

due to bridge construction over the River Boleswar. Also, due to loose sandy soil texture of the sanctuary, landslide is a common phenomenon during monsoon and post-monsoon seasons. This has a detrimental effect on the liverworts growing in BWS. Thus proper *ex situ* conservation of these threatened taxa is urgently needed in BWS.

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Vulture decline in Bikaner, Jorbeer, Rajasthan

The recent conservation studies and some ecological research have strongly recommended complete withdrawal of Diclofenac (30 and 100 ml) from the local market^{1–3}. A major concern of the study is the widespread availability of Diclofenac for veterinary use in India, even after its ban in June 2006. Surveys conducted from September 2007 to March 2008 in four states (Rajasthan, Maharashtra, Madhya Pradesh and Gujarat) show that Diclofenac was sold for veterinary use in 43% of the pharmacies.

Other surveys done from August 2009 to June 2010 in Rajasthan, Maharashtra and Uttarakhand show that Diclofenac

meant for human use was sold for veterinary use in 47% of pharmacies, indicating that despite the ban, the drug remains widely available for sale. All the multi-use injectable formulations of Diclofenac offered for sale were for human use. The death of 80 vultures from the Jorbeer dead animal dumping site was reported due to poisoning effects which included Himalayan griffon (*Gyps himalyensis*), Eurasian griffon (*Gyps fulvus*) (Figure 1), Cinereous vulture (*Aegypius monachus*) and Egyptian vulture (*Neophron percnopterus*) and 17 steppe eagle. We have rescued 26 vultures and handed them over to the local zoo for treatment. Now vulture conservation has totally changed because of the available *in situ* methods. Recently, a large decline in vulture population is noticed in Jorbeer and their mortality has increased. We need a research study for long-term conservation for knowing vulture migration. The central zoo authority has no programme for the protection of local vultures, Egyptian vulture (*N. percnopterus*) and other species of *Gyps* like Eurasian and Himalayan griffon.

We suggest the following measures for vulture restoration and protection. Setting up a safe food zone in different locations on migratory pathways, maintenance of all required safety facilities, maintain a step for providing food with a standard protocol for small lethal dose of Diclofenac and other poisonous factor. Proper consultation with a veterinarian

before throwing out carcasses that have been treated with any non-steroidal anti-inflammation drugs such as Diclofenac, should be done as a precautionary measure. The carcass must be split along the abdomen and inside the legs to facilitate easy access and its surrounding environment should be cleared of items like ear-tags, bullets, pieces of glass, porcelain, pottery, plastic, etc. In India, concern for carcass is very less and there is no maintenance of records regarding animal types, death case, death durability, proper place and utilization level. For this, a vulture conservation system must be put into place with help of the local Municipal Corporation and the Forest Department. It is more important to protect several species of vultures in India by avoiding any kind of poisonous decline of vultures.

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Figure 1. Eurasian griffon (*Gyps fulvus*) in winter at Jorbeer dumping site.