CONSERVATION REPORT

Further nesting records of Cheer Pheasant *Catreus wallichi* in Jhelum valley, Azad Kashmir, Pakistan

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The Cheer Pheasant *Catreus wallichi* breeds in the wild from late April to June (Johnsgard 1999), with most birds paired in April (Gaston & Singh 1980). Egg-laying peaks in May and most clutches are laid by early June, although birds at lower altitudes tend to breed about a month earlier than those at higher elevations (Baker 1930, Kaul 1989). Clutch size is normally 9–10 eggs, although up to 14 eggs have been recorded (Baker 1930, Ali & Ripley 1998). Incubation by the female alone takes about 26 days and the male helps rear the newly hatched chicks (Roberts 1991, Ali & Ripley 1998). Generally no more than one or two individuals survive for more than six months in the wild (Kaul 1989), with sexual maturity reached after one year (Johnsgard 1999). Nesting tends to be in precipitous, and at times inaccessible, areas (Baker 1930) making it difficult to document breeding success in the wild.

In May 2011, a call count survey (Gaston 1980) of the species was carried out in the Jhelum valley, Azad Kashmir, north-east Pakistan. In total, 17 points (CH 01–17) were surveyed in three different areas: Pir Chinasi, Garidopata and Chinari (Figure 1). Eleven of them had been used in previous surveys (Awan *et al.* 2004). After each point was surveyed MNA and wildlife staff assisting the survey systematically searched for nests within a 300 m radius of each point. Each search lasted three hours. The location of each nest was marked using GPS and clutch size recorded. Each nest was revisited after two and four weeks to monitor progress; unhatched eggs and dead chicks were recorded.

In total nine nests were found at six of the 17 locations—all were in the Chinari survey area (Table 1). One nest was found at CH 09, 12, 15,

Figure 1. Map of the 2011 survey points (CH 01-17) in Jhelum Valley.

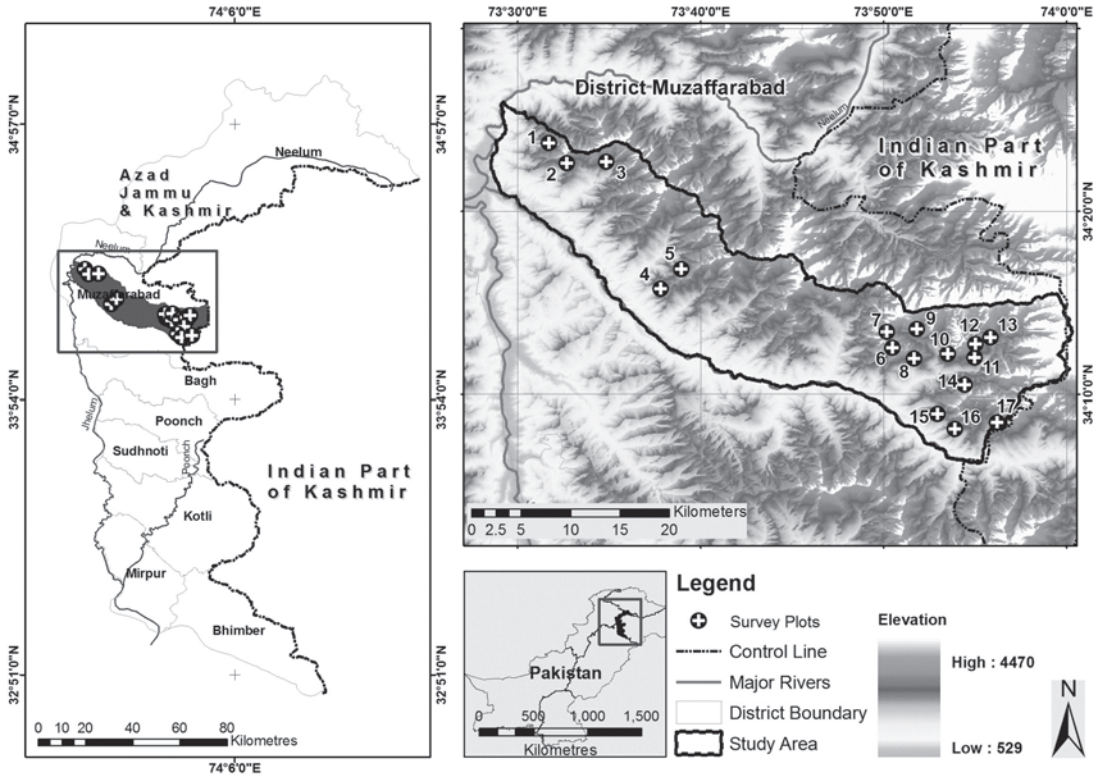

Table 1. Cheer Pheasant clutches located in Jhelum valley. No nests were detected at points CH 01-08, 13,14 and 17.

Sitecode	Nest number	Date located	Clutch size	Dead chicks found after 2 weeks (%)	Unhatched eggs found after 4 weeks (%)	Success rate (%)
CH 09	N1	20/05/2011	7	0	1 (14.3)	85.7
CH 10	N2	21/05/2011	6	0	0	100
CH 10	N3	21/05/2011	12	1 (8.3)	3 (25.0)	66.7
CH 11	N4	22/05/2011	9	1 (11.1)	1 (11.1)	77.8
CH 11	N5	22/05/2011	8	0	0	100
CH 11	N6	22/05/2011	10	2 (20.0)	1 (10.0)	70.0
CH 12	N7	23/05/2011	6	0	0	100
CH 15	N8	04/05/2011	8	0	0	100
CH 16	N9	05/05/2011	9	0	0	100

16, two nests at CH 10 and three at CH 11 (Table 1, Plate 1). On average, 0.5 ± 0.21 SE nests were found per search and at a density of 0.1 ± 0.06 SE nests/km^2 in suitable Cheer Pheasant habitat. Clutch size ranged from 6–12 with a mean of 8.3 ± 0.65 SE eggs per clutch (Plate 2). Three pairs with 23 chicks were recorded in the Chinari area during the 2002–03 surveys, although only two nests were found (Awan *et al.* 2004).

Plate 1. Incubating female Cheer Pheasant *Catreus wallichi*, Jhelum valley, Azad Kashmir, Pakistan, May 2011.

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Plate 2. Clutch of nine eggs found in nest N4 (CH11), Jhelum valley, Azad Kashmir, Pakistan, May 2011.

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During the monitoring period we found four dead chicks in three of the nests after two weeks, 5% of all eggs recorded. One dead chick was found in nests N3 and N4 (sites CH 10 and CH 11 respectively; Plate 3), and two in nest N6 (site CH 11, Table 1). We also recorded eggs that had failed to hatch, either due to infertility or an embryonic death, in four of the nine nests after four weeks (8% of all eggs recorded); one egg in three nests (N1, N4 and N6), and three eggs in nest N3. Overall the percentage of eggs that hatched ranged from 66.7–100% per clutch, with an average hatching success of 88.9% ± 4.72 SE. However, this does not take into account any eggs or hatchlings that may have been predated in the nest prior to detection and, consequently, were not recorded during monitoring. Therefore, hatching 'success' rates may represent an overestimation of true hatching successes.

This does, however, provide rare information on the nesting in the wild of this species of global conservation importance and could form the basis of a basic measure of monitoring population viability. Cheer Pheasant occur in naturally fragmented populations due to their association with successional grasslands (BirdLife International

Plate 3. Dead Cheer Pheasant chick found in nest N3 (CH10), Jhelum valley, Azad Kashmir, Pakistan, May 2011.

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2012). The species is also vulnerable to hunting, resulting in subpopulation isolation and local eradication (Young *et al.* 1987). Both factors increase the potential for inbreeding and reduce the long-term viability of these subpopulations. Since hatching success is negatively associated with inbreeding (Heber & Briskie 2010) it may be worthwhile exploring the value of monitoring clutch sizes for any altitudinal changes in hatching success as a crude measure of the genetic viability of the Cheer Pheasant population in Jhelum valley and elsewhere within its range.

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