

WORLD PHEASANT ASSOCIATION

Proceedings of the 6th International Symposium on Grouse

20-24 September, Udine, Italy

Edited by

David Jenkins
Zoology Department
Aberdeen University
Tillydrone Avenue
Aberdeen AB9 2TN
Scotland, UK

Contents

List of participants	ii
Editor's preface	iv
Population dynamics	
Populations and habitats of snowshoe hares, Ruffed and Spruce Grouse in the southern boreal pine forest of Ontario	1 James F Bendell and Leah I Bendell-Young
Populations of Capercaillie and Hazel Grouse in large natural and logged forests in northern Russia, 1950-92	12 Alexander B Beshkarev, Alexei Blagovidov, Sergei Sokolski and Olav Hjeljord
Extrinsic factors influencing the population dynamics of Red Grouse	19 Peter J Hudson and Andrew P Dobson
Hazel Grouse in the Bohemian Forest - results of a 20-year study	27 Siegfried Klaus
Studies of grouse in China	34 Sun Yue-Hua
Seasonal movements by Hazel Grouse in south-central Sweden	37 Jon E Swenson and Johan Danielson
Distribution and behaviour	
Ecological and behavioural constraints on monogamy in the Willow Ptarmigan	43 Susan J Hannon
Spatial distribution and habitat preference of male Capercaillie in the Pechora-Illych Nature Reserve in 1991-92	48 Alexander B Beshkarev, Alexei Blagovidov, Victor Teplov and Olav Hjeljord
Dispersion and habitat selection of displaying male Black grouse in the Mont Avic Natural Park, western Italian Alps	54 Massimo Bocca
Home range of male Black Grouse from summer to winter in the eastern Alps (Friuli, Italy)	59 P F de Franceschi and S Mattedi
Selection of birch by Black Grouse in winter	63 Olav Hjeljord, Tor K Spidsø, Finn Bjormyr, Erling Meisingset and John Gunnar Dokk
The size of Black Grouse lek populations in relation to habitat characteristics in southern Norway	67 Olav Hjeljord and Gary Fry
Energy costs of incubation in Rock Ptarmigan in Switzerland	71 B Huber-Eicher
Home ranges, habitat and dispersal of radio-marked Hazel Grouse in the National Park 'Bayerischer Wald', Germany - Preliminary results	77 Andreas Kämpfer-Lauenstein
Anti-predator behaviour of Black Grouse as influenced by hen-rearing versus hand-rearing	81 Christiane Költringer, Gunter Sodeikat and Eberhard Curio
Variations in clutch defence by incubating female Black Grouse	84 Arto Marjakangas
Habitat fragmentation and management	
The importance of large herbivore management to woodland grouse and their habitats	93 D Baines, M M Baines and R B Sage
Habitat characteristics of brood-rearing sites of Hazel Grouse in the eastern Alps (Friuli-Venezia Giulia, Italy)	101 P F de Franceschi and M Botazzo
Evaluation of Hazel Grouse habitat in the Black Forest (southern Germany) and implications for habitat management	106 Manfred Lieser, Detlef Eisfeld and Stefan Mann
Evaluation of habitat suitability for Capercaillie in the northern Black Forest	111 Karl-Eugen Schroth
The role of bilberry in central European Capercaillie habitats	116 Ilse Storch
Silvicultural measures for the improvement of grouse habitats in the Black Forest	121 Rudi Suchant
Others	
Distribution of grouse in the Italian Alps (1988-1992)	129 Ivano Artuso
The distribution and status of Caucasian Black Grouse in north-eastern Turkey	131 Philip W Atkinson, Elizabeth A Humpage, Adrian J D Jowitt, Idris Ogurlu and J Marcus Rowcliffe

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

Philip W Atkinson¹, Elizabeth A Humpage², Adrian J D Jowitt¹, Idris Ogurlu³ and J Marcus Rowcliffe^{1*}

¹*School of Biological Science, University of East Anglia, Norwich, Norfolk NR4 7TJ, UK*

²*Norwich City College, Ipswich Road, Norwich, UK*

³*Orman Facultesi, Karadeniz Teknik Universitesi, Trabzon, Turkey*

³*Present address: Celal Bayar Universitesi, F.E.F. Biyoloji Bölümü, Manisa, Turkey*

* Author for correspondence

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

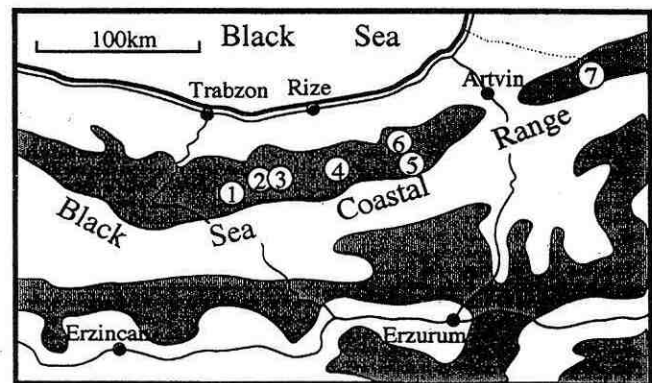


Fig. 1. Map of north-eastern Turkey, showing the locations of sites surveyed for Caucasian Black Grouse:

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) Yaylaönü	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

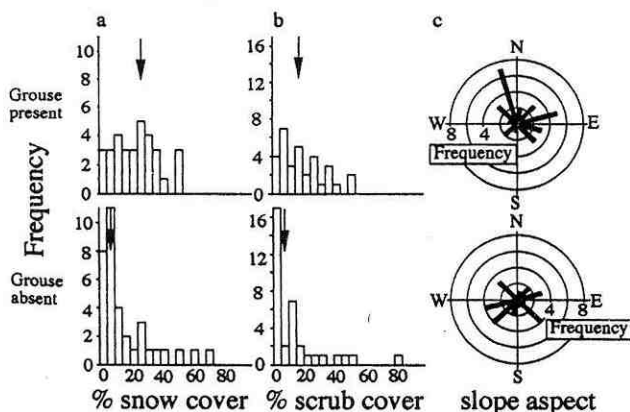


Fig. 2. Comparisons of the characteristics of hillsides with (top row) and without (bottom row) records of Caucasian Black Grouse leks: a) the relationship between snow cover and the presence of leks; b) the relationship between scrub cover and the presence of leks (arrows indicate medians); and c) the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

Acknowledgements - This study would not have been possible without the financial support of BirdLife International, World Pheasant Association, British Ornithologists' Union, People's Trust for Endangered Species, Percy Sladen Memorial Trust, Sir Philip Reckitt Educational Trust, Albert Reckitt Charitable Trust, Gilchrist Educational Trust, Ornithological Society of the Middle East, Royal Geographical Society, University of East Anglia, Bird Exploration Fund and Tom Gullick. We are grateful to them all. Thanks to Rod Martins, Guy Kirwan, Dr Peter Garson and Ian Green who all gave advice on planning, and we are greatly indebted to Gernant Magin and his colleagues

at the Turkish Society for the Protection of Nature for helping us obtain the necessary permission. Professor M. Serez from K.T.Ü. in Trabzon and the Turkish Forestry department provided invaluable assistance in the field. Finally, throughout the study we received nothing but unselfish assistance and, at times, overwhelming generosity and hospitality from the Turkish people we encountered and in whose villages and homes we stayed. We are thankful to them all.

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.

References

- Beaman, M. 1986. Turkey Bird Report (1976-81). - Sandgrouse 8: 1-41.
- , Porter, R.F. and Vittery, A. 1975. - Orn. Soc. Turkey Bird Report 1970-73.
- Collar, N.J. and Andrew, P. 1988. Birds to Watch. - International Council for Bird Preservation, Cambridge.
- Cramp, S. and Simmons, K.E.L. (eds.) 1980. The Birds of the Western Palearctic, Vol. II.- OUP Oxford.
- Grimmett, R.F.A. and Jones, T.A. 1989. Important Bird Areas in Europe. Tech. Publ. No. 9. - International Council for Bird Preservation, Cambridge.
- Grove, S.J., Jones, H.P., Malkinson, A.R., Thomas, D.H. and Williams, I. 1988. Black Grouse in Wales, spring 1986. - Brit. Birds 81: 2-9.
- Kumerloeve, H. 1961. Zer Kenntnis der Avifauna Kleinasiens. - Sonderheft zool. Beitr. 12: 240-241.
- 1967. Neue Beitrage zur Kenntnis der Avifauna von Nordost-und-ost-Kleinasiens. - Istanbul Fen. Fak. Mecmuasi Seyi 3 - 4: 79-213.
- Mountford, G. 1988. Rare Birds of the World. - Collins, London.
- Scott, D.A. 1976. The Caucasian Black Grouse (*Lyrurus mlokosiewiczii*) in Iran. - J. WPA 1975-76: 66-68.
- Temple-Lang, J. and Cocker, M. 1991. A nest of Caucasian Black Grouse *Tetrao mlokosiewiczii* in Turkey. Sandgrouse 13: 102-103.