

# Population and conservation status of the Himalayan Griffon (*Gyps himalayensis*) at the Drigung Thel Monastery, Tibet, China

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**Abstract** The Himalayan Griffon (*Gyps himalayensis*), occurring mainly in the Tibetan Plateau, is one of the scavengers of Old World vultures. As of now, knowledge about the Himalayan Griffon in China remains scarce. Estimates of its number, habitat, and conservation status were carried out in 2003, 2009 and 2102 in the Lhasa River Valley, where we paid particular attention to the population living at the Drigung Thel Monastery, Mzizhokunggar County. The resident species occupies alpine meadows in the daytime and roosts at the upper parts of cliffs at night between 4400–5000 m elevation. The number of individual birds of the Himalayan Griffon around the monastery was estimated as 230 in 2003, 250 in 2009 and 200 in 2012. This population is considered relatively stable, thanks to the current conservation measures by Buddhist monks and local people. Given the lack of any baseline information, it is difficult for us to recommend and provide any effective conservation measures.

**Keywords** Himalayan Griffon, habitat, population, conservation status

## Introduction

The Himalayan Griffon (*Gyps himalayensis*), as one of the scavengers of Old World vultures, is a large-sized bird weighing about 10 kg. It usually lives at an elevation above 3000 m (ranging from 600 to 6000 m) and mainly feeds on carrion. Three other related phylogenetic species, i.e., the Oriental White-backed Vulture (*G. bengalensis*), the Long-billed Vulture (*G. indicus*) and the Slender-billed Vulture (*G. tenuirostris*), have experienced their greatest declines in the Indian subcontinent over the past 10 to 15 years, because of the use of the non-steroidal anti-inflammatory drug (NSAID) diclofenac, commonly used in livestock (Green et al., 2004; Oaks et al., 2004; Shultz et al., 2004). All four are now listed as critically endangered species (IUCN, 2004). Despite the lack of any strong evidence that the population of the Himalayan Griffon in Tibet has collapsed in recent years, the species is still at risk and in the absence of baseline information about its population the effect of any conservation measures may be difficult to assess (Lu et al., 2009). Therefore, we summarized any demo-

graphic information available on the habitat and conservation status of the population at the Drigung Thel Monastery in Tibet, based on several surveys conducted from June to July in 2003, 2009 and 2012.

## Distribution

The Himalayan Griffon, which has an extensive geographical distribution, is a resident of the high mountain ranges of Central Asia from Afghanistan to Bhutan, including the Pamirs, Turkestan and the Tibetan Plateau (Brown and Amadon, 1968), as well as of northern China, Russia and Mongolia (Del Hoyo et al., 1994; Ferguson-Lees and Christie, 2001). In China, they are found in Tibet, Sinkiang, Gansu, Qinghai, Ningxia, Sichuan and Yunnan provinces. There are also reports of its occasional occurrence in Hebei and Liaoning provinces (Hou et al., 1997; Wan et al., 2003). Our results showed that this species is mainly found in the northern Tibetan Plateau at the Drigung Thel Monastery of Mzizhokunggar County and in Nagqu District near celestial burial grounds.

## Habitat

The Drigung Thel Monastery (30°06'N, 92°11'E, 4400 m

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elevation), one of the Buddhist temples with more than 800 years of history, is situated on a hill in the Shorong River Valley, located in the northeast of Mzizhokunggar County, Lhasa City. The most famous and auspicious celestial burial ground is situated on top of the hill about 1000 m from the monastery. This area has been occupied by many different carrion birds besides the Himalayan Griffon, such as the Bearded Vulture (*Gypaetus barbatus*), the Common Raven (*Corvus corax*), and the Yellow-billed Chough (*Pyrrhocorax graculus*). The population of Himalayan Griffons has always received much attention because it plays a unique role in local celestial burials. The cliffs at more than 4800 m elevation near the burial ground provide them with night roosting and colonial breeding sites. The vegetation around this temple consists largely of two distinct types: alpine meadow species and shrubs. The areas below 4500 m are covered by shrubs on the southern slope (30°–40°) where the dominant species include Japan Barberry (*Berberis thunbergii*), Procumbent Juniper (*Sabina procumbens*) and roses (*Rosa* spp.) (Fig. 1). The shrubs are primarily rhododendron species (*Rhododendron*) on the northern slope of the hill, which is steeper than the southern slope. The alpine meadow on the top of hill (over 4600 m), the habitat of the Himalayan Griffon, is mainly covered by *Stipa Purpurea* (*Stipa purpurea*).

## Population

The number of individual birds of the Himalayan Griffon around the monastery was estimated as 230 in 2003, 250 in 2009 and 200 in 2012. In general, this population is divided into three groups: the first one consisting of 50–70 birds close to the celestial burial ground; the second group consists of 20–40 birds on the hill ridge above the celestial burial ground and there are 150–180 birds in the third group on top of the western hill. Our data showed



**Fig. 1** Suitable habitat for the Himalayan Griffon on the alpine meadow above the Drigung Thel Monastery in Tibet (Photo by Xiaoping Yu)

that it is a relatively stable population, likely as a result of a sufficient food supply and their unique role in celestial burial. It is told by local residents that two to four human corpses are normally consumed by Himalayan Griffons in the celestial burial ground every day. Furthermore, nothing can disturb them, given the protection of the Tibetan Buddhist monks and local people.

## Daily behavior

Movements of this population of the Himalayan Griffon are centered on the celestial burial ground, owing to its stable food supply and little human disturbance. This resident species feeds exclusively on human corpses from 7:00 to 9:00 every morning. Then the griffon flocks move around easily and comfortably on the alpine meadows (Fig. 2) with behaviors such as mutual preening, sunbathing (Fig. 3) and even sleeping. Sometimes they spread out their wings towards the sun on sunny days in order to remove the dew attached to their feathers of a foggy morning. After 16:00 in the afternoon, they usually take off, soar in the sky (Fig. 4) and then fly to their night roosting sites, where the cliffs stand



**Fig. 2** A pair of Himalayan Griffon standing on the alpine meadow (Photo by Xiaoping Yu)



**Fig. 3** A flock of Himalayan Griffon sunbathing in the sunshine with their wings stretched (Photo by Xiaoping Yu)



**Fig. 4** A Himalayan Griffon soaring in the sky (Photo by Xiaoping Yu)

no more than 2 km from their “feeding grounds”. Our observations indicated that they mostly live in family groups, where most of the old vultures are subordinated in these groups, often observed at their edge and at a disadvantage in feeding. Their night roosting sites are also their colonial nesting sites from May to August. The breeding habitats are at a low risk because their nesting sites are high on inaccessible cliffs.

### Avian community

Simultaneously, we investigated the entire avian community using a line transect and point count method at the Drigung Thel Monastery. A total of 32 bird species, belonging to 5 orders and 15 families, were recorded within the study area. Some of these species, such as the Himalayan Griffon, the Bearded Vulture, the Tibetan Partridge (*Perdix hodgsoniae*) and the White-rumped Snowfinch (*Onychostruthus taczanowskii*) are endemic to the Qinghai-Tibetan Plateau. The dominant species are the Himalayan Griffon, the Russet Sparrow (*Passer montanus*) and the Yellow-billed Chough. Common species include the Hill Pigeon (*Columba rupestris*), the Crested Lark (*Galerida cristata*), the Black-faced Laughingthrush (*Garrulax affinis*), the Great Tit (*Parus major*), the Common Raven, the Red-billed Chough (*Pyr-rhocorax pyrrhocorax*) and the Yellow-browed Warbler (*Phyllscopus inornatus*). Interestingly, Bearded Vultures often appear in the groups of the Himalayan Griffon without violent clashes, where they then account for 5% to 10% of the population (10–20 individuals). There are three kinds of carrion birds, i.e., the Yellow-billed Chough, the Red-billed Chough and the Common Raven, near the population of the Himalayan Griffon. They usually feed on the leftovers of human corpses following the “breakfast” of the Himalayan Griffon.

### Conservation status

The global population has been estimated at approximately 286749 individual birds (Lu et al., 2009) and its conservation status is therefore considered as Lower Risk/Least Concern (IUCN, 2004). Populations of three species of vultures in the Indian subcontinent have collapsed since the early 1990s and are now at high risk of extinction (IUCN, 2004). The main cause of this decline is the use of diclofenac, a non-steroidal anti-inflammatory drug (NSAID), commonly used to treat pain and inflammation in livestock in India, Pakistan and Nepal (Green et al., 2004; Oaks et al., 2004; Shultz et al., 2004). Vultures become exposed to diclofenac when they feed on carcasses of livestock that was dosed with the drug shortly before their death and then die from kidney failure within a few days of exposure (Oaks et al., 2004; Swan et al., 2006). Such a catastrophic decline in vulture population highlights ecological, cultural and public health issues for vulture conservation and raises the need for information on lesser known vulture species (Koeniq, 2006), although it is not known whether diclofenac or perhaps some other NSAIDs can affect the populations of the Himalayan Griffon and other scavengers (Cuthbert et al., 2006). Tibetan people rarely treat livestock with veterinary drugs (Lu et al., 2009). For the moment therefore, this drug may be not a danger to the vultures in Tibetan areas. But this situation may change with the development of the social economy and with the intense growth of human activities in the near future.

Tibetan Buddhism plays an important role in the conservation of the Himalayan Griffon and other wildlife in the Tibet area, with its large number of monasteries. The Buddhist monks and their adherents often provide a variety of food, such as highland barley, tsamb and ghee, to wild birds. Our observations indicated that the population density of birds and forest coverage near temples are significantly larger than that in other areas (Ma et al., 2011). More than 80% of the 5 million Tibetans are intended for eventual consumption by the Himalayan Griffon in celestial burials. Therefore these human corpses form a stable food supply for this population, as well as for other scavengers.

The government certainly contributed to the protection of the Himalayan Griffon at the Drigung Thel Monastery. Recently the Chinese government passed a new regulation (the third of its kind since 1985) to protect Tibetan traditions. This regulation prohibits such human activities as firing, blasting and quarrying around burial sites to avoid disturbance to the scaven-

gers. As well, it does not allow celestial burial for people who have died of toxicosis or infectious diseases, in an attempt to prevent poisoning of the griffons. Therefore the Himalayan Griffon, a hallowed and important bird for local people and the government, enjoys considerable protection from several sources.

On the other hand, local customs greatly limit further study of the population of the Himalayan Griffon, given the excessive faith and traditional culture of the local people. In addition, NSAID remains a potential threat to the population of this griffon in the near future. In fact its conservation status is not as good as it seems because of the lack of ecological information. For these reasons, more and strong measures, highlighting the need for studies on population dynamics, habitat and breeding behavior should be taken in Tibet, even if this population appears relatively stable at present.

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## 中国西藏直贡梯寺高山兀鹫的种群及保护现状

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**摘要:** 高山兀鹫 (*Gyps himalayensis*) 是一种生活于东半球的食腐鸟类。多数中国种群生活于青藏高原。但是到目前为止, 仍然缺乏对其种群的了解。我们分别于 2003、2009 和 2012 年着重研究了栖息于墨竹工卡县直贡梯寺高山兀鹫种群的大小、栖息地以及保护现状。白天, 它们主要在高山草甸上活动; 夜间, 主要栖息于海拔 4400–5000 m 的悬崖上。调查结果显示, 2003 年寺庙周围高山兀鹫个体数量约为 230 只, 2009 年约为 250 只, 2012 年约为 200 只, 是一个相当稳定的种群。分析认为, 藏传佛教的僧侣和当地居民在高山兀鹫种群及其栖息地的保护中起到了关键性的作用。但是当前, 因对其缺乏更多的了解使得有效的保护措施难以实施。

**关键词:** 高山兀鹫, 栖息地, 种群, 保护