

Population trends in Danish raptors since 1970

Bestandsudviklingen hos danske rovfugle siden 1970
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Dansk rovfugleforskning er med oprettelsen af DOF's rovfuglegruppe i 1970 blevet væsentligt intensiveret. Der mærkes nu årligt ca. 1000 rovfugleunger. Optælling af Rørhøg, Hedehøg og Rød Glente udføres i alle landsdele, medens de øvrige arter følges i udvalgte områder. Musvågebestanden skønnes at være forøget med 1/3 siden 1970, og tæller nu ca. 5000 territoriale par. Hvepsevagen synes at være stabil eller faldende med 800-1000 par. Rød Glente er øget fra to par i 1977 til 6-8 par pr. 1. maj 1982. Blå Kærhøg yngler ved grænsen omkring Tønder. Rørhøg viser kolossal fremgang fra 80 par i 1970 til 412 par i 1981, flest i den sydlige del af landet. Hedehøgen fluktuerer; 30 par i 1978, 50 par i 1981, næsten alle i Sydvest- og Vestjylland. Duehøgen er øget; på landsplan estimeres bestanden nu til ca. 500 par. Spurvehøgebestanden skønnes at tælle 3500-5000 par. Forekomsten af Tårnfalk, Lærkefalk og ugler behandles ikke.

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Introduction

Before 1970 only few studies of Danish raptor populations were made (e.g. Holstein 1942, 1944, 1950, 1956, Schelde 1960, Joensen 1968). This situation changed after the foundation of the "Raptor Group" in 1970. Twenty active members of the group conduct a variety of field projects on raptor populations. Each year, about one thousand raptor nestlings are ringed. In ten 40-100 km² large census areas, breeding densities and breeding rates are studied annually. From 1977, the group studied the total Danish populations of Marsh Harrier, Montagu's Harrier and Red Kite. From 1973 to 1982, the populations of Goshawk, Sparrowhawk, Buzzard and Honey Buzzard were studied thoroughly over 600 km near Kolding in Jutland. From 1977, the Goshawk population was studied and all nestlings ringed over a 10.000 km² large area in Jutland. From 1977, intensive studies of Goshawk, Sparrowhawk and Buzzard were initiated in Vendsyssel, and from 1980 also on Funen.

The following data are based on interim reports from members of the group: Johannes Bang, Per Bomholt, Søren Bøgelund, Finn Eriksen, Iver Gram, Peter Jensen, Hans E. Jørgensen, Finn Birkholm-Clausen, Jan Tøttrup Nielsen, Lars Rasmussen, Kurt Storgaard, Ole Schelde, Svend Møller Jensen.

Besides the species discussed below, Denmark has a dense population of Kestrel *Falco tinnunculus*, which however has not been studied in detail. There has been a few recent breeding attempts of White-tailed Eagle *Haliaeetus albicilla*, while claims that the Osprey *Pandion haliaetus* has started to breed still needs final confirmation.

Buzzard *Buteo bueso*

The total Danish population is 4500-5500 territorial pairs. In 1975 we recorded 185 territories and found 171 occupied nests in the 600 km large Kolding census area. By 1980 the population had increased to 212 territories and 194 occupied nests. According to Dybbro (1976), the total Buzzard population was 1900-2400 pairs in 1970-74, but I consider this estimate to be too low due to the methods of the Atlas project. I believe that the Buzzard population increased by one third since 1970, but information about the development on Funen and Zealand, where the populations were much reduced by persecution in the 50's and 60's, are deficient. The Funen population has probably recovered completely now (Tab. 1). A similar increase can be seen near Blåvand on the west coast of Jutland, where the population increased from two pairs in 1975 to ten pairs in 1981 in a barren area dominated by dunes, moor and coniferous plantations. Studies near Sorø, Jægerspris and Maribo indicate almost total recovery of the population in Zealand.

Honey Buzzard *Pernis apivorus*

In my opinion, the Danish population decreases due to changing forest management, but little information is available.. In forest areas in eastern

Tab. 1. The Danish Buzzard populations (territorial pairs) in 1980. Total estimates are given for three counties where more than 50% of the forest area has been studied.

Danske musvågebestande, territoriale par i 1980. Totalbestanden er estimeret for tre amter, hvor over 50% af skovarealet er undersøgt.

County Amt	km ² area km ² areal	% forest % skov	No. of pairs Antal par	km ² per pair km ² pr. par
Sønderjylland	4150	5.5	450-500	8.3-9.2
Vejle	3100	10	500	6.20
Fyn	3100	10	500	6.20
Census areas in Jutland 1981 - <i>Prøveflader i Jylland 1981</i>				
Kolding	600	10	212	2.83
Sindal	40	15	11	3.63
Vejen	80	7	14	5.70
Søften	50	16	7	7.14
Blåvand	80	50	10	8.00
Census areas on Funen 1981 - <i>Prøveflader på Fyn 1981</i>				
Langesø	35	25.5	14	2.50
Tommerup	70	13	29	2.40
Ravnholt	78.5	18	18	4.36
Krengerup	30	30	11	2.73
Census area on Als 1962-63 - <i>Prøveflade på Als 1962-63</i>				
Als	315	7	75	4.20



Rørhøgebestanden i Danmark er femdoblet i løbet af de sidste 10 år, givetvis som resultat af totalfredningen. Foto: Jens Bruun.

Denmark, the population density is about one territory per 2 km of deciduous forest area, and at Kolding we have recorded 35-40 territories on 60 km of forest. If this is a general pattern in Denmark, we should have 300-1000 pairs. The annual breeding success varied much, from 0.2

to 1.0 young per occupied nest, but in spite of this low reproductive rate the population was stable near Kolding from 1973 to 1981.

Red Kite *Milvus milvus*

The southern part of Jutland has been recolonized from the population in Slesvig-Holsten. The Red Kite has been breeding regularly since 1976 (Bomholt 1980, and 20 occupied nests have been found. In 1980, four pairs were recorded and in 1981 3-5 pairs and several young birds were observed. In 1982 6-8 pairs were recorded in southern Jutland. Most of the nests are found near trout ponds, lakes or seacoasts. Pairs fledged young in 1979, 1981 and 1982 on Zealand, and additional pairs have been seen in northern Jutland since 1978 and on Lolland and Falster since 1979, although no fledglings have yet been seen in these areas.

Hen Harrier *Circus cyaneus*

The Hen Harrier probably breeds annually in Magisterkogen or in fields on the German side of the border.

Marsh Harrier *Circus aeruginosus*

The population of Marsh Harrier increased rapidly from about 75 pairs in 1970 (Dybbro 1976) to 310 in 1979, 340 in 1980 and 412 in 1981 (see Jørgensen et al. 1982). 316 out of the latter 412 pairs bred south of the line between Copenhagen and Esbjerg. The rising population level has led to a dispersal from 28 permanently occupied breeding areas in the 60 's to about 280 in 1981. The rapid increase is probably a result of a total protection in Denmark, Germany and the Netherlands and all populations from the Netherlands to the Baltic have recovered since 1970. Some immigration from outside Denmark must be expected. The Danish population will probably stabilize in a few years time on a level of about 600 pairs.

The reproductive success is fine, with more than two fledglings per successful nest in the period 1976-79 (Bomholt & Jensen 1979). The success was even better in 1981, in spite of the high population level.

Montagu's Harrier *Circus pygargus*

Eskildsen (1969) estimated 31 pairs and Dybbro (1976) 20-30 pairs. The population has fluctuated between 30 pairs in 1978 and 50 pairs in 1981, with a slightly rising tendency. The population is still restricted to the southern and western parts of Jutland, with a few breeding attempts in the northern part of Jutland. In 29 nests 81 fledglings were ringed during 1972-74. viz. 2.8 per nest (F. Birkholm-Clausen) and in 8 nests 37 eggs were laid and 28 fledglings raised (I. Trap-Lind in Litt.). Each year several nests are destroyed by hay harvest.

Goshawk *Accipiter gentilis*

Dybbro (1976) judged the population level to be 150-200 pairs. This estimate was probably too low, though, as 275 nests were found and the population estimated to be 400 pairs only in Jutland in 1980. Funen had probably about 50 pairs in 1980, and Lolland and the eastern parts of Zealand have been recolonized, probably harbouring 35-50 pairs in 1981. 25 pairs inhabit the northern part of Zealand. The population in Jutland has stabilized or even declined since 1979, maybe due to persecution and severe winters. In the Kolding census area the population rose from 1974 to 1980 as follows: 10, 14, 15, 18, 21, 23 and 26 pairs. The production of fledglings varied from 1.5 to 2,2 per laying pair (400 nests).

Sparrowhawk *Accipiter nisus*

The Danish population is estimated to 3500-5000 pairs in the 70 's. According to Dybbro (1976), the total population 1970-74 was 1000-1500 pairs, but recent census work in western and northern Jutland shows that the Sparrowhawk is more common than previously believed (Tab. 2).

Sparrowhawks from East Jutland are residents, whereas Sparrowhawks from near the west coast are migratory. The birds from Zealand are primarily migratory. With some partly sedentary populations in the southern part of the

Census area Område	km ² km ²	area areal	No. of pairs Antal par	km ² km ²	per pair pr. par
Kolding	600		70-100		6.0-8.6
Sindal	40		13-14		2.8
Vejen	80		10-14		5.7-8
Søften	50		10-12		4.0-5.0
Blåvand	80		10-13		6.1-8.0
Tommerup	70		10		7.0
Ravnholt	78.5		11		7.1

Tab. 2. Danish Sparrowhawk *Accipiter nisus* populations in census areas 1978-1981. Danske Spurvehøge populationer i prøvefladeområder 1978-1981.

island. Unfortunately, most studies of Danish Sparrowhawk populations in the 50's and 60's covered migratory populations, which may have been most heavily contaminated by pesticides. For this reason, there is some uncertainty about the population trends.

The production of fledglings is fairly good, in most study areas with 3.5-4.0 fledglings per successful nest (Tab. 3). Most unsuccessful breeding attempts are due to predation by Goshawk and Marten, a few to human activities and pesticides.

Due to interference competition, the increasing Goshawk population has taken over some old, open spruce forests, so that Sparrowhawks now tend to prefer young, dense spruce plantations. By absence of Goshawks, Sparrowhawk nests may be found in old, open spruce, too.

One of the largest crops of mast in this century was seen in 1976. This resulted in high availability of mice and low mortality during the winter 1976/77, and the population near Kolding increased from 70 to 85 pairs. We found, that mice comprised 25% of the Sparrowhawks diet in the spring of 1977. The severe winter 1978/79 reduced the Kolding population by one third. Normally one third of the breeding females are second-calendar-year birds, out no second-calendar-year females were found breeding in 1979. (Ageing of females based on moulted feathers).

Year - år	1974	-75	-76	-77	-78	-79	-80	-81
Occupied territories (min.) Besatte territorier (min.)	64	71	66	89	85	59	58	67
Occupied nests found Fundne reder	58	63	56	84	76	59	58	67
Pairs with fledglings, estimate Par med udfløjne unger, skønnet	40	35	40	53	55	29	36	41
Nestlings per ringed brood Unger pr. ringmærket kuld	3.8	3.4	3.4	4.0	3.3	3.4	3.9	3.5
Fledgling per occupied nest, est. Udfløjne unger pr. besat rede, skønnet	2.6	1.9	2.4	2.5	2.4	1.6	2.4	2.1

Tab. 3. Population data from a Danish Sparrowhawk *Accipiter nisus* population in a 600 km² Census area around Kolding 1974-1981.

Bestandsudvikling og ungeproduktion hos Spurvehøg i et undersøgelsesområde på 600 km² omkring Kolding 1974-1981.

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Hedehøgebestanden i Danmark svinger mellem 20 og 50 par. Foto: Jens Bruun.