

The Norwegian lynx *Lynx lynx* population in the 1970's

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Information on lynx distribution and population variation was gathered from municipal Game Boards throughout the country. Permanent populations occurred in all parts of Norway in the 1970s. Compared with the 1960s, the lynx had expanded southwards and westwards in southern Norway, while the distribution in northern Norway was little changed. An increase of the total Norwegian lynx population is indicated. Hunting statistics do not, however, reflect the assumed population increase. Only a small part of the annual mortality seems to be caused by hunting. The relationship between population status, and food availability is discussed.

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INTRODUCTION

After a great reduction in lynx *Lynx lynx* numbers in Norway from the second half of the 19th century until the 1930s, the population again increased (Myrberget 1970). In the 1960s a fairly high population level was registered in parts of south-eastern, central (Trøndelag) and northern Norway. This paper describes the development of the lynx population in Norway in recent years.

As yet, the species has never been protected in Norway. Hunting of lynx is permitted all year round and is open to all Norwegian citizens. Trapping or poisoning, however, is not permitted. The Ministry of Agriculture pays a bounty for lynx provided that the body is sent to DVF Viltforskningen, and counties, municipalities and others may pay additional bounties.

MATERIAL

All municipal Game Boards were asked to make a special report on lynx occurrences within their district in the period 1971–1977, and 93% of the Boards complied with this request. These reports state 1) whether the lynx numbers were increasing, decreasing or remained unchanged, and 2) whether lynx occurred during most of the year, or were observed as stray animals. Further information has been extracted from Game Board annual reports which give changes in autumn and winter game populations from one year to the next. A great number of municipalities fail, however, to report each year.

Information on number of lynx shot is based on reports from the Central Bureau of Statistics and on lynx sent to DVF Viltforskningen.

RESULTS

Distribution

Lynx occurrence in the 1970s was less usual in coastal districts than inland (Fig. 1). In 1971–1977 lynx occurred in all counties except Rogaland. There were permanent populations in most parts of south-eastern Norway, Trøndelag and Nordland county except on the islands. However, some municipalities in these parts of the country stated only stray animals or that the lynx was lacking. In southern and western counties and in Troms and Finnmark, lynx occurred more sporadically, but with some permanent populations. Special note should be made of Hordaland and Sogn og Fjordane counties where only stray individuals were reported in a few municipalities in 1965–1967 (Myrberget 1970). For the period 1971–1977, 8 municipalities in these counties stated occurrence of lynx most of the year, 12 reported stray individuals, 4 gave only uncertain observations, and lynx was not observed in 29 municipalities.

Population variation

Of the answering municipalities, 53% reported increase while 8% reported decrease during 1971–77 (Table 1). In inner parts of Nord-Trøndelag county, which probably held the only permanent Norwegian lynx population in the



Fig. 1. Occurrence of lynx in Norway in 1971—1977, mainly based on reports from municipal Game Boards. Double shaded: municipalities where lynx occurred most of the year. Single shaded: municipalities with stray animals. White areas indicate no occurrence.

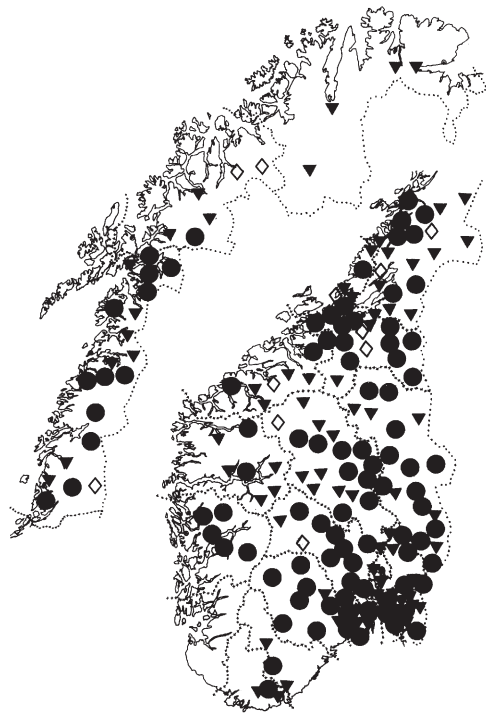


Fig. 2. Game Boards' reports on changes in the lynx population 1971—1977. Each symbol represents a single municipality. Filled circle: population increase. Filled triangle: no population change. Open square: population decrease.

Viltneemndenes meldinger om forandringer i gaupbestanden 1971—1977. Hvert symbol representerer en kommune.

Fylt sirkel: økende bestand.

Fylt trekant: uforandret bestand.

Åpen firkant: minkende bestand.

1930s (Myrberget 1970), most of the Game Boards maintained that the population size remained unchanged in the period 1971—1977, or that it had decreased. In Troms and Finnmark, only Bardu municipality reported a population increase. Otherwise, reports on increasing populations are distributed fairly evenly over the lynx areas (Fig. 2). This applies both to the special reports for 1971—1977 and to the annual game reports (Table 1).

Forekomster av gaupe i Norge 1971—1977, hovedsakelig basert på viltneemndenes meldinger. Dobbeltskravert: kommuner der gaupe forekom det meste av året. Enkeltskravert: kommuner med streifdyr. Hvite områder: ingen forekomster.

Tab. 1. Percentage distribution of reports on increase or decrease in lynx population size in different parts of Norway (calculated as percentage of the total number N of reports on increase, decrease and no change).

Østl./Sørl. = Østfold, Oslo, Akershus, Hedmark, Oppland, Buskerud, Vestfold, Telemark, Aust-Agder and Vest-Agder. Vestlandet: Rogaland, Hordaland, Sogn og Fjordane and Møre og Romsdal.

Trøndelag = Sør-Trøndelag and Nord-Trøndelag.

Prosentvis fordeling av meldinger om oppgang eller nedgang i gaupebestanden i ulike landsdeler (regnet i prosent av summen N av meldinger om oppgang, nedgang og ingen endring).

District Landsdel	Time periode Tidsperiode	Increase % Oppgang %	Decrease % Nedgang %	N
Østl./Sørl.	1969/70—73/74	31	8	163
Østl./Sørl.	1974/75—78/79	39	6	148
Østl./Sørl.	1971—77	58	4	96
Vestlandet	1971—77	50	10	20
Trøndelag	1969/70—73/74	37	12	100
Trøndelag	1974/75—76/79	32	25	57
Trøndelag	1971—77	46	13	39
Nordland	1969/70—73/74	32	10	84
Nordland	1974/75—78/79	54	5	57
Nordland	1971—77	64	5	22
Troms, Finnmark	1971—77	8	25	11
Total	1971—77	53	8	188

Hunting

During the years 1970—1978, the registered number of killed lynx varied from 27 (1977) to 54 (1978) (Fig. 3). In the 1970s as in the 1960s (Fig. 4), most lynx were shot during winter, with maximum in March. In both 10-year periods 1959—1968 and 1969—1978, about 3/4 of the specimens were from the counties of Nord-Trøndelag and Nordland (Table 2).

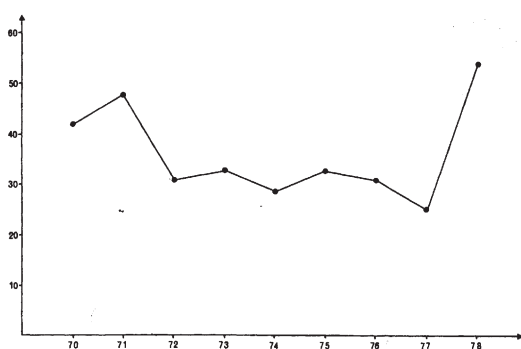


Fig. 3. Number of lynx felled per year in the period 1970—1978 (figures from Central Bureau of Statistics and DVF-files).

Antall felte gauper pr. år i perioden 1970—1978. (Tall fra Statistisk Sentralbyrå og DVF-arkiv).

DISCUSSION

This material reflects the Game Boards' subjective assessments of the occurrence and population variations of lynx in Norway. Occurrences may have been unnoticed or observations of other species may have been wrongly identified as

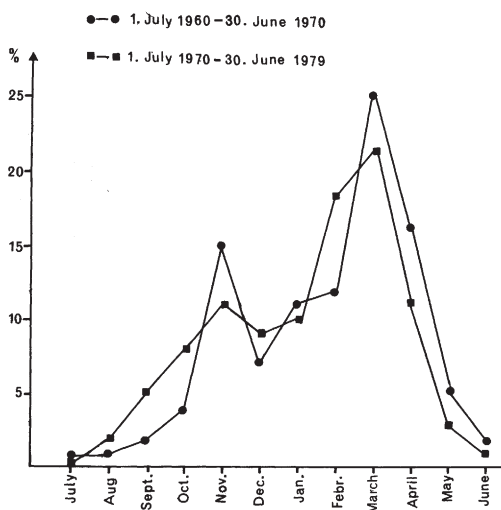


Fig. 4. Lynx felled in the 1960s and 1970s distributed as percentages according to the month when shot.

Gaupefellinger i 1960-åra og 1970-åra prosentvis fordelt på fellingsmåned.

Tab. 2. Lynx felled in the last two 10 year-periods distributed by county and given as a percentage of the total number.
Gaupefellinger de to siste 10-års-perioder fordelt på fylker og angitt i prosent av totalt antall.

Time period	Østfold	Akershus	Hedmark	Oppland	Buskerud	Møre og Romsdal	Sør-Trøndelag	Nord-Trøndelag	Nordland	Troms	Finnmark	Total number
1959—68	0.3	0.3	12	0.6	0.3	2	7	28	42	7	0.3	306
1969—78	0.3	0.3	7	1	0	0	10	35	39	6	0.3	380

lynx. Erroneous reports are most likely to occur in areas where the local residents are unfamiliar with the lynx.

Some shot specimens remain unregistered because bounty is not always claimed. Lynx shot in Sweden may on the other hand be reported shot in Norway, due to the bounty. The data therefore do not allow a detailed analysis of occurrence and variation in population size. It is our opinion, however, that in the main features the presented status is correct.

Comparison of the lynx distribution in the periods 1965—1967 (Myrberget 1970) and 1971—1977 shows an extension of the areas with regular occurrence of lynx, mainly southwards and westwards in southern Norway. Myrberget (op.cit.) found that the total Norwegian lynx population was increasing in 1965—1967. This increase seems to have continued in the 1970s, resulting in higher density in parts of the old lynx territory and occupation of new territory. The annual hunting statistics for 1971—1977 (Fig. 3) do not reflect the assumed population increase, as the yield in the 1970s is of the same magnitude as in the 1960s (see Myrberget 1970, Myrberget & Sørungård 1975). However, the population size only sets an upper limit to the hunting yield.

Kvam (1969) made a guess at 700 to 800 lynx in Norway in 1978. The only possible estimate at present is, however, that there are certainly hundreds of lynx in Norway. Hunting seems to account for only a small part of the annual mortality.

Also in Sweden and Finland, where lynx hunting is restricted (Weinberg 1979, Nyholm 1979a), lynx populations are increasing (Jonsson 1978, Pulliainen 1978, Nyholm 1979b) while numbers of shot animals are relatively low. According to Jonsson (op.cit) the Swedish lynx po-

pulation was assumed to number 600—800 animals in 1978. For the last 20 years, the number of lynx shot in Sweden has been 10 to 70 per year, with no special trend in development (Bjårvall 1979). In Finland 4 to 21 lynx were shot yearly from 1968 to 1977 (Pulliainen op.cit.)

On the other hand, hunting has reduced populations locally. Bjårvall (1979) explains a local population reduction as partly due to high winter mortality of cubs following the shooting of an unusually large number of adult female lynx. Lynx cubs are dependent on the mother until about one year old in order to become normally competent hunters (Jonsson 1979).

Curry-Lindahl (1968), Pulliainen (1968) and Myrberget (1970) point to reduced hunting, better food conditions and reduced competition from wolves (*Canis lupus*) as reasons for the expansion of the Scandinavian and Finnish-Russian lynx populations. Neither hunting nor wolves seem to restrict lynx numbers in most Norwegian areas. One important limiting factor may be the food. According to Birkeland & Myrberget (1980) the lynx feed mainly on roe deer *Capreolus capreolus* in the south and reindeer *Rangifer tarandus* in the north of Norway. Lynx also prey on red deer *Cervus elaphus* (Langvatn pers. commn). The occurrence of red deer in western Norway may thus have facilitated the westward lynx expansion into areas where roe deer and reindeer are scarce. In addition, the mountainous forests of western Norway are probably a favourable habitat for the species, which is primarily a forest animal (Kratohvil 1968). The present lynx distribution in western Norway is geographically more restricted than the distribution of apparently favourable habitats.

Winter food shortage in habitats otherwise fa-

vourable for lynx may have contributed to the stagnation in Troms and Finnmark. In winter the reindeer, which then constitute the main food for lynx in the north (Birkeland & Myrberget op.cit.) to a large extent occupy areas with open or no forest.

The Scandinavian and Finnish-Russian lynx populations are becoming continuous (Pulliainen 1978). This contact increases the gene pool of the Scandinavian lynx as well as the possibility of disease introduction. However, the population contact is very recent and is not likely to have had an influence on the number of lynx in Norway.

At present the prospects for lynx in Norway are good. Even so the species should be watched carefully to ensure a satisfactory management.

SAMMENDRAG

Den norske bestanden av gaupe *Lynx lynx* i 1970-åra. Informasjon om utbredelse og bestandsendring for gaupe i Norge i perioden 1971–1977, ble innhentet fra landets viltneemnder. Faste gaupebestander forekom i alle landsdeler i 1970-åra. Bestanden hadde ekspandert sørover og vestover i Sør-Norge sammenliknet med 1960-åra, mens utbredelsen i Nord-Norge var lite forandret. Den totale norske bestand av gaupe synes å ha økt, da det er registrert etablering av bestander i nye områder og bestandsøkning i en del av de tradisjonelle gaupe-distriktene. Fellingsstatistikken avspeiler ikke den antatte bestandsøkningen, og bare en liten del av mortaliteten synes å skyldes jakt. Forholdet mellom bestandsstatus og næringstilgang diskuteres.

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