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The distribution and status of Caucasian Black Grouse in north-eastern Turkey

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Introduction

The Caucasian Black Grouse *Tetrao mlokosiewiczi* is very limited in its distribution, being almost entirely restricted to the mountains of Georgia and Armenia (Cramp and Simmons 1980). Two outlying populations occur, one in the mountains of northern Iran, where birds were first seen in 1975 (Scott 1976), and one in the Black Sea coastal mountains of north-eastern Turkey. The Kaçkar mountains, which form the core of the Black Sea range, are now recognised as an Important Bird Area for Europe, partly because of the Caucasian Black Grouse population (Grimmett and Jones 1989). Birds were not regularly recorded in Turkey until the mid 1980s, prior to when there had been only four recorded sightings in north-eastern Turkey (Radde 1884 quoted in Kumerloeve 1967, Kumerloeve 1961, Beaman et al. 1975, Beaman 1986). Since 1980, the vast majority of records of Black Grouse in Turkey have come from a single site, the village of Sivrikaya, which is found near the centre of the Black Sea range. This pattern of sightings is the result of Sivrikaya's relative accessibility and its consequent popularity with bird watchers. However, large areas of upland potentially suitable for Black Grouse exist elsewhere in the region which have not been adequately surveyed.

Caucasian Black Grouse are listed as near-threatened (Collar and Andrew 1988), and Mountford (1988) considers this species to be a candidate for the next edition of the Red Data Book list of endangered species. This designation was based on a combination of the species' limited known range with insufficient knowledge of its true status within that range. Our study aimed to determine more precisely the status and distribution of Caucasian Black Grouse in the mountains of north-eastern Turkey, and to gather information on possible threats to the birds in this area. Data on the behaviour and habitat preferences of Caucasian Black Grouse were also collected, aiming to identify the factors which may be important in determining the birds' distribution.

Methods

Seven sites in the Black Sea coastal mountains of north-eastern Turkey were visited during the breeding season, between 7 May and 30 June, 1993 (Fig. 1). The aim was to

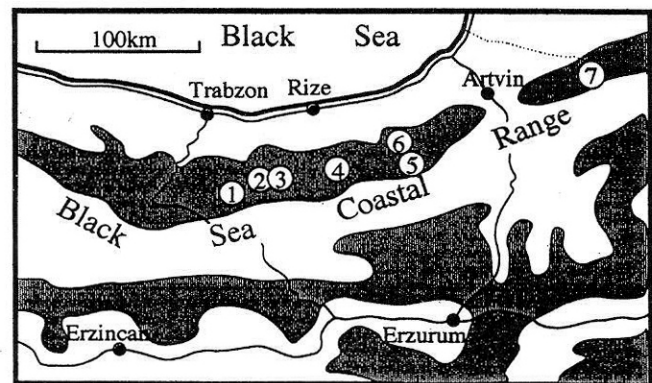


Fig. 1. Map of north-eastern Turkey, showing the locations of sites surveyed for Caucasian Black Grouse:

1) Ablaryas; 2) Yaylaönü; 3) Pladimezraasi; 4) Sivrikaya; 5) Kaçkar Mountains, south; 6) Kaçkar Mountains, north; 7) Balci. Shaded regions represent land over 2000 m.

cover as wide an area as possible within the breeding season, and sites were therefore chosen firstly to be well spread across the area of suitable altitude (1500 - 3000 m, Cramp and Simmons 1980), and secondly to be readily accessible. Hillsides at each site were observed by telescope from facing slopes on at least two occasions, concentrating on the three-hour periods following dawn and preceding dusk. Grove et al. (1988) found that counts of the numbers of lekking male Black Grouse *Tetrao tetrix* in Wales gave a good index of the total population in an area, and this method of estimation was therefore followed in this study. The peak count of male grouse on each hillside was recorded, together with a number of physical and habitat variables; the maximum altitude, altitudinal range, aspect and incline of each slope were calculated from detailed contour maps, while visual estimates were made of the percentage covers of snow, rock, grass, scrub and forest.

Results

Grouse were found at all the sites visited except one (Table 1). The westernmost record for Black Grouse was previously at Sivrikaya (Site 4, Fig. 1), and this study has therefore extended the known range of Caucasian Black

Table 1. Numbers of hillsides surveyed and the numbers of leks and male Caucasian Black Grouse recorded at each survey site.

Site	No. hillsides surveyed	No. with leks	Total males
1) Ablaryas	15	6	38
2) Yaylaözü	5	2	9
3) Pladimeraasi	8	4	5
4) Sivrikaya	21	12	60
5) Kaçkar south	13	8	23
6) Kaçkar north	3	1	3
7) Balci	5	0	0
Total	70	33	138

Grouse in north-eastern Turkey approximately 70 km westward.

Kaçkar North was visited after lekking had ceased, making conclusions about the abundance of grouse here unreliable. These hillsides were therefore excluded from the analysis of habitat preferences, the results of which are shown in Table 2 and Fig. 2. Grouse showed significant preferences for hillsides with higher snow and scrub covers and a roughly northerly aspect, but no preferences for any other physical or habitat characteristics. The abundances of snow and scrub were both significantly higher on north-facing hillsides than on other aspects (quadratic regressions, snow cover: $r^2 = 0.4$, $n = 67$, $p < 0.0001$; scrub cover: $r^2 = 0.2$, $n = 67$, $p < 0.003$).

Lekking was in progress at the start of the study on 7 May and had apparently finished by mid June. During this period, some males were present on the lek throughout the day, but peak activity occurred in the three-hour periods after sunrise and before sunset. Presumed territories were held by males on areas of mixed snow and grass a short distance above the tree line, and all birds (male and female) seen leaving leks flew or walked to areas of scrub immediately below the lek or on an adjacent hillside.

Table 2. Tests for significant differences between habitat characteristics of hillsides with ($n = 32$) and without ($n = 35$) observations of Black Grouse. (NS = non-significant. The test statistic for aspect is Watson's U^2 for circular distributions (critical $U^2_{(0.05)} = 0.185$) and Mann-Whitney U (critical $U_{(0.05)} = 715$) for all other variables. The directions of significant differences are shown in Fig. 2.).

Habitat variable	Test statistic	p
Aspect	0.211	0.025
Maximum altitude	357	NS
Altitudinal range	350	NS
Incline	345	NS
Area	339	NS
Snow	754	0.01
Rock	642	NS
Grass	649	NS
Scrub	760	0.01
Forest	651	NS

Discussion

The discovery in this study of significant numbers of Caucasian Black Grouse, both in and outside their previously recorded range, suggests that the Turkish population of the species is not in immediate danger. Ideally, survey sites should have been selected randomly, and because considerations of accessibility prevented this, the conclusions of this survey regarding the general abundance of Black Grouse should be extrapolated only cautiously to areas which were not visited. It is nonetheless encouraging that Black Grouse were generally found to be well distributed and reasonably abundant.

As well as other parts of the range, two of the sites visited in this study deserve further attention. These are Balci (Site 7, Fig. 1) and north Kaçkar (Site 6, Fig. 1). Balci received much less survey effort than other sites due to illness, and although the area of alpine zone in the region was somewhat restricted and no grouse were recorded there, both the occurrence of extensive apparently suitable habitat and the reports of local people suggested that Black Grouse are present in the area. North Kaçkar was surveyed late in the season when lekking had ceased, and the number of birds seen there does not therefore reflect their true abundance. Again, a large amount of apparently suitable habitat was noted, and it seems likely that the area holds a substantial population of Black Grouse.

The interrelation of the three habitat factors preferred by grouse (high snow cover, high scrub cover and northerly aspect) may be correlated with a slower thaw on north-facing hillsides and the occurrence there of favoured rhododendron spp. (the most common shrubs in the area). Although male grouse clearly require open areas on which to display, the lack of preference for open grass and the observation that birds leaving leks always entered scrub both strongly suggest that grouse usually selected hillsides with higher scrub cover, and that the correlations with snow cover and aspect are incidental. This is further supported by the few records of nests which exist. During this study an abandoned nest was discovered, and Temple-Lang and Cocker (1991) report the discovery of a nest in use, both nests being found in dense rhododendron scrub. It may be concluded that scrub is an

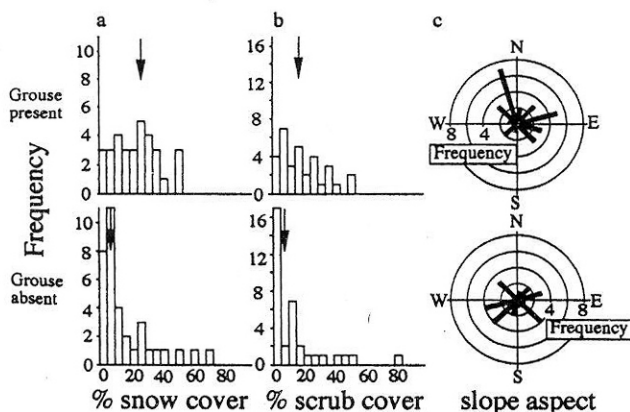


Fig. 2. Comparisons of the characteristics of hillsides with (top row) and without (bottom row) records of Caucasian Black Grouse leks: a) the relationship between snow cover and the presence of leks; b) the relationship between scrub cover and the presence of leks (arrows indicate medians); and c) the relationship of slope aspect and the presence of leks (see Table 2 for statistics).

important habitat for Caucasian Black Grouse in the breeding season.

Caucasian Black Grouse are fully protected by law in Turkey, although it is clear that a certain amount of hunting still occurs. The extent of this hunting is extremely difficult to assess, however, as a result of its covert and unregulated nature. In the past, hunting was carried out entirely by local villagers, probably at low levels since many areas were inaccessible, and interviews with villagers suggest that Black Grouse are not a highly favoured quarry species. Increasingly, hunting pressure now comes from professional and amateur hunting clubs based in the cities, which are now potentially able to have a large impact as result of improved access by road to alpine areas. Although there is no evidence for excessive hunting at present, more accurate information on the true extent of hunting is required before firm conclusions can be drawn.

Given the apparent requirement of Caucasian Black Grouse for scrub, loss of this habitat is likely to be a major threat to the population. In fact, the scrub habitat is probably not in great danger at present, but changing patterns of land use in the area may lead either to a reduction or an increase in the abundance of scrub, for the following reasons. Trees are cut for fuel and timber in the vicinity of high altitude summer villages, leading to a reduction in forest cover near the tree line. This often results in a mixture of scrub and pasture which may benefit Black Grouse. In very densely populated areas, however, even this scrub may disappear due to cutting of firewood and bedding for livestock, associated with intense grazing which prevents regeneration. The size of the grouse population would therefore appear to depend on a delicate balance of human land use. Discussions with villagers and officials of the Forestry Department suggested that the human populations of high altitude summer villages are presently decreasing as the rural economy declines and more people find work in urban areas. In the short term, at least, this is probably good news for the grouse, as it should allow the regeneration of large areas of scrub previously grazed heavily. It should be noted, however, that if, in the long term, depopulation takes place to the extent that there is widespread regeneration of forest at its upper limits, this could in theory lead to a reduction in the grouse population. Although Caucasian Black Grouse are apparently not critically endangered in Turkey at present, it is recommended that they retain their near-threatened status, at least until reliable information is available on human population trends and their implications for upland habitats.

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Summary

A survey of Caucasian Black Grouse was carried out in the mountains of north-eastern Turkey. Information was collected on their distribution, abundance and habitat preferences, and on the nature and severity of threats facing the population. Black Grouse were found to be more widespread than previously recorded and were abundant in some of the sites visited. A preference for areas with high scrub cover was demonstrated, and it is suggested that this habitat is potentially vulnerable. Although Black Grouse are hunted in the region to an uncertain extent, the population is probably not severely threatened by this activity at present. Despite the apparent health of the Black Grouse population in Turkey at present, in view of the uncertainties surrounding future patterns of land use in the region and their effects on the preferred habitat of the grouse, it is recommended that Caucasian Black Grouse in Turkey retain their current status as near-threatened.

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