Nesting birds of Meltaus Game Research area, northern Finland, in 1962—1964

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The present study has been carried out in the area belonging to Meltaus Game Research Station, which consist of c. 22 square kilometres situated in the north-west part of the rural district of Rovaniemi, about 66°54'N and 25°20'E.

I wish to express my gratitude to Mr. Heikki Haapala (HH), who has placed at my disposal his observations from the year 1961 and his census results from the year 1962 (see also HAAPALA 1963), and to Mr. Paavo Rajala, Head of the Game Research Station, who, as the initiator of this research, has given me good advice and suggestions. I also wish to thank the following persons for many observations: Juhani Alapulli (JA), Olavi Eskelinen (OE), Tapani Juntunen (TJ), Tapani Ormio (TO), Torsten Stjernberg (TS) and Albin Ylisuvanto (AY).

In this study the line census method has been used, for the goal has been to find out the general character and composition of the nesting bird fauna in the research area. The data are from the years 1961—1964. In 1961, no census was performed, but many important observations were recorded during the breeding season. The census has been carried out in the areas on either side of lines running from north to south (see Fig. 1), many of which had been marked on the terrain. The width of the main belt was 25+25 m in 1962 and 20+20 m in 1963 and 1964. The census was mostly performed in the morning and only occasionally in the afternoon. The census area is on an average 4.2 km² per summer.

The research periods were as follows:

June 2—14, 1962
„ 4—16, 1963
„ 8—18, 1964

Meltaus Game Research area with its immediate surroundings is in almost natural condition, as is clearly seen from the small number of synanthropic species. The landscape of the area forms a motley patchwork of forest alternating with bogs (see Fig. 1). Variations in the relative altitude are quite small, and the area clearly belongs to the hilly terrain type.

Forest with vegetation forms 60—70 % of the whole area, a great part of which is covered with bog, c. 30—40 % Suomen kartasto 1960). Pine peat-moor and open bog predominate. Spruce-hardwood peat-moors are common, too, for they form borders between heath and pine peat-moor. There are almost no fens.

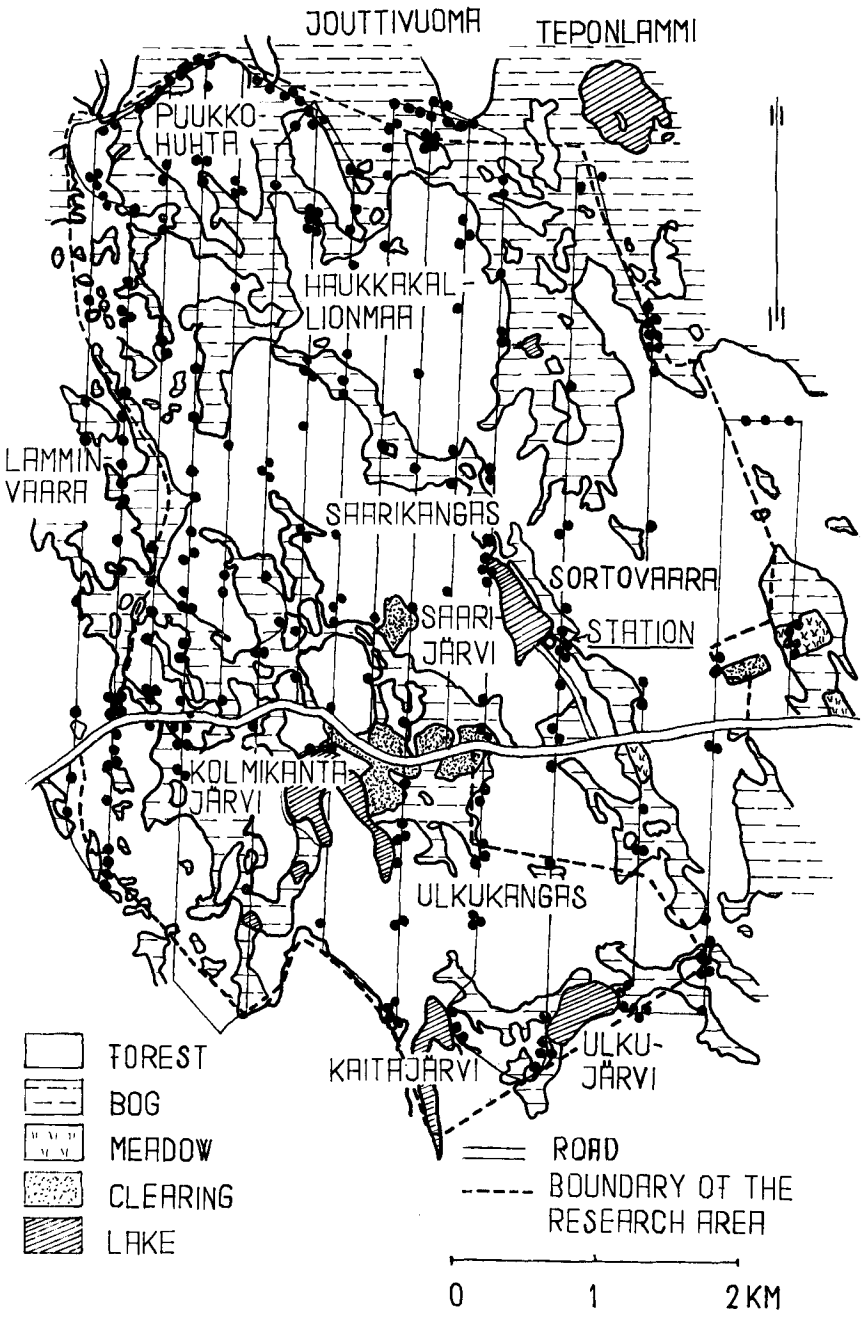

Fig. 1. Meltaus Game Research area. Census routes in 1963 and 1964 are marked with lines and the birds found on the main belt in 1964 are marked with dots.

	1962	1963	1964	Mean	E.M.
Dominant species					
Fringilla montifringilla	7.4	14.6	13.2	11.7	7.8
Anthus trivialis	6.7	7.0	6.5	6.7	8.5
Phylloscopus trochilus	10.8	3.4	3.9	6.3	9.4
Muscicapa striata	3.7	6.8	5.6	5.4	2.7
Phoenicurus phoenicurus	5.3	3.1	5.9	4.8	4.8
Ficedula hypoleuca	3.5	5.9	3.9	4.4	0.6
Influent species					
Motacilla flava	1.6	5.0	3.8	3.5	1.4
Emberiza rustica	1.8	5.3	2.9	3.2	3.4
Turdus iliacus	2.3	2.0	3.7	2.7	2.3
Fringilla coelebs	3.5	1.4	2.8	2.6	2.8
Turdus philomelos	1.6	2.0	3.9	2.5	1.5
Anthus pratensis	0.7	2.0	4.5	2.4	0.9
Acanthis flammea	2.5	2.5	2.0	2.3	2.9
Tringa glareola	1.4	3.1	2.3	2.3	1.8
Tetrao urogallus	1.2	0.8	3.1	1.7	0.8
Resident species					
Perisoreus infaustus	0.35	1.7	2.0	1.4	1.4
Parus montanus	0.5	1.7	0.6	0.9	3.2
Parus cinctus	0.2	1.4	0.6	0.7	2.1
Regulus regulus	0.35	1.4	0.3	0.7	0.1
Phylloscopus collybita	0.5	0.8	0.6	0.6	0.2
Cuculus canorus	—	1.1	0.3	0.5	—
Parus cristatus	0.35	0.8	0.3	0.5	0.6
Motacilla alba	0.2	0.6	0.6	0.5	0.7
Loxia curvirostra	1.4	—	—	0.5	1.5
Picoides tridactylus	0.2	0.6	0.6	0.5	0.4
Anas crecca	0.35	0.6	0.3	0.4	—
Tetrastes bonasia	0.2	0.8	—	0.3	0.5
Loxia pytyopsittacus	0.35	0.6	—	0.3	0.1
Saxicola rubetra	0.7	0.3	—	0.3	0.6
Turdus viscivorus	0.2	0.3	0.3	0.3	0.6
Gavia arctica	0.2	0.3	0.3	0.3	—
Tringa nebularia	0.35	0.3	0.3	0.3	0.2
Oenanthe oenanthe	0.35	0.3	0.3	0.3	0.3
Carduelis spinus	0.9	—	—	0.3	0.3
Dryocopus martius	0.2	0.3	—	0.2	<0.1
Corvus corax	0.35	0.3	—	0.2	—
Grus grus	—	0.3	0.3	0.2	—
Erithacus rubecula	0.7	—	—	0.2	<0.1
Aythya fuligula	0.5	—	—	0.2	—
Bucephala clangula	0.5	—	—	0.2	—
Strix uralensis	0.2	—	0.3	0.2	—
Alauda arvensis	0.2	—	0.3	0.2	<0.1
Lagopus lagopus	—	—	0.6	0.2	0.3
Lyrurus tetrix	—	—	0.6	0.2	1.1
Capella gallinago	0.7	—	—	0.2	0.5
Parus major	—	0.3	—	0.1	0.4
Dendrocopos major	0.35	—	—	0.1	0.5
Accipiter gentilis	0.2	—	—	0.1	—
Surnia ulula	0.2	—	—	0.1	<0.1
Apus apus	0.2	—	—	0.1	0.1
Pyrrhula pyrrhula	0.2	—	—	0.1	0.4
Pinicola enucleator	0.2	—	—	0.1	0.1
Buteo buteo	—	—	0.3	0.1	—
Bombycilla garrulus	—	—	0.3	0.1	<0.1
Philomachus pugnax	—	—	0.3	0.1	—
Tringa hypoleucos	—	—	0.3	0.1	<0.1
Total abundance	66.5	79.4	78.4	75.4	

The commonest forest types are the *Empetrum-Myrtillus* type (EMT) and *Empetrum-Vaccinium* type (EVT). Very dry, *Cladina* type (CIT), *Calluna-Cladina* type (CCIT), and fresh, *Hylocomium-Myrtillus* type (HMT) heath are rare. So is the grass-herb-like forest type, which for the most part occurs by brooks. There are only a few burnt-over areas and clearings typical of Peräpohjola in general.

The four lakes of the region are dysoligotrophic (see JÄRNEFELT 1951). In addition, some winding brooks contribute to the variety of the scenery.

Results

Abundance. A quantitative study of aquatic birds requires a census method of its own (see LINKOLA 1959), which I was not able to use because of the late time of the study. However, frequent observations were made on the lakes throughout the summer, so that quite a good picture of the aquatic birds can be given. The results of the research area are given in the discussion of the different species.

The abundance of the terrestial birds has been indicated by the number of pairs per km² (= p/km²). In the following table I have compared the abundances with those obtained by MERIKALLIO (1958) (E.M.) in Peräpohjola. As Peräpohjola is a vast area, direct comparison of these abundances does not give an entirely reliable picture of the situation. However, the remarkable differences between the abundances obtained by me and those obtained by MERIKALLIO (1958) are worth examining, at least as regards their general trends.

Table 1. The abundances of birds indicated by the number of pairs per km² (=p/km²). E.M. = The abundances obtained by MERIKALLIO (1958) in Peräpohjola.

In the E.M. column the above table shows only the abundances given by MERIKALLIO (1958) as pairs per km². The species found on the auditory belt and an estimation of their abundance will be discussed in the chapter dealing with the different species.

Edge effect. No special investigations were made on the edge effect in relation to the abundance of the bird fauna. In the summer of 1964, however, all the birds found on the main belt were marked by dots on the map (see Fig. 1). The map shows that the greatest abundances are on the edges of forest, and that is why the number of observations was greatest in the varying terrain of Lamminvaara.

At the end of July 1963, when estimating grouse broods (see RAJALA 1962), I also made a census of singing birds. The commonest species and those with the greatest abundances were then the Rustic Bunting *(Emberiza rustica)*, the Brambling *(Fringilla montifringilla)* and the Spotted Flycatcher *(Muscicapa striata)*.

In Peräpohjola the variability of the terrain substantially increases the abundance of the bird population of the region.

Annual fluctuations. In the abundance of the singing birds, as in that of the grouse, there are remarkable annual fluctuations, which generally increase towards the north (see e.g. SIIVONEN 1948, VOIPIO 1950). The data of the study are not sufficient to allow of any far-reaching conclusions.

Te annual fluctuations of both the dominant and the influent species (see Table 1) were remarkable among almos all the species. Table 1 and Figure 2 show, too, that the fluctuations of abundance were not parallel among all the species.

The greatest change in population size between two successive years among the Willow Warblers; in fact,

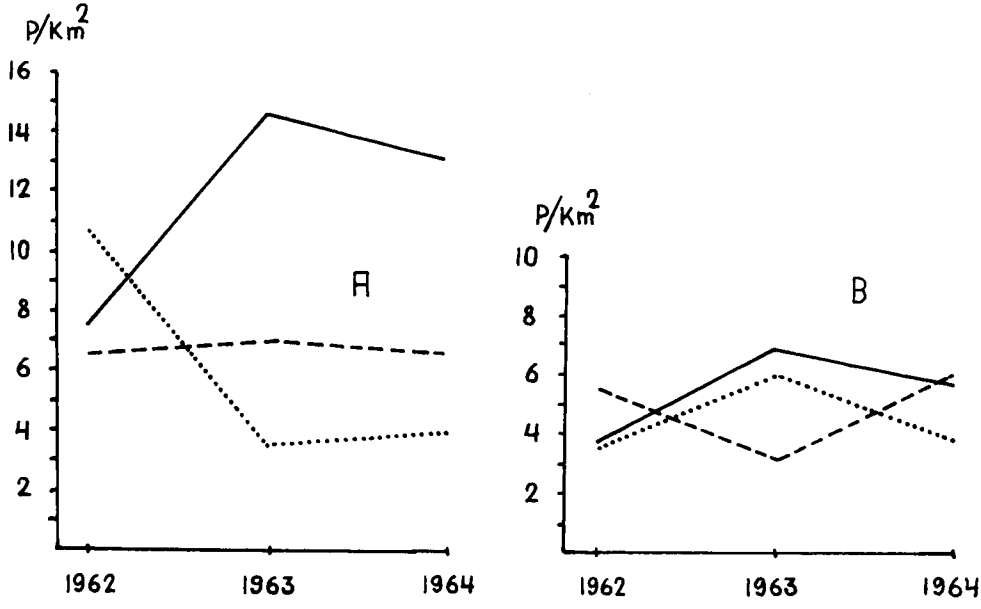

Fig. 2. The annual fluctuations of the dominant species. A. *Fringilla montifringilla* ——, *Anthus trivialis* - - - -, *Phylloscopus trochilus* . . . . . B. *Muscicapa striata* ——, *Phoenicurus phoenicurus* - - - - -, *Ficedula hypoleuca* . . . . . .

among the Willow Warblers; in fact, much attention has been paid by ornithologists to the changes in the population size of this species (see SIIVONEN 1949, 1950, PYNNÖNEN 1949, SOVINEN 1949). According to SIIVONEN (1950), the abundance of such species as *Erithacus rubecula, Regulus regulus, Ficedula hypoleuca* and *Turdus philomelos* generally remains quite constant. NORDSTRÖM (1953) mentions that the abundance of the following species is more or less constant: *Anthus trivialis, Ficedula hypoleuca, Phoenicurus phoenicurus*. During study only *Anthus trivialis* has remained quite constant.

Expansion to the north. The fact that the climate has become warmer since the latter half of the 19th century has caused the expansion of many animal species towards the north (see SIIVONEN 1943, KALELA 1946). Up to the 1930's the temperatures of early spring, late autumn and winter rose continously (KALELA 1949). This meant a prolongation of migration in spring, whilst the rise in winter temperature was likewise an important factor in the expansion of non-migratory birds (KALELA 1949). After this, a completely new climatic phase began in northern Europe, marked by a sharp increase in summer temperature (see KALELA 1949).

The expansion to the north is seen in the occupation of new areas and in the increase of abundance in the northern regions. Peräpohjola is an appropriate researsch area for a study of this phenomen, for it is there that the northern limits of distribution of many species run.

In the following those species have been discussed that are now clearly more numerous in Peräpohjola than according to former investigations.

Spatula clypeata. On June 11, 1963 1 ♂ and 2 ♀ at Teponlammi. The species has been found, for instance, in Rovaniemi (KOMONEN 1962).

Vanellus vanellus. A species strongly expanding to the north (KALELA 1950, TÖRNROOS 1955, KOMONEN 1963). In 1961—1963, the species was not found, but in 1964 one pair settled on Jouttivuoma open bog, evidently nesting, for they were seen there several times. In addition, an alarming individual was seen on July 4, 1964, on an open bog at Kienaja, c. 20 km west-northwest of the research station (PR).

Scolopax rusticola. Evidently also a species expanding to the north (see MERIKALLIO 1958). In Peräpohjola only one observation indicating nesting (MERIKALLIO 1958). The species has been recorded in autumn in the Rovaniemi district (ALAPULLI, KOMONEN & UINO 1962). In the research area itself the species has not been found, whereas at Kaittiainen in Marrasjärvi one individual was recorded on June 17, 1964, and three individuals on June 18, 1964. All the specimens seen were performing aerial display (J A and T S). These records are remarkably farther north than the known distribution of the species (see VOOUS 1960).

Larus ridibundus. A species expanding to the north (KALELA 1949). On July 3, 1964, I observed three individuals at Pello, and the same day I observed a colony of c. 70 individuals on Pellonjärvi, but no nests were to be found.

Columba palumbus. According to MERIKALLIO (1958), this is also a species expanding northwards. On July 3, 1964, I found 1 indiv. at Pello, and on July 13, 1964, PR also saw one at Pello. The Wood-pigeon has been found in Rovaniemi in spring (KOMONEN 1962). The species has also been found at the mouth of the river Palojoki (BAGGE, LEHTOVUORI & LINDQUIST 1963).

Parus ater. In 1963, as many as 6 singing individuals were found in the research area. MERIKALLIO (1958) reported two observations indicating nesting in Peräpohjola after 1929. There are, however, observations made in winter near Rovaniemi (KOMONEN 1950, ALAPULLI, KOMONEN & RAUTIO 1963).

Parus cristatus. According to MERIKALLIO (1958), the Crested Tit is a species expanding rapidly towards the north. In Sweden DURANGO (1945) has also noticed its northward expansion (v. HAARTMAN 1963). According to MERIKALLIO (1958) and VOOUS (1960), the northern limit of the distribution of this species runs south of the reserarch area. East of the area, however, the limit runs farther north (see SALKIO 1954). According to GRENQUIST (1946), the species is rare the Kemi district.

Certhia familiaris. On Aug. 14, 1964, 1 indiv. was found in a mixed flock of tits near the station and on Aug. 15, 1964, 1 indiv. on the eastern edge of the research area (TS). There are no nesting time observations from the area. According to MERIKALLIO (1958), the northern limit of the distribution of the species runs along the southern boundary of Peräpohjola. In Rovaniemi the species can regularly be found in early winter (KOMONEN 1950). It has been found nesting on Pyhätunturi fjeld (SALKIO 1954).

Turdus philomelos. The abundance revealed by the census is too low as compared with other species. This is also a species expanding northwards (see KALELA 1952).

Erithacus rubecula. In 1961, the species was found five times in the area (HH). In 1962, an abundance of 0.7 p/km² was obtained by the census, but according to HH the Robin was even more numerous. In 1963, it was found only once, on July 10, 1 juv. near the station. In 1964, it was also found only once, viz. on Aug. 4, 1 juv. in the northernmost part of Puukkohuhta, but according to TS and JA there was an evenly distributed, though sparse, population in the surroundings of the research area.

Phylloscopus collybita. In 1961 the bird was found only three times in the area (HH). The Chiffchaff is found only in luxurious spruce-hardwood peat-moor and in grass-herb-like forest. In the breeding season the species has been recorded as far north as Utsjoki (LAINE 1964).

Regulus regulus. The Goldcrest was found during every year of the study; the species is thus strongly expanding to the north (compare MERIKALLIO 1958.

Muscicapa striata. As the abundance calculated by me is much greater than that reported by MERIKALLIO (1958) in any of the zoological regions of Finland, there has evidently been a strong expansion. The edge effect is certainly great, for the species particularly favours edges of bogs (see LUMIALA 1943).

Ficedula hypoleuca. According to MERIKALLIO (1958), the abundance of the Pied Flycatcher has increased enormously in North Finland. Lack of appropriate nest holes seems to be the principal factor limiting abundance (BAGGE, LEHTOVUORI & LINDQUIST 1963).

Discussion on the different species. The following does not include species discussed above if there are no further comments to make on them.

Gavia arctica. The abundance of aquatic birds in Table 1 have been calculated from observations made on the main belt. Naturally these values do not give a reliable picture of the abundance of the aquatic birds. The abundance of the Black-throated Diver is too great, for every year the census line ran through the only nest of this species in the area.

Anas platyrhynchos. In 1961 a nest on an island in lake Saarijärvi. In 1962 a brood on lake Saarijärvi. In 1963 not found nesting in the area. In 1964 a brood on lake Kaitajärvi.

Anas crecca. The Teal is the commonest *Anas* species in the southern part of Peräpohjola. The abundance can be calculated by the line census method, for the nests are mostly situated in spruce-hardwood peatmoor and may be far from lakes.

Anas penelope. Found nesting only in the near surroundings of the station.

Anas acuta. Found nesting only in the near surroundings of the station.

Aythya fuligula. Nested in the area every year during the study. E.g. on the lake Saarijärvi; in 1961, 1962 and 1964 2 broods and in 1963 4 broods.

Bucephala clangula. The most abundant waterfowl in the area. Nest-boxes placed on the shores of the lakes increase the abundance remarkably.

Aquila chrysaetos. In the research area is an old decaying nest (PR). The nearest nest are at Kaittiainen in Marrasjärvi and at Meltaus near the upper course of the river Perttausjoki.

Buteo buteo. The abundance I obtained is too small. In 1960 there were 3 inhabited nests in the area. In 1961 Buzzards were often seen in the area (HH). In 1962 1 inhabited nest and 2 broods were found (OE). In 1963 1 inhabited nest was found, but according to my estimate the nesting population consisted of 3 pairs. In 1964 2 inhabited nests were found, but I estimated the population of the area at 4 or 5 pairs. Though the species is so near the northern limit of its distribution (see VOOUS 1960), it is the commonest and most numerous bird of prey in the area.

Buteo lagopus. Does not nest in the area, but seen there during the breeding season once in 1961 and twice in 1962 (HH and OE).

Accipiter nisus. In 1961 (HH) and 1964 not found in the area. In 1962 1 nesting pair. In 1963 observed once in the breeding season.

Accipiter gentilis. In 1961 not found (HH). In 1963 1 nest and in 1962 and 1964 2 nests.

Pernis apivorus. Meltaus lies near the northern limit of distribution of the species. The observations farthest in the north and indicating nesting have been made at Petkula, Sodankylä (KOMONEN 1948). On July 23, 1960, a nest was found in the area with quite small young (PR). In 1961 on July 4 and July 20 1 indiv. and on Aug. 7 3 indiv. were found over lake Kolmikantajärvi (HH). In 1962 1 indiv. on June 6 on the northwestern edge of Haukkakallionmaa, 1 indiv. on July 25 on the southern edgre of Sortovaara and 1 indiv. on Aug. 30 over lake Kolmikantajärvi (HH and OE).

Pandion haliaetus. On June 6, 1962, a nest was found a little to the north of the area (HH).

Falco peregrinus. Does not nest in the area. In 1962, on July 1, 1 indiv. flew over the station (PR), and likewise on Aug. 9 (OE).

Falco tinnunculus. Not found in the area. In 1963 there was an inhabited nest on the shore of lake Marrasjärvi.

Lyrurus tetrix. The number of Black Grouse in the area is surprisingly small.

Tetrastes bonasia. The abundance measured by me is much too small, as was shown by the estimates of the broods of the grouse made later in the summer.

Grus grus. The abundance I obtained is too great, for in two successive years a Crane's nest at Jouttivuoma has happened to be lying on the main belt.

Capella gallinago. After the Wood Sandpiper, the most numerous wader in the area.

Lymnocryptes minimus. On July 15, 1961, 1 indiv. showing aerial display on the western shore of lake Kolmikantajärvi (HH).

Numenius phaeopus. On June 3, 1962, 1 indiv. seen flying east near the station (HH). The bird is found nesting in the near surroundings of the station.

Tringa ochropus. On May 27, 1961, 1 indiv. was seen over the station (PR). On May 14, 1964, the species was recorded among migrants that had arrived in the area (PR).

Tringa glareola. The commonest and the most numerous wader in Peräpohjola. The abundance I obtained is, however, too great owing to the behaviour of the species.

Tringa erythropus. In 1961 1 p. on the edge of Jouttivuoma (HH). In 1962 a nest was found on a bog between Haukkakallionmaa and Saarikangas; another pair might also have been nesting in the area (HH).

Philomachus pugnax. In the breeding season seen only on June 11, 1964, when a nest was found at Jouttivuoma.

Larus fuscus. Not found in the area, but on July 3, 1964, 3 indiv. were seen on lake Pellonjärvi.

Larus argentatus. Found in early spring, 1962, on the ice on the lake Saarijärvi (PR).

Bubo bubo. Not nesting in the area, but its voice has been heard in spring (AY).

Surnia ulula. On Aug. 7, 1961, 1 indiv. in the middle of Sortovaara a pair showing alarm at Tervalammi (HH). In 1962 a nest at Puukkohuhta (HH).

Glaucidium passerinum. In spring, 1964, 1 indiv. near the research station (PR).

Strix uralensis. On June 4, 1962, a nest on the southern edge of Ulkukangas and on June 21 a brood near the station (HH and PR). In 1963 I found the species in three different places in the area, and likewise in 1964.

Asio flammeus. On Aug. 10 and 11, 1961, 1 indiv. wandered about in the station yard (HH). Found often in the near surroundings (HH, JA, PR, TS).

Aegolius funereus. In 1962 3 broods were found, and the number of pairs was estimated at 3—6 (HH).

Apus apus. In 1962 2 inhabited nest holes were found (HH). In the area nesting only occurs in intact forest (see KOSKIMIES 1956).

Dendrocopos major. In 1961 the nesting population of the area was estimated at 3—5 p. (HH). In 1962 4 nests were found (HH). In the late summer the great invasion of the Great Spotted Woodpecker began; then the species was the most numerous of the birds in the area (TJ). In 1963 and 1964 it was not found nesting.

Picoides tridactylus. In 1961 not found (HH). In 1962 seen only once (HH), but in 1963 and 1964 the Three-toed Woodpecker was the commonest Woodpecker species in the area.

Jynx torquilla. On June 9, 1961, 2 indiv. calling c. 800 m southeast of the station (PR).

Alauda arvensis. The abundance of 0.2 is too great, for the only pair of Sky Larks happened to be living on the main belt in two census years.

Hirundo rustica. Nesting in villages in the neighbourhood.

Delichon urbica. Like the former.

Riparia riparia. Nests of the Sand Martin have not been found in the area.

Corvus corone. Does not nest in the area.

Pica pica. Does not nest in the area.

Garrulus glandarius. In 1963 2 indiv. and in 1964 1 indiv. were found.

Parus major. Every year 1 p. occupied the nesting-boxes at the station. In 1963 1 indiv. came to the main belt in the middle of Sortovaara. In 1964 1 indiv. was found on the western edge of Sortovaara; later in the summer several broods were found in the terrain.

Turdus pilaris. In 1961 in the area only on July 18 and 19 (HH). In 1963 a nest at Ulkukangas. In 1964 at least 1 nesting pair.

Turdus iliacus. In Peräpohjola I have found 3 different singing races.

Oenanthe oenanthe. Numerous in areas covered with boulders of rocky outcrops.

Phoenicurus phoenicurus. According to MERIKALLIO (1958), the abundance of the species is greatest in Peräpohjola. A species typical of dry forests.

Prunella modularis. On May 30, 1961, 1 indiv. singing in the station yard (PR).

Anthus trivialis. Edges of forests are the principal nesting places. In Finland the Tree Pipit has its greatest abundance in Peräpohjola (MERIKALLIO 1958).

Motacilla flava. Found on bogs, but is also dependent on edges of forest (see SAMMALISTO 1955, 1957). The abundance obtained is too great owing to the behaviour of the species.

Bombycilla garrulus. In 1961 numerous at nesting time (HH). In 1963 observations only in late summer. In 1964 10 indiv. within earshot.

Lanius excubitor. On June 16, 1961, 1 indiv. at Teponlammi (PR). In 1962 1 indiv. in the clearing of Kolmikantajärvi (HH). In 1963 there was a brood in the same area.

Pyrrhula pyrrhula. In 1961 found twice in August (HH), in 1962 also twice (HH) and in 1964 once in June.

Fringilla coelebs. Population concentrated in luxurious forests.

Fringilla montifringilla. According to MERIKALLIO (1958), in Finland the Brambling reaches its greatest abundance in Peräpohjola. The biotope requirements of the species are more eudytopic than those of the Chaffinch.

Emberiza citrinella. In 1961 a brood and 2 singing ♂♂ (HH). In 1963 a brood in the yard. In 1964, on June 13 1 indiv. on the bog by the lake Kolmikantajärvi and on June 15 1 indiv. in field east of Sortovaara.

Emberiza rustica. Expanding to the west (MERIKALLIO 1958, ANTIKAINEN 1965). In Finland the greatest abundance is in Peräpohjola (MERIKALLIO 1958). The population has been concentrated in spruce-hardwood peat-moor and on the edges of forests. In 1962 a nest was found as early as June 6, with three young two or three days old. In 1963 the species was exceptionally numerous. That year it was more often found in Oulu, too (S. Sulkava, pers. comm.).

Emberiza pusilla. On July 17, 1963, a ♂ uttering alarm notes in a willow thicket on

the edge of a bog. Presumably there was also a brood in the same place.

Emberiza schoeniclus. In 1961 1 indiv. at *Kolmikantajärvi* (HH). In 1964 1 p. nesting on the shore of lake Kaitajärvi. Many observations in the surroundings of the area, e.g. at Teponlammi.

Summary

During the summers of 1962, 1963 and 1964 a quantitative bird census was performed in the research and experiment area of Meltaus Game Research Station. The line census method was used. In addition, there are plenty of observations from the year 1961. The landscape of the research area is very varied, with its forests, bogs and lakes. This causes an edge effect that leads to a great abundance of bird. MERIKALLIO's (1958) quantitative investigations in Peräpohjola form a good basis of comparison for the results of the present study.

As the research area lies near the northern limit of distribution of many bird species, the northward expansion of these species can be observed. Such species include *Spatula clypeata, Vanellus vanellus, Scolopax rusticola, Larus ridibundus, Columba palumbus, Parus ater, Parus cristatus, Certhia familiaris, Turdus philomelos, Erithacus rubecula, Phylloscopus collybita, Regulus regulus, Muscicapa striata* and *Ficedula hypoleuca.*

As the northern limits of distribution of many bird species run in Peräpohjola, the annual fluctuations in the abundances of these species are also remarkable there.

Selostus

Kirjoitus käsittelee Meltauksen riistantutkimusalueen pesimälinnustoa vuosina 1962—64. Kesinä 1962, 1963 ja 1964 suoritettiin kvantitatiivinen lintulaskenta linjatakseerausmenetelmää käyttäen Meltauksen riistantutkimusaseman tutkimus- ja kokeilualueella (ks. Fig. 1, jossa laskentareitit on merkitty viivoin ja vuonna 1964 pääsaralla tavatut linnut pistein). Vuodelta 1961 on lisäksi runsaasti havaintoja. Tutkimusalue on maisemallisesti hyvin rikkonainen kankaineen, soineen ja järvineen. Tästä aiheutuvan reunavaikutuksen ansiosta lintutiheys nousee melko suureksi. MERIKALLIOn (1958) kvantitatiiviset tutkimukset Peräpohjolassa ovat hyvänä vertailupohjana saaduille tuloksille. Taulukossa 1 on verrattu saatuja tiheysarvoja (paria/km², mean = keskiarvo) Merikallion saamiin tuloksiin (E.M.).

Tutkimusalueen sijaitessa useiden lintulajien levinneisyyden pohjoisrajan tuntumassa on havaittavissa näiden lajien leviäminen pohjoiseen päin. Tällaisia lajeja ovat esimerkiksi *Spatula clypeata, Vanellus vanellus, Scolopax rusticola, Larus ridibundus, Columba palumbus, Parus ater, Parus cristatus, Certhia familiaris, Turdus philomelos, Erithacus rubecula, Phylloscopus collybita, Regulus regulus, Muscicapa striata ja Ficedula hypoleuca.*

Peräpohjolassa, jossa kulkee monien lintulajien levinneisyyden pohjoisraja, on myös näiden lajien vuotuiset tiheyden vaihtelut huomattavat. Fig. 2 esittää dominanttien lajien tiheyden vuotuisia vaihteluita.

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Pohjantikan, *Picoides tridactylus,* pesimisestä kanahaukan, *Accipiter gentilis,* naapuruudessa

(Der Dreizehenspecht, Picoides tridactylus, als Brutvogel in der Nachbarschaft des Hühnerhabichts, Accipiter gentilis)

PENTTI LINKOLA

Vuosina 1950—66 olen tavannut pohjantikan havaintoalueellani Etelä- ja Keski-Hämeessä pesimäaikana touko—elokuussa kaikkiaan 27:llä kiistattomasti eri reviireihin kuuluvalla metsäalueella: Hattula 2, Hauho 3, Kalvola 1, Kuhmalahti 2, Kuhmoinen 1, Luopioinen 3, Padasjoki 1, Pälkäne 4, Sahalahti 2, Sääksmäki 2, Tuulos 1, Tyrväntö 3 ja Vanaja 2 havaintopaikkaa. Lisäksi on eräs menneenvuotisen pesäkolon löytö Eräjärveltä. Eräiltä revii-