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Blyth's Tragopan (*Tragopan blythii*) in Lengteng Wildlife sanctuary, Mizoram, India

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ABSTRACT

We conducted Blyth's Tragopan status survey at two protected areas viz. Lengteng Wildlife Sanctuary (LWS) and Murlen National Park (MNP), Mizoram, north-eastern India during April-May 2011. By using call count technique we recorded the call of one male at an unusual time of 1142 hrs at LWS at an elevation of 2100 m inside the dense forest close to cliff area. The estimated population is 8 from the probable habitat of 15 km² in LWS. No signs of Tragopan were detected at MNP.

Key words: Blyth's Tragopan; Lengteng Wildlife Sanctuary; Murlen National Park; population; call count.

INTRODUCTION

Tragopans are commonly referred to the group of five pheasant species belonging to the genus *Tragopan* Cuvier 1829 (Phasianidae). The five species are (i) Western Tragopan *Tragopan melanocephalus* Gray 1829, (ii) Satyr Tragopan *Tragopan satyra* Linnaeus 1758, (iii) Blyth's Tragopan *Tragopan blythii* Jerdon 1870, (iv) Temminck's Tragopan *Tragopan temminckii* Gray 1831, and (v) Cabot's Tragopan *Tragopan caboti* Gould 1857. Subspecies are recognized for Blyth's (*T. b. blythii* Jerdon 1870 and *T. b. molesworthi* Baker 1914) and Cabot's (*T. c. caboti* Gould 1857 and *T. c. quangxiensis* Cheng and Wu

1979). The name 'Tragopan' was apparently derived from the Greek words *Trago* means 'goat' and *Pan*, the Greek god of shepherds and mountain wilds.¹ Mizoram is known to harbours Blyth's Tragopan at Phawngpui National Park (Blue Mountain National Park, BMNP).²

The Blyth's Tragopan is categorized as 'vulnerable' by the IUCN³ and ZSI, Red Data Book.⁴ It is also regarded as a Schedule I species under the Wildlife Protection Act of India, 1972. Two subspecies of the Blyth's are separated by Brahmaputra, *T. b. molesworthi* in lands north of the Brahmaputra and *T. b. blythii* in south of the Brahmaputra. The former is much rarer than the latter and is reported only from east Bhutan and the adjacent Mishmi hills in north-east India.⁵ In India, this species is restricted to the forested

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hill tracts of the north eastern states *viz.* Assam, Arunachal Pradesh, Nagaland, Manipur and Mizoram.⁶ The species is also known to occur in north Myanmar, south-east Tibet and north-west Yunnan, China. It inhabits subtropical and temperate, moist, evergreen broad-leaved forests, generally preferring a dense understorey, dense scrub, often dominated by bamboos or ferns, in steep slopes or rocky terrain.^{7,8} Its documented altitudinal range is from 1,400 m (winter) up to 3,300 m (summer), but the majority of records come from a rather narrower band (1,800-2,400 m). Tragopans show elaborate courtship displays during their breeding period and male birds

produce distinctive advertisement calls to attract females as well as to defend their territory from other males.⁸

MATERIALS AND METHODS

Study site

Mizoram (21,087 sq. km, 21°58'N to 24°35'N latitude and 92°15' to 93°29'E longitude) is located in the north eastern India. Mizoram is sandwiched by international border, Bangladesh from the west and Myanmar from the east and south. It has a state boundary in the northern part with Manipur, Assam and Tri-

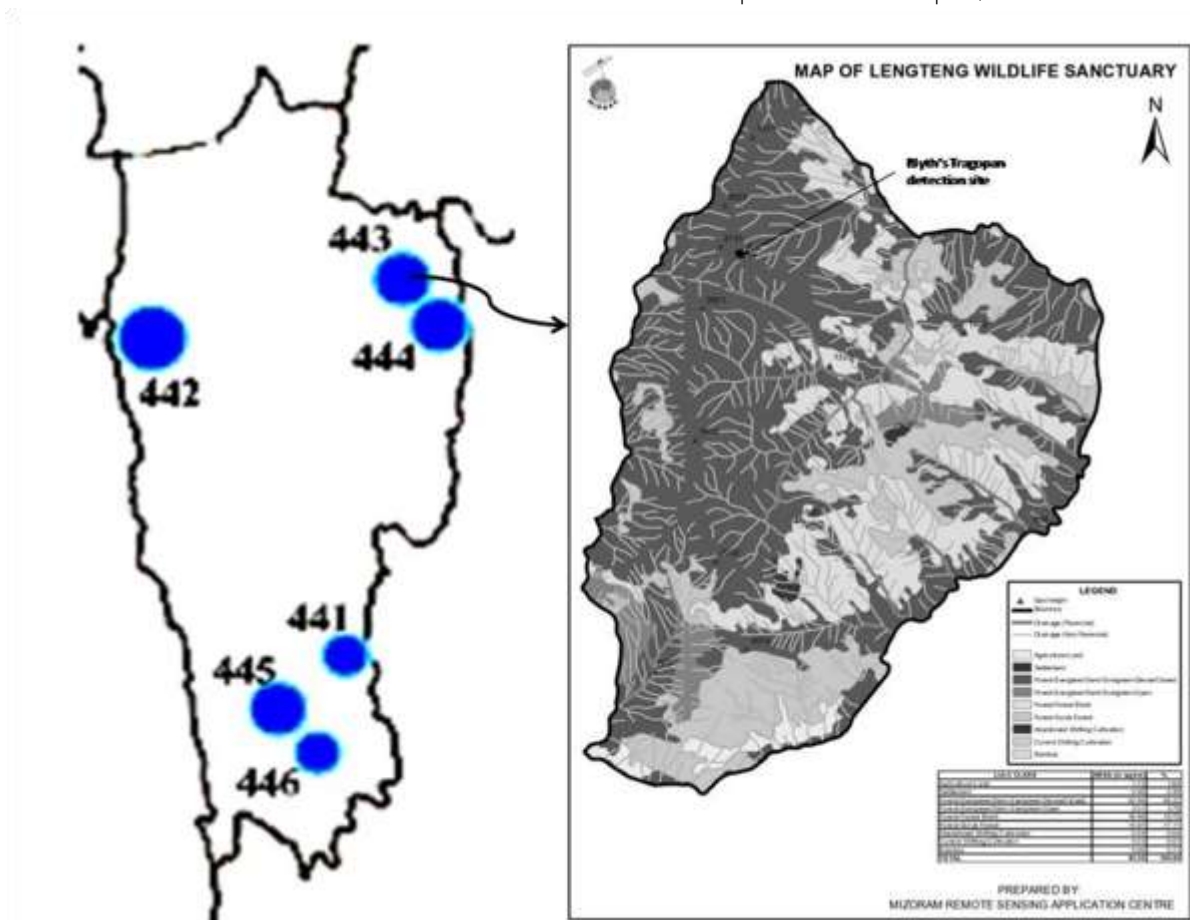


Figure 1. Study site, IBA 443 LWS and IBA 444 MNP. LWS in more detail showing the detection site of male Tragopan call.

pura. It lies in the Indo-Myanmar Biodiversity Hotspot Area. The preliminary survey on **status assessment of Blyth's Tragopan** was conducted during late April and early May 2011 at Lengteng Wildlife Sanctuary (LWS) and Murlen National Park (MNP). The two sites are enlisted in the Important Bird Areas by Bird Life International with the code area of IN443 (criteria A1 & A2) and IN444 (criteria A1 & A2) respectively (A1, globally threatened species, A2, restricted range species). **LWS (coordinate 23°44'20"N - 23°52'15"N and 93°13'40"E - 93°17'50"E) comprise the second highest peak of the state; it is located on the north-eastern site of Mizoram, with an area of 12,000 ha. The altitude ranges from 400 - 2141m⁹. The forest comprise of tropical evergreen and sub-tropical broad-leaf types. MNP (coordinate 23°32'-23°42' N latitude and 92°13'-92°27' E longitude) lies along the eastern border of Mizoram to the south of LWS with an area of 20,000 ha. The altitude ranges from 400-1700 m.¹⁰ Both the sites are within Champhai district.**

The forest type is more or less similar in the two sites. It is tropical pine forest and tropical evergreen and semi-evergreen forest that makes the park a significant one. The area within the protected area can be classified into dense forest, semi-dense and cliff forests.

Methodology

The most simple and efficient method for recording and monitoring pheasant numbers in a particular area is the call-count method.¹¹ Absolute count of a species in a given area may not be possible by this method; however, an index of abundance can be obtained.^{11,12} In an area where field problems were compounded by steep slope and dense vegetation like LWS, the call-count technique is the only feasible and non-invasive method for counting the pheasants.¹³ This technique has been used widely to provide abundance estimates of pheasants across the Himalaya.¹⁴⁻²⁰ The same technique has been successfully applied for

Blyth's Tragopan at BMNP and is reported to be helpful to check the presence or absence of the Blyth's tragopan in that particular area.⁶

We selected seven vantage points on the ridge tops in both LWS and MNP, and a **dawn call of the Blyth's Tragopan was listened.** In some cases, pre-recorded Tragopan call was played back in an effort to elicit a response from wild birds. Information like date, location of vantage point and weather conditions (which are likely to affect the call), time of call counts, and the time of commencement and termination of call given by a single bird, duration of a single call and total number of call during that period were recorded. The call count duration at each vantage point is fixed at 15 minutes. This was done because individual birds appear to move after being stationary or confined to a small area for the first 15-20 minutes after waking at their roosts.¹⁹ All calls emitted from an arbitrary radius of 500 m taking the vantage point as centre were recorded, as birds beyond 500 m were not always audible.⁶

The relative population estimate was calculated following Duke.¹³ According to this, the number of vantage points (n) had a mean audible range of 500 m, and therefore a mean area (a) of 0.79 km². The total area surveyed was calculated by multiplying the area of each sampling plot a by n . Using a correction factor for the estimated mean overlap (25%) between vantage points, the corrected survey area ($b = an - 0.25 an$) was obtained. The total available area of breeding habitat (c) was estimated by field observations and use of habitat maps. The proportion of the available breeding habitat surveyed was calculated ($d = b/c$), and the relative population estimate (f) was obtained, i.e. $f = (e/d)$ where e is the number of calling male Tragopans.

RESULTS AND DISCUSSION

We conducted call counts for four mornings in the LWS (26-30 April 2011) and a further two days (9-10 May 2011) and in the

MNP dawn calls were monitored for three days (11-14 May 2011). Due to unexpected weather condition, we do not expect to hear a Tragopan call during those rainy and cloudy days. On the third day at LWS, the rain stops for about a couple of an hour and the sunshine appears for a short time. Then, a calling was heard only one time at an elevation of 2100 m. Four calls at a time were recorded at 1142 hrs and no other records during the survey period. No call was recorded from MNP.

The Blyth's Tragopans are known to call from the steep slope and cliff areas as well as they were also recorded to nest in such areas.²¹ The steep slope vegetation and cliff vegetation of the study area accounted for about 70% of habitats (about 65% and 5%, respectively) in LWS. Thus probable actual breeding habitat (*c*) in the altitudinal range between 1400 m to 2014 m is estimated to be 15 km² and constituted the breeding habitat for this species.

$$b = an - 0.25 an$$

$$b = (0.79 \times 7) - (0.25 \times 0.79 \times 7) = 4.14 \text{ km}^2;$$

$$d = b/c = 4.14/15 = 0.276$$

Given that $e = 1$, $f = e/d = 3.62$.

Therefore, it can be deduced that the available breeding habitat of the Blyth's tragopan in LWS could support 4 male birds, *i.e.* 8 birds assuming that all calling males were paired during the breeding season.

This is perhaps the first report from LWS despite of unofficial report by local resident. The present result might not be so satisfactory due to the fact that the limitation of time and the uncertain weather conditions. The poor detection of signs of the bird in our study might not simply indicate less population of the bird; moreover, it may be due to wet forest floor, cloudy and continuous rainy condition. The single call recorded at 1142 hrs is unusual to previous records where the down call were mostly reported.^{6,19} The present record at this time may be due to climatic condition. The vantage points are covered by

thick clouds right from dawn and a little and moderate rainfall continues up to 1030 hrs. The sunshine appears for short duration in the midst of the clouds and a male call was heard.

The previous record of Tragopan from Mizoram was made by Ghose *et al.*⁶ from BMNP. Using call count technique, they estimated 38 individuals from a probable habitat of 20 km². The present study recorded the species in steep slope under primary forest while Ghose *et al.* (2003) recorded Blyth's Tragopan in secondary forest only at BMNP.⁶ The reason for their habitation in steep slopes and cliff areas at BMNP is thought to be for better shelter than the nearby primary and secondary forests, which have high anthropoid disturbances.^{6,21} In support of this hypothesis, the present detection of Blyth's Tragopan is very close to cliff area.

With this report, BMNP and LWS are the two sites for Blyth's Tragopan in Mizoram. Other north-eastern state like Nagaland has 4 sites namely Fakim Wildlife Sanctuary,^{22,23} Khonoma, Barail Range,²⁴ Puliebadze Wildlife Sanctuary^{22,23} and Pfutsero.²³ In Manipur, it has been reported from the Yangoupokri-Lakchao WLS, Dzuko Valley and Siroi Hills.^{25,26}

The short duration investigation at MNP does not record any signs of Blyth's Tragopan. This might be attributed to its inhabitable situation to most of the high altitude areas. The grassland and semi-dense forest with poor ground cover in the higher altitude of MNP is not a suitable breeding place for Blyth's Tragopan as the birds generally preferred a dense understorey, often dominated by bamboos or ferns, in steep or rocky terrain.⁸ It might also be due to short duration and less area covered during survey. In order to support our observation, there were no previous literatures and local reports of Blyth's Tragopan from this area. However, further investigation is needed to confirm the present result, because MNP is close to LWS and a good corridor is open between the two, and therefore there is a chance of Blyth's

Tragopan occurrence in MNP too.

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