

# Status of Galliformes in Pipar Pheasant Reserve and Santel, Annapurna, Nepal

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**Abstract** The Galliformes of Pipar have been surveyed seven times between 1979 and 1998. The nearby area of Santel was surveyed using comparable methods in 2001. In continuance of the long-term monitoring at Pipar and to provide a second count at Santel, dawn call counts were conducted in both areas, using the same survey points as previous surveys, between 29<sup>th</sup> April and 9<sup>th</sup> May 2005. The aim of those surveys was to collect information on the status of pheasants and partridges and to look for any changes over time. In both areas, galliform numbers were higher in 2005 than in previous surveys, for most species. For each species there was no evidence of decline since the first counts were conducted nearly 30 years ago. Both areas provide good habitat for Galliformes and disturbance is not a serious issue. However, more research is required in Santel as our knowledge of its biodiversity remains much poorer than at Pipar.

**Keywords** Annapurna Conservation Area, partridges, pheasants, Pipar, Santel

## Introduction

Pipar (28°25'N 83°57'E) is a flagship area for Himalayan pheasant conservation, supporting five Himalayan pheasant species in an area of 43 km<sup>2</sup> (WPA 2004). It lies on the western slope of Seti River Valley in the Annapurna Region of the Central Himalaya. The area was first recognised as an exceptionally rich one for pheasants in 1977 and has been the site for a long-term project by the World Pheasant Association (WPA) since, being popularly known as the 'Pipar Pheasant Reserve'. Ecological studies on pheasants began in the seventies and these were followed by other surveys on pheasants, avifaunal diversity and general ecology (see Lelliott and Yonzon, 1980; Tamarkar and Lelliott, 1981; Picozzi, 1987; Yonzon, 1987; Howman and Garson, 1993; Kaul and Shakya, 1998). The results of this long-term population monitoring, which is probably the longest wildlife monitoring programme that has taken place in Nepal, suggests a stable population of satyr tragopan *Tragopan satyra*, koklass pheasant *Pucrasia macrolopha* and common hill-partridge

*Arborophila torqueola*. Although there are few data on blood pheasant *Ithaginis cruentus* and Himalayan monal *Lophophorus impejanus* within the reserve their encounter rates during various surveys also suggest stable abundance of these species.

Across the Seti River from Pipar is the Santel area, which was explored ornithologically for the first time during the 1998 Galliformes survey in Pipar with a view to extending the reserve. Consequently, WPA, in association with Annapurna Conservation Area Project and Bird Conservation Nepal, conducted a survey of the Santel area in 2001 (Baral et al., 2001) using the same methods as those used in Pipar so the results were comparable. This survey revealed that the Santel forests are similar to Pipar in terms of Galliformes abundance and is potentially richer in overall avifaunal diversity.

A repeat survey was carried out in both areas in 2005 as a follow-up to the last survey in Pipar in 1998 and in Santel in 2001 to update the status of calling pheasants in Pipar and Santel (Mahato et al., 2006). This paper summarizes

numbers and distribution of Galliformes obtained by conducting spring call counts in both of these areas.

## Methods

### Study area

Pipar and Santel lie on opposite slopes of the Seti River Valley. They are in the administrative areas of Machhapuchhere and Sardi Khola Village Development Committees (known locally as VDCs) in Kaski district. Pipar is situated on the east-facing slopes at 3,300 m on the curved hillside known as 'Pipar bowl' on the spur running southwards from the Machhapuchhere peak. Santel is on the west-facing slope across the Seti River and the area surveyed extends from 1500 m to 4000 m. Both Pipar and Santel are characterized by a mosaic of habitats from primary and secondary sub-tropical forests at lower altitudes to temperate forest, small clearings and alpine grasslands at higher altitude. The forests of Pipar are well described by Lelliott (1981), Picozzi (1984) and Poudyal (2005). The Santel forests are similar to the Pipar forests in composition (Baral et al., 2001). The dominant tree species in these areas are *Rhododendron arboreum*, *R. campanulatum*, *R. barbatum*, *Quercus semicarpifolia*, *Q. lamellosa*, *Betula alnoides*, *B. utilis*, *Acer campbelli*, *A. pectinatum*, *Sorbus cuspidata* and the shrub layer includes *Berberis asiatica*, *Viburnum grandiflorum* and *Arundinaria species*.

### Bird surveys

Twelve call count stations were located at two sites in Pipar, nine around the Pipar bowl (3,300 m) and three around Thulokhobang (2,200 m). Ten call count stations were surveyed at three sites in Santel, three at Dhije (2,000 m), six at Khuine (3,000 m) and one at Namsung (3,300 m).

Call counts were conducted on eight mornings in Pipar (six at Pipar bowl and two at Thulokhobang) and seven mornings in Santel (three at both Dhije and Khuine and one at Namsung) between 29<sup>th</sup> April and 9<sup>th</sup> May 2005. The standard spring call count method, as described by Gaston (1980) and followed by many others (e.g. Gaston & Singh, 1980; Garson, 1983; Picozzi, 1986; Yonzon, 1987, Duke 1990, Howman & Garson 1993, Khaling et al. 1998), was used. Observers were placed at each pre-determined call count station before dawn to record calls of pheasants. Records from adjacent stations were compared and duplicate counts were identified by comparing time and direction of individual calls and then eliminated.

The minimum number of calling birds of each galliform species was determined by comparing daily call count totals for all stations. The maximum total number heard on any one morning was taken to be the minimum number of calling birds present in the area. The maximum totals obtained from different areas were then summed to estimate the total minimum number of calling birds at each site.

Calling bird density was obtained by dividing the maximum number of birds heard calling in the area by the extent of the area covered by all stations. It was estimated that the audible range was 300 m from each station and thus each station covered 0.28 km<sup>2</sup>.

## Results

### Dawn call counts

Koklass pheasant, satyr tragopan and common hill-partridge were recorded regularly. We also heard the Himalyan monal but the calls were very irregular. Satyr tragopan and common hill-partridge were recorded down to 2200 m altitude in Thulokhobang.

### Satyr tragopan

The total minimum number of calling birds in Pipar was 29 and 31 at Santel at six stations at both sites. Two tragopans were recorded at Thulokhobang. Calling bird density was 18.3 birds/km<sup>2</sup> at Santel and 17.0 birds/km<sup>2</sup> at Pipar.

### Koklass pheasant

The total minimum number of calling birds in Pipar was 20 from five stations in Pipar and eight from just three stations (7, 8 and 9) in Santel. The density of calling koklass pheasant was estimated to be 4.7 calling birds/km<sup>2</sup> at Santel and 14.1 calling birds/km<sup>2</sup> at Pipar.

### Common hill-partridge

Common hill-partridge was the only species recorded from all stations at both sites. The highest number of individuals calling on any one morning in Santel was 35, 29 at Pipar and 11 at Thulokhobang. The density of calling common hill-partridge was 13.7 birds/km<sup>2</sup> at Santel and 17.0 birds/km<sup>2</sup> at Pipar.

### Sightings of Galliformes

Satyr tragopan, koklass pheasant, Himalayan monal, blood pheasant and kalij pheasant were observed whilst walking along trails and through the forests. Satyr tragopan was recorded on three occasions at Pipar and once

in the Santel area between 3100 m and 3500 m. Koklass pheasant was encountered twice in Pipar between 3200 m and 3500 m. Himalayan monal was observed four times (nine individuals in total) mostly in grassy open areas between 3200 and 3600 m. In Santel, four individuals (two males and two females) were

seen and a further group of six encountered in the Namsung area. Blood pheasant was not recorded in Santel during this survey, but it was encountered twice in Pipar. These were a pair at 3600 m near Pipar cave and a pair near station three (3200 – 3600 m).

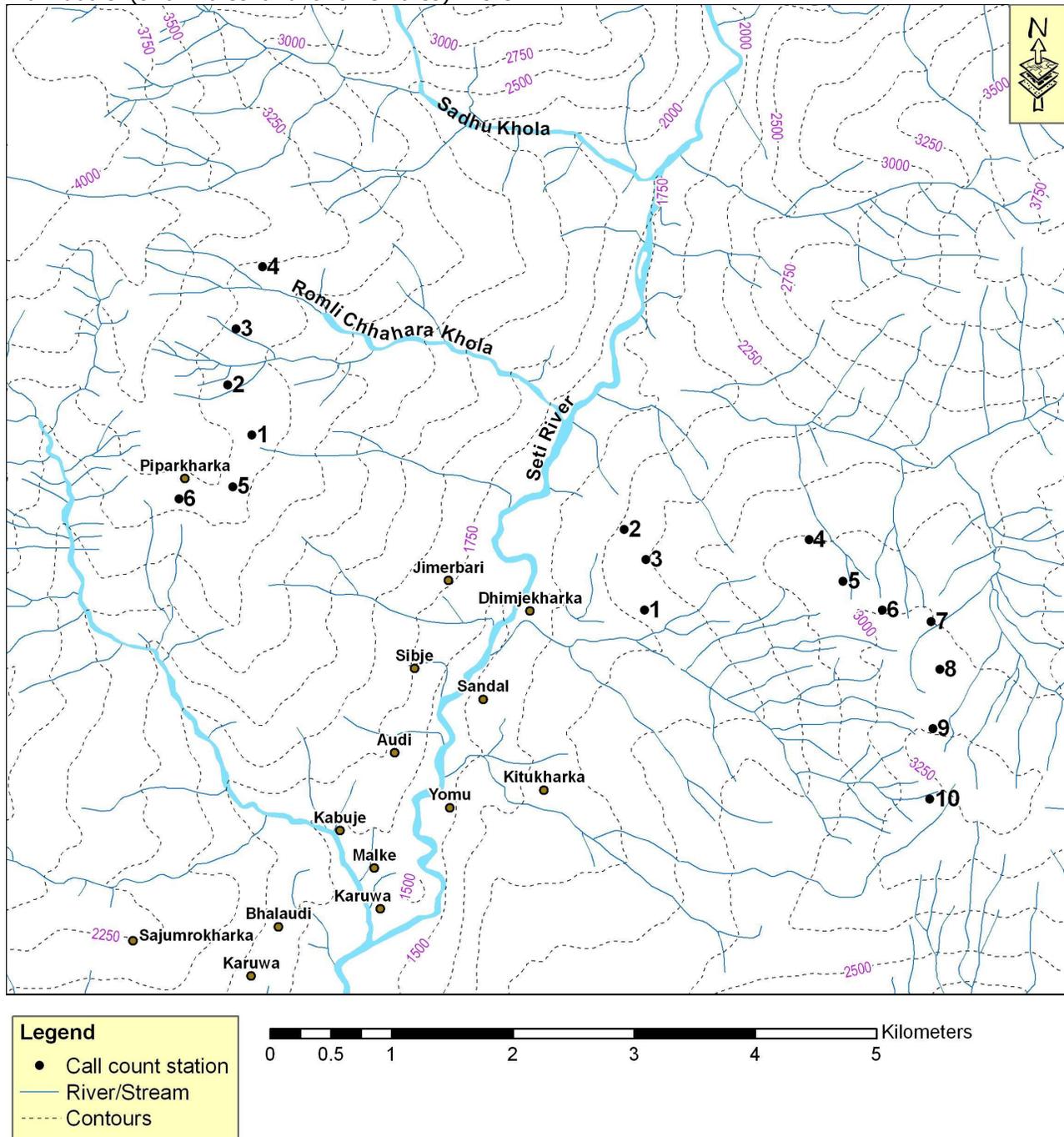


FIG. 1 Location of Galliformes survey points in Pipar Pheasant Reserve and Santel, Annapurna, Nepal.

Kalij pheasant, which is known to occur at low altitudes, close to villages (Picozzi 1987), was encountered in the Thulokhobang area near the Thulokhobang cave (2200 – 2500 m). Four

individuals were seen altogether. In Santel only one kalij pheasant was sighted at Khuine (3100 m).

## Discussion

### Galliformes abundance

In both Pipar and Santel, the number of calling satyr tragopan recorded was higher than in the previous survey. In Pipar, there was a minimum of 18 calling birds in 1998 and a minimum of 29 in 2005. In Santel, there was a minimum of 28 calling birds in Santel in 2001 and a minimum of 31 in 2005. During this and the previous surveys in Pipar the highest number of calls was heard from stations two and three, which is thought to be due to their surrounding mosaic of mixed and rhododendron forest and scrub with dense under-storey as well as the presence of streams. In Santel, the number of calling satyr tragopan in 2005 was 10.7% higher than in 2001.

Numbers of calling koklass pheasant were also higher in both sites during 2005 than in the previous survey. In Pipar, 12 calling individuals were recorded in 1998 and 20 in 2005, whereas seven were recorded in Santel in 2001 and eight in 2005. In Pipar, the number recorded in 2005 from stations 1-4 was 50% higher than in 1998. The highest numbers of koklass pheasant have been recorded consistently at station number two during most surveys (Picozzi, 1987; Howman & Garson, 1993; Kaul & Shakya, 1998).

The other frequently encountered Galliformes species, the common hill-partridge was also recorded in higher numbers in both Santel and Pipar in 2005 than during the last survey at each site. In Pipar, a minimum of 15 calling individuals was recorded in 1998 compared with a minimum of 29 in 2005 and in Santel a minimum of 24 pairs was recorded in 2001 whereas a minimum of 35 pairs was recorded in 2005.

Previous surveys have reported chukar partridge *Alectoris chukar* (Kaul and Shakya, 1998) and Himalayan snowcock *Tetraogallus himalayensis* and snow partridge *Lerwa lerwa* (Picozzi, 1987). These species were not recorded in 2005.

Surveys in Santel were impeded continually by bad weather and steep terrain and it is assumed that as these physical factors restricted movement of observers and visibility, the Galliformes encounter rates were lower than they might otherwise have been. Despite this, call count indices of the health of the Galliformes population was at least as encouraging as previous surveys. However, we

are unable to draw any meaningful conclusions about trends in the population.

### Non-galliform bird species

Both Pipar and Santel are equally important for other bird species as well. A total of 238 species of birds have been recorded from Santel so far and 227 species from Pipar. These areas provide shelter for two globally threatened bird species viz. white-rumped vulture *Gyps bengalensis* and lesser kestrel *Falco naumanni*, and four near-threatened bird species viz. satyr tragopan, yellow-rumped honeyguide *Indicator xanthonotus*, cinereous vulture *Aegypius monachus* and red-headed vulture *Sarcogyps calvus* (Mahato, 2007).

Santel's undisturbed and pristine habitats provide shelter to many bird species that are of conservation importance and host a bird assemblage that is exceptionally rich compared with other places in Nepal (Baral and Inskipp, 2005). It is likely that more species will be added to this list during future surveys.

### Conservation

Comparing call count figures from all surveys conducted in Pipar and the two in Santel suggests that numbers detected are reasonably stable and that there is no evidence of decline. Whilst translating this into an assessment of the population status of the species surveyed is difficult, we can be confident that the populations are in good shape. This would imply that both areas provide a healthy habitat for Galliformes and that disturbance is not a serious issue. There was very little direct evidence of human activity having an adverse impact on habitat or Galliformes during our survey and the relatively large number of birds detected suggested that this is true at other times of year as well.

The insurgency in the country has reduced the extent to which people visit wild areas and has almost completely stopped the possession and use of guns by local people, which in turn seems likely to have reduced poaching activities. The changing lifestyles of people and their attraction towards the city and foreign countries have also helped reduce the intensity of grazing in these areas and in turn this could benefit Galliformes populations.

Both Pipar and Santel are very rich in bird species and also host a range of rare mammals including the Himalayan thar *Hemitragus jemlahicus* and the serow *Capricornis sumatraensis*. Other mammalian species

recorded so far in these areas are barking deer *Muntiacus muntjac*, common langur *Presbytis entellus*, rhesus monkey *Macaca mulatta*, common leopard *Panthera pardus*, goral *Nemorhedus goral*, Himalayan black bear *Ursus thibetanus*, Himalayan mouse-hare (Pika) *Ochotona roylei*, hoary-bellied Himalayan squirrel *Callosciurus pygerythrus*, Indian porcupine *Hystrix indica*, jungle cat *Felis chaus*, mouse *Apodemus gorkha*, musk deer *Moschus chrysogaster*, orange-bellied squirrel *Dremomys lokriah*, yellow-throated marten *Martes flavigula* and Asiatic golden jackal *Canis aureus*. Because of this biodiversity there is concern that it may be only a matter of time before special interest tourists become attracted to this area and in particular to Pipar. As Pipar is a small reserve of only 43 km<sup>2</sup>, it seems reasonable to assume that it would be susceptible to ecological damage under considerable tourist pressure. Efforts should, therefore, be directed towards managing impacts on wildlife that may arise from any plan to open this area up as a tourist destination (Kaul and Shakya, 2001).

The people who live in the villages adjacent to Pipar and Santel utilize these lands for livestock grazing and collecting fodder, fuelwood, timber, bamboo and medicinal plants. Poudyal et al (2007) and Gyawali (2004) suggest that a potential threat to the pheasants of Pipar is the activities of domestic livestock grazers and those collecting non-timber forest products. These activities include unplanned fires, felling trees, disturbance of ground-nesting birds when harvesting non-timber forest products haphazardly and poaching. A further concern is the potential for the area to be opened up for the commercial extraction of medicinal and culinary plants. This was being seriously considered by the Annapurna Conservation Area Project in 2002 and 2003, but there has been little discussion of it since then. Whilst increasing the livelihoods of people in the villages below Pipar and Santel is a real concern, over-harvesting could lead to both a reduction in the biodiversity value of the upper Seti River valley in which these two forests lie and also potentially a collapse in the availability of the plants being harvested. Therefore, careful planning is key to any enhanced extraction of these forest products.

Though the area lies within the largest protected area of Nepal, regular patrolling and wildlife monitoring from the authorities was not seen during the survey because of the difficult political situation. WPA's role is important in this context because people appreciate WPA's

support for teachers and the infrastructure provided to different schools. Supplying teaching materials concerned with bird and forest conservation would be helpful in generating awareness among students living in adjoining villages. These students will play a vital role for pheasant and forest conservation in the future.

### Recommendations

The area referred to as the Pipar Pheasant Reserve should be extended to include the uninhabited area of Santel. The only information that we have on Santel's forests is the call counts conducted in 2005 and in 2001 and they provide only limited information on pheasant species and virtually none on Himalayan monal, kalij pheasant and blood pheasant. Therefore, a more detailed study in this area should be considered. A vegetation study similar to that conducted in Pipar following methodologies of Picozzi (1984) and Poudyal (2005) would be valuable for the Santel area.

Biological monitoring should not be restricted to the Pipar bowl, as at present, and should be encouraged in other areas of the reserve including Khumai and Korchen. It may be valuable to consider expanding this to other areas in the upper Seti watershed.

Besides these studies that focus on the ecology of Pipar and Santel, it would also be very helpful now to assess the reliability of survey methodologies. In particular a better understanding of the distance that different Galliformes species can be heard from would greatly help improve the usefulness of call count surveys and the conclusions that could be drawn from them.

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