Autumn migration of owls along the Polish Baltic Sea coast 1961–1999

Przemysław Busse & Wojciech Busse

Busse P. & W. Busse 2003: Autumn migration of owls along the Polish Baltic Sea coast 1961–1999. Vogelwelt 124: 281 – 284.

The Operation Baltic bird migration research programme is devoted mainly to the study of passerine migration. However, as the nets were open continuously day and night throughout the autumn migration season, some owls were caught as well. In 1961–1994 owls were caught accidentally in the small size mesh nets for passerines (41 Tengmalm's *Aegolius funereus* and 44 Long-eared Owls *Asio otus*). From 1995 to 1999, 29 Tengmalm's and 517 Long-eared Owls were caught with special raptor nets that efficiently caught owls in the night and diurnal raptors during daytime. The Operation Baltic stations (Mierzeja Wiślana, Hel and Bukowo-Kopań) are situated along the Polish coast of the Baltic Sea, thus the results give a rough picture of autumn migration of the most common owls migrating along the southern Baltic coast. The data we collected, although not so numerous in the past, give some impression of migration seasonal dynamics as well as long-term trends in numbers. The numerical relation between migrating Tengmalm's and Long-eared owls has changed considerably during the study period. A few recoveries show that ringed owls reached Germany, The Netherlands, Belgium and even France on their autumn migration. The origin of migrants, based on recoveries, appears to be limited to Latvia, Lithuania and Russia (Kaliningrad region).

Key words: owls, migration, numerical dynamics.

1. Introduction

Owls are usually reported as sedentary, nomadic or irruptive birds even in northern areas of their distribution. Out of two species discussed in the present paper the Tengmalm's Owl was described as nomadic (KORPIMÄKI 1997) and Long-eared Owl as migratory species (GLUE & NILSSON 1997). Despite the latter species is known as a migratory one there is lack of more detailed information on its migration. Nocturnal passage and only accidental ringing cause that published papers on owls migration are scarce. However, ringing reports give some ringing recoveries (e.g. ROOS 1984 – 12 recoveries on Long-eared Owl and 7 on Tengmalm's Owl, DOBRYNINA 1994) and long-term bird ringing programmes carried out around the Baltic report pronounced owl migration, at least in some years (e.g. BELOPOLSKY 1974, J. BAUMANIS in Latvia – pers. comm.). Though the Operation Baltic programme is not devoted to study owl migration, these gaps in our knowledge on bird migration and simple curiosity of a scientist and a ringer as well, caused that data collected during forty years of work seem to be worth to present.

2. Material and Methods

The Operation Baltic bird migration research programme is devoted to the study of passerine migration by mist-netting and visual observations (BUSSE & KANIA 1970). However, as

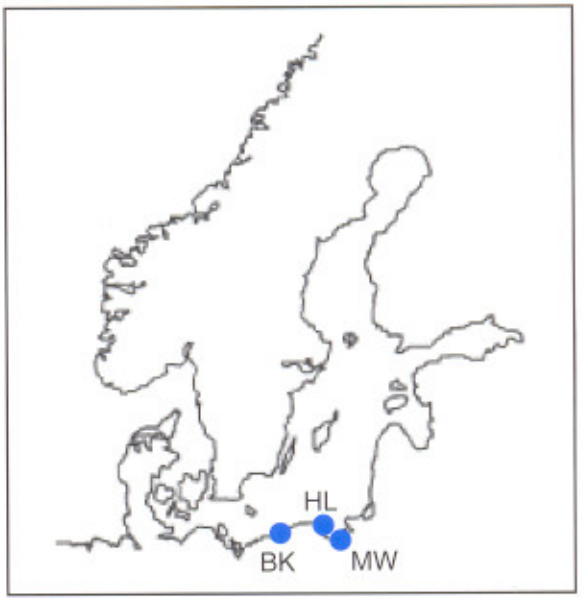

Fig. 1: Localisation of the ringing stations. BK – Bukowo/Kopań, HL – Hel, MW – Mierzeja Wiślana. Coordinates given in the text. – *Lage der Beringungsstationen. BK – Bukowo/Kopań, HL – Hel, MW – Mierzeja Wiślana. Koordinaten siehe Text.*

Table 1: Number of Long-eared and Tengmalm's owls ringed during autumns of 1961–1999 at the Operation Baltic Stations. – *Zahl der im Herbst der Jahre 1961–1999 an den Stationen der Operation Baltic beringten Waldohreulen und Raufußkäuze.*

	Mierzeja Wiślanda	Hel	Bukowo-Kopań	Total
Asio otus				
1961–1994	11	4	29	44
1995–1999	62	–	455	517
Total	73	4	484	561
Aegolius funerus				
1961–1994	13	6	22	41
1995–1999	3	–	26	29
Total	16	6	48	70

the nets (usually around 50 standard, 7 m long, nets per bird station) are open continuously day and night throughout the autumn migration season (mid of August – end of October), some owls were caught as well. The Operation Baltic stations (Mierzeja Wiślana – 54°21'N, 19°19'E, Hel – 54°46'N, 18°28'E and Bukowo-Kopań – 54°21'N, 16°17'E/54°28'N, 16°25'E) are situated along the Polish coast of the Baltic Sea (Fig. 1), thus the results give a rough picture of autumn migration of the most common owls migrating along the southern Baltic coast. In the years 1961–1994 owls were caught accidentally in the passerine, small size mesh nets (16 mm mesh, 7 m long, 4-shelf). 41 Tengmalm's Owl *Aegolius funereus* and 44 Long-eared Owl *Asio otus* were caught in this period – Table 1). Since 1995 till 1999 29 Tengmalm's and 517 Long-eared Owls were caught with special raptor nets that efficiently catch owls in the night and diurnal raptors during daytime. All individuals were ringed and measured (wing-length, tail-length and some of them were weighted and also wing-formula was described). Nowadays they are sexed and aged.

3. Results and discussion

3.1. Ringing recoveries

By now in the Operation Baltic programme we have 8 long-distance recoveries on the Long-eared Owl and one recovery on the Tengmalm's Owl.

Four recoveries of the Long-eared Owl point at transit and destination areas of migration (Fig. 2):

GDAŃSK DA 11133
* 13.10.1996 imm. Bukowo/Kopań
x 20.09.1998 Siedenbollentin 53°43'N, 13°24'E, Germany

GDAŃSK DA 11201
* 17.10.1996 imm. Bukowo/Kopań
x 19.04.1997 Hulst, De Tol 51°16'N, 4°02'E, Holland

GDAŃSK DA 11238
* 26.10.1996 imm. Bukowo/Kopań
x 28.01.1997 Saran 47°57'N, 1°52'E, France

Fig. 2: Ringing/recovery places (dots) of Long-eared Owls recovered/ringed at the Polish Baltic coast (at the area pointed). – *Beringungs- und Wiederfundplätze (Punkte) von Waldohreulen, die an der polnischen Ostseeküste wiedergefunden/beringt wurden.*

Bruxelles 4H 98992
* 12.12.1998 fg. Balen 51°10'N, 5°09'E, Belgium
v 31.10.1999 ♀ Bukowo/Kopań

where: * – ringing data, imm. – immature, fg. – full-grown, x – found dead, v – caught and released.

Two recoveries were on birds migrating – so-called "direct-recoveries" (they define a speed of movement):

MOSKWA C 292982
* 23.10.1995 imm. Fringilla (Rybachy) 55°08'N, 20°42'E, Russia
v 30.10.1995 Bukowo/Kopań – 7 days

KAUNAS 909336
* 6.10.1996 fg. Ventes Ragas 55°21'N, 21°13'E, Lithuania
v 12.10.1996 imm. Bukowo/Kopań – 6 days

Two other were recorded during spring migration in Poland: one ringed on migration six years earlier:

RIGA C 41118
* 29.10.1990 ♂ imm. Pape 56°11'N, 21°03'E, Latvia
v 29.03.1996 ♂ Hel,

and one recovered during winter time six years later:

VARSOVIA D 1201149
* 26.03.1968 fg. Hel
v 20.12.1973 Kaunas 54°54'N, 23°54'E, Lithuania

Some recoveries already published suggest origin and destination of migrants caught at the Polish Baltic coast: two Long-eared Owls ringed on migration at Falsterbo, Sweden, were recovered in Poland (ROOS 1984; thus some migrants at the Polish Baltic coast could originate from Scandinavia; DOBRYNINA (1994) reported Long-eared Owls ringed at Rybachy and recovered in Italy and Great Britain. The only one recovery on Tengmalm's Owl is rather strange, showing very wide post-fledging dispersal:

PRAHA E 291987

* 7.06.1988 pull.	Bedrichov 49°56'N, 17°10'E, Czech Republic
v 3.10.1988	Bukowo/Kopań

3.2. Seasonal dynamics of passage

General pattern of seasonal dynamics of passage at the Polish Baltic coast is shown at Figure 3. Only data from 1961–1994 are used there to exclude strong influence of numbers from years when many individuals were caught, because of new nets that were used. Long-eared Owls start autumn migration after September 20th. After a few days break first well pronounced peak occurs. One bird ringed in that period in 1996 was caught twice in spring at the same place – it was surely a local individual:

GDAŃSK DA 03939

* 6.10.1996 imm.	Bukowo/Kopań
v 11.04.1997 ♀	imm. ibidem
v 27.03.1998 ♀	ad. ibidem

This might suggest that first wave of migrants consists of birds from the vicinity of the ringing place. This suggestion can be confirmed by the fact that the first individual ringed in the Baltic Republics was caught at Bukowo/Kopań 6 days later (see above – KAUNAS 909336) and other (MOSKWA C 292982) in the end of October when subsequent waves of migrants pass the station. The end of migration occurs in November, when of the ringing stations are already closed (except 1999 and 2000). Within a season the passage shows a very clear wave-like pattern. Usually three-four night waves are separated by a few nights with a very low intensity of migration. In 1996 the main wave passed the station on 25–27 October (29, 53 and 25 individuals caught, during the peak whole passage at Bukowo/Kopań was estimated at around 1000 individuals – visual observations); in 1999 the peak of passage was noted on 20–23 October (22, 6, 50, 24 birds caught). Both these peaks started close to a full moon night (2 and 4 nights earlier) and good weather conditions. In 1995, however, the main October peak (24–27 October) occurred well out of the full moon that was very early in the month (numbers of birds passing in early November, when next full moon occurred, are not known). These preliminary observations suggest that natural

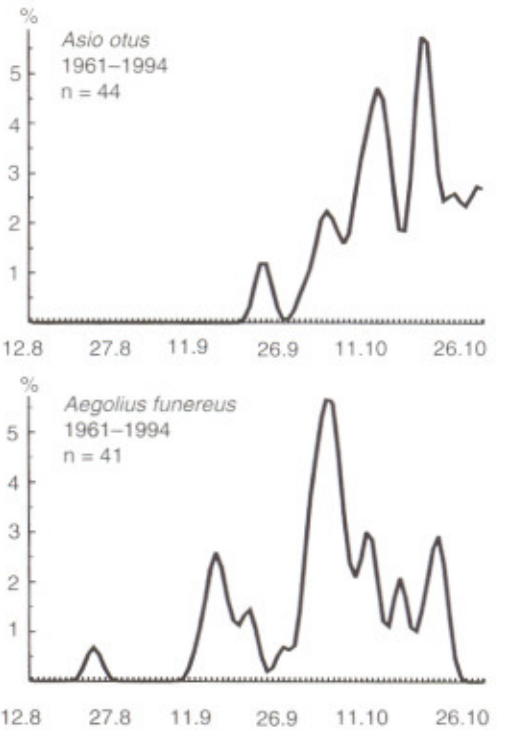

Fig. 3: Total seasonal catching dynamics of Long-eared and Tengmalm's Owls at all ringing stations in 1961–1994 (smoothed using 5-day moving average). – *Verlauf der Fänge von Waldohreule und Raufußkauz an allen Beringungsstationen in den Jahren 1961–1994.*

conditions could influence the migration of owls very much and further observations are necessary.

The Tengmalm's Owl migration begins with a separate peak in the second half of September – thus starts earlier than migration of the Long-eared Owl. The main peak of migration occurs in first days of October and around 25th of this month migration is nearly finished. In 1997 and 1999 the ringing station was working longer (up to 10th November), but no Tengmalm's Owl was caught after 28 October (they were noted, however, in 2000).

3.3. Long-term dynamics

Long-term dynamics of owls caught at the Polish Baltic coast is shown at Figure 4. It is based exclusively on catching results from 1961–1994 when only small-mesh nets were used, thus relative frequencies are comparable all over the period covered (1961–1994). In both species course of curves shows short-term fluctuations of numbers of caught birds, which could reflect well-known mice-cycle. However, a general dynamics pattern of the studied species is extremely differentiated – number relations between the Long-eared Owl and Tengmalm's Owl changed from 1:7 in the 60-ties to 18:1 in the second half of 90s (Table 2). Clear explanation of this phenomenon cannot be based only on the studies of owl migration.

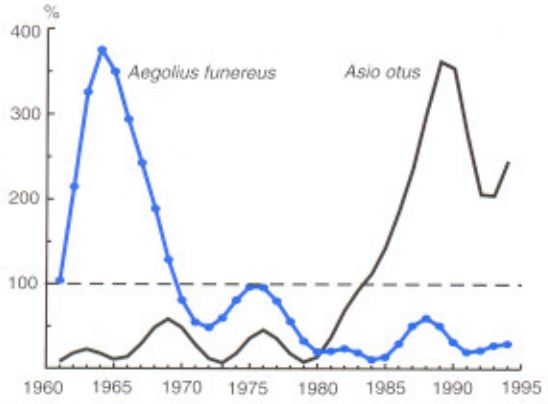

Fig. 4: Total long-term number dynamics of Long-eared and Tengmalm's Owls at all ringing stations given in percents of 1961–1994 mean value (smoothed using 5-day moving average). – *Langzeitveränderungen der Zahl der Waldohreulen und Raufußkäuze an allen Beringungsstationen in Prozent des Mittelwerts der Jahre 1961–1994.*

Table 2: Numerical relations between Long-eared and Tengmalm's owls. – *Numerische Beziehungen zwischen Waldohreule und Raufußkauz.*

	Asio otus	*Aegolius funereus*	
1961–1970	4	29	1:7.2
1971–1980	2	7	1:3.5
1981–1990	28	4	7.0:1
1991–1994	10	1	10.0:1
1995–1999	517	29	17.8:1
Total	561	70	

4. Conclusions

1. At least the Long-eared Owl and the Tengmalm's Owl show pronounced migration along the Polish Baltic coast. Intensity of migration could be very high.
2. Documented origin areas of migrants are the Baltic Republics and Scandinavia; documented winter quarters cover the northern part of Germany, Belgium, Holland and France.
3. The Long-eared Owl migrates later than the Tengmalm's Owl. Causes of very clear waviness of migration should be further studied.
4. Numerical relations between Long-eared and Tengmalm's Owls have changed drastically during last 39 years. Causes of this phenomenon are not known yet.

5. Zusammenfassung

Busse, P. & W. Busse 2003: Herbstlicher Durchzug von Eulen an der polnischen Ostseeküste 1961–1999. Vogelwelt 124: 281 – 284.

Im Rahmen des Beringungsprogramms Operation Baltic werden seit 1961 an mehreren Stationen zur Wegzugzeit mit Hilfe von Japannetzen (jeweils Tag und Nacht geöffnete Netze von Mitte August bis Ende Oktober) hauptsächlich Singvögel, gelegentlich aber auch Eulen gefangen. Anhand der Fänge von drei Stationen an der polnischen Ostseeküste wird das Auftreten von Eulen im Zeitraum 1961–1994 (kein gezielter Eulenfang) und 1995–1999 (gezielter Nachtfang mit Hochnetzen) analysiert. Raufußkauz (n = 73) und Waldohreule (n = 561) waren die häufigsten Arten, wobei vor allem letztere durch den Einsatz von Hochnetzen in den letzten fünf Untersuchungsjahren viel häufiger gefangen wurde als zuvor, während Fänge des Raufußkauzes gegenüber den 1960er Jahren stark zurückgegangen sind. Wiederfunde beringter Waldohreulen reichen bis Frankreich im Westen und Rybachi im Nordosten. Der einzige Wiederfund eines beringten Raufußkauzes betraf den Fang eines in Tschechien beringten Jungvogels im Oktober an der Ostseeküste (also nördliche Zugrichtung).

6. References

BELOPOLSKY, L. 1974: Migration peculiarities of some species of owls (Strigiformes) on the basis of trapping and ringing data obtained on the Courland Spit in 1957–1968. Comm. Baltic Commission Study Bird Migration 8: 51-71.

BUSSE, P. & W. KANIA 1970: Operation Baltic 1961–1967. Working methods. Acta orn. 12, 7: 251-267.

DOBRYNINA, I. N. 1994: Seasonal movements of owls (Strigiformes) in the Baltic region based on ringing data. Ring 16: 77-83.

GLUE, D. & I. N. NILSSON 1997: Long-eared Owl. In: HAGEMEIJER, E. J. M. & M. J. BLAIR (eds.): The EBCC Atlas of European Breeding Birds: their Distribution and Abundance. Pp. 416-417. T. & A. D. Poyser, London.

KORPIMÄKI, E. 1997: Tengmalm's Owl. In: HAGEMEIJER, E. J. M. & M. J. BLAIR (eds.): The EBCC Atlas of European Breeding Birds: their Distribution and Abundance. Pp. 420-421.T. & A. D. Poyser, London.

ROOS, G. 1984: Migration, wintering and longevity of birds ringed at Falsterbo (1947–1980). Anser, Suppl. 13: 1-208.

Przemyslaw Busse & Wojciech Busse, Bird Migration Research Station, University of Gdańsk, Przebendowo, PL 84-210 Choczewo, Poland. E-mail *busse@univ.gda.pl*