

# On the ecology of Brown Nightjar *Veles binotatus* in West and Central Africa

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Sur l'écologie de l'Engoulevent à deux taches *Veles binotatus* en Afrique Occidentale et Centrale. Depuis l'identification de son chant en 1997 au Congo-Brazzaville (Dowsett-Lemaire & Dowsett 1998a), l'Engoulevent à deux taches *Veles binotatus* a été trouvé dans de nombreuses nouvelles localités, notamment au Cameroun, au Ghana et en Sierra Leone. Cet engoulevent guinéo-congolais fréquente tout aussi bien les forêts ombrophiles sempervirentes que les forêts semi-sempervirentes à voûte ouverte, mais avec des densités variables. Il est assez localisé dans la deuxième catégorie, mais peut être très commun dans certains types de forêt sempervirente (par ex. Kakum National Park au Ghana, la forêt de Gola au Sierra Leone), pour autant que la voûte présente de petites ou moyennes trouées, comme dans les forêts exploitées sélectivement. Certains territoires contiennent des ruisseaux avec éventuellement des lambeaux de forêt à *Raphia*, mais l'espèce semble absente des forêts marécageuses de grande étendue. Normalement les oiseaux chantent perchés dans la végétation, souvent à des hauteurs de 10–20 m (parfois plus bas), et chassent dans les petites trouées depuis le sous-bois jusqu'à la voûte.

**Summary.** Since the identification of its song in 1997 in Congo-Brazzaville, Brown Nightjar *Veles binotatus* has been found in many new locations, especially in Cameroon, Ghana and Sierra Leone. This Guineo-Congolian nightjar frequents both evergreen and semi-evergreen rain forest, but at varying densities. It is rather local in the latter, but may be very common in certain evergreen forest types (e.g. in Kakum National Park, Ghana, and in Gola Forest, Sierra Leone), provided the forest presents small or medium-sized gaps, such as those occurring in selectively logged forests. Certain territories contain streams with, occasionally, patches of *Raphia* palms, but the species appears to be absent from large swamp or flooded forests. Normally, birds sing from a perch in vegetation, often at heights of 10–20 m, occasionally lower, and hunt in small gaps, from the understorey to the canopy.

The Brown Nightjar *Veles binotatus* remains a poorly known species, although its range is much wider than that of the other two forest species confined to Central Africa, Bates's Nightjar *Caprimulgus batesi* and Itombwe Nightjar *C. prigoginei*, as it occurs in both Upper and Lower Guinea, from Sierra Leone (Lindsell *et al.* 2008, this paper) east to Congo-Kinshasa (Fry *et al.* 1988). There are very few specimens and its voice was identified for certain only in May 1997, when we undertook a specific nightjar survey in the rain forests of Nouabalé-Ndoki National Park, Congo-Brazzaville, and mist-netted a singing bird (Dowsett-Lemaire & Dowsett 1998a). Since then we have come across the species at several localities in Cameroon, Ghana and Sierra Leone, and have acquired a better understanding of the forest types favoured by this nightjar. From the few specimens known, it appeared to be present in both the evergreen and semi-evergreen forest zones of the

Guineo-Congolian rain forest region, but it is only since the bird could be located by voice that more was learned of its ecology. We present here an update of the species' ecological preferences, as we understand them, from observations made in 1997–2007.

## Congo-Brazzaville

In northern Congo-Brazzaville (Nouabalé-Ndoki; 02°30'N 16°30'E), the main forest type is open-canopy semi-evergreen in dryland situations. The distribution of Brown Nightjar was rather patchy, with territorial pairs occupying areas where the canopy was not too open (*c.* 50% cover or more), but apparently avoiding areas with completely closed canopy; territories were at intervals of at least 500 m, more frequently 750–1,000 m (Dowsett-Lemaire & Dowsett 1998a). One bird was also located by a stream at the ecotone between mono-dominant *Gilbertiodendron dew-*

*evrei* forest and swamp forest with some *Raphia*. *Gilbertiodendron* forest is evergreen with a closed canopy, but there were some gaps in the swamp forest. Some birds sang spontaneously from perches in vegetation 10–20 m high. The one bird we mist-netted was very aggressive and sang both in flight and when perched (in response to playback), at heights of 6–10 m, and once low enough to be caught. It was seen feeding between trees and over the narrow forestry track, at heights of a few metres.

### Cameroon

Brown Nightjars were found in several locations in the south-east, in Lobéké (02°09'–02°19'N 15°44'E), Boumba-Bek (02°32'N 15°05'E) and Nki Reserves (02°12'N 14°39'E) (all now gazetted national parks), on three visits in the dry seasons of 1997–99 (Dowsett-Lemaire & Dowsett 1998b, 1999a). Three nightjars were located in isolated territories, but in two cases two singing birds were heard in the area, with an inter-territorial distance of 1.5 km (Boumba-Bek) or *c.*500 m (Lobéké). Six territories were in tall open-canopy semi-evergreen forest (some near small streams); one was in a mixture of semi-evergreen and evergreen rain forest (Nki), with patches of evergreen forest and a closed subcanopy at 16–18 m, overtopped by very tall trees of 40–50 m. A pair that responded to tape playback (Lobéké) perched at heights of only

a few metres either side of the observer, and apparently both members of the pair sang, although in one of them (the female?) the song was less sustained and the series of notes shorter.

In western Cameroon, we made extensive investigations from Mt. Cameroon and Bakossi east to Bamenda and south to the Yabassi hills in 1998–2001, but the species must be very rare as we found it only on Mt. Nlonako (04°55'N 09°59'E), in primary evergreen rain forest, with one bird singing at 1,150–1,200 m (February 1999: Dowsett-Lemaire & Dowsett 1999b). This was in 25–30 m tall, pristine forest, and the altitude is the highest recorded for the species, as also for some others of lowland tropical forest (e.g. Congo Serpent Eagle *Dryotriorchis spectabilis* and Maned Owl *Jubula letti*). This was on the eastern (drier) side of the mountain and it is probable that the species generally avoids the rain-facing slopes and very wet conditions of most of western Cameroon.

### Ghana

In the dry season of 2004–05 we undertook surveys of all wildlife reserves in the country, including several forested areas in the south-west (Ankasa, Kakum and Bia National Parks, and forest reserves at Cape Three Points, Atewa Range, Krokosua Hills, Ayum/Subim). We found Brown Nightjars in four of them, with exceptional densi-

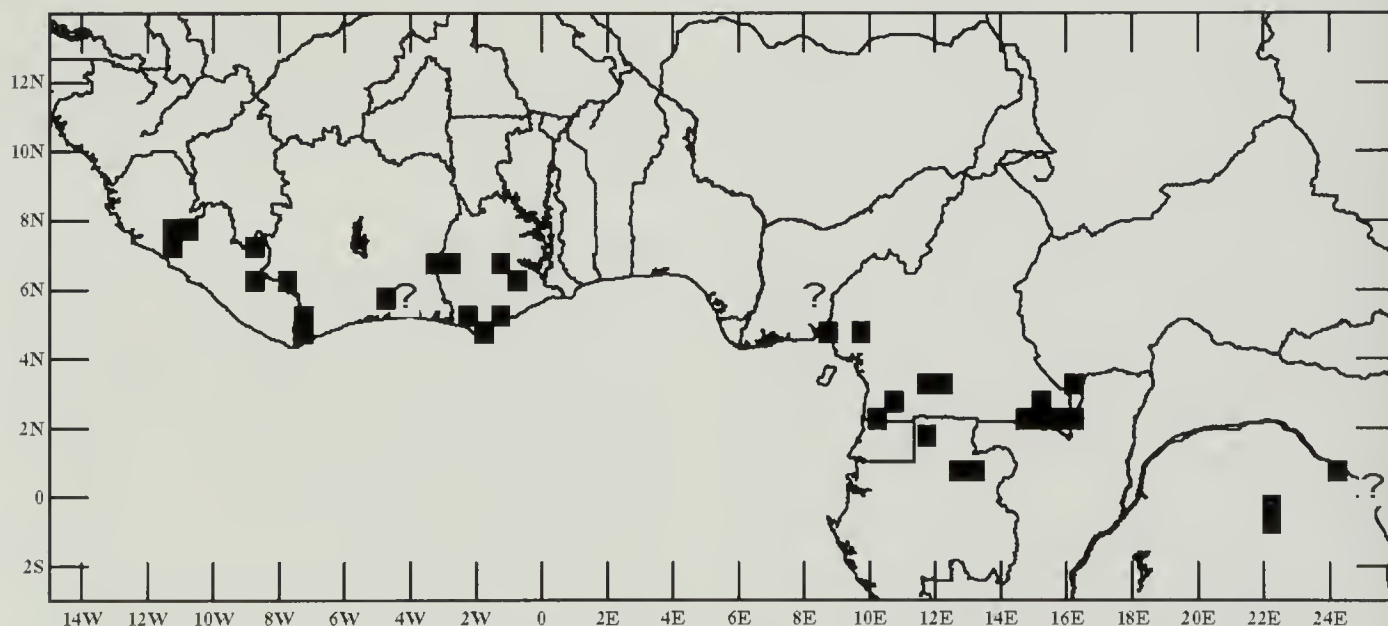


Figure 1. The distribution of Brown Nightjar *Veles binotatus*, updated since Dowsett-Lemaire & Dowsett (1998a).

Carte de distribution de l'Engoulevent à deux taches *Veles binotatus*, remise à jour depuis Dowsett-Lemaire & Dowsett (1998a).



ties at Kakum (05°22'N 01°21'W) (Dowsett-Lemaire & Dowsett 2005). The forest at Kakum falls within the evergreen rain forest zone (Hall & Swaine 1976), but had been logged selectively over many years, and as a result the canopy has many gaps. We visited only the southern and western edges of Kakum National Park, in areas where this phenomenon is pronounced and the densities of Brown Nightjar may reach well over 10 pairs/km<sup>2</sup>. In all four areas where we camped or walked at night, we heard no fewer than two Brown Nightjars sing, and distances between neighbours were of just 100–200 m. Near the tourist centre, we located four different singing birds in an area as small as 15–20 ha. Around the canopy walkway Brown Nightjars sang and fed over the understorey at heights reaching 20–35 m.

Elsewhere in south-western Ghana the species is far more local. We found one bird singing in Bia National Park (06°37'N 03°03'W) and another in the Krokosua Hills (06°37'N 02°51'W), in an area clearly dominated by semi-evergreen rain forest, with an open canopy. At both locations however, the calling bird was perched in a section of forest where the canopy was much denser than elsewhere. In Atewa Range (06°14'N 00°34'W), one bird was feeding on the top ridge (*c.*700 m) in evergreen rain forest with some small gaps, the product of both selective logging and the gradient. It gave one song note on take-off at dusk and disappeared, flying a few metres over the forest path.

### Sierra Leone

We visited Gola Forest for five weeks in January–February 2007. We camped at seven main locations in the reserve, and found Brown Nightjars in six of them, four of them in Gola North (*c.*07°40'N 11°03'–10°51'W). Thus the species is more widespread and common than implied by Lindsell *et al.* (2008). At Sileti camp (07°22'N 11°16'W), at the junction between Gola West and Gola East, at least five different birds were located, and from the camp itself it was possible to hear as many as three different birds calling simultaneously; two were only a few hundred metres distant, with a third much further. The bird nearer our tent sang from a perch in dense vegetation 15–20 m high. Playback apparently provoked some longer songs, the bird changing perches to a nearby tree, but always

remaining inside the forest. The rate of singing was apparently the same before and after playback, i.e. nearly one note per second (11 in 14 seconds before, 15 in 15 and 21 in 24 seconds after playback). Lindsell *et al.* (2008) recorded a slower rate of 10 notes in 22 seconds in Gola North, from a bird not responding to playback. No amount of playback brought the Sileti bird into the artificial clearing. The forest type in Gola is evergreen rain forest, most of which had been selectively logged. At one site, near Lalehun, a bird occupied an area that had been both logged and replanted with indigenous tree species: the result was a broken canopy with many small gaps. There were narrow strips of *Raphia* palms along some streams, and some birds were not far from these, but the main part of any territory was in dryland rain forest.

### Data from the literature

Few details on feeding or other behaviour can be found in the literature, but three sources warrant citation. In an area of evergreen rain forest in north-east Gabon, Brosset & Erard (1986) reported a bird caught by mammalogists in a mist-net in primary forest, at a height of 20 m, below the canopy. On other occasions this small nightjar was also seen flying below the canopy or in small or large clearings caused by treefalls in forest, and flying over the canopy.

In lowland rain forest in northern Liberia, S. Keith and A. D. Forbes-Watson (in Fry *et al.* 1988: 159) saw one bird 'hawking for insects in and just above the forest canopy at dusk; it made short sallies, always returning to same perch (the top of a vine-clad stump *c.*20 m up tree)'

In the extreme south of Central African Republic, Carroll & Fry (1987) reported a Brown Nightjar apparently sitting on a nest, on the rachis of a *Raphia* palm frond, as the bird was approached to within 2 m and did not fly. The defensive gaping, the scatter of bird faeces on the palm leaf and other details suggested it was brooding young. This observation occurred on 10 March 1986 in selectively logged semi-evergreen rain forest on the edge of a *Raphia* swamp. Unfortunately the height of the arched palm leaf on which the bird was perched was not mentioned—from the way it was approached, one can guess it was perhaps between 1 m and 3 m.

## Calling season

Brown Nightjars appear to have an extended calling season, though it may be generally confined, as in most nightjars, to the dry season, when most of our field work took place. In south-east Cameroon and adjacent northern Congo-Brazzaville, we visited overall from late November to May. The single dry season starts in December and lasts until March or April. Heavy rain does not start until June or July. No Brown Nightjars were singing in November (Boumba-Bek), and singing commenced in the first week of December. In 1997 vocal activity appeared higher in April than May, and the bird mist-netted in mid May was halfway through primary moult. In Ghana the main dry season is from December to March: birds were very vocal in December–January, much less so in February–March (this was striking in two visits to Kakum, the activity in December being many times greater than in late March). In Gola Forest, Sierra Leone, birds were very vocal in late January, singing for long spells each night, but much less so in late February, in similarly clear, moonlit nights, when birds were heard briefly on only three of nine nights on 18–27 February.

## Discussion

Although Brown Nightjars occupy both major forest types (evergreen and semi-evergreen) of the Guineo-Congolian region, they occur at varying densities. Occupied territories in the open canopy of semi-evergreen rain forest are rather patchy. In some places, at least, birds seem to prefer areas with denser canopy (e.g. Bia, Krokosua). Highest densities are clearly achieved in evergreen rain forest, as in Kakum and Gola, but in both of these locations the forest had been logged and the resulting architecture presented many gaps. In Ankasa, in extreme south-west Ghana, the forest canopy is much more uniformly closed, and Brown Nightjar has not yet been confirmed to occur, and if it does, the species must be rare (Dowsett-Lemaire & Dowsett 2005). Canopy gaps in selectively logged evergreen forest are smaller than in the naturally open semi-evergreen forest. Often, occupied territories include a stream, and a few Brown Nightjars may inhabit the edge of swamp or riverine forest with *Raphia* palms. However, the vast expanses of swamp or flooded forest that exist in Congo-Brazzaville appear to be avoided. Bates's Nightjar, on the

other hand, may be common in swamp or flooded forest (as in the Kouilou basin: Dowsett-Lemaire & Dowsett 1991), though it can also be found in dryland rain forest, especially under a closed canopy (as in Odzala National Park: Dowsett-Lemaire 1997).

These observations are of course based on the position of singing birds and conclusions are at best tentative; further investigations will need to determine the size of territories and heights of feeding more accurately. Only radio-location of marked birds will make this possible.

Feeding ecology is at present very difficult to study, but birds apparently fly or feed over a wide vertical range in small gaps within forest, from a few metres above the ground (small clearings, forest paths) to the canopy, with several observations of birds feeding (one mist-netted in Gabon) at heights of 20 m or more. Large artificial clearings, as at Sileti, seem to be avoided. Most birds sing perched, often at heights of 10–20 m; birds aroused by playback may sing in flight over the recorder/observer and on lower perches at 6–10 m. Savanna nightjars nest on the ground, but the one possible nest found in Central African Republic was on a palm frond. A similar situation was described for Collared Nightjar *C. enarratus* in Madagascar (small palm or in a fork of a tree up to 20 m above ground), which is also a forest species (Dhondt 1976, Morris & Hawkins 1998).

Our knowledge of the distribution of Brown Nightjar has improved (compare Fig. 1 with the map in Dowsett-Lemaire & Dowsett 1998a), although coverage remains very poor in under-explored countries like Gabon and Congo-Kinshasa, and it is surprisingly still unknown from Nigeria—we do not find convincing the sight record from the south-east (Burton 2006), indicated by '?' on the map, as the insufficient details of a bird seen under poor conditions do not eliminate a female of some other species (e.g. Long-tailed Nightjar *C. climacurus*). We have never seen a Brown Nightjar on a road, whereas savanna species do rest there, even in the forest zone.

In addition to our own records mentioned above, several 'new' sites have been discovered. For Côte d'Ivoire, Taï, Cavally and Haute-Dodo have been added on the basis of reliable observations by N. Borrow (*in litt.* and in *Bull. ABC* 8: 148) and R. Demey and H. Rainey (*in Bull. ABC* 9: 144); we doubt the report from Yapó (? on map), listed



without details by Gartshore *et al.* (1995) and already questioned by Demey (1996)—it had not been found by Demey & Fishpool (1994). For Liberia we have added 'Liberian Timber Co.' (i.e. near Yoezon) (Louette 1990); for Ghana we have also included Bobiri Forest Reserve (A. Riley in *Bull. ABC* 11: 174); for Cameroon, Ebianemeyong, Campo (R. Demey in *Bull. ABC* 6: 152); and for Gabon, the Liboumba River, 35 km from Makokou (N. Borrow in *Bull. ABC* 7: 74). The fourth, uncertain, record from Congo-Kinshasa (Dowsett-Lemaire & Dowsett 1998a) is untraced (? on map).

The species can be qualified as locally common: in Gola this is also reflected by the fact that the peculiar song notes of Brown Nightjar are part of the imitative repertoire of Shining Drongo *Dicrurus atripennis*! One must even be cautious not to confuse the two, as the drongos often give these sharp, spaced notes in the first light of dawn. In western Cameroon we also heard Grey Parrots *Psittacus erithacus* imitate Brown Nightjar at a roost near Yingui (04°30'N 10°20'E), though we did not find the nightjar in the vicinity.

## References

- Brosset, A. & Erard, C. 1986. *Les Oiseaux des Régions forestières du Nord-est du Gabon*. Vol. 1. Paris: Société Nationale de Protection de la Nature.
- Burton, K. M. 2006. A sight record of the Brown Nightjar *Caprimulgus binotatus* in Nigeria. *Malimbus* 28: 47–49.
- Carroll, R. W. & Fry, C. H. 1987. A range-extension and probable breeding record of the Brown Nightjar (*Caprimulgus binotatus* Bonaparte) in southwestern Central African Republic. *Malimbus* 9: 125–127.
- Demey, R. 1996. Review: Gartshore *et al.* 1995. *Bull. ABC* 3: 136–137.
- Demey, R. & Fishpool, L. D. C. 1994. The birds of Yapo Forest, Ivory Coast. *Malimbus* 16: 100–122.
- Dhondt, A. 1976. Une nidification de l'Engoulevent à collier *Caprimulgus enarratus*. *Oiseau & RFO* 46: 173–174.
- Dowsett-Lemaire, F. 1997. The avifauna of Odzala National Park, northern Congo. *Tauraco Res. Rep.* 6: 15–48.
- Dowsett-Lemaire, F. & Dowsett, R. J. 1991. The avifauna of the Kouilou basin in Congo. *Tauraco Res. Rep.* 4: 189–239.
- Dowsett-Lemaire, F. & Dowsett, R. J. 1998a. Vocal and other peculiarities of Brown Nightjar *Caprimulgus binotatus*. *Bull. ABC* 5: 35–38.
- Dowsett-Lemaire, F. & Dowsett, R. J. 1998b. Preliminary survey of the fauna (in particular the avifauna) of the reserves of Boumba-Bek and Nki, south-eastern Cameroon. Rep. for WWF-Cameroon (available through BirdLife International, Cambridge, UK).
- Dowsett-Lemaire, F. & Dowsett, R. J. 1999a. Zoological survey (birds, amphibians) of Lobéké Faunal Reserve in April 1999, with special reference to Dja River Warbler *Bradypterus grandis*. Rep. for WWF-Cameroon (available through BirdLife International, Cambridge, UK).
- Dowsett-Lemaire, F. & Dowsett, R. J. 1999b. Survey of birds and amphibians on Mt Manenguba, Mt Nlonako, north Bakossi and around Kupe in 1998–99. Rep. for WWF-Cameroon (available through BirdLife International, Cambridge, UK).
- Dowsett-Lemaire, F. & Dowsett, R. J. 2005. Nineteen reports on ornithological surveys in Ghana in 2004–2005, including all 15 Wildlife Reserves. Wildlife Division Support Project, Accra. (Available on CD-ROM and distributed to IUCN, BirdLife International and other bodies.)
- Fry, C. H., Keith, S. & Urban, E. K. (eds.) 1988. *The Birds of Africa*. Vol. 3. London, UK: Academic Press.
- Gartshore, M. E., Taylor, P. D. & Francis, I. S. 1995. *Forest Birds in Côte d'Ivoire*. Cambridge, UK: BirdLife International.
- Hall, J. B. & Swaine, M. D. 1976. Classification and ecology of closed-canopy forest in Ghana. *J. Ecol.* 64: 913–951.
- Lindsell, J., Klop, E. & Siaka, A. 2008. First record of Brown Nightjar *Caprimulgus binotatus* for Sierra Leone. *Bull. Afr. Bird Club* 15: 82–84.
- Louette, M. 1990. A Brown Nightjar (*Caprimulgus binotatus*) nestling from Liberia. *Malimbus* 11: 148–149.
- Morris, P. & Hawkins, F. 1998. *Birds of Madagascar: A Photographic Guide*. Robertsbridge: Pica Press.
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