

# Habitat selection of the Pied Flycatcher *Ficedula hypoleuca* in mountain birch woods in Finnish Lapland

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Järvinen, A. 1984: *Habitat selection of the Pied Flycatcher Ficedula hypoleuca in mountain birch woods in Finnish Lapland.* — *Ornis Fennica* 61:113—115.

In northernmost Finnish Lapland Pied Flycatchers *Ficedula hypoleuca* preferred productive mountain birch woods no matter whether the breeding season was early or late. The earliest clutches were laid in nest-boxes relatively far away from the wintery shore of Lake Kilpisjärvi and in late breeding seasons this trend was accentuated. Since clutch size was inversely related to date, large clutches were usually laid far away from the lake shore. However, the production of young was not inferior near the shore.

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## Introduction

In a long-term study the Pied Flycatcher *Ficedula hypoleuca* was shown to prefer productive to unproductive habitats at Kilpisjärvi, northernmost Finnish Lapland (Järvinen 1978). The present paper describes a more detailed analysis performed to evaluate the role played by the character of the breeding season ("early" or "late") in habitat selection. Within a relatively small area there may be intraspecific, habitat-linked differences in the timing of breeding and breeding performance, which are often connected with differences in food supply (e.g. Perrins 1965).

## Study area, material and methods

My study area lies in mountain birch woods 475—600 m above sea level in NW Finnish Lapland (about 69°03'N, 20°50'E). A description of the area has been published elsewhere (Järvinen 1983).

The material consists of 152 clutches from seven successive years. The years were divided into "early" (1979—1981; N=87) and "late" years (1975—1978; N=65) on the basis of the mean date of egg-laying of the population (Table 1).

The breeding habitat of each pair was scored 1 or 2; 1 denoted unproductive birch woods (*Empetrum* — *Myrtillus* and *Empetrum* — *Lichenes* mountain birch forest site types; see Kalela 1961, Järvinen 1983) and 2 represented productive birch woods (*Trollius* — *Geranium* and *Geranium* — *Dryopteris* — *Myrtillus* mountain birch forest site types). In addition, the distance of the nest-boxes from the shore of Lake Kilpisjärvi was measured to test whether proximity to the shore affected habitat selection. From earlier experience it was known that plant growth is retarded by the icy water of Lake Kilpisjärvi. Since the distribution of this variable was highly skewed, a logarithmic transformation ( $\log_e$ ) was applied. Four date classes, based on the date of laying of the first egg in the clutch, were used: 1=21—30 May, 2=31 May — 9 June, 3=10—19 June and 4=20—29 June.

## Results

In both "early" and "late" years the flycatchers tended to settle in nest-boxes in relatively productive woods, and there was no difference in this respect between the two groups (Fig. 1a). In "early" and "late" years the earliest clutches appeared to be laid in nest-boxes situated relatively far away from the lake shore (Fig. 1b), and particularly in "late" year birds seemed to avoid the shoreline (difference between "early" and "late" years in date class 3 significant,  $t=2.31$ ,  $P<0.025$ ).

In "early" years all clutches were in relatively productive woods, but in "late" years small clutches were laid in relatively unproductive woods (Fig. 2a; difference between clutches 4 and 6 significant,  $t=2.04$ ,  $P<0.05$ ). In both "early" and "late" years large clutches were laid far away from the lake shore, but in "early" years clutches seemed to be situated closer to the shore than in "late" years (difference between the groups in clutch size class 6 significant,  $t=2.14$ ,  $P<0.05$ ).

## Discussion

Within "early" and "late" years there were no differences in habitat selection between date classes, except that in both cases the first pairs seemed to settle in nest-boxes relatively far away from the shore (Fig. 1b). However, in "early" years the birds did not go as far away from the shore as in those years when laying started late. The results presented in Fig. 2 mirror those in Fig. 1, because the clutch size of the Pied Flycatcher is closely, but inversely, related to date (Järvinen & Lindén 1980).

Table 1. The mean ( $\pm$ SD) date of laying of the first egg of the Pied Flycatcher at Kilpisjärvi in 1975—1981.

Year	Egg-laying (June)
1975	18.7 $\pm$ 3.3 (N=26)
1976	13.2 $\pm$ 4.4 (N=15)
1977	16.8 $\pm$ 5.3 (N=14)
1978	11.0 $\pm$ 4.4 (N=10)
1979	9.7 $\pm$ 3.6 (N=30)
1980	6.1 $\pm$ 3.6 (N=33)
1981	1.7 $\pm$ 5.0 (N=24)

Far away from the shore seasonal processes (plant growth) are ahead of those near the shore, and the woods are often fairly productive there. In "late" years habitats near the shore lag behind the other habitats more than in "early" years. Therefore, in "late" years birds seem to breed at a greater distance from the shore than in "early" years. Gradually the landscape becomes less wintery near the shore. As the amount of food rises there with the progress of summer and eventually reaches the level in other habitats, the nest-boxes near the shore are occupied.

In nest-boxes situated near the shore, the number of fledglings per nest was about the same as in nest-boxes further away (Järvinen 1982). Thus the only 'disadvantage' of selecting a nest-box near the shore seems to be the rather late

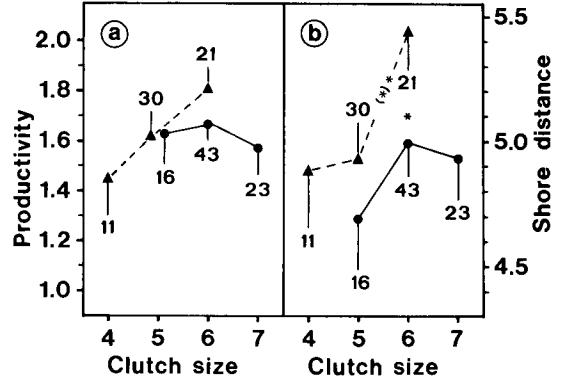


Fig. 2. Productivity of the habitat (a) and distance from the lake shore (b;  $\log_e$  m) of the Pied Flycatcher nests in relation to clutch size at Kilpisjärvi in "early" (dots) and "late" years (triangles). For legend see Fig. 1.

laying and small clutch size (Fig. 1—2). Probably due to swarming insects, success in the later stages of breeding seems to compensate for the poor start near the shore (Järvinen 1982).

*Acknowledgements.* I am grateful to Risto A. Väisänen for generous help in preparing this paper.

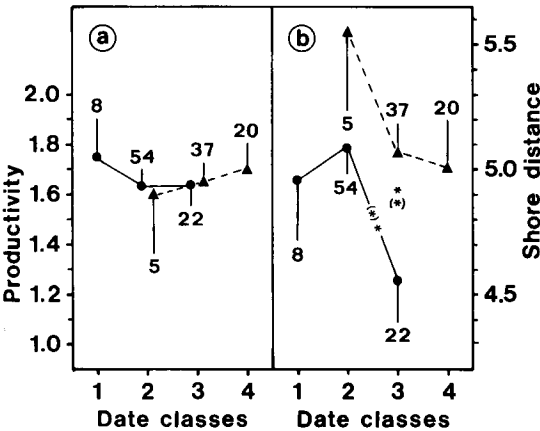


Fig. 1. Productivity of the habitat (a; productivity increases from the bottom to the top) and distance from the lake shore (b;  $\log_e$  m) of Pied Flycatcher nests in different date classes at Kilpisjärvi in "early" (dots) and "late" years (triangles). Date classes (laying of the first egg): 1=21—30 May, 2=31 May—9 June, 3=10—19 June and 4=20—29 June. Dots and triangles = means, vertical lines = standard errors, numbers = number of nests. Significance levels (t tests) are shown by asterisks (asterisks in parentheses = a particular significance level almost reached).

## Selostus: Kirjosiepon biotoopinvalinnasta Kilpisjärven tunturikoivikoissa

Tutkimuksessa selvitetään kirjosiepon biotoopinvalintaa Kilpisjärven tunturikoivikoissa tarkastelemalla erikseen "aikaisia" (1979—81, 87 pesää) ja "myöhäisiä" (1975—78, 65 pesää) pesimäkautia (taul. 1). Pesimäbiotoopit jaettiin kahteen luokkaan, karuihin (arvo = 1) ja reheviin (arvo = 2). Lisäksi mitattiin pesäpönttöjen etäisyys Kilpisjärven rannasta. Kuvassa 1 käytetään seuraavia päivämääräluokkia, jotka perustuvat pesyeen ensimmäisen munan munintaan: 1 = 21.—30.5., 2 = 31.5.—9.6., 3 = 10.—19.6. ja 4 = 20.—29.6.

Sekä "aikaisina" että "myöhäisinä" vuosina kirjosiepot asettuivat pesimään suhteellisen reheviin koivikkoihin (kuva 1a). Molemmissa tapauksissa ensimmäiset pesyeet munittiin melko kauaksi Kilpisjärven rannasta; "myöhäisinä" vuosina tämä suuntaisesti näytti korostuvan (kuva 1b). Suuret, tavallisesti varhain kesällä aloitetut pesyeet munittiin säännön mukaan kauaksi rannasta (kuva 2b).

Muissa tutkimuksissa jäisen Kilpisjärven on todettu hidastavan kasvillisuuden kehitystä ja kirjosiepon pesimäaikataulua rantavyöhykkeessä. Hidastava vaikutus on voimakkaampi "myöhäisinä" kesinä, mikä ilmeisesti saa kirjosiepon selvemmin karttamaan rantaa. Lähellä rantaa pesivien sieppojen poikastuotto ei kuitenkaan ole huonompi kuin kaukana rannasta pesivien sieppojen poikastuotto, koska keskikesällä rannan ympäristössä parveilevat hyönteiset ovat hyvä ravintolähde (ks. Järvinen 1982).

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Received January 1984

## 5:e Nordiska Ornitologiska Kongressen (NOK 85)

### (2:a meddelandet)

NOK 85 kommer, som tidigare meddelats, att äga rum den 5—9 augusti 1985 på Gottskärs kursgård, Onsala, vid Kungsbackafjorden, ca 35 km söder om Göteborg.

Vid kongressen kommer bl.a. följande ämnesområden att behandlas: mesarnas ekologi; studier av kända individer; betydelsen av långtidsstudier; uppfödning och manipulation av fågelpopulationer. Kommittén är tacksam för fler förslag eller synpunkter på lämpliga ämnesområden.

Det förutsätts att de allra flesta föredragen hålls på skandinaviskt språk, annars engelska.

En kongressdag kommer att ägnas åt heldagsexkursioner. Preliminära mål att välja mellan är hallandskusten, Göteborgs södra skärgård (båttur), skogslandskapet, Nidingens fågelstation och Hornborgasjön, allt till en kostnad av ca 50 Skr per deltagare och exkursion.

Mat och logi på kursgården kommer enligt prel. beräkningar att belöpa sig till ca 200 Skr per person och dygn (2—3 bäddsrum). Dessutom finns några enkelrum samt tält- och husvagnsplatser till rimlig kostnad.

Deltagarantalet kan komma att begränsas. (Maximum ligger vid ca 200 personer.) Preliminär anmälan om deltagande kan när som helst, dock helst före utgången av februari 1985, insändas under adress NOK 85, Zoologiska institutionen, Box 250 59, S-400 31 Göteborg. Meddela, i förekommande fall, gärna även titel på planerat föredrag.

Formulär för definitiv anmälan kommer att tillställas de preliminärt anmälda i mars 1985.

Kongresskommittén