GROUSE NEWS

Newsletter of the WPA/BirdLife/IUCN/SSC Grouse Specialist Group

Issue 32 *November 2006*

Contents

Editorial

As you will read in this issue, blue grouse has been split into two species, sooty and dusky grouse. Both species are widely distributed and numerous. Flocking of capercaillie has been reported from Finland. The flocks varied in size with 10-29 birds as the most common. It would be interesting if this phenomenon also occurs in other parts of its range. Papers on black grouse dealing with parasites as a measure of human-generated stress in the Alps and an isolated population in The Netherlands are printed. This isolated Dutch population was still vital and work is done to improve the conservation. In Andorra the capercaillie population is doing fairly good and reproduction is good. This may be important for the conservation of this species in the Pyrenees.

In addition to articles, small notes of what you are doing, suggestions and ideas are welcome. If you think it could be of interest to other grousers, send a note and we will print it in Grouse News. News about conservation of grouse species in your country is very important. We will also invite all new members of Grouse Specialist group to write a short note on what they are doing to inform the rest of us. Or you may write an article of your research or other. We especially challenge researchers and others from the Far East and also Canada.

Earlier this fall a sad message came from Scotland. Jimmy Oswald died at an age of 77 years. Robert Moss has written an obituary.

At least a reminder to those of you that plan to participate at the black grouse conference in Vienna in September 2007. Notice the deadlines for abstracts and registration found under snippets.

It is very important that everybody that change address and/or e-mail address send a message to Ilse or Tor Kr. to be sure to receive Grouse News.

Anne Westerberg has edited the language of some of the contributions.

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From the Chair

The IUCN Red List of Threatened Species plays a major role in conservation policy and practice. All species of birds, but not subspecies, are regularly assessed for their conservation status by the Species Survival Commission (SSC) of the World Conservation Union (IUCN) based on the IUCN Red List categories and criteria. Subspecies are left out simply because of capacity limitations, although the IUCN Red List categories and criteria can and should be applied to subspecies as well. Stuart Butchart of BirdLife International, the IUCN authority for birds, encouraged the GSG to apply the IUCN Red List categories and criteria to grouse subspecies that might qualify to be listed as threatened. Thus, the Grouse Specialist Group assessed the conservation status of the Cantabrian capercaillie *Tetrao urogallus cantabricus*, a subspecies of the western capercaillie, endemic to the Cantabrian Mountains of northwest Spain, according to the IUCN Red List categories and criteria. As expected, the subspecies qualifies as Endangered due to rapid population declines, small population size, and severely fragmented range. The assessment supports the plea of Spanish GSG members that the implementation of a range-wide recovery plan is vital for the survival of this subspecies. Assigning a IUCN Red List category to this subspecies may strengthen the attention it receives in conservation policy in Spain and the EU and thus the chances to implement urgent conservation action.

It is our task as he GSG to make an effort to assess other potentially subspecies of grouse as well. If you have a candidate subspecies and data relevant for assessment at hand (see http://www.iucnredlist.org/info/categories_criteria2001), please contact me.

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NEWS FROM GSG

Capercaillie projects in Eastern Europe – an informal meeting at the ECCB in Eger (Hungary)

Roland F. Graf

At the 1st European Congress of Conservation Biology in August 2006, a group of grouse experts met to talk about three capercaillie *Tetrao urogallus* conservation and reintroduction projects in Hungary, Greece and Bulgaria. The group consisted of the following people: Stefan Avramov (Bulgarian Biodiversity Foundation), Kurt Bollmann (Swiss Federal Research Institute WSL), Dimitris Bousbouras (ARCTUROS, Greece), Veronika Braunisch (Forest Research Institute of Baden Wuerttemberg, Germany), Lazaros Georgiadis (ARCTUROS, Greece), Roland F. Graf (UFZ Centre for Environmental Research Leipzig-Halle, Germany), Pierre Mollet (Swiss Ornithological Institute), Harto Lindén (Finnish Game and Fisheries Research Institute), István Szentirmai (Örségi National Park, Hungary), Kostadin Valchev (Balkani Wildlife Society, Bulgaria), Dimitris Vassilakis (WWF Greece, Dadia Project).

Örségi National Park, Hungary

The Örségi National Park is situated in western Hungary at the border of Austria with an area of about 440 km^2. Capercaillie occurred in this area until the 1960-ies. Habitat degradation and poaching are probably the most important reasons for the extirpation of capercaillie in Örségi National Park. Recently, the administration of the national park launched a project to reintroduce capercaillie. Istvàn Szentirmai contacted international capercaillie experts to get a first evaluation of the potential chances of a reintroduction and organized a meeting at the ECCB in Eger. At this meeting, we came to the conclusion that a capercaillie reintroduction in Örségi National Park can not be an option in the present situation and would fail with high probability. Three main reasons support this decision: (1) there is not sufficient habitat available for a viable population and exchange with other populations (Austria, Slovenia) is not possible at present. (2) The former occupied habitats have been degraded and are not of sufficient quality. Additionally, habitat quality will probably decrease further in the near future. (3) The administration of the national park has limited influence on the forestry practice. Thus, there is no possibility to improve habitat quality on large enough areas.

Grammos Natura 2000 area, northwestern Greece

The Grammos area encompasses an area of 350 km^2 in a mountainous region. Coniferous species dominate most forests, thus indicating that large amounts of suitable capercaillie habitat may be available in this area. Capercaillie and hazel grouse *Bonasa bonasia* existed in this region and both species went extinct around 1970, probably because of high hunting pressure. Before, the capercaillie populations of Grammos had probably been connected to populations in Albania (now extinct) and Macedonia (maybe some populations left). No connection existed to the population in the Rhodope Mountains at the Bulgarian border. In Grammos region, habitat availability and the past population history has to be assessed to decide on further steps. Additionally, there is a need to search for potential neighbour populations in Macedonia. ARCTUROS (NGO for wildlife conservation) and the prefecture of Kastoria are discussing a reintroduction project and will contact the Grouse Specialist Group in an early phase.

Rhodope Mountains, Bulgaria

Bulgaria still has some healthy capercaillie populations in different regions that sum to a total of a few thousand birds. However, there are some factors that may threaten these populations in the future: (1) habitat loss and degradation due to more intensive forest management in the last years, (2) human disturbance in areas close to towns, (3) new ski resorts, and (4) poaching. In the Rhodope Mountains at the border of Greece, capercaillie populations live in old-growth beech and coniferous forests. Here, the Bulgarian National Forest Board and the Bulgarian Biodiversity Foundation launched a capercaillie project funded by the GTZ (a German association for sustainable development) that is planned to start in January 2007. In a first phase, the aims are to assess baseline data about capercaillie distribution and the factors that influence capercaillie populations, to do a context and stakeholders' analysis, an economic valuation of the benefits of sustainable capercaillie hunting versus intensive forest management, a public awareness campaign, etc. This information will be incorporated in a comprehensive concept for capercaillie conservation. Early contact with the Grouse Specialist Group is planned.

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CONSERVATION NEWS

Blue grouse *Dendragapus obscurus* are now considered to be two species: dusky grouse *Dendragapus obscurus* and sooty grouse *Dendragapus fuliginosus*

Michael A. Schroeder

The American Ornithologists' Union (AOU) has split the blue grouse *Dendragapus obscrurus* into two separate species: dusky grouse *D. obscurus* and sooty grouse *D. fuliginosus* (AOU 2006). This split is actually a reversion to the previous designation during the early 1900's when dusky and sooty grouse were considered distinct. The current reclassification was justified by the AOU on the basis of mitochondrial DNA research by Barrowclough et al. (2004), but also on early research by Brooks (1929) where he described differences in the tail, cervical apteria, and volume of the hooting display.

Both dusky and sooty grouse are widely distributed in the mountainous portions of western North America and their current distribution appears to be relatively unchanged from historical levels (Zwickel 1992). Nevertheless, their populations have been locally reduced, such as in the metropolitan area of Seattle (Figure 1). Sooty and dusky grouse have also been reduced in areas where native habitat has been converted for crop production or degraded by abuse. The current North American population of both species combined is estimated to be about 1,000,000, with 400,000 in the United States and 600,000 in Canada (Storch 2000). Neither species is listed by any state, provincial, or federal government as threatened or endangered.

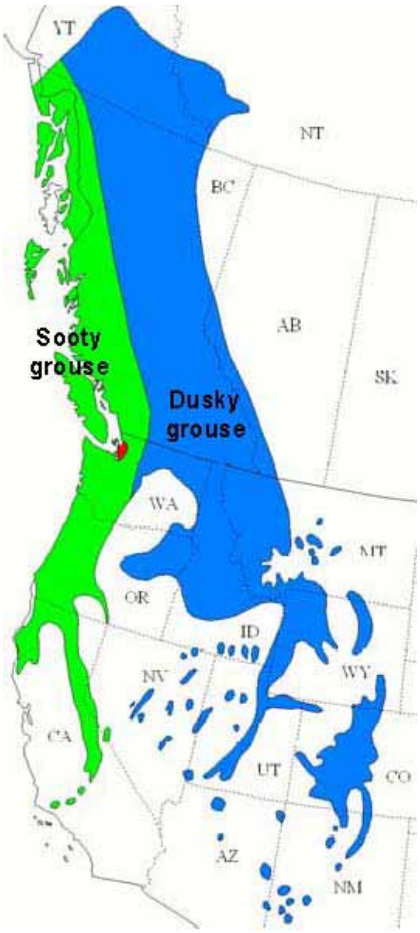

Figure 1. Estimated distribution of sooty and dusky grouse in North America (modified from Zwickel & Bendell 2004). The area defined by red includes habitat believed to be lost for sooty grouse, due to development.

Although sooty and dusky grouse generally winter in coniferous forest, their breeding habitats are quite varied and include shrub-steppe, steppe, mountain shrub, open coniferous forest, clearcuts, old growth forest, and alpine tundra. Both species nest on the ground, usually protected by shrub and/or herbaceous cover, and within 1.5 km of conifers. Because the sooty grouse tends to live in forested habitats throughout the year, it appears to be vulnerable to variations in forest practices. For example, research on sooty grouse in British Columbia indicated that their populations fluctuated dramatically depending on age of the forest following clear-cutting (Zwickel & Bendell 2004). Unfortunately, there has been little effort to evaluate the relationship between current forest management practices and sooty grouse populations across the range. In contrast to sooty grouse, dusky grouse tend to be adapted to relatively open habitats in forest openings or close to forest edges. Because these open habitats are preferred areas for development and livestock production, the management issues tend to be different for dusky grouse than for sooty grouse.

The range map (Figure 1) provides some indication of separation between the species and was based on previous maps showing the overall distribution (Zwickel & Bendell 2004) as well as the distribution of the subspecies (Aldrich & Duvall 1955). In general, the coastal birds are sooty grouse and the interior birds are dusky grouse. In Oregon, Washington, and British Columbia, the demarcation line for the two species is east of the south-north oriented crest of the Cascade Mountains. For example, on Harts Pass in north-central Washington the birds appear to be sooty grouse while the birds a few km east appear to be dusky grouse.

Table 1. General characteristics of sooty and dusky grouse.

Characteristic	Sooty grouse	Dusky grouse
Typical number of tail feathers	18	20
Appearance of tail, particularly in male	Terminal gray band	Solid dull black
Cervical apteria color (visible during male display)	Yellow	Red
Volume of hooting sound and distance it can be heard	Loud (1 km)	Quiet (100 m)

Can the two species be distinguished on the basis of appearance and behavior? According to Brooks (1929), Zwickel (1992), and Zwickel & Bendell (2004), there are some basic differences including apertia color, tail appearance, and volume of the hooting display (Table 1, Figure 2). It is difficult to count tail feathers unless you are holding the bird. However, males sometimes make this easy by fanning their tails during display. It is also important to understand the difference between the apteria (bare patches of skin on the side of the neck that are exposed during display), and the eye combs. Males of both species have yellow eye combs that tend to turn reddish when they are in peak display near a female. Identification of these species in the field is sometimes confusing. In portions of southeastern Alaska, the sooty grouse have red apteria (instead of yellow), and in Colorado and New Mexico, the dusky grouse have gray, banded tails (instead of solid black tails), usually with 18 tail feathers. This variation may be due to geographic isolation and the relatively small movements of blue grouse within their occupied patches (Barrowclough et al. 2004). Because of the rugged nature of the sooty/dusky grouse habitat in British Columbia and Alaska and the vast number of islands with potential habitat, it is likely that more remains to be learned on this topic.

Figure 2. Male sooty grouse on left (note yellow apteria and banded tail) and male dusky grouse on right (note red apteria and solid black tail). Photographs by Michael A. Schroeder.

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RESEARCH REPORTS

Observations on capercaillie *Tetrao urogallus* flocking and mobility – facts or fiction?

Tuija Liukkonen, Jukka Bisi & Sami Kurki

Introduction

Flocking in birds is a common phenomenon. A flock usually consists of socially independent birds around a common feeding place or the aggregation is resulting from social between-individuals attraction (Koskimies 1957). To live in a group may prevent from predation (alertness, dilution-effect) and ensure feeding possibilities. Mobility of birds is commonly described by words "migration" and "dispersal" (Greenwood 1980). Migration describes seasonal movements, whereas natal dispersal means the movements of birds from their site of birth to the site where they will reproduce and breeding dispersal movement of adults between breeding attempts. In general, in birds, females disperse longer distances than males and juveniles farther off than adults (Greenwood 1980). Grouse species are commonly taken as poor dispersers with female being the most dispersing sex (Swenson 1991, Storch 1997, Warren & Baines 2002). Studies on radio-marked capercaillie *Tetrao urogallus* have shown that both females and males may undertake seasonal movements of varying distance (Rolstad *et al*. 1988, Helle *et al*. 1990, Hjeljord *et al*. 2000). The data from ringed capercaillie in Finland is limited, but some movements of 20-45 km have been recorded (Ringing Centre, Finnish Museum of Natural History).

Some occasional observations on flocking and mobility of capercaillie and the descriptions of these phenomena in Finnish wildlife literature (Weckman 1904, Virkkula 1943, Koskimies 1957, Pulliainen 1982, Bisi 1999) formed the background of this study. To examine occurrence of flocking and occasional mobility of the capercaillie, an enquiry approach was taken. In this study we also wanted to examine the usefulness of existing observations on an occasional phenomenon when field observations may be difficult to collect. In addition, we discuss the reliability of such observations.

Enquiries 2005 and 2006

Observations on capercaillie flocks or mobility were requested in two separate enquiries. In January 2005 there was an announcement in the magazine "Metsästäjä" ("Hunter) and an additional request for observations was put in the national "Lintuverkko" ("Birdweb") in January 2006. The calls for observations were open to all detections of capercaillie flocks. The basic question was: "Have you ever evidenced a flock or mass movement of capercaillie". More detailed questions were made when respondents replied to the request. In addition to these questions the persons were also allowed to tell about their observations freely. The first request resulted in 73 contacts, which were letters, e-mails, phone calls or text messages. In addition, three observations were told personally. In January 2006, the second request resulted in 33 new contacts, which were phone calls and e-mails.

The 106 contacts included altogether 159 observations of which 150 observations were accepted and analysed. Some observers had two or more observations. The received observation data was mainly descriptive and it could be classified by certain characteristics. Owing to the nature of the data, the approach was observational and descriptive rather than statistical. The proportion of flocks of different size and age were calculated from the total number of observations. The proportion of flocks with one single sex or mixed sex composition was calculated as well as the age class (adults, juveniles, mixed). The activity of the birds and the time of year were also determined from the data and the proportion of observations in each class was calculated. In the classification autumn was September–November, winter December–February, spring March–May and summer June–August. The species identification methods were also studied and classified.

Capercaillie in flocks and flight

Flock observations were more or less evenly distributed throughout the country at a large scale examination (quarter), excluding SW and northernmost parts of Finland where no observations were made. At a smaller scale examination (municipality level), some hotspots, areas with a high number of observations, were also recognised and the distribution of observations was patchy. Two observations were made before 1950 and the most recent observations were made in January 2006. Most of the observations were from 2000-2006 (Figure 1). Most of the observations, almost 73 %, on capercaillie flocks or mobility were made in the autumn, either during grouse or elk hunting season. Further, 22 % of the observations were made in the winter, during December–February. Only 3 % of the observations were made in the spring and 2 % in the summer. The summer observations were all made in August.

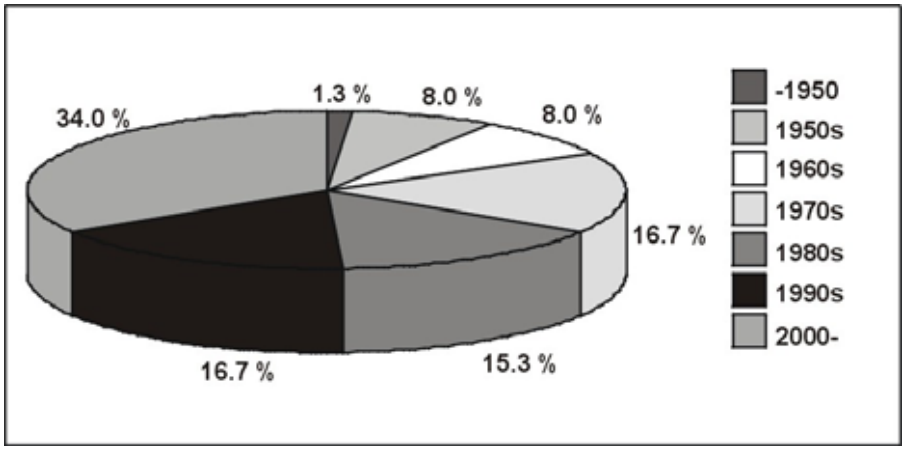

Figure 1. Proportions of flock observations made during separate decades.

There may be several reasons for autumnal flocking. Many females are still with their chicks in September and a flock early in the autumn may be a brood. Later broods break up and capercaillie form single-sex flocks (Koskimies 1957, Pulliainen 1982, Bisi 1999). Large single-sex flocks may also be aggregations of birds from several smaller leks (Koskimies 1957). In October capercaillie is changing its feeding habitats and habits from feeding on the ground to feeding on the trees, thus being more visible (Koskimies 1957, Pulliainen 1982). Similarly to Finland, in the French Pyrenean Mountains capercaillie flocks were seen in the autumn (Ménoni 1990, E. Ménoni, pers. comm.). The small number of observations made in the spring may reveal the ability of observer to exclude lekking behaviour and lekking aggregations from the flocking data collected.

Increase in gregariousness and the formation of single sex flocks may facilitate the ideal use of resources in the winter (Pulliainen 1982). The intraspecific tolerance within males may allow several individuals to feed on acceptable browsing pines, i.e. those containing less resins or phenolic compounds (Lindén 1984), and tolerance may result in flocks.

The number of capercaillie in a flock was used to classify the data into different size groups (Figure 2). The most common observations were made on flocks of 10–29 (70 obs.) or 30–49 (37 obs.) birds. Two separate observations were reported on flocks of more than 500 birds. The common sizes of the flocks in this study were similar to the flocks found by Koskimies (1957) and Pulliainen (1982). According to Seiskari (1962) winter flocks are small, usually only five birds. In this study flocks of five to nine birds were not that common, and observations were made mostly in the autumn.

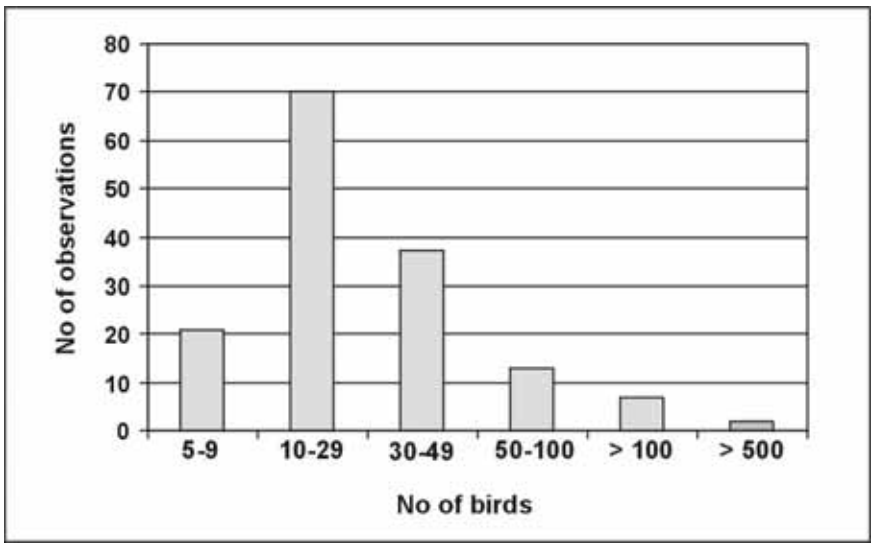

Figure 2. The number of observations made on capercaillie flocks of different size.

Of the observed 150 flocks 113 were consisting of only males, supporting the findings of Koskimies (1957). Only ten observations were made on female flocks and 27 flocks were mixed. Pulliainen (1982) found mainly female flocks, but Seiskari & Koskimies (1955) did not detect any pure female flocks at all. Flocks of up to 11 males or 25 females have also been seen in the French Pyrenees (E. Ménoni, pers. comm.).

According to Weckman (1904), Koskimies (1957) and Bisi (1999) flocking is connected to the high local density of birds. It is also possible, that by flocking birds are decreasing their risk to be killed by a predator (dilution effect). Koskimies (1957) pointed out that flocks might act as "condensation centres" promoting flock formation further.

To distinguish between adult and juvenile capercaillie in the autumn is difficult, because juvenile birds look already more or less like the adults. However, most (60.7 %) flocks were assumed to include only adult birds. Mixed flocks with both adult and juvenile birds covered 33 % of the observations. Only 6 % of the observations were made on flocks of only juvenile birds.

In more than one third of the observations birds were feeding or resting on the trees. One third of the observations were made on birds walking on the ground (undetermined social behaviour, also gritting) and in one third of the cases observed, birds were taking off, flying by or landing. Other activity included birds seen on the roofs of farm buildings or gathering together at a feeder. In many cases a part of the flock was on the ground whereas a part was on the trees (mixed flock activity). Flying by was often described as "migration".

It was a common observation that birds acted tamely, i.e. they had no fear for human presence. Some observers told that the flock had been followed for some time and described the movement of the birds as they were "rolling" onwards, from tree to tree. Many observations made in the eastern parts of Finland included that the flock of birds was arriving either from the east or northeast, i.e. from Russia. This may support the reported migration of the Russian capercaillie (Rogacheva 1992, Borchtchevski 1993). In several observations these "eastern" capercaillie were described as smaller, shorter and differently coloured than the Finnish capercaillie in general.

Young capercaillie cocks may not be able to return to their natal areas because the older cocks act aggressively against them (Borchtchevski 1993, Wegge *et al*. 2005). Although the proportion of those migratory capercaillie that finally contribute to the gene flow would be low, only a few individuals per generation, this could be enough to result in the genetic diversity (Liukkonen-Anttila *et al*. 2004). The physiological characteristics of the capercaillie support mobility of the species**.** The muscle cell composition in the breast muscles shows that the species assuredly has potential for long-distance flight. The oxidative capacity of the flight muscle cells (Mäkinen *et al*. 1997, Liukkonen-Anttila *et al*. 2000) gives evidence of potential for long-term power production. Ringing data on the capercaillie (Ringing Centre, Museum of Natural History) in Finland have also revealed that some individuals may disperse longer distances than average.

"Human factor"

A complete elimination of the "human factor" in a study like this is not possible. Most observers had a background as hunters or birdwatchers. To identify species was something the respondents considered as a talent received by the experience. Besides hunters and birdwatchers, also three game management chiefs, three nature photographers and one biologist reported observations, and their species identification ability could be considered a part of their professional skills. Many observers described themselves as an experienced hunter or birdwatcher, or had a very close contact with the birds and a good opportunity to observe them either by eye, through binoculars or a rifle sight.

Two observations were made of flocks with more than 500 capercaillie and the reliability of these observations must be discussed. It may be difficult to count moving birds exactly from a distance, and the less experience, the more difficult. The more recent of these observations from 1992 with at least 500 birds was evidenced by two hunters. The species and sex recognition was considered confident, because the observers had a good chance to examine the birds taking off right in front and around them in a young forest stand of 3 m high pine trees. They had a close look at the birds and a chance to study them for several minutes. It is less likely that they made up the observation, but it is possible that they could not count the birds exactly. Initially it was described in 1992 when the observation was done, thus not being "made up" for this study.

Conclusions

Our results support the observations described in old Finnish wildlife literature about flocking and migration/dispersal in capercaillie, and that both these phenomena are irregular. Although capercaillie mobility may mostly represent normal dispersal, migration cannot be excluded. In addition, the triggering factors for flocking may be many.

An irregular phenomenon which is not equally frequent everywhere may be impossible to study with traditional ecological methods. In this study we used existing observations as flocking and mobility may occur unexpectedly. This makes planning of observation scheme highly difficult. Is it acceptable to use observations made by someone else? What is the risk of a bias in such data and is the data reliable? If we excluded the largest flocks from the data (considering they were fairytales), we still had a number of flocks of "acceptable" size to deal with. Similar flock sizes were also reported in other studies.

The flock size, at least with the largest flocks, and also the sex and age composition of the flocks, are variables that may be most sensitive to errors. On the other hand, it may be considered unlikely that the kind of information that was collected for this study would be sensitive to any unconscious tendencies of the observer's mind. It is also unlikely that the observers told "fairytales" on purpose. The data was "hunter-biased" because hunters in general spend a lot of time in forests during hunting season and they are also interested in observing nature.

During our study we had to ask the question "Are the observations made by hunters less reliable than those made by other respondents?". Many people classified themselves both hunters and birdwatchers or *vice versa*. Hunters were not hunters and birdwatchers were not birdwatchers for their real professions but they were biologists, nature photographers, game chiefs, scientists, engineers, doctors, forest truck drivers, policemen, frontier guardians, foresters, etc. During the study it was quite commonly heard that hunters were categorised as liars and birdwatchers as honest. However, we found it highly difficult to classify someone dishonest only because he/she was a hunter.

Finally, we conclude, that an enquiry study like this should be tested further to get more information about its usefulness and reliability and how to use "silent knowledge" as a resource for research.

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Parasitology as a contribution towards measuring human-generated stress in black grouse

Eric Belleau

In Europe, many grouse populations are threatened by tourism activities. In the Alps, black grouse are often disturbed by human activities in winter. Several methods to estimate the impact of this disturbance have been proposed.

Parasitology could also be used to evaluate stress in these birds. Indeed, we have studied grouse parasites for 20 years and have found surprising results in some ski resorts. *Capillaria caudinflata* is the most common grouse helminth parasite in the northern French Alps, especially in Vanoise. Post-mortem examination of hunted birds has shown a high prevalence of *Capillaria*, but the intensity of infection is very low, except in birds from the skiing study area where some cocks carry a high worm burden in the duodenum (Table 1).

Table 1. Prevalence and average intensity of infection by Capillaria *collected by necropsy of digestive tracts in each study area*

STUDY AREA	Black Grouse Number	*Capillaria* Prevalence	Average intensity of infection
VANOISE :			
Belleville Ski Resort	9	89%	44
Belleville no ski	6	33%	2
Allues	4	75%	6
Pralognan	9	78%	12
Jovet	5	40%	4
NORTH. PREALPS	60	42%	11
NORTH. EXT.ALPS	14	29%	3
SOUTH. INT. ALPS	42	0%	

It should be noted, however, that the sample size was small and digestive tracts were collected in autumn when the birds' condition was at its best. Therefore, examination of fresh dropping samples was used to complete and verify these results (there is a good correlation between the number of *Capillaria* in the duodenum and excretion levels of parasite eggs).

In two ski resorts we have recorded significantly higher excretion frequencies and intensities than in control areas (Table 2).

Table 2. Capillaria: *Excretion frequency and intensity in each study area (EPG: eggs per gram of droppings)*

Study Area	No. of droppings examined	Excretion frequency	Low Excretions (1 to 15 EPG)	Medium to High Excretions (16 to 200 EPG)
CHARTREUSE	96	24%	86%	4%
BELLEDONNE SKI RESORT	34	82%	50%	50%
BELLEDONNE NO SKI	31	19%	83%	17%
BELLEVILLE SKI RESORT	145	57%	76%	24%
BELLEVILLE NO SKI	102	18%	89%	11%
ALLUES	40	5%	100%	
COURCHEVEL	18	6%	100%	
PRALOGNAN	85	25%	90%	10%
CHAMPAGNY	90	27%	92%	8%

The difference was more accentuated during winter and spring (Figure 1). These results may be explained in that the host-parasite balance of birds subjected to too much disturbance may be upset. In the ski resorts studied, black grouse live in open habitats with only a few small areas of shelter and are disturbed daily by off-piste skiers or avalanche prevention activities.

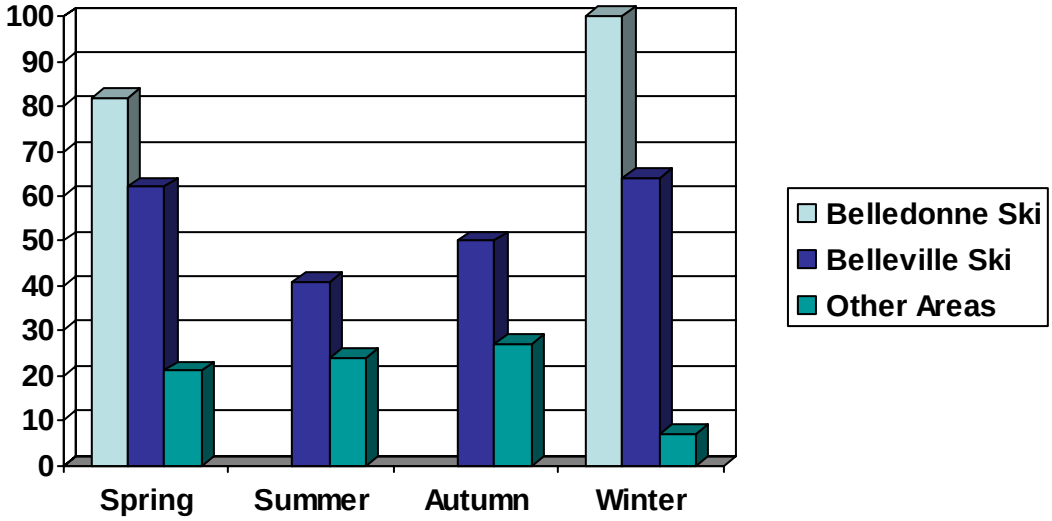

Figure 1. Capillaria: *Seasonal variation in excretion frequency*

In spite of some limitations to this study (we don't know the survival and fecundity of parasitized birds) it would be interesting to test this using faecal analysis, a non-invasive method, in other ski resorts, especially where grouse are already being radio-tracked. A new study is currently in progress looking at rock ptarmigan in Flaine ski resort in Haute-Savoie department.

The full-length paper (in French) will be found in the next BIPAS published each year by AFSSA n.cael@AFSSA.FR

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Research and recommendations to the benefit of the completely isolated black grouse population in The Netherlands

P.G.A. ten Den, H.A.H. Jansman and F.J.J. Niewold.

Summary

Despite a recent habitat enlargement the last and totally isolated black grouse population of The Netherlands nearly reached extinction in 2002. To evaluate the enlargement and determine the possibilities for survival a study on numbers, population dynamics, habitat use and genetic variability was started in 2003.

Results showed that the population is still vital and able to grow. Some loss of genetic variation had occurred, but a reduced fitness in terms of a reduced egg fertility, clutch size or nest and reproductive success was not (yet) observed.

Habitat use showed that the habitat enlargement by clearing of woodlands had benefited the population clearly. It provided preferred habitat and probably enabled the population to cope with increasing predator numbers. For a sufficient population growth necessary to leave the stochastic and genetic "danger zone", further habitat enlargement is therefore recommended, along with improvement of the heathland management and a certain level of predator control. At a recently held mini conference these and other recommendations were given, like the necessity of satellite populations for long term survival. A main problem to solve is the public and political acceptance of those recommendations.

Introduction

About a century ago black grouse numbers in The Netherlands rapidly increased to a peak of 5 to 8 thousand cocks in spring around 1930/40. This was due to a decline in sheep rearing and small scaled cultivation and afforestation of the extensive heathlands and peat moors. Around 1970 no more than 800 cocks divided over 100 areas remained, mainly as a consequence of a progressing cultivation, afforestation and maturing of conifer plantations. From then onwards numbers and populations declined even faster. Fragmentation, degradation and loss of habitat due to agricultural intensification, acidification of heathlands, densification of infrastructural networks and increasing predator numbers, were seen as main causes (ten Den & Niewold 2000).

Since 1997, only one totally isolated population remained (distance to nearest populations > 200 km). This population is living on the central heathland of the "Sallandse Heuvelrug" in the eastern part of The Netherlands. About 65% of this heathland is dominated by *Calluna vulgaris* and 35% dominated by or mixed with *Vaccinium* (*V. vitis idaea* and *V. myrtilles*). Despite enlargement of the central heathland from 700 to 1000 ha between 1990 and 2000 (Heringa 2000), according to the yearly lek counts, numbers declined to a historical minimum of only 9 cocks in the spring of 2002. Although rapid extinction was feared, further measures were not immediately taken. An evaluation of measures that were already taken was thought necessary. Funds were granted for a study (started in 2003) on population dynamics, habitat use and the possible effects of small numbers and the total isolation.

Results of this study and a recovery of numbers brought new hope and some willingness for further measures. Plans are being made and opinions were given on a recently held mini conference (June 2006) in which some foreign researchers and experts participated. This paper gives an impression of the results of our study combined with recommendations of the mini conference.

Study methods

Because of a low budget and a very small and vulnerable population, research was merely carried out by observations from roads and paths. Disturbance was kept to a minimum and no birds were captured. Spring counts of total males and territorial males were performed as before. By combining both counts reproductive success (proportion of juvenile males in the total male population in year^{n+1}) and losses amongst males could be calculated (see ten Den & Niewold 2000).

Habitat use was studied by collecting observations of black grouse from researchers, managers of the area and bird watchers. Mostly these observations were none systematically gained. During the breeding season specific observations were performed to locate nests and foraging sites of incubating females. After the incubation period nest sites were visited to determine clutch size, nest success or causes of nest failure. If possible, empty eggshells were collected for DNA analysis. In late summer parts of the area were searched for feathers (DNA) or droppings.

A genetical study was performed to get more insight in the genetic variability of the current population in relation to the historical Dutch population (stuffed animals) and foreign reference populations. It was also used to get more insight into the taxonomical status of the black grouse in Western Europe. This study was done in cooperation with Gernot Segelbacher (Max Planck Institute &

Freiburg University, Germany), and Jacob Höglund and Jobs Karl Larsson (Uppsala University, Sweden). Results will be presented in Höglund et al. (2006).

Results and discussion

Population dynamics

During the last 30 years densities fluctuated between 1 and 3 males/100 ha (Figure 1). Fortunately the numbers of cocks increased to 23 this spring, so extinction was at least postponed. This recovery seemed

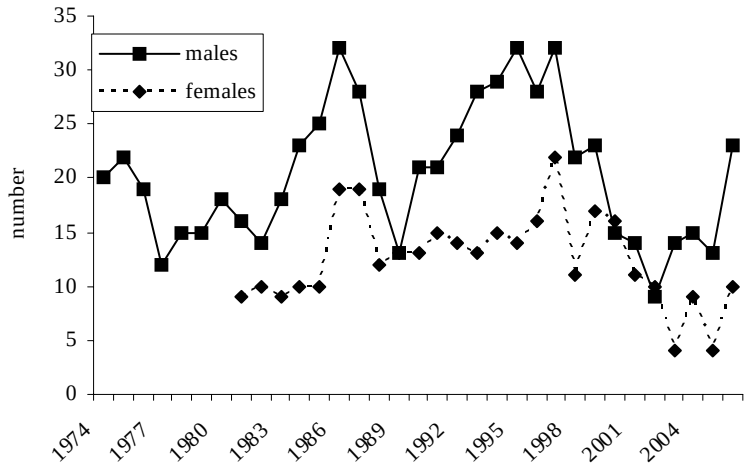

Figure 1. Black grouse spring numbers on the Sallandse Heuvelrug, 1974-2006.

to be due to fairly high reproductive successes and moderate to low losses in recent years (Figure 2). Especially the estimated high recruitment of 2002 and 2005 was encouraging. Just before 2002, losses had been rather high and exceeded the relatively low reproduction. This change is probably partly explained by changes in the level of predator control. After a period of little hunting pressure, red foxes *Vulpes vulpes* were more intensely controlled from the end of 2002 onwards. Since last spring also carrion crows *Corvus corone* are controlled to some degree. Remains of dead birds showed that losses

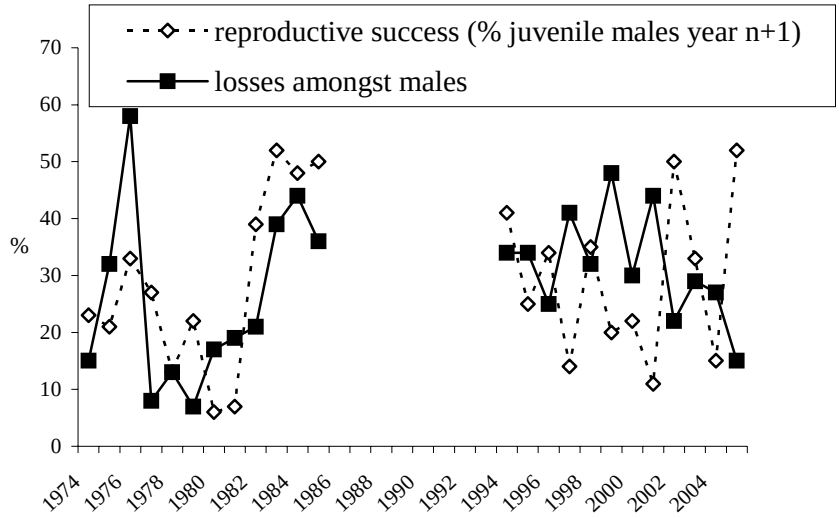

Figure 2. Black grouse reproductive success and losses amongst males on the Sallandse Heuvelrug, 1974-1985 and 1994-2005.

were at least partly accounted for by predation and accidents. If, and to what extend, dispersion or emigration contributed, remained unclear. Some sightings and accidents outside the area proved that at least some males left the area. Whether it was temporarily or definite couldn't be determined.

The mean clutch size of complete clutches (20) was 7.3 (range 6-9). Of successful nests (15 out of 23) 94 % of the eggs hatched. The mean hatching date was the 12th of June (range 3-25 June). The yearly nest success fluctuated between 35-75 %. Overall nest success was 65%, but because nest failure during the egg laying and early incubation period was not taken into account, overall nest success was estimated to be somewhere around 50%. These figures and also the behaviour of the breeding females were all comparable to those of 20-25 years ago of the same and another Dutch population (Niewold & Nijland 1987; Niewold 1990). Only the causes of nest failure had changed. In recent years nest predation by foxes and crows seemed to be the most important factor.

No direct data on chick survival could be obtained. Comparing data of nest success and reproductive success made clear that chick survival fluctuated from year to year, also during the last years. Maybe these fluctuations could be explained by differences in food availability and/or quality and weather conditions. However, the fact that foxes and crows had become more important during the incubation period, may also mean that chick predation has had more effect than before.

Habitat use

Despite some bias caused by the non systematic character and other limiting factors of the study methods, results showed that the population had a preference for the central parts of the heathland area (Figure 3). Almost no birds were seen near woodland edges, in isolated heathland corners and in adjoining woodlands. This is contrary to findings in the period 1980-1985, but by then the woodlands were younger and the central heathland was smaller and more fragmented (Heringa 2000). Surrounding agricultural fields, not in use any longer already around 1985, were also not visited recently.

Figure 3. The central heathland (light grey) of the "Sallandse Heuvelrug", surrounded by woodland (dark grey) and agricultural land (white). The black dots represent all sightings (1625) of black grouse in 2003 and 2004. The two main clearings are encircled.

In the central heathland area most activity was seen on and surrounding some large clearings, where woodland was felled 5 to10 years before to create a larger and less fragmented grouse habitat. These clearings, containing nutrient rich pioneer vegetations and also rich in *Vaccinium* species, were used for feeding and displaying. Females not only visited these clearings and likewise vegetations in winter, but also during the first stages of the breeding season and especially during the incubation period, when females seemed to favour patches with butting blueberry *V. myrtilles*. Most nests found were situated in

tall heather vegetation near these preferred feeding sites. Incubating females were often seen flying between these sites and their nests. Of the brood-rearing period little information could be obtained. Signs of grouse activity (mostly feathers and faeces) revealed that in this period, besides the older clearings, the taller heather vegetations also containing *Vaccinium*, small patches open ground, shrubs and trees, were preferred.

Although there has been no large response in numbers, at least habitat use showed that the clearing of woodlands has benefited the population to a large extends. It not only enlarged the black grouse habitat, but also provided core habitat in the centre of the area, so the population was probably able to avoid the more hostile woodland edges, when predator numbers increased.

Genetics

Results showed that historically the Dutch population was already genetically differentiated from the reference populations from the Alps, Scandinavia and the UK. Recently, due to the small population size and the high level of isolation, the genetic variability is reduced. As a result the current Dutch population is genetically more differentiated from the reference populations. Despite this loss of genetic variation, no signs of inbreeding depression have been found yet. Several parameters like clutch size, fertility etc. were comparable to those of 25 years ago (see above).

Based on morphological characteristics the Dutch black grouse was formerly considered as a subspecies along with *Tetrao tetrix britannicus*. The geographical range of this subspecies was probably limited to Scotland and the territories of relict populations in England, Belgium, The Netherlands and Denmark (Niewold & Nijland 1987). In Western Europe only a few of these relict populations still exist. The taxonomical status of these and German relict populations still needs further clarification.

Mini conference (Nijverdal, Thursday 29 June until Saturday 1st of July 2006)

The idea for a mini conference was initiated by the responses of grouse experts at the last International Grouse Conference in Luchon, September 2005. The aim was to invite black grouse experts, mainly from neighbouring countries, with similar conservation problems and/or the same subspecies. The conference was focussed first on discussing the conservation options for the Dutch population and next, the black grouse status & conservation in surrounding countries. The mini conference was organised by the National Park “de Sallandse Heuvelrug (SH)” in cooperation with the State Forestry Service (Staatsbosbeheer) and the Society for Nature Reserve "Natuurmonumenten".

Foreign participants were: Dave Baines and Philip Warren (Game conservancy, UK), Jobs Karl Larsson (population geneticist, Uppsala University, Sweden) and Michele Loneux (University Liege, Belgium), who are all membes of the IUCN Grouse Specialist Group. Also Pascal Ghiette (biologist Hautes-Fagnes, Centre de Recherche de la Nature, des Forêts et du Bois, Belgium) participated. Jann Wübbenhorst (biologist Lüneburger Heide, Germany) was absent. From The Netherlands, in addition to grouse researchers, members and employees of the organising organisations and members of the local and national government were present during parts of the event.

The first two days of the event were mainly used for lectures and visits to parts of the area. The last morning was meant for debates with a larger public. Also the local press was invited.

Main conclusions & recommendations

1. There is still a good chance of long-time survival for the Dutch black grouse population, although stochastic events are a risk. Currently the population is sufficiently vital to grow, given the opportunity. When the population goes extinct, it will be very difficult to restore a new population. So act now.
2. The current heathland area that is used by the black grouse is in good condition, but can be improved further by 1: circulation of small scale mosaic management in which blueberry should be promoted and 2: instigated heather burning.
3. In relation to grouse densities in foreign countries, the general population level has maybe reached the carrying capacity. However, a further population growth is needed to leave the stochastic and genetic "danger zone". Improvement of heathland management probably won't be enough to allow for a sufficient growth. Therefore, the total black grouse habitat on the Sallandse Heuvelrug should be increased. This means a further felling of woodlands with *Vaccinium* undergrowth (especially blueberry). Firstly, small and isolated heathland parts should be enlarged and connected to the central heathland.
4. In combination with habitat improvement and extension, an effective predator control (focused on fox and crow) is necessary, at least in the near future.
5. When the current population shows a clear response to the habitat improvement, habitat extension and predator control (increase in numbers), focus should then be on establishing some

kind of metapopulation: make heath- and moorlands within female dispersal rate (~20 km) suitable for black grouse and create functional corridors. Since this is likely to be a time consuming action, it is recommended to start forward planning soon.

6. Translocation of males may accelerate the formation of such a metapopulation construction, which is necessary to reach a long term viable population.
7. Because the limiting factors for the population are not totally known, further research is recommended.
8. Research should focus more on monitoring chick survival and dispersal. Regarding the small population size, care should be taken not to stress the population too much. It is recommended to focus on analysing the breeding success in August through counts of chicks and estimating the dispersal rates by seeking young females in other heathland patches within 15-20 km during winter and early spring.
9. Monitoring both ecological important and fitness indicating parameters, as well as genetic variability, should be continued. There is still a risk of a reduced fitness and loss of adaptation for the isolated population.
10. A better taxonomic study of several surviving black grouse populations in West (and Mid) Europe should focus on the subspecies status of these remnant populations. Not only genetically, but also morphological and other aspects should be considered. Recommended is a comparative analysis of Dutch data on egg size, clutch size, hatching success, causes of nesting failure and morphological measures (eg. Tarsus, wing length) with data from at least the UK, Germany and Belgium. Such a study can be crucial in raising funds for the proposed research and management. It is also important if restocking is thought to be necessary (which populations could be used as donor). The best strategy should then be discussed (to exchange eggs, chicks or adults or founding a cooperative breeding programme).
11. It is necessary to get a better public and political acceptance for measures aimed at saving the population, especially for the clearing of woodlands and predator control. Local people and local and national politicians should become aware of the uniqueness of the still existing population, instead of seeing it as a burden.
12. The Dutch population is not unique in its situation. It is recommended to join forces, exchange knowledge, and apply collectively for funding etc. to improve the knowledge on conservation of our West-European lowland black grouse.

Acknowledgements

We thank the National Park, the State Forestry Service and the Society for Nature Reserve for given us the opportunity to study the population and for organizing the mini conference. We also thank all participants of the mini conference and especially the foreign experts for their informative lectures, good advice and pleasant company.

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The capercaillie in Andorra: a population in good health!

Marc Mossoll-Torres and Emmanuel Ménoni.

Summary

The recent survey of the capercaillie population in Andorra indicates that the status of this species in this small country is fairly good, contrasting with many population in the southern part of the global range of the species. The habitats are in favourable condition, and almost all parts of these are occupied. No immediate threats to the habitats have been identified, apart from the development of the ski station. The leks are regularly spaced, and their size averaged 3.8 cocks/lek. The total stock of adult birds is estimated to be 500-600. Reproductive success since the year 2000 has been consistently good, and better than on the French side of the Pyrenees, probably on account of better climatic conditions.

A. Landscape and habitat of the capercaillie: past and present status

Historical status

The close links between the capercaillie *Tetrao urogallus aquitanicus* and its forest habitats, mean that it is very important to study the history of the forests in order to gain an understanding of the present status and trend of the capercaillie population, particularly in a small country like Andorra with its long history of human settlement.

Indeed, the Andorran landscape today, now largely favourable for capercaillie, is the result of a combination between historical forest use (quite different from that of neighbouring France and Spain) and the natural attributes of the vegetation. Historically, the country has been poor, and for centuries people have been closely reliant upon local resources. Forests, under state ownership, have been utilized largely with little concern for conservation.

According to Bécat (1979), the forests of Andorra have not been targeted for systematic clearance for agriculture or grazing areas, as was the case in neighbouring French or Spanish regions (Chevallier 1980). However, the forests have been substantially cleared both by grazing animals and, in the 18th and 19th centuries, for the charcoal industry. However, regeneration was always assured, as the forests were considered by local people and the authorities alike as a reserve for building material and firewood. The forested areas at the lowest altitudes and close to villages were, however, rather over-exploited. The meadows were not adequate for the villagers grazing needs so that forests were commonly used, and consequently modified, by grazing herds: in early summer the field layer of the lower forested areas was overgrazed; in mid-summer, the timberline was commonly reduced in altitude, and in late summer, the middle-altitude forests were grazed, resulting in a low density of trees.

Only between 1930 and 1960, did it become clear that the forests were being over-exploited, when the country was modernized, with the building of roads and with many sawmills in operation. In the sixties, any harvesting of the forests ceased, and the forest cover very quickly expanded up and down the slopes, easily recolonizing on account of the good soils and favourable climatic conditions (Messines du Sourbier 1970). Figure 1 show the changes which have occurred in the forests of Andorra since 1800.

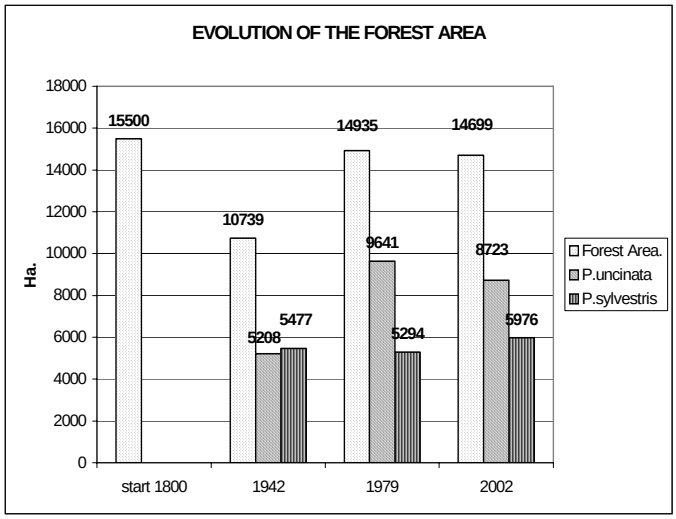

Figure 1. Historical changes in the Andorran forests (dotted: forest area (ha); inclined bar: mountain pine; vertical bar: Scots pine.

Composition and structure

The sole habitats of capercaillie in Andorra are Scots pine *P. sylvestris* , mountain pine *P. uncinata* , and Scots pine X mountain pine *P. bougetti* forests. The Andorran mountain climate has a Mediterranean influence, so that tree species of moister climates, such as beech *Fagus sylvatica* and fir *Abies alba* do not grow here.

The forests extend from 1400 to 2200 m asl, sometimes up to 2400 m and are more or less all occupied by capercaillie; however, the highest densities occur above 1600-1800 m, because the structure of the lower forests is often too dense. Below 1400 m there are oak forests and the landscape is heavily influenced by human activity, with fields, villages and cities.

The capercaillie prefers N, NW and W facing slopes, covered by the Rhododendro-pinetum uncinatae typicum association. *Rhododendron ferrugineum* and *Vaccinium myrtillus* are very common, usually giving a moderate canopy cover. On the south-facing slopes, the Arctostaphyllo-pinetum uncinatae association is most common, with *Juniperus communis*, *Buxus sempervirens* and *Arctostaphyllos uva ursi*: typically, leks are rarer there.

B. Range and possible corridor with France and Spain

In Andorra, capercaillie occupy 166 km², or 32 % of the country, with very variable densities depending on local conditions. Not only are the birds found in the pine forests, but also in the sub-alpine shrublands above the timberline.

Considering a minimal dispersal capacity of 5 km (Storch 1993), all the Andorran forests may be considered to be connected; only in some straight zones, areas highly equipped by ski trails are able to interrupt the habitat connectivity in some places. Thus the capercaillie habitat may be considered as weakly fragmented, as shown in Figure 2. The forest areas occupied by ski trails cover approximately 1000 ha, corresponding to 6% of the Andorran range of the capercaillie.

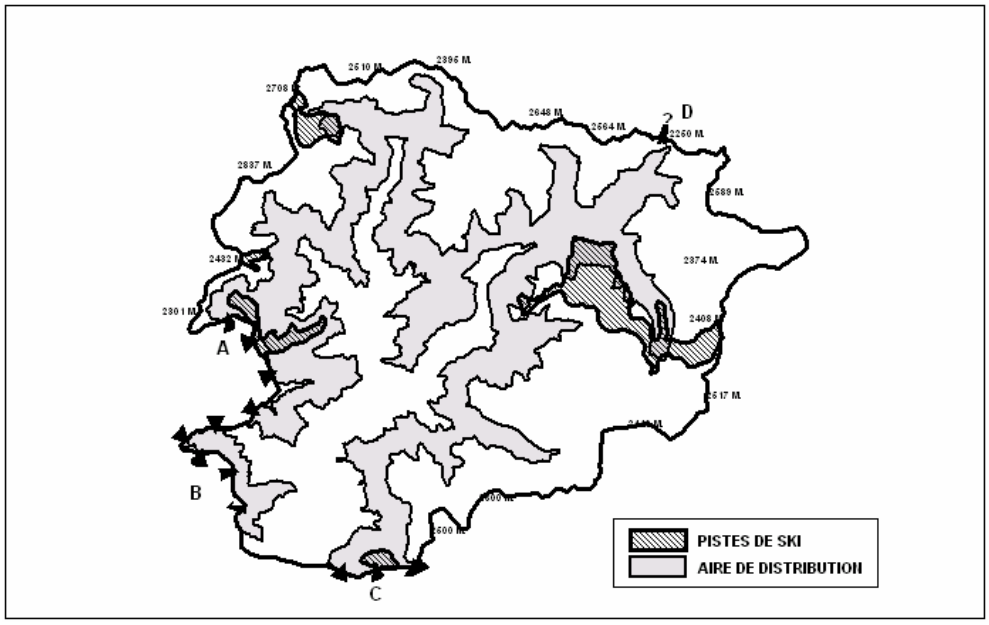

Figure 2. Map of the suitable habitats of capercaillie in Andorra (grey), and the overlap between these habitats and the ski trails (hatched)

The capercaillie population in Andorra is unlikely to be connected to French populations, because of separation by high mountain ranges with unsuitable habitat. Only one pass (Incles pass, 2260 m asl) would appear negotiable for the capercaillie, but not easily, because it is actually surrounded by a large unforested area ; the area was probably forested in the past, (as indicated by the presence of a charcoal site), and population exchanges were probably easier at this time (Figure 2, D).

By contrast, Figure 2 shows at least three points of possible exchange with Spanish populations (Catalonia province): very probable, according to the composition of the landscape (A and C), or - shown by radio telemetry - (B), where movement of birds occurred in spite of some impediments (ski trails,

fragmented forest on the Spanish side, wide road…). The Andorran population is therefore not isolated, and the gene flow has been confirmed by a genetic study. The genetic distance between Andorran and Spanish birds from the nearest valleys is small, and is smaller than that between Andorran and French birds which are geographically very close, confirming the landscape analysis. (Regnaut 2004, Regnaut & Ménoni 2005). However these movements, probably important for the long term survival of the Andorran population, could be suppressed, if human pressure at these strategic points continues to develop, and it is a conservation target to conserve their functionality.

C. Demography
Methods
Considering the capercaillie as an important part of the heritage, an inventory and demographic survey of their population, has been financed by the Ministry of Environment of the Government of Andorra, since 1999. For this purpose, we conducted the following fieldwork:
- Habitat mapping;
- Locating and mapping every lek, with a census of the displaying cocks at least once between 2000 and 2001;
- Annual counts of displaying cocks on a sample of 10 leks
- Location of broods in summer, using pointing dogs, in order to determine the best brood areas, the timing of hatching, and brood size;
- Systematic summer counts at sample points (pointing dogs)
- Capture and telemetry

Results
Leks: mapping and censuses…
We discovered 55 leks at this time; only 3 of the leks known formerly, located on ski trails, are now deserted. The censuses allowed us to count at least 198 displaying cocks in the years 2000-2001 and, in addition, about 30 (15%) non-displaying cocks, probably young birds, sauntering around the leks. Because some leks are suspected, but not yet confirmed, we estimate the total number of cocks to be 230-250; the mean number of cocks per lek was 3.8.

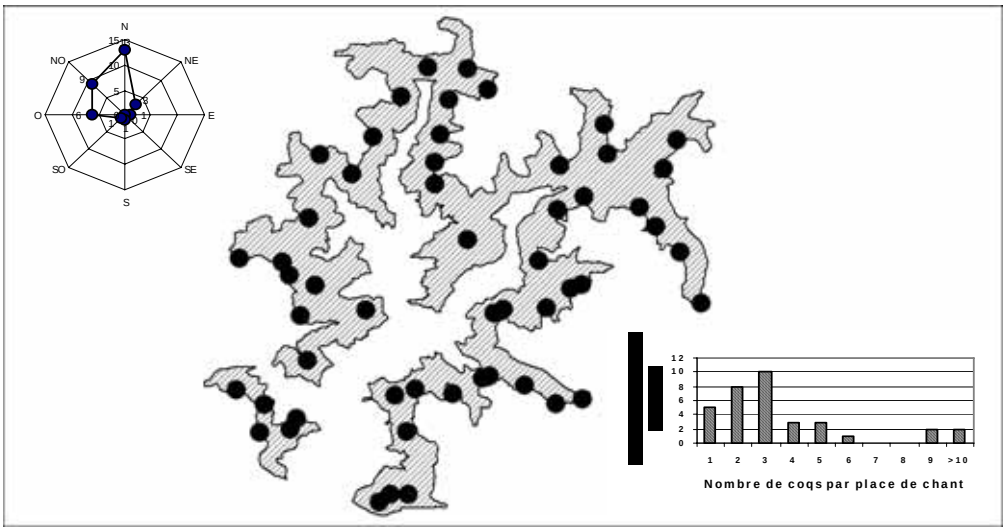

Figure 3. Distribution of leks in the Andorran forests, showing the orientation and size of a sample of 34 leks.

Leks: description and distribution…
We studied the environmental characteristics of 34 leks (Mossoll Torres 2000, 2001). The leks are mainly on north and north-west facing slopes, with a mean altitude of 2100 m, and a variation coefficient of 6.22. 76% of the leks are at the timber line level, the remaining 24% not very far from the timber line; this seems to be typical also of the Pyrenees (Ménoni & Corti, 2000).

The leks are regularly spaced throughout the capercaillie habitat (aggregation coefficient: 1.62 Clarks & Evans test, modified by Donnelly), and the mean interlek distance is 1500 m, very similar to the interlek distance found in the French Pyrenees (Ménoni 1991). The largest Andorran lek was 23 males (2005), which is the largest in western Europe, according to an unpublished study by Storch.

Annual breeding success

The results of hen and brood searches with pointing dogs are shown in the Table 1.

Table 1. Breeding success of capercaillie in Andorra between 2000 and 2005.

	2000	2001	2002	2003	2004	2005
total hen sample(N)	11	10	11	5	7	10
broods (B)	11	7	8	4	6	8
Chicks (C)	31	26	19	8	17	23
B/N	1	0,7	0,7	0,8	0,9	0,8
Reproduction index: C/N	2,8	2,6	1,7	1,6	2,4	2,3
Mean brood size	2,8	3,7	2,4	2	2,8	2,9

The breeding success (chicks/hen) from this sample, during this period appears to be quite regularly high, and both the proportion of hens with a brood, and the mean brood size is considered as high, compared with the data obtained in the French or Spanish Pyrenean forests (Ménoni et al. 2002, Figure 4.)

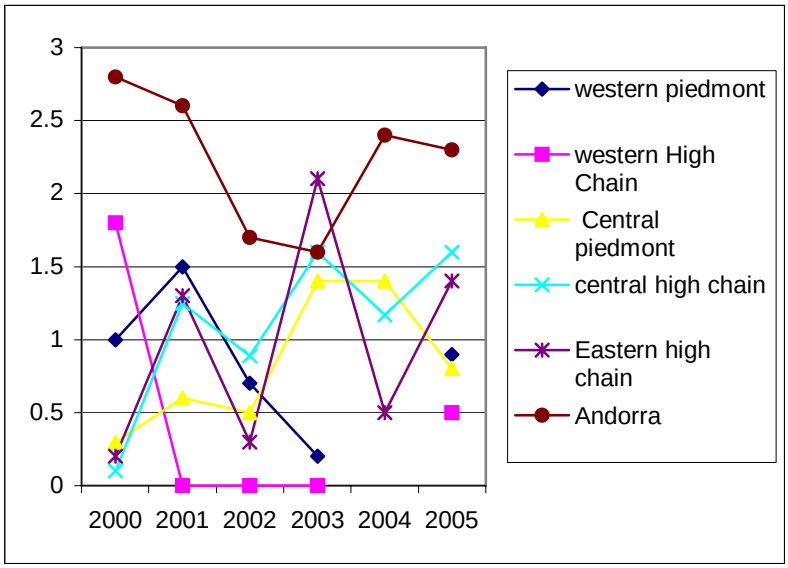

Figure 4. Andorran reproduction index, compared with the index obtained from five bioclimatic areas of the French side of the Pyrenees, using the same method, during the same period.

No correlation can be found in the annual variations in reproductive success, between any bio-climatic regions in the Pyrenees. The high reproductive success in Andorra, relative to the French side of this mountain range, can probably be explained by the climatic differences existing in these different parts of the range: Andorra is a large valley, sheltered in summer from the heavy oceanic and Mediterranean rainfall by high mountain ridges; thus, the climate is more continental than that of the northern parts of the Pyrenees (Dupias 1985), and is more similar to the climate of the boreal forests - the ecological optimum for this species. Indeed, the influence of summer precipitation on the reproductive success in some Atlantic parts of the species' global range is well documented. (Ménoni et al. 2005, Moss et al. 2001). In our data set, we found no significant correlation between the reproductive success and the total

precipitation in July (see Figure 5). However, if the sample from the year 2000 is excluded, the relationship becomes highly significant (r^2=0,8922, p<0,01, n=5)

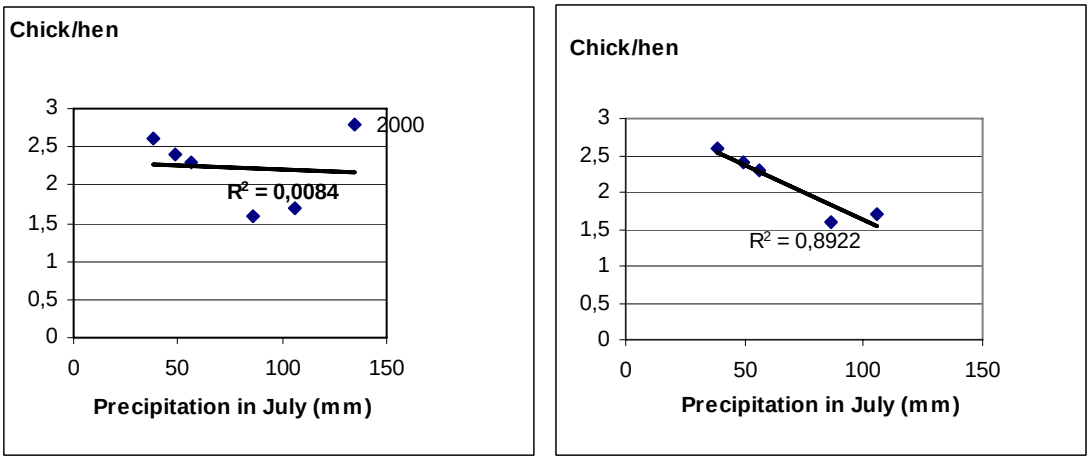

Figure 5. Relationship between the reproductive success of capercaillie in Andorra, and July rainfall, with (left) and without (right) the data from the year 2000.

Density estimation from summer counts with pointing dogs

Systematic searching with pointing dogs of an area of 560 ha (year 2001) allowed us to determine a sex-ratio of 1.2 hens/cock. The adult density resulting from these censuses varied between 4.4 and 5.4 birds/km². Extrapolating these densities to the total area of suitable habitats in Andorra, we calculated a population size of between 500 and 600 adults, comparable to the estimation made from the lek censuses.

Conclusion

Six years of capercaillie population surveys in Andorra allow us to say that this population is presently in a good conservation state. Relative to the total population of capercaillie in the Pyrenees, estimated at about 6000 adult birds, the Andorran stock probably contribute significantly to the conservation of the unique subspecies of capercaillie living in this mountain range, despite the relatively small size of the country. The high mean reproductive success, and the movements which occur between this population and the French and Spanish ones, support this conclusion, and suggest that a particular effort is needed to conserve the Andorran capercaillie, in order to ensure the long term viability of the Pyrenean capercaillie.

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Language edited by Anne Westerberg

SNIPPETS

4th International Black Grouse Conference in Vienna, Austria.

16th – 21st September 2007

The International Black Grouse Conferences started in 2000 in Liège, Belgium, providing a periodic forum for the discussion of Black Grouse issues and for the exchange of latest scientific findings and experiences. The conference aims at the integration and dissemination of research results on Black Grouse following a general target of protection of this species and its habitats. Thus, general habitat management concepts as well as the management and protection of small, isolated and consequently endangered Black Grouse populations are addressed in particular. The International Black Grouse Conference opens the floor for the discussion of both basic research and management strategies. At the conference, gaps of knowledge shall be pointed out to focus further research on these issues and to develop new research approaches. Generally, international communication and collaboration will be triggered in the course of the 4th International Black Grouse Conference. Target groups of the conference will be renowned Black Grouse experts as well as different stakeholders and policy makers. The conference is held in a two-year cycle, the 4th International Black Grouse Conference will take place at the University of Natural Resources and Applied Life Sciences, Vienna in September 2007. It will focus on the situation of alpine Black Grouse populations, which are affected by various leisure time activities, tourism and different building projects (e.g. cable cars, wind energy plants). Moreover, the abandonment of alpine pastures, the increasing proportion of areas covered with forests, the resulting decreasing availability of appropriate Black Grouse habitats and other threats for the species will be discussed in detail. Both scientists and practitioners are invited to present the status quo of their work and to communicate their experiences in the course of a workshop, where future management concepts and protection guidelines will be discussed considering the different threats of alpine Black Grouse. Of course, the 4th International Black Grouse Conference will be open to other topics dealing with Black Grouse, its habitat and management.

Researchers studying Black grouse are kindly invited to present their studies, results and latest experiences. The conference will be held in English to ensure an international dissemination of the conference contributions. The conference will comprise oral presentations, poster presentations, a workshop and a field trip. Conference proceedings will be published in a peer-reviewed international journal.

Organising Committee: DI Dr. Ursula Nopp-Mayr and Dipl.Biol. Susanne Schickmann, University of Natural Resources and Applied Life Sciences, Vienna (BOKU), Department of Integrative Biology, Institute of Wildlife Biology and Game Management, and Michèle Loneux, Institut de Zoologie ULG, Unité de Biologie du Comportement, Liège (BE).

Important dates

Abstract submission deadline	March 15th, 2007
Registration opening	April 2007
Notification of acceptance	April 30th, 2007
Registration: Early Birds deadline	July 2nd, 2007
Cancellation deadline	August 3rd, 2007
Conference	September 16th to 21st, 2007

Ursula Nopp-Mayr, University of Natural Resources and Applied Life Sciences, Vienna (BOKU), Department of Integrative Biology, Institute of Wildlife Biology and Game Management, ursula.nopp-mayr@boku.ac.at.

Luke Smith, a new member of GSG

I have worked with grouse in the state of Utah in western US. I have worked with sage grouse. This last spring I completed a three year project on creating a very detailed vegetation map in ArcGIS of sage grouse habitat to overlay our radio collared birds location points on. What was particularly interesting about this was last year I found two new populations and one just outside the original study area. For the population outside the study area I formed a plan and was able with the help of co-workers to trap both hens and cocks off the wintering area and then radio track them to their previously unknown lekking sites. Traditionally we trap off of the lek and go from there.

Last year I worked in Turkey and spent a good deal of time locating and counting Caucasian black grouse leks in NE Turkey. I eventually met a girl in Istanbul where I went to count migrating birds of prey and now I am married to her and living in Istanbul. This last summer I helped with the 2nd annual Caucasian Black Grouse festival we started near Rize, Turkey, to get the interest of locals in protecting this species and I hope to work more to this end.

Luke Smith, birdbrain7@gmail.com.

Publications on grouse from Russia

To those that are interested in publications from Russia on grouse species reprints of the below publications are available. I have the opportunity to send by e-mail to all that are interested, copies of my last articles.

Potapov R.L., Potapova O.R., Pavlova E.A. 2003. The Genus Lagopus Brisson, 1760: taxonomy, palaeontological data and evolution//Proc. Zool. Inst. RAN, v.299, p.101-120.

Potapov R.L. 2004. Adaptation of the Caucasian Black Grouse, Lyrurus mlokosieviczi to the life in the high mountains//Russian Journ.Ornith., v. 13,express-issue No. 263, p.507-525.- (This is the full text of my talk in the 6-th Int. Grouse Symp. in Udine, Italy, 1994.)

Potapov R.L. 2005. Genus Lyrurus Swainson,1831 (Black Grouse): taxonomic position, composition, distribution, phylogenetic relationship and origin.//Russian Journ. Ornith., v.14, express-issue No 296, p. 723-741.

All the papers are in English.

R. Potapov Russian Ac. Sci. Zoological Museum, Universitetskaia Nab.1, 199034, St. Petersburg, Russia, museum@zin.ru.

IN MEMORIAM

In memory of Jimmy Oswald

James McNaughton Oswald, gamekeeper, died on 3 September 2006, aged 77

Jimmy had a lust for life. Foremost, he was a hunter who loved his shooting, fishing and stalking. An enthusiastic gamekeeper, his job was to organise grouse-shooting for estate guests and to guide them while fishing and stalking. The main job of a keeper, according to Jimmy, was to be a gentleman's servant who entertained visiting hunters and fishers. He laughed at the pretensions of modern 'gamies' (gamekeepers) who call themselves "professional land managers". He loved the job and would shoot and fish in his spare time.

He left school at 14 to work with his father, who was head keeper at Cabrach grouse moor. But Jimmy's education never stopped. He was a voracious reader with a love for nature, history, technology and humanity. After National Service in the army and a year as keeper at Delnadamph, he went in 1950 to Glen Tanar where he eventually became head keeper. In that position, he met and helped thousands of shooting and fishing guests, scientists, students and visitors, and spent many hours yarning with them. Many appreciated his generosity of spirit and became lifelong friends who invited him to visit with them and, especially in later life, he did just that, becoming widely travelled.

One of his early jaunts was to Southern Europe just after the Second World War. He travelled with a friend on a motorbike, no tent or sleeping bag, and slept under an army blanket. Over the years he observed and participated in hunting in many European countries, including what was then the eastern bloc, also visiting Russia, China and Mongolia.

He married Catherine in 1956. Their three children Peter, Susan and Joan, seem to have inherited Jimmy's love of things mechanical for they all became engineers. Gamekeepers are not well paid but money meant little to Jimmy. If his children needed something, he would make it for them. When they wanted to go skiing, he built a ski tow from an old tractor. He ensured that they received the formal education that he had missed. In 1994 he retired with Catherine to a farmhouse on the estate, overlooking the Dee valley, and began his new career as wildlife campaigner and thorn in the side of errant authority.

Jimmy loved to talk as well as to listen. His yarns reflected deep knowledge about people and the natural world. He was also a great practical joker, promising for example to show a group of eager German students some rare wildlife which he called the 'little people'. He beckoned the party through the forest and onto a headland that jutted into a loch, gesturing us to tread quietly. At the tip of the headland lay a summer-house and, as they peeked through a window, the students saw half a dozen dolls arranged daintily on seats and cushions – Jimmy's little people. His yarns reflected his sense of humour: at root they always had something useful or interesting, but for fun Jimmy often introduced implications that misled unwary listeners to a false conclusion. So his listeners learned to pay attention and think for themselves.

Jimmy made countless contributions to the community, more than I can tell. A typical action involved a large granite rock on the North Deeside Road, erected decades ago by the Deeside Field Club: its inset bronze letters announce to the passing motorist "You are now entering the Highlands". The bronze became black with time and individual letters fell off. Nobody took responsibility. Thousands drove past but only Jimmy thought to take a can of black paint and delicately fill in the letters so that to the passer-by the message is again complete. In Glen Tanar he ran a small-bore rifle club, film club and library while organising children's Christmas parties. In Dinnet he organised dances and acted as bouncer, was chairman of the Dinnet Gun Club and helped organise clay-pigeon shoots. In Aboyne he was involved from the start with the development of the Aboyne Academy and Community Centre and was secretary of the Aboyne Photography Group. He helped to set up the Aboyne rifle club, and was their Range officer. He was a councillor on the Mid Deeside Community Councillor, representing Mid Deeside on the Association of Community Councillors for Cairngorms National Park. He was an active member of the North-East Branch of the British Deer Society and was an early advocate, trainer and assessor for the National Stalkers Competence Certificate.

In autumn 1974 Jimmy phoned me. We have shot a lot of capercaillie, he said, and they are lying in the game larder. One of you scientists should come and look at them. And so we began to study capercaillie together. In 1975 we did our first brood count in Glen Tanar. I worked my dogs and he looked for signs of broods. Sometimes the dogs would be the first to come upon a brood, sometimes Jimmy would find sign before the dogs got scent. In 1975 he also began to count the number of cocks displaying at leks in Glen Tanar. In 2006 I told Jimmy that my dog was getting old and that this would probably be our last year of brood counts.

In the 1980s the breeding success of capercaillie in Glen Tanar fell and, upon Jimmy's advice, the estate stopped shooting them. In the early 1990s the rest of Scotland followed suit but capercaillie continued their nationwide decline. Jimmy pointed out that many were being killed by flying into forest fences and was the first to mark fences, so saving many birds' lives. Meanwhile, Scottish Natural Heritage (SNH), the body with statutory responsibility for Scotland's wildlife, refused to implement caper conservation measures on the incoherent basis that they were more concerned with habitat conservation than with species conservation. At Jimmy's request, his friend Lord Thomas of Gresford initiated a debate on the plight of capercaillie in the House of Lords on 28 April 1999. Jimmy was there and heard his contribution duly acknowledged (Hansard: "Mr. Jimmy Oswald, who is well known to some of your Lordships in the House tonight ..."). In October 1999 he lodged with the Scottish Executive petition PE16 "calling for early action to reverse the decline of Capercaillie in Scotland". His petition was debated in September 2000. In that year I also complained to the EU about the government's lack of action on capercaillie.

The authorities took notice. By now, tens of millions of pounds have been spent on capercaillie conservation in Scotland and the decline of the bird has apparently been halted. The campaign spearheaded by Jimmy has been so successful that envious conservationists are beginning to complain that too much money has been spent upon the bird, to the detriment of other species. This is probably untrue because the capercaillie is well-known as an umbrella species, touchstone of a healthy forest ecosystem.

Gamekeepers have a convention that they do not visit other sporting estates unless invited to do so. After retirement in 1994 Jimmy spent many days exploring. He was appalled at the number of snares used on several estates, often blanketing the ground in woods adjoining grouse moors. They were set to catch foxes but, from his own experience, he knew that they would catch capercaillie. The way that he introduced me to barrier snaring was typical of his teaching methods. After walking uphill from the parked car under a continuous canopy of Scots pine, we came to a long corridor of open sky where a line of trees lay on the ground. "What has been going on here" I asked. In typically mischievous fashion Jimmy suggested that they had been blown down in a gale. "But they are all in a straight line". He grinned. I looked closer. "And they have been felled". He grinned again and relented, walking me along the kilometre-long line of trees to see gaps every 50 metres or so, gaps where snares were set to kill foxes but which also caught capercaillie and other animals.

Thus Jimmy solved the mystery of the disappearing leks. In many places during the 1990s capercaillie leks suddenly disappeared or diminished dramatically at sporting estates in Deeside and elsewhere, greatly puzzling scientists. In fact leks disappeared where keepers, following a new trend pushed by Game Conservancy advisors, attempted to increase their rate of killing foxes by setting hundreds of snares. This inevitably led to capercaillie being killed as collateral damage. Jimmy was scathing about such methods, having controlled foxes on his own ground for decades by using mostly other methods, with only a handful of snares. Widespread publicity about the misuse of snares has led to less irresponsible use of them, but not enough to satisfy Jimmy who knew that official guidelines were being widely flouted. His frequent condemnation of current bad practice led many other keepers to regard him as a renegade, but in private many continued to supply him with information. This was his last campaign. Since September 2005 the Scottish Executive have been promising a technical consultation on methods of snaring, but again and again this has been postponed. Jimmy was looking forward to contributing but was robbed of his opportunity by bureaucratic procrastination. His friends will continue his fight.

Robert Moss
September 24, 2006