CONSERVATION REPORT

Feeding stations for wintering Himalayan Griffon *Gyps himalayensis* in Thailand

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Introduction

The Himalayan Griffon *Gyps himalayensis* is the largest *Gyps* vulture in Asia (Ferguson-Lees & Christie 2001, Gombobaatar & Yamazaki 2018). The species is an obligate carcass-scavenger, but is at present only categorised Near Threatened, unlike its close relatives which inhabit lower altitudes and have suffered catastrophic population collapses in areas where cattle farming is extensive and farmers have widely used diclofenac (a non-steroidal anti-inflammatory drug) to treat their animals; this drug has been shown to induce kidney failure and visceral gout in *Gyps* vultures which ingest it through the consumption of contaminated livestock carcasses with fatal consequences (Das *et al*. 2013, BirdLife International 2019). The reason for the Himalayan Griffon's better circumstances is probably that it inhabits and breeds in remote high-altitude areas where livestock rearing is problematic and farmers cannot afford to treat their animals with diclofenac.

The Himalayan Griffon breeds in central Asia, western China and the Tibetan plateau, and winters mainly in South Asia (Gombobaatar & Yamazaki 2018), with a few visiting South-East Asia (Yong & Kasorndorkbua 2008). During the winter months, between 10–30 mostly juvenile birds have been sighted annually in Thailand in recent years. The birds start to arrive from the Ailao Mountains, China, into the northern provinces around Chiang Mai as early as mid-November, although most sightings have been between December and January (Kasorndorkbua 2019). As diclofenac has been used in Thailand by cattle- and goat-farmers, this potentially poses a threat to wintering vultures. The species also reaches Cambodia, Peninsular Malaysia, Singapore and the Riau islands, Indonesia (Yong & Kasorndorkbua 2008). In Cambodia, although it is an infrequent visitor (Johnny Orn *in litt*.), it does take advantage of the carcasses supplied at organised feeding stations (Clements *et al.* 2013).

In Thailand, as a result of changes in livestock carcass management, fewer carcasses are now available since farmers usually send livestock to slaughterhouses for profit. Consequently, some of the wintering and passage vultures have been unable to find sufficient food, becoming weak and requiring veterinary care. Since 2007, a total of 32 vultures, all juveniles, have been rescued by the Department of National Parks, Wildlife and Plant Conservation (DNP) and delivered to Kasetsart University Raptor Rehabilitation Unit (KURU) for veterinary care (Figure 1).

Based on where vultures have been rescued and where healthy vultures have been seen in Thailand (Figures 1 & 2), it appears that they may use two routes to move to the south through the country after they arrive from their northern breeding grounds. The main route follows the mountainous Myanmar–Thai border south to the Tanintharyi mountains of Tenasserim, Myanmar, and on into Peninsular Malaysia. The secondary route, based on the lower number of sightings and recoveries, initially takes birds in a more easterly direction over Chiang Rai before moving south-south-east into Thailand's east-central and eastern provinces—from there birds may wander into Cambodia.

To overcome the starvation risk due to the shortage of wild animal carcasses to sustain the wintering Himalayan Griffon, and to reduce the potential hazard of diclofenac-induced fatalities, a feeding station appears to be a vital asset to increase the survival rate of the species (Clements *et al*. 2013). We report below on the operation and outcome of feeding stations set up for Himalayan Griffon in Thailand.

Phuket vulture restaurant

Phuket province in southern Thailand is located on the species's direct north–south flyway. Since 2007, 23 emaciated vultures have been rescued in Thailand's southern provinces (including five from Phuket) and submitted to KURU for rehabilitation and release.

Between 26 and 29 January 2018, RP & Itthipol Lundee observed a flock of 12 Himalayan Griffon roosting each morning in a tall *Hopea ferrea* tree on a hill in Chalong subdistrict, Phuket (7.864°N 98.312°E). The following winter, on 27 December 2018, RP observed a flock of seven vultures soaring over the same hill. Following these sightings, a feeding station (a so-called 'vulture restaurant')

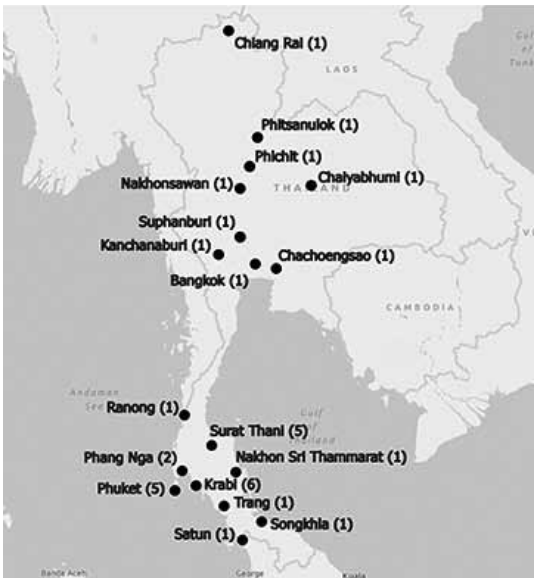

Figure 1. Locations of starved and rescued Himalayan Griffon *Gyps himalayensis* in Thailand, 2007–2019. Numbers in parentheses are the number of rescued vultures.

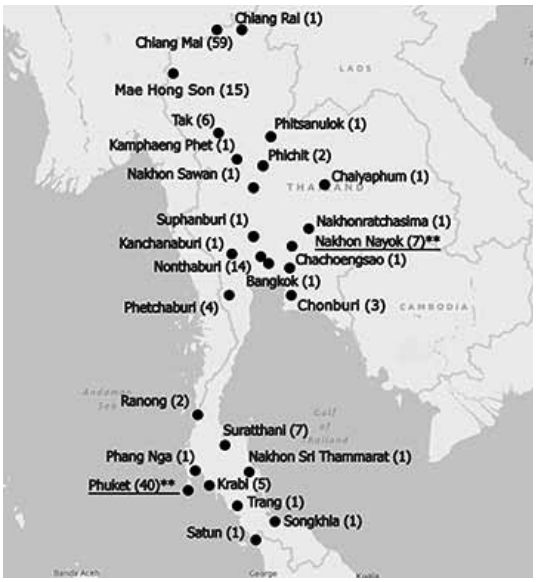

Figure 2. Locations of Himalayan Griffon seen between 2007 and 2019. Numbers in parentheses are the cumulative numbers of vultures at each site. ** indicates the location of vulture restaurants.

Plate 1. Himalayan Griffon *Gyps himalayensis* roosting on a *Hopea ferrea* tree, Chalong, Phuket province, Thailand, 28 January 2018.

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Plate 2. Three Himalayan Griffon at the feeding station, Chalong, 17 January 2019.

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Plate 3. A juvenile Himalayan Griffon at the feeding station, Pakpli, Nakhon Nayok province, Thailand, 23 February 2019.

was organised, the operation being supported by KURU, through public donations. Fresh cattle carcasses and pigs' legs were provided every three days. Visceral organs, especially liver and kidney, were avoided to minimise the risk of poisoning from diclofenac residues. Five Himalayan Griffon—four juvenile and one fifth-calendar-year sub-adult (third plumage) (Forsman 2016)—were observed feeding here between 3 January and 13 February 2019. During their stay at the site, the vultures regularly roosted overnight in the same *Hopea ferrea* tree and visited the restaurant every two or three days. A camera-trap was used to confirm the presence and to count the number of vultures at the restaurant (video capture at http://www.birdsofthailand.org/content/feeding-stations-vultures).

Pakpli vulture restaurant

On 20 January 2019, SI, CK and Pratheep Murin observed a juvenile Himalayan Griffon being mobbed by Black Kite *Milvus migrans lineatus* at a eucalyptus-dominated former wetland in Pakpli district (14.089°N 101.268°E), Nakhon Nayok province, close to Khao Yai National Park, east-central Thailand. This was the first record of the species at the site where, for at least six consecutive years, there has been an overnight roost of about 1,900 Black Kite and 30 Greater Spotted Eagle *Clanga clanga* (CK pers. obs.). Pakpli is located on the south-south-east flyway (Figure 2), and from 21 January 2019 a feeding operation was run here daily. On 3 February, one juvenile Himalayan Griffon visited the site, and

then one or two vultures continued to feed at the site daily until the last was seen on 8 March. A public observation hide was built and the cost of the carcasses was supported by Pakpli Raptor Conservation Club, through public donations. Based on the differences in primary feather markings, observed by comparing photographic images, it was concluded that possibly seven Himalayan Griffon had visited the feeding station. All observations were between 09h00 and 15h00 each day. The birds always arrived at the site from, and departed to, the north-east, in the direction of Khao Yai National Park, so it is probable that the vultures roosted overnight in the park, where there are many suitable tall trees.

Conclusion

The two feeding stations were effective in supporting wintering Himalayan Griffon between January and March 2019. It appears that wintering Himalayan Griffon commence migration back to their breeding ranges between mid-February and early March. We plan, with the cooperation of the DNP, to continue the project at the two sites for the long term. Ringing and satellite tracking of the species has been initiated to further study their migration patterns, looking at the mapping of movements, migration period and timing, demographic differences and patterns, and site fidelity.

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