

Counting *Macrodipteryx* nightjars for monitoring purposes

Derek Pomeroy^a, George Kapfu^b and Michael Opige^c

Dénombrer des engoulevants *Macrodipteryx* pour leur 'monitoring'. De 2004 à 2012 nous avons dénombré les engoulevants sur une piste d'atterrissage et les routes avoisinantes dans le Parc National de Murchison Falls, Ouganda. Les dénombrements ont été réalisés à partir d'un véhicule roulant à faible vitesse, pendant une courte période de 10–30 minutes après le coucher du soleil, quand les engoulevants étaient les plus nombreux. Les oiseaux étaient détectés principalement à l'aide des phares du véhicule. Les totaux des Engoulevants à balanciers *Macrodipteryx longipennis* et porte-étendard *M. vexillarius* varient considérablement selon les années mais n'affichent pas de tendance générale. Nous recommandons cette méthode de monitoring comme étant facile à utiliser sur des sites abritant un nombre relativement élevé d'engoulevants.

Summary. We counted nightjars on a grass airstrip and nearby roads in Murchison Falls National Park, Uganda, between 2004 and 2012. Counts were made from a slow-moving vehicle, mainly using the headlights to spot birds, and spanned the times of highest numbers, which were limited to a brief period 10–30 minutes after sunset. Numbers of Standard-winged *Macrodipteryx longipennis* and Pennant-winged Nightjars *M. vexillarius* varied considerably between years but showed no overall trend. We recommend this method of monitoring as being easy to use at sites harbouring relatively large numbers of nightjars.

Both Standard-winged *Macrodipteryx longipennis* and Pennant-winged Nightjars *M. vexillarius* are spectacular and, at least until recently, often common species over much of tropical Africa (Fry *et al.* 1988). On their breeding grounds, males often form leks, and the birds frequently migrate in flocks (Cheke & Walsh 2000, Jackson 2004). Nightjars in general also have the habit of resting on roads and other open areas, especially at dawn and dusk, which can make them easy to count (Fry *et al.* 1988, Cleere & Nurney 1998, Holyoak 2001, Jackson 2003). This presumably gives them a clear view of the sky, compared to more vegetated areas (Cleere & Nurney 1998, Jackson 2003, 2004). There appear to be few cases of *Macrodipteryx* nightjar counts being made along roads, but Fry *et al.* (1988) quote two, 108 males on 30 km of road in Zambia, and 45 on 10 km of road in Chad—both averaging more than 3.5 males per km (*cf.* below). Jackson (2002), in a major review of nightjar mortality, particularly on roads, also cites a few counts, although none of live birds in Uganda.

We made systematic counts of both Standard-winged and Pennant-winged Nightjars in Murchison Falls National Park, Uganda, between 2004 and 2012. Both species have been the subject of several studies in various countries (Cleere & Nurney 1998, Cheke & Walsh 2000, Holyoak 2001). Although not Red-Listed, they are at risk, partially because of their habit of

perching on roads at night, where they are often killed by vehicles. Jackson (2002) lists Standard-winged as at high risk of being killed on roads, and Pennant-winged as very high. Interestingly, despite covering c.1,000 km of road counts in Murchison Falls National Park, during which over 500 live nightjars were seen, we recorded no road-kills. Traffic is not heavy at night, but some vehicles do use these roads after dark. It would be positive to think that the birds are learning, although that seems unlikely. We also have records showing that Standard-winged Nightjar occurs widely across rural areas of Uganda, where night-driving is rare. It therefore seems likely that, at least nationally, road-kills are a minor problem.

So far as is known, both species are migrants in Uganda, although there are historical records of Standard-winged Nightjar breeding (Carswell *et al.* 2005); the same authors also report a probable decline of that species, for which there are fewer recent records than for Pennant-winged. Our counts of Standard-winged Nightjar were around the end of January in each year, and of Pennant-winged in late July, when they are probably on passage to breeding grounds further south.

Both species are particularly active for a short period at dusk (see below), after which they commonly perch on roads or tracks. We made counts in Murchison Falls National Park, in northern Uganda: on an airstrip with a compacted soil surface, similar to park roads, c.8 km south of

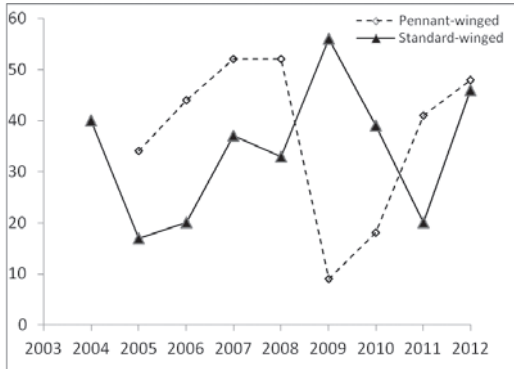


Figure 1. Counts of the two *Macrodipteryx* nightjar species at Murchison Falls National Park, Uganda, obtained by combining maximum counts from each section.

Dénombrements des deux espèces d'engoulevents *Macrodipteryx* au Parc National de Murchison Falls, Ouganda, obtenus en combinant les totaux maximaux de chaque section.

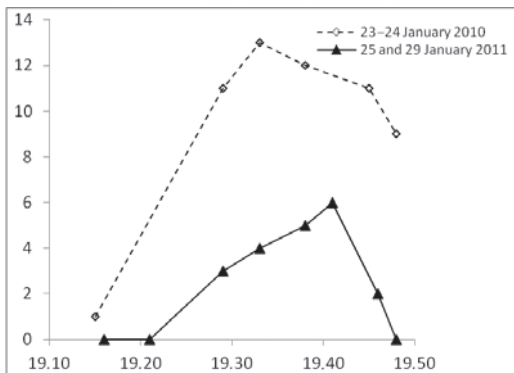


Figure 2. Results of successive counts on the Murchison Falls National Park airstrip, Uganda, for Standard-winged Nightjars *Macrodipteryx longipennis*. Sunset was at about 19.08 hrs. The vertical axis shows the numbers of males recorded during each count.

Résultats des dénombrements successifs sur la piste d'atterrissage du Parc National de Murchison Falls, Ouganda, pour l'Engoulevent à balanciers *Macrodipteryx longipennis*. Le soleil se couchait à environ 19.08 hrs. L'axe vertical montre le nombre de mâles observés pendant chaque dénombrement.

Paraa, and along the main park roads from the airstrip to Paraa and from near Sambiya Lodge to Paraa, a distance of 23 km. On the airstrip, which is *c.*2,000 m long and 30 m wide, our procedure was to drive from one end to the other, zigzagging to obtain the widest coverage, and then

back, covering the complete length 4–6 times. Some birds were seen in flight, whilst others were observed on the ground; the latter were harder to detect as they sat tight unless approached very closely.

The first count was made as it was beginning to get dark, and the last after the peak numbers had been seen (see below). Males were frequently and conspicuously displaying, sometimes attracting females to join them. Counts on the main stretch of road, Sambiya to Paraa, were made so that the mid-point of the route was passed at about the same time that peak numbers had been recorded on the airstrip, usually the previous day. For airstrip counts, two observers stood at the back of a pick-up truck or on the roof of a Land-Rover. Until it became too dark, towards the end of the counting period, birds were typically seen silhouetted against the sky, whilst others were picked up by the vehicle headlights whilst on the ground. In most years, the airstrip was counted twice or three times, but Sambiya to Paraa was usually counted only once. Since the airstrip was also counted several times each day, we took the highest of all counts for the purposes of this communication. Other species of nightjar were also recorded, but their numbers were too low to permit analysis.

The results of these counts are presented in Fig. 1, which shows the combined totals of the various routes used. Both species increased between 2005 and 2008, but then varied widely. Obviously, one cannot deduce too much from these relatively small samples from just one area, but if others were to use similar methods elsewhere, a broader and more reliable picture might emerge, and in any case we recommend that these counts be continued indefinitely in Uganda.

It is typical of nightjars that they vocalise mainly at dawn and dusk, but also during the night when moonlit (Fry *et al.* 1988). The activity patterns at the airstrip followed a similar pattern, with most departing after a short time. Thus counts must be made during the brief period

Legend to figures opposite

Figure 1. Pennant-winged Nightjar / Engoulevent porte-étendard *Macrodipteryx vexillarius* (Jon Hornbuckle)

Figure 2. Pennant-winged Nightjar / Engoulevent porte-étendard *Macrodipteryx vexillarius* (Phil Palmer)



Counting Macrodipteryx nightjars for monitoring purposes: Pomeroy et al.





Figure 3. Standard-winged Nightjar / Engoulevent à balanciers *Macrodipteryx longipennis* (Bruno Portier)



Figure 4. Standard-winged Nightjar / Engoulevent à balanciers *Macrodipteryx longipennis* (Ian Fulton)

of time when the birds are most active. Fig. 2 shows typical counts for male Standard-winged Nightjars in relation to the estimated time of sunset. Females were also counted but their numbers are less reliable, since without good views they can resemble other species present. However, taking the most probable counts of females, their numbers were comparable to those of males, despite Fry *et al.* (1988) stating that the sexes migrate separately. For Standard-winged, activity of males was mainly between 19.25 and 19.45 hrs, peaking *c.*25 minutes after sunset (Fig. 2). Female numbers peaked at *c.*19.50 hrs, some 15 minutes after the males. Pennant-winged Nightjars were active rather earlier, mainly between 19.10 and 19.30 hrs for males, *c.*15 minutes after sunset. As with Standard-winged, female activity peaked a few minutes later than the males. There were no obvious differences in results between clear and cloudy evenings.

We conclude that our method is a satisfactory way of monitoring these two species, and could be applied to other sites where they are common. These data for Uganda are already included in Uganda's official set of biodiversity indicators.

Acknowledgements

We acknowledge the support of the Royal Society for Protection of Birds (UK), mainly through *NatureUganda*, and the co-operation of the Uganda Wildlife Authority in permitting us to drive at night and use the airstrip for this research. As well as the authors, some 12 other people took part in the various counts, and we are indebted to them. Des Jackson kindly commented on a draft of this article.

References

- Carswell, M., Pomeroy, D., Reynolds, J. & Tushabe, H. 2005. *Bird Atlas of Uganda*. Oxford: British Ornithologists' Club & British Ornithologists' Union.
- Cheke, R. A. & Walsh, J. F. 2000. Behaviour of Standard-wing Nightjars in Togo. *Ostrich* 71: 349–350.
- Cleere, N. & Nursey, D. 1998. *Nightjars. A Guide to the Nightjars and Related Nightbirds*. Robertsbridge: Pica Press.
- Fry, C. H., Keith, S. & Urban, E. K. (eds.) 1988. *Birds of Africa*. Vol. 3. London, UK: Academic Press.
- Holyoak, D. T. 2001. *Nightjars and Their Allies: The Caprimulgiformes*. Oxford: Oxford University Press.
- Jackson, H. D. 2002. A review of Afrotropical nightjar mortality, mainly road kills. *Ostrich* 73: 147–161.
- Jackson, H. D. 2003. A field survey to investigate why nightjars frequent roads at night. *Ostrich* 74: 97–101.
- Jackson, H. D. 2004. Courtship displays of the Pennant-winged Nightjar, *Semeiophorus vexillarius*. *Ostrich* 75: 1–4.

^a Dept. of Biological Sciences, Makerere University, PO Box 7298, Kampala, Uganda.

^b Uganda Wildlife Authority PO Box 3530, Kampala, Uganda.

^c *NatureUganda*, PO Box 27034, Kampala, Uganda.

Received 14 September 2011; revision accepted 9 November 2012.