

## Flocking of Capercaillie, *Tetrao urogallus*, in eastern Finnish Lapland in winter

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All the studies carried out so far show that pine needles, shoots, buds and first-year cones constitute the main winter food of the Capercaillie, *Tetrao urogallus*, in NW Europe (e.g. Hudson & Lovel 1984), while controversial data have been published on winter flocking by this species. Koskimies (1957), Pulliainen & Joensuu (1981) and Pulliainen (1982) have recorded winter flocking in both cocks and hens in Finland, whereas Gjerde et al. (1984) found that the Norwegian cocks lived in a solitary manner and the hens formed groups of 2–3 individuals. This recently documented discrepancy led the author to proceed with these flocking studies in different parts of Finland. The present paper provides some recent observations on the composition of 133 winter units of the Capercaillie in eastern Finnish Lapland in October–April 1985–1986.

Nine of the 133 units recorded (6.8 %) represented mixed flocks, which is markedly less than during the previous studies (Pulliainen 1982). The sizes of the pure male and pure female units are shown in Table 1. Sixty-seven per cent of the male units and 59 % of the female units consisted of only one individual. The most significant finding, however, is that both cocks and hens occurred in units larger than one individual, among which the pure male flocks comprised 2–11 individuals and the corresponding female flocks 2–7 individuals. These flocks occurred throughout the winter as also did mixed flocks.

The present data supports in principle the results of earlier studies (Koskimies 1957, Pulliainen 1982), i.e. that Capercaillie may occur in pure male, pure female and mixed flocks in Finnish Lapland in winter. As far as the hens are concerned, the observations are also in accordance with those of Gjerde et al. (1984), since they write that Norwegian female Capercaillie form groups of 2–3 individuals, but the same cannot be said of the cocks. According to Gjerde et al. (1984) the Norwegian cocks live only solitarily, whereas their Finnish conspecifics, especially those in Lapland, may also occur in flocks, although in the majority of the cases they are encountered alone. The flocks themselves can be classified into two categories, namely occasional groups (usually small units) and mobile flocks (often big ones).

This division appears in the intra-sex and sex-specific cohesion of the groupings. In one case, for instance, a cock joined a unit of two cocks by flying, after which the group of three flushed together (27 February 1985). On the next day, a male flock of six individuals kept together when flushed three successive times, but later dispersed in different directions when flushed — and the following day no Capercaillie were found in this pine forest. Judging from the body sizes and bill sizes the cocks in these flocks include

both old and subadult birds. A typical situation in the case of 5–6 cocks is that the members of a flock sit in the tops of their own special feeding trees within an area of 0.2–1 ha (see Fig. 1). A flock consisting of 5–11 cocks does not usually stay in the same forest for weeks or even for days, which suggests that they are dispersing (emigrating) birds.

The largest male flocks recorded during the present field study consisted of 10 individuals (in early Nov.) and 11 (in early April), in addition to which the local game wardens mentioned that they had even seen a flock of 22 cocks in flight. On 1 May 1985, 18 cocks (and a number of hens) were counted in pine trees near a lek arena at Törmäoja, Savukoski, in the extreme east of Forest Lapland. This certainly indicates an abundant Capercaillie population in the area.

Seiskari & Koskimies (1955) suggested that the Capercaillie of northern and southern Finland may be genetically different, those in northern Finland showing a greater tendency to form flocks than their southern conspecifics. This might alone explain the difference in the flocking behaviour of the male Capercaillie recorded between northern Finland and southeastern Norway (corresponding to southern Finland). It is naturally very difficult to demonstrate such a genetic difference in practice, however.

The marked site tenacity of male Capercaillie (Koivisto 1956, Vuolanto 1972, Gjerde et al. 1984) can be seen to have been involved in their flock formation in at least two ways. Firstly, Koskimies (1957) suggested that "the repeated visiting of one and the same locality during the display season forms both local and individual ties and hence the formation of flock tends to take place mainly within the population of one given display area rather than beyond the boundaries of such populations". This may explain the case of the first category, the formation of small occasional groups. Secondly, man has created a new situation in nature by clear-felling vast areas, destroying at the same time the traditional lek arenas and adjacent territories of the Capercaillie cocks. The Capercaillie is a species of mature pine forests, and such forests are frequently subject to forestry measures of this kind. These birds have only one alternative in such situations, to leave the area. It can be conjectured that the large mobile male flocks originate in this way, i.e. they are birds seeking new acceptable habitats.

The food factor may also be involved in the flocking process in male Capercaillie. Pulliainen & Joensuu (1981) reported cases in which flocks composed of cocks visited artificial feeding sites in Ostrobothnia, W. Finland. The occurrence of acceptable special feeding trees rather near each other at the vicinity of a traditional lek arena may for its part promote the gathering of cocks into occasional

Table 1. Cock and hen Capercaillie units recorded in eastern Finnish Lapland in October–April in 1985–1986.

Size of unit	October	November	December	January	February	March	April
1	18	8	7	4	1	—	5
2	2	—	1	2	1	—	—
3	—	1	1	—	—	—	—
4	4	1	1	—	—	—	—
5	—	—	2	—	—	—	—
6	—	—	2	—	—	—	—
7	—	1	—	—	—	—	—
8–11	—	—	1	—	—	—	1



Fig. 1. Five cocks of a flock of six Capercaillie at Pirunkuru, Salla, E. Finnish Forest Lapland, 28 February 1985. — Photo Teuvo Hietajärvi.

(feeding) groups which show some intra-sex cohesion and coincidence in their activities.

The hens differ in size and colour from the cocks, their smaller size implying that they have more potential enemies than the latter. Correspondingly, the hens live a more cryptic life than the cocks do (e.g. inside the tops of feeding trees), for which purpose they also have protecting camouflage. Groupings may be both an advantage and a disadvantage to them in their avoidance of predation, since a group has more faculties for the detection of an approaching predator, but at the same time produces more odours than a single bird.

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### Selostus: Metsojen talvisesta parveutumisesta Itä-Lapissa

Metsojen talvisesta parveutumiskäyttäytymisestä on muodostunut mielenkiintoinen tieteellinen keskustelukysymys Pohjoismaissa. Tutkimuksissa on yhtäpitävästi osoitettu, että koppelot muodostavat pikkuparvia talvisin, mutta sen sijaan koirasmetsojen osalta eri alueilla on tehty toisistaan poikkeavia havaintoja. Mm. Norjan eteläpuoliskossa koirasmetso eivät parveudu (Gjerde et al. 1984), kun taas erikoisesti Suomen pohjoispuoliskossa näin voi tapahtua. Tässä kirjoituksessa tarkastellaan 133 vuosien 1985–86 talvikuukausina Itä-Lapissa tehtyä metsoyksikköhavaintoa.

Yhdeksässä tapauksessa (6.8 %) nähtiin koiraita ja koppelaita samassa parvessa. Enemmistössä tapauksia koiraat olivat yksin (67 %) ja myös naaraat olivat yksin (59 %), mutta merkittävintä oli, että sekä koirasmetso että koppelot esiintyivät yhtä suuremmissa oman sukupuolensa yksiköissä eli olivat parveutuneet. Suurimmassa koirasmetso-parvessa oli 11 ja suurimmassa koppeloparvessa 7 yksilöä.

Koirasmetsoparvet luokitellaan työssä kahteen kategoriaan, nimittäin (lähinnä pieneköihin) satunnaisparviin ja (lähinnä suureköihin) liikkuviin, uuden habitaatin etsintä-

parviin. Koirasmetsojen huomattava paikkauskollisuus ja pyrkimys ruokailuun tietyissä hakomispaikoissa sekä sukupuolen sisäinen sallivuus talvisaikaan mahdollistavat ensiksi mainittujen syntymisen. Paljaaksihakkuut puolestaan ajavat nämä paikkauskolliset linnut, jotka ovat nimenomaan vanhojen männiköiden asukkaita, joukolla uuden, hyväksyttävissä olevan elinpaikan etsintään. Kuten keino-ruokintapaikoilla tehdyt havainnot osoittavat (esim. Pulliainen & Joensuu 1981), pelkästään ravintotekijä voi myös johtaa koirasmetsojen parveutumiseen. Lähekkäin tapahtuvissa kieppiyöpymisissä siitä on sekä haittaa (paljon hajua) että hyötyä (useampi on tarkkailemassa lähestyviä petoja).

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