

Field report

Himalayan wolf and feral dog displaying mating behaviour in Spiti Valley, India, and potential conservation threats from sympatric feral dogs



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Keywords: *Canis himalayensis*, feral dogs, Himalayan wolf, India.

Abstract

This note reports a sighting of a Himalayan wolf from the trans-Himalayan region and a feral dog in a mating position in Spiti Valley, Himachal Pradesh, India. Comments on the possible reasons for the wolf's association with feral dogs and potential harm of feral dogs to the wolf population are discussed.

Introduction

The Himalayan wolf was only recently distinguished as one of the most basal lineages within *Canis lupus*, yet little is known about its ecology, distribution, and behaviour (Sharma et al. 2004). Although their taxonomic status is still debated (Shrotriya et al. 2012), the Himalayan wolf is suggested as an independent wolf species *Canis himalayensis*, having diverged from the rest of the wolf clade between 630,000 to 800,000 years ago (Aggarwal et al. 2007, Sharma et al. 2004). In Ladakh and Himachal Pradesh, the wolf population was last estimated in 1995 at 350 individuals and is listed as protected under Schedule 1 of India's Wildlife Protection Act (Fox and Chundawat 1995). Due to human-induced pressures such as retaliatory killings, the wolves of Spiti Valley face a variety of threats. Additionally, feral dogs have been known to endanger wild canid populations through hybridisation, disease transmission and competition. This may be especially relevant for the wolves of Spiti Valley, where a high population of feral dogs coexist with low densities of wolves.

This field note reports a recent sighting of a mating display between a female wolf and male feral dog from Spiti Valley, India. This occurrence raises questions about the dynamics of wolf-feral dog interactions in this region, and the impact of these interactions in the conservation of the Himalayan wolf.

Results and discussion

On 23 November 2014 at 11:35h in Spiti Valley, Himachal Pradesh, India, L.H. observed a Himalayan wolf and feral dog displaying mating behaviour (Figure 1). Based on field observations and video, the female wolf was limping slightly due to a possible injury to one of her rear paws. A similar observation was made by S.L. in which the individual was ranging with another male feral dog (Figure 2). On discussion with local residents, it was noted that the individual wolf was known to regularly visit agricultural fields in the company of feral dogs. Residents also reported several cases of livestock depredation, suspected to have been caused by the mixed wolf-dog group. Although the distribution of the Himalayan wolf population has not been properly determined, the wolves of Spiti Valley are considered Himalayan wolves based on a genetic sample in Sharma et al.'s (2004) study that originated from captive individuals captured near Kibber in Spiti Valley (Figure 3).

The interaction between feral dogs and wolves can potentially pose a threat to the Himalayan wolf population. In India, feral dogs can act as a reservoir and vector for a variety of diseases, such as canine parvovirus (CPV), canine hepatitis (CH), canine distemper virus (CDV) and rabies (Menezes 2008, Belsare et al. 2014). Over 90% of feral dog

The following is the established format for referencing this article:

Hennelly, L., Habib, B. and Lyngdoh, S. 2015. Himalayan wolf and feral dog displaying mating behaviour in Spiti Valley, India, and potential conservation threats from sympatric feral dogs. *Canid Biology & Conservation* 18(9): 33-36. URL: http://www.canids.org/CBC/18/mating_of_himalayan_wolf_and_feral_dog.pdf.

populations living near or within a wildlife sanctuary in Maharashtra showed current or past exposure to CPV and CDV (Vanak et al. 2007).



Figure 1. Female wolf in mating position with a male feral dog (L. Hennelly).



Figure 2. Same female wolf with a different black feral dog photographed in July 2014 (S. Lyngdoh).

In Spiti Valley, a sero-survey of the local free-ranging dogs showed that a high proportion had current or past exposure to CPV and CH, and a lower proportion to CDV (Chandrima Home, pers. comm.). Abrupt population declines in wild canid populations have been linked to disease outbreaks such as rabies in Ethiopian wolves (Randall et al. 2004) and CDV in African wild dogs (Alexander and Appel 1994), in which free-ranging dogs were the main vectors. Sterilisation and rabies vaccination programmes have been underway in Spiti Valley; approximately 30% of the estimated feral dog population found in the valley have been sterilised and approximately 40% have been vaccinated. For the feral dog population in Jodhpur, India, an estimated threshold of 70% rabies vaccination coverage is necessary to significantly prevent rabies. According to these demographic models, Jodhpur's current feral dog population levels would be maintained if sterilisation coverage was under 40% (Totton et al. 2010).

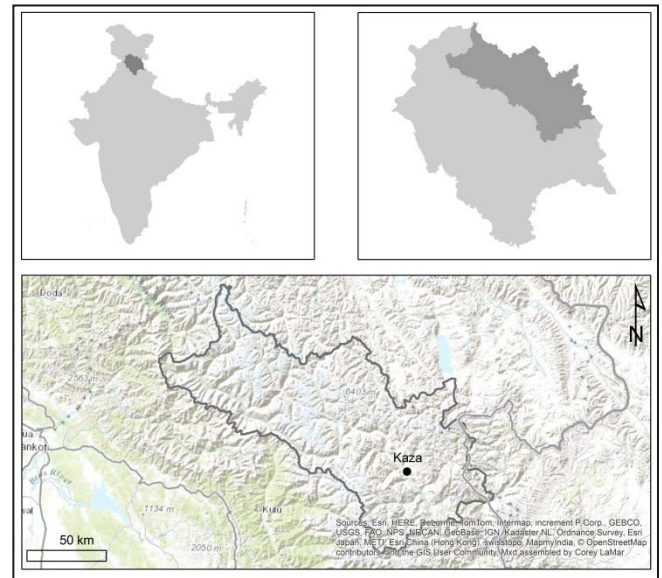


Figure 3. Map of Lahaul and Spiti District, Himachal Pradesh, India.

Yet, the necessary threshold coverage levels for the feral dog population in Spiti Valley is uncertain since threshold levels vary with population demographics, disease transmission dynamics and spatial characteristics of the feral dog population (WHO 2004).

Within the *Canis* clade, hybridisation can occur and potentially impose conservation threats to the genetic integrity of wild canid populations (Gottelli et al. 1994, Lescureux and Linnell 2014). In areas with an abundance of feral dogs, wild canids have been known to hybridise, especially when the wild canid populations are in low densities. Due to behavioural differences such as little parental care in male dogs (Boitani et al. 1995) and lack of long-term bonds forming, the survival of wolf-dog hybrids may be low (Vilà and Wayne 1999). Despite this, hybridisation between grey wolves and dogs has been genetically verified in Italy (Iacolina et al. 2010), Estonia (Hindrikson et al. 2012), Canada (Munoz-Fuentes et al. 2010), Latvia (Hindrikson et al. 2012), Scandinavia (Vilà et al. 2003), Spain (Godinho et al. 2011) and Georgia (Kopaliani et al. 2014). Furthermore, the pairing between a male dog and female wolf will deprive the female wolf of potentially contributing to the wolf population for that year. Spiti Valley wolves occur in low densities and based on this photograph (Figure 1), this unique wolf population may be at risk of hybridisation with feral dogs.

In Spiti Valley, the pastoralist community supports high densities of livestock, resulting in more than four-fifths of the rangelands becoming overstocked and densities beyond the natural resource limitation through supplemental feeding (Mishra et al. 2001, Mishra 2001). Dietary overlap between livestock and wild herbivores such as the bharal or Himalayan blue sheep *Pseudois nayaur*, has led to competition and a decline in bharal density (Mishra et al. 2004). Wild carnivores that historically depended on wild prey species that once utilised these grazing lands may be under resource stress, resulting in livestock depredation (Lyngdoh et al. 2014). Local peoples' threat perceptions towards livestock depredation are disproportionately biased against the wolf, contributing to greater negative attitudes when compared to attitudes towards snow leopards *Panthera uncia* (Kulbushansingh et al. 2014). However, feral dogs kill more livestock in Spiti Valley than both snow leopard and wolf (Suryawanshi et al. 2013). Although Himalayan wolves are protected under Indian law,

international attention towards their conservation is minimal, as globally, wolf populations are stable and listed as Least Concern by the IUCN Red List (Mech and Boitani 2010). Future studies must focus on addressing threats to these wolves, including whether feral dogs are hybridising, transmitting diseases and competing with wolves in this arid Trans-Himalaya region. The Himalayan wolf is an apex predator in a fragile high altitude system, whose role has been intricately linked through evolution; therefore its conservation has larger implications for the region, its people and environment.

Acknowledgements

We are thankful to the Wildlife Institute of India for funding the Ecology and Conservation of the Himalayan Wolf Project, as well as the Fulbright Program and United States-India Education Foundation for financial support to L.H. We are also thankful to the Himachal Pradesh Forest Department for permission to conduct research and for providing logistical support in Spiti Valley.

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Biographical sketch

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