an assistant in the Zoology Department, whereas Captain Sabine's collections went to his brother Joseph Sabine (1770–1837). Specimens studied by Leach were probably collected (1) by Lieutenant Frederick Franks on a voyage to the Faeroes, (2) during the Ross Expedition, and (3) during an expedition by Ross to Spitsbergen (Mlíkovský 2012). There is a second specimen (MLC.2010.0.191.2, a chick) on the same pedestal, which has a different label, not transcribed here. Specimens from the Ross collection (in the British Museum) were not studied by E. Sabine. Consequently, MLC.2010.0.191.1 given to Baillon by Leach is not a type of *Uria Brünnichii* E. Sabine, 1819.

Uria francsii Ross, 1819: lii.

Current name: *Uria lomvia lomvia* (Linnaeus, 1758).

Syntype: MLC.2010.0.191.1.

Remarks: The same specimen details and remarks apply here as for the preceding taxon. *Uria francsii* Leach, 1819, is a junior primary homonym of *Uria francsii* Ross, 1819 (Mlíkovský 2012).

STRIGIFORMES

Strigidae

Bubo Clamator Vieillot, 1808: 52 + plate 20.

Current name: *Asio clamator clamator* (Vieillot, 1808).

Probable syntype: MLC.2011.0.341. Pedestal base: 'hibou criard, vieill. [Vieillot] dict. [Dictionnaire] / Otus clamator, Vieill. [Vieillot] / Cayenne / Le Muséum [Paris].'

Remarks: At the end of his description, Vieillot (1808: 52) stated that the specimens at his disposal were from the collection of Mn. Dufresne. In 1793 Louis Dufresne became a taxidermist and assistant naturalist at the Paris museum (Anon. 1833). He also held a private collection of c.1,500 bird specimens that had been sold to the Univ. of Edinburgh by 1819 (Sweet 1970: 43). When working as an assistant naturalist in Paris (i.e. between c.1792 and 1801), François Baillon was under the supervision of Dufresne (Prarond 1857), but I have no evidence as to whether MLC.2011.0.341 could have come from the Dufresne collection. However, Voisin & Voisin (2011a) did not list any specimen of this taxon in MNHN, thereby increasing the possibility that MLC.2011.0.341 is one of the specimens used by Vieillot.

PICIFORMES

Galbulidae

Galbula tridactyla Vieillot, 1817c: 445.

Current name: *Jacamaralcyon tridactyla* (Vieillot, 1817c).

Syntype: MLC.2011.0.1238. Pedestal base: 'galbula / tridactyla / Vieill. [Vieillot] / Du Brésil / M. Delalande / Donné par M. Cuvier' ['From Brazil. Mn. Delalande. Presented by Mn. Cuvier'].

Remarks: In closing his description, Vieillot (1817c: 445) stated that 'this newly discovered species is found in Brazil, from where it was brought back by Mn. Delalande's son, a naturalist attached to the Muséum national d'Histoire naturelle'. Pierre-Antoine

Delalande (1787–1823) was a French naturalist-explorer. He was employed as an assistant naturalist by the Paris museum to collect specimens, and travelled to Brazil in 1816 (Anon. 1855). MNHN has two syntypes of *Galbula tridactyla* Vieillot, 1817: C.G. 2008-739 and C.G. 2008-740, also collected by Delalande in Brazil (Voisin & Voisin 2009). As Cuvier only passed specimens to Baillon between 1819 and 1826, MLC.2011.0.1238 was probably at Vieillot's disposal when describing *Galbula tridactyla*.

Megalaimidae

BUCCO ARMILLARIS Temminck in Temminck & Laugier, 1821: pl. 89, fig. 1.

Current name: *Psilopogon armillaris armillaris* (Temminck, 1821).

Possible syntype: MLC.2011.0.1252. Pedestal base: 'Bucco / armillaris, Tem. [Temminck] / Barbu souci-col / Tem. [Temminck] pl. [Planche] col. [Coloriée] 89 / Mâle / Java / M. Temminck' ['Male, from Java. Mn. Temminck'].

Remarks: In his description, Temminck (1821) mentioned having examined more than 60 individuals of all ages. Naturalis and NMW each possess a syntype (RMNH.AVES.88662, adult male, and NMW 65.570, respectively: van den Hoek Ostende *et al.* 1997: 196, Schifter *et al.* 2007: 260). Because material from Java was sent to Leiden after 1821, I have no evidence if MLC.2011.0.1252, an adult male collected in Java, was at Temminck's disposal. Thus this specimen can be considered only a possible syntype.

Lybiidae

POGONIA SULCIROSTRIS Leach, 1815: 46, pl. 76.

Current name: *Pogonornis dubius* (J. F. Gmelin, 1788).

Syntype: MLC.2011.0.110. Pedestal base: 'Pogonias / sulcirostris. Leach / de la Gambie [Gambia] / M. Leach.'

Remarks: Leach (1815: 46) used three specimens to describe his *Pogonia sulcirostris*. Neither Sclater & Shelley (1891: 15) nor Warren (1966) mentioned type material of this taxon at NHMUK. MLC.2011.0.110, an adult female, was probably used by W. E. Leach to describe this taxon.

Picidae

PICUS CONCRETUS Temminck in Temminck & Laugier, 1821: pl. 90.

Current name: *Hemicircus concretus* (Temminck, 1821).

Possible syntype: MLC.2011.0.1337. Pedestal base: 'Pic / trapu, Temm. [Temminck] / Femelle / de Java, / M. Temminck' ['Female, from Java. Mn. Temminck'].

Remarks: Temminck (1821) described the male, the female and young male, but did not detail the number of specimens used for his description. Naturalis has three syntypes from Java: RMNH.AVES.88714, immature male, RMNH.AVES.88715, adult female and RMNH.AVES.88716, adult male (van den Hoek Ostende *et al.* 1997: 202), while NMW has two syntypes from Java: 1.568, female, and 44.754 male (Schifter *et al.* 2007: 303–304). Because material from Java was sent to Leiden after 1821, I have no evidence as to whether MLC.2011.0.1337, a female taken on Java, was at Temminck's disposal. Thus this specimen remains a possible syntype of this taxon.

Picus fuscescens Vieillot (ex Levaillant), 1818c: 86.

Current name: *Dendropicos fuscescens fuscescens* (Vieillot, 1818c).

Syntype: MLC.2011.0.1275. Pedestal base: 'Petit pic à baguettes / dorées, Levaill. [Levaillant] / Femelle / du Cap de B. [Bonne] Esp. [Espérance] / M. Levaillant' ['Female, from Cape of Good Hope. Mn. Levaillant'].

Remarks: François Levaillant (1753–1824), who travelled to South Africa in 1781–84, probably used this specimen to describe the female of his ‘Petit Pic à Baguettes d’Or’ (Levaillant 1808: 25, pl. 253 fig. 2). Levaillant was an adherent of Buffon and criticised Linnaeus’ approach to taxonomy (Glenn 2009), leaving the allocation of Latin names for his birds to Vieillot and others (Winterbottom 1973). Vieillot (1818c: 86) based his description of *Picus fuscescens* on the ‘Petit Pic à Baguettes d’Or’ of Levaillant. Both sexes were described by Levaillant, and therefore by Vieillot. Thus, MLC.2011.0.1275 is a syntype of this taxon.

FALCONIFORMES

Falconidae

FALCO BIARMICUS Temminck in Temminck & Laugier, 1825: plate 324.

Current name: *Falco biarmicus biarmicus* Temminck, 1825.

Syntype: MLC.2011.0.395. Pedestal base: ‘Falco / biarmicus, Cuv. [Cuvier] / Temm. [Temminck] pl. [Planches] col. [Coloriées] ... / Mâle jeune / Cap de Bonne Espérance / du voyage de Delalande / donné par M. Cuvier / en 1826’ [‘Young male, from the Cape of Good Hope, journey of Delalande, presented by Mn. Cuvier in 1826’].

Remarks: Temminck (1825) described both the adult and young, and ended his description stating that ‘It [*F. biarmicus*]...is not rare in the colony of Cape of Good Hope. Museums in the Netherlands [i.e. Leiden] and Paris’. Van den Hoek Ostende *et al.* (1997: 42) listed a single syntype in the Leiden collection (RMNH.AVES.87268, adult male), but there is no type material at MNHN (Voisin & Voisin 2002). Thus MLC.2011.0.395, a young male, seems highly likely to have been at Temminck’s disposal in describing this taxon.

PSITTACIFORMES

Psittacidae

Psittacus cruentatus Wied, 1820: 53, 72.

Current name: *Pyrrhura cruentata* (Wied, 1820).

Syntype: MLC.2011.0.1195. Pedestal base, first label: ‘Psittacus cruentatus / P. [Prince] Max. [Maximilian] / Mâle / du Brésil donné par / s. [son] alt. [altesse] le P. [Prince] de Wied’ ; second label (different handwriting) and presumably pasted by François Baillon: ‘N°61 / mas. [masculum]’. [‘Male from Brazil presented by His Highness the Prince of Wied’].

Remarks: The zoological collections of Maximilian, Prince of Wied, were purchased by AMNH in 1870, when they contained c.4,000 mounted birds (LeCroy *et al.* 2014). Two years before he died, Wied prepared a manuscript listing the bird species in his collection (Wied 1865, see also Allen 1889). In this handwritten document, species are arranged by genus with an incremental number, but his specimens were not numbered. In his description of *Psittacus cruentatus*, Wied (1820: 72) specified that his hunters had collected many individuals. No type of *P. cruentatus* was found in the Wied collection at AMNH (Allen 1889), although a male, female and juvenile are mentioned by Wied (1865). Two syntypes are in Naturalis (RMNH.AVES.88093 and RMNH.AVES.88094⁹; van den Hoek Ostende *et al.* 1997: 133). MLC.2011.0.1195 was almost certainly at Wied’s disposal in describing *Psittacus cruentatus*. The number given on the second label (61) does not match that assigned to the species by Wied (1865; i.e. 15, meaning the 15th species under the genus *Conurus*). As François Baillon died in 1855, he would have received this specimen from Wied long before the latter prepared his catalogue, and the remaining specimens were probably labelled differently.

⁹ Designation of this specimen as a syntype by van den Hoek Ostende *et al.* (1997: 133) is doubtful, as Wied is not mentioned as the collector and, given that *P. cruentata* is a Brazilian endemic, the only label data, ‘Brazil’, are not informative.

Psittacus melanonotus Wied, 1820: 275.

Current name: *Touit melanonotus* (Wied, 1820).

Syntype: MLC.2011.0.78. Pedestal base, first label: 'Psittacus / melanonotus / P. [Prince] Max. [Maximilian] / Femelle du Brésil / par s. [son] alt. [altesse] le Prince / de Wied'; second label (different handwriting), presumably pasted by François Baillon: 'N°283 / fem. [Femina]'. ['Female from Brazil by His Highness the Prince of Wied'].

Remarks: See remarks under *Psittacus cruentatus* Wied, for general notes concerning Wied's collection. Greenway (1978: 86) listed the unique specimen held at AMNH (6302) as the holotype of this taxon, despite the fact that Wied (1865) had at least one specimen of each sex and one juvenile at his disposal. Allen (1889) listed those specimens at AMNH used by Wied to describe new species, but did not mean to imply, when he mentioned a single type, that this should be interpreted as the holotype. That Greenway (1978) interpreted it thus was in error, and the AMNH specimen should be considered a syntype (M. LeCroy *in litt.* 2 June 2014). Wied obviously used several specimens, including MLC.2011.0.78, for his description. MWHN possibly also has a syntype: Inv. 748, adult (Hoffmann & Geller-Grimm 2013).

Specimens rejected as types

STRUTHIONIFORMES

Tinamidae

Tinamus rufescens Temminck, 1815: 552, 747.

Current name: *Rhynchotus rufescens rufescens* (Temminck, 1815).

MLC.2010.0.3. Pedestal base: 'Tinamus rufescens, Tem [Temminck] / Du Brésil, [X] de St-Hilaire / Donné par M. Cuvier' ['From Brazil, (X) Saint-Hilaire, given by Mn. Cuvier'].

Remarks: Temminck (1815: 556) mentioned that the single specimen he had seen was at MNHN. MLC.2010.0.3, collected in Brazil by Auguste Saint-Hilaire (1779–1853) and presented to Baillon by Cuvier, cannot be the holotype of *T. rufescens* because Saint-Hilaire returned from South America only in 1822, seven years after Temminck's description and, according to Moquin-Tandon (1857), he did not send any specimens to Europe earlier. The whereabouts of the holotype of this taxon are unknown; it is not at MNHN (C. & J.-F. Voisin *in litt.* 17 November 2014).

COLUMBIFORMES

Columbidae

Columba Pampusan Quoy & Gaimard, 1824: 121, pl. 30.

Columba xanthonura Temminck *in* Temminck & Laugier, 1823: pl. 190.

Current name: *Alopecoenas xanthonurus* (Temminck, 1823).

MLC.2011.0.1380. Pedestal base: 'Iles Mariannes, voy. [voyage] de / M. Freycinet 1820 / Donné par M. Cuvier' ['Mariana Islands, journey of Mn. Freycinet in 1820. Presented by Mn. Cuvier'].

Remarks: Quoy & Gaimard (1824: 121), naturalists during the Freycinet expedition, described the female alone. Therefore, MLC.2011.0.1380, a male, cannot form part of the type series. MNHN has two syntypes: C.G. 2003-2662 and C.G. 2003-2661, both females (Voisin *et al.* 2005). Because Temminck (1823) used the two specimens from Quoy and Gaimard (see above) and therefore also described only the female, MLC.2011.0.1380, cannot be a type of the name *Columba xanthonura*.

PROCELLARIIFORMES

Hydrobatidae

Procellaria leucorhoa Vieillot, 1818d: 422.

Current name: *Hydrobates leucorhous leucorhous* (Vieillot, 1818d).

MLC.2010.0.43. Pedestal base: 'Femelle / Crotoi, octobre 1828' ['Female, Le Crotoi (= Le Crotoy, Somme, Picardie, France), October 1828'].

MLC.2010.0.278. Pedestal base: 'Femelle / de Terre-Neuve par / M. Quenouille' ['Female, from Newfoundland, by Mn. Quenouille'].

Remarks: In his description, Vieillot (1818d: 422) stated 'this petrel, in the collection of M. Baillon, has been found on the shore of Picardy'. MLC.2010.0.43 was collected in Picardy in October 1828, ten years after Vieillot's description, and therefore cannot be a type of this taxon. MLC.2010.0.278, collected in Newfoundland, also cannot be a type. Temminck (1820: 812) subsequently described *Procellaria leachii* from the same specimen that was probably used by Vieillot (1818d), commenting '...a second [specimen] was collected on the coast of Picardy and is in the collection of M. Baillon from Abbeville.' For the same reasons, these two specimens cannot be types of *Procellaria leachii* Temminck, 1820.

Procellariidae

Procellaria diabolica Lafresnaye (ex L'Herminier), *nomen nudum*.

Current name: *Pterodroma hasitata* Kuhl (ex Forster), 1820.

MLC.2010.0.37.1. Pedestal base: 'Procellaria diabolicus / envoyé sous ce nom et sous / celui de Diable de la Soufrière de la / Guadeloupe par M. L'Herminier / Femelle prise sur son nid / Un individu semblable a été tué dans la Manche près de Boulogne, il fait partie de la collection de la même ville / Sa capture dans la Manche est / parfaitement constatée sur les / registres du musée' ['sent under this name (i.e. *Procellaria diabolicus* [sic]) and under Diable de la Soufrière de la Guadeloupe by Mn. L'Herminier. Female collected at the nest'].

MLC.2010.0.37.2. Pedestal base: same as above. The specimen is a young chick. There is no mention of a chick on the label, but it is possible that it was the chick of the previous specimen.

MLC.2010.0.271. Pedestal base: 'Procellaria diabolicus / envoyé de la Guadeloupe sous / ce nom et sous celui de Diable de / la Soufrière par M. L'Herminier / Un individu entièrement semblable / a été tué dans la Manche près de / Boulogne, il fait partie de la collection / de cette ville / Sa capture dans la Manche est / parfaitement constatée sur les / registres du musée.' These inscriptions are the same as for the previous specimen except that no sex is mentioned.

Remarks: Lafresnaye (1844) mentioned a species of petrel that he named *Procellaria diabolica* L'Herminier. Nevertheless, he did not provide any description stating that he 'left it up to L'Herminier who just lost [because of the earthquake in Guadeloupe in 1843] his birds, both mounted or in alcohol, all his books and notes'. I have not found any description by L'Herminier. The name *Procellaria diabolica* Lafresnaye (ex L'Herminier) fails to conform to Art. 12 of the Code and is a *nomen nudum*. In consequence, MLC.2010.0.37.1, MLC.2010.0.37.2 and MLC.2010.0.271 cannot be types. Bangs (1930: 173) claimed that the MCZ houses four 'cotypes' (73219–222) of this taxon. I agree with Hellmayr & Conover (1948: 76, footnote 4) that these specimens have no claim to be 'cotypes' [i.e. syntypes].

PELECANIFORMES

Pelecanidae

Pelecanus crispus Bruch, 1832: col. 1105.

Current name: *Pelecanus crispus* Bruch, 1832.

MLC.2010.0.47. Pedestal base: 'Pelecanus crispus / Bruch Isis 1832 / Femelle / de la Dalmatie, donnée par M. Bruch. 1840' ['Female from Dalmatia, presented by Mn. Bruch in 1840'].

Remarks: In his description, Bruch (1832: col. 1105) stated that he 'has a female shot in Dalmatia in 1831... [translated from Gothic]', giving the bill length as '1 foot and 8 lines [from the Gothic]', i.e. 34.28 cm (measurements follow 'the large Parisian measure' where one foot = 32.48 cm and one line = 2.256 mm). As the bill of MLC.2010.0.47 is 37.4 cm, it cannot be the female mentioned by Bruch. Naturalis has an adult female syntype (RMNH. AVES.87051) from Bruch (van den Hoek Ostende *et al.* 1997: 16) that has a bill '13 inches and one line' long, i.e. 33.28 cm (Schlegel 1863: 33), quite close to Bruch's measurement.

CHARADRIIFORMES

Recurvirostridae

Recurvirostra Novæ-Hollandiæ Vieillot, 1816a: 103.

Current name: *Recurvirostra novaehollandiæ* Vieillot, 1816a.

MLC.2011.0.384. Pedestal base: 'Recurvirostra novaehollandiæ, Vieillot / Nouvelle Hollande, Ile Maria / Du voyage de M. le capitaine / Baudin' ['New Holland (i.e. Australia), Maria Island. From the journey of Captain Baudin'].

Remarks: From the Baudin Expedition (1800–04), Stresemann (1951: 67) stated that '... at least 80 species of Australian birds, many of which were represented by more than one or two specimens. A number of skins were soon mounted ... while duplicates were given to Bécœur of Paris ... who sold some of them to C. J. Temminck, and probably other collectors, in 1806.' Although Vieillot (1816a: 103) did not mention how many specimens he had studied, it is probable that he saw just a single specimen in the Paris museum. Therefore, MLC.2011.0.384 cannot be a type and the holotype (C.G. 2012-187) is at MNHN (Voisin & Voisin 2012). Temminck (1820: 593) subsequently described *Recurvirostra rubricollis* from the same specimen as that probably used by Vieillot (1816a). So, for the same reasons, the MLC specimen cannot be a type of Temminck's name, and the holotype is again C.G. 2012-187 (Voisin & Voisin 2012).

Laridae

Larus Sabini J. Sabine in Anon., 1819: 68.

Current name: *Xema sabini* (J. Sabine, 1819).

MLC.2011.0.820. Pedestal base: 'Plumage d'été / Baie de Baffin, rapportée / par l'expédition du Cap. [Capitaine] Ross / donnée par M. Leach' ['Breeding plumage. From Baffin Bay, from the expedition captained by Ross. Presented by Mn. Leach'].

Remarks: See *Uria francsii* Leach, 1819, and Mlíkovský (2012) for the whereabouts of birds collected during the Ross Expedition. Specimens from Ross' collections (in the British Museum) were not studied by J. Sabine, who used only those taken by his brother. Consequently, MLC.2011.0.820 presented by Leach cannot be a type of *Larus sabini* J. Sabine, 1819.

ACCIPITRIFORMES

Accipitridae

FALCO RUTILANS Temminck in Temminck & Laugier, 1820: pl. 25.

Current name: *Buteogallus meridionalis* (Latham, 1790).

MLC.2011.0.400. Pedestal base: 'Du Brésil, Ile S^{te}. Catherine / Rapportée par M. de S^t. Hilaire / donnée par M. Cuvier / en 1823' ['From Brazil, Santa Catarina Island. Brought back by Mn. de Saint-Hilaire. Presented by Mn. Cuvier in 1823'].

Remarks: Temminck (1820) mentioned that the species occurs in Paraguay, Brazil and French Guiana, and that specimens he had seen were at MNHN, NMW, ZMB and what is now Naturalis. According to Voisin & Voisin (2001a,b), there is now no type material at MNHN. However, MLC.2011.0.400 is still unlikely to be a syntype because Auguste Saint-Hilaire, together with all of his collections (Moquin-Tandon 1857), did not return from South America until 1822, two years after Temminck's description.

Conclusion

This already substantial list of type specimens may prove to be incomplete, and future investigations into the collection at La Châtre might well reveal additional types, especially for names in synonymy.

Some specimens from the Baillon collection used for descriptions by other naturalists are now missing from La Châtre, e.g. those mentioned by Bonaparte (1857: 204–205) when describing *Procellaria baroli* and *Procellaria bailloni* (nowadays *Puffinus lherminieri baroli* and *Puffinus bailloni*, respectively). The type of *Procellaria baroli* from the Baillon collection was sent to Bonelli when he was in Paris in 1820 (Salvadori 1916: 6). The Turin museum was severely damaged during the Second World War, with the loss of many specimens (Violani & Barbagli 2003). However, Elter (1986: 398) recorded a syntype of *baroli* given to Bonelli as being present in Turin. The whereabouts of the type of *Procellaria bailloni* are unknown. Finally, type specimens of *Scolopax lamotti* Baillon, 1834 (now *Gallinago gallinago* Linnaeus, 1758), and *Scolopax pygmaea* Baillon, 1834 (description based on two specimens according to Temminck 1835: 435, also now *Gallinago gallinago* Linnaeus, 1758), cannot be traced. A single specimen of *Scolopax lamotti* was sent by François Baillon to Temminck (Temminck 1835: 434) but is not mentioned by van den Hoek Ostende *et al.* (1997).

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Comments on the ornithology of Nigeria, including amendments to the national list

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SUMMARY.—This paper reviews the distribution of birds in Nigeria that were not treated in detail in the most recent national avifauna (Elgood *et al.* 1994). It clarifies certain range limits, and recommends the addition to the Nigerian list of four species (African Piculet *Verreauxia africana*, White-tailed Lark *Mirafrja albicauda*, Western Black-headed Batis *Batis erlangeri* and Velvet-mantled Drongo *Dicrurus modestus*) and the deletion (in the absence of satisfactory documentation) of six others (Olive Ibis *Bostrychia olivacea*, Lesser Short-toed Lark *Calandrella rufescens*, Richard's Pipit *Anthus richardi*, Little Grey Flycatcher *Muscicapa epulata*, Ussher's Flycatcher *M. ussheri* and Rufous-winged Illadopsis *Illadopsis rufescens*).

Recent research in West Africa has demonstrated the need to clarify the distributions of several bird species in Nigeria. I have re-examined much of the literature relating to the country, analysed the (largely unpublished) collection made by Boyd Alexander there in 1904–05 (in the Natural History Museum, Tring; NHMUK), and have reviewed the data available in the light of our own field work in Ghana (Dowsett-Lemaire & Dowsett 2014), Togo (Dowsett-Lemaire & Dowsett 2011a) and neighbouring Benin (Dowsett & Dowsett-Lemaire 2011, Dowsett-Lemaire & Dowsett 2009, 2010, 2011b).

The northern or southern localities of species with limited ranges in Nigeria were not always detailed by Elgood *et al.* (1994), although such information is essential for understanding distribution patterns and future changes. For many Guineo-Congolian forest species their northern limit in West Africa lies on the escarpment of the Jos Plateau, especially Nindam Forest Reserve, Kagoro. Nindam and neighbouring forests form an island of mid-altitude dry rainforest that contains tree species (Wilkinson & Beecroft 1988: 21) typical of peripheral semi-evergreen lowland or mid-altitude rainforest in West Africa (Jones 1963, White 1983: 79). White (1983: 175) placed the Jos Plateau escarpment forests within the Guineo-Congolian / Sudanian transition zone. At 09°28'N, Nindam Forest Reserve is further north than comparable situations in eastern Ghana and adjacent Togo, where hills bearing rainforest reach north to 08°30'N. Regrettably, the avifauna of the Nindam area was not documented in detail by Elgood *et al.* (1994), who did not mention the important survey detailed by Wilkinson & Beecroft (1988). More recent surveys have revealed that most of the forest has been destroyed, mainly as a result of logging (Abalaka & Manu 2007).

This paper addresses these topics, and also a number of published errors. Elgood *et al.* (1994) often repeated Elgood (1982, not 1981 as they stated) verbatim, so I mention the earlier book where there is need to demonstrate that a record pre-dated 1982. Records referred to as pers. obs. are unpublished, mainly from a 1988 expedition that I undertook with F. Dowsett-Lemaire and colleagues; a selection of the more important records was published by Ash *et al.* (1989) and Demey *et al.* (2003). A gazetteer lists all Nigerian localities mentioned, including several missing from that in Elgood *et al.* (1994).

Results

OLIVE IBIS *Bostrychia olivacea*

Sight reports were accepted by Elgood *et al.* (1994), although they suggested that 'the present records need confirming'. This should also apply to a report in 2004 from the area of Cross River National Park (*Bull. Afr. Bird Cl.* 12: 187). There remains no documented record between southern Ivory Coast (Yapo: Demey & Fishpool 1994) and southern Cameroon (Bipindi: Louette 1981). Claims from Nigeria clearly need to be differentiated from the widespread and more common Spot-breasted Ibis *B. rara*, for which Elgood *et al.* (1994) gave no Nigerian record, but whose presence was reported by Demey *et al.* (2003).

DARK CHANTING GOSHAWK *Melierax metabates*

There is a '?' plotted in south-west Nigeria on the map in Borrow & Demey (2014: 100), based on a sighting by R. Farmer of two on the coast at Tarkwa (06°25'N, 03°25'E) on 28 October 1980 (Gee & Heigham 1977). In the absence of natural savanna, this record should be queried. It was not mentioned by Elgood *et al.* (1994), although they did include an observation, from the south-east at Enugu, where Serle (1957) had other records.

LONG-TAILED HAWK *Urotriorchis macrourus*

Reported by Elgood (1982) and Elgood *et al.* (1994) as seen by R. E. Sharland at Kagoro, Jos Plateau escarpment (09°36'N), but the species was not recorded during surveys of the same forests by Dyer *et al.* (1986), Wilkinson & Beecroft (1988) and more recent observers. The BirdLife factsheet (BirdLife International 2014) listed this without comment as a 'trigger species' in support of recognition of the Kagoro-Nindam Important Bird Area. In similar habitat in Ghana, *U. macrourus* barely ranges north of 07°N (Dowsett-Lemaire & Dowsett 2014). If not a misidentification, the species could be no more than an exceptional vagrant. In any case, the Kagoro report should not be accepted without evidence that the bird ranges further north than Ile-Ife (07°29'N: Farmer 1979).

AFRICAN HARRIER HAWK *Polyboroides typus*

Elgood *et al.* (1994) mentioned both nominate *typus* and *P. t. pectoralis* as possibly occurring in Nigeria, but the former subspecies is present in eastern and southern Africa, no closer to Nigeria than central Sudan (Dickinson & Remsen 2013).

CHESTNUT-FLANKED SPARROWHAWK *Accipiter castanilius*

Elgood *et al.* (1994) accepted a sighting from as far north as Nindam (09°30'N), but provided no details. This was based on a bird 'watched at close range attacking a fruit bat', during a visit of a few hours (Ash & Sharland 1986: 11), apparently by both observers (Wilkinson & Beecroft 1988: 52–53). The species was not reported during the extensive surveys by Dyer *et al.* (1986) and Wilkinson & Beecroft (1988). This is a species of primary rainforest, and its occurrence in mid-altitude dry forest requires confirmation, as confusion with African Goshawk *A. tachiro* is possible (the latter was not listed by Ash & Sharland, but is present in Nindam). BirdLife International (2014) listed *A. castanilius* without comment from the Kagoro-Nindam Important Bird Area. A sight record from Ibadan (Elgood *et al.* 1994) was not accepted by Ezealor (2001). The northernmost certain record is a specimen from near Benin City (06°20'N: Bannerman 1951: 123).

CASSIN'S HAWK-EAGLE *Aquila africana*

Reported (under *Spizaetus africanus*) by Elgood (1982) and Elgood *et al.* (1994) as seen by M. Horwood on the southern Jos Plateau (? at Kagoro, 09°36'N). Although the species was not

recorded during surveys of the escarpment forests by Dyer *et al.* (1986) and Wilkinson & Beecroft (1988), a sighting was reported in the same area in 2002 (P. Hall, *Bull. Afr. Bird Cl.* 10: 62), and U. Ottosson (*in litt.* 2015) has observed it there a couple of times. Occurrence on the Jos Plateau is not unexpected: in similar habitat in Ghana it ranges north to almost 08°30'N, being especially common in the hills of Volta Region (Dowsett-Lemaire & Dowsett 2014).

SCALY FRANCOLIN *Pternistis squamatus*

Adeyanju *et al.* (2014) listed this species, as well as Ahanta Francolin *P. ahantensis*, from Ibadan, but the presence of two sibling species at the same locality is very unlikely and requires confirmation. The nearest certain record of Scaly Francolin is north of the Niger-Benue, at Minna (Marchant 1953).

CHESTNUT-BELLIED SANDGROUSE *Pterocles exustus*

Elgood *et al.* (1994) did not mention the southernmost locality, which seems to be Sambisa Game Reserve, where it is common (P. Hall *in litt.* 2015), at c.11°40'N, 14°20'E. It had previously been reported south of Maiduguri by Louette (1981), but the locality concerned was Minetti borehole (Hall 1977a), at c.12°45'N.

WESTERN BRONZE-NAPED PIGEON *Columba iriditorques*

Elgood *et al.* (1994) gave the range as Benin (City) to Lagos, but there are localities further north, as far as Ile-Ife (07°29'N: Farmer 1979). It is now known from the south-east, at Afi River Forest Reserve (Demey *et al.* 2003).

ADAMAWA TURTLE DOVE *Streptopelia hypopyrrha*

Elgood *et al.* (1994) did not give a southern limit for the central plateau population, which is Pankshin (09°20'N: Bannerman 1953).

AFRICAN MOURNING DOVE *Streptopelia decipiens*

A record mapped for Lagos by Borrow & Demey (2001: 194) was based on Gee & Heigham (1977), who reported it there in most months. But subsequently there has been no suggestion that it occurs on the coast (P. Hall *in* Elgood *et al.* 1994), and the earlier record should be considered a misidentification. Borrow & Demey (2014: 214) now omit the species from their map. *S. decipiens* is confined to dry riparian forest or woodland north of 09°30'N (as in Ghana: Dowsett-Lemaire & Dowsett 2014) and south to Yankari National Park (09°45'N: Crick & Marshall 1981).

AFRICAN COLLARED DOVE *Streptopelia roseogrisea*

The southernmost locality listed by Elgood *et al.* (1994) was Gaya, but it ranges further south, to Sambisa Game Reserve at c.11°40'N (Ezealor 2001).

BLUE-SPOTTED WOOD DOVE *Turtur afer*

Occurs north to Kaduna according to Elgood *et al.* (1994), but in fact the species reaches somewhat further, to Anara (10°44'N: Fry 1975).

AFRICAN GREEN PIGEON *Treron calvus*

Elgood *et al.* (1994) reported it north only to the southern slopes of the Jos Plateau, but it is known further north still at Danbagudu (10°19'N: Fry 1975).

RED-HEADED LOVEBIRD *Agapornis pullarius*

Mention should be made of a record further north than those in Elgood *et al.* (1994), at Kano (Sharland & Wilkinson 1981), although presumably the possibility of this referring to

escaped cagebirds cannot be eliminated. This comment applies also to records in the south-west, from Lagos and Badagri (Elgood *et al.* 1994), although birds in the Okigwi area were wild (Marchant 1942).

BLACK CUCKOO *Cuculus clamosus*

Elgood *et al.* (1994) listed no locality north of Zaria, but the northernmost report is from Kumbotso, Kano (11°53'N; Sharland & Wilkinson 1981).

DIDRIC CUCKOO *Chrysococcyx caprius*

The idea that this species has parasitised Cricket Warbler *Spiloptila clamans* (Wilson & Sallinen 2003) was unfortunately repeated by Ezealor (2013), although Dowsett (2005) considered that the possibility that these records involved Klaas's Cuckoos *C. klaas*, rather than Didric, had not been eliminated.

BLUE-HEADED COUCAL *Centropus monachus*

Elgood *et al.* (1994) recorded it from Lagos to Lake Chad, but the Lake Chad population is isolated, and the main range in Nigeria reaches north only to Yankari National Park (09°45'N; Crick & Marshall 1981).

AFRICAN SCOPS OWL *Otus senegalensis*

Occurs further south of the Niger than Abeokuta (Elgood *et al.* 1994), in the Awgu area (06°05'N), from where Marchant (1942) described the distinctive song.

PEL'S FISHING OWL *Scotopelia peli*

Not confined to Guinea savannas as suggested by Elgood *et al.* (1994), with one reportedly collected by L. H. Brown at Osomegbe, on the Obe River (Brown 1948; Bannerman 1951: 266), in the derived savanna / forest zone. This is the same area in which Turk (2000) found Vermiculated Fishing Owl *S. bowvieri*, although Turk did not mention Brown's record, which P. Hall (*in litt.* 2015) believes may be erroneous.

VERMICULATED FISHING OWL *Scotopelia bowvieri*

Ezealor (2001) reported this species from the savanna zone at Pandam National Park (08°40'N), without details, but this is unlikely, and there is no authentic record further north than Sunvit farm (07°07'N, Ezealor 2001), and in neighbouring Benin at Lokoli (07°04'N; Dowsett & Dowsett-Lemaire 2011). Pel's Fishing Owl is known from Pandam (Elgood *et al.* 1994), which perhaps explains the confusion. A report of the Upper Guinea endemic Rufous Fishing Owl *S. ussheri* from Agenbode (Agenebode) (P. Hall, *Bull. Afr. Bird Cl.* 3: 140) was demonstrated to refer to *S. bowvieri* (Turk 2000).

AFRICAN WOOD OWL *Strix woodfordii*

Rather than Nindam, the northernmost report is from Danbagudu (10°19'N; Fry 1975), a locality not mentioned by Elgood *et al.* (1994) and not in their gazetteer.

EGYPTIAN NIGHTJAR *Caprimulgus aegyptius*

Elgood *et al.* (1994) mentioned only a single specimen for Nigeria, from the 'mouth of the Yo River'. In fact, Boyd Alexander collected three specimens there, all on 24 February 1905 (NHMUK).

SABINE'S SPINETAIL *Rhaphidura sabini*

A sighting of one in Yankari National Park (09°45'N) by C. Geerling (Elgood 1982, Elgood *et al.* 1994) requires confirmation, in view of the lack of suitable rainforest habitat. In the Lower

Guinea part of its range, this swift occurs south of 07°N, and in Nigeria the northernmost locality is Omo Forest Reserve (06°50'N: Green *et al.* 2007).

BATES'S SWIFT *Apus batesi*

There have been sightings from as far north as Nindam (09°36'N: Wilkinson & Beecroft 1988) and the species is mapped by Borrow & Demey (2014: 252). In view of the difficulty in identifying black swifts, evidence is desirable (e.g. photographs).

SHINING-BLUE KINGFISHER *Alcedo quadribrachys*

Elgood *et al.* (1994) quoted Bannerman (1933: 250) to the effect that the species occurred widely in the Northern Provinces, to Sokoto. In fact, Bannerman specified that Hutson did not report seeing it at Sokoto, but at Bungudu (Gungudu), Sokoto Province (12°16'N, 06°33'E). The northernmost record otherwise is from Shaffini swamp, Kainji (09°53'N: Wells & Walsh 1969: 89).

BLACK BEE-EATER *Merops gularis*

The northernmost of the localities listed by Elgood *et al.* (1994) was Owena, but there is a record from Ile-Ife (Farmer 1979), even further north.

BLUE-BREASTED BEE-EATER *Merops variegatus*

Borrow & Demey (2014: 266) mapped a record far to the west of the normal range, which is based on a sight report of three birds in 'lowland forest' at Sapele (05°42'E) on 10 June 1976 (C. S. Porteous *in* Elgood 1982, repeated by Elgood *et al.* 1994). The species was not found at Sapele while Heigham (1976) was resident there, and there can be little doubt that the record mentioned by Elgood (1982) was a misidentification of Little Bee-eater *M. pusillus*. Blue-breasted Bee-eater occurs west only to the montane grasslands of the Obudu Plateau, where first reported by Elgood (1965).

SWALLOW-TAILED BEE-EATER *Merops hirundineus*

Elgood *et al.* (1994) did not detail the distribution of this woodland species, except in general terms. It ranges as far south as Ubiaja, where reported by H. F. Marshall (*in* Bannerman 1951: 327).

RED-THROATED BEE-EATER *Merops bulocki*

There is only one coastal record mapped by Borrow & Demey (2014: 266) for the whole of West Africa. This is based on the statement in Elgood *et al.* (1994) 'reported in coastal savanna at Lagos', which is based on a sight record by D. I. M. Wallace of one at Tarkwa on 31 January 1970 (Gee & Heigham 1977). This was doubtless a wanderer.

FOREST WOOD-HOOPOE *Rhinopomastus (ex-Phoeniculus) castaneiceps* / **BLACK DWARF HORNBILL** *Horizocerus (ex-Tockus) hartlaubi*

Elgood *et al.* (1994) did not distinguish the northernmost localities of these two forest species; for both it is Ile-Ife (Farmer 1979).

BLACK-CASQUED HORNBILL *Ceratogymna atrata*

The record mentioned by Elgood *et al.* (1994) from Ilorin Province should be treated as doubtfully correct, based as it is on a sight record (J. D. Clarke *in* Bannerman 1933). *C. atrata* can be confused with Yellow-casqued Hornbill *C. elata*, which has been seen as far north as Shaffini swamp forest, Kainji (09°53'N: Wells & Walsh 1969: 92), a record not cited by Elgood *et al.* (1994). The northernmost acceptable record of *C. atrata* in Nigeria is from Mekko (07°28'N), from where the tail of a specimen was preserved (Bannerman 1933).

NAKED-FACED BARBET *Gymnobucco calvus* / **BRISTLE-NOSED BARBET** *G. peli*
Elgood *et al.* (1994) gave northern limits for neither of these forest species; they are respectively Ilesha (07°37'N: Serle 1950) and Ile-Ife (07°29'N: Farmer 1979).

YELLOW-FRONTED TINKERBIRD *Pogoniulus chrysoconus*

Only one locality south of the Benue was presented by Elgood *et al.* (1994), but it is also widespread in the Mambilla area (e.g. Njawai; pers. obs. 1988), and Alexander collected it at Takum (NHMUK).

YELLOW-THROATED TINKERBIRD *Pogoniulus subsulphureus* / **YELLOW-BILLED BARBET** *Trachylaemus* (ex-*Trachyphonus*) *purpuratus*

The ranges of these two forest barbets were not detailed by Elgood *et al.* (1994): the northernmost locality for both species is Ile-Ife (Farmer 1979).

YELLOW-BREASTED BARBET *Trachyphonus margaritatus*

The species' southern limit is the Maiduguri-Chad Basin National Park area at c.11°45'N (cf. Bannerman & Bates 1924, Ezealor 2001), rather than Hadejia (as stated in Elgood *et al.* 1994).

WHITE-HEADED BARBET *Lybius leucocephalus*

Elgood *et al.* (1994) did not give a southernmost locality: it occurs south to Yankari National Park (Green 1989) and Vom (P. Hall *in litt.* 2015).

CASSIN'S HONEYBIRD *Prodotiscus insignis*

The limits of this forest species were not detailed by Elgood *et al.* (1994): it is recorded north to Ibadan (Elgood & Sibley 1964). Elgood *et al.* (1994) attributed to the nominate race a bird collected at Benin (Benin City in Nigeria, not the country: Bannerman 1951: 350), based on a bird measured, but not retained as a specimen. The only specimen from the south-west (Abeokuta) was shown by Serle (1950: 88) to be of the race *flavodorsalis*. The range of the two races in Nigeria as described by Elgood *et al.* (1994) remains to be clarified, as there is a gap in the documented distribution of this species, with no record between Ibadan and Okomu National Park.

LYRE-TAILED HONEYGUIDE *Melichneutes robustus*

To the three localities listed by Elgood *et al.* (1994) can be added a more northerly one, Cross River National Park, Oban Division (Demey *et al.* 2003).

AFRICAN PICULET *Verreauxia* (ex-*Sasia*) *africana*

Elgood *et al.* (1994) placed this species, reported from Lokoja (Jourdain & Shuel 1935), in square brackets. The record has been considered only doubtfully correct by several authorities, as the commensal locality (where several sightings were claimed) and the nest site (a hole in a garden tree) are atypical. However, in February 2005 one was well described from Afi River Forest Reserve (06°20'N, 09°00'E: I. Imong *per* L. D. C. Fishpool *in Bull. Afr. Bird Cl.* 12: 187) and the species can be added to the Nigerian list.

GABON WOODPECKER *Dendropicos gabonensis*

A northern limit was not given for this forest species by Elgood *et al.* (1994): it is Ile-Ife (Farmer 1979).

CARDINAL WOODPECKER *Dendropicos fuscescens*

Elgood *et al.* (1994) gave the species' northern limit as Potiskum, but it does range slightly further north, to Gadau (Fry 1975).

FIRE-BELLIED WOODPECKER *Chloropicus (ex-Thripis) pyrrhogaster* / **YELLOW-CRESTED WOODPECKER** *C. (T.) xantholophus*

The northernmost locality for Fire-bellied Woodpecker is Ile-Ife (Farmer 1979), rather than Ibadan, as stated in Elgood *et al.* (1994). The sight record of Yellow-crested Woodpecker claimed near Sapele (C. S. Porteous *in* Elgood 1982, repeated by Elgood *et al.* 1994) is surprising, being well within the range of sibling *C. pyrrhogaster*, and so it is marked with a '?' on the map in Borrow & Demey (2014: 300). Both species were listed from Cross River National Park by Ezealor (2001), *pyrrhogaster* from the Okwangwo area and together with *xantholophus* in Oban Division. The latter appears to be correct for *xantholophus*, being based on Dyer & Gartshore *in* Elgood *et al.* (1994) and more recent observations; this is the species' westernmost locality. However, the occurrence of *pyrrhogaster* in Cross River seems not to have been substantiated in print and requires confirmation—the easternmost record in Nigeria appears to be Calabar (Mackenzie 1979), although there are reports of sympatry in extreme south-west Cameroon (Sørensen *et al.* 1996).

BROWN-BACKED WOODPECKER *Ipophilus (ex-Picoides) obsoletus*

Elgood *et al.* (1994) gave Potiskum as the northernmost locality, but two specimens were collected by Alexander at Yo, Lake Chad, in early January 1905 (NHMUK).

SINGING BUSH LARK *Mirafra cantillans*

To the localities listed by Elgood *et al.* (1994) should be added a more southerly record, from Falgore Game Reserve (c.10°50'N: Wilkinson & Beecroft 1985).

WHITE-TAILED LARK *Mirafra albicauda*

No mention was made of this species by Elgood *et al.* (1994), although it was known from the Chadian region of Lake Chad (Vielliard 1972). In fact, of six specimens collected in 1905 by Boyd Alexander, one was from the Nigerian shore of the lake: at Kowa Baga on 25 April (specimen in NHMUK). The other five specimens were from localities in Chad along the Shari River, between Lafana and Dumtar. This is a new species for the Nigerian avifauna, but subsequent workers on the western shore of the lake have not found it (e.g. Gustafsson *et al.* 2003).

RUFOUS-NAPED LARK *Mirafra africana*

Elgood (1982) and Elgood *et al.* (1994) reported a specimen 'from Lake Chad area', but gave no supporting reference. There is no obvious habitat for the species in the area (pers. obs. 1968), and confirmation is required for a species usually restricted to upland grasslands.

FLAPPET LARK *Mirafra rufocinnamomea*

The northernmost locality is not Maiduguri (*cf.* Elgood *et al.* 1994), as there are several reports (including display) north to Sokoto (13°N: Mundy & Cook 1972: 60).

LESSER SHORT-TOED LARK *Calandrella rufescens*

Accepted for Nigeria by Elgood *et al.* (1994) on the basis of one ringed and others observed on the Jos Plateau. This migrant from the Palearctic is unknown south of the Sahara, except in Mauritania. In the absence of a photograph this single-observer report of an extreme rarity, not easy to identify, should not be accepted. Possibly these were immature Red-capped Larks *C. cinerea*, a very isolated population of which species is present on the Jos Plateau.

CRESTED LARK *Galerida cristata*

Rather than just the Jos Plateau (as in Elgood *et al.* 1994), the southernmost localities are more accurately Yankari National Park (Dyer & Gartshore 1975) and Leinde (Reichenow 1911).

SQUARE-TAILED SAW-WING *Psalidoprocne nitens*

Seven sightings from Lagos were mentioned by Elgood *et al.* (1994) without comment. These were probably misidentifications of square-tailed juveniles of the often confused, sibling Fanti Saw-wing *P. obscura*. There are no definite records of Square-tailed Saw-wing between south-east Ghana (Dowsett-Lemaire & Dowsett 2014) and south-east Nigeria at the Imo River, Owerri (Marchant 1942). Sightings claimed from western Togo (Douaud 1956, Cheke & Walsh 1996), including as far north as Pagala at 08°11'N, 00°58'E (in predominantly savanna habitat; pers. obs.), were also surely misidentified.

AFRICAN PIED WAGTAIL *Motacilla aguimp*

The description of its range in Elgood *et al.* (1994)—‘to 10°N in the west’—is ambiguous: it is not at its limit at 10°N, but extends at least to Bungudu (12°16'N), where the species is numerous (Bannerman 1936), and in Niger it reaches 15°N.

RICHARD'S PIPIT *Anthus richardi* / **AFRICAN PIPIT** *A. cinnamomeus*

Records of these two taxa in Nigeria require clarification. There are three specimens from the Lake Chad area identified as *A. richardi* (White 1957: 33): on 18 October 1904 (not 1940, as in White), 1 November 1904 and 1 March 1905. All were collected by Boyd Alexander, and from what is known of his travels (Alexander 1907), they were all taken in or immediately adjacent to the Nigerian shore of the lake. A fourth pipit, attributed to Blyth's Pipit *A. godlewskii* (B. P. Hall in White 1957), was also taken on 18 October. All of these are now thought possibly to represent a resident population of *A. cinnamomeus* (D. J. Pearson in Keith *et al.* 1992), and Elgood *et al.* (1994) were wrong to treat them unquestionably as Palearctic *richardi*. Those authors also reported that the race *lynesei* had been ‘netted at Kano’; they gave no reference, but this was presumably the bird ‘secured for identification’ at Kirikasama (12°42'N, well north of Kano) on 16 January 1964 (Sharland & Wilkinson 1981)—in the absence of a specimen even the specific identity must be uncertain. The resident population in the highlands of south-east Nigeria (Obudu and Mambilla), *cameroonensis*, is best treated as a member of the *A. cinnamomeus* complex (*cf.* White 1961).

BLUE CUCKOO-SHRIKE *Cyanograucalus* (ex-*Coracina*) *azureus*

Elgood *et al.* (1994) did not describe its distribution in detail; the northernmost locality is Olokomeji at 07°25'N (Elgood 1977).

ANSORGE'S GREENBUL *Eurillas* (ex-*Andropadus*) *ansorgei*

Ezealor (2001) listed it for Gashaka-Gumti National Park, but this record (by far the north-easternmost in Nigeria) has not been documented and should be, given the difficulties that exist in identifying this species.

CAMEROON SOMBRE GREENBUL *Eurillas* (*A.*) *curvirostris*

Elgood *et al.* (1994) did not give a northern limit for this forest species. It might be thought to be Kagoro-Nindam Forest Reserve (Ezealor 2001), although the species was not among those mist-netted or seen in surveys by Dyer *et al.* (1986) and Wilkinson & Beecroft (1988). Otherwise the northernmost record is from Ilesha at 07°37'N (Serle 1950).

SLENDER-BILLED GREENBUL *Stelgidillas (A.) gracilirostris*

The easternmost locality mentioned by Elgood *et al.* (1994) is Owerri, but in fact it ranges throughout southern Nigeria to Calabar (Mackenzie 1979) and the Ebe River (pers. obs. 1988).

SJÖSTEDT'S HONEYGUIDE GREENBUL *Baeopogon clamans*

Listed from the Biseni forests (Ezealor 2001), which would be the western limit of the species' range (it being absent from Upper Guinea). Nothing has been published on the avifauna of these forests and this record should be documented. The same comments apply to Lesser Bristlebill *Bleda notatus*.

BAUMANN'S GREENBUL *Phyllastrephus baumanni*

Known north to Ede (07°43'N), the report from Pandam (Elgood *et al.* 1994) being a misidentification (Fishpool 2000).

ICTERINE GREENBUL *Phyllastrephus icterinus*

The species' range was not described in detail by Elgood *et al.* (1994): the northernmost locality is Mekko (07°28'N: Serle 1950).

WESTERN BEARDED GREENBUL *Criniger barbatus*

Contra Elgood *et al.* (1994), *C. barbatus* does not range 'right across the country', but Port Harcourt (07°05'E) represents the eastern limit (*C. b. ansorgeanus* collected, and the distinctive voice described, by Marchant 1953). It seems probable that sight records from the Calabar area (Mackenzie 1979) refer to the allopatric sibling Eastern Bearded Greenbul *C. chloronotus*.

WHITE-BEARDED GREENBUL *Criniger ndussumensis*

Nigeria lies at the western limit of this primary rainforest species, so it is unfortunate that Elgood *et al.* (1994) did not mention a single locality. None of the records west of the lower Niger (Ezealor 2001) have been documented, and it is unclear how they were separated from the sibling Red-tailed Greenbul *C. calurus*. Definite records of *C. ndussumensis* (confirmed by vocalisations) are from Cross River National Park eastwards (Demey *et al.* 2003).

WHITE-TAILED ANT THRUSH *Neocossyphus poensis*

The northern limit was not given by Elgood *et al.* (1994): it is Gambari Forest Reserve (Elgood 1977; pers. obs. 1968).

COMMON ROCK THRUSH *Monticola saxatilis*

Elgood *et al.* (1994) reported just one record south of the Niger and Benue Rivers, to which can be added a male at Nguroje, on 11 March 1988, at an altitude of 1,600 m (pers. obs.).

BLACK SCRUB ROBIN *Cercotrichas podobe*

No southern limit was given by Elgood *et al.* (1994), but the species is known south to Gujiba (11°35'N), where collected by Boyd Alexander (Bannerman 1936; NHMUK).

LITTLE RUSH WARBLER *Bradypterus baboecala*

Elgood *et al.* (1994) suggested that *B. b. chadensis* has not been definitely recorded on the Nigerian side of Lake Chad, but they overlooked a Boyd Alexander specimen at NHMUK (Dowsett 2002). Subsequently, birds were handled by Gustafsson *et al.* (2003), of which one was sampled for molecular analysis (Alström *et al.* 2011; U. Ottosson *in litt.* 2013). The song of northern birds is unknown, but the molecular analysis suggests that this population may be related to birds from Rwanda with a high-pitched song. Elsewhere in Nigeria it has the

deep voice of southern and central African birds, as at Panyam (Stervander *et al.* 2005), Onitsha and Obrubra (Serle 1957), west to Ghana (Dowsett-Lemaire & Dowsett 2014).

AFRICAN MOUSTACHED WARBLER *Melocichla mentalis*

Occurs north to Tapkin Darina at 12°46'N, where collected by Boyd Alexander (Bannerman 1921; NHMUK); this locality was not mentioned by Elgood *et al.* (1994), who made no reference to this important paper.

YELLOW-BELLIED EREMOMELA *Eremomela icteropygialis*

The southernmost localities were not mentioned by Elgood *et al.* (1994): they are Gadau (Bannerman 1939) and Molai, Maiduguri (Hall 1977a).

GREY LONGBILL *Macrosphenus concolor*

Wells & Walsh (1969: 93) reported what was 'probably this species' in dry forest in the Kainji area (c.09°50'N), a record accepted without question by Elgood *et al.* (1994). It was justifiably queried by Borrow & Demey (2014: 412), as the vegetation type (typically Sudanian) is unsuitable for this rainforest species. The northernmost acceptable locality in Nigeria is Ede, at 07°43'N, where the species was collected by Serle (1950).

ORIOLE WARBLER *Hypergerus atriceps*

The only records south of the Benue according to Elgood *et al.* (1994) were from the Mambilla Plateau, but they overlooked Boyd Alexander's specimens from the Katsina River and Takum (Bannerman 1921; NHMUK).

FRASER'S FOREST FLYCATCHER *Fraseria ocreata*

Borrow & Demey (2001: 373) mapped this species from north of the Niger / Benue confluence, apparently based on Dyer *et al.* (1986). While the latter authors did indeed list the species (on p. 18) from Nindam, Kagoro, this was in error, for on p. 10 they explained that it was White-browed Forest Flycatcher *F. cinerascens* that was mist-netted. The northern limit of *F. ocreata* is Erin-Ijesha (Elgood *et al.* 1994), as now mapped by Borrow & Demey (2014: 420).

OLIVACEOUS FLYCATCHER *Muscicapa olivascens*

Elgood *et al.* (1994) accepted the monthly sightings at Benin City by D. N. Johnson (*in* Heigham 1976), but no-one else has found this rainforest species in south-west Nigeria and it is unknown from the Dahomey Gap, making confirmation desirable. On present evidence *M. olivascens* occurs in Nigeria only in the Cross River area (Ash 1990).

CASSIN'S FLYCATCHER *Muscicapa cassini*

Reported north to Iwo by Elgood *et al.* (1994), but a more northerly locality is Ede (Serle 1950).

LITTLE GREY FLYCATCHER *Muscicapa epulata*

Accepted on the Nigerian list by Elgood *et al.* (1994) on the basis of sight records from just one locality (Nindam, 09°36'N), which the observers considered 'not easily assignable to any other Nigerian flycatcher' (Dyer *et al.* 1986). In view of the identification problems presented by small grey flycatchers, occurrence at Nindam should be confirmed.

ASHY FLYCATCHER *Muscicapa caerulescens*

As there are so few Nigerian reports, it should be stressed that the only definite records (in addition to the Gambari specimen mentioned by Elgood *et al.* 1994) are from Kagoro (09°36'N; P. Hall *in* Bull. Afr. Bird Cl. 10: 60) and east of the lower Niger at Umuagwu and

Owerri, where Marchant (1953) collected one and observed others. This species does not associate with mixed-species flocks, and the sighting reported by Greig-Smith (1977) from Erin-Ijesha was probably misidentified.

DUSKY-BLUE FLYCATCHER *Muscicapa comitata*

Elgood (1982) and Elgood *et al.* (1994) referred to a sight record in relict forest at Pandam, on the southern edge of the Jos Plateau. No reference was given and it has not been possible to trace details. As the species has not been found in other forests on the Jos Plateau escarpment, such as Kagoro-Nindam (Dyer *et al.* 1986, Wilkinson & Beecroft 1988), this record is best considered unproven. In Nigeria, the northernmost record is otherwise at 07°33'N (Imesi-Ile: T. Ludlow *in* Elgood *et al.* 1994). A record from Gashaka-Gumti National Park (Ezealor 2001) can also be questioned, as no details have been traced in its support.

TESSMANN'S FLYCATCHER *Muscicapa tessmanni*

The only specimen record from Nigeria was supposedly from Shonga (09°05'N) on the Niger, obtained by 'Captain Ferryman' (Bannerman 1936, Elgood *et al.* 1994). This refers to A. F. Mockler-Ferryman (1856–1930: not 'Mochler' as in Sharpe 1906), who donated 20 specimens (of 17 species) to the British Museum, all purportedly from Shonga. However, much of his collecting was around Lokoja (07°47'N) and on the Benue (Mockler-Ferryman 1892: 152), and the exact origin of this flycatcher—presumably that listed as *M. modesta* (Mockler-Ferryman 1892: 316)—is uncertain. In Ghana, Tessmann's Flycatcher, although recorded from 19 30-minute atlas squares, occurs nowhere north of 07°12'N (Dowsett-Lemaire & Dowsett 2014). It seems probable that Ferryman's specimen, although in a consignment from Shonga, was from much further south. Listed for Ibadan (Ezealor 2001), but there have been no subsequent reports (Adeyanju *et al.* 2014) and this requires confirmation.

SOOTY FLYCATCHER *Muscicapa infuscata* / **USSHER'S FLYCATCHER** *M. ussheri*

These sibling species occupy the same niche (exposed branches high in the forest canopy), have the same 'jizz' and habits, and are so similar in plumage that they might even be considered races of a single species. Ussher's Flycatcher does not occur east of the Dahomey Gap; there is no satisfactory record for Togo or Benin, with the easternmost from Aburi, eastern Ghana (05°53'N, 00°11'W: Dowsett-Lemaire & Dowsett 2014), from where there is a specimen (Reichenow 1903: 462). Any sightings further east should be documented, especially those mentioned by Elgood *et al.* (1994) from well within the range of Sooty Flycatcher (which certainly occurs eastwards in Nigeria from Gambari: Elgood 1977). Sooty Flycatcher occurs in Guineo-Congolian forests and is very unlikely at Serti, an area of natural savanna, where reported to have been seen and handled (Hall 1977b, Elgood *et al.* 1994); the observer now agrees that the record should be withdrawn (P. Hall *in litt.* 2015). Marchant (1966) had rightly doubted that *M. ussheri* occurs in Nigeria.

BLACK-AND-WHITE FLYCATCHER *Bias musicus*

Elgood *et al.* (1994) recorded it north to Ibadan, but the species has been reported even further, at Yankari (A. Demeter *in* Crick & Marshall 1981). This is considerably further north (09°45'N) than in neighbouring countries, and confirmation is desirable (which view is supported by U. Ottosson *in litt.* 2015).

GREY-HEADED BATIS *Batis orientalis*

White (1963) reported an out-of-range female *B. o. chadensis* south of Egga (on the Niger). This was a collecting locality of W. A. Forbes, but Shelley (1883) made no mention of this specimen, and it was probably mislabelled. The only certain localities for this species

in Nigeria are in the Lake Chad region, south to Arrigui (Boyd Alexander specimens; NHMUK). The report of this species mist-netted on the Mambilla Plateau (Hall 1977b) was questioned by Louette (1981), and the very similar Western Black-headed Batis *B. erlangeri* would be more likely (as the observer now agrees; P. Hall *in litt.* 2015). In fact, F. Dowsett-Lemaire and I observed a pair of *B. erlangeri* on the Nigerian / Cameroon border at Chappal Waddi (1,900 m) on 23 March 1988, at the edge of montane forest. As the crown appeared grey and we were unfamiliar with either *Batis* at the time, we did not publish the record. It is now evident from habitat and voice (a written description was made at the time) that the species involved was *B. erlangeri*, which has a contiguous and widespread distribution in similar habitat in adjacent Cameroon (Louette 1981, 2005). This is a new species for the Nigerian avifauna.

RED-CHEEKED WATTLE-EYE *Dyaphorophya blissetti*

Elgood (1982, repeated by Elgood *et al.* 1994) reported the species as far north as Kagoro, 'heard regularly' (no source). No mention of the species was made by Dyer *et al.* (1986), and the record requires confirmation. It was not listed by Wilkinson & Beecroft (1988). The northernmost locality is Ile-Ife (Farmer 1979).

BLUE-HEADED CRESTED FLYCATCHER *Trochocercus nitens*

Elgood *et al.* (1994) accepted an observation of one 'in dense swamp' as far north as Yankari (C. Geerling). There is no other report of this rainforest species in West Africa north of 09°N, and the sighting requires confirmation (a view supported by U. Ottosson *in litt.* 2015). Ile-Ife (07°29'N) represents the northernmost locality (Farmer 1979).

RUFOUS-WINGED ILLADOPSIS *Illadopsis rufescens*

Not included in the Nigerian avifauna by Elgood *et al.* (1994), but mapped by Borrow & Demey (2001: 383) from south-west Nigeria, evidently based on a report from Ipake Forest Reserve, Ilaro (Button 1964), the only *Illadopsis* listed there. Subsequently, Button (1965) corrected his identification to Pale-breasted Illadopsis *I. rufipennis*. The easternmost acceptable locality for this Upper Guinea endemic is South Worobong, Ghana (06°26'N, 00°27'W: Dowsett-Lemaire & Dowsett 2014). A claimed observation from southern Benin also involved a misidentification, of Puvél's Illadopsis *I. puvéli* (Dowsett & Dowsett-Lemaire 2011). Map corrected in Borrow & Demey (2014).

BLACKCAP BABBLER *Turdoides reinwardtii*

There is no record at Kano, as erroneously reported by Elgood *et al.* (1994); what Bannerman (1936) wrote was that Hutson found it 'up to latitude 11°30'N' in Kano and Bauchi Provinces. This accords well with its occurrence north to Gubuchi (11°12'N: Fry 1975).

RED-HEADED PICATHARTES *Picathartes oreas*

Adeyemo & Ayodele (2005) claimed to have studied the species' diet in Old Oyo National Park, which at 08°55'N, 04°00'E would have been an astonishing westwards extension of known range. Ezealor *et al.* (2007) demonstrated that the study was a fraud and that neither this species nor its sibling, the Upper Guinea endemic Yellow-headed Picathartes *P. gymnocephalus*, occurs anywhere near western Nigeria.

FOREST PENDULINE TIT *Anthoscopus flavifrons*

There has been no further information to confirm the single-observer sighting from Lagos (Elgood 1977, J. P. Gee *in* Elgood *et al.* 1994), and it must be considered very doubtful. The few definite records are from the forests of the south-east, west to Umuagwu (06°55'E), where collected by Marchant (1953).

WESTERN VIOLET-BACKED SUNBIRD *Anthreptes longuemarei*

Elgood *et al.* (1994) reported it south of the Benue only at Enugu (Serle 1957), but the species was also collected at Takum, by Boyd Alexander (NHMUK).

SCARLET-CHESTED SUNBIRD *Chalcomitra senegalensis*

In addition to Serti and Enugu (Elgood *et al.* 1994), the species is known south of the Benue at Takum (Bannerman 1948), where Boyd Alexander collected three specimens (NHMUK).

COPPER SUNBIRD *Cinnyris cupreus*

Reported to the 'northern limits of the Guinea Savanna' (Elgood *et al.* 1994); the northernmost locality seems to be Zaria at 11°03'N (Fry 1965).

JOHANNA'S SUNBIRD *Cinnyris johannae*

A Lagos sight record of this easily confused forest species, and a specimen from Abomey (Benin), mentioned by Elgood *et al.* (1994) cannot be accepted. There is a large gap with no authentic observations between southern Ghana (South Worobong Forest Reserve, west of the Volta: Dowsett-Lemaire & Dowsett 2014) and south-east Nigeria (Cross River area; several observers). A reported sighting of a female as far west as Okomu National Park (06°25'N, 05°28'E: S. Eccles & P. Hall in *Bull. Afr. Bird Cl.* 12: 187) requires confirmation. The type locality of *C. j. fasciatus* was assumed to be Abomey as specimens from Fraser's collection came 'chiefly from Abomey' (Dowsett & Dowsett-Lemaire 2011), but there is no evidence to support this interpretation, and the original type locality of 'West Africa' must stand.

SUPERB SUNBIRD *Cinnyris superbus*

Elgood *et al.* (1994) reported this species in south-west Nigeria north only to Ibadan and Ife (c.07°30'N). However, it was mapped by Borrow & Demey (2001: 399) from much further north, based on records from Nindam (09°36'N: Wilkinson & Beecroft 1988), including a pair observed in February 1980 (Dyer *et al.* 1986: 11). Although the species is mapped as questionable by Borrow & Demey (2014: 462), these records seem acceptable; in eastern Ghana it reaches 08°30'N (Dowsett-Lemaire & Dowsett 2014).

EMIN'S SHRIKE *Lanius gubernator*

Among the few records from Nigeria, Elgood *et al.* (1994) mentioned a specimen collected at 'Gajibo (near Lake Chad)', giving coordinates for 'Gajebo' as 12°10'N, 14°00'E. This refers to a bird collected at 'Gujiba' by Boyd Alexander on 12 October 1904 (NHMUK). The locality appears on the map in Boyd Alexander (1907) as Gujba, at c.11°35'N, 11°55'E, and in the US Defence Department gazetteer the coordinates are given as 11°30'N, 11°55'E. This is the species' northernmost known locality.

BLACK-SHOULDERED PUFFBACK *Dryoscopus senegalensis*

A specimen was reportedly collected on 24 May 1938 in derived savanna '10 miles from' Oshogbo, in the south-west, by Dr William McLelland, and identified at the British Museum (Bannerman 1951: 457). This locality is not mentioned in the gazetteer in Elgood *et al.* (1994)—the coordinates below are from Happold (1987) and the US Defence Department gazetteer. This is by far the species' westernmost record. Nothing is known of the ornithological activities of the collector (a member of the Nigerian Medical Service), but in 1940, at least, he was based in the south-east (Calabar), not in the south-west (shipping passenger lists, National Archives, Kew). There seems to be no other locality of this name, and there was probably an error of labelling, meaning that occurrence in south-west Nigeria should be confirmed. The species is also listed for Okomu National Park (Ezealor 2001), but

without details. The only definite records in Nigeria are from the south-east, on the Obudu Plateau, where the species has been collected (Elgood 1965).

TROPICAL BOUBOU *Laniarius aethiopicus*

Elgood *et al.* (1994) reported it north of the Niger / Benue Rivers only to Kaduna, overlooking records even further north from Anara Forest Reserve and Zaria, at 11°03'N (Fry 1975).

MANY-COLOURED BUSH SHRIKE *Chlorophoneus multicolor*

Elgood (1982), repeated by Elgood *et al.* (1994), reported the species as far north as Kagoro, where 'sighted'. No mention of the species was made by Dyer *et al.* (1986) and Wilkinson & Beecroft (1988), and the record requires confirmation. It is otherwise known north only to Ile-Ife at 07°29'N (Farmer 1979).

GREY-HEADED BUSH SHRIKE *Malaconotus blanchoti*

Reporting it 'only just south of the Benue in southeast', Elgood *et al.* (1994) gave no reference. This is presumably based on a Boyd Alexander specimen from Takum, taken in June 1904 (Bannerman 1939).

VELVET-MANTLED DRONGO *Dicrurus modestus*

Elgood *et al.* (1994) did not separate this forest species from the mainly savanna-based Fork-tailed Drongo *D. adsimilis*. The northernmost record is a specimen from Ishan Division at c.07°55'N (Bannerman 1939). Recognition of the specific status of *modestus* (following Fry *et al.* 2000, Pasquet *et al.* 2007) adds a species to the Nigerian list.

NARROW-TAILED STARLING *Poeoptera lugubris*

No northern limit was given by Elgood *et al.* (1994), but it ranges to Ado-Ekiti, Ondo Province, at 07°38'N (Bannerman 1948).

FOREST CHESTNUT-WINGED STARLING *Onychognathus fulgidus*

Fry (1965) reported it from as far north as the Zaria area, but this was in error for Red-winged Starling *O. morio (neumanni)*, as the northernmost locality of *O. fulgidus* is Oyo at 07°52'N (Elgood *et al.* 1994).

BRONZE-TAILED GLOSSY STARLING *Lamprotornis chalcurus*

The only report from south-west Nigeria is the sighting at Badagry by J. A. Button (*in* Elgood *et al.* 1994). Supporting details have not been published and confirmation should be sought.

LONG-TAILED GLOSSY STARLING *Lamprotornis caudatus*

A single near Lagos was considered to be a vagrant or an escape (Gee & Heigham 1977, Elgood *et al.* 1994); this was a bird seen at Tarkwa, on 15 August 1970, by D. I. M. Wallace. Similar occurrences elsewhere in West Africa, e.g. in southern Ghana (Dowsett-Lemaire & Dowsett 2014), are thought as likely to have captive origin as to be natural wanderers.

CHESTNUT-CROWNED SPARROW WEAVER *Plocepasser superciliosus*

'Absent south of the Benue' (Elgood *et al.* 1994), but Boyd Alexander collected it at Takum in June 1904 (Bannerman 1949; NHMUK). A sight report from as far south as Ibadan (L. H. Brown *in* Bannerman 1949), apparently accepted by Adeyanju *et al.* (2014), is probably a misidentification, as this species is endemic to Sudanian (Sudan-Guinea) woodland.

SLENDER-BILLED WEAVER *Ploceus pelzelni*

Elgood *et al.* (1994) mentioned a record from 'Egga' on the Niger, based on Bannerman (1949: 73, under *Sitagra monacha*). This locality has been variously referred to as Eggan or

Eggar, and is at 08°43'N, 06°18'E (not 08°30'E, under Eggan in Elgood *et al.* 1994: 279). The specimen was collected by W. A. Forbes, and is that listed under *Hyphantornis personatus* by Shelley (1883: 550); he was at Egga in the second half of September 1882 (Forbes 1883). This record would be exceptionally far inland for the species (throughout West Africa it does not occur north of the coastal belt), and as the specimen is a female its identification should be confirmed, to eliminate the sibling Little Weaver *P. luteolus*. The latter species has been collected as far south as Ibi at 08°10'N (Boyd Alexander collection; NHMUK).

VIEILLOT'S BLACK WEAVER *Ploceus nigerrimus*

Listed from Pandam (Ezealor 2001), but this would be the only record north of the Niger and Benue, and supporting details are lacking.

YELLOW-MANTLED WEAVER *Ploceus tricolor*

There is a locality further north than those given by Elgood *et al.* (1994), namely Ilesha (07°37'N), where the species was collected at a colony by Serle (1950).

BLUE-BILLED MALIMBE *Malimbus nitens*

The northernmost locality referred to by Elgood *et al.* (1994) as between Nasarawa and the Benue is more exactly between Aza and Tunga (08°08'N, 07°25'E: Serle 1940). Reported further north in Kagoro-Nindam Forest Reserve (Ezealor 2001), but surveys by Dyer *et al.* (1986) and Wilkinson & Beecroft (1988) did not find it, and confirmation is required.

RED-HEADED WEAVER *Anaplectes rubriceps*

The record from between Serti and Beli (Elgood *et al.* 1994)—more accurately 72 km north of Serti (Ash *et al.* 1989)—was not the first south of the Benue in Nigeria, as Boyd Alexander collected one further south at Takum (07°13'N) in 1904 (NHMUK).

RED-BILLED QUELEA *Quelea quelea*

Elgood *et al.* (1994) wrote that post-breeding movements 'may reach as far south as Zaria and the Benue River near the Cameroon border'. This would seem to be an interpretation of the map in Ward (1971: 289) and may be hypothetical. Documented records are to just south of Yankari, at 09°45'N (Dyer & Gartshore 1975), while it has been noted regularly in the last 15 years at the A. P. Leventis Ornithological Research Institute (APLORI), south-east of Jos, at 09°52'N (U. Ottosson *in litt.* 2015).

GREEN-WINGED PYTILIA *Pytilia melba*

Elgood *et al.* (1994) gave no southern limit. Reported as far south as Yankari at 09°45'N (Crick & Marshall 1981), but otherwise north from Goram (11°17'N), where collected by Boyd Alexander (NHMUK).

RED-WINGED PYTILIA *Pytilia phoenicoptera*

Listed for two southerly localities, Sunvit farm and Gashaka-Gumti National Park by Ezealor (2001), but details have not been published and these would be the only localities south of the Niger / Benue Rivers (Elgood *et al.* 1994).

RED-FACED CRIMSONWING *Cryptospiza reichenovii*

Elgood *et al.* (1994) reported it only from the Obudu Plateau, but overlooked a record from Leinde Fadali, Gashaka-Gumti National Park (Ash *et al.* 1989).

WESTERN BLUEBILL *Spermophaga haematina*

Elgood (1982) and Elgood *et al.* (1994) mentioned breeding records at 'Ndian, Aug-Nov (Macdonald 1959)', but neither locality nor reference appears in their gazetteer or

bibliography. Ndian is in Cameroon (04°57'N, 08°52'E), and the reference is more correctly Serle (1959), who presented the observations of A. Macdonald.

BLUE-BILLED FIREFINCH *Lagonosticta rubricata*

The northernmost locality is not Aliya, as reported in Elgood *et al.* (1994), but Rano (*sic*) at 11°35'N (Sharland & Wilkinson 1981, Payne 1982).

RED-CHEEKED CORDON-BLEU *Uraeginthus bengalus*

Reported from Lagos (Gee & Heigham 1977), but like a record from Ibadan (Elgood *et al.* 1994)—not repeated by Adeyanju *et al.* (2014)—probably an escape from captivity.

CUT-THROAT FINCH *Amadina fasciata*

Borrow & Demey (2014: 538) plotted a record in the Lagos area, but it was not mentioned by Elgood *et al.* (1994). This was based on an observation of five at Tarkwa on 24 January 1984 by R. Farmer (*in* Boyd Alexander-Marrack *et al.* 1985), most probably of captive origin, as suggested by the observer.

VILLAGE INDIGOBIRD *Vidua chalybeata*

Elgood (1982) and Elgood *et al.* (1994) reported the species as 'met all year' at Lagos, and it was mapped by Borrow & Demey (2001: 470). However, for its host, Red-billed Firefinch *Lagonosticta senegala*, Elgood *et al.* (1994) mentioned just one old record from Lagos, which 'could refer to an escape'. These records are based on Gee & Heigham (1977), who considered that Lagos indigobirds 'most resemble form *funerea*', which was then considered a race of the single recognised species of indigobird, *V. chalybeata*. As Bar-breasted Firefinch *L. rufopicta* is the common species at Lagos (Gee & Heigham 1977), it is likely that the corresponding *Vidua* is Pale-winged Indigobird *V. wilsoni*. This probably also applies to the record, originally published as *V. chalybeata*, from Warri (Heigham 1976). Map corrected in Borrow & Demey (2014).

CABANIS'S BUNTING *Emberiza cabanisi*

Elgood *et al.* (1994) did not mention the northern limit—the species has been reported north to Yashi, on the Katsina / Kano border (12°22'N: Bannerman 1949).

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Appendix: Gazetteer of Nigerian localities and others mentioned

Abeokuta	07°09'N, 03°20'E	Gubuchi	11°12'N, 08°01'E
Abomey, Benin	07°11'N, 01°59'E	Gujiba	11°35'N, 11°55'E
Aburi, Ghana	05°53'N, 0°11'W	Hadejia	12°27'N, 10°03'E
Ado-Ekiti	07°38'N, 05°13'E	Ibadan	07°23'N, 03°56'E
Afi River Forest Reserve	c.06°20'N, 09°00'E	Ibi	08°10'N, 09°45'E
Agenbode (Agenebode)	07°07'N, 06°41'E	Ife	07°28'N, 04°32'E
Aliya	11°10'N, 10°55'E	Ile-Ife	07°29'N, 04°33'E
Anara Forest Reserve	10°42'N, 07°37'E	Ilesha	07°37'N, 04°44'E
Arrigui, Lake Chad	13°28'N, 13°22'E	Ilorin	08°30'N, 04°33'E
Awgu	06°05'N, 07°28'E	Imesi-Ile	07°33'N, 04°38'E
Aza	08°06'N, 07°30'E	Imo River, Owerri	04°36'N, 07°31'E
Badagri	06°25'N, 02°53'E	Ipake Forest Reserve, Ilaro	c.06°50'N, 03°03'E
Bauchi	10°16'N, 09°50'E	Ishan	07°55'N, 05°19'E
Beli	07°52'N, 10°58'E	Iwo	07°38'N, 04°10'E
Benin City	06°20'N, 05°38'E	Jos Plateau	c.09°30'N, 08°55'E
Bipindi, Cameroon	03°05'N, 10°25'E	Kaduna	10°32'N, 07°24'E
Biseni forests	c.05°15'N, 06°30'E	Kagoro-Nindam Forest Reserve	c.09°28'N, 08°19'E
Bungudu (Gungudu)	12°16'N, 06°33'E	Kainji Lake National Park	c.10°05'N, 04°40'E
Calabar	04°58'N, 08°21'E	Kano	12°00'N, 08°31'E
Chad Basin National Park	c.11°45'N, 14°15'E	Katsina	13°00'N, 07°36'E
Chappal Waddi	07°01'N, 11°41'E	Kirikasama	12°42'N, 10°15'E
Cross River National Park, Oban Division	c.05°47'N, 08°26'E	Kowa Baga, Lake Chad	13°07'N, 13°52'E
Cross River National Park, Okwangwo Division	c.06°17'N, 09°14'E	Kumbotso, Kano	11°53'N, 08°30'E
Danbagudu	10°19'N, 07°46'E	Lafana, Shari River, Chad	10°30'N, 16°36'E
Dikwa	12°02'N, 13°55'E	Lagos	06°27'N, 03°24'E
Dumtar, Shari River, Chad	10°01'N, 17°35'E	Leinde	09°51'N, 13°09'E
Ebe River	c.05°05'N, 08°40'E	Leinde Fadali	06°58'N, 11°36'E
Ede	07°43'N, 04°26'E	Lokoja, Niger / Benue confluence	07°47'N, 06°44'E
Egga (Egga), Niger River	08°40'N, 06°20'E	Lokoli, Benin	07°03'N, 02°15'E
Enugu	06°26'N, 07°30'E	Maiduguri	11°50'N, 13°09'E
Erin-Ijesha	07°36'N, 04°45'E	Mambilla Plateau	c.07°30'N, 11°35'E
Falgore Game Reserve	c.10°50'N, 08°40'E	Mekko	07°28'N, 02°45'E
Gadua	11°50'N, 10°10'E	Minetti borehole	c.12°45'N, 13°45'E
Gambari Forest Reserve	c.07°08'N, 03°50'E	Minna	09°36'N, 06°33'E
Gashaka-Gumti National Park	c.07°20'N, 11°35'E	Molai, Maiduguri	11°50'N, 13°09'E
Gayana	11°52'N, 09°01'E	Nasarawa	08°30'N, 07°42'E
Goram (Gwaram)	11°17'N, 09°53'E	Ndian, Cameroon	04°57'N, 08°52'E
		Nguroje	06°57'N, 11°07'E

Niger / Benue confluence	07°47'N, 06°44'E	Sambisa Game Reserve.	c.11°40'N, 14°20'E
Nindam Forest Reserve	c.09°28'N, 08°19'E	Sapele	05°55'N, 05°42'E
Njawai, Mambilla Plateau	06°55'N, 11°34'E	Serti	07°30'N, 11°22'E
Obrubra	06°05'N, 08°19'E	Shaffini swamp, Kainji	09°53'N, 04°45'E
Obudu Plateau	c.06°40'N, 09°20'E	Shonga, Niger River	09°05'N, 05°09'E
Okigwi	05°50'N, 07°22'E	Sokoto	13°02'N, 05°13'E
Okomu National Park	c.06°25'N, 05°28'E	South Worobong Forest Reserve, <i>Ghana</i>	06°26'N, 00°27'W
Olokomeji	07°25'N, 03°32'E	Sunvit farm	07°07'N, 06°41'E
Omo Forest Reserve	06°50'N, 04°30'E	Takum	07°13'N, 10°00'E
Onitsha	06°10'N, 06°47'E	Tapkin Darina	12°46'N, 08°18'E
Oshogbo	07°46'N, 04°34'E	Tarkwa, Lagos	06°25'N, 03°25'E
Osomegbe, Obe River	06°57'N, 06°37'E	Tunga	08°08'N, 07°25'E
Owena	07°12'N, 05°01'E	Ubiaja	06°37'N, 06°20'E
Owerri	05°29'N, 07°01'E	Umuagwu	05°20'N, 06°55'E
Oyo	07°52'N, 03°57'E	Warri	05°36'N, 05°50'E
Pagala, <i>Togo</i>	08°11'N, 00°58'E	Yankari National Park	c.09°45'N, 10°30'E
Pandam National Park	c.08°40'N, 09°03'E	Yapo, <i>Ivory Coast</i>	05°42'N, 04°06'W
Pankshin	09°20'N, 09°27'E	Yashi	12°22'N, 07°55'E
Panyam	09°25'N, 09°13'E	Yo	13°33'N, 13°15'E
Port Harcourt	04°43'N, 07°05'E	Yo River (Komadugu-Yobe) mouth, Lake Chad	13°40'N, 13°22'E
Potiskum	11°45'N, 11°02'E	Zaria	11°03'N, 07°42'E
Rano	11°35'N, 08°40'E		

Large-scale live capture of Passenger Pigeons *Ectopistes migratorius* for sporting purposes: overlooked illustrated documentation

by Julian P. Hume

Received 12 January 2015

SUMMARY.—More has been written concerning the extinction of Passenger Pigeon *Ectopistes migratorius* than any other extinct bird; the effects of trapping live birds for the shooting industry in the latter half of the 19th century is also seemingly well known. Here I present overlooked accounts and illustrations that appeared in contemporaneous newspapers describing the techniques used to capture live birds based on the experience of a professional pigeon trapper, and the subsequent fate of captured birds in shooting contests.

The extinction of Passenger Pigeon *Ectopistes migratorius* (Linnaeus, 1766) was one of the most damning and senseless of all human-caused extinctions: it defies belief that a bird so abundant could be exterminated in such a short period of time. In the first half of the 19th century Passenger Pigeons were reported in incomprehensible numbers. There are many reports of migratory flocks that numbered in their hundreds of millions, roosting sites that covered >100 km², and nesting colonies at such densities that the boughs of trees collapsed under their weight (Wilson 1808, Audubon 1831, Mitchell 1935, Schorger 1955, Eckert 1965, Blockstein & Tordoff 1985, Bucher 1992, Cokinos 2000, Blockstein 2002, Avery 2014, Foster 2014, Fuller 2014, Greenberg 2014). Passenger Pigeon occurred almost entirely in the eastern USA with the main nesting areas being centred on the Great Lakes (Schorger 1955), but also extended south and east from the southern Great Lakes (Blockstein 2002). Inevitably, such concentrations attracted the attention of a surging human population, especially in the rapidly developing eastern states. The pigeons were not only exploited as a food source, but were also considered an agricultural pest; entire crops could be rapidly destroyed if a large flock descended to feed (Mitchell 1935, Blockstein & Tordoff 1985). During the early 19th century, Passenger Pigeon was persecuted on an immense scale with seemingly no noticeable effect on numbers, but this was to drastically change after the end of the Civil War in 1865. In the 1860s, communication across the eastern states was augmented by an extensive telegraph system, followed by a dramatic increase in the number of railroads (Blockstein & Tordoff 1985, Blockstein 2002). This provided an ideal opportunity for professional pigeon hunters, known as ‘pigeoners’, to rapidly communicate the whereabouts of concentrations of birds, which resulted in almost perpetual exploitation (Schorger 1955, Blockstein & Tordoff 1985). This commercialisation of the pigeons for food and for live-bird capture for the sporting industry, along with deforestation, resulted in a rapid decline in numbers during 1871 to 1880, with the last great nesting concentrations reported in 1879–83 (Mitchell 1935, Schorger 1955, Blockstein & Tordoff 1985). A handful of wild individuals were collected during the 1890s, the last being taken around 1900 (Henniger 1902, Fuller 2014) or a year or two later (Greenberg 2014). At least three captive populations had been maintained since the 1870s but, due primarily to poor reproductive rates, by 1910 only a solitary female, ‘Martha’, remained (Fuller 1914), which died around midday on 1 September 1914 (Shufeldt 1915).

Illustrations of Passenger Pigeon trapping and shooting were published in various contemporary newspapers, most notably in *Frank Leslie's Illustrated Newspaper* (*FLIN* hereafter) and *The Illustrated Sporting and Dramatic News* (*ISDN*). An illustration appeared in the 21 September 1867 edition of *FLIN* (vol. XXV, no. 625, p. 8) entitled 'Netting wild pigeons in New England', with an accompanying image entitled 'Shooting wild pigeons in Iowa' (Fig. 1). Another illustration published in *ISDN* on 3 July 1875 entitled 'Winter sports in northern Louisiana: shooting wild pigeons. – sketched by Smith Bennett', which is the most frequently reproduced, was discovered by the author and natural historian Paul Hahn in a small barber's shop in Toronto (Mitchell 1935: 121; E. Fuller pers. comm. 2014; Fig. 2). Schorger (1955) considered this illustration to be the most accurate of all contemporary portrayals, and shows a somewhat similar scene as that in *FLIN* (Fig. 1).

Schorger (1955: 300) briefly mentioned images of pigeon-trapping techniques and shooting tournaments that appeared in various newspapers, which have never been fully reproduced. One of these includes a historically important full-page illustration published in *FLIN*, on 2 July 1881, entitled 'The sportsmen's tournament at Coney Island. – Methods of trapping and transporting the pigeons for use in the contests. – From sketches by a staff artist', depicting the techniques employed in trapping live Passenger Pigeons for sporting contests. The illustration and text are reproduced here in their entirety for the first time (Fig. 3). The accompanying text entitled 'Wild pigeons for the sportsmen's tournament' includes an extra illustration of a pigeon trap (Fig. 4) and important documentation about trapping techniques and pigeon ecology, all based on the recollections of a professional pigeonier. The newspaper *Harper's Weekly* (*HW* hereafter), published on 9 July 1881, one week after the above-mentioned *FLIN* article, contains another overlooked illustration entitled 'Sportsmen's Convention – Pigeon shooting at the Brighton Beach Fair Grounds, Coney Island', and it is also reproduced here in its entirety for the first time (Fig. 5).

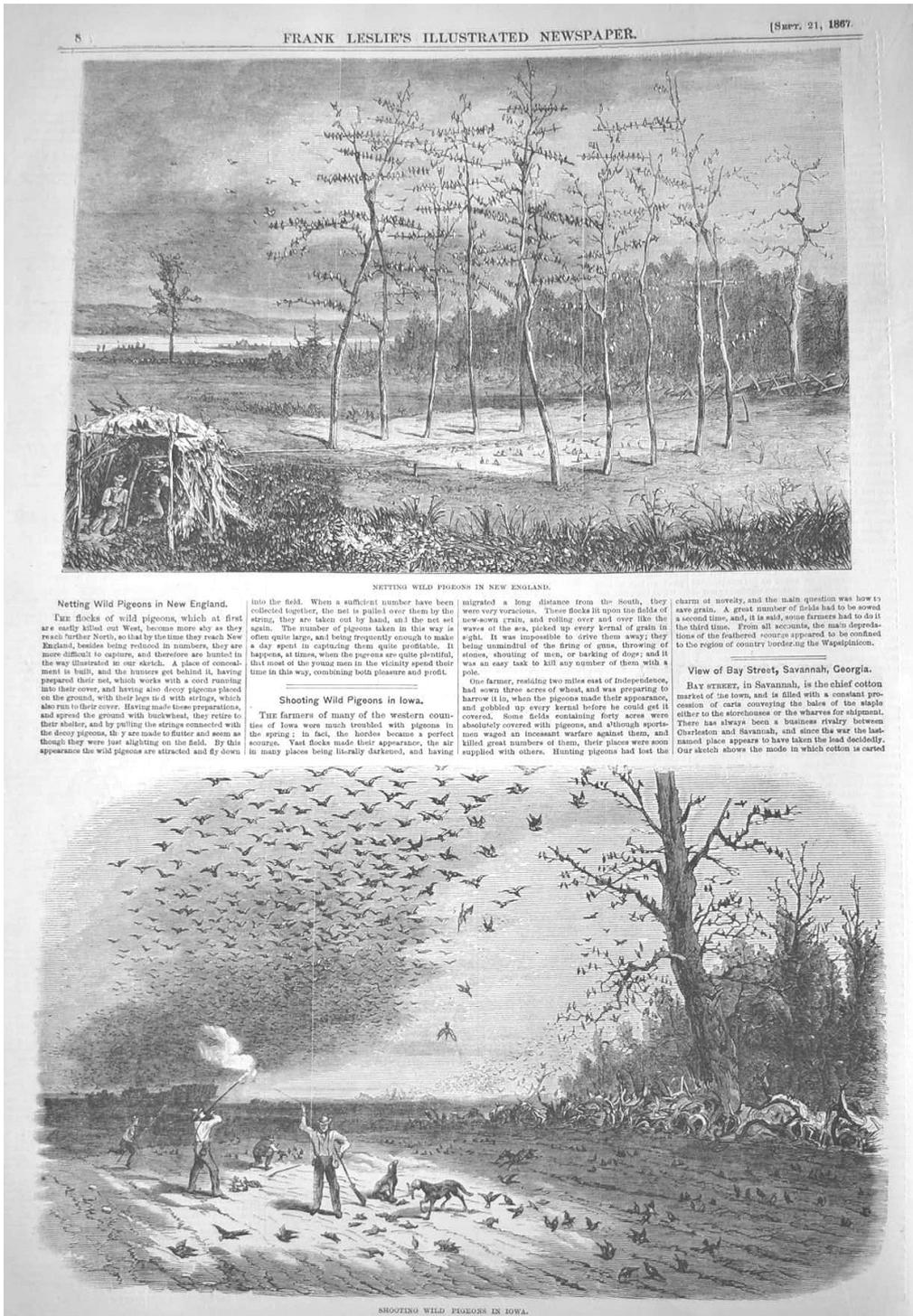
Frank Leslie's Illustrated Newspaper

Frank Leslie (29 March 1821–10 January 1880) was born in England but made his name as a newspaper and family periodical publisher in the USA, illustrating and engraving many pictures himself (Peterson 1933). *Frank Leslie's Illustrated News*, which was originally entitled *Leslie's Weekly*, was first published in 1855 in New York and ran until 1922 (*ibid*). This newspaper was most famous for its detailed descriptive and illustrative coverage of the American Civil War, but also treated general interest topics such as natural history.

Shooting wild pigeons in Iowa (FLIN, 21 September 1867).—The Passenger Pigeon illustration 'Shooting wild pigeons in Iowa' (Fig. 1) is accompanied by an interesting account concerning the destruction that these birds caused to agricultural crops, being described as a 'perfect scourge' to the farming community in Iowa. It reads:

'The farmers of many of the western counties of Iowa were much troubled with pigeons in the spring; in fact, the hordes became a perfect scourge. Vast flocks made their appearance, the air in many places being literally darkened, and having migrated a long distance from the South, they were very voracious. These flocks lit upon the fields of the new-sown corn, and rolling over and over like the waves of the sea, picked up every kernal [*sic*] of grain in sight. It was impossible to drive them away; they being unmindful of the firing of guns, throwing of stones, shouting of men, or barking of dogs; and it was an easy task to kill any number of them with a pole.'

'One farmer, residing two miles east of Independence, had sown three acres of wheat, and was preparing to harrow it in, when the pigeons made their appearance, and gobbled every kernal [*sic*] before he could get it covered. Some fields containing forty acres were absolutely covered with pigeons, and although sportsmen waged an incessant warfare



8

FRANK LESLIE'S ILLUSTRATED NEWSPAPER.

[Sept. 21, 1867.]

Netting Wild Pigeons in New England.

Fine flocks of wild pigeons, which at first are easily killed out West, become more shy as they reach further North, so that by the time they reach New England, besides being reduced in numbers, they are more difficult to capture, and therefore are hunted in the way illustrated in our sketch. A place of concealment is built, and the hunters get behind it, having prepared their net, which works with a cord running into their cover, and having also decoy pigeons placed on the ground, with their legs tied with strings, which also run to their cover. Having made these preparations, and spread the ground with buckwheat, they retire to their shelter, and by pulling the strings connected with the decoy pigeons, they are made to flutter and seem as though they were just alighting on the field. By this appearance the wild pigeons are attracted and fly down

NETTING WILD PIGEONS IN NEW ENGLAND.

into the field. When a sufficient number have been collected together, the net is pulled over them by the string, they are taken out by hand, and the net set again. The number of pigeons taken in this way is often quite large, and being frequently enough to make a day spent in capturing them quite profitable. It happens, at times, when the pigeons are quite plentiful, that most of the young men in the vicinity spend their time in this way, combining both pleasure and profit.

Shooting Wild Pigeons in Iowa.

The farmers of many of the western counties of Iowa were much troubled with pigeons in the spring; in fact, the hordes became a perfect scourge. Vast flocks made their appearance, the air in many places being literally darkened, and having

migrated a long distance from the South, they were very voracious. These flocks lit upon the fields of new-sown grain, and rolling over and over like the waves of the sea, plucked up every kernel of grain in sight. It was impossible to drive them away; they being unmindful of the firing of guns, throwing of stones, shouting of men, or barking of dogs; and it was an easy task to kill any number of them with a pole.

One farmer, residing two miles east of Independence, had sown three acres of wheat, and was preparing to harrow it, when the pigeons made their appearance, and gobbled up every kernel before he could get it covered. Some fields containing forty acres were absolutely covered with pigeons, and although sportsmen waged an incessant warfare against them, and killed great numbers of them, their places were soon supplied with others. Hunting pigeons had lost the

charm of novelty, and the main question was how to save grain. A great number of birds had to be secured a second time, and, it is said, some farmers had to do it the third time. From all accounts, the main depredations of the feathered scourge appeared to be confined to the region of country bordering the Mississippi.

View of Bay Street, Savannah, Georgia.

RAY STREET, in Savannah, is the chief cotton market of the town, and is filled with a constant procession of cars conveying the bales of the staple either to the storehouses or the wharves for shipment. There has always been a business rivalry between Charleston and Savannah, and since the war the latter place appears to have taken the lead decidedly. Our sketch shows the mode in which cotton is carted

into the field. When a sufficient number have been collected together, the net is pulled over them by the string, they are taken out by hand, and the net set again. The number of pigeons taken in this way is often quite large, and being frequently enough to make a day spent in capturing them quite profitable. It happens, at times, when the pigeons are quite plentiful, that most of the young men in the vicinity spend their time in this way, combining both pleasure and profit.

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Figure 1. The full-page spread that appeared in the 2 July 1867 edition of *Frank Leslie's Illustrated Newspaper* (vol. XXV, no. 625, p. 8) entitled 'Netting wild pigeons in New England' (above) with an accompanying image entitled 'Shooting wild pigeons in Iowa' (below). From the author's personal collection.

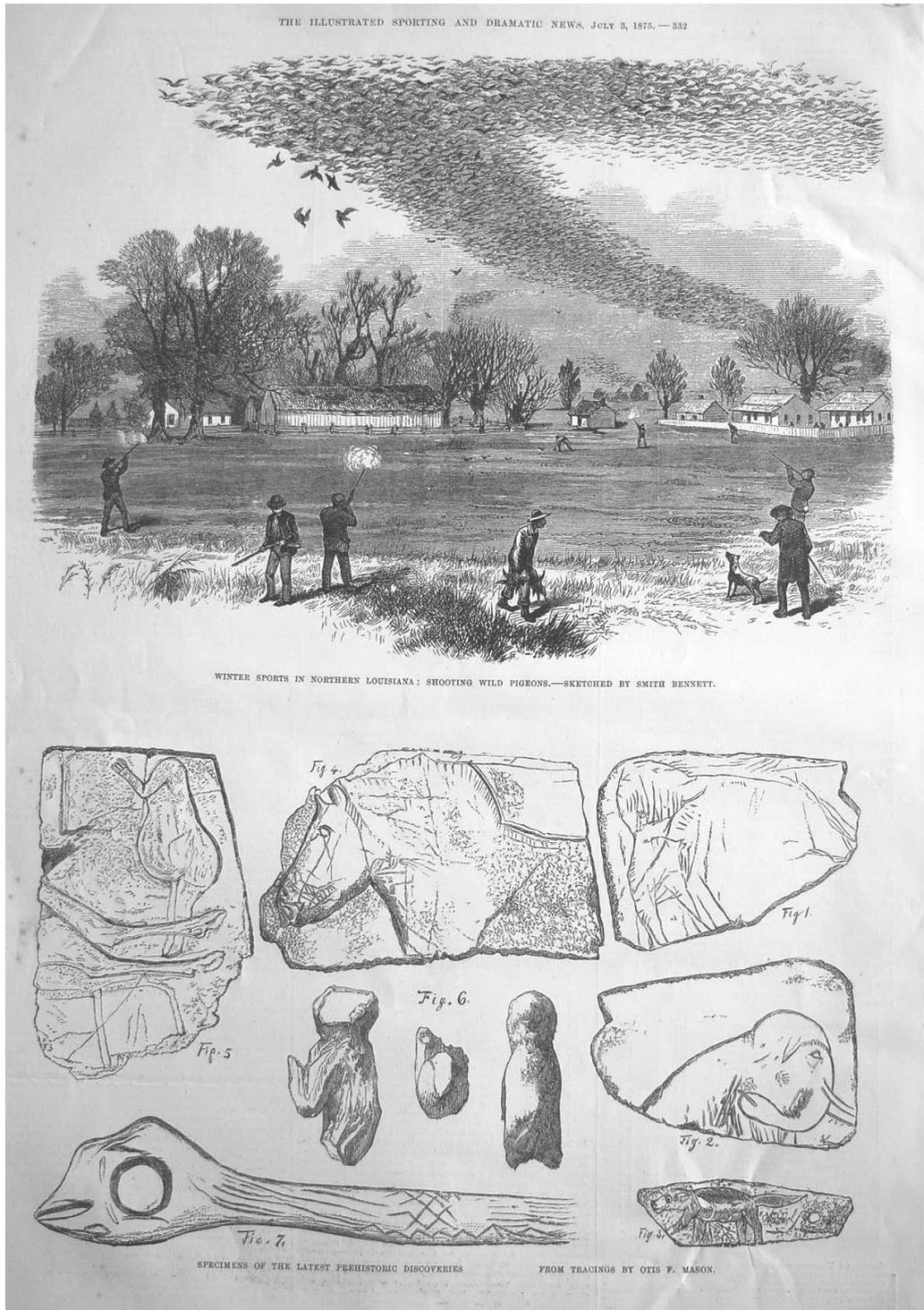


Figure 2. The full-page spread of the much-reproduced illustration 'Winter sports in northern Louisiana: shooting wild pigeons. – sketched by Smith Bennett', which appeared on p.332 in *The Illustrated Sporting and Dramatic News* on 3 July 1875. From the author's personal collection.

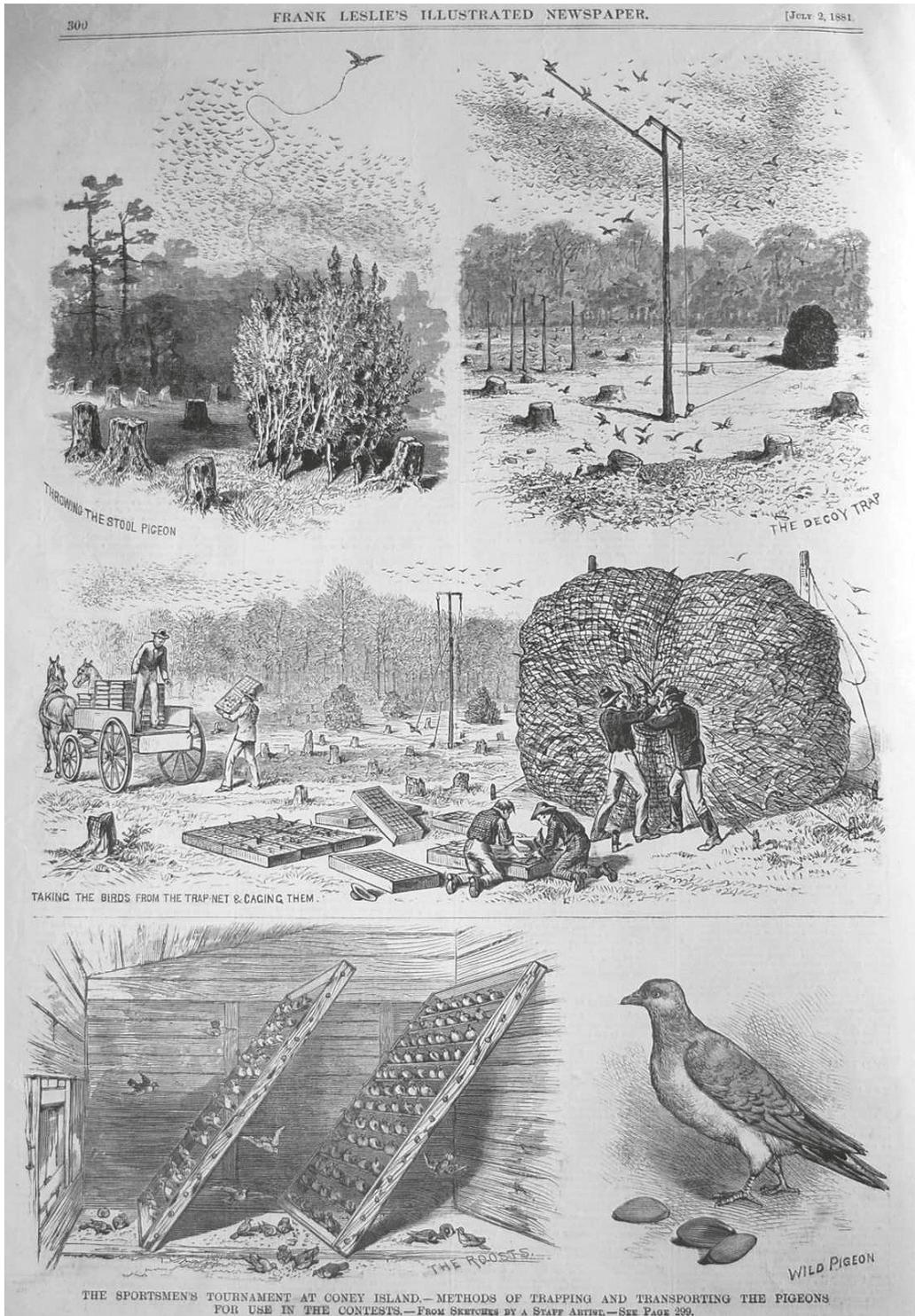


Figure 3. The full-page spread that appeared in the 2 July 1881 edition of *Frank Leslie's Illustrated News* (vol. LII, no. 1344, pp. 299-300). The illustration on p. 300 is entitled 'The sportsmen's tournament at Coney Island.—Methods of trapping and transporting the pigeons for use in the contests.—From sketches by a staff artist.' Note the incredible density of birds captured in the trap-net (centre right). From the author's personal collection.

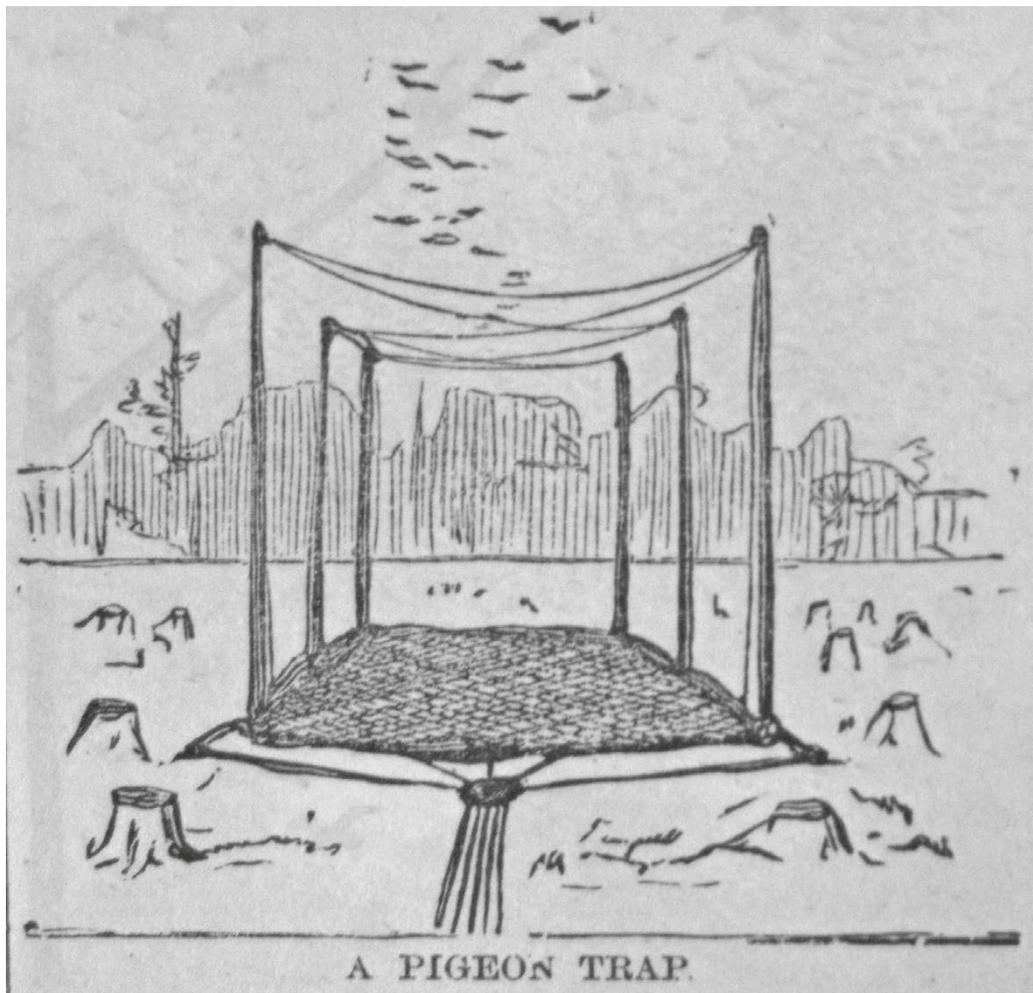


Figure 4. The illustration 'The pigeon trap' on p. 299 that accompanied the article entitled 'Wild pigeons for the sportsmen's tournament'. From the overlooked article that appeared in 2 July 1881 edition of *Frank Leslie's Illustrated News* (vol. LII, no. 1344, pp. 299–300).

against them, and killed great numbers of them, their places were soon supplied with others. Hunting pigeons had lost the charm of novelty, and the main question was how to save grain. A great number of fields had to be sowed a second time, and, it is said, some farmers had to do it the third time. From all accounts, the main depredations of the feathered scourge appeared to be confined to the region of country bordering the Wapsipinicon.'

Wild pigeons for the sportsmen's tournament (FLIN, 2 July 1881).—This overlooked article appeared in *FLIN* on 2 July 1881 (vol. LII, no. 1344, pp. 299–300). The accompanying account to the illustration (Fig. 3) appeared on p. 299, and is based on an interview with Mr. W. P. Thomas, a professional 'pigeoner' from Phillipsburg, New Jersey. The shooting of live pigeons for sport had become extremely popular, and trap-shooting, which involved the controlled release of birds from specially designed traps, was a lucrative business (Mitchell 1935, Schorger 1955). The article reads:

'The business of trapping pigeons for field sport, as carried out this year in the Western States and Territories, has attained extensive proportions. Heretofore, the pigeons have

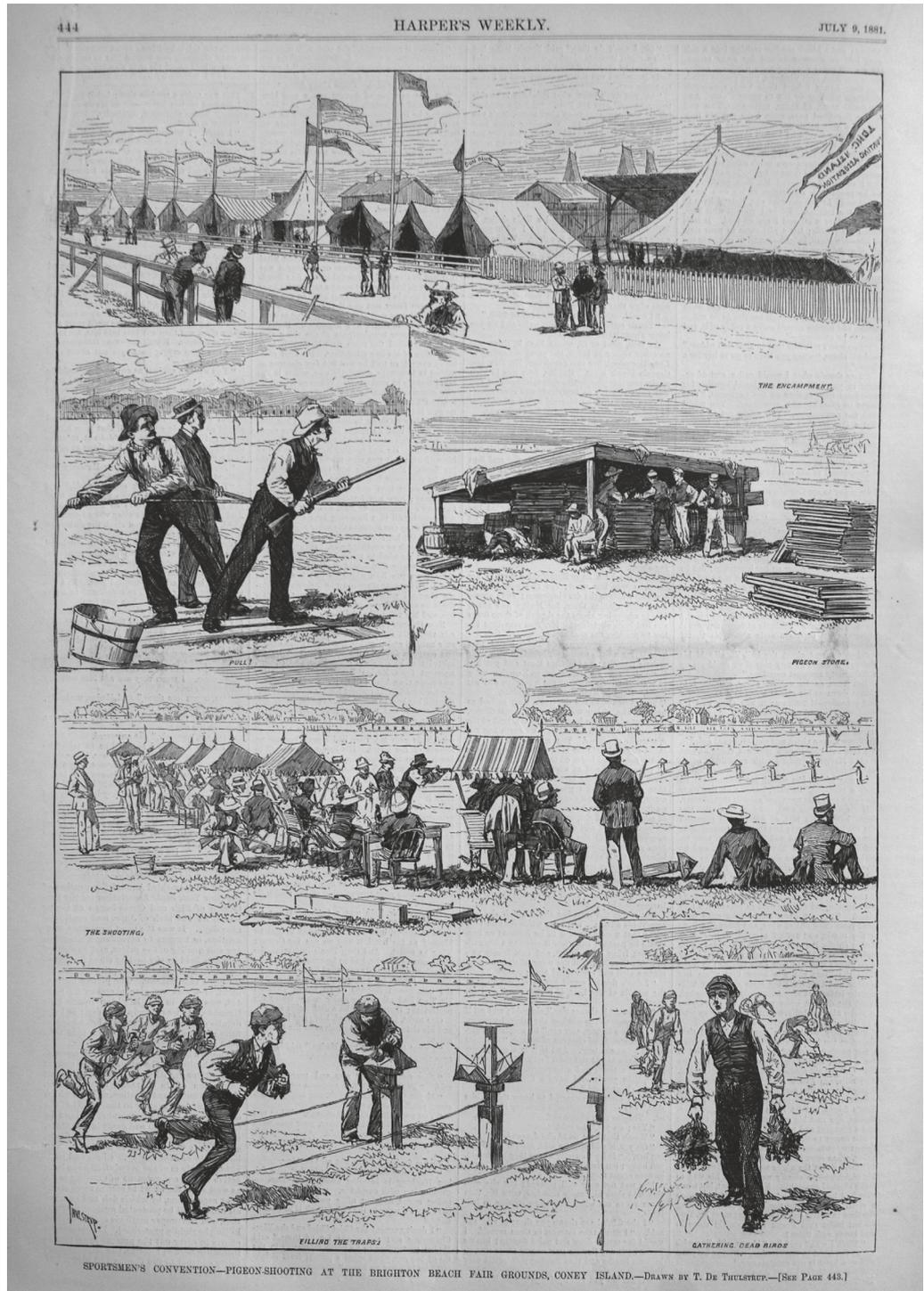


Figure 5. The overlooked full-page illustration entitled 'Sportsmen's convention—Pigeon shooting at the Brighton Beach Fair Grounds, Coney Island. Drawn by T. De Thulstrup', which appeared on p. 444 in the 11 July 1881 edition of *Harper's Weekly* (vol. XXV, no. 1280, pp. 443–444). The image bottom right records the ultimate fate of most captured Passenger Pigeons.

roosted in Pennsylvania and Michigan. But this year, owing to the late cold spring, they did not come as far north as usual, and they made a roost in the Pottawattamie Reservation of the Indian Territory, 119 miles away from the nearest railway station. The trappers transported in wagons their lumber and supplies to the vicinity of the roost, three days being occupied in the journey. Mr. W. P. Thomas, of Phillipsburg, New Jersey, who had contracted to supply wild pigeons to the New York State Sportsmen's Association, states that the roost is the largest he has ever seen.'

"The country there," he said, in a recent interview, "is thickly grown over with what they call post-oak timber. The acorns are so abundant that it is a splendid feeding-ground for the pigeons. I went into the roost for about ten miles without finding any signs of an end. Every tree was thick with pigeons, their weight the branches bending down. When the birds have been coming home from the feeding-grounds in the evening, I have seen a stream about a mile broad flow through the air for two hours thick enough to hide the sun, and making a noise like thunder. I should judge the roost to be about twenty miles long and fifteen broad."

'Mr. Thomas explained the methods of the trappers. The nets used will cover a space of forty feet by thirty. One end of the net is fastened to a rope, which is drawn taut, so that when let go the net is thrown out like an arrow, falling upon the pigeons that have gathered in front of it. The pigeons are generally caught on their feeding-grounds or their water-beds. When a good feeding ground is located the nets are set, and the trapper puts himself in a hut of boughs at one end of the net line. Pigeons are saved from one season to another for use as decoys. When a flock of pigeons is seen coming, a pigeon is thrown up in the air to attract the attention of the flock, the bird being pulled down again with a string. This bird is called the flyer. Another decoy bird called the stool-pigeon is made use of at the same time. He is tied to a perch on the free end of a strip of iron band about four feet long. As the flock approaches a string is pulled, which makes the string bounce him up and down, and he flaps his wings to keep his balance. He presents the appearance to the approaching flock of a bird hovering over a feeding-ground, and they settle down around him. Mr. Thomas once saw sixty-seven dozen caught at one cast of the net, but thirty or forty dozen is an average big catch. Sometimes there will be only a dozen or so.'

'The pigeons are caught on water-beds as well as feeding-grounds. A water-bed is made by filling an excavation with water. The pigeons on their way home from feeding



ALBERT COOPER, SOLEBURY, PA.
Trapper of Wild Pigeon with Blind Decoys,
about 1870.

Figure 6. A professional 'pigeoner' Albert Cooper with blind Passenger Pigeon *Ectopistes migratorius* decoys c.1870. Taken from Paxson (1917).

will stop to drink, and are caught under the nets. Sometimes salt is used "This season" said Mr. Thomas, "the acorns were so plentiful that the birds did not have to search for feeding-grounds and did not decoy well. The water-beds did not draw well, either, as they had the Canada River, the water of which is alkaline, so that salt had no attention for them. We caught the most on gravel-beds along the river as they would settle down for stones to put in their crops to grind up the acorns."

'Pigeons are methodical in their habits in these great roosts. Early in the morning the Tom flight occurs. This is composed of the male birds on their way to the feeding grounds. When they have fed and drunk, they return to the nests, and the female birds go to feed. The hen flight takes place between eight and nine o'clock. In the afternoon there is another Tom flight, and towards evening another hen flight. The birds stop for gravel or water on their way home from feeding.'

'The crates in which the birds are put when caught are simply large, flat coops. The netters are spread over an area of twelve or fourteen miles. Every evening the teams make a round and collect all the crates. It is now necessary to get the birds "on their feed," or else they will die. They are put in pens and given corn to eat, with plenty of water to drink. For several days after they are captured they will scarcely eat at all, and it is only after they have become accustomed to the change that they can be again crated and shipped.'

'In shipping them by rail two men travel in each car, and the pigeons are regularly fed and watered. On the 11th instant, a car containing 8,500, shipped from Atoka, in the Indian Territory, arrived at Jersey City, being the first instalment of the 20,000 which Mr. Thomas has contracted to supply to the Sportsmen's Association for the tournament now in progress at Coney Island. The pigeons were placed in pens, from which they will be taken as wanted. These pens are simply low, closed sheds. An inclined plane of slatted framework in each pen furnishes the pigeons with a roost, as shown in our illustration [Fig. 3].'

'These wild pigeons are smaller than the domestic pigeon. Their plumage is a mixture of slate and gray. They have long tail feathers, are birds of far quicker and stronger flight than ordinary pigeons.'

Harper's Weekly

Harper's Weekly was first published in 1857 in New York and was created by Fletcher Harper and his brothers, with the final issue appearing in 1916 (Mott 1967). Like *FLIN*, *HW* published on a range of topics including coverage of the Civil War, and the publication attracted some of the best artists available at the time.

Sportsmen's convention—Pigeon shooting at the Brighton Beach Fair Grounds, Coney Island (*HW*, 9 July 1881).—This full-page spread entitled 'Sportsmen's convention—Pigeon shooting at the Brighton Beach Fair Grounds, Coney Island. Drawn by T. De Thulstrup' (Fig. 6) appeared on p. 444 in the 9 July 1881 edition of *HW* (vol. XXV, no. 1280, pp. 443–444) with accompanying text on p. 443 entitled 'Pigeon shooting'. The sheer scale of the sport can be seen in the size of the encampment (top), and the image directly below shows the 'pigeon store' under a wooden cover, with each of the crates packed with live birds ready for the contest. The stack of empty crates outside, and the gathering by hired youths of dead birds (bottom right), is a grim reminder of the ultimate fate of live-captured Passenger Pigeons.

Discussion

During the mid 1870s, such was the abundance of pigeon meat that the hunters could not recoup the financial costs of sending the bodies to market, which resulted in an increase

of trapping live birds (Schorger 1955). Furthermore, the number of professional 'pigeoners' (Fig. 6), who pursued the pigeons year-round, had doubled from 600 in 1874 to 1,200 by 1881 (*ibid*). The scale of live-trapping is also appreciated by statistics taken from the plundering of the last great colonial concentrations. Of an approximate 1,107,866 birds taken dead or alive in 1878 from the last great nesting at Petoskey, Michigan, from smaller colonies at Boyne Falls and Cheboygan, plus an estimate of 100,000 at other points, the number of live birds taken for sport was 252,466 (Mitchell 1935: 143), or one-quarter of all birds taken.

In the mid 1870s, public protest against trap-shooting commenced in earnest (Schorger 1955). The birds suffered terrible treatment before being let loose as living targets on the shooting ranges. Many were weakened and unable to fly properly or had sustained head and wing injuries due to cramped cages, only to be killed by the gun once released (*ibid*). Furthermore, few pigeons escaped alive, as any making their escape were picked off by boys and others with their guns waiting around the tournament perimeter (Dury 1910). By the late 1880s, pigeon trapping for the shooting industry was in decline, but had not been fully abolished (Schorger 1955). It only ceased when no more pigeons were available.

The *FLIN* article shows that (in 1881) it was still possible for 'pigeoners' to supply thousands of live birds to the sporting industry in New York state, and other concentrations were also exploited during the following few years (Schorger 1955, Greenberg 2014). These flocks were still enormous, but subsequent colonies never reached former densities, with the last being recorded in 1889 (Greenberg 2014); by the mid 1890s the pigeon was probably effectively extinct as a wild breeding bird.

Why did the Passenger Pigeon disappear when all other gamebirds survived? Several reasons have been put forward for this dramatic decline (see Blockstein & Tordoff 1985, Butcher 1992, Blockstein 2002 for a comprehensive study). The answer appears to lie in its unusual ecology. Evidence suggests that almost the entire population periodically concentrated in a very few places (Hume & Walters 2012), and that these were subject to intense exploitation. Furthermore, Blockstein & Tordoff (1985: 850) strongly argued that the collapse from incredible numbers to functional extinction over a 20-year period, (about twice an individual's lifetime), was because of the almost complete prevention of successful reproduction. There is no species, however abundant, that can survive perpetual, uncontrolled persecution in which the killing of adult birds far exceeds fecundity, i.e. 'blitzkrieg effect'. To add to the bird's misfortune, Passenger Pigeon occupied a part of the USA that, although vast, was inhabited by a rapidly increasing human population. With the odds so steeply stacked against it, there can be no real surprise that the Passenger Pigeon disappeared in such a short space of time.

The text that accompanied the *HW* 1881 article sums up the attitude of association members who took part in a wild pigeon (Passenger Pigeon) shooting tournament organised by the Annual Convention of the New York State Association for the Protection of Fish and Game. In defence of the tournament, the organisers provided the following statement:

'Those whose knowledge of this association is limited to the reports of its annual conventions are likely to form an erroneous impression of its character and purposes. It has an important function, and one which it has exercised greatly to the benefit of the community – the enforcement of the laws of the protection of fish and game in this State, without which our rivers, streams, fields, and forests would cease in a short time to be sources of food supply.'

The *HW* text suggests that any conservation role of the Association was strictly utilitarian; either they did not care about Passenger Pigeon because of its pest status,

or they did not truly realise it was under serious threat of extinction. Furthermore, the public movement protesting against trap shooting of pigeons appears to have been based on humanitarian grounds and not based on concern for the population. That a species so incredibly numerous could entirely disappear seems to have been beyond the comprehension of most of those involved. History has shown what a misguided concept this proved to be.

Acknowledgements

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Synchrony of primary moult in pairs of Common Mynas *Acridotheres tristis*

by Chris J. Feare

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Adult Common Mynas *Acridotheres tristis* (hereafter 'mynas') live in pairs throughout the year (Feare & Craig 1998), feeding, roosting and commuting between feeding and nocturnal roost sites together. Sengupta (1982) recorded ringed mynas with the same mate in consecutive years, and concluded that they mate for life and that bonding behaviour presumably plays an important part in pair maintenance.

During an attempt to eradicate an introduced population of mynas from Denis Island, Seychelles, c.950 were killed between May 2010 and March 2011, and in May 2014, 18 adult mynas were trapped on Mahé for use as live decoys on Denis, to facilitate further trapping there. Mynas were caught mainly using decoy traps in which a live decoy attracts free-living birds into compartments in the same trap. Once caught, the birds were killed humanely; their primary moult scores (Ginn & Melville 1984) were recorded and they were sexed by dissection. Birds caught on Mahé, however, were kept alive; in this case the larger bird of the pair was presumed to be male on the basis that males in the Denis sample were heavier and had longer head-bill length than females. During the trapping programme, some pairs ($n = 12$) of adults were observed approaching a trap together, entering the trap and being caught in the absence of other mynas in the vicinity. During processing, a similarity of stages of primary moult within these pairs of adults was noted. Pairs were caught in May–June, during the main period of wing moult.

To determine whether the similarity was indicative of synchrony of moult within pairs, or chance occurrence due to synchrony of moult within the entire myna population, the moult sequences of the known pairs was compared with those of unrelated birds selected from the database of trapped birds. The 12 unrelated duos were selected on the basis of being trapped on the same day as the mated pair, or if insufficient birds were trapped on the day the mated pair was caught, birds caught on the previous or following day were selected. One male and one female were selected, each from a different trap, in a different location and at different times of day in order to minimise the chance that the selected birds were mated.

The difference between the moult scores of the mated pairs was significantly smaller than the difference in moult scores of unrelated birds (Fig. 1: paired t-test, $t = 4.45$, $P = 0.001$, $n = 12$ mated pairs and 12 unrelated pairs). This indicates that moult in the mated pairs was more strongly synchronised than moult in the overall population; four of the 12 mated pairs were at exactly the same stage of primary moult, in four pairs the birds differed in the stage of only one developing feather, in three pairs two feathers were at different stages and in one pair three feathers were at different stages of growth. In the eight cases where pair members were at different stages of primary moult, in four cases males were more advanced than females, while in the other four females were ahead of males.

Synchrony of moult within mated pairs is probably a consequence of synchrony of other activities, especially breeding, which requires the pair to synchronise their readiness to initiate reproduction. Dawson (2006) showed that, in Common Starlings *Sturnus vulgaris*, initiation of moult was associated with a surge in blood prolactin concentration. In wild birds this surge normally follows gonad regression and decline in the concentrations of

circulating gonadotrophic hormones. Experimentally, however, Dawson found that the prolactin surge and onset of moult could occur in the absence of gonad regression so that the link between cessation of breeding and onset of moult was not fixed. Furthermore, passerines in temperate regions have demonstrated flexibility in the date of onset and speed of their moult: birds that begin moult late replace feathers more rapidly than birds that begin earlier (Morrison *et al.* in press). Synchrony of moult thus need not necessarily be a consequence of a pair's breeding schedule and could have its own intrinsic advantages.

The breeding season and frequency of multiple broods in Seychelles' mynas have not been determined with precision. The equatorial environment in Seychelles ($c.04^{\circ}\text{S}$) has little photoperiod variation and only two seasons, a drier south-east monsoon in May–October and a wetter north-west monsoon in November–April. Mynas breed mainly during the latter (Feare *et al.* 2015) but appear to do so over a prolonged period (Skerrett *et al.* 2001). In India, where the species is indigenous, mynas are believed to produce two, sometimes three, broods each breeding season (Lamba 1963, Ali & Ripley 1972) and this is also claimed to occur in the introduced population on Mauritius (Carié 1916 in Safford & Hawkins 2013), from which the birds introduced to Seychelles are derived (Skerrett *et al.* 2001). Multiple broods are suspected in Seychelles, but this has not been confirmed by studies of marked birds. Seychelles' mynas thus have a prolonged wet season during which they can potentially breed and during which Feare *et al.* (2015) found that they did not moult.

In the Denis population primary moult commences between March and May and the primary moult score increases steadily until August–September (CJF unpubl.), indicating that the period available for moult is also prolonged. The duration of an individual's moult within this overall timeframe is unknown. Nevertheless, the synchrony of primary moult between mated pairs is notable.

Apart from during incubation, when one member of a pair remains at the nest (usually the female: Feare & Craig 1998), pairs spend daytime together year-round, feeding and commuting to and from communal roosts in close proximity to each other. Foraging, preening and resting during the day are regularly punctuated by bouts of

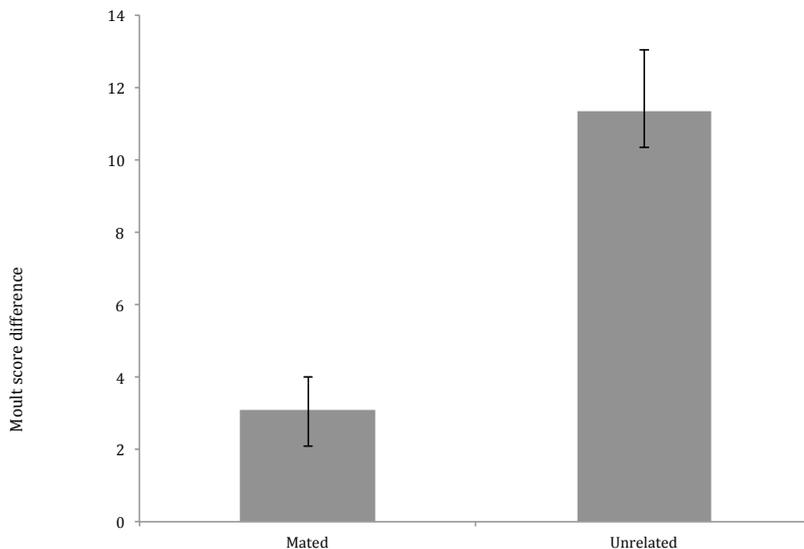


Figure 1. Mean differences (± 1 S.E.) between moult scores of mated pairs of Common Mynas ($n = 12$) and of unrelated pairs ($n = 12$) of birds extracted from the database of mynas caught on Denis Island (in May–June 2010 and on 30 May 2014), and on Mahé (birds caught 13–16 May 2014), Seychelles (see text for selection of unrelated birds).

display and calling. These behaviours doubtless maintain/reinforce the pair-bond all year and help synchronise activities in the absence of strong environmental cues. This can be advantageous for several reasons.

Foraging together, rather than alone, may be more profitable in terms of efficiency in locating food whose distribution and abundance varies in space and time. Foraging together can also facilitate food location in that walking pairs can disturb mobile invertebrates, making them more readily available. They can also feed collaboratively and can benefit from vigilance to disturbance that can render otherwise cryptic prey more available (e.g. when predating seabird eggs and when larger animals, including humans, cause disturbance: Feare *et al.* unpubl.), and may benefit from enhanced predator detection when together. In relation to moult, which is an energy- and nutrient-demanding process (Dawson *et al.* 2000, Dawson 2006), with specific amino acid and mineral requirements (Murphy & King 1992), synchrony could be valuable in that both pair members would have the same nutrient requirements contemporaneously and so could benefit from seeing where they each locate required foods. Simultaneous completion of moult could also ensure that both pair members are ready to commence a breeding attempt when suitable conditions arise.

Synchrony of moult could be a regular occurrence in bird species that maintain prolonged pair-bonds, but this aspect of moult does not appear to have been studied. In terms of control where myna populations are perceived to be invasive, it would be valuable to know whether disruption of pair-bonds, via removing one member of a pair, influences subsequent breeding success within the population.

Acknowledgements

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The family-group name *Claraviinae* and its usage

by Edward C. Dickinson & Laurent Raty

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In Dickinson & Remsen (2013: 64) a subfamily in the Columbidae was assigned the name *Peristerinae*. The accompanying footnote read 'This is the oldest group name available for this subfamily (Bock 1994) and was used by Gifford (1941).' This comment was poorly researched; Bock (1994) did not recommend using this name and wrote 'Several authors ... attributed *Peristerinae* to Selby (1835). Several thorough searches of that volume reveal no suggestion or use of a family-group name by Selby based on the genus *Peristera*. Hence, the only possible conclusion is that Gray was in error in his attribution of this name to Selby, as was Brodtkorb ... Thus the correct authority for *Peristerinae* is Reichenbach (1850a) as given herein.' Bock (1994) went on '*Peristera* Swainson, 1827, was synonymised with *Claravis* Oberholser, 1899 prior to 1961 and *Peristerinae* Reichenbach, 1850 has been replaced by *Claravinae* Richmond, 1917 (1850) which takes precedence from 1850.'

Selby's (1835) work *The natural history of pigeons* was one of the volumes in *The naturalist's library* edited by Sir William Jardine. The series was discussed by Iredale (1951) who wrote 'It started in a small way, but was so successful that reprints, alterations, improvements abound and the data of the original series are still confused'. This confusion appears to have defeated Bock as the subfamily name *Peristerinae* does appear on p. 191 in the example of this work displayed by the Biodiversity Heritage Library (BHL) <http://biodiversitylibrary.org/item/57922#page/237/mode/1up> (accessed 25 January 2015). Thus it seems that Selby, not Reichenbach, authored this name, but there were several impressions of volumes in *The naturalist's library* and it is unclear whether that displayed by BHL is the 1835 impression, meaning that further study is required to establish the correct date of publication, although it will have been well before 1850 or 1851.

A comment by John Boyd ('Taxonomy in flux' <http://jboyd.net/Taxo/List3.html> version 2.95 of 31 July 2014) was brought to our attention by T. Kuenzel. Boyd wrote: 'The name *Peristerinae* is sometimes used for *Claravinae*. However, this is incorrect as *Peristerinae* is based on the genus *Peristera* (Swainson 1827), which is a junior homonym of the mollusc genus *Peristera* (Rafinesque 1815). Thus *Peristerinae* is not available. The genus *Peristera* (Swainson 1827) was replaced by *Claravis* (Oberholser 1899). Richmond then used it to establish the subfamily *Claravinae* in 1917.'

We broadly agree with this account, but find that Richmond (1917) did not establish the name and when listing it, at family not subfamily level, followed the original spelling by using the spelling *Claraviidae*. We trace the name's origins to the following statement by Todd (1913: 512): 'The present genus [*Chamaepelia*] would seem to find its proper position in the small group of neotropical genera called by Count Salvadori *Peristerinae*, which name, however, requires to be changed to *Claraviinae* to correspond to its principal genus.'

In 1913 there was no requirement for such a name to be introduced together with a diagnosis or description, and Todd's acknowledgement of advice from both Oberholser and Richmond explains his use of Oberholser's 1899 name *Claravis* as the 'principal genus'. Todd's wording makes clear that he viewed *Claravis* as the type genus. Thus we have an original spelling *Claraviinae* and re-use of that in Richmond's influential (1917) list of generic names.

Todd's paper was reviewed and commented upon by Swarth (1913) and by Hellmayr (1914: 162–163). Over the next few decades the spelling was in use, especially in multiple

papers by Oberholser, either at subfamily or family level, using the double ‘i’ that Todd had proposed. However, use of the names Claraviidae at family or Claraviinae at subfamily rank ceased following the works of Peters (1937) and Hellmayr & Conover (1942), who placed all pigeons in the Columbidae without subfamilies, a position also favoured by Goodwin (1967), who was rather ambivalent as to the wisdom of using subfamilies. However, he included a dendrogram (on p. 8) of pigeon genera and the branch to which he attached *Claravis* included the same genera as Dickinson & Remsen (2013) with the sole difference that Goodwin (1967) recognised *Scardafella*, which Dickinson & Remsen (2013) treated as a synonym of *Columbina* (following Pereira *et al.* 2007). This grouping is entirely Neotropical and notably supports the views of Todd (1913).

The stem used in forming Claraviinae appears to be incorrect because *avis* is Latin not Greek, and removing the case ending from the genitive produces ‘av’ not ‘avi’ (see ICZN (1985: 211)). Therefore, preserving the spelling ‘Claraviinae’ would require the support of Art. 29.5 of the Code (ICZN 1999), otherwise the emended spelling Claravinae must be used. Recent use supports Claravinae, but if account is also taken of use during the period 1913–36 and the requirements for prevailing usage are demonstrated to be met, then the original spelling would be sustained. We suggest the spelling Claravinae be used.

Acknowledgements

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Multiple records of a Red-tailed Tropicbird *Phaethon rubricauda* on Inaccessible Island, Tristan da Cunha

by Alexander L. Bond, Gregory T. W. McClelland, Trevor Glass,
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Red-tailed Tropicbird *Phaethon rubricauda* is a widespread tropical seabird, breeding on islands in Hawaii and the South Pacific extending as far as Chile and eastern Australia (Hutton 1990, Aguirre *et al.* 2009), as well as throughout the tropical Indian Ocean from Europa and Aldabra in the west to Indonesia and Western Australia in the east (Marchant & Higgins 1990, Nelson 2005). Breeding sites span from c.30°N to 30°S, but birds at sea have been reported well beyond these limits.

Inaccessible Island (37°18'S, 12°41'W) is part of the Tristan da Cunha group in the central South Atlantic, c.2,800 km from South Africa. It supports a diverse seabird assemblage (Moseley 1879, Ryan *et al.* 1990, Ryan & Moloney 2000) that currently numbers at least 15 breeding species, mostly Procellariiformes (Ryan 2007, RSPB & Tristan Conservation Department 2010).

On 17–18 February, and 16–17 March 2011, a Red-tailed Tropicbird was photographed flying over Skua Pond and Blenden Hall on Inaccessible Island (Fig. 1). It was pursued by Brown Skuas *Stercorarius antarcticus*. A similar bird was observed in the same place on 20 and 25 March 2012, and heard on 24 March 2012. On 13–15 February 2015, a Red-tailed Tropicbird was again seen being pursued by skuas over Skua Pond (Fig. 2). Based on plumage characteristics, all observations appeared to involve adults (or more likely, the same bird; LeValley & Pyle 2007).



Figure 1. Red-tailed Tropicbird *Phaethon rubricauda*, over Inaccessible Island, Tristan da Cunha, 18 February 2011 (Lourens Malan)



Figure 2. Red-tailed Tropicbird *Phaethon rubricauda*, over Inaccessible Island, Tristan da Cunha, 18 February 2015 (Gregory T. W. McClelland)

The nearest Red-tailed Tropicbird breeding site to Tristan da Cunha is Europa Island in the Mozambique Channel (22°23'S, 40°21'E; Safford & Hawkins 2013), >5,300 km away, where 3,000–4,000 pairs breed (Le Corre & Jouventin 1997). A small colony on Nosy Vé, near Anakao, Madagascar (23°39'S, 43°36'E) is >5,500 km away, but hosts just *c.*250 breeding pairs (Cooke & Randriamanindry 1996, Le Corre & Bemanaja 2009). Other colonies, >6,500 km away, are in Seychelles and Mauritius (Safford & Hawkins 2013).

Tropicbirds from the western Indian Ocean can range widely (Le Corre *et al.* 2012), and vagrancy in tropicbirds is well known. A Red-tailed Tropicbird ringed in Western Australia was recovered three years later on Réunion, nearly 6,000 km away (Le Corre *et al.* 2003). Records of Red-tailed Tropicbirds in the Atlantic are few, with just three previously confirmed—singles on the Atlantic coast of South Africa in 1927 and 1978 (Batchelor 1979, Harrison 1983), where it is also occasionally observed on the Indian Ocean coast (Batchelor 1979), and one on Arquipélago dos Abrolhos, Brazil, in September 1997 (Couto *et al.* 2001).

The tropicbird(s) at Inaccessible were probably not breeding, as only one was ever seen, and duet flights were not observed (Diamond 1975, Schreiber & Schreiber 2009). However, in all cases, birds were seen over land, which could suggest prospecting behaviour. Other vagrant tropicbird records in the Atlantic include Red-billed Tropicbirds *P. aethereus* in the UK (BOU 2003), Canada and the north-east USA (Mactavish 2005, 2007), and a White-tailed Tropicbird *P. lepturus* found dead in Newfoundland (Mactavish 2007). Ours, though, is the first record of any tropicbird in the Tristan da Cunha group, the fourth documented Red-tailed Tropicbird for the Atlantic Ocean, but only the second beyond coastal South Africa, and represents considerable vagrancy of >5,000 km from the species' normal range.

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