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Cheer Pheasant *Catreus wallichii* distribution in Far-Western Nepal with notes on threats

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Abstract Pheasants remain among the least studied but most popular species targeted by hunters and trappers in many parts of Nepal. Cheer Pheasant *Catreus wallichii*, is classified as rare and Vulnerable by the International Union for Conservation of Nature, an Endangered species in the National Red List of Birds in Nepal, and one of nine protected priority bird species of Nepal. Despite its global and national significance, it has been declining in Nepal, and in other parts of its range. Snaring and hunting are the main causes for its decline in Nepal. Furthermore, scientific research and conservation efforts for the Cheer Pheasant have been focused on a few Protected Areas (PAs), ignoring the large areas of its range that lie outside the PAs system. Despite the species' occurrence being reported opportunistically, no fieldwork focusing on Cheer Pheasant has been carried out in Far-Western Nepal. Therefore, from 2014 to 2016, a survey and informal interviews were conducted in Baitadi, Achham and Bajura districts of Far-Western Nepal to learn more about the species' status, distribution, and conservation challenges. As a result of this work, Cheer Pheasant has been found in new locations in Nepal, including Pancheshwor Rural Municipality in Baitadi, Mangalsen Municipality in Achham and Badimalika Municipality in Bajura District. The main anthropogenic threats to the species in Far-Western Nepal include trapping, shooting, egg collection, and forest fire. The species has already disappeared from some locations where local people observed them frequently in the past. Therefore, intensive study of the relationship between Cheer Pheasant and underlying threats is necessary. Additionally, conservation campaigns should be focused on hunting groups and local people, as awareness in the region is poor.

Key words Call count, Cheer Pheasant, Far-Western Nepal, Pheasants, Threats

Overexploitation is now considered one of the most prevalent anthropogenic threats to birds, affecting nearly 30% of globally threatened bird species (BirdLife International 2004). Hunting and trapping have been identified as major threats affecting Galliformes globally, driving them towards extinction (McGowan et al. 2012), with 25% of the 308 Galliformes species being listed as threatened with extinction (BirdLife International 2018). Species in the order Galliformes are at high extinction risk due

to direct exploitation for food, eggs, sport, and cultural practices (Keane et al. 2005; Grainger et al. 2018). In many parts of Nepal, Galliformes are popular targets for hunters and trappers causing local declines in populations (Inskipp et al. 2016). Among them, Cheer Pheasant *Catreus wallichii*, is classified as Vulnerable by the International Union for Conservation of Nature and nationally Endangered as well as one of the nine nationally protected priority species in Nepal (Inskipp et al. 2016; BirdLife International 2021; DNPWC & DFSC 2018). The species is endemic to the western Himalayan foothills and the population is thought to be declining; the population

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is estimated to be 2,000–2,700 mature individuals (BirdLife International 2017) while Nepal's population is estimated to be fewer than 1,000 individuals (Inskipp et al. 2016). Hunting pressure and habitat fragmentation are suspected to be the main causes for the moderate global decline of Cheer Pheasant (BirdLife International 2021). The species is on the verge of local extinction from many known locations, for example Salkhala Game Reserve, an isolated important bird area in Pakistan (Awan et al. 2012), and Kaksthal, Tundah, Bhatal and Thathana in Chamba, Himachal India (BirdLife International 2021), as well as having significantly declined in Rara National Park, Annapurna Conservation Area and Dhorpatan Hunting Reserve, Nepal (Acharya et al. 2006; Singh 2009; Inskipp et al. 2016; Basnet et al. 2020).

Pheasants inhabiting the Himalayas have been highly affected by hunting for meat and cultural practices in Arunachal Pradesh, India, causing a decline in the population there (Kaul et al. 2004; Aiyadurai 2011; Selvan et al. 2013). In Pakistan, hunting causes isolation of Cheer Pheasant (Young et al. 1987) increasing the chances of inbreeding thereby reducing the viability of the population (Heber & Briskie 2010). In Nepal, hunting and snaring, live trapping for meat or to place them in captivity and use them in luring, egg collection, overgrazing, nest destruction by domesticated dogs, deforestation and uncontrolled forest fires to promote grazing have been identified as the main threats to Cheer Pheasant (Singh et al. 2011; Inskipp et al. 2016; Subedi et al. 2017; DNPWC & DFSC 2018; Basnet et al. 2020). Luring using captive Cheer Pheasant, is a common traditional practice for hunting Cheer Pheasant in Western Nepal (Budha 2006; Inskipp et al. 2016; DNPWC & DFSC 2018). In addition, superstitious beliefs drive its use in traditional medicine for asthma, body pain and fever making it one of the most frequently illegally hunted pheasant species in Nepal (Budha 2006; DNPWC & DFSC 2018).

The majority of scientific studies on Cheer Pheasant in Nepal have focused on protected areas (PAs), namely: Annapurna Conservation Area, Dhorpatan Hunting Reserve, and Rara National Park (Inskipp et al. 2016). Important habitat outside PAs, which is more vulnerable to anthropogenic threats, has not been prioritized for either research or conservation. Even though anecdotal information is available on the presence of Cheer Pheasant from the Far-Western region of Nepal, scientific surveys are lacking from

these regions despite the species' global and national significance. Therefore, this study was conducted in order to understand the status, distribution and major conservation threats of Cheer Pheasant in Far-Western Nepal.

MATERIALS AND METHODS

1) Study Area

Research was conducted in Far-Western Nepal, a little-studied landscape located on the western border of Nepal. The region has limited access to basic services and development is challenging due to the difficult topography. Altogether, 12 stations located in six municipalities within three districts were selected for survey (Table 1). These were Pancheshwor Rural Municipality (RM) of Baitadi, Bannigadi Jayagad RM, Sanphebagar Municipality and Mangalsen Municipality of Achham and Khaptad Chhededaha RM and Badimalika Municipality of Bajura District. These locations lie in the midhills and are located outside PAs. Bajura and Achham are categorized as backward districts by the government of Nepal.

2) Methods

Cheer Pheasant was monitored at seven call count stations (Dhankura, Pitthubanna, Liste Lek, Deulikhand, Timelsen, Bhatte Lek and Chulthe Lek) from 16 May to 01 June 2014, and a further five call count stations (Jukepani, Dadelna, Thamra, Sallena and Damkane) were monitored from 13–24 May 2016. Most of these areas, dominated by Chir Pine *Pinus roxburghii* forest, are at 1,350–2,484 m asl (Table 1). Locations for the survey carried out in 2014 were chosen based on responses to a radio awareness program conducted in the region in 2013, further consultation with locals was carried out during field work. Additionally, sites in Bajura were identified through information collected during interviews with locals in 2014 and through informal discussions with locals based on the 2014 survey.

At each site, the presence of the species was confirmed using the dawn call count method (Gaston 1980). The dawn call count method is considered the only reliable method for estimation of pheasant populations (Gaston et al. 1981) and has been used widely for pheasant species in the Himalayas (Gaston & Singh 1980; Yonzon 1987; Garson 1983; Khaling et al. 1998; Singh et al. 2011; Awan et al. 2014). During the breeding season (April–June), male Cheer Pheasant give intermittent loud calls to proclaim territory

Cheer Pheasant distribution and threats

Table 1. Survey stations and numbers of calls recorded on three consecutive mornings along with the number of individuals sighted at each site. Asterisks indicate that no surveys were conducted on the third day as no calls were heard on the two previous days. VDC stands for village development committee, and RM stands for rural municipality.

S.N.	Station/ former VDC	Local bodies/District	Elevation (m)	Survey dates	Day 1	Day 2	Day 3	Male found	Female found	No. of nesting found
1	Dhankura, Kulau	Pancheshwor RM/ Baitadi	1,682	16–18, May 2014	1	1	0			
2	Chulthe Lek Gudukhati	Khaptad Chhededaha RM/ Bajura	2,584	20–21, May 2014	0	0	*			
3	Bhatte Lek, Kuntibandali	Mangalsen Municipality/ Achham	1,915	23–25, May 2014	1	1	1			
4	Liste Lek, Kuntibandali	Mangalsen Municipality/ Achham	1,497	23–24, May 2014	0	0	*			
5	Pitthubanna, Basti	Mangalsen Municipality/ Achham	1,792	26–28, May 2014	1	1	1			
6	Timelsen forest, Timelsen	Bannigadi Jayagad RM/ Achham	1,362	29–30, May 2014	0	0	*			
7	Deulikhand, Devistan	Sanphebagar Municipality/ Achham	1,471	31–01, May/June 2014	0	0	*			
8	Damkane, Badimalika	Badimalika Municipality/ Bajura	2,484	13–14, May 2016	0	0	*			
9	Sallena, Juwada	Badimalika Municipality/ Bajura	1,378	16–18, May 2016	2	3	2	1	2	2
10	Thamra, Juwada	Badimalika Municipality/ Bajura	1,884	17–19, May 2016	4	5	4	1	1	
11	Jukepani, Juwada	Badimalika Municipality/ Bajura	1,772	22–24, May, 2016	2	2	2			
12	Dadelna, Juwada	Badimalika Municipality/ Bajura	1,541	21–23, May, 2016	2	1	2	1		

and to attract females (Mirza 1980). Counts were made from 30 minutes before sunrise as suggested by Young et al. (1987) and the protocol for setting the survey stations followed Singh et al. (2011). On the first two days consecutive dawn call counts were conducted at each survey station. If no calls were heard on the first two days, then no attempt was made on the third morning due to limited resources. Additionally, Cheer Pheasant sightings and nest sites were recorded during and after the dawn surveys.

During the 2014 survey, five people were interviewed in Achham, seven in Baitadi, and four in Bajura District, totaling 16 interviews. In 2016, 26 interviews were conducted in the Bajura District. Informants, aged 40–60 years, were selected because they were knowledgeable about the species and had spent most of their lives near Cheer Pheasant habitat. A poster and illustrations from Grimmer et al. (1998)

were shown before conducting interviews. Initially, interviews focused on general information about Cheer Pheasant to gauge the informants' knowledge of the species, then focused on distribution, hunting methods, quantity hunted, number of hunters, number raised by locals and their involvement in pheasant hunting. In addition, we collected information about population trends, knowledge of hunting law and willingness for Cheer Pheasant conservation.

In Nepal, uncontrolled forest fire has been identified as a significant threat to Cheer Pheasant (Singh et al. 2011; Inskipp et al. 2016). Most fires occur between January and June (Parajuli 2015; Bhujel et al. 2018) which overlaps the Cheer Pheasant breeding season (Ali & Ripley 1997), indicating a significant potential impact on the species. Therefore, we counted the number of forest fires in Cheer Pheasant habitat during the field survey.

RESULTS

1) Distribution of Cheer Pheasant in Far-Western Nepal

Cheer Pheasant was recorded from seven out of twelve stations in Far-Western Nepal. In Baitadi District, one was recorded from Dhankura site in Pancheshwor RM, and individuals were recorded at both Pitthubanna and Bhatte Lek sites in Mangalsen Municipality, Achham District. A total of 12 individuals was recorded from Jukepani, Dadelna, Thamra, and Sallena sites in Badimalika Municipality, Bajura District (Table 1, Fig. 1). Sites where they were recorded were at 1,378–1,915 m elevation near human settlements, mostly characterized by open Chir Pine forest with steep grassland, rocky slopes or crags (Table 1).

During the survey period, we sighted six Cheer

Pheasant in three incidences, including two breeding records in Badimalika Municipality (Table 1). However, we failed to record Cheer Pheasant at Chulthe Lek of Khaptad Chhededaha RM, Damkane Lek of Badimalika Municipality, Liste Lek of Mangalsen Municipality, Devistan area of Sangebagar Municipality and Timalsen area in Bannigadi Jayagad RM, even though locals claimed the species was still present there.

Cheer Pheasant breeding was confirmed when eight freshly-fledged chicks were sighted on 16 May 2016 on the south-facing aspect of the Sallena Community forest, at 1,546 m asl. The nesting area was on a steep slope with boulders, rocks, and sparse grasses on an old dry landslide area over 40 m wide and 200 m long, making it difficult for other wildlife and people to approach. Although Chir Pine dominated the general area, the nest was placed on

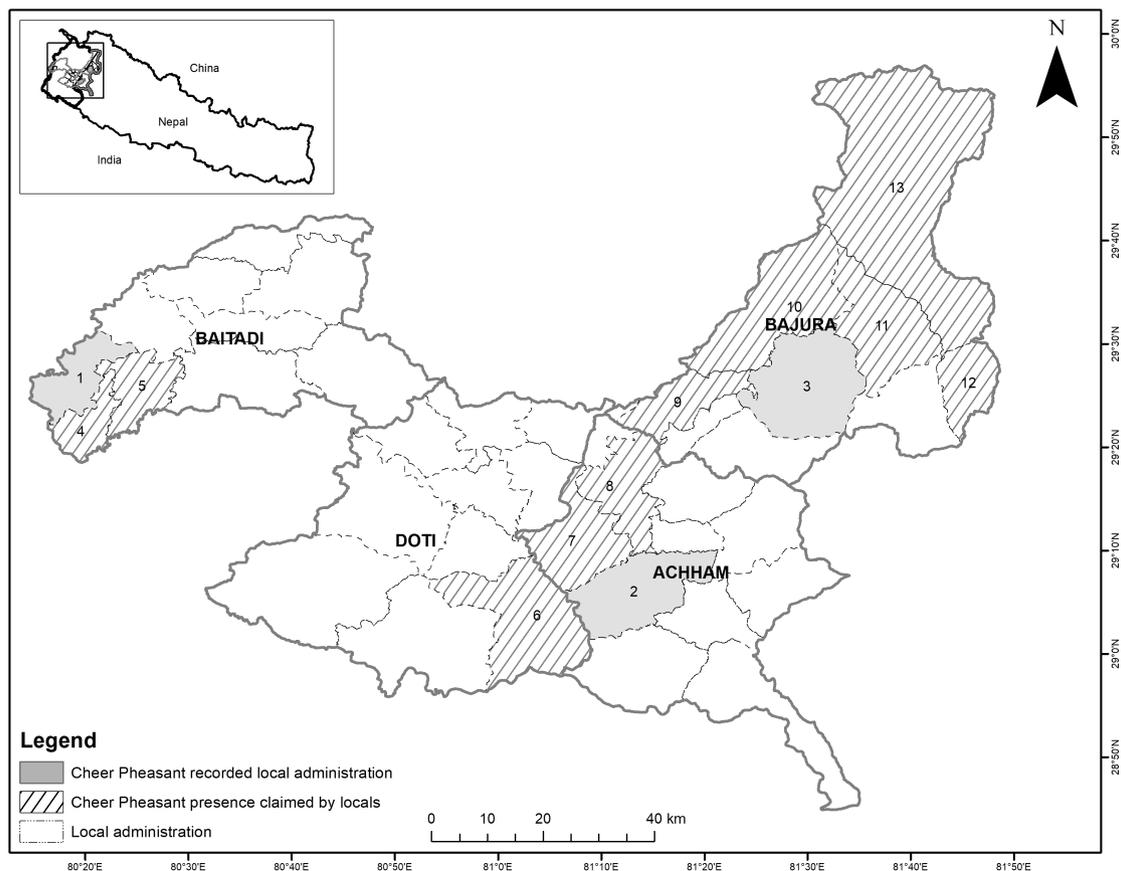


Fig. 1. Local administrative areas where Cheer Pheasant *Catreus wallichii* was recorded are shown in grey; hatched areas are those where the species presence was confirmed by locals. Numbers on the map denote the following local bodies: 1 Pancheshwar Rural Municipality (RM); 2 Mangalsen Municipality (M); 3 Badimalika M; 4 Shivanath RM; 5 Melauli M; 6 Bogtan RM; 7 Chaupati RM; 8 Sanphebagar M; 9 Chhededaha RM; 10 Gaumul RM; 11 Budhinanda M; 12 Swami Kartik RM, and 13 Himali RM

ground patchily covered with grass less than 2 m tall, Bayberry *Myrica esculenta*, medium-sized Nepalese Alder *Alnus nepalensis* and several small (0.95 m) Chir Pine (Fig. 2). The nest itself was cup-shaped and entirely composed of dry leaves of Chir Pine, Bayberry, Nepalese Alder, and twigs. On the outer edge of the nest there were some small pebbles.

2) People’s perception and threats assessments

Locals reported the presence of Cheer Pheasant from Melauli Municipality and Shivanath RM of Baitadi, Shrifali area of Chaurpati RM and Sanphebagar Municipality of Achham, and Budhinanda Municipality, Swamikartik Khapad RM and Gaumul RM of Bajura District (Fig. 1). More-

over, 64.28% (N=27) of locals believe that the population has declined significantly blaming wildfire, illegal hunting (of various types) and habitat destruction as the causes (Table 2).

Among the 42 informants, seven reported that they or their parents had raised Cheer Pheasant in captivity. Three reported that they had engaged in Cheer Pheasant hunting in the past, and 11 reported that they had seen hunted Cheer Pheasants or traps in their areas. Even though only three people knew about the conservation status of the species, 32 locals (76%) from three districts showed a positive response towards pheasant conservation. We recorded two captive Cheer Pheasants and three Kalij Pheasants *Lophura leucomelanos* in Chhededaha RM of Bajura



Fig. 2. The first breeding record of Cheer Pheasant *Catreus wallichii* in Far-Western Nepal (Photo by Hari Basnet, 16 May 2016).



Fig. 3. Captive Cheer Pheasant and Kalij Pheasant reared for luring purposes in Chhedadaha RM, Bajura District (Photo by Hari Basnet 20 May 2016).

Table 2. Number of informants and hunting techniques used by local people in each district.

S.N.	District	No. of informants	Common hunting technique					Comments
			Luring	Muzzle loaded shotgun	Egg collection	Forest fire	Hit by stone	
1	Baitadi	11 (8 males)	Yes	Yes	Yes	Yes	Yes	Locals reported that shotgun hunting during the night has eradicated the species from most areas accessible to locals in Pancheshwor RM
2	Achham	8 (6 males)	Yes	Yes	Yes	Yes		Less hunting is happening now because most hunters have moved to the city or abroad for work
3	Bajura	23 (15 males)	Yes	Yes	Yes	Yes	Yes	Luring and wildfires during the breeding season are main factors causing decline of Cheer Pheasant in Bajura District.

District (Fig. 3, on 20 May 2016) and Chaurpati RM of Achham, caged for luring purposes (on 26 May 2014). Local hunters claimed to kill up to four Cheer Pheasants (average) in a single day. They lured pheasants several times in various habitats on a rotation basis during the breeding season, mainly in March and April. Pheasants that previously sold at market for 1,400–2,400 NRS (\$12–\$20), have sold for 1,700–3000 NRS (\$15–\$22) in recent years as demand has increased, resulting in more pheasants being killed. Furthermore, captive Cheer Pheasants for use as lures command much higher prices: 6,000–10,000 NRS (\$48–\$81) for purchase and 2,000–2,500 NRS (\$16–\$20) per day to rent. Hunters prefer the luring technique because it allows them to kill more pheasants with less effort than other methods, and selling them in the local market is easy money. From interviews with locals we learned that hunters search for roosting pheasants by locating their droppings, and shoot them at night using spotlights. Furthermore, despite gun-use having decreased in recent years, as local hunters move to cities or abroad for work, guns were a major cause of death at a few well-known locations where the species was once common.

Cheer Pheasant is also threatened by egg collecting. Eggs may be eaten, or the young raised for meat or to use as adults as lures. Egg collecting is mostly done by herders, grass, fodder or pine litter collectors. Resin collectors, who reside in Cheer Pheasant habitat for six months each year are blamed for disturbing habitats and killing pheasants using slingshots. In a single season, local hunters claimed to have killed 40–50 individuals from a single location using various methods. All forms of hunting impact the Cheer Pheasant population such that it has become scarce or is only found now in less disturbed forest or at high elevations where there is less human disturbance.

3) Wildfire

Sixteen wildfires were recorded in Cheer Pheasant habitat during the period of our breeding season survey. Fires occurred in Dhankura area in Baitadi, the upper belt of Badimalika Municipality and in Bhattelek in Mangalsen Municipality where Cheer Pheasant presence was confirmed. Moreover, one nesting site in the Sallena area was confirmed as destroyed by wildfire on 12 May 2016. This completely burned nest, below a fallen pine tree, had contained four eggs four days before the fire occurred (personal communication Devi Ram Shahi).

DISCUSSION

Our surveys provide valuable information from Far-Western Nepal on the distribution, status, threats, and local perception of Cheer Pheasant conservation outside PAs. In Nepal, Cheer Pheasant research has primarily focused on the protected areas of the Annapurna Conservation area, Dhorpatan Hunting Reserve and Rara National Park. However, areas beyond these PAs received little attention, or are poorly understood, despite the fact that the majority of Cheer Pheasant habitat lies outside PAs (Inskipp et al. 2016; Basnet & Poudyal 2017). Dhorpatan Valley is regarded as a Cheer Pheasant stronghold in Nepal and throughout its range (Garson & Baral 2007). Although Cheer Pheasant was previously thought to be scarce, except in Dhorpatan Hunting Reserve (Inskipp et al. 2016), our findings suggest that its population density in Badimalika Municipality, Bajura District, may be comparable to the Dhorpatan Valley (Singh et al. 2011; Basnet et al. 2020) and even higher than either the Annapurna Conservation Area or the Rara National Park (Singh 2009; Subedi 2013). Cheer Pheasant has a typical altitudinal range of 1,800–3,050 m (Inskipp et al. 2016), making our record at 1,378 m in Badimalika, Bajura District, the lowest reported elevation for the species in Nepal. There is a previous, opportunistic report at an elevation of 1,446 m at Kasanidanda, Baitadi District (Budha 2006). The species still persists in that region as a decade later we recorded a call from Dhankura, 1 km east of Kasanidanda, despite ongoing anthropogenic risks in the area (Table 2). Furthermore, our record of a Cheer Pheasant nest is the first in the region, and only the second for Nepal after Acharya et al. (2006).

Luring, among other threats, poses a serious impact on the abundance and survival of Cheer Pheasant in the study area. It roosts communally in open habitats, at lower elevations than other pheasants, close to inhabited areas, and is easily detected by its call (Young et al. 1987), which makes them more susceptible to hunting. Hunters from a single area claim to hunt up to 50 birds per season, which is similar to the figure reported by Singh (2009) from Rara National Park. This figure for Cheer Pheasants hunted using lures may be an overestimate by locals because it is unusual to find 50 Cheer Pheasants in a single area given that they are generally scarce due to their patchy distribution of their specialized habitat. However, considering all of the various hunting

techniques employed across Cheer Pheasant habitat in Far-Western Nepal, it is clear that hundreds of Cheer Pheasant are hunted each year. We speculate therefore that the total Cheer Pheasant population is greater than the national estimate of 1,000 individuals (Inskipp et al. 2016). Recently, Cheer Pheasant has been reported first time from Pyuthan, Gulmi, Parbat, Arghakhanchi and new localities in Myagdi District in Western Nepal (Thakuri et al. 2018; Chokhal et al. 2020; Khanal et al. 2020; eBird 2021, eBird 2022).

In Nepal, forest fires are among the main causes of forest degradation (Martin et al. 2017). Every year, fires occur in the extensive distribution of Sal *Shorea robusta* and Chir Pine forest in tropical, subtropical, and temperate forests of the Terai, Siwalik and mid-hills of Nepal (Martin et al. 2017) because these zones have hot, dry weather and because of the proximity of the forests to human settlements, roads and agricultural land. The majority of these fires occur during the dry season and are caused by humans, with 89% in March, April, and May (Parajuli 2015; Martin et al. 2017). Fifty-eight percent of forest fires in Nepal are caused intentionally by grazers, poachers, and non-timber forest product collectors, 22% are the result of carelessness, and 20% are accidental (Kunwar & Khaling 2006). Chir Pine is highly inflammable due to its high resin content and dry needle litter, fire spreads rapidly through such forests. Unfortunately, the wildfire period coincides with the Cheer Pheasant breeding season (Ali & Ripley 1998), and, as a ground-dwelling, ground-nesting non-migratory species it is especially vulnerable to disturbance by fire. Our observations of fires in Cheer Pheasant habitat and of a nest destroyed in the Sallena community forest by fire are further confirmation of this vulnerability.

Under the National Parks and Wildlife Conservation Act, 1973, Cheer Pheasant is given special protection priority as one of Nepal's nine protected bird species (DNPWC & DFSC 2018). Any hunting, harassment, or sale of protected bird species is punishable by fines ranging from \$150 to \$300, as well as a prison sentence of three to nine months, or both. Yet pheasants are among the most commonly hunted and disturbed birds in Nepal, with prior studies citing snaring, hunting, overgrazing, and forest fires as significant threats to Cheer Pheasant (Acharya et al. 2006; Budha 2006; Singh 2009; Singh et al. 2011; Subedi 2013; Inskipp et al. 2016; DNPWC & DFSC 2018; Basnet et al. 2020). In Far-Western Nepal all such actions result from a lack of conservation

knowledge, since relatively few people were aware of the species' conservation value and the penalties for unlawful acts. Furthermore, hunters take advantage of lax law enforcement, and commonly hunted pheasants such as Cheer Pheasant, Kalij Pheasant, and Himalayan Monal *Lophophorus impejanus* are sold along highways or even in district headquarters such as at Martadi. Such illegal hunting and sale of pheasants has been witnessed in Cheer Pheasant habitat across Nepal (Inskipp et al. 2016).

The current survey was unable to cover the entire potential area for the species, nor was it practical to conduct an in-depth survey in the time available. Therefore, we consider it likely that Cheer Pheasant is more common and widespread in the study area than our surveys suggest. This is supported by information from local informants with knowledge of the species and where they have seen in the past (Fig. 1). Nevertheless, interviews locally suggest that anthropogenic stress has caused the Cheer Pheasant population to decline in recent years and that it has already disappeared Chulthe Lek, Bhatte Lek, Damkane, and Timalsen forest, where it previously occurred. Cheer Pheasant occurs in habitat characterized by a combination of low shrubs that are subject to regular browsing and cutting, which has led to an association with human settlements (BirdLife International 2021), and vulnerability to hunting. Local people, however, claim that over hunting of pheasants has restricted them to undisturbed habitats far from human encroachment.

Although Cheer Pheasant were recorded from new sites in Far-Western Nepal, these are close to human habitation and outside the PAs network where illegal activities are relatively high. Therefore, research should be prioritized on those sites where Cheer Pheasant still persist in the presence of anthropogenic threats. Additionally, presence/absence surveys, followed by in-depth surveys, would be of value in areas where locals report seeing pheasants and would help shed light on the status and relationship between Cheer Pheasant and underlying anthropogenic threats. As local people show a strong desire to protect the species, even though they have limited conservation knowledge, a community-centered conservation programme, with collaborative efforts from concerned stakeholders should be launched to stop the hunting and protect the remaining population of Cheer Pheasant. Additionally, communities living near Cheer Pheasant habitat are marginalized, so designating and promoting these areas as special

Cheer Pheasant watching sites may help their economies through eco-tourism. As Cheer Pheasant habitat is susceptible to fires during the breeding season, community forest groups should be trained to fight forest fires. Collecting pine needles and using them to make briquettes for fuel or as a source of organic compost will also help local economies and reduce the intensity of fires in Cheer Pheasant habitat.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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