The distribution, specimens and status of Chestnut Owlet Glaucidium (capense) castaneum and Albertine Owlet G. (c.) albertinum

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The distribution, specimens and status of Chestnut Owlet *Glaucidium* (*capense*) *castaneum* and Albertine Owlet *G.* (*c.*) *albertinum*

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Summary.—Chestnut Owlet *Glaucidium* (*capense*) *castaneum* and Albertine Owlet *G.* (*c.*) *albertinum* are poorly known members of the African Barred Owlet *Glaucidium capense* complex, confined to the Albertine Rift of East Africa. Recent taxonomic treatments have seen them variously considered as subspecies of *capense*, as separate monotypic species or, in the case of *castaneum*, a polytypic species. A paucity of museum material and field knowledge of each, combined with oversight and misinterpretation of some primary literature, has contributed to this uncertainty. This study reassesses their status and corrects numerous errors, misunderstandings and contradictions concerning specimen material, distribution, morphology and voice. Only four specimens of *castaneum* are known, there are no documented observations of the bird in life and no acoustic recordings. There are seven specimens of *albertinum* in collections. No field sightings have ever been documented but several recordings attributed to *albertinum* exist. Despite its close similarity to the voice of *capense*, there is no published evidence that *albertinum* reacts to playback, unlike the remaining taxa of the complex. I conclude that *castaneum* is a modestly distinct subspecies of *capense*. In contrast, *albertinum*, which differs conspicuously from the others in the complex by its disproportionately short tail, and which may be parapatric with *castaneum*, merits treatment as a species.

African Barred Owlet *Glaucidium capense* (A. Smith, 1834) is a small, mainly insectivorous owl widely distributed in tall, moist woodland and in drier forest types (Colston 1978, Kemp 1988, 2005, Holt *et al*. 1999). It occurs across much of southern and East Africa with apparently disjunct populations in more restricted parts of Central and West Africa (Colston 1978, Kemp 1988, Holt *et al*. 1999, Borrow & Demey 2014). It has been postulated to form a species-group with Sjöstedt's Owlet *G. sjostedti* of the lowland forests of Central Africa (Colston 1978).

Taxonomy of the *G. capense* complex has, in the recent past, been particularly fluid. In an influential review, Kemp (1988) recognised five subspecies of African Barred Owlet: the nominate, *ngamiense* (Roberts, 1932), *scheffleri* Neumann, 1911, *etchecopari* Erard & Roux, 1983, and *castaneum* Reichenow, 1893, but treated the sixth member, *albertinum* Prigogine, 1983, as a separate species. Since then, although the number of taxa, their nomenclature and their respective geographical ranges have largely stabilised, there has been conspicuously little agreement among global handbooks, checklists and monographs as to the number of species recognised and of the allocation of subspecies between them.

Thus, for the six taxa involved, five different interpretations, ranging from one to four species, have been offered across a dozen publications and websites, and have included a number of changes of mind, sometimes more than once, between different editions of the same work (Table 1). Although, as shown, there is a consistent approach to the populations from southern and eastern Africa, where *ngamiense* (with *robertsi* Peters, 1940,

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TABLE 1
Recent taxonomic treatments of the African Barred Owlet *Glaucidium capense* complex.

Source	Genus	Species	Subspecies
Kemp (1988)	*Glaucidium*	*capense*	
Gill *et al*. (2022)			*ngamiense*
			scheffleri
			castaneum
			etchecopari
		albertinum	
Holt *et al*. (1999, 2020)	*Glaucidium*	*capense*	
Clements *et al.* (2021)			*ngamiense*
			scheffleri
		castaneum	
			etchecopari
		albertinum	
Dickinson & Remsen (2013)	*Glaucidium*	*capense*	
			ngamiense
			scheffleri
			castaneum
			etchecopari
			albertinum
König *et al*. (1999)	*Glaucidium*	*capense*	
del Hoyo & Collar (2014)			*ngamiense*
BirdLife International (2022a,b)*			*scheffleri*
Holt *et al*. (2016)			*etchecopari*
		castaneum	
		albertinum	
König *et al*. (2008)	*Taenioglaux*	*capense*	
Mikkola (2013)			*ngamiense*
			scheffleri
		castanea	
		etchecopari	
		albertina	

All sources treat races *robertsi* and *clanceyi* as synonyms of *ngamiense*, explicitly or otherwise.
*Treatment of *etchecopari* confused: listed under both *castaneum* and nominate.

and *clanceyi* Prigogine, 1985 as synonyms) and *scheffleri* are considered subspecies, along with the nominate, as components of *capense*, the treatment and placement of the three poorly known northern taxa have been much less stable. Descriptions of two of these were published contemporaneously. Thus, *etchecopari* was named by Erard & Roux (1983) for newly discovered populations in Côte d'Ivoire and Liberia whilst *albertinum* was coined by Prigogine (1983) for several specimens previously ascribed to the third taxon, *castaneum* Reichenow, 1893—not Neumann, 1893, *contra* Peters (1940), White (1965), Kemp (1988), Holt *et al*. (1999) and Weick (2006)—both confined to parts of the Albertine Rift in eastern Democratic Republic of Congo (hereafter DR Congo), Rwanda (*albertinum*) and Uganda (*castaneum*).

This paper focuses on *G*. (*c*.) *castaneum* and *G*. (*c*.) *albertinum* (known by the vernacular names Chestnut Owlet and Albertine Owlet respectively, when treated as separate species) to highlight and correct numerous errors, inconsistencies and oversights in the literature concerning details of plumage and structure, geographical distribution and the number of museum specimens. The results of a comparative morphometric and morphological study are also intended to inform debate as to the taxonomic status of these two forms. The use of shortened names (*castaneum*, *albertinum* etc.) below is, however, simply for the sake of brevity and, unless explicitly stated, does not imply taxonomic rank.

No attempt is made to review the literature or provide details of taxonomic treatments prior to Kemp (1988) except where necessary for the purposes of informing discussion. One departure from Kemp (1988) has been adopted here which, although outside the main argument of the paper, is nonetheless relevant to it: instead, following Kemp (2005), the geographic range of nominate *capense* is treated as restricted to the Eastern Cape and southern KwaZulu-Natal of South Africa. In consequence, those populations in north-eastern South Africa, eSwatini and southern Mozambique, considered by Kemp (1988) to also belong to *capense*, are here included in *ngamiense*. Beyond this region, *ngamiense* extends north-west through Zimbabwe and northern Botswana to northern Namibia, south-central Angola and south-east DR Congo, as well as north across Mozambique to southern and western Tanzania. The range of *scheffleri* spans north-east Tanzania and south-east Kenya to extreme southern Somalia. The distributions of the other taxa are discussed in more detail below.

All sources listed in Table 1 followed Kemp (1988) in their view of the range of *capense*, except Dickinson & Remsen (2013) and Mikkola (2013) who treated it in the same way as Kemp (2005). Where it is necessary to be clear in which sense the name was used by other authors, the terms *capense* (*sensu* Kemp 1988) and *capense* (*sensu* Kemp 2005) are employed here for the wider and the more restricted interpretations, whilst use of *capense* without a modifier indicates either the species as a whole, as defined by the authority being quoted, or all constituent taxa other than the one with which they are being compared.

On the basis of a number of shared morphological, behavioural and molecular differences from other members of the genus, König *et al*. (2008) transferred this complex, along with several other species, from *Glaucidium* Boie, 1826, to *Taenioglaux* Kaup, 1848, a treatment followed by Mikkola (2013). Here, *Glaucidium* is retained, simply because the alternative attribution has not been widely adopted (Table 1).

Literature review

Morphology. ***Albertine Owlet***.—In his description of *albertinum* Prigogine (1983) separated it from other members of the *capense* complex on the basis of its plain, warm chestnut-brown back and uppertail-coverts, the shortness of its tail, both in absolute terms and relative to wing length, and the reduced number, and width, of the (pale) bars on the tail feathers (Tables 2, 4). While the dorsal surface of the holotype of *castaneum*, the form which *albertinum* most resembled, was of similar colour, it differed by being faintly barred on the back, more obviously so on the uppertail-coverts. Earlier, Prigogine (1971) reported that Schouteden (*in litt*.) had suggested this barring might be an indication of immaturity, something which Prigogine (1983) refuted by reference to Verheyen (1953) who demonstrated

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TABLE 2
Characters considered diagnostic of Albertine Owlet *Glaucidium (capense) albertinum*.

Character	**Source**				
	Prigogine (1983)	Erard & Roux (1983)*	Prigogine (1985a)	Kemp (1988)**	This study
Back and uppertail-coverts plain, not barred	x	x	x	x	x
Tail length short in absolute terms	x				
Tail length disproportionately short relative to wing length	x	x	x		x
Pale transverse tail bars few in number	x	x	x		x
Pale transverse tail bars relatively narrow	x	x	x		(x)
Head and nape spotted, not barred		x		x	

* Erard & Roux (1983) used the name *castaneum* (see text)
** Influential on subsequent treatments (see text)

that, for *ngamiense*, the contrary was true: the barring on the back and mantle was more clearly defined and conspicuous in adults than in immatures. This also applied to the pattern of the head and neck, wherein the obvious white barring of adult *ngamiense* was less complete or well developed in young birds. Thus, the holotype of *castaneum* could not be an immature *albertinum*. Additionally, Prigogine (1983) made the point that *albertinum*, in its white spotting (not barring) on the head and neck, differed noticeably from (adult) *ngamiense*. In his subsequent discussion Prigogine (1983) was not, however, explicit that the head and neck patterns of *castaneum* and *scheffleri* were also predominantly spotted rather than barred. Moreover, he did not set out the diagnostic characters of *albertinum* clearly, dealing with them instead across an extended narrative. In addition, an erratum slip to the reprint admitted that the poor quality of reproduction of the black-and-white photographs of specimens in the paper meant that it was not possible to see details described in the text. These limitations made difficult a full appreciation of the case for *albertinum* as a distinct species.

Subsequently, Prigogine (1985a) considered further the distinguishing characters of *albertinum* (the holotype of which was here more clearly depicted in a colour photograph, beside that of *castaneum*). By this time, *etchecopari* had been described (see below) and while its small size led Prigogine (1985a) to drop absolute tail length of *albertinum* as a diagnostic character, he presented further quantitative data to demonstrate the distinctiveness of the relative size, and pattern, of its tail (Tables 2, 4). These comparisons now included *capense sensu* Kemp (2005), as a result of its redescription by Clancey (1980). Both Clancey (1980) and Prigogine (1985a) commented that one of the ways the nominate differed from *ngamiense* was in the whitish spotting, not barring, of the crown and hindneck. Prigogine (1985a) did not otherwise further discuss head patterns but repeated that *albertinum* was unique in its lack of barring on the back: even though the dorsum of one specimen of *castaneum* was similarly uniform, barring was evident in the remainder (see below, Figs. 1a, 3a–c). Prigogine (1985a) has been much overlooked: it was not, for example, cited by Vuilleumier *et al*. (1992) who treated *albertinum* as *species inquirenda*, explicitly influenced in part by Prigogine (1985b), wherein, bewilderingly, in a table, he indicated its status to be 'species?', whereas there was no such qualification in the accompanying text.

In their paper describing *etchecopari*, Erard & Roux (1983) presented a plot of tail length vs. length of folded wing for series of specimens of the different *capense* taxa. From this, they

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TABLE 3
Details of museum specimens of Albertine Owlet *Glaucidium* (*capense*) *albertinum* and Chestnut Owlet *G.* (*c.*) *castaneum*. Institution acronyms explained in Acknowledgements. M = Male, F = Female.

Taxon	Institution	Reg. no.	Country	Region	Locality	Mountain range	Coordinates	Elevation	Date of collection	Collector	Sex	Wing (mm)	Tail (mm)	No. pale tail bars	Predominant colour of pale spots on scapulars	Predominant colour of pale spots on wing-coverts	Notes
albertinum	RMCA	50988	DR Congo	N Kivu	Lundjulu	West L. Edward	00°20′S, 28°36′E	1,120 m	14/1/50	Prigogine	F	131	72.7	7	White	White	Paratype; bears label with name *castaneum*[1,2]
	RMCA	64954	DR Congo	N Kivu	Lundjulu	West L. Edward	00°20′S, 28°36′E	?	13/1/53	Schepens	F	136	70.8	8	Buff	White	Paratype; bears label with name *castaneum*[2]
	RMCA	69589	Rwanda	Western Prov.	Rugege (= Nyungwe)	Nyungwe	02°30′S, 29°09′E	?	10/9/53	Aurélian	?	129	69	8	White	Buff	Paratype; bears label with name *castaneum*[2]
	RMCA	114546	DR Congo	S Kivu	Musang-akye	Itombwe	03°34′S, 28°16′E	1,690 m	26/8/66	Prigogine	M	130	68.8	6	Buff and white	Buff and white	Holotype; bears label with name *castaneum*[3]
	RBINS	66893	DR Congo	S Kivu	Munga	Itombwe	03°35′S, 28°13′E	?	26/6/81	Prigogine	M	124	64.7	7	Buff	Buff	
	RBINS	69998	DR Congo	S Kivu	Munga	Itombwe	03°35′S, 28°13′E	1,960 m	18/8/87	Prigogine	F	132	?	?	Buff	Buff	Tail damaged
	RBINS	70229	DR Congo	S Kivu	Munga	Itombwe	03°35′S, 28°13′E	1,870 m	8/8/87	Prigogine	M	126	70.7	7	Buff	Buff	
castaneum	ZMB	5094	DR Congo	N Kivu, Semliki	Andundi	-	00°50′N, 29°54′E	710 m	22/12/1891	Stuhlmann	M	131	79	10	White	White	Holotype. Specimen examined and measured by N. J. Collar
	LACM	70119	Uganda	Bwamba	Ntandi	-	00°49′N, 30°09′E	700 m (as 2,300 ft.)	8/12/68	Glen	F	130	76	10	White	White	Specimen examined and measured by G. Davies
	NHMUK	1980.20.1	Uganda	Bwamba	-	-	-	915 m (as 3,000 ft.)	17/9/58	?	M	132	83.8	11	White	White	ex Coryndon Mus, Nairobi (B4385)
	NMK	B4386	Uganda	Bwamba	Ntotoro	-	00°48′N, 30°07′E	730 m (as 2,400 ft.)	30/5/56	Mitton	M imm?	134	81	10	White	White	Specimen examined and measured by P. Njoroge and A. S. Kennedy

[1] Schouteden (1950) gave a redescription of *castaneum* based on this specimen (see text).
[2] Appears as *castaneum* in Schouteden (1968).
[3] Appears as *castaneum* in Schouteden (1966).
[5] Coordinates given are for Kamiranzovu Swamp.

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Figure 1a. Dorsal view of female Albertine Owlet *Glaucidium* (*capense*) *albertinum*, Lundjulu, DR Congo, RMCA 50988 (L. D. C. Fishpool)

Figure 1b. Lateral view of head of female Albertine Owlet *Glaucidium* (*capense*) *albertinum*, Munga, DR Congo, RBINS 69998 (L. D. C. Fishpool)

Figure 1c. Dorsal view of tail of male Albertine Owlet *Glaucidium* (*capense*) *albertinum*, Musangakye, DR Congo, RMCA 114546 (holotype) (L. D. C. Fishpool)

were also struck by the fact that *albertinum* differed from the others in its unusually short tail. Although Erard & Roux (1983) used the name *castaneum* for the three specimens concerned, from the details provided, including the statement that they saw only photographs of the type specimen of *castaneum*, it is clear that these were all in fact *albertinum*, as they came to be recognised that same year. Thus, in summarising how their '*castaneum*' specimens differed from the other taxa, they also singled out the uniform bright reddish-brown upperparts (although they too noted that these were barred in—photographs of—the type specimen), the reduction in the number of pale bars on the rectrices (again, except for the holotype), the relative narrowness of these, and in the spotted, not barred, crown (Table 2).

While the subsequent redescription of *albertinum* (in English) by Kemp (1988) largely correctly reflected what had been written (in French) by Prigogine (1983)—mention was made of the number of pale tail bars while measurements of the holotype included tail length—he did not indicate how it differed from *capense*. Moreover, a number of inaccuracies were introduced seemingly as a result of mistranslating the French 'marron' as maroon. Thus, the back, described by Prigogine (1983) as 'brun marron chaud uniforme', became 'warm maroon-brown' in Kemp (1988), as it was subsequently also described by Kemp & Kemp (1998), Holt *et al*. (1999, 2016, 2020) and König *et al*. (1999, 2008). A more correct translation is 'plain warm chestnut-brown'. There were also discrepancies

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concerning the coloration of the scapulars and greater coverts. The former were said by Prigogine each to have a 'large tache blanche ou roussâtre, les plumes se terminant par une zone brun noirâtre' (= a large white or reddish spot, the feathers ending in a blackish-brown patch) while the latter, similarly, each had a 'large tache blanche passant au roussâtre, sur le fanion extérieur' (= a large white spot turning reddish, on the outer web). Kemp (1988) described these as follows: 'scapulars maroon-brown with dark brown tips and large beige spot, greater upperwing-coverts similar but with beige spot confined to outer web, both forming pale lines across the wing'. No mention here, therefore, of any white, nor was there by Kemp & Kemp (1998), wherein they were again said to be beige.

In addition, under 'Field Characters', Kemp (1988) merely said that *albertinum* was 'very similar to African Barred Owlet…but head spotted not barred and back plain not barred'; the latter difference was subsequently contradicted by Kemp & Kemp (1998) in their account of *albertinum,* wherein the dorsum was both depicted and described as 'barred with cream', although under the text for *capense*, the back of *albertinum* was referred to as 'plain maroon-brown'. The spotted head pattern was therefore incorrectly considered to be diagnostic of *albertinum*, the confusion perhaps reflecting the emphasis placed by Prigogine (1983) on the comparison with *ngamiense*; Kemp (1988) did not describe head patterns of the other races of *capense*.

Furthermore, *albertinum* was illustrated in Fry *et al*. (1988: 143) only by a black-and-white line drawing beside the species account. As a result, direct comparison with the other forms shown in the colour plate elsewhere in the work was impossible and so made difficult appreciation of the (correctly shown) differences in proportion and pattern of the tail. The depiction of *albertinum*, moreover, did not show any contrasting pale spotting on the greater wing-coverts. Overall, the treatment of *albertinum* suggests that its description may have only come to the attention of the editors of *Birds of Africa* late in the preparation process for Vol. 3 (Fry *et al*. 1988), something which, as described below, had further implications.

An inadequate impression was therefore given of how *albertinum* differed from *capense* and this appears to have influenced subsequent treatments. Thus, Dowsett & Dowsett-Lemaire (1993) described the differences as being 'essentially the uniform plumage of the back in *albertinum*'. Holt *et al*. (1999), when comparing *albertinum* with *capense* and *castaneum,* did not mention either tail length or pattern, nor did the plate—or those in del Hoyo & Collar (2014)—show any such differences (the number of pale bars was correct for *albertinum*, inaccurate for the remainder) or pale spotting on the greater wing-coverts of *albertinum*. The only differences they did mention were, from *capense*, in having a 'distinctly spotted head and plain back' and from *castaneum* in having 'less white on scapulars and wing-coverts'. Similarly, although König *et al*. (1999, 2008) stated that the tail of *capense* (but not *castaneum*) was 'rather densely barred' relative to *albertinum*, they did not mention its length. Mikkola (2013), on the other hand, referred (in the legend to photographs of a skin of *castaneum*; see below) to the shorter tail of *albertinum* but not to a difference in the numbers of bars. None of these authors mentioned the pattern of its greater wing-coverts. Sinclair & Ryan (2010) explicitly stated the wing-coverts were plain but showed them, and the scapulars, to have buffy spots and said—as did Kemp & Kemp (1998), Holt *et al*. 1999, 2016, 2020), König *et al*. (1999, 2008) and Mikkola (2013)—that the crown and nape were spotted cream. As can be seen from Figs. 1a,b, 2a–c the spotting on the head is in fact white, as Prigogine (1983) had described. Indeed, the putative creamy head spots of *albertinum* were said by Holt *et al*. (2016, 2020) to be a distinguishing character from *castaneum*, as was the 'maroon-brown' (vs. chestnut) back. Only in Stevenson & Fanshawe (2002) were the characters of *albertinum* accurately illustrated, as were the comparative differences from *scheffleri* and *castaneum* (although the latter was shown with a barred, not spotted,

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Figure 2. Lateral views of Albertine Owlet *Glaucidium* (*capense*) *albertinum* showing variation in colour of pale spots on scapulars and greater wing-coverts: (a) female, Lundjulu, DR Congo, RMCA 50988; (b) male, Musangakye, DR Congo, RMCA 114546 (holotype); (c) female, Munga, DR Congo, RBINS 69998 (L. D. C. Fishpool)

forecrown: *cf*. Fig. 4b): the text for *albertinum*, on the other hand, considered 'the fine cream spotting of the crown and nape' to be the main distinguishing feature from *capense*. These anomalies were resolved in Stevenson & Fanshawe (2020), wherein the differences in tail length and pattern between *albertinum* and *castaneum* were correctly described and *castaneum* was shown with a white-spotted forecrown.

Chestnut Owlet.—In his short type description, Reichenow (1893) created *castaneum* as a species, distinguished from the otherwise 'very similar' *capense* only by the dark red-chestnut colour of its back, neck and head. This diagnosis he later confirmed and, in addition, mentioned the indistinct paler barring on the back and wing-coverts (Reichenow 1901). The rufous or chestnut back has remained the only feature by which it is distinguished from the brown-backed *capense* (Kemp 1988, Holt *et al*. 1999, 2016, 2020, König *et al*. 1999, 2008, Stevenson & Fanshawe 2002, Mikkola 2013). All these works described the back as being plain (vs. barred in *capense*), except Holt *et al*. (1999, 2016) who did not

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Figure 3. Dorsal views of Chestnut Owlet *Glaucidium* (*capense*) *castaneum*: (a) female, Ntandi, Uganda, LACM 70119 (G. Davies); (b) male, Andundi, DR Congo, ZMB 5094 (holotype) (N. J. Collar); (c) male, Bwamba, Uganda, NHMUK 1980.20.1 (L. D. C. Fishpool, © Natural History Museum, London). Note pale barring on the back of (a) and (b), absent in (c): see text.

specify. It has also been said to differ from *capense* by having a spotted, not barred, head and to be rather smaller (König *et al*. 1999, 2008, Mikkola 2013, Holt *et al*. 2016, 2020). Further, Kemp (1988) described the upperwing-coverts of *castaneum* as plain rufous, as they were also said to be in 'some' by König *et al*. (2008), while Holt *et al*. (1999) referred to the spotting on the head as buffish. As discussed below and is evident in Figs. 3–4 there are several inaccuracies in these statements; moreover, none of these additional attributes are unique to *castaneum*. The characters by which *castaneum* was said to differ from *albertinum* are mentioned above.

What was presented by Schouteden (1950) as a redescription of *castaneum* was, in effect, a description of *albertinum*. This is because although Schouteden (1950) believed he was looking at the second specimen of the former, it was in fact what subsequently was to become a paratype of the latter (Prigogine 1983); see below and Table 3. Indeed, the characters later used by Prigogine (1983) to create *albertinum* were all mentioned by Schouteden (1950). This specimen is also reported, as *castaneum*, by Chapin (1954: 631), who mentioned the white crown spots. Schouteden (1954) reported a third putative specimen of *castaneum*; this, too, was subsequently re-attributed to *albertinum* (Table 3).

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The description of *castaneum* given by Kemp (1988) included wing length measurements (range and mean) for three specimens. These data seem to have been taken verbatim from Table 1 of Erard & Roux (1983); in fact, as shown below, they pertain to *albertinum*. This resulted in the inclusion of measurements of one individual, the holotype of *albertinum*, in both species accounts (Kemp 1988).

Sexual dimorphism.—The chart presented by Erard & Roux (1983) distinguished between males, females and unsexed specimens but the accompanying text offered no reason for, or commentary upon this separation. Kemp (1988) reported there to be no differences between the sexes in *capense*, while the only distinction offered by subsequent authorities has been that of mass: Mikkola (2013) noted that female *capense* and *etchecopari* averaged heavier than males, which was supported by data for *capense* in Holt *et al*. (1999, 2016, 2020) and Kemp (2005). Although information given by König *et al*. (1999, 2008) for *capense* also suggested this to be true, they made no explicit comment: there was merely a statement in their accounts of *castaneum* that 'females [are] mostly larger and heavier than males' but provided no supporting data. Mikkola (2013) said that female *castaneum* were 'reported' as being mostly larger and heavier than males. Earlier, Verheyen (1953) had observed that wing length in adult females was slightly greater than in males, while the difference in weights between the sexes was more marked.

To summarise, since the 1980s the classification of the African Barred Owlet complex became confused, in part, because of (i) the almost simultaneous description of two new forms (*albertinum*, *etchecopari*) by, respectively, Prigogine (1983) and Erard & Roux (1983); (ii) the somewhat unsatisfactory descriptions given by Prigogine (1983, 1985a), (iii) Kemp (1988) having to assess and characterise the plumage and morphometrics of these new taxa without access to the original specimens and (iv) conflation and misinterpretation of the putative diagnostic characters of the three northern taxa (*albertinum*, *castaneum*, *etchecopari*) by many subsequent authors.

Distribution, specimens and other records

Albertine Owlet.—Prigogine (1983) named *albertinum* on the basis of five museum specimens, four of them, as mentioned above, previously identified as *castaneum*. Although these five remain the only ones documented (Collar & Stuart 1985, Kemp 1988, Holt *et al*. 1999, 2016, 2020, König *et al*. 1999, 2008, Mikkola 2013), there are in fact two more in the collection of RBINS, Brussels (see Acknowledgements for explanation of acronyms). These both date from August 1987 and are from Munga, Itombwe, DR Congo, the same locality as one of the earlier specimens (Table 3). The two skins are, unfortunately, in poor condition, having evidently suffered some insect damage, perhaps as a result of at least one of them being inadequately prepared. This has had the unfortunate effect of causing some deterioration also to the earlier Munga specimen, with which they are stored.

In the field *albertinum* is almost unknown. The collector of the Rugege (= Nyungwe), Rwanda specimen (Table 3), who wrote about it under the name *castaneum*, gave no information on the circumstances of its capture (Aurélian 1957). Published information is limited to two acoustic recordings, a separate account of the voice (bird unseen in all cases), a brief daytime flight view which may have been of this species and a few other records, all without any further detail. There is thus no unequivocal documented sighting of a live individual. A photograph that appears on www.eaglewatch.nl, currently labelled *albertinum*, is in fact *G. sjostedti*.

Two of the vocal records are from Nyungwe, Rwanda. The first is a description of two sequences of pure whistles (= song-type 1 of Dowsett & Dowsett-Lemaire 1993), which was heard once, but the bird not seen, at 2,500 m in October 1989 (Dowsett-Lemaire 1990, in

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prep.). The second is a recording made in June 2017, at 2,100 m near Kamiranzovu Swamp by Protais Niyigaba (www.xeno-canto.org; XC 377445). Despite its poor quality, two sequences of the purring trill (= song-type 1 of Dowsett & Dowsett-Lemaire 1993) typical of *capense* can be heard. The accompanying notes stated that the local guide, V. Ngirababyeyi, was familiar with the call, that it was attributed by him to *albertinum* and, moreover, that 'the bird has been seen several times' at this locality. A second recording on www.xeno-canto.org, currently attributed to *albertinum*, is in fact of a Western Tree Hyrax *Dendrohyrax dorsalis* (Dowsett-Lemaire in prep.). Dowsett-Lemaire (1990) also reported the brief sighting of a small owl in daylight in September 1989 at 2,100 m which was thought may have been *albertinum*.

Vande weghe & Vande weghe (2011) cited five field records from Nyungwe, including the two by Dowsett-Lemaire (1990) mentioned above, and wherein the September sighting was treated as confirmed. No further details of the other three, in December 1984 (1,950 m), October 2010 and January 2011 (both *c*.2,100 m), were given. There are also two more recent records at Nyungwe (https://ebird.org/checklist/S24057496, https://ebird.org/checklist/S48079871), on 22 June 2015 and 16 July 2018, respectively, but in neither case was any supporting detail provided.

The other published recording (Chappuis 2000) was made in Itombwe, DR Congo, in 'April/May' by Tom Butynski but no more information was given, although the accompanying notes pointed out that the song was 'in every respect identical' to *etchecopari*, which argued against 'a specific distinction' (Chappuis 2000). F. Dowsett-Lemaire (*in litt*. 2020; in prep.) has informed me that these, in fact, included three sequences dating from April 1996, from 'Kilumbe camp, 6,300 feet'. Although the results of the expedition from which these recordings derived have been published (Omari *et al*. 1999)—where the location of Kilumbi (*sic*) was given as 03°52.2′S, 28°56.1′E, elevation 1,900 m—no mention was made of *albertinum*.

T. Butynski (*in litt*. 2020) has drawn my attention to a further unpublished recording of his from the vicinity of the Lubele River (00°26.79′S, 28°58.72′E) in June 1997, at *c*.1,830 m. This locality is west of Mt. Tshiaberimu, in the Lutunguru area of DR Congo (Sarmiento & Butynski 1997). This unpublished report simply listed *albertinum* as one of the birds recorded during three days of survey: the observation referred, in fact, to an individual heard (and recorded) singing before dawn on one occasion (T. Butynski *in litt*. 2020). The Lubele River is only 44 km from Lundjulu, whence two *albertinum* specimens were collected (Table 3).

In an analysis of the vocal repertoire of all taxa in the *capense* complex—with the exception of the unknown *castaneum*—Dowsett-Lemaire (in prep.) will present evidence to show that the recordings of *albertinum*, if correctly attributed, differ very little in either structure or tempo from those of the other members and, on this basis, argues that *albertinum* does not merit recognition as a species.

The recording on Chappuis (2000) appears to have been much overlooked, for the vocalisations of *albertinum* were reported as unknown by Stevenson & Fanshawe (2002), König *et al*. (2008) and Holt *et al*. (2016, 2020); Sinclair & Ryan (2010) and Mikkola (2013), however, gave descriptions, the former explicitly based on Chappuis (2000), while Stevenson & Fanshawe (2020) stated simply that its voice was 'reported to be similar' to *capense*.

All these records of *albertinum* derive from three mountain ranges in the Albertine Rift: Itombwe, Nyungwe and the mountains west of Lake Edward (Table 3). Some references have indicated its presence in a fourth. Thus, Collar *et al*. (1994), citing Catterall (1992), reported a 'recent sight record from Kahuzi-Biéga National Park west of Lake Kivu', DR Congo, a record repeated by Stattersfield *et al*. (1998), Stattersfield & Capper (2000), Demey

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TABLE 4
Summary mensural data for taxa of the African Barred Owlet *Glaucidium capense* complex from Prigogine (1983, 1985a) and this study.

	Sample size (*n*)	**Length of folded wing (mm)**		**Tail length (mm)**		**Tail length as % of folded wing**		**No. of pale tail bands**	
		Mean	Range	Mean	Range	Mean	Range	Mean	Range
Prigogine (1983)									
albertinum	5	130.2	126–138	66.8	61–70	51.3	48.4–54.5	7	6–8
castaneum	2	-	132–134	-	74.5–78.5	-	56.4–58.6	-	9–10
scheffleri	5	135.4	132–140	81.8	75–89	60.4	57.1–65	10.6	10–11
ngamiense	19	140.6	133–145	83.5	78–89	59.5	56.9–62.7	11.4	10–13
Prigogine (1985a)									
etchecopari	7	127.7	123–132	-	-	+/- 58.5	-	-	10–11
albertinum	5	130.2	126–138	66.8	61–70	51.3	48.4–54.5	7	6–8
castaneum	4	135.3	132–138	76	74.5–78.5	56.2	54.3–58.6	10	9–11
scheffleri	13	137.5	133–141	80.2	75–85	58.3	55.8–61.6	11.2	10–13
ngamiense	8*	139.5	136–142	83.5	78–90	59.9	56.5–63.8	11.4	10–13
‘*clanceyi*’ (= *ngamiense)*	17**	141.4	137–145	84.1	78–89	59.5	56.9–62.7	11.3	10–13
capense	2	142.5	141–144	89.5	89–90	62.6	62.1–63.1	14	
This study									
etchecopari	8	124.75	119–128	78.1	73.5–81.5	62.6	60.8–65.7	11	10–12
albertinum	6***	129.7	124–136	69.45	64.7–72.7	53.7	52.0–56.1	7.2	6–8
castaneum	4	131.7	130–134	79.95	76–83.8	60.7	58.5–63.5	10.3	10–11
scheffleri	14	136.75	133–140	84.8	80.3–90.2	62	59.5–65.4	11.5	10–13
ngamiense	79†	138.6	130–145	85.8	80.7–92	62	58.1–67.6	12.7	10–16
capense	1	140		90.8		64.8		14	

* *n* = 9 for tail-bands
** *n* = 20 for tail-bands
*** *n* = 7 for wing length
† *n* = 75 for tail length, 76 for tail-bands

& Louette (2001) and BirdLife International (2022b). Catterall (1992), in turn, attributed the source of the record to ‘Vande weghe in litt. 1992’ but did not specify that it was a sighting. J.-P. Vande weghe (*in litt*. 2021) has informed me that he cannot now be certain of its origin, but thought it may, in fact, have referred to a specimen obtained by A. Prigogine. Since no such specimen is held by either RBINS or RMCA, perhaps confusion arose over the provenance of one or both of the two additional skins in RBINS, reported above, from Munga, Itombwe. Whatever the explanation, in the absence of further evidence, it seems wise to treat this record with caution. Bober *et al*. (2001) also considered *albertinum* to be known from four ranges without specifying which and, further, said it was known (at that time) from four specimens, rather than five. Earlier, a table in Prigogine (1985c) had also shown *albertinum* (but under the name *castaneum*) as present in four mountain ranges,

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the fourth in this case being the Ruwenzori. The accompanying text, also using the name *castaneum*, indicated that in fact the adjacent lowland forest of the Semliki Valley was intended. An ambiguous (and partial) explanation for this came in the form of a footnote to the table: '*G. albertinum* (Prigogine 1983) was described only later. Previously there was a confusion (*sic*) between the two owlets'.

Chestnut Owlet.—When Prigogine (1983) described *albertinum* he transferred to it four specimens (listed at the top of Table 3) hitherto treated as *castaneum*. As a consequence, the number of skins of *castaneum* then known was reduced to two (Prigogine 1983, Collar & Stuart 1985). These were the holotype, collected in 1891 at Andundi, Semliki, DR Congo, and a second, dating from 1968, from Ntandi, Bwamba, Uganda (Table 3). These localities are, in fact, only 28 km apart, both at an elevation of *c*.700 m.

The specimens re-identified as *albertinum*, from the mountains west of Lake Edward, Itombwe and Nyungwe (Table 3), seem however not to have been excluded subsequently from maps illustrating the distribution of *castaneum*, resulting in serious misrepresentations of its revised range, as well as implying sympatry with *albertinum*. Thus, although the text in Kemp (1988) correctly stated it to be known only from the Semliki Valley in DR Congo and Bwamba Forest (= Semliki National Park), Uganda, the accompanying map showed its range as extending south along the western side of the Albertine Rift, into Rwanda—territory re-attributed to *albertinum*. Exactly the same discrepancy between text and map recurred in Holt *et al*. (1999), König *et al*. (1999, 2008), Mikkola (2013) and del Hoyo & Collar (2014). The mismatch between mapped and described distribution of *castaneum* in BirdLife International (2022a) went further; while the map showed (only) surprisingly large areas of DR Congo and Uganda (but excluded Rwanda), the listed range states included Central African Republic, Republic of Congo and Cameroon (see below). Liberia and Côte d'Ivoire were also cited, these forming part of the range of *etchecopari*; but these appeared on the map for *capense*. The map of *castaneum* in Holt *et al*. (2020) did however exclude the range of *albertinum* but, while mentioning that Central African populations might belong to the former, did not show them.

The original error here would seem to be another consequence of the late and not wholly accurate incorporation of *albertinum* into Fry *et al*. (1988). The multiple repetitions of the same mapping error in subsequent publications may however perhaps be termed textbook examples of information being incorporated uncritically from one volume into another.

Prigogine (1985a) revised his count of known specimens of *castaneum* from two to four. He gave some details of the two additional skins, indicating that they both also originated from Bwamba, Uganda and were held at NMK (Table 3), although one has since been sent to NHMUK. These specimens appear otherwise to have been entirely overlooked, both before and since, until, as mentioned above, photographs of one were published, without further comment, in Mikkola (2013). They were clearly unknown to Friedmann & Williams (1971: 22) for, despite having been collected in 1956 and 1958 respectively, these authors described their 1968 specimen as the first for Uganda (Table 3). Nor, evidently, were Britton (1980), Stevenson & Fanshawe (2002, 2020) and Carswell *et al*. (2005), among others, aware of them.

These oversights are surprising, particularly since both specimens bear original Coryndon Museum labels (renamed NMK in 1964) with appropriate catalogue numbers. Had they been incorporated into that museum's collection following capture it is hard to imagine how they would have been unknown to John Williams in particular, since he was both Curator of Birds there from 1946 to 1966 and, as noted above, co-author of the paper that claimed primacy for the 1968 specimen. One possible explanation is that they first passed into the personal collection of V. G. L. van Someren, who was Director

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TABLE 5
Summary statistics for male vs. female African Barred Owlet *Glaucidium capense ngamiense*.
SD = standard deviation.

	Sample size (*n*)	**Length of folded wing (mm)**			**Tail length (mm)**		
		Mean	SD	Range	Mean	SD	Range
Males	30	137.6	2.66	133–144	84.95	2.258	80.7–89.6
Females	30	139.3	2.89	134–145	86.7	2.532	82.2–92
Student *t*-test comparisons							
		t-value	*p*-value	significance			
	Wing	-2.37	0.0211	p <0.5			
	Tail	-2.825	0.006	p <0.1			

of the Coryndon Museum between 1930 and 1940. The collector of one of the specimens, Norman Mitton (Table 3)—that of the other is unrecorded—was an employee of Coryndon Museum at the time and certainly known to van Someren. Archival correspondence held at NHMUK shows the specimen now in its collection (Figs 3c, 4a) was acquired in 1978 as a result of an exchange arranged between I. C. J. Galbraith, Curator of Birds at Tring, and G. R. Cunningham van Someren, who in 1975 had become Acting Curator of Birds at NMK and was the son of V. G. L. van Someren. It is possible that, following his death in 1976, at least some of V. G. L. van Someren's personal collection was transferred to NMK by G. R. Cunningham van Someren, of which these two skins may have been part, particularly since they carried Coryndon Museum labels (R. J. Dowsett *in litt*. 2019, D. Turner *in litt*. 2020).

As far as I am aware these four specimens remain the only ones in collections. Nor have I been able to find any published photographs, audio recordings or properly documented field records of *castaneum* from the area where these specimens originate. A report of a sighting in the Semliki Valley, Uganda, on 24 January 2011 has however been published, as *capense* (Skeen 2014: 57–58)—a record also mentioned by Stevenson & Fanshawe (2020)—but without supporting detail. The only other published, if circumstantial, evidence of the owlet's continued presence was that of Rossouw (2001) who on 23 April 1998 in Semliki reported that '…a Spotted Morning Thrush *Cichladusa guttata* was heard mimicking a call virtually identical to that of *G. c. ngamiense*, the subspecies with which the observers are most familiar'. The owlet itself was not seen or heard despite subsequent searches involving the use of playback (Rossouw 2001). The only other claim of *castaneum* is a record on eBird (https://ebird.org/checklist/S23991201) from Mubwindi Swamp, Bwindi-Impenetrable National Park, Uganda on 15 June 2015. In the absence of any further details this observation is best treated with caution, since there are no others of *castaneum*, or indeed *albertinum*, from this relatively well-worked locality which, at 2,100 m, is considerably higher than the 700–900 m from which *castaneum* has been definitely recorded (Table 3). A photograph of an owlet labelled *castaneum* currently appears on the Eaglewatch website (www.eaglewatch.nl) but appears to be a Chestnut-backed Owlet *G. castanotum*.

The confirmed range of *castaneum* is therefore extremely restricted and within this it is evidently very rare. There are nonetheless additional populations of African Barred Owlet which have been suggested or affirmed to be *castaneum*. These were all discovered in the 1990s, in Republic of Congo (Dowsett-Lemaire & Dowsett 1998), Central African Republic (Dowsett *et al*. 1999) and Cameroon (Dowsett & Dowsett-Lemaire 2000), from the last of which several further records have been reported (Languy 2019). Since no specimen has ever been collected, mist-netted or, apparently, photographed, the identity of these populations

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is unknown: Dowsett-Lemaire & Dowsett (1998) and Dowsett & Dowsett-Lemaire (2000) considered, on distributional grounds, that they were 'likely to be' *castaneum,* a view shared, with similar caution, by Borrow & Demey (2001). More recently, Borrow & Demey (2014) and Languy (2019) have stated them to be *castaneum* without qualification.

Recent discoveries in Ghana, Togo and Benin (Cheke 2008, Dowsett *et al*. 2008, Dowsett-Lemaire & Dowsett 2014, 2019, 2020) have extended eastwards significantly the known range of *etchecopari*. In consequence, the Central African populations are now more or less equidistant (*c*.1,300–1,400 km) between easternmost *etchecopari* in Benin and *castaneum* in Semliki, DR Congo. Moreover, it is probable, given the continuity of habitat, that *etchecopari* will yet be found still further east, in Nigeria; equally, it seems likely that further populations may also occur in the intervening gap between the Republic of Congo and eastern DR Congo.

Irrespective of their taxonomic identity, these populations, although discovered too late for consideration by Kemp (1988), were inexplicably neither mapped nor mentioned by Holt *et al*. (1999, 2016), König *et al*. (1999, 2008), Mikkola (2013), del Hoyo & Collar (2014) and BirdLife International (2022a)—they were however included by Borrow & Demey (2001, 2014), Sinclair & Ryan (2010) and Clements *et al.* (2021) while Holt *et al*. (2020) reported but did not map them. These oversights are the more surprising in the case of Holt *et al*. (1999) since they included Dowsett-Lemaire & Dowsett (1998), in which the Republic of Congo discovery was reported, in their list of references for *castaneum*, as did König *et al*. (2008) in their accounts of *castaneum* and *etchecopari*.

Methods

To re-assess the characters of *albertinum* and *castaneum* and to compare them with the other taxa, a total of 113 specimens was examined and measured, comprising eight *etchecopari*, four *castaneum*, seven *albertinum*, 14 *scheffleri*, 79 *ngamiense* and one *capense* (*sensu* Kemp 2005). Examination of plumage concentrated on those features previously invoked to distinguish taxa, namely the colour and pattern of the head and upperparts, including the tail. As with other studies, no obvious or consistent differences were found in colour and pattern of the underparts or in bare-part colours and these are not discussed further. Measurements were taken of length of folded wing (unflattened chord) using a ruler with a perpendicular stop at zero, and of tail length, from the tip of the central rectrices to the point of insertion, using a pair of Vernier callipers accurate to 0.1 mm. The number of transverse pale bars on the central tail feathers was also counted, including those normally hidden by the uppertail-coverts. The width of these bars was not quantified: although measured by Prigogine (1983, 1985a) and, less thoroughly, by Erard & Roux (1983), it was here concluded that little information would accrue beyond that deriving from a simple count of the number of bars, and that therefore the return did not justify the effort required. Moreover, conspicuous variation in width was sometimes apparent within a single bar, complicating standardisation and comparisons. Bill and tarsal lengths were also not measured in this study: except for the holotype of *albertinum*, neither Prigogine (1983, 1985a) nor Erard & Roux (1983) provided these data, which was taken to imply these authors found them uninformative, a view supported by my non-quantitative assessment of both characters.

To estimate differences in the pattern of the head, neck and hindcollar between taxa, a simple quantitative assessment was made of all specimens of the extent of spotting relative to barring. A score of 5 was given where the feathering from frons to lower collar was spotted throughout; 4, where spotting extended midway down the hindneck, with the remainder barred; 3, spotting as far as the hindcrown; 2, spotting onto the pileum but not behind the eyes; 1, spotting confined to frons (in front of eyes); 0, unspotted, barring only.

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Figure 4a. Lateral view of male Chestnut Owlet *Glaucidium* (*capense*) *castaneum*, Bwamba, Uganda, NHMUK 1980.20.1 (L. D. C. Fishpool, © Natural History Museum, London)

Figure 4b. Lateral oblique view of head of female Chestnut Owlet *Glaucidium* (*capense*) *castaneum*, Ntandi, Uganda, LACM 70119 (G. Davies)

Half-scores were assigned in a few intermediate cases. Two obviously immature *ngamiense* were excluded from the analysis.

Data were collected for specimens held in NHMUK, Tring, MNHN, Paris, RMCA, Tervuren and RBINS, Brussels by the author, with additional information provided for two specimens at ZMB, Berlin by Nigel Collar, five specimens in LACM, Los Angeles (Greg Davies) and one in NMK, Nairobi (Peter Njoroge, Adam Scott Kennedy).

Results

This study confirms both the description of *albertinum* given by Prigogine (1983) and the characters he specified by which it differs from the other taxa, namely the always unbarred chestnut back and uppertail-coverts, the disproportionately short tail and the reduction in both the number and, although not here quantified, the width of the pale bars on the tail (Figs. 1a,c, Tables 2, 4). It also supports the accuracy of his statements that the head and neck are spotted white and that the hindcollar is barred white (Figs 1a,b, 2a–c).

Prigogine's view that the scapulars and greater wing-coverts have large white or reddish subterminal spots on their outer webs, however, requires comment and qualification. There is, in fact, substantial variation between specimens in the colour and, allowing for uncertainties arising from the imperfect and incomplete condition of some of the skins, the size of the pale spots on the scapulars and greater coverts. The pattern is essentially the same on both sets of feathers, wherein the base and most, or all, of the inner web is chestnut, the outer web has a single pale subterminal spot and the terminal margin

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Figure 5. Dorsal view of Barred Owlet *Glaucidium capense scheffleri* specimens from Tanzania, held in NHMUK, showing variation in pattern and coloration; note similarities between the two specimens on the left and *castaneum* (Fig. 3). Left to right: male Mafia Island, NHMUK 1938.2.11.70; female, Kibungo Forest, East Uluguru, NHMUK 1937.12.27.212; female, Kandoa-Irangi, NHMUK 1929.8.17.24; male, Mombo, Amani, NHMUK 1933.6.1.17 (L. D. C. Fishpool, © Natural History Museum, London)

is fringed very dark brown to blackish. The size of these spots may, in some cases, extend onto the inner webs, on the scapulars at least, or they may be smaller and less conspicuous, especially on the wing-coverts. Colour also varies, from predominantly white throughout on both feather tracts (one specimen), mainly buff throughout on both (three specimens), a more or less equal mix of buff (basally) blending to white distally within each spot on both (one specimen), while of the remaining two, the scapulars are mostly buff and the wing-coverts white on one while the reverse is true of the other (Fig. 2a–c, Table 3). In no case did the colour of these spots strike me as reddish ('roussâtre' of Prigogine 1983).

I found the ground colour of the forehead, crown and neck of *castaneum* to be dark brown. The crown is covered with white spots, which widen somewhat on the hindneck and extend further laterally on the lower collar and neck-sides to form bars, with the hindmost more buffy than white. The lower mantle, back, rump, wings and uppertail-coverts are dark chestnut, warmer in tone than the head and neck. In three specimens, including the holotype, these feathers show some lighter brown barring: in the fourth, they are plain (Fig. 3a–c). The scapulars bear a large, bright white subterminal spot or patch, more extensive on the outer web than the inner, whilst the tip, inner fringe and base are very dark, almost black. In two, there is a thin line of pale buff along the leading edge of the white patch and an equally narrow strip of the same colour separating it from the dark inner fringe. The pattern on the greater coverts is essentially similar and although the white is somewhat less bright, it is not buff (Fig. 4a, Table 3).

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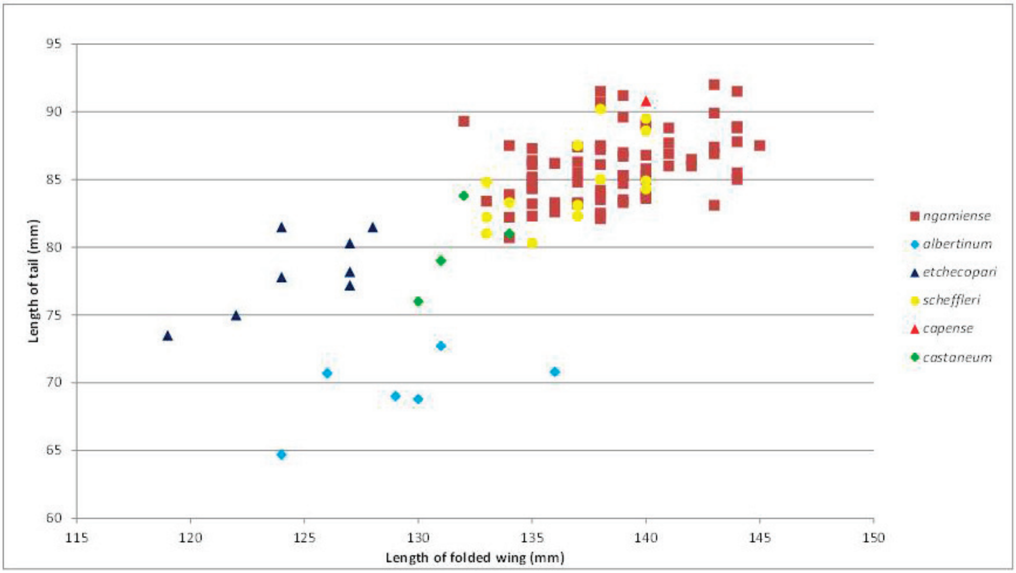

Figure 6. Tail length plotted against length of folded wing for specimens of the different taxa in the African Barred Owlet *Glaucidium capense* complex.

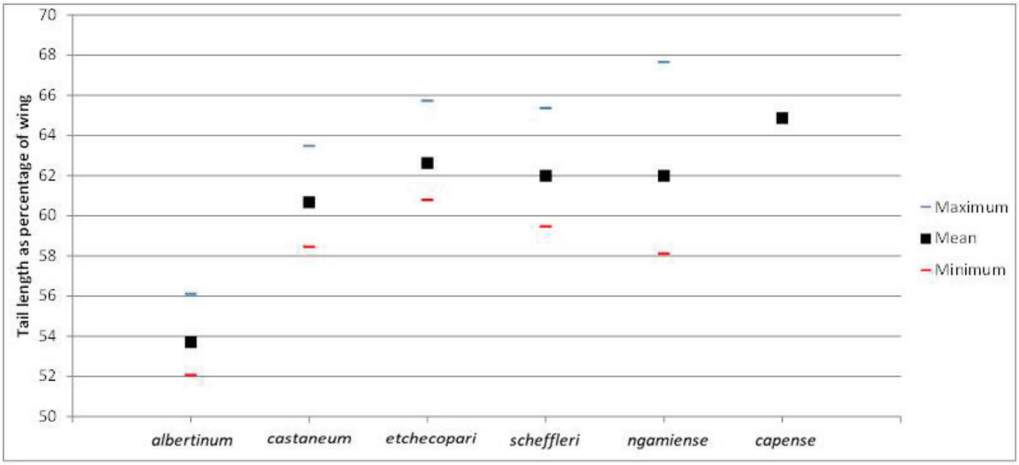

Figure 7. Tail length as a proportion of the length of folded wing for the taxa in the African Barred Owlet *Glaucidium capense* complex. Percentages calculated per specimen and expressed as mean and range by taxon. Sample sizes shown in Table 4.

My examination also reconfirmed the similarity, previously noted by Kemp (1988) and König *et al*. (1999, 2008), between *castaneum* and *scheffleri*. Some *scheffleri* specimens approach *castaneum* closely in the ground colour of the upperparts, the pattern and extent of white spotting on the head and neck, and in the indistinct barring on the back (Figs. 3a–c, 5). Variation in *scheffleri* is however considerable, for in others the ground colour is paler while the white to buff dorsal spotting and barring is more extensive and conspicuous (Fig. 5).

To compare size and proportion between taxa, a plot of tail length against length of folded wing is shown in Fig. 6. This is a revised and expanded version of the graph presented by Erard & Roux (1983) and reinforces the fact they noted, that despite the variation in size, these parameters have the same structural relationship in all forms except

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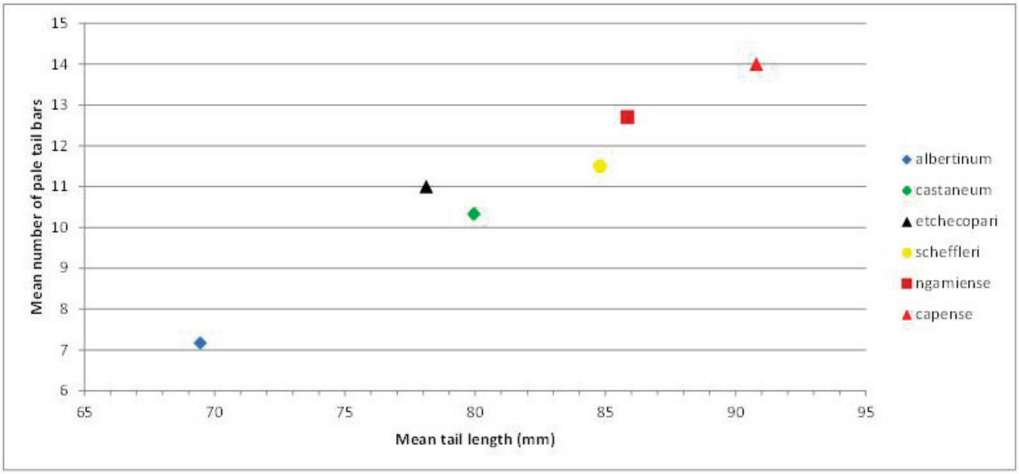

Figure 8. Mean number of pale tail bars plotted against mean length of folded wing for the different taxa in the African Barred Owlet *Glaucidium capense* complex. Sample sizes shown in Table 4.

albertinum which, by its relatively short tail, is distinct. It is also apparent that there is a general trend of increasing size eastwards and southwards, from *etchecopari* in the west to *ngamiense* in southern Africa, with *castaneum*, geographically intermediate between *etchecopari* and *scheffleri*, intermediate also in size. Although four of the taxa are represented by small sample sizes (and that, due to their locations, the four *castaneum* specimens were each measured by a different person), there seems little reason to doubt this relationship. With data for only a single specimen of *capense sensu* Kemp (2005) it is not possible to draw any inference other than to note that it lies towards the upper end of biometrics of *ngamiense*. The distinctiveness of the length of the tail relative to the wing in *albertinum* is emphasised when expressed as percentages: there is no overlap in ranges between *albertinum* and the other taxa, which themselves are otherwise conspicuously uniform (Fig. 7). The reduction in the number of pale tail bars in *albertinum* is, however, in direct proportion to its length: the linear relationship between the two, evident in Fig. 8, indicates that its tail *pattern* is consonant with that of the other taxa. The tail of *capense* is therefore not more densely barred than it is in *albertinum*, *contra* the suggestion by König *et al*. (1999, 2008).

Mean scores from the assessment of spotting vs. barring of the head, neck and hindcollar across the taxa were, in descending order, *capense* (5, *n* = 1), *albertinum* (4.64, *n* = 7), *castaneum* (4.25, *n* = 4), *scheffleri* (3.67, *n* = 14), *etchecopari* (2.12, *n* = 8) and *ngamiense* (1.71, *n* = 77). These averages—small sample sizes in most cases notwithstanding—indicate the range of differences exhibited by the *capense* complex but show that values for *albertinum* and *castaneum* fall within it.

Mensural comparison of the sexes in this study found that in *ngamiense*, for which there was an adequate sample, females averaged larger than males in both wing and tail length. While these differences proved statistically significant (at 0.5% for wing and at 0.1% for tail), the overlap in their ranges was extensive for both parameters (Table 5). It was therefore concluded that, since this relationship was not relevant to the points at issue, no purpose would be served by presenting data for the sexes separately in Figs. 6–8.

Discussion

The upper limit of the elevational range of *albertinum* from specimen material is increased by the two additional skins reported here to 1,960 m (Table 3), although vocal

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data indicate that it can reach at least 2,500 m (Dowsett-Lemaire 1990, in prep.). With the lower limit at 1,120 m, its distribution therefore extends across the three main forest types of the western Albertine Rift recognised by Prigogine (1953): lowland equatorial forest below 1,400 m, transition forest at 1,400–1,700 m and montane forest above 1,700 m. It is therefore curious that Prigogine (1983), on the basis of the five specimens then known, described 'the first two' (i.e. the Lundjulu) specimens as having been collected from transition forest, while the three others came from montane forest, especially since elevational data were available for only two of these: one Lundjulu specimen from 1,120 m (i.e., lowland forest) and the holotype, from Musangakye at 1,690 m, and therefore at the ecotone between transition and montane forest (Table 3). Prior to this, using the name *castaneum*, he considered the Lundjulu specimens to have originated from lowland forest while the Musangakye and Rugege (= Nyungwe) specimens had been collected in 'montane or transition forest' (Prigogine 1953, 1971).

Since the *castaneum* specimens were also unequivocally collected in forest (Chapin 1954, Friedmann & Williams 1971; R. Glen *in litt*. to D. Turner 2020) from elevations that approach that of the more montane *albertinum*—the Lundjulu specimen of the latter at 1,120 m is little higher than *castaneum* at 700–900 m (Table 3)—no obvious differences in habitat are apparent. Moreover, the distance between Lundjulu and Andundi, the closest *castaneum* locality, is within 200 km, and there is no reason to suppose that they do not, or at least did not, approach each other more closely since, as Prigogine (1953) made clear, comparable forest extended north from Lundjulu towards Bwamba; indeed, the site of the recording on the Lubele River is only *c*.175 km from Andundi.

There are several published field reports of individuals from one taxon responding to playback of the voice of another, either by singing or approaching the source of the recording, or both. Thus, Carlyon & Meakin (1985) and Carlyon (2011) gave details of *capense sensu* Kemp (2005) reacting to the song of *ngamiense* whilst Dowsett-Lemaire & Dowsett (1998) reported on the readiness with which birds in the Republic of Congo sang in response to recordings of *etchecopari* and from two different populations of *ngamiense*, noting that 'playback of a single song (of either type) was usually sufficient to provoke a reaction'. Several further examples of the use of playback of the voice of one taxon provoking a response in another are given by Dowsett-Lemaire (in prep.), including, in 1997, of the recording of *albertinum* from Itombwe inducing responses, on more than one occasion, from birds (of unknown race) in Cameroon.

It is striking therefore that *albertinum* itself appears to behave differently. As noted above, Dowsett-Lemaire (1990) was unsuccessful in eliciting a response from the bird she heard in Nyungwe, Rwanda, whilst Vande weghe & Vande weghe (2011) reported that 'repeated playback' of the voice of *capense* there 'never produced any response'. Moreover, further anecdotal evidence from correspondents with field experience in Nyungwe received while this paper was being prepared has reinforced the impression that *albertinum* appears, surprisingly, unresponsive to playback. The elevation where the Nyungwe specimen was collected is unknown (Table 3) but it may be significant that the range of acoustic records from Nyungwe mentioned above (1,950–2,500 m) does not overlap with the two from DR Congo (1,830–1,900 m) and does so only slightly with that of the specimen data—1,120–1,960 m (Table 3). It is therefore possible that greater survey effort at lower elevations in Nyungwe might lead to more encounters.

Holt *et al*. (1999) and König *et al*. (1999) gave essentially the same description of the voice of *castaneum*: 'a series of *kyurr-kyurrr-kyurr* notes, accelerating towards the end'. In both these works *etchecopari* was lumped with *castaneum* (Table 1) and since neither specified to which form the vocal description applied, the implication was that it was common to both.

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Since the voice of *etchecopari* was then known (Thiollay 1975, Chappuis 1978a, Erard & Roux 1983) and that of *castaneum* was not (Dowsett & Dowsett-Lemaire 1993), it is reasonable to infer that it was based upon the former. This seems however not to have been the case, for the same description was subsequently used for *castaneum* by König *et al*. (2008), Mikkola (2013) and Holt *et al*. (2016, 2020), all of whom then treated it as a monotypic species or, in the case of the latter who did not, specified that it applied to *castaneum* (Table 1). The source of this information is unclear: it does not derive from any of the references accompanying the species account in Holt *et al*. (1999) and König *et al*. (1999, 2008). I have been unable to find any published recordings of *castaneum*; there is none on Chappuis (2000), in the British Library (Wildlife and Environmental Sounds) or on internet platforms (www.xeno-canto.org; www.macaulaylibrary.org) and none is known to Dowsett-Lemaire (in prep.) or to other regional experts I have contacted. In the absence of any substantiation, I suggest that the voice of *castaneum* in the narrow sense should currently be considered unknown. Moreover if, as seems likely, it will prove to be close to others in the group (as the transliterations given by Holt *et al*. 1999 and König *et al*. 1999, as well as the evidence of Rossouw 2001, reported above, suggest), it would call into question the split by König *et al*. (2008) and others of *etchecopari* from it, which was based largely on the assertion—no evidence is given—that its vocalisations were 'different from that of Chestnut Owlet'. As noted by del Hoyo & Collar (2014), this putative acoustic difference needs to be reconciled with the statement by Erard & Roux (1983) in their description of *etchecopari*, repeating the point made earlier by Chappuis (1978b), that its voice matched closely that of recordings from Kenya (hence *scheffleri*), as well as the evidence from Dowsett & Dowsett-Lemaire (1993), Dowsett-Lemaire & Dowsett (1998) and Dowsett-Lemaire (in prep.).

There are additional reasons to infer that the account of *castaneum* by König *et al*. (1999, 2008) drew upon unreferenced sources. They gave ranges of measurements for total length, wing and tail, as well as an estimate of weight, which, together with the statement that 'females [are] mostly larger and heavier than males', suggest that these data derived from multiple specimens. Of the four specimens of which I am aware, three are male and their weights are unrecorded, whilst the single female was reported by Friedmann & Williams (1971) to have weighed 119 g—the same figure appears on the specimen label—which is somewhat at odds with the mass of '*c*.100 g' given by König *et al*. (1999), a value they reported was a 'median' and then a 'mean' (König *et al*. 2008). This figure, also offered by Weick (2006), was explicitly treated by Dunning (2008) as an estimate. Moreover, statements such as 'does not cock or flick tail when excited' imply observations of birds in the field. Such observations—some of them repeated in Mikkola (2013)—did not derive from any of the references they provided. Numerous sources (Holt *et al*. 1999, 2016, 2020, König *et al*. 1999, 2008, Weick 2006, Mikkola 2013) have asserted that one female *albertinum* specimen weighed 73 g but none cited the source of this figure—Kemp (1989)—nor noted that it too was an estimated, not a measured value. If correct, it is conspicuously lighter than the 119 g female *castaneum*.

It should also be noted that the elevational range of *castaneum* as given by Holt *et al*. (1999, 2016, 2020) of 1,000–1,700 m, by König *et al*. (2008) of up to 1,700 m and by Mikkola (2013) of 'from near sea-level to 1,700 m', irrespective of how they variously treated the taxon (Table 1), all need to be revised, as the four specimens were collected at 710–915 m (Table 3).

In his description of the plumage of immature *ngamiense*, Verheyen (1953) noted that, in addition to the differences in the pattern of the head, neck and back reported above, the white spots on the upperwing-coverts were also less pronounced in immatures and that the brownish-black ground colour was darker than in adults. These differences do not appear

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to have been picked up in the wider literature. Thus, Kemp (1988) stated that immature *ngamiense* is 'very like adult…browner on head and neck with less barred upperparts and less spotting below…' and similar descriptions were given by Kemp & Kemp (1998), Holt *et al*. (1999, 2016, 2020), König *et al*. (1999, 2008) and Mikkola (2013).

In a study of Collared Pygmy Owl *G. brodiei* in Taiwan, Lin *et al*. (2014), found that young birds, unlike adults, lacked barring on the back feathers: in this species, too, barring is acquired with age. Moreover, Lin *et al*. (2014) demonstrated that *G. brodiei* does not exhibit colour polymorphism, as had hitherto been supposed, but that changes in plumage colour are age-related. Such an explanation for the differences between *castaneum* and *albertinum* is ruled out by the differences in tail lengths. It has been suggested that the 'pattern on the back of *castaneum*', as well as of *scheffleri*, rather than being a sign of immaturity, indicated them to be neotenous forms of *capense* but no supporting evidence was given (Prigogine 1985b).

That the head of *capense* (*sensu* Kemp 2005) is spotted not barred white is apparent in photographs of live birds in Carlyon (2011) and Mikkola (2013) and by J. Balmer (https://www.kariega.co.za/blog/update-barred-owlet-research-project-success), as well as in Chittenden *et al*. (2012: 23) wherein the specimen described by Clancey (1980) is shown. This seems to be an under-appreciated difference from *ngamiense* as it is not listed as a feature by Kemp (2005) or, indeed, by Chittenden *et al*. (2012).

The preceding account summarises all published information that I have been able to find on *castaneum* and *albertinum* relevant to their taxonomic treatment. The paucity of museum material, the lack of any acoustic evidence for *castaneum* and indeed, as detailed above, of field observations of either have to be borne in mind when seeking to draw conclusions.

That said, on the basis of current knowledge, *castaneum* can be considered no more than a (modestly distinct) subspecies. Its sole distinguishing plumage feature is confirmed to be its warm chestnut-coloured back, which shows weak paler barring in three of the four known specimens but is uniform in the other (Fig. 3a–c). There are however specimens of *scheffleri* which approach *castaneum* closely in this character, as overall they do also in the extent of white spotting on the head (in the scoring system used above, the mean value for *scheffleri* was 3.67 vs. 4.25 for *castaneum*) and on the greater wing-coverts and scapulars (*cf*. Figs. 3a–c, 5).

The only other difference from *scheffleri* is the somewhat smaller size of *castaneum* (Fig. 6, Table 4). In the absence of vocal evidence there is therefore no justification to recognise *castaneum* as a species. If the recently discovered Central African populations, for which there are acoustic data but no specimens, do belong with *castaneum*, as has been proposed, the case for species status is unlikely to be enhanced, given the responses of these populations to playback of the voices of other races (Dowsett-Lemaire & Dowsett 1998, Dowsett-Lemaire in prep.).

The argument for species status for *albertinum* is more persuasive. Morphologically, it is unique within the complex by its disproportionately short tail, which has commensurately fewer pale bars, and its chestnut back is never barred (Tables 2, 4, Figs. 1a,c, 6–8).

In addition, it is the only taxon in which the spotting on the scapulars and greater wing-coverts may be buff, white or a mix (Fig. 2a–c): they are consistently white in all other taxa. Interpretation of this is difficult: it does not obviously appear to be related to age, gender or mountain range and, while there is an indication that birds at higher elevations show more buff than white, the data are too few to make any firm inference (Fig. 2a–c, Table 3). It is therefore hard to construe this feature as having taxonomic significance. The spotting on

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the head is confirmed by this study to be white (Figs. 1a,b, 2a) *contra* numerous published statements.

The vocal evidence is equivocal. Although the recordings attributed to *albertinum* indicate that its voice fits comfortably within the *capense* complex, and have been taken to indicate conspecificity (Dowsett & Dowsett-Lemaire 1993, Dowsett-Lemaire 1990, in prep., Chappuis 2000), there is no published evidence to show that, unlike them, it responds to the songs of other members of the group (playback of locally made recordings has not been documented, to my knowledge). The fact that populations elsewhere respond to recordings of *albertinum* (Dowsett-Lemaire in prep.) is, of course, significant but does not necessarily imply that the reverse must be true. Such a difference, if confirmed, requires explanation. Overall, acoustic data indicate the *capense* complex to be vocally conservative (Dowsett-Lemaire in prep.), including doubtless *castaneum*, and this appears to extend not only to *albertinum* but also to Sjöstedt's Owlet *G. sjostedti* which, as pointed out by G. Davies (*in litt*. 2022), has a voice with some similarities to *capense* and which, although larger and with some obvious differences in plumage, has been suggested to form part of the same species-group (Colston 1978).

A key unknown is the nature of the biogeographic relationship between *castaneum* and *albertinum*. They occur to within, at most, 175–200 km of each other and *c*.220 m in elevation, with *albertinum* at higher altitudes (Table 3). That being so, the step-change in the relative length of the tail is striking, especially when set against the more modest, clinal changes in size between the other taxa, as well as between them and *castaneum* over a vastly more extensive range (Figs. 6–7, Tables 2, 4). While statements that they are sympatric (Mikkola 2013) or partially so (Holt *et al*. 2016, 2020) seem to have been based, as shown above, on incorrect information, this possibility cannot be completely ruled out: should it prove to be correct, the question of species status would, of course, be resolved. The data presented here indicate that they are perhaps currently better considered parapatric. As such, therefore, the prevailing treatment of *albertinum* as a species seems justified.

The conservation status of *albertinum*, treated as a species by BirdLife International (2022b), has most recently been assessed as Near Threatened; *castaneum*, also recognised as a species (Table 1), is considered Least Concern; this assessment however included both *etchecopari* and the interposed Central African populations (BirdLife International 2022a).

This study points to the need for future research into the genetics of all members of the *capense* complex, as well as for field work in Nyungwe and Semliki, targeted at finding and, ideally, luring into mist-nets some of these elusive owlets. The same is true for the Central African population, to assess to which taxon they belong or most resemble. A more detailed analysis is also required of the distributional limits and distinguishing characters of *scheffleri*.

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