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Sammanfattning

Törnskatans överlevnad i Sverige

Överlevnaden hos törnskata *Lanius collurio* tycks vara helt tillräcklig för att upprätthålla en stabil populationsstorlek och t.o.m. öka antalet törnskator. Den minskning av törnskator som har observerats i Sverige kan alltså inte förklaras med dålig överlevnad. Tyvärr är inte antalet återfunna törnskator tillräckligt stort för att överlevnadsstudier skall kunna göras mellan årtionden. De senaste 15 åren har dock medellivslängden ökat i jämförelse med de tidigare 30 åren. Men detta kan tolkas på två helt skilda sätt: 1) det finns färre unga fåglar i förhållande till äldre fåglar eller 2) överlevnaden har blivit bättre genom t.ex. minskad jakt.

Då överlevnaden i flera svenska områden är mycket god är den troliga förklaringen till det minskande antalet törnskator en förändrad miljö i Sverige. Öppna, solbelysta och insektsrika biotoper har minskat de senaste åren och landskapet förbuskas snabbt genom minskad betesdrift och granplanteringar.

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Seasonal trends in observations of raptors in the central Swedish mountains

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Introduction

Predation is one of the most important causes of death in many lagopid grouse (Steen 1989). However, inhospitable terrain and severe weather mean that very few studies of predation have recorded changes in lagopid predator abundance throughout the year and over several years (Jenkins *et al.* 1964, Newton 1979, Ratcliffe 1993). In this study we attempted to assess the seasonal abundance of avian lagopid predators in upland Sweden over three years. This information will be useful for identifying the periods in which adult and young grouse are potentially at risk from particular raptor species.

Methods

During field work for a larger study into the survival of Willow Grouse *Lagopus lagopus*, sightings of predators, their tracks and signs were recorded in the southern part of the central Swedish mountain range. The study area surrounded the Storulvån Hill Station (63°10'N, 12°22'E) and was divided into one hunted (treatment) area of 43.0 km^2, and two non-hunted (control) areas totalling 49.9 km^2. Willow grouse hunters were present during the open season for grouse (25 August - last day of February) on the treatment area. Details of vegetation cover can be found in Olsson *et al.* (1996). Snow cover was complete in winter from November through March in 1993 and April in 1994 and 1995. Summer was considered to be the period May to August and winter the period September to April.

Periods of observations were not evenly distributed through the year. To compensate for this potential bias, I used an observation index: the number of raptors observed in every 100 man hours of work for each period (Jenkins *et al.* 1964). Weather was not controlled for directly, but data were pooled (Schueck & Marzluff 1995) and field work rarely took place when visibility was very poor. Grouse remains found during the study were a source of information about the presence of predators; causes of death were determined from radio-tagged and opportunistically found carcasses.

Results

Between the start of May 1993 and end of August 1995, 6625 man hours of surveys were made in the field resulting in 321 raptor observations. At least 100 hours of observations were made on or within 6 km of the study area in every one of the 31 months. Only 9% of observation time (600 hours) was from days with poor (<1 km) visibility.

A seasonal trend in abundance was evident (Fig. 1), raptors being observed from February until November inclusive. After initial sightings in February, observations were infrequent until April in 1993 and May in 1994 and 1995. There was a clear drop in the numbers of observed raptors in June and July in all

years. Numbers rose in August and September and thereafter decreased rapidly. No raptors were seen during November or December in any year. Observations were rare in January: only one juvenile Golden Eagle *Aquila chrysaetos* was seen in 1994. Although raptor sightings were very infrequent between the start of November and end of January, eight raptor-killed grouse remains were found, one in 1993/94 and seven in 1994/95.

Adult grouse were at risk from five species of raptor: Golden Eagle, Gyrfalcon *Falco rusticolus*, Goshawk *Accipter gentilis*, Rough-legged Buzzard *Buteo lagopus* and Hen Harrier *Circus cyaneus* (Table 1). Summer observations of buzzards accounted for 32% of all observations. Buzzards and Gyrfalcon were much more likely to be seen in summer (72% and 79% of all observations for those species respectively) than the others which were seen equally frequently at both times of year. Hen Harriers were more commonly seen in May than in other months. I determined the numbers of these raptors seen in summer and winter. Although of different lengths, these periods had similar amounts of observation time spent within them (~3300 man hours) over the whole study. A binomial test, assuming no difference in the probability of seeing raptors in summer or winter given the same field time in each season, showed raptors were more commonly seen in summer than in winter ($z = 1.84$, $P = 0.0329$).

There were five predatory bird species always present during summer which were unlikely to attack healthy fledged grouse (although a Hooded Crow *Corvus corone cornix* was seen to repeatedly dive at a crouching grouse until it flushed and flew away) but which are known predators of eggs and chicks (Erikstad *et al.* 1982, Hannon & Barry 1986). These were Ravens *Corvus corax*, Hooded Crows, Magpies *Pica pica*, Common Gulls *Larus canus* and, rare in these mountains, Long-tailed Skuas *Stercorarius longicaudus*. Also observed on the area were 3 small raptors and 2 owls that are known to take adult and juvenile grouse but are not considered important grouse predators (Jenkins *et al.* 1964, Myrberget 1976, Newton 1986, Village 1990): Sparrowhawk *Accipter nisus*, Kestrel *Falco tinnunculus*, Merlin *Falco columbarius*, Short-eared Owl *Asio flammeus* and Hawk Owl *Surnia ulula*.

There were no within year differences in the

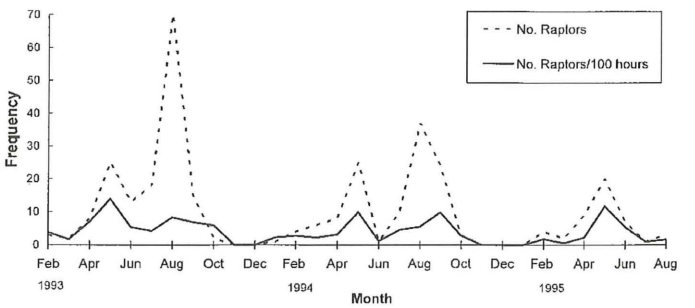

Fig. 1. Total numbers and observation index (individuals/100 man hours) for all raptors observed on both areas, by month, starting February 1993.

Totalt antal och observationsindex (individer/100 mantimmar) för alla rovfåglar observerade i de två områdena, per månad, med början i februari 1993.

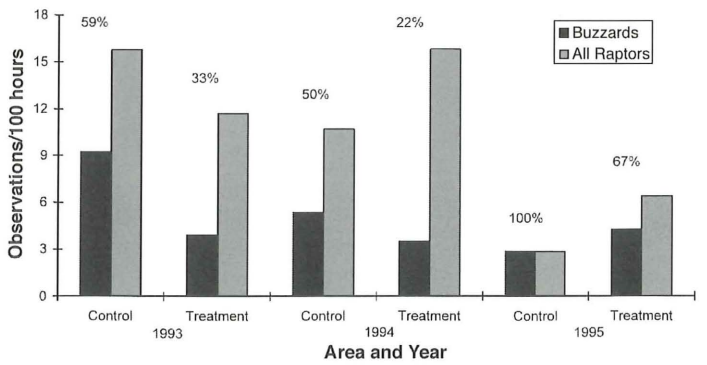

Fig. 2. All raptor and Rough-legged Buzzard observations/100 man hours, 25 August – 30 September in 1993, 1994 and 1995 on the treatment (hunted) and control (unhunted) areas. The percentage values are the proportion of the 'All raptor' observation rate that are due to buzzards.

Observationer/100 timmar av alla rovfåglar och fjällvråk, 25 augusti – 30 september i 1993, 1994 och 1995 inom områdena med och utan jakt. Procentvärdena är andelen fjällvråk av samtliga rovfåglar.

Table 1. Observation index (individuals/100 man hours) of five large raptors in summer (June – September), winter (October – May), and man hours of field time for those periods. Data is for all years.

Observationsindex (individer/100 mantimmar) för fem stora rovfåglar under sommar (juni – september), vinter (oktober – maj) och mantimmar fälttid för dessa perioder.

	May – Aug.	Sep. – April
Rough-legged Buzzard *Fjällvråk*	2.94	1.28
Gyrfalcon *Jaktfalk*	0.54	0.16
Goshawk *Duvhök*	0.09	0.10
Golden Eagle *Kungsörn*	0.34	0.32
Hen Harrier *Blå kärrhök*	0.11	0.03
Man Hours *Mantimmar*	3508	3117

number of all raptors (Fisher's exact, P = 0.567) or buzzards (Fisher's exact, P = 0.359) seen on the control and treatment areas from the 25 August to the end of September (Fig. 2). Although the indexed numbers of all raptors and buzzards observed declined from 1993 to 1995, the difference between years was not significant (Fisher's exact test, P = 0.88) for pooled areas. Raptors did not appear to decrease their use of this area because of hunting activity. Indeed, on three occasions Gyrfalcon were seen following field workers as they captured grouse in August 1993 and 1994.

Discussion

Our observations of raptor abundance followed a distinct seasonal trend and were remarkably consistent across years. There was a greater probability of seeing raptors in the four summer months than in eight winter months given the same amount of time looking for them in each season. The trend through the year was of high abundance in spring and late summer, followed by most raptors and predators migrating away from the mountain areas in winter. Sightings in winter were infrequent but grouse deaths suggest that both Goshawk and Gyrfalcon (in periods of better weather) were present on the area through the winter. February sightings were mostly migrant or dispersing juvenile birds and therefore highly visible. The decrease in March probably relates to establishment, the increase in sightings after this in May coinciding with the nesting period (Cramp & Simmons 1980). The drop in observations in June/July may reflect the change in energetic requirements of adult raptors; they may have to spend more time hunting closer to the nest (off the study area) in order to feed developing young (although see Holmberg & Falkdalen 1996). The increase in sightings during August/September probably reflects the influx of fledged young into the population. A drop in numbers also occurs between February and April. This is likely to be a change in behaviour from highly visible migration to the early phases of territory establishment (Cramp & Simmons 1980).

The implications of these changes in raptor numbers on the Willow Grouse population should be considered carefully and in relation to alternative prey. Jenkins *et al.* (1964) found that the Scottish moorland ecosystem provided a year round food supply and thus raptor activity was continous. In this study during the months of snow cover, only Willow Grouse, Ptarmigan *Lagopus mutus* and Mountain Hares *Lepus timidus* were available prey items for the larger predators. Snow cover was deep and extensive enough to hide small mammals. Excluding Golden Eagles, Gyrfalcon and Goshawks, 66 bird species were recorded during May in 1994. By September, 95% of these had left the area. Much of the seasonal trend in raptor numbers may therefore be related to prey availability and weather conditions; two factors which are themselves related. Although there were large numbers of predators present in the summer months which were hunting to feed their broods, there were also large numbers of other prey species available. Only a few prey species are present in the winter but lagopid adaptations (Höglund 1980), and the difficulties of hunting in extreme winter weather probably ensure some protection during these months. It is during August, when most young grouse and young raptors are fledged, that all age classes of grouse probably experience the greatest risk of predation. However, studying predators alone cannot show the impact of this cause of mortality on prey populations. Predation may have its greatest effect on the grouse

population in periods of the year when there are few grouse or other prey, rather than when there appear to be many predators.

Across years data may be affected by observer bias because observers differed between years. However, there were no differences in numbers of sightings between the hunting and control areas during the hunting season within years. This study suggests that raptors are not discouraged from using the same areas as hunters despite what were high hunter densities (Olsson *et al.* 1996). The decline in summer observations of raptors from 1992 to 1995, although not significant, occurred at the same rate on both areas. Rough-legged Buzzards accounted for nearly half the raptors observed in this period in each year and their decline is matched by a general decline in numbers of all raptors. It is possible that buzzard numbers were affected by the decline in grouse chick production over the study period as small mammal numbers were low in all years. Without better information on general prey availability it is difficult to interpret the between-year differences (Graham *et al.* 1995).

Results from non-systematic observations such as these are greatly influenced by predator activity and food requirements, the weather, individual observer skill and time spent in the field. Contrasting species behaviours such as soaring or skulking may account for many of the differences in estimates of species abundance. Many grouse are above the treeline (800–860 m asl) from July until September and Goshawks are a woodland species. The location of observers in the field was determined by where the grouse were found and this may explain why so few Goshawks were seen. Pooling the data in months and in seasons helped reduce the need for controlling weather factors (Schueck & Marzluff 1995). During the winter period from November to February, very poor weather sometimes made making observations difficult. However, field workers were most active in periods of good weather at this time of year when the chances of observing raptors would also be at their greatest.

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Sammanfattning

Säsongstrend för rovfågelobservationer i de centralsvenska fjällen

Predation är en viktig del av ripornas ekologi men studier av antalet predatorer över flera år och under en säsong är fåtaliga. Som en del av en större undersökning av dalripans överlevnad insamlades observationer av rovfåglar under alla månader mellan februari 1993 och augusti 1995 i ett fjällområde i Jämtland.

Det fanns en tydlig säsongstrend. Rovfåglar sågs oftare mellan maj och augusti än mellan september och april räknat på samma observationstid i fält. Rovfåglarna började under det nya året att iakttagas

regelbundet i februari och ökade sedan i antal till juni och juli. Nedgången under dessa månader hängde troligen samman med att adulta fåglar jagade närmare sina boplatser som inte låg inom vårt undersökningsområde. En senare topp noterades i augusti när årets ungfåglar blivit flygga. Antalet minskade till i november varefter rovfåglar inte sågs förrän följande januari.

Adulta ripor var utsatta för predationsrisk från fem rovfåglar: kungsörn, jaktfalk, duvhök, fjällvråk och blå kärrhök. Observationerna av fjällvråk under sommaren utgjorde 32% av alla rovfågelsobservationer. Ripornas ägg och kycklingar riskerade predation från fem andra fåglar: korp, kråka, skata, fiskmås och fjällabb. Fem små fågelpredatorer sågs också men de anses inte vara viktiga som rippredatorer: sparvhök, tornfalk, stenfalk, jorduggla och hökuggla.

Inga signifikanta skillnader i antal rovfågelobservationer noterades mellan ett område med och ett område utan jakt åren 1993 till 1995. Antalet observationer under dessa år gick ner men i ungefär samma omfattning i båda områdena.

Säsongstrenderna svarade ungefärligen mot snötäcke och bytestillgänglighet. De flesta rovfåglar fanns i området då bytestillgången var god under sommaren. Under vintern hindrade vädret och den låga bytestillgången rovfåglarna från att vistas i området även om nyligen dödade ripor visade att duvhök och jaktfalk fanns i december och januari. Augusti är troligen den månad då det största antalet ripor tas eftersom både rovfåglarnas och ripornas ungar då är flygga. Predationen kan dock ha större inverkan på ripstammen under andra delar av året då det finns färre ripor och färre alternativa byten.

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Huskattens predation på fåglar i Sverige

SÖREN SVENSSON

Katten betraktas allmänt som en svår predator på småvilt, inklusive fåglar. I tätorterna har man på många håll länge haft särskilda jägare som på kommunens vägnar skjuter eller fångar och avlivar katter (och andra s.k. skadedjur). Utanför tätorterna brukar jägare ofta också skjuta katter som påträffas utanför gårdar och trädgårdar. Det finns således en säregen kluvenhet i människans syn på katten. Å ena sidan är katten ett av våra vanligaste och mest omtyckta husdjur, å andra sidan bekämpas den. Katten är det enda husdjur som folk låter gå ut fritt i naturen, mer eller mindre medvetna om att den ägnar sig åt att jaga småfåglar och andra djur. När det gäller att släppa hunden lös har vi en helt annan syn. Säreget med människans kluvna inställning till katten är också, om än parentetiskt i detta sammanhang, hur bekymmerslöst folk låter sina katter exponeras för trafiken, som är en av de största dödsorsakerna bland huskatterna. Men båda fenomenen understryker kattens dubbla natur som både tam och vild, tam och tillgiven innanför men ett vilt djur utanför hemmets dörr.

Men hur mycket sanning finns egentligen i påståendet att katten skadar småviltstammarna och fågelbestånden? Till en del beror det naturligtvis på hur mycket en katt vistas utomhus. I detta avseende växlar det mycket, från rena inomhuskatter till förvildade katter som tillbringar nästan all tid ute och inte har någon fast anknytning till ett hushåll. Båda dessa extremer är dock sällsynta. Den typiska katten är knuten till ett eller flera hushåll, där den får mat och kanske också oftast tillbringar natten och perioder med dåligt väder, men vistas i övrigt mestadels utomhus.

När jag inför denna uppsats sökte i litteraturen efter uppgifter om kattens påverkan på sina bytesdjur, förbluffades jag av hur få uppgifter det finns, trots att litteraturen om katten är mycket omfattande. När det gäller kattens jakt börjar de flesta studier först när katten fångat sitt byte, d.v.s. studier av kattens beteende när den behandlar ett upptäckt byte. Denna brist på kunskap om kattens egentliga jaktbeteende ute i naturen noteras också av Turner & Meister (1988). Fitzgerald (1988) har sammanfattat merparten av de tillgängliga studierna av kattens bytesval och effekter på bytespopulationer och kan vad gäller fåglar bara redovisa ett mycket magert resultat. De flesta studier rör de våldsamt destruktiva effekter som katter i likhet med andra inplanterade däggdjursarter haft på fågelbestånd på öar. Det är också signifikativt, och säkerligen en avspegling av kattforskarnas intresseinrikting, att det kattsymposium som hölls i på Zoologiska institutionen i Zürich-Irchel 1986 (Turner & Bateson 1988) samlade forskare som såg tillvaron ur kattens (och människans) synpunkt, inte ur bytesdjurens.

Huskatten har varit föremål för få undersökningar i Sverige. Det finns bara en större studie, nämligen av Liberg (1981). Den population som han studerade