

New bird records from southwestern Burkina Faso

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Summary

We present the results of three bird surveys performed in southwestern Burkina Faso (Cascades Region), documenting ten additional species new to the country: Ovambo Sparrowhawk *Accipiter ovampensis*, Black Sparrowhawk *A. melanoleucos*, Red Phalarope *Phalaropus fulicarius*, Black-shouldered Nightjar *Caprimulgus nigriscapularis*, Red-headed Lovebird *Agapornis pullarius*, Buff-spotted Woodpecker *Campethera nivos*a, Grasshopper Warbler *Locustella naevia*, African Reed Warbler *Acrocephalus baeticatus*, Emin's Shrike *Lanius gubernator* and Tropical Boubou *Laniarius aethiopicus*. Also included are species for which our data represent a range extension within Burkina Faso and a complete checklist of the species observed.

Résumé

Nouvelles observations d'oiseaux dans le sud-ouest du Burkina Faso.

Nous présentons les résultats de trois études ornithologiques réalisées dans le sud-ouest du Burkina Faso (Région des Cascades), documentant dix espèces nouvelles pour la région: l'Epervier de l'Ovampo *Accipiter ovampensis*, l'Autour noir *A. melanoleucos*, le Phalarope à bec large *Phalaropus fulicarius*, l'Engoulevent à épaulettes noires *Caprimulgus nigriscapularis*, l'Inséparable à tête rouge *Agapornis pullarius*, le Pic tacheté Woodpecker *Campethera nivos*a, la Locustelle tachetée *Locustella naevia*, la Rousserolle africaine *Acrocephalus baeticatus*, la Pie-grièche à dos roux *Lanius gubernator* et le Gonolek d'Abyssinie *Laniarius aethiopicus*. Sont aussi incluses des espèces pour lesquelles nos données représentent une extension de leur aire de répartition à l'intérieur du Burkina Faso ainsi qu'une liste complète des espèces observées.

Introduction

The field data here reported were collected in November 2003, February 2010 and March 2011 in the Cascades Region, southwestern Burkina Faso. The Cascades Region, like many other parts of Burkina Faso, has received little ornithological attention, most of which has been devoted to the northern and central parts of the country, with a focus on Palaearctic migrants or areas of special interest such as the W-Arly-Pendari National Parks area (Green & Sayer 1979, Thonnerieux 1985, 1988a, 1988b, Thonnerieux *et al.* 1989, Weesie & Belemsobgo 1997, Thiollay 2006, Balança *et al.* 2007, Connor 2010).

Study area and methods

We concentrated our activities in the Banfora area, particularly around Lemorodougou Lake, and in the Classified Forest of Comoé-Léraba (see gazetteer in Table 1).

Table 1. Gazetteer with locality codes used in Appendix 1.

	Code	Coordinates		Altitude (m)
Banfora	B	10°30'N	4°45'W	314
Le Copalier campsite	C	9°45'N	4°35'W	232
Kou forest	D	11°12'N	4°20'W	415
Folonzo	F	9°57'N	4°40'W	278
Karfiguéla falls	K	10°43'N	4°49'W	294
Lemorodougou Lake	L	10°41'N	4°48'W	280
Moussodougou Lake	M	10°14'N	4°56'W	475
Karfiguéla marsh	N	10°42'N	4°48'W	286
Galerie à Roussettes	R	10°35'N	5°18'W	325
Pics de Sindou	S	10°39'N	5° 9'W	378
Tengrela Lake	T	10°38'N	4°50'W	273

Banfora Area. Lemorodougou Lake (12–13 and 17–18 Feb 2010, 10–14 and 22–23 Mar 2011) covers a surface of < 2 km² and is completely bordered by a thick flooded *Typha* reedbed. The area around the lake is extensively cultivated with rice and millet fields. The area was investigated with mist-nets, direct observation on foot and by boat, and sound recording. Karfiguéla falls (1 Dec 2003, 15 and 17 Feb 2010, 14 Mar 2011), also known as Cascades de Banfora, on the Comoé near Banfora, are one of the most important tourist attractions of the region. The water falls from a sandstone cliff c. 50 m high. Along the river, especially downstream of the waterfall, a thin but dense gallery forest has developed, with some huge Mango *Mangifera indica* trees

and scattered small cultivated fields, mainly Date *Phoenix dactylifera* orchards. The records here were from mist-netting, direct observation and sound recording. Some observations were made also at the nearby Karfiguéla marsh (22–23 Mar 2011).

Classified Forest of Comoé-Léraba. In this protected area, also reported as Diéfoula-Logoniégué forest (Lungren *et al.* 2001), we made observations in two main localities. Folonzo (27–30 Nov 2003, 5–8 Feb 2010, 16 and 21 Mar 2011) is a village located at the border of the protected area. Habitats near the village include arable fields of millet or cotton, with scattered trees and small dense woods close to water sources. The habitat inside the protected area is mainly open, park-like savanna woodland. This area was surveyed by mist-nets placed close to water sources, and by car. Le Copalier campsite (8–10 Feb 2010, 17–20 Mar 2011) lies south of Folonzo, inside the Classified Forest, along the right bank of the Comoé River. It is characterized by semi-deciduous gallery forest up to 30–40 m high and dry forest of 15–20 m, with temporary swamps generated after river flooding during the rainy season, and a 1-km² dense humid evergreen forest characterized by *Danielia oliveri*, *Isobерlinia doka*, *Kaya senegalensis* and *Pterocarpus erinaceus* (Guinko 1984). This area was surveyed by mist-nets, direct observation and sound recording, both diurnal and nocturnal.

Tengrela Lake (14 Feb 2010), close to Banfora, is locally famous for its population of a few dozen Hippos *Hippopotamus amphibius*, which have been extirpated by illegal hunting from the other lakes of the Banfora area. This lake is also a well known spot for bird-watching. It is larger than Lemorodougou Lake but much more altered by human activities. The shores are almost completely cultivated and natural vegetation is nearly absent, and floating vegetation is less developed than in Lemorodougou Lake. We spent one morning in the area using a boat and walking around the lake.

Pics de Sindou (16 Feb 2010) is an eroded limestone formation of c. 1.5 km² of peaks and ridges, mostly c. 50 m high with very steep slopes, 42 km east of Banfora. It is well known for its archaeological and ethnographic interest. Its fauna is typical of rocky areas, which are otherwise rare in the Banfora area.

Galerie à Roussettes (16 Feb 2010) is a wetland of 3 km², extensively covered by floating vegetation or semi-submerged trees. A dense gallery forest, inhabited by a huge colony of fruit bats, characterizes the northern part of the area. The area was briefly surveyed on foot.

Moussodougou Lake (16 Feb 2010) is an artificial lake, of c. 6 km², between Sindou and Banfora. It is one of the three largest artificial lakes of the Banfora area. It was surveyed from the dam, so all the southern part of the lake could be observed. It was not possible to see the northern part of the lake where, probably, the water was shallower.

Kou forest (15 Mar 2011), also known as the “Guinguette”, is a Classified Forest consisting of a patch of dense, well preserved forest along a freshwater spring c. 15 km west of Bobo Djoulasso, and is the only forest area of the region, except for the one at Karfiguéla falls.

Opportunistic observations were also made during car trips between the various sites and the base camp, both in the Banfora area and in the Comoè-Léraba Forest.

Our surveys were carried out during the dry season. Birds were recorded through visual observations, tape recording and mist-netting. Nearly all of the observed species were documented by photographs, and some voucher specimens were collected to provide verifiable documentation of distributional records and material for further studies of avian systematic, genetic, morphology, annual cycles and biogeography (Bates *et al.* 2004).

Taxonomy and scientific names follow Borrow & Demey (2001). The distribution of birds in Burkina Faso was evaluated from recent literature (Borrow & Demey 2004, Connor 2010, Kennerley & Pearson 2010) and compared with Brown *et al.* (1982), Urban *et al.* (1986, 1997), Fry *et al.* (1988, 2004), Keith *et al.* (1992), Dowsett & Dowsett Lemaire (1993), PNUE (1999) and Fry & Keith (2000). We have not taken into consideration unchecked bird-watching trip reports, including those found on the internet. To avoid repetition, PNUE (1999) will henceforth be quoted as PNUE and Borrow & Demey (2004) will be indicated as B&D.

Results

We recorded 226 species, including 652 mist-netted individuals of 90 species (Appendix 1). These included ten species new for Burkina Faso (according to PNUE 1999 and Borrow & Demey 2004) and several other interesting records, discussed in more detail below.

Additions to the avifauna of Burkina Faso

***Accipiter ovampensis* Ovambo Sparrowhawk.** One female, killed by local people in Folonzo and given to us on 7 Feb 2010, was prepared as a study skin and preserved in the Museo Civico di Storia Naturale di Carmagnola (MCCI B3237). A second individual, probably a male, was mist-netted, measured and released at Le Copalier campsite on 18 Mar 2011 (Fig. 1). The latter represents the third record for the country since, on 19 Feb 2011, an adult was photographed by C. Gruwier near Karfiguéla falls at c. 10°43'N, 4°49'W (B. Portier *in litt.*). Ovambo Sparrowhawk is an uncommon dry season visitor to the savanna zone, recorded in neighbouring countries (B&D, Salewski 2000), and to be expected in southern Burkina Faso.

***A. melanoleucus* Black Sparrowhawk.** One was photographed at Le Copalier campsite on 10 Feb 2010 (Fig. 2 left). This is a true forest species (B&D) recorded only much further south in Ghana and Ivory Coast.

***Phalaropus fulicarius* Red Phalarope.** One was photographed and observed with a 40x telescope, while swimming in the centre of Moussodougou Lake, on 16 Feb 2010. Its small size was appreciated by comparison with nearby White-faced Whistling Ducks. We noted the plain grey mantle and the white breast with a darker mark at the



Figure 1. Ovambo Sparrowhawk *Accipiter ovampensis*, Le Copalier campsite.



Figure 2. Black Sparrowhawk *Accipiter melanoleucos*, (left), and young Buff-spotted Woodpecker *Campethera nivosus*, both at Le Copalier campsite.

base of the hindneck, the small dark mask, and dark hindcrown and bill. The length of the bill and overall shape and behaviour excluded first-winter Little Gull *Hydrocoloeus minutus*, the only other bird with a similar colour pattern. Usually pelagic or coastal in the non-breeding season, the Red Phalarope is sometimes

recorded inland along migration routes. It is commonly reported in the Atlantic Ocean off West Africa but rarely in the Gulf of Guinea, and only as an accidental in continental West Africa (B&D).

***Agapornis pullarius* Red-headed Lovebird.** Two were seen, and identified also by call by G. Vaschetti (pers. comm.), at Folonzo on 28 Nov 2003. A pair was observed extensively, from < 10 m, on trees close to Folonzo village on 21 Mar 2011; we observed all the characteristics of the species, in particular the small size and short tail, green body with red face (brighter in one individual than the other), and dark eyes. The closest breeding range is in the north of Ivory Coast and Ghana (B&D) but there are four reports from along the Niger and Mekrou rivers in Niger, which have been accepted by the Niger records committee (Brouwer 2001, J. Brouwer pers. comm.), and the habitat of the Folonzo area is suitable for the species. It is unlikely that the Folonzo birds were escaped from captivity, given the long time between our two observations and the remoteness of the village of Folonzo from possible trade routes.

***Caprimulgus nigriscapularis* Black-shouldered Nightjar.** A singing male (one of 2–3 singers) was sound-recorded at Le Copalier campsite on 17 Mar 2011 (Xenocanto XC 74873), representing a great range extension from the closest known areas in southwest Mali (Dowsett & Dowset Lemaire 2011), eastern Ivory Coast and southern Nigeria.

***Campethera nivos* Buff-spotted Woodpecker.** A recently-fledged individual mist-netted in gallery forest close to Le Copalier campsite, 17 Mar 2011 (Fig. 2 right). Even though it was a young bird, we are confident of the identification as we compared it with many pictures and some specimens in the Natural History Museum of Torino, where specimens of other *Campethera* woodpeckers were also studied. Its known range is far to the south, in the Guinea-Congo forest block, but with a single small area in southern Mali. It is also reported from the nearby Comoé National Park, Ivory Coast (Salewski 2000). Our record demonstrates breeding of the species in the forest of southern Burkina Faso. Strangely, no other woodpecker species was seen clearly during our surveys.

***Locustella naevia* Grasshopper Warbler.** A single individual was mist-netted at Lemorodougou Lake (Fig. 3 top) on 13 Feb 2010. The closest known wintering areas of this Palearctic migrant are in Ghana and Mali, along the Niger River (B&D, Kennerley & Pearson 2010).

***Acrocephalus baeticatus* African Reed Warbler.** Quite common in the reedbeds of Lemorodougou Lake, where several individuals were mist-netted and photographed (Fig. 3 bottom), and others observed. We identified reed warblers using plumage and measurements, according to Kennerley & Pearson (2010). To confirm the identification we sequenced the barcoding region of the cytochrome oxidase I gene using the procedures and primers detailed in Johnsen *et al.* (2010), and compared the sequences with those available on the Barcoding of Life Database <www.boldsystem.org>. Out of 16 *Acrocephalus* individuals whose DNA was

sequenced, 11 were this species while five were *A. scirpaceus* (D. Zuccon, pers. comm.). The West African distribution of the African Reed Warbler is fragmentary, probably due to a lack of information other than from coastal sites in Senegal and along the Niger River (B&D, Kennerley & Pearson 2010).



Figure 3. Grasshopper Warbler *Locustella naevia*, (top) and African Reed Warbler *Acrocephalus baeticatus*, both at Lemorodougou Lake.

***Lanius gubernator* Emin's Shrike.** A single male seen and photographed in wooded savanna close to Le Copalier campsite, 20 Mar 2011 (Fig. 4 left). Patchily distributed in Africa (Sinclair & Ryan 2010) but to be expected in Burkina Faso, as it is reported from Ghana (B&D), northern Benin (Dowsett & Dowsett-Lemaire 2011), and as a probable breeder in nearby Comoé National Park, Ivory Coast (Salewski 2000).

***Laniarius aethiopicus* Tropical Boubou.** A single individual mist-netted at Le Copalier campsite, 10 Feb 2010 (Fig. 4 right). Known from nearby in the Ivory Coast (B&D, Salewski 2000).



Figure 4. Emin's Shrike *Lanius gubernator* (left) and Tropical Boubou *Laniarius aethiopicus*, both at Le Copalier campsite.



Figure 5. Shining Blue Kingfisher *Alcedo quadribrachys*, Le Copalier campsite (left) and Short-winged Cisticola *Cisticola brachypterus*, Folonzo.

Other noteworthy records

Among the other species recorded for the Cascade Region during our surveys, the following merit additional notes according to our knowledge of the current literature.

Ardeidae

Egretta intermedia Intermediate Egret. A few individuals were recorded and photographed at Lemorodougou and Tengrela Lakes, but 85 were seen at

Moussodougou Lake on 16 Feb 2010. This species is not otherwise reported in southwest Burkina Faso (B&D).

Anatidae

Dendrocygna viduata White-faced Whistling Duck. Regularly observed at Lemorodougou Lake in 2010 with flocks of c. 100. One flock of > 1500 was observed at Moussodougou Lake, and included 30 Spur-winged Geese.

Nettapus auritus African Pygmy Goose. Regularly observed at Lemorodougou Lake, with a maximum flock of 72 on 23 Mar 2011.

Falconidae

Falco tinnunculus Common Kestrel. Regularly observed in and around the city of Banfora and at the Pics de Sindou, where a breeding pair referable to the local subspecies *F. t. rufescens* was observed on 16 Feb 2010.

F. biarmicus Lanner. Commonly observed in many habitats. A pair with chicks occupied what was probably an old Pied Crow nest on a high-voltage tower close to Karfiguéla marsh, 22–23 Mar 2011.

Rallidae

Porphyrio alleni Allen's Gallinule. Quite common in Lemorodougou Lake, with juveniles seen and photographed. Present in most of Burkina Faso, but not in the southwest (B&D).

P. porphyrio Purple Swamphen. Single individuals were regularly seen and photographed at Lemorodougou Lake in 2010 and 2011. According to B&D this species is present only in the north of Burkina Faso.

Jacaniidae

Microparra capensis Lesser Jacana. Quite common in Lemorodougou and Tengrela Lakes, where many individuals were seen and photographed feeding on the floating vegetation in the centre of the lakes. Our observations confirm those of Lungren *et al.* (2001) and Portier *et al.* (2002). Reported by B&D only in the extreme southwest, close to the border with Ivory Coast.

Columbidae

Streptopelia decipiens African Morning Dove. Commonly seen and photographed in various localities of the Banfora area and at the Pics de Sindou. According to B&D the southwest of Burkina Faso is outside the distribution range of the species, which is typical of arid woodland.

Caprimulgidae

Macrodipteryx longipennis Standard-winged Nightjar. Quite common in the open wooded savannas of the Classified Forest of Comoé-Léraba, where 12 were mist-netted on 5–8 Feb 2010. A nest with two eggs was photographed near Le Copalier campsite on 19 Mar 2011 (E. Chaplain pers. comm.).

Coliidae

Urocolius macrourus Blue-naped Mousebird. Six individuals were seen near Banfora and five at Tengrela Lake, during the 2003 survey. Inhabits the north of Burkina Faso and the Sahel (B&D).

Alcedinidae

Halcyon malimbica Blue-breasted Kingfisher. Quite common at Le Copalier campsite, where four were mist-netted on 8–10 Feb 2010 and two 17–20 Mar 2011. Reported in the extreme south of Burkina Faso (B&D) as it is typical of riparian forests in wooded savannas.

Alcedo quadribrachys Shining Blue Kingfisher. One mist-netted at Le Copalier campsite, 9 Feb 2010 (Fig. 5 left). Previously known in Burkina Faso only from Arly National Park (Green & Sayer 1979). It inhabits streams of the Guineo-Congolian forests (B&D).

Hirundinidae

Hirundo daurica Red-rumped Swallow. A roost-like concentration of several hundred, with a few Barn Swallows and Wire-tailed Swallows, was observed in the Karfiguéla marsh on 22–23 Mar 2011. Photographs indicate the presence of the Senegambia–Chad *H. d. domicella* and of Palearctic *H. d. rufula*.

H. aethiopica Ethiopian Swallow. One was mist-netted at Le Copalier campsite, 6 Feb 2010. Distributed only in the extreme north of Burkina Faso (B&D), but expected in the region as it inhabits the Ivory Coast quite close to the border.

Turdidae

Myrmecocichla cinnamomeiventris Cliff Chat. A few were photographed in the Pics de Sindou area, a suitable habitat for the species, on 16 Feb 2010. As stated by Connor (2010), who saw this species at the Karfiguéla falls, this suggests a wide distribution of this species in southwest Burkina Faso where there is suitable habitat. Patchy in West Africa, as it is associated with rocky areas in savannas. In Burkina Faso, only otherwise reported in the W National Park area (Green & Sayer 1979), while the nearest occurrence is in the northern Ivory Coast (B&D).

Sylviidae

Cisticola aberrans Rock-loving Cisticola. One photographed at Pic de Sindou, 16 Feb 2010. Inhabits rocky outcrops in the savanna and otherwise only known in the east of Burkina Faso, in particular in the W National Park area (B&D).

C. galactotes Winding Cisticola. Quite common in low vegetation around Lemorodougou Lake, where 12 were mist-netted in 2010 and 2011; also seen at Karfiguéla falls, 17 Feb 2010. Otherwise reported only in the extreme south and the centre of Burkina Faso along the White Volta River (B&D).

C. brachypterus Short-winged Cisticola. One photographed in wooded savannah close to Folonzo, 7 Feb 2010 (Fig. 5 right); another photographed at the Galerie à Roussettes, 16 Feb 2010; three mist-netted at Lemorodougou Lake, 12–13 Mar 2011. Not included in PNUE but widely reported for south Burkina Faso (B&D), based on as yet unpublished records, *e.g.* not uncommon in Nazinga Game Ranch (B. Portier and F. Dowsett-Lemaire *in litt.*).

C. juncidis Zitting Cisticola. One observed close to the Karfiguéla falls on 1 Dec 2003, and one photographed at Lemorodougou Lake on 12 Feb 2010. Patchy in West Africa, with a few populations in central and western Burkina Faso (B&D).

Hyliota flavigaster Yellow-bellied Hyliota. Two observed in wooded savanna around Folonzo, 28–29 Nov 2003. Not included in PNUE, but reported with a wide distribution in Burkina Faso by B&D, based on as yet unpublished records (B. Portier and F. Dowsett-Lemaire *in litt.*).

Muscicapidae

Muscicapa aquatica Swamp Flycatcher. One photographed at the Galerie à Roussettes, 16 Feb 2010; three mist-netted at Le Copalier campsite, 17 and 19 Mar 2011. Otherwise reported only in the extreme east of the country, in particular in the W National Park (Green & Sayer 1979, B&D). More recently, Connor (2010) reported one near Ouagadougou and other observations in southern Burkina Faso, and B. Portier (*in litt.*) found it at Nazinga Game Ranch and Kaboré Tambi National Park. These data suggest a wider distribution in this part of the country.

Mioparus plumbeus Lead-coloured Flycatcher. One seen on the Comoé river bank east of Folonzo, 29 Nov 2003; one mist-netted at Le Copalier campsite, 17 Mar 2011. Otherwise only reported in the east, close to the Benin border (B&D).

Platysteiridae

Platysteira cyanea Common Wattle-eye. Commonly observed at the Karfiguéla falls and Le Copalier campsite, where five were mist-netted. Otherwise only in the east (B&D), despite its presence in the north of southern neighbouring countries.

Sturnidae

Onychognathus neumanni Neumann's Starling. A pair photographed at Karfiguéla falls, 15 Feb 2010. Included in PNUE as *O. morio*. Patchy in West Africa, including extreme southwest Burkina Faso, southeast Mali and northern Ivory Coast (B&D). Associated with rocky outcrops but not reported at Karfiguéla by Connor (2010), suggesting that it is probably not common, even in suitable habitat.

Ploceidae

Ploceus nigricollis Black-necked Weaver. Fairly common in the wooded area at Karfiguéla falls, where six mist-netted on 16 Feb 2010. Also observed at Kou forest, 15 Mar 2011. Known only in the southwest (B&D), but our observations close to Banfora and Bobo-Dioulasso extend the known range.

Quelea quelea Red billed Quelea. Numerous flocks of tens up to 150, together with *Euplectes* weavers at a roost in the reed beds of Lemorodougou Lake in 2010 and 2011. According to B&D, only distributed in the centre and north of Burkina Faso.

Euplectes afer Yellow-crowned Bishop. Single individuals seen and mist-netted at Lemorodougou Lake and Karfiguéla marsh. Patchy in West Africa (B&D), particularly along the Niger valley and in the centre and north of Burkina Faso. In the south, only reported in a small area close to the Mali border (B&D).

Emberizidae

Emberiza tahapisi Cinnamon-breasted Rock Bunting. A breeding pair of the subspecies *E. t. goslingi*, with the female carrying food, was photographed at the Pics de Sindou, 16 Feb 2010.

Discussion

We documented ten bird species new for Burkina Faso and new localities for a number of others. Considering the shortness of the surveys, limited to the dry season, these results indicate that there is still much to be learned about the distribution of birds in the Cascades Region. In particular, surveys in the wet season are recommended in order to acquire a more complete knowledge of the bird fauna. We did not record certain species reported as common in nearby Comoé National Park by Salewski (2000), such as some woodpeckers, warblers and starlings. In some cases this was probably due to our lack of familiarity with some vocalisations.

Overall our observations indicate that in southwest Burkina Faso, beside the typical Sudanian zone bird fauna, some elements of the Guineo-Congolian avifauna can occasionally be observed or may even be present as small breeding or migratory populations.

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Appendix 1.

Species observed during the three surveys. Locality codes are explained in Table 1. Taxa documented by a photograph or specimen are marked with an asterisk. "Water & fields" includes rivers, lakes and surrounding cultivation.

	Observed		No. mist-netted			Towns, gardens	Wooded savanna	Rocky areas	Water & fields
	2003	2010	2011	2003	2010	2011			
Phalacrocoracidae									
<i>Phalacrocorax africanus</i>	x	x	x						K,L,M,T
Ardeidae									
<i>Ixobrychus minutus</i>		x			1				L
<i>Ardeola ralloides</i>	x	x	x						L,N,T
<i>Bubulcus ibis</i>	x	x	x				C,F	K,S	L,M,N,R,T
<i>Butorides striata</i>	x	x	x				F	K	T
<i>Egretta garzetta</i>	x	x	x						L,M,N
<i>E. intermedia</i>		x	x						L,M,T
<i>E. alba</i>	x	x	x						L,M,T
<i>Ardea purpurea</i>	x	x	x						L,N,R,T
<i>A. cinerea</i>	x	x	x				F		L,M
<i>A. melanocephala</i>		x	x						L
Scopidae									
<i>Scopus umbretta</i>	x		x				C,F	K	L,M,N
Ciconiidae									
<i>Ciconia episcopus</i>		x	x				C,F		
Threskiornithidae									
<i>Bostrychia hagedash</i>	x						F		
Anatidae									
<i>Dendrocygna viduata</i>		x							L,M,N
<i>Plectropterus gambensis</i>		x	x						L,M,N

	Observed		No. mist-netted			Towns, gardens	Wooded savanna	Rocky areas	Water & fields
	2003	2010 2011	2003	2010	2011				
<i>Sarkidiornis melanotos</i> Knob-billed Duck*	x								M
<i>Nettapus auritus</i> African Pygmy-goose*	x	x							L
Accipitridae									
<i>Elanus caeruleus</i> Black-shouldered Kite*	x	x	x			B		K	T,L,N L
<i>Milvus migrans migrans</i> Black Kite*		x	x						L
<i>M. m. parasitus</i> Yellow-billed Kite*	x	x	x			B	C,F	K,S	L,M,N,R,T
<i>Necrosyrtes monachus</i> Hooded Vulture*	x	x	x			B	C,F	K,S	N
<i>Gyps africanus</i> African White-backed Vulture*	x	x	x			B	C		
<i>G. rueppellii</i> Rüppell's Griffon Vulture*	x	x	x				C		
<i>Circus cinerascens</i> Western Banded Snake Eagle*	x						F		
<i>Terathopius ecaudatus</i> Bateleur*	x	x	x				C,F		
<i>Polyboroides typus</i> African HarrierHawk*	x	x	x				F	K,S	N
<i>Circus aeruginosus</i> Eurasian Marsh-Harrier*	x	x	x			B		K	L,M,N,R,T
<i>Melierax metabates</i> Dark Chanting Goshawk*	x	x	x			B	F		L,M
<i>Accipiter badius</i> Shikra*	x	x	x	1		B	C,F	K	L,N
<i>A. ovampensis</i> Ovambo Sparrowhawk*	x	x			1		C	K	
<i>A. melanoleucus</i> Black Sparrowhawk*	x						C		
<i>Butastur rufipennis</i> Grasshopper Buzzard*	x	x	x				C,F	K	L,M,R
<i>Kaupifalco monogrammicus</i> Lizard Buzzard*	x	x	x	1	1		C,F	K	N,T
<i>Buteo auguralis</i> Red-necked Buzzard*	x	x	x				C,F		
<i>Aquila rapax</i> Tawny Eagle*	x	x	x				C	K	
<i>A. wahlbergi</i> Wahlberg's Eagle*	x	x	x				C,D	K	
Falconidae									
<i>Falco tinnunculus</i> Common Kestrel*	x	x	x			B		S	
<i>F. alopec</i> Fox Kestrel*	x		x					S	
<i>F. ardosiaceus</i> Grey Kestrel*	x	x	x				F	K	L,M,N

<i>F. chicquera</i>	Red-necked Falcon	X						K	L
<i>F. biarmicus</i>	Lanner Falcon*	X					B	F	L,N,T
Phasianidae									
<i>Ptilopachus petrosus</i>	Stone Partridge*	X							N
<i>Francolinus bicalcaratus</i>	Double-spurred Francolin*	X						C,D,F	L,N
Numididae									
<i>Numida meleagris</i>	Helmeted Guineafowl*	X						C,F	
Rallidae									
<i>Anaauroornis flavirostra</i>	Black Crane*	X					3		L,N,T
<i>Porphyrio alleni</i>	Allen's Gallinule*	X							L,R
<i>P. porphyrio</i>	Purple Swamphen*	X							L
<i>Gallinula chloropus</i>	Common Moorhen*	X							L
Otididae									
<i>Neotis denhami</i>	Denham's Bustard*	X						C	
Jacaniidae									
<i>Actophilornis africana</i>	African Jacana*	X							L,N,R,T
<i>Microparra capensis</i>	Lesser Jacana*	X							T,L
Rostratulidae									
<i>Rostratula benghalensis</i>	Greater Painted-snipe*	X					2	19	L
Burhinidae									
<i>Burhinus senegalensis</i>	Senegal Thick-knee*	X							L,M
Glareolidae									
<i>Glareola pratincola</i>	Collared Pratincole	X							L
Charadriidae									
<i>Vanellus senegallus</i>	African Wattled Lapwing*	X							L,M,N,T
<i>V. tectus</i>	Black-headed Lapwing*	X						F	L
<i>V. spinosus</i>	Spur-winged Lapwing*	X							L,M,T

	Observed		No. mist-netted			Towns, gardens	Wooded savanna	Rocky areas	Water & fields
	2003	2010	2011	2003	2010	2011			
Scolopacidae									
<i>Philomachus pugnax</i> Ruff		x							M
<i>Gallinago gallinago</i> Common Snipe		x	x						L
<i>Tringa nebularia</i> Common Greenshank		x							L,M
<i>T. ochropus</i> Green Sandpiper		x					F		L,M
<i>T. glareola</i> Wood Sandpiper		x							L
<i>Actitis hypoleucos</i> Common Sandpiper*		x	x				C,F	K	M
<i>Phalaropus fulicarius</i> Red Phalarope*		x							M
Pteroclididae									
<i>Pterocles quadricinctus</i> Four-banded Sandgrouse*	x	x	x		4		F,C		L
Columbidae									
<i>Treron calva</i> African Green-Pigeon*	x	x	x				F	K,S	
<i>T. waalia</i> Bruce's Green-Pigeon*		x	x				D,F	K,S	
<i>Turtur afer</i> Blue-spotted Wood Dove*	x	x	x		1	6	C,F	K,S	
<i>T. abyssinicus</i> Black-billed Wood Dove*	x	x	x	2	5	1	F	K,S	L,N,R
<i>Oena capensis</i> Namaqua Dove	x	x					F		
<i>Columba guinea</i> Speckled Pigeon*		x	x					S	N
<i>C. livia</i> var. <i>domestica</i> Feral Pigeon		x	x						
<i>Streptopelia semitorquata</i> Red-eyed Dove*		x	x				C,F	K,S	L,N,R,T
<i>S. decipiens</i> African Mourning Dove*		x	x			1		K,S	L,N,T
<i>S. vinacea</i> Vinaceous Dove*	x	x	x		12	3	C,D,F		L,N,R,T
<i>S. turtur</i> European Turtle Dove*	x	x					F		T
<i>S. senegalensis</i> Laughing Dove*	x	x	x				D,F	K,S	
Psittacidae									
<i>Poicephalus senegalus</i> Senegal Parrot*	x	x	x				C,F	K,S	L
<i>Agapornis pullarius</i> Red-headed Lovebird	x		x				F		

<i>Psittacula krameri</i>	Rose-ringed Parakeet	x	x	x	B	F	K	L,,N,T
Musophagidae								
<i>Musophaga violacea</i>	Violet Turaco*	x	x	x		D,F	K,S	M,N,R,T
<i>Crotophaga sulcirostris</i>	Western Grey Plantain-eater*	x	x	x	B	F	K,S	L,M,N,R,T
Cuculidae								
<i>Chrysococcyx klaas</i>	Klaas' s Cuckoo			x				N
<i>Centropus senegalensis</i>	Senegal Coucal*	x	x	x	B	D,F	K,S	L,N,R,T
Tytonidae								
<i>Tyto alba</i>	Barn Owl*		x	x	1		S	L
Strigidae								
<i>Otus senegalensis</i>	African Scops-Owl*			x		C,F		
<i>Bubo cinerascens</i>	Greyish Eagle-Owl*	x	x		2	C,F		
<i>Glaucidium perlatum</i>	Pearl-spotted Owlet		x			C		
Caprimulgidae								
<i>Caprimulgus climacurus</i>	Long-tailed Nightjar*		x	x	1	C,F		L
<i>C. nigriscapularis</i>	Black-shouldered Nightjar*			x		C		
<i>Macrodipteryx longipennis</i>	Standard-winged Nightjar*		x	x	12	C		N
Apodidae								
<i>Telacanthura ussheri</i>	Mottled Spinetail		x	x		C,F		
<i>Cypsiurus parvus</i>	African Palm-Swift*	x	x	x	B	D,F	K	L,N,T
<i>Apus caffer</i>	White-rumped Swift		x		B	F		
<i>A. affinis</i>	Little Swift*	x	x	x	3	F		L,N
Coliidae								
<i>Urocolius macrourus</i>	Blue-naped Mousebird	x			B			T
Alcedinidae								
<i>Halcyon leucocephala</i>	Grey-headed Kingfisher*	x	x	x	1	C		
<i>H. malimbica</i>	Blue-breasted Kingfisher*	x	x	x	4	C		
<i>Ceyx pictus</i>	African Pygmy Kingfisher*		x	x	5	C,D	K	L

<i>L. dubius</i> Bearded Barbet*	x	x	x		B	D,F	L,N,R
Indicatoridae							
<i>Indicator indicator</i> Greater Honeyguide*		x	x	1		F,C	N
Picidae							
<i>Campethera nivosa</i> Buff-spotted Woodpecker*		x		1		C	
Alaudidae							
<i>Galerida modesta</i> Sun Lark*	x	x					T
Hirundinidae							
<i>Riparia riparia</i> Sand Martin		x	x		F	F	L,N
<i>Hirundo daurica domicella</i> Red-rumped Swallow*		x	x				N
<i>H. d. rufula</i> Red-rumped Swallow*		x	x				N
<i>H. preussi</i> Preuss's Cliff Swallow*		x	x				N
<i>H. smithii</i> Wire-tailed Swallow*	x	x	x	2		C,F	L,N
<i>H. aethiopica</i> Ethiopian Swallow*		x	x	1		C	
<i>H. lucida</i> Red-chested Swallow	x	x			B		L,M,R,T
<i>H. rustica</i> Barn Swallow*		x	x				L,N,R
<i>Delichon urbica</i> Northern House Martin	x	x	x			F	L,N
Motacillidae							
<i>Motacilla flava flava</i> Yellow Wagtail*		x	x				L,N
<i>Anthus leucophrys</i> Plain-backed Pipit*		x					M
<i>A. trivialis</i> Tree Pipit*	x	x	x	2		C,F	
<i>Macronyx croceus</i> Yellow-throated Longclaw*		x	x	1			L,N
Pycnonotidae							
<i>Pycnonotus barbatus</i> Common Bulbul*	x	x	x	5	2	8	K,S
Turdidae							
<i>Cossypha niveicapilla</i> Snowy-crowned Robin-Chat*		x	x	5	4		
<i>C. albicapilla</i> White-crowned Robin-Chat*	x	x	x	1	4	1	N
<i>Saxicola rubetra</i> Whinchat*	x		x			F	L

	Observed		No. mist-netted			Towns, gardens	Wooded savanna	Rocky areas	Water & fields
	2003	2010	2011	2003	2010				
<i>Myrmecocichla albifrons</i> White-fronted Black Chat	x						F		
<i>M. cinnamomeiventris</i> Cliff Chat*		x	x					S	
<i>Turdus pelios</i> African Thrush*	x	x	x	13	3	B	C,F	K,S	N,R,T
Sylviidae									
<i>Melocichla mentalis</i> African Moustached Warbler*		x	x		2		C	K	L
<i>Locustella naevia</i> Grasshopper Warbler*		x			1				L
<i>Acrocephalus schoenobaenus</i> Sedge Warbler*		x	x		2				L
<i>A. scirpaceus</i> European Reed Warbler*			x	1	5		F		L
<i>A. baeticatus</i> African Reed Warbler*	x	x	x		4				L
<i>A. arundinaceus</i> Great Reed Warbler*		x	x		2				L
<i>Hippolais pallida/opaca</i> Olivaceous Warbler		x				B			
<i>H. polyglotta</i> Melodious Warbler*			x						N
<i>Cisticola erythrops</i> Red faced Cisticola*			x		1		C		
<i>C. aberrans</i> Rock-loving Cisticola*		x						S	
<i>C. galactotes</i> Winding Cisticola*		x	x		6				L
<i>C. brachypterus</i> Short-winged Cisticola*		x	x		3		F		L,R
<i>C. juncidis</i> Zitting Cisticola*	x	x						K	L
<i>Prinia subflava</i> Tawny-flanked Prinia*		x	x			B	D	K,S	L
<i>Camaroptera brachyura</i> Grey-backed Camaroptera	x	x	x	3	6		C,F	K	
<i>Eremomela pusilla</i> Senegal Eremomela	x	x	x				C		T
<i>Sylvietta brachyura</i> Northern Crombec*			x		1		C		
<i>Phylloscopus trochilus</i> Willow warbler*			x		1				L
<i>Hyltiota flavigaster</i> Yellow-bellied Hyltiota	x						F		
Muscicapidae									
<i>Melaenornis edoloides</i> Northern Black-Flycatcher	x	x	x	2	1		C,D,F	K	N
<i>M. pallidus</i> Pale Flycatcher*			x		1		C		

<i>Muscicapa aquatica</i> Swamp Flycatcher*	x	x	x	3	C	R
<i>Myioparus plumbeus</i> Lead-coloured Flycatcher*	x	x	x	1	C,F	
<i>Ficedula hypoleuca</i> Pied Flycatcher*	x	x	x	1	C,F	K
Monarchidae						
<i>Elminia longicauda</i> African Blue Flycatcher*	x	x	x	3	F	K
<i>Terpsiphone viridis</i> African Paradise Flycatcher*	x	x	x	5	C,D,F	K,S
Platysteiridae						
<i>Platysteira cyanea</i> Common Wattle-eye*	x	x	x	1	C,D	K
<i>Batis senegalensis</i> Senegal Batis*	x	x	x	3	C,F	N
Timaliidae						
<i>Turdoides plebejus</i> Brown Babbler*	x	x	x	4		K
<i>T. reinwardtii</i> Blackcap Babbler*	x	x	x	8	C,F	K
Nectariniidae						
<i>Anthreptes gabonicus</i> Brown Sunbird*	x	x	x	1	C	
<i>Cyanomitra verticalis</i> Green-headed Sunbird*	x	x	x	1	C	K
<i>Chalcomitra senegalensis</i> Scarlet-chested Sunbird*	x	x	x	2	F,C	K
<i>Hedypina platyura</i> Pygmy Sunbird	x	x	x		F,C	S
<i>Cinnyris pulchellus</i> Beautiful Sunbird*	x	x	x	4	C,D	
<i>C. coccinigaster</i> Splendid Sunbird*	x	x	x	2	C	
Laniidae						
<i>Lanius gubernator</i> Emin's Shrike*	x	x	x		C	
<i>L. senator</i> senator Woodchat Shrike*	x	x	x			L
<i>Corvinella corvina</i> Yellow-billed Shrike*	x	x	x	1	D,F	L,N,T
Malacoctidae						
<i>Tchagra senegalensis</i> Black-crowned Tchagra*	x	x	x	1	F	N
<i>Dryoscopus gambensis</i> Northern Puffback*	x	x	x		C,D	K
<i>Laniarius aethiopicus</i> Tropical Boubou*	x	x	x	1	C	
<i>L. barbarus</i> Yellow-crowned Gonolek*	x	x	x	6	C,D	K,S

	Observed			No. mist-netted			Towns, gardens	Wooded savanna	Rocky areas	Water & fields
	2003	2010	2011	2003	2010	2011				
Prionopidae										
<i>Prionops plumatus</i> White Helmet-shrike*	x							F		
Ortolidae										
<i>Oriolus auratus</i> African Golden Oriole	x	x	x					C	K	
<i>O. oriolus</i> Eurasian Golden Oriole		x						F,C		
Dicruridae										
<i>Dicrurus ludwigii</i> Square-tailed Drongo*	x	x	x			1		C,F	K	
<i>D. adsimilis</i> Fork-tailed Drongo*	x	x	x			1	B	C,F	S	N,T
Corvidae										
<i>Corvus albus</i> Pied Crow*	x	x	x				B	F	S	L,M,N,T
<i>Ptilostomus afer</i> Piapiac*	x	x	x				B		K	L,N,R,T
Sturnidae										
<i>Onychognathus neumanni</i> Neumann's Starling*		x							K	
<i>Lamprolaima purpureus</i> Purple Glossy Starling*	x	x	x					F	K	L,N
<i>L. chalcurus</i> Bronze-tailed Glossy Starling*		x							K	
<i>L. caudatus</i> Long-tailed Glossy Starling*	x	x	x				B		K	L,N,R,T
<i>L. pulcher</i> Chestnut-bellied Starling*		x	x				B			L
<i>Cinnyricinclus leucogaster</i> Violet-backed Starling*		x	x					C	K	
Buphagidae										
<i>Buphagus africanus</i> Yellow-billed Oxpecker*	x	x						F		T
Passeridae										
<i>Passer griseus</i> Northern Grey-headed Sparrow*	x		x	5	1			C		
<i>Petronia dentata</i> Bush Petronia*		x	x		4	3		C,F	K	R
Ploceidae										
<i>Ploceus nigricollis</i> Black-necked Weaver*		x	x		6			D	K	
<i>P. heuglini</i> Heuglin's Masked Weaver		x							K	

<i>P. cucullatus</i> Village Weaver*	x	x	x	33	1		B	D,F	K	L,N,R
<i>Quelea quelea</i> * Red-billed Quelea*	x	x	x	65	19					L,N
<i>Euplectes afer</i> Yellow-crowned Bishop*		x	x		1	1				L,N
<i>E. hordeaceus</i> Black-winged Bishop*	x	x	x	10	10	25		C,F	K	L
<i>E. franciscanus</i> Northern Red Bishop*		x	x	19		40				L,N
<i>E. macrourus</i> Yellow-mantled Widowbird*		x	x		1	3		C		L
Estrildidae										
<i>Pytilia phoenicoptera</i> Red-winged Pytilia*		x			3			F		
<i>Lagonosticta rufopicta</i> Bar-breasted Firefinch*	x	x	x	4	1	2	B	C		
<i>L. senegala</i> Red-billed Firefinch	x	x	x		1	8	B	C,F	S	N,T
<i>L. rara</i> Black-bellied Firefinch		x	x		3	3		C		
<i>L. larvata</i> Black-faced Firefinch*		x			1			C		
<i>Estrilda caerulea</i> Lavender Waxbill*	x	x							S	
<i>E. melpoda</i> Orange-cheeked Waxbill*		x	x		4	5		C,F	K,S	
<i>E. troglodytes</i> Black-rumped Waxbill*		x			1			F		
<i>Uraeginthus bengalus</i> Red-cheeked Cordon-bleu*	x	x	x	4		9		C,F	K	L,N,T
<i>Spermestes cucullatus</i> Bronze Mannikin*	x	x	x		4	7	B	C,F	K	L,N
Viduidae										
<i>Vidua interjecta</i> Exclamatory Paradise-Whydah*	x							F		
Fringillidae										
<i>Serinus mozambicus</i> Yellow-fronted Canary	x		x					C		
Emberizidae										
<i>Emberiza tahapisi</i> Cinnamon-breasted Rock Bunting*	x				1			F	K,S	
<i>E. affinis</i> Brown-rumped Bunting*	x				2			F		
<i>E. cabanisi</i> Cabanis's Bunting*	x	x	x		2	1		C,F		