High population density of the Critically Endangered Hooded Vulture *Necrosyrtes monachus* in Western Region, The Gambia, confirmed by road surveys in 2013 and 2015

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Summary

We present results from two series of roadside counts of Hooded Vultures *Necrosyrtes monachus* in the Western Region of The Gambia in 2013 and 2015. We counted 1543 Hooded Vultures, or 12.0 individuals per km in 2013, and 3416 individuals, or 17.5 individuals per km in 2015. To our knowledge our counts of Hooded Vultures, a species currently listed as Critically Endangered globally, reflect the highest current regional density for the species anywhere in its range.

Résumé

Densité élevée du Vautour charognard *Necrosyrtes monachus*, en Danger critique d'extinction, dans la Western Region de Gambie, confirmée par des enquêtes routières en 2013 et 2015. Nous présentons les résultats de deux séries de comptages en bord de route du Vautour charognard *Necrosyrtes monachus* dans la Western Region de Gambie en 2013 et 2015. Nous avons compté 1543 Vautours charognards, ou 12.0 individus par km, en 2013 et 3416 individus, ou 17.5 individus par km, en 2015. À notre connaissance, nos comptages de Vautours charognards, une espèce figurant actuellement sur la liste des espèces globalement en Danger critique, reflète la densité régionale actuellement la plus élevée pour l'espèce dans toute son aire de répartition.

Introduction

Hooded Vultures have undergone global population declines estimated at 62% over the past half century (Ogada & Buij 2011), and the species is now considered Critically Endangered (Parnell 2015). Nevertheless, road counts in the Western Region of The Gambia in December 2005 indicated that Hooded Vultures were "locally abundant" there (Barlow & Fulford 2013). An additional report indicated that they remained so as recently as 2012 (Barlow 2012). Because of global concern for this species (Ogada & Buij 2011, Ogada *et al*. 2015a, b) we present results of an continuing monitoring scheme in Western Region, and call for a concerted effort to protect the dense population of Hooded Vultures in the area.

Methods

We counted Hooded Vultures along three survey routes totalling 129 km of largely tar roads throughout Western Region (*c.* 600 km^2; Fig. 1) in late September and early October 2013. In 2015, we added an additional 66-km coastal route in the same area and counted birds along 195 km in early July. We travelled at speeds of 30–40 kmh^{-1}, and limited counts to rainless periods at times of the day (*i.e*. 9h30–15h30) when vultures were likely to be seeking foraging opportunities, rather than moving to and from nocturnal roosts. We used a non-observer driver and 3–4 observers and data loggers. We recorded percent cloud cover, wind and temperature at the beginning and end of each survey, and recorded all birds seen perched and flying. We stopped when needed to identify distant birds, as well as to count the numbers of large aggregations on the ground or soaring, but when stopped, we included only those birds initially observed while travelling and not any additional birds sighted after stopping.

Results

We counted a total of 4959 vultures along 324 km of road in 2013 and 2015 (Fig. 2). Mean counts were 12.0 individuals per km in 2013, and 17.5 individuals per km in 2015. In 2013, 87 % of the birds seen were flying and the rest were perched when first sighted. In 2015, 67 % of the birds seen were flying when first sighted. Since all surveys were conducted on rainless, low-wind days, we do not believe that weather conditions caused differences between counts. Although we counted more than twice as many vultures on Survey Route 2 in 2015 as we did along the same route in 2013, we attribute this inter-annual difference in counts along this route to random variation rather than to a population increase.

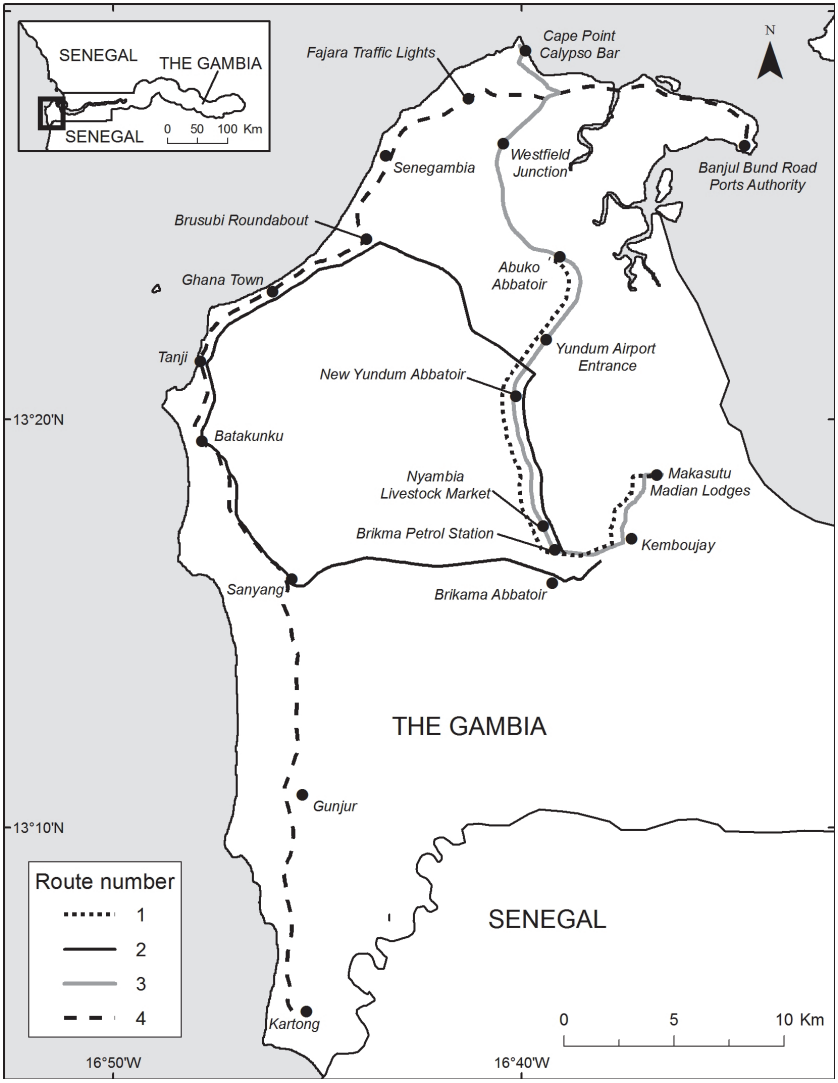

Figure 1. Map of the study routes surveyed in Western Region, The Gambia in 2013 and 2015.

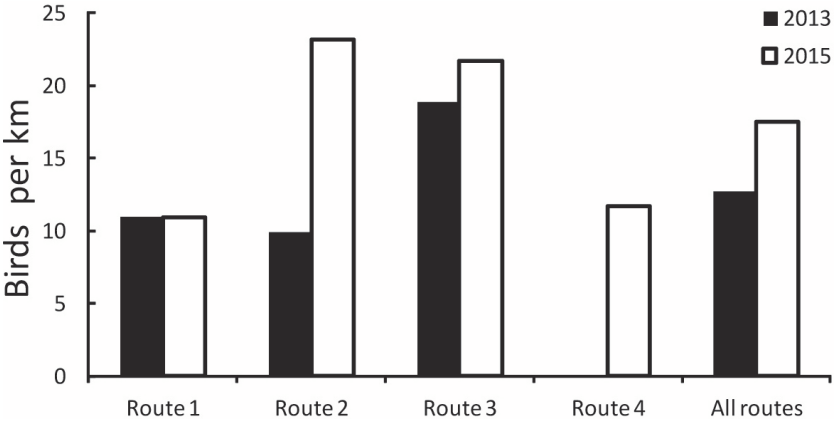

Figure 2. Numbers of Hooded Vultures counted along three survey routes in 2013 and four survey routes in 2015.

Discussion

Recent roadside counts along a 10.1-km route in and around Banjul in mid- to late 2005 produced counts averaging 2.9 individuals per km (Barlow & Fulford 2012). Our counts over a larger part of Western Region produced results of 12.0 birds per km in 2013 and 17.5 birds per km in 2015. More extensive roadside surveys in other parts of the species' historic population stronghold of West Africa, including in Niger, Mali, Burkina Faso, Guinea, Chad, and northern Cameroon (Thiollay 2006a, b, Rondeau *et al.* 2008, Wacher *et al*. 2013), and elsewhere in Africa, including Ethiopia (Dellelegn & Abdu 2010), Kenya (Virani *et al*. 2011), Uganda (D. Pomeroy *in* Ogada & Buij 2011), and Tanzania (Njilima *et al.* 2010), have all produced counts of less than 0.6 birds per km, more than an order of magnitude less than our counts.

Assuming we saw all birds within 0.5 km of the road, our counts in an area of *c.* 600 km^2 suggest population densities of 7,000–10,500 Hooded Vultures in this part of The Gambia, or 4–5 % of the currently estimated global population, in an area that represents less than 0.0001 % of the species' range (Ferguson-Lees & Christie 2001). This extraordinarily high population indicates that the region currently serves as a stronghold for the species. We suggest that this is so for at two reasons. First, as is true throughout West Africa, the species is a human commensal in The Gambia (Mundy *et al.* 1992). Gambia's human population density is the second highest in continental Africa (United Nations 2008) and much of the nation's human population resides in the fishing communities along the coast and near the capital of Banjul and the major towns of Serrekunda and Brikama. Second, Gambians tolerate and even welcome Hooded Vultures and do not harass or exploit them for fetish purposes (*cf.*

Barlow & Fulford 2013). As a result, the birds are relatively fearless of humans and regularly occur in large groups in human-dominated landscapes, including house yards, busy fish-landing sites where they eat moribund fish by-catch, and often on roadsides where they feed within 2 m of people, on domestic animal road kills, scraps and, importantly, blood and ruminant stomach contents dumped purposely for vultures at villages. Up to 70 Hooded Vultures are regular visitors at such open-air abattoirs, while at larger government abattoirs up to 500 vultures are regular visitors (CRB, LS, MJ, pers. obs.). In addition, several tourist hotels have recently opened "vulture restaurants" to provide photo opportunities for guests, with 150 vultures in regular attendance (Barlow 2012). Another likely factor contributing to the species' abundance is that it is the only common vulture in Western Region — indeed it was the only vulture species seen on our surveys — and, as such, is not subject to competition from larger species (*cf*. Mundy *et al.* 1992).

We plan to alert authorities and local communities in The Gambia to the global significance of the vulture population and of its role in ecosystem processes and function, and we intend to continue our road surveys and expand them to monitor populations throughout The Gambia, as well as in neighbouring Senegal, which has yet to be surveyed in this way.

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References

BARLOW, C.R. (2012) Guest Editorial: an investigation commences to establish the present status and distribution of Hooded Vultures *Necrosyrtes monachus* in The Gambia, West Africa. *Vulture News* 62: 51–59.

BARLOW, C.R. & FULFORD, T. (2013) Road counts of Hooded Vultures *Necrosyrtes monachus* over seven months in and around Banjul, coastal Gambia, in 2005. *Malimbus* 35: 50–56.

DELLELEGN, Y. & ABDU, B. (2010) *Ethiopian Vulture Survey Report*. Unpubl. rep. to the Royal Society for the Protection of Birds, Sandy.

FERGUSON-LEES, J. & CHRISTIE, D.A. (2001) *Raptors of the World*. Houghton Mifflin, Boston.

MUNDY, P., BUTCHART, D., LEDGER, J. & PIPER, S. (1992) *The Vultures of Africa*. Academic Press, London.

NJILIMA, F., KYONJOLA, N. & WOLSTENCROFT J. (2010) *Tanzania Vultures Baseline Survey Report.* Unpubl. rep. to the Royal Society for the Protection of Birds, Sandy.

OGADA, D.L. & BUIJ, R. (2011) Large declines of the Hooded Vulture *Necrosyrtes monachus* across its African range. *Ostrich* 82: 101–113.

OGADA, D., BOTHA, A. & SHAW, P. (2015a) Ivory poachers and poison: drivers of Africa's declining vulture populations. *Oryx* doi: 10.1017 S0030605315001209

OGADA, D., SHAW, P., BEYERS, R.L., BUIJ, R., MURN, C., THIOLLAY, J-M., BEALE, C.M., HOLDO, R.M., POMEROY, D., BAKER, N., KRUGER, S.C., BOTHA, A., VIRANI, M.Z., MONADJEM, A. & SINCLAIR, A.R.E. (2015b) Another continental vulture crisis: Africa's vultures collapsing toward extinction. *Conserv. Lett.* doi: 10.1111/conl. 12182.

PARNELL, E. (2015) 2015 Red List update. *World Birdwatch* December 2015: 24–28.

RONDEAU, G., CONDEÉ, M.M., AHON, B., DIALLO, O., & POUAKOUYOU, D. (2008) *Survey of the Occurrence and Relative Abundance of Raptors in Guinea subject to International Trade*. Rep. 412, Joint Nature Conservation Committee, Peterborough.

THIOLLAY, J-M. (2006a) The decline of raptors in West Africa: long-term assessment and the role of protected areas. *Ibis* 148: 240–254.

THIOLLAY, J-M. (2006b) Large bird declines with increasing human pressure in savanna woodland (Burkina Faso). *Biodivers. Conserv.*15: 2085–2108.

UNITED NATIONS. (2008) *World Population Prospects — the 2008 Revision*. United Nations, New York.

VIRANI, M.Z., KENDALL, C.J., NJORGE, P. & THOMSETT, S. (2011) Major declines in the abundance of some avian scavengers in and around the Masai Mara ecosystem Kenya. *Biol. Conserv.*144: 746–752.

WACHER, T., NEWBY, J., HOUDOU, I., HOROUNA, A. & RABEIL, T. (2013) Vulture observations in the Sahelian zones of Chad and Niger. *Bull. Afr. Bird Club* 20: 186–199.