New breeding data on some lowland forest birds in Western Cameroon, and their implications for altitudinal breeding season reversal

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Summary

I review literature and present new breeding records for 37 understorey lowland forest bird species in Western Cameroon. New breeding records for March and April were found for at least 11 species. Detailed data on breeding behaviour are presented for two Estrildidae, the Chestnut-breasted Negrofinch *Nigrita bicolor* and the Red-headed Antpecker *Parmoptila woodhousei*. Altitudinal breeding season reversal was confirmed for several species, including one, Red-tailed Bristlebill *Bleda syndactyla*, not before known to show it. Several others appeared to show no well-defined breeding season in the lowlands but only bred in the dry season in montane areas. Three species were found to be dry-season breeders at all altitudes.

Résumé

Nouvelles données sur la reproduction de quelques oiseaux des forêts des basses terres de l'Ouest du Cameroun, et leurs implications dans l'inversion de la saison de reproduction en altitude. Je passe en revue la littérature et les nouvelles observations sur la reproduction pour 37 espèces d'oiseaux du sous-étage des forêts des basses terres de l'Ouest du Cameroun. De nouvelles observations sur la reproduction ont été relevées pour mars et avril concernant au moins 11 espèces. Des données détaillées sur le comportement reproducteur ont été présentées pour deux Estrildidae, la Nigrette à ventre roux *Nigrita bicolor* et le Parmoptile à gorge rousse *Parmoptila woodhousei*. L'inversion de la saison de reproduction en altitude a été confirmée pour plusieurs espèces, dont l'une, le Bulbul moustac *Bleda syndactyla*, n'était pas auparavant connue pour cela. Il a été relevé que sept espèces ne paraissaient pas avoir une

saison de reproduction bien définie dans les basses terres mais se reproduisaient seulement en saison sèche dans les zones montagneuses. Il a été relevé que trois espèces étaient reproductrices de saison sèche quelle que soit l'altitude.

Introduction

The breeding seasons of most tropical lowland forest birds are still poorly known (Tye 1992), this being especially true for West Africa (Serle 1981, Chapman 1995). Many species have no records at all (Fry *et al*. 1988, Keith *et al*. 1992, Urban *et al*. 1997, Fry *et al*. 2000, Fry & Keith 2004). For apparently sedentary species of the forest zones of Western Cameroon, breeding seasons are influenced by altitude and by local weather patterns generated by the presence of Mt Cameroon (Tye 1986, 1992). Serle (1981) reviewed breeding records of West Cameroonian birds, and Tye (1992) discovered there a reversal of breeding seasons by 17 typically lowland birds at higher altitudes. Since then, more breeding records have been published for this area, but these have not been fully reviewed. During a study of lowland forest birds in the Banyang-Mbo Wildlife Sanctuary, SW Cameroon, further new breeding data were collected, which initiated this paper. I concentrate on mist-netted birds for which additional data were obtained during the field study or from recent literature, resulting in some new conclusions on the breeding seasons of certain species.

Study area and methods

The field study was conducted from 11 Mar to 16 Apr 2006 along a 500-m transect at the Nguti field station of the Banyang-Mbo Wildlife Sanctuary (5°20´N, 9°28´E, alt. 240 m), SW Cameroon. The sanctuary is situated in tropical lowland rainforest. The vegetation close to the field station is degraded by selective logging. The most common tree species is *Uapaca guineensis* (Euphorbiaceae) which is mainly accompanied by other Euphorbiaceae and Caesalpiniaceae. The study site was situated in the forest as well as in neighbouring forest plantations. The climate is influenced by the presence of Mt Cameroon and Mt Kupe (Nambu 2001). Mean annual minimum and maximum temperatures recorded for this area are 23.7ºC and 30.2°C respectively (Nambu 2001), rainfall ranges from 3497.7 to 4739.0 mm per annum (Nchanji & Plumptre 2001). The wet season runs from about mid-March to the end of October, with a peak in August (Nambu 2001).

Visual observations of attended nests were supplemented by mist-netting on 18 days from 6h00 until 18h00. Nets were closed during night and rainfall. At up to nine separated locations, standard (2.4 m high) mist nets in various lengths totalling 90 m, and one 6 m "canopy net" were used. Brood patches, biometrics (weight, wing, tail and tarsus), and photographs were taken of mist-netted birds, which were identified to

subspecies level. Brood patches were classified into three categories: none (down feathers of ventral surfaces visible), little developed (incubation patch naked but skin normal) and strongly developed (skin of incubation patch thickened and wrinkled).

I reviewed breeding records in the literature for the lowlands of Western Cameroon and for the mountain chain and the eastern slopes of Mt Cameroon to Limbe, thus corresponding to the former British Cameroons. Following Tye (1992), the division between lowland and montane forest taken here is based on climate, vegetation composition and avifaunal distributions, and is lowest on Mt Cameroon, which has montane forest above 500 m. The montane zone comprises the "intermediate" and "high" zone of Tye (1992) who also combined these zones in the appendix of her paper.

Sequence and names follow Borrow & Demey (2001); vernacular names of birds are given in Appendix 1.

Results

All mist-netted birds are listed in Sammler (2007). Breeding indications including brood patches, regressed to month of laying, are given for 37 species including previous records from the literature (Appendix 1). To the best of my knowledge, all papers publishing breeding records in the study area since Serle (1981), are included in Appendix 1, where special attention is given to 15 species that were considered in Tye's (1992) study on reversed breeding seasons.

For the 11 species listed below, breeding records in March and/or April are the first for these months in the lowland forest of Western Cameroon.

***Pogoniulus scolopaceus* Speckled Tinkerbird.** One caught, 10 Apr. Its little-developed brood patch indicates the beginning of the breeding season. This corresponds well with observations of three females with enlarged ovaries in May and June (Serle 1950, 1981), the only previous breeding records for Western Cameroon.

***Phyllastrephus icterinus* Icterine Greenbul.** One bird showed a strongly developed brood patch, 25 Mar, which contradicts a supposed non-breeding season of Feb–May in the lowland forests of Western Cameroon, based on former records (Appendix 1).

***Nicator chloris* Western Nicator.** One bird showed a strongly developed brood patch, 5 Apr; another a little-developed brood patch, 29 Mar. These data fit well with other breeding records in lowland forest populations (Appendix 1). The records in Appendix 1 (except one from the foothills of Mt Cameroon at 130 m in January: Eisentraut 1963) support reversal of breeding season at higher altitudes (Tye 1992).

***Criniger calurus* Red-tailed Bulbul.** Five birds with brood patches were recorded in Mar–Apr. Serle (1981) did not distinguish between lowland and montane records, thus, the records of breeding activity from Banyang-Mbo are the first (March) and the first confirmed (April) for the lowland area in these months. Assuming Serle's records to be lowland records, the Apr–Aug breeding season suggested by Appendix 1 would

be prolonged to include March. These new records support a reversal of breeding season with altitude from wet season in lowlands to dry season in montane areas as stated by Tye (1992).

***Stiphrornis erythrothorax* Forest Robin.** Two birds with little-developed brood patches, March and April, being the first indication of breeding activity in these months for Western Cameroon.

***Camaroptera chloronota* Olive-green Camaroptera.** Three birds with brood patches, March and April, the latter being the first record for this month in Western Cameroon. Recent data (Bowden 2001) refute a reversal of breeding season as stated by Tye (1992). Results from Appendix 1 indicate breeding from November to April independently of altitude.

***Dyaphorophyia castanea* Chestnut Wattle-eye.** Two birds with little-developed brood patches, March and April, the latter being the first record for this month in Western Cameroon. Appendix 1 indicates breeding in both seasons in the lowlands.

***Illadopsis rufipennis* Pale-breasted Illadopsis.** The record of a little-developed brood patch on 11 Apr is the first for this month in Western Cameroon. Appendix 1 indicates a breeding season from March to August in the lowland region. One male found by Eisentraut (1963) at 150 m on the slopes of Mt Cameroon had enlarged testes in December, but he also stated that all other birds were not in breeding condition at that time and altitude. On the other hand, in the montane area, this species is found breeding in the dry season (Bowden 1986, Tye 1992). These records strongly suggest a reversal of breeding season with altitude, but Tye (1992) did not list this species as a definite reversal breeder because of one breeding record in December, almost certainly lowland, from Ghana (Bannerman 1951).

***Parmoptila woodhousei* Red-headed Antpecker.** Of three males and one female captured in April, none showed a brood patch and two males were moulting. One nest was found, in a shrub of *Irvingia gabonensis* overgrown by lianas, in a neglected plantation, 28 Mar. The nest was built of foliage including grass, moss and fibres, 1.4 m above the ground. Its outside diameter measured 30 cm; the side entrance faced NNW. On 5 Apr, four eggs were found, of a washed-out white except at the poles, which were pure white, with tiny dark dots all over. They measured 15.5 x 10.8, 15.05 x 10.7, 15.4 x 10.65 and 15.3 x 10.5 mm. At the beginning of the observation (5–8 Apr), the eggs were not regularly incubated during day-time. During nights, both adult birds stayed in the nest. On 9 Apr, one adult was frequently recorded in the nest during the day. On 16 Apr, two eggs had hatched. This is apparently the first breeding record of this species in Cameroon.

From the lowlands of Nigeria, where the climate is similar to that of Cameroon, breeding was recorded in March (Fry & Keith 2004). Bates (1908b, 1909) published average egg measurements of 13 x 10 mm, based on a clutch of four white eggs. Schönwetter & Meise (1983) and Fry & Keith (2004) misinterpreted this to be measurements of a single egg, resulting in them presenting incorrect average and minimum sizes. Bates (1908b, 1909) also referred to another clutch of one pure white egg measuring

14.5 x 10.5 mm, together with two already hatched juveniles. Thus, the Banyang-Mbo clutch differs from the other descriptions in its larger average egg size and colour.

***Nigrita bicolor* Chestnut-breasted Negrofinch.** Only one individual was netted, 1 Apr, having a brood patch. Three pairs were observed building nests in isolated trees in the clearing around the field station. The globular nests were built between 2.2 and 3.8 m above ground and consisted of leaf skeletons (up to 25 cm long) and grass panicles as described by Serle (1950). One nest entrance faced NNW, the others SSW. All of the trees (*Citropsis* sp. and *Dacryodes edulis*) were occupied by Weaver Ants *Oecophylla longinoda*, as described by Bannerman (1949) for *N. b. bicolor* (in Banyang-Mbo, *N. b. brunnescens* occurs).

One nest remained empty although two adult birds were seen several times in its vicinity. The second nest was found on 2 Apr, with two hatchlings. This nest was observed for two sessions: 14h00–18h00 on 3 Apr and 6h00–14h00 on 4 Apr. The hatchlings were fed every 47 min. on average by both adults who almost always first landed far from the nest in the tree and later climbed up to the nest. Nest visits lasted 18–67 s. Begging calls could be heard when the adults were in the nest. On 8 Apr, one adult tried to lure the fledglings out of the nest. Begging calls could be heard in the area for two more days.

The third pair started building a nest *c.* 1 m above ground on 27 Mar. On 2 Apr, the same pair built another nest in a neighbouring tree, which was finished on 4 Apr. On 6 Apr, two washed-out white eggs with very tiny light grey dots were laid. They measured 13.85 x 10.95 and 14.85 x 11.5 mm. On 7 Apr, no further egg was added, and no adult was observed. On 14 Apr, however, four eggs were found in the same nest, incubated by one adult.

These are apparently the first breeding observations in March and April for Cameroon. Breeding has been noted in May and June (Serle 1950, 1981), and juveniles in July (Rodewald et al. 1994). Other eggs from Cameroon are slightly greater than the mean observed in Banyang-Mbo (Bates 1911: mean 16 x 11.5 mm (n=5); Serle (1950): 15 x 11.4, 15 x 11.5, 15 x 11.3, 14.5 x 11.3; Schönwetter & Meise (1983): 16.0-16.2 x 11.5–12.0). Egg colour differed from the description by Bates (1911) and Serle (1950) who mentioned “perfectly” and “immaculate” white eggs, respectively.

***Spermophaga haematina* Western Bluebill.** A little-developed brood patch, 6 Apr, is the first indication of breeding for this month in Western Cameroon. Appendix 1 indicates no particular breeding season in the lowlands.

Discussion

Brosset (1990) stated that the start of the rainy season is the proximate factor initiating the annual reproduction of tropical lowland forest birds. But for many montane forest species, nesting activities commence with the onset of the dry season (Tye 1992,

Fotso 1996). Primary and secondary production is likely to be the ultimate factor in both areas (Brosset & Érard 1986, Tye 1992, Fotso 1996). However, breeding seasons of frugivorous and insectivorous birds might be different (Fotso 1996). Whereas most forest birds in southern Cameroon, a region characterized by two annual rainfall peaks, have no distinct breeding season (Bates 1908a), some but not all bird species in the lowland forests of Western Cameroon, breed seasonally (Appendix 1).

The differences of breeding strategies between species might be explained by food requirements and nest structure, as discussed by Tye (1992). Whereas some of the insectivorous species that feed above the ground, like *Terpsiphone rufiventer* and *Camaroptera chloronota*, show a well-defined breeding season in the dry months at all altitudes, insectivorous species feeding on the ground or omnivorous birds, such as *Alethe diademata*, *Criniger calurus* and *Andropadus latirostris*, reverse breeding from the rainy season in the lowlands to the dry season in the montane areas. Others, like *Phyllastrephus icterinus*, *P. xavieri*, *Hylia prasina*, *Illadopsis cleaveri* and possibly *Cyanomitra obscura* and *Dyaphorophyia castanea* appear to have no well-defined breeding season at low altitudes but in montane areas breed only in the dry season. Many of these are species living mainly close to the ground, where seasonal climate at least in the lowlands may be buffered by microclimate in the forest understorey. In the montane area, the seasonality may be too strong for such buffering to be effective. However, apparent lack of seasonality in lowland breeding may result from lumping records from different locations and years (Tye 1992), so some of these species could be breeding season reversers. Rainfall in western Cameroon is quite variable in timing between years and has been poorly recorded (Bowden 2001), so combining records from different years may mask the causative effects of climatic factors. On the other hand, future research, especially in the less-studied rainy season, might reveal additional species with more extended breeding seasons than indicated by Appendix 1.

All of the breeding patterns reported here for southwest Cameroon appear to be heavily influenced by climate. The data in Appendix 1 are from this area only, and breeding patterns for these species may be different in other parts of West Africa: for example, *Camaroptera chloronota*, noted here as a dry-season breeder at all altitudes, is known to breed in the wet season elsewhere (Tye 1992). Western Cameroon, with birds exhibiting a range of different breeding strategies, is an excellent site for research on factors constraining the timing of breeding in lowland forest birds.

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Appendix 1

Monthly distribution of breeding records

(yolking ovarian eggs, oviducal eggs, eggs in nest, young, brood patches, enlarged gonads) regressed to month of laying, of lowland forest birds in Western Cameroon, from literature and recent survey.

L = lowland; M = montane; X = unknown altitude. Records in italics are based only on enlarged gonads or brood patch little developed; ( ) = most birds not in breeding condition (does not necessarily mean that the entire population is not breeding); ? = number of individuals studied not known. References: [1]Sjöstedt (1895a, 1895b); [2]Young (1946); [3]Serle (1950); [4]Serle (1954); [5]Eisentraut (1963); [6]Serle (1965); [7]Eisentraut (1968); [8]Serle (1981: includes many records from the earlier publications listed here); [9]Bowden (1986); [10]Rodewald *et al*. (1994); [11]Bowden (2001 and pers. comm.); [12]present paper. Breeding patterns are "Tye 92" as indicated by records in Tye (1992) and "now" as indicated with new data: Rev = reverses breeding season, breeding wet season in lowlands, dry in highlands (Poss = possible; Prob = probable); Dry = dry season breeder at all altitudes; Both/dry = breeding records in both seasons in lowlands but dry season only in highlands; Wet = wet-season breeder at all altitudes.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Breeding pattern: Tye 92	now
Ceyx pictus African Pygmy Kingfisher	(L[5]) (M[5])	(L[5]) (M[5])	(L[5]); X1[8] M1[6,8]	L2[3,8]	L3[6,8]			X1[8]	L1[10]			(L[5])		Wet
Alcedo leucogaster White-bellied Kingfisher	(L[5]) (M[5])	(M[5])	(L[5])				X1[8]	L4[10]				(L[5])		Wet
Pogoniulus scolopaceus Speckled Tinkerbird				*L1[12]*	*L1[3,8]*	*L2[3]*								
Pogoniulus atroflavus Red-rumped Tinkerbird			X1[6,8]								X1[11]			
Gymnobucco bonapartei Grey-throated Barbet	*L1[5,8]*		X1[8]			X1[8]	L4[4,8]	L4[4,8]	L10[10]					
Campethera nivosa Buff-spotted Woodpecker				L3[10], *1[12]*								M2[9]	Rev	Rev

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tye 92	now
Sasia africana African Piculet	L?[11]	L?[11] *M2*[5,8]	L1[10], ?[11]	L?[11]							L?[11]	L?[11]		Dry
Andropadus virens Little Greenbul	*L?*[5,8] *M?*[5,8]	X1[8] M1[9]	L?[5,8], 1[6,8], 2[11], (1)[12] X1[6,8]	*L1*[12], 6[11]	L1[6,8], 4[11]	L1[6,8]	L?[10], 5[11]	L?[10]					Poss rev[a]	Poss rev[b]
Andropadus gracilis Little Grey Greenbul					L1[3,8]					L1[11]	L1[11]	*L1*[5]		
Andropadus latirostris Yellow-whiskered Greenbul		M6[9], 1[11]	L(*1*[5]), 2[10]		L1[6,8], 2[10], ?[11]	L1[6,8], ?[11]	L10[10], ?[11]	L7[10], ?[11] X1[8]	L1[10], ?[11]	L ?[11]			Rev	Rev
Phyllastrephus icterinus Icterine Greenbul	X1[9]	*M1*[5]	L1[12]			L[1,8], 1[10]	L5[10]	L3[10]	X1[8]		L1[3,8]	L*1*[5], 1[6,8] M1[9]	Both/dry	Both/dry
Phyllastrephus xavieri Xavier's Greenbul	L1[11]	M1[11]	M2[11]					L1[3,8], 1[10]				L1[11]	Rev[c]	Both/dry

[a] Dry-season breeder at high altitudes, and the only lowland dry-season records were of Eisentraut (1963) and Serle (1981), whose altitude recording seemed questionable (H. Tye pers. comm.).

[b] Although Eisentraut (1963) altitudes checked and found reliable (Jan birds collected in "Lager IV" at 130 m = lowland and "Lager V" at 600 m = intermediate), these records were based on enlarged gonads (although heavily enlarged) so indicate only possible breeding. Otherwise only wet-season records in lowlands and only dry-season in highlands.

[c] Based on one montane dry-season record with actual month not stated, which was omitted by Bowden 1986 (H. Tye pers. comm.).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tye 92	now
Nicator chloris Western Nicator	*L1*[5]	*M2*[5]	*L1*[12]	L1[3,8], 1[12]	*L1*[3,8]			X1[8]			L1[11]	M1[9]	Rev	Rev[d]
Criniger calurus Red-tailed Bulbul		*M1*[5]	L3[12]	L2[12] X2[8]	L1[3,8]	X1[8]	X1[8]	X1[8]				*L1*[5] M1[9]	Rev	Rev
Bleda notata Lesser Bristlebill					L1[6,8]		L6[10] X1[8]	L5[10] X2[8]	L1[10]			*L2*[5]		
Bleda syndactyla Red-tailed Bristlebill			L1[10], *1*[12]				L4[10]	L2[10]				M2[9]	Poss rev[e]	Rev
Stiphrornis erythrothorax Forest Robin	*L1*[5] *M1*[5]	X1[8]	L(1)[12]	L(1)[12]	L1[3,8], 4[10]		L6[10]	L4[10]	L3[6,8]			L1[5]		
Alethe diademata Fire-crested Alethe	(M1[9])				L1[3,8]		L5[10]	L1[6,8], 5[10]		L2[6,8]			Rev	Rev
Neocossyphus poensis White-tailed Ant Thrush							L3[10]	L1[10]	X1[8], ?[9]		L1[6,8] X1[8]	(M1[9])	Rev	Rev
Hylia prasina Green Hylia	L?[5], 1[9] M≥2[5]	*M?*[5]	L≥2[10], 1[12] X1[8]	L1[3], ?[10],2[12] *X?*[5]			L2[3,8]		L1[4,8]			*L?*[5] X1[4,8]		Both/dry
Camaroptera chloronota Olive-green Camaroptera	L?[5], ?[11] M≥3[5]	L?[11] *M?*[5]	L?[5], ?[11],2[12] X*1*[5],1[9]	L1[12]							L?[11] X1[8]	L?[11]	Rev	Dry

[d] The Jan lowland record (Eisentraut 1963) was based on heavily enlarged gonads, indicating only possible breeding. Otherwise only wet-season records in lowlands and only dry-season in highlands.
[e] Dry season records at high altitudes; no lowland breeding records available then.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tye 92	now
Camaroptera brachyura Grey-backed Camaroptera	L1[2,8]		(*L1*[5]) X2[8]	L1[3,8]		X3[8]			L1[2]	L1[2], 1[3,8]		L2[2,8]		
Terpsiphone rufiventer Red-bellied Paradise Flycatcher	L1[10], ?[11] *M1*[5,8]	*L1*[5] M1[9]	L1[1,8],*3*[5], 1[10],1[11], *1*[12]									L1[6,8] M1[9]	Both/dry[f] .	Dry
Elminia nigromitrata Dusky Crested Flycatcher		L1[11]	L1[10], *1*[12]	L1[10]	X1[8]		L1[10]					L1[10]		
Dyaphorophyia castanea Chestnut Wattle-eye	L*1*[5], 1[10]	L1[1,8], 1[11] *M1*[5,8]	L3[10], *1*[12]	*L1*[12]	L1[3,8]			L1[10]				L1[3], *1*[5,8]		Both/dry?
Illadopsis fulvescens Brown Illadopsis		X1[10] M1[9]	L1[9]		L1[10]		X1[8]			L1[6,8] X1[8]			Rev	Rev
Illadopsis cleaveri Black-cap Illadopsis	M2[9], ?[11]	L1[9] M?[11]	L6[10], 1[12]	L1[10], *1*[12]	L3[10]	L?[11] X1[8]	L?[11]	L1[10]			L?[11]	L1[10] X1[4,8]	Rev	Both/dry[g]
Illadopsis rufipennis Pale-breasted Illadopsis	M1[9]		L6[10], 1[12] X1[8]	*L1*[12]	L3[10]		L1[4,8], 1[10]	L1[10] X1[8]			X1[8]	(*L1*[5]) M1[9]	Poss rev[h]	Rev
Deleornis fraseri Fraser's Sunbird		L1[9], 1[10]	L1[10]							L1[3,8] X1[8]	X1[11]	*L1*[5]		

[f] Dry season records at high altitudes.
[g] See also Rodewald *et al*. (1994).
[h] Dry season breeder at high altitudes; all but one lowland record in wet season.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tye 92	now
Cyanomitra obscura Western Olive Sunbird	L1[1], *?*[5] X2[9],?[11] M≥2[5]	L1[5], ?[10] X?[11] *M?*[5]	L?[5], ?[10],*1*[12] X?[11] *M?*[5]	L1[3,8] X1[8], ?[11]	X1[8]	L1[6,8], ?[10]	X1[8], 2[11]	L1[1,8], 1[6,8]		X?[11]	X?[11]	*L?*[5] X?[11]		Both/dry
Hedydipna collaris Collared Sunbird	L1[4,8], 1[6,8]	L1[6,8]	L1[6,8]		L1[6,8] X1[8]	L2[4,8] X2[8]				L1[4,8], 1[6,8]	X1[8]	L2[6,8]		
Malimbus nitens Blue-billed Malimbe					L1[6,8], ≥3[10]	L1[6,8]			X1[8]	X1[8]		L*2*[5], ≥2[10]		
Malimbus racheliae Rachel's Malimbe			L2[10]			L1[1]								
Parmoptila woodhousei Red-headed Antpecker				L1[12]										
Mandingoa nitidula Green Twinspot	L≥2[5],1[11] *M?*[5]								L2[3,8]			L≥2[5],1[11] M≥2[5]		
Nigrita bicolor Chestnut-breasted Negrofinch		*M1*[5]	L2[12]	L2[12]	L1[3,8]	L1[4,8] X1[8]	L1[10]							Poss rev
Spermophaga haematina Western Bluebill	*L4*[5,8]		*L1*[5]	*L1*[12]	X2[8]		L2[10]	L1[3,8] X3[8]		L?[11] *M2*[5,8]	L?[11] X1[7]	*L1*[5], ?[11]		