A record of a Bearded Vulture *Gypaetus barbatus* nest site at particularly high altitude in the Himalayas of Nepal.

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http://dx.doi.org/10.4314/vulnew.v85i1.4

This short note describes a record of a Bearded Vulture *Gypaetus barbatus* nest located at high altitude (one of the highest found to date) in the Annapurna massif in the Himalayas of Nepal, alongside other nesting records above 4000 masl. The Bearded Vulture (*Gypaetus barbatus*, Linnaeus 1758) occurs in mountainous areas and is specialized in osteophagy (bone-eating). Its nests are frequently located on rocky outcrops of tall cliffs. It is distributed in Eurasia and Africa, nesting from almost sea level in Crete (Xirouchakis & Nikolakakis 2002) to the high mountains of Ethiopia and the Himalaya (Terrasse 2001). In the Himalaya, observations of specimens in flight at 7500 m altitude have been documented (Ali & Dillon Ripley 1968). There are several nesting records above 4000 masl (Table 1) with references to nests at elevations higher than 4200 m (Schäfer 1938, Ali & Dillon Ripley 1968), although those authors did not provide detailed information in this regard. In a sample of 22 Bearded Vulture nests located in the Annapurna range, Subedi *et al.* (2020) found a minimum altitude of 1445 masl and a maximum of 4600 masl (mean = 3141 ± 1003 masl). The purpose of this note is to report the existence of a Bearded Vulture nest in the Annapurna massif (Himalayas of Nepal), which may be one of the highest altitudes at which a nest has been recorded for the species.

On 13 November 2019, during a trek around this Himalayan massif and from a point located at an altitude of 4,500 masl near the Thorung Phedi lodge, Manang District (valley coordinates 28.769802ºN, 83.969218ºE; coordinates of the village of Manang 28.667345ºN, 84.021708ºE), an adult Bearded Vulture was observed perching inside a cavity in a limestone rock cliff, standing on an accumulation of branches approximately one meter thick (Figure 1). This was during the breeding season, at the start of incubation period for the species in the Himalayas (Subedi *et al.* 2020). The cliff wall was approximately 80 m high, with the nest cave located approximately halfway up on the most protected side of the cliff, approximately 450 m from the the river passing through the valley below. A well-travelled path runs 700 m away from the nest, which is used by local people and tourists who use the trekking routes around Annapurna. Large sloping surfaces covered with eroded rock are abundant in the surrounding environment, which enable the Bearded Vulture to break the bones on which it feeds. The altitude recorded for this nest is 4800 masl, thus being one of the highest reported so far for this species (Table 1).

The axis of the valley where the nest is located is oriented North-South, although the nest itself is oriented towards the north-west. The most frequent orientation of Bearded Vulture nests in the Nepalese-Annapurna Mustang is facing south or southwest (Subedi *et al.* 2020), probably as an adaptation to receive more solar radiation in such a cold and hostile environment. Detailed research of

the cliff walls in front of the nest did not reveal any other hollows as sheltered from snow and rain as the one that contained the nest. Although the orientation is typically determined by the orography and the possibilities to construct the nest (Margalida *et al.* 2012), the species preferably selects well-protected cavities (Heredia 1991) that offer protection to the growing chick. In this sense and given that the limestone substrate generates deep caves more frequently than other types of rock, the nest under study could provide an adequate microclimate and sufficient protection at such high altitude and extreme weather conditions.

Figure 1: Photograph of the Bearded Vulture nest described in the note, located near Thorung Phedi lodge, Manang District, Nepal, at 4800 masl. The photo was taken with a telephoto lens from a distance of 900 m.

Table 1: A list of records of Bearded Vulture nest sites at altitudes above 4000 masl.

Nest elevation (masl)	**Geographic location**	**Date**	**Source**
4511	Gyantse, Tibet	1908-1909	Bailey, 1911
Approx. 4700	Taweche Mountain Range, Pangboche, Nepal	1954	Biswas, 1974
Approx. 5000	Near Chang La Ladakh, India	1999	Sangha & Naoroji 2005
4750	Chhojung, Upper Mustang, Nepal	2001	Acharya, 2002
4066	South Qinghai Province, Tibet	2002	Katzner *et al.*, 2004
Approx. 4500	Near Hanle Ladakh, India	2002	Sangha & Naoroji, 2005
4600	Annapurna, Nepal	2012-2016	Subedi *et al.*, 2020
4800	Thorung Phedi, Manang District, Annapurna, Nepal	2019	This record

Acknowledgements

To Hódar, J.A. for their help in the writing of the manuscript and to Rebelo, P. in the search for bibliographical citations. This work was financed with my own means.

References

Acharya, S.R. 2002. Bird Diversity of Upper Mustang, Nepal. http://himalaya.socanth.cam.ac.uk/collections/inskipp/2002_003.pdf (Accessed: 10-04-2021).

Ali, S. & Dillon Ripley, S. 1968. Handbook of the Birds of India and Pakistan Together with those of Bangladesh, Nepal, Bhutan and Sri Lanka. Volume 1 Divers to Hawks. Second Edition, Delhi, Oxford University Press, London.

Bailey, Captain F.M. 1911. Some notes on birds from Gyantse and Chumbi in Tibet, with a list of the game birds killed during the four years, 1906-1909. *The Journal of the Bombay Natural History Society* 21(1): 178-186.

Biswas, B. 1974. Zoological Results of the Daily Mail Himalayan Expedition 1954: Notes on Some Birds of Eastern Nepal. *The Journal of the Bombay Natural History Society* 71(3): 456-495.

Heredia, R. 1991. *Biología de la reproducción*. In: Heredia, R. & Heredia, B. *(Eds.) El quebrantahuesos (Gypaetus barbatus) en los Pirineos. Colección Técnica. Madrid ICONA*: 27-38.

Katzner, T.E., Lai, C.H., Gardiner, J.D., Foggin, J.M., Pearson, D. & Smith, A. 2004. Adjacent nesting by lammergeier Gypaetus barbatus and Himalayan griffon *Gyps himalayensis* on the Tibetan Plateau, China. *Forktail* 20: 94-96.

Margalida, A., García, D. & Bertran, J. 2012. *Reproducció i comportament. In: Els voltors a Catalunya: biologia, conservació i síntesi bibliogràfica. Grup d'Estudi i Protecció del Trencalòs, El Pont de Suert, Lleida*: 37-71

Sangha, H & Naoroji, R. 2005. Birds record during seven expeditions to Ladakh from 1997 to 2003. *Journal of the Bombay Natural History Society* 102(3): 290-304.

Subedi, T.R., Anadón, J.D., Baral H.S., Virani, MZ. & Sah, S.A.M. 2020. Breeding habitat and nest-site selection of Bearded Vulture *Gypaetus barbatus* in the Annapurna Himalaya Range of Nepal. *Ibis* 162(1): 153-161.

Schäfer, E. 1938. *Ornithologische Ergebnisse zweier Forschungsreisen nach Tibet*.

Terrasse, J.F. 2001. *Histoire et répartition du gypaète barbu*. In: *Le Gypaète barbu. Delachaux et Niestlé*. Paris: 8-35.

Xirouchakis, S. & Nikolakakis, M. 2002. Conservation implications of the temporal and spatial distribution of Bearded vulture *Gypaetus barbatus* in Crete. *Bird Conservation International* 12: 269-280.

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