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Occurrence of Continental Blackcaps *Sylvia atricapilla* in northern Europe

Kontinentala svarthättors Sylvia atricapilla *uppträdande i norra Europa*

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Abstract

A recent increase of wintering Blackcaps in Scandinavia is suspected to derive from migration from central Europe. We used ringing recoveries to determine their origin. Because Blackcaps breeding in Scandinavia have longer wings than more southern Blackcaps, we also analysed wing length data from seven Nordic bird observatories to see whether there was an influx of short-winged, probably continental Blackcaps. The results showed that Scandinavia is now a part of the Blackcap's regular wintering range. As many as 17% of Blackcaps ringed in Sweden and found again during the same autumn were recovered north of an E–W axis. This is an outstandingly high figure compared to 0–7% in some other species. A strong significant difference in dates of ringing was discovered between "long-winged" (>73 mm) and "short-winged" (<74 mm) Blackcaps. An influx of short-winged Blackcaps started in late September and this was more pronounced in Norway than in Sweden and Finland. It is probably these birds, not Scandinavian breeders forestalling migration, that are observed at bird tables during the winter.

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Background

The Blackcap *Sylvia atricapilla* has a widespread distribution covering most of Europe (Cramp & Perrins 1994). It also breeds in North Africa as well as on many Atlantic Islands and Cape Verde (Clarke 2006). During winter most Blackcaps are found in the Mediterranean region and in Africa south of the Sahara. Various populations show different migration strategies. Central European Blackcaps usually migrate short distances, mainly in the directions of SW, S or SE (Lövei 1979). Some populations are partly migratory, as in southern France where approximately 25% of the individuals leave their breeding grounds for the winter (Spina et al. 1995), while Atlantic and some Mediterranean populations are resident. Blackcaps breeding in southern parts of Sweden mainly spend the winter in Mediterranean countries, while northern birds are assumed to go to East Africa (Fransson & Hall-Karlsson 2008). Following the eastern flyway to East Africa they leave Europe in a SSE direction and perform a shift of direction in the eastern Mediterranean region (Helbig et al. 1989).

In the 1960's winter records of Blackcaps became significantly more numerous in Britain (Leach 1981, Moreau 1972, Terrill & Berthold 1990). Eventually it became evident that these Blackcaps were of a Central European origin, and that British Blackcaps still mostly migrated to southern Spain (Langslow 1979). Northward migration became well spread within the species: from almost non-existent to 7–11%, i.e. several thousand individuals, in three decades (Berthold et al. 1992, Helbig 1994, Lack 1986). More recently, Blackcaps have been found wintering in Sweden to a larger extent than before (Fransson & Stolt 1994).

Young birds inherit the migration habits from their parents genetically (Berthold & Querner 1981, Terrill & Berthold 1989). There are several examples of new migration strategies becoming dominant within a species or a population. For example, German Blackbirds *Turdus merula* have shifted from being mostly migratory to become more or less resident in response to milder winter climate and Serins *Serinus serinus* evolved migratory habits when spreading northward from southern Europe (Berthold 1995). The dramatic

Figure 1. Blackcaps ringed abroad and found in Sweden north of an E–W axis during the same autumn migration and at a distance of more than 100 km (n=15). Dates of ringing and recovery are specified for the six individuals ringed after 1990 (n=6; black triangles). The inset map shows the locations of bird observatories included in the analysis of wing length data: 1) Lista, 2) Falsterbo, 3) Ottenby, 4) Stora Fjäderägg, 5) Lågskär, 6) Rönnskär and 7) Tankar.
Svarthättor ringmärkta utomlands och återfunna i Sverige norr om en öst-västlig axel mer än 100 km från ringmärkningsplatsen under samma höstflyttning (n=15). Ringmärknings- och återfyndsdatum angivna för de sex individer som ringmärkts efter 1990 (n=6; svarta trianglar). Den infällda kartan visar lokalerna för de fågelstationer som ingår i analysen av vinglängdsdata: 1) Lista, 2) Falsterbo, 3) Ottenby, 4) Stora Fjäderägg, 5) Lågskär, 6) Rönnskär och 7) Tankar.

increase of Blackcaps migrating from Central Europe to Britain indicates that northerly wintering birds are more successful than their congeners following the traditional route to southern Spain. Terrill & Berthold (1990) suspected that Blackcaps wintering in Britain experienced a higher survival rate due to a shorter migration distance. They also mentioned that the numbers of feeding tables and planted berry bushes have increased in Britain and that these give a reliable availability of food during winter. Furthermore, the rapid change of light conditions in spring could stimulate an earlier breeding cycle and result in increased breeding success for Blackcaps wintering in north-west Europe, especially since the global warming pushes insects and other food resources to peak earlier than before (Terrill & Berthold 1990). Spending the winter in north-west Europe also leads to adaptation to the sometimes cold and difficult climate on arrival in the breeding grounds.

Southern European Blackcaps have shorter wings than their relatives breeding further north and the average wing length varies from about 70 mm in southern Europe to about 77 mm in northern Europe and Russia, with an average wing length in SW Germany being 73.44 mm (Fiedler 1998). A major influx of such birds would be expected to be detectable in wing length data from bird observatories. If the wintering Blackcaps in Sweden have shorter wings than the breeding population, it would suggest an existing northward movement. This influx would be expected to be evident in late autumn when the majority of Blackcaps have moved south. With this background knowledge we decided to study the frequency of Blackcap recoveries in northward direction to investigate if this phenomenon has continued after the compilation made by Fransson & Stolt (1993) and whether it has increased in recent decades. Another aim was to determine whether Blackcaps with presumed Continental European origin are common in available data from bird observatories in Norway, Sweden and Finland. Our hypothesis was that the average wing length of Blackcaps would decrease during the progress of autumn and that the recoveries of birds migrating in northerly direction would have become more numerous.

Methods

The Bird Ringing Centre at the Swedish Museum of Natural History holds information of all Swedish Blackcap recoveries, the ones ringed in our country as well as birds with foreign rings found in Sweden. By selecting birds that were ringed and recovered within the same autumn, northward migrations could be determined. To exclude shorter stretches of reversed migration, which is performed by many birds in order to, for example, find better feeding areas, only movements including at least 100 km from the ringing location were used. Comparisons were then made between different decades.

Wing length data, available from the early 1980s to present time, was obtained from seven Nordic bird observatories: Lista in Norway, Falsterbo, Ottenby and Stora Fjäderägg in Sweden, together with Lågskär, Rönnskär and Tankar in Finland (see Figure 1). All data sets were analysed separately. To avoid bias from systematic differences in wing length between age groups, only first-year Blackcaps were chosen for analysis. First-year male and female Blackcaps are about the same size (Svensson 1984, data available for this analysis), so birds of both genders were pooled in the material. Birds with wings shorter than 74 mm (i.e. equal to or less than 73 mm) were included in the "short-winged group", for which median date was compared with the "long-winged group" (>73 mm; i.e. equal to or longer than 74 mm). Lista wing lengths were given for every 0.5 mm, whereas other bird observatories measure full millimetres only. Lista birds measured at 73.5 mm were referred to the long-winged group. Significance of the difference in median dates was calculated using Mann-Whitney U-test.

The first-year birds were then grouped in ten day intervals with selection of the day they were ringed, and average wing length of each group calculated. Finally the two groups were divided in five-year periods for calculation of change in proportions over time.

Results

Figure 1 shows fifteen recoveries of Blackcaps found north of an E–W axis. These were all ringed abroad and recovered in Sweden during the same autumn after a migration distance of more than 100 km. Six of these were reported after 1990. The Swedish Bird Ringing Centre has registered 104 Blackcaps ringed in Sweden and found again during the same autumn. As many as 26 of them (25%) were recovered north of an E–W axis, but if distances shorter than 100 km were excluded the number was thirteen out of 78, i.e. 17% (see Figure 2). The thirteen Blackcaps moving north were quite evenly distributed in time with (the first) one in the 1960s, three each in the three following decades and three in the six first years of the 21st century. The number of long distance recoveries seems to be stable with 17, 13, 17, 18 and 10 records during the same periods. Most of the recovered birds were found in September (4) and October (5), but three also in November and the most northern one (in Finland) on 22 December.

Svensson (1984) stated that the wing lengths of Blackcaps examined in Sweden varied between 72–80 mm. In our material the variation was much larger and wing lengths were in the range of 66–89 mm. Even if there might be a few measurement errors they do not affect the total results. Median dates for the "long-winged group" were significantly earlier than for the "short-winged group" at all investigated bird observatories (Table 1). Lista showed the latest median dates, 26 September and 13 October ($Z = 10.3$, $P<0.001$, $n^1 = 1670$, $n^2 = 184$,

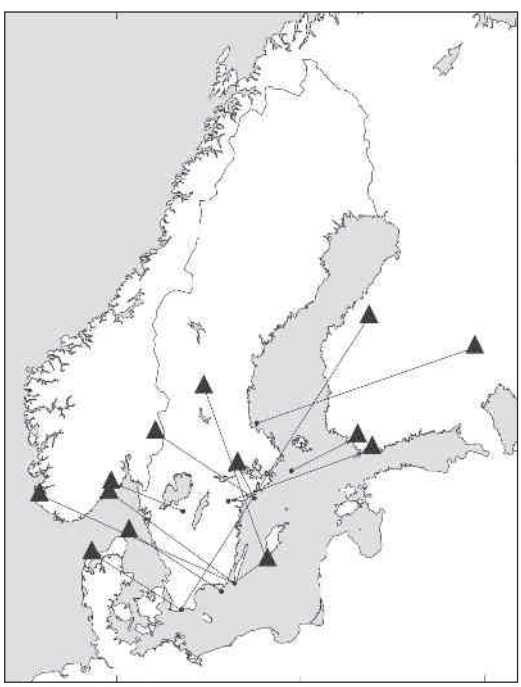

Figure 2. Blackcaps ringed in Sweden and found again north of an E–W axis and at a distance of more than 100 km during the same autumn migration (n=13).
Svarthättor ringmärkta i Sverige och återfunna norr om en öst-västlig axel mer än 100 km från ringmärkningsplatsen under samma höstflyttning (n=13).

Table 1. Median dates, numbers and proportions of "long-winged" and "short-winged" Blackcaps, as well as average wing lengths at Lista, Falsterbo, Ottenby, Stora Fjäderägg, Lågskär, Rönnskär and Tankar bird observatories.
Mediandatum, antal och proportioner av "långvingade" och "kortvingade" svarthättor samt medelvinglängd vid Lista, Falsterbo, Ottenby, Stora Fjäderägg, Lågskär, Rönnskär och Tankars fågelstationer.

Location	Median >73 mm	Median <74 mm	Difference (days)	No. >73 mm	No. <74 mm	% >73 mm	% <74 mm	Average wing length (mm)
Lista (NO)	26 Sep	13 Oct	17	1670	184	90.1	9.9	76.11
Falsterbo (SE)	14 Sep	4 Oct	20	2205	68	97.0	3.0	76.99
Ottenby (SE)	19 Sep	9 Oct	20	852	36	95.9	4.1	76.95
Fjäderägg (SE)	12 Sep	6 Oct	24	266	26	91.1	8.9	76.42
Lågskär (FI)	9 Sep	10 Oct	31	89	8	90.8	9.2	76.63
Rönnskär (FI)	10 Sep	26 Sep	16	123	3	97.6	2.4	77.22
Tankar (FI)	22 Sep	8 Oct	16	219	6	97.3	2.7	77.37

Note: Birds measured at 73.5 mm at Lista are referred to the long-winged group.
Notis: Fåglar på Lista med vinglängd 73,5 mm inkluderade bland de "långvingade".

Mann-Whitney *U*-test), while median dates at Falsterbo were 14 September and 4 October ($Z = 7.21$, $P<0.001$, $n^1 = 2205$, $n^2 = 68$) respectively. At Ottenby median dates were five days later compared to Falsterbo for both groups, meaning 19 September and 9 October ($Z = 5.18$, $P<0.001$, $n^1 = 852$, $n^2 = 36$). Stora Fjäderägg's Blackcaps were even more separated ($Z = 3.16$, $P = 0.0016$, $n^1 = 266$, $n^2 = 26$). Data from the Finnish bird observatories showed similar differences. Lågskär had the most extreme separation of median dates, while both Rönnskär and Tankar had the two groups divided by 16 days. However, the Finnish material was considered too small for statistic calculations.

The difference in median dates between the two groups of Blackcaps certainly suggests that short-winged individuals arrive at our latitudes primarily quite late in the autumn. This was also supported by the average wing lengths for the ten-day-intervals (see Table 2 and Figure 3). Lista showed a decline of 3.1 mm in average wing length from the end of August to the beginning of November ($R_s = -0.92$, $p<0.05$, $n = 10$). Average wing lengths at Falsterbo and Ottenby mostly stayed over 77 mm throughout August and September but dropped through 76 and 75 mm during October to 74 mm in November, a clearly significant trend over time ($R_s = -0.81$, $p<0.05$, $n = 10$ and $R_s = -0.75$, $p<0.05$, $n = 10$, respectively). Stora Fjäderägg showed a more stable pattern but still with decreasing average wing lengths. The results for Lågskär and Rönnskär were based on fewer individuals and therefore maybe not as reliable. However, they revealed similar figures as Stora Fjäderägg, except for Rönnskär's oddly high November value. At Tankar the decline was less clear.

When separated in periods of five years, we did not find evidence for increased proportion of short-winged Blackcaps compared to long-winged in our material starting in 1982 (see Table 3). Lista had a slightly higher proportion of short-winged individuals in recent years, but at Falsterbo and Ottenby the rates declined steadily. Stora Fjäderägg showed almost as high rates as Lista. The Finnish material was considered too small for this analysis.

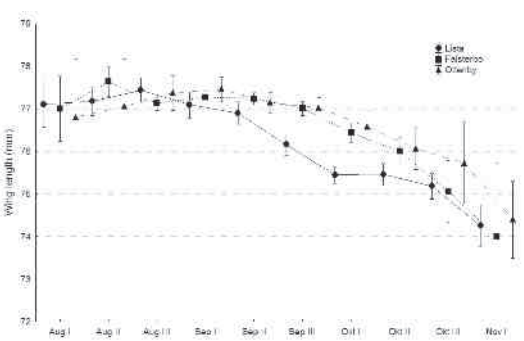

Figure 3. Average Blackcap wing lengths and standard deviation (SD) in mm during ten-day periods at Lista, Falsterbo and Ottenby.
Medelvinglängd och standardavvikelse (SD) i mm hos svarthättor under tiodagarsperioder vid Lista, Falsterbo och Ottenby.

Table 2. Average Blackcap wing lengths in mm during ten-day periods at seven bird observatories. Number of birds in brackets.
Medelvinglängd i mm hos svarthättor under tiodagarsperioder vid sju fågelstationer. Antalet fåglar inom parentes.

Location	Jul 2	Jul 3	Aug 1	Aug 2	Aug 3	Sep 1	Sep 2	Sep 3	Oct 1	Oct 2	Oct 3	>Nov
Lista (NO)	77.2 (29)	76.8 (26)	77.1 (39)	77.2 (126)	77.4 (129)	77.1 (166)	76.9 (198)	76.2 (260)	75.4 (336)	75.5 (277)	75.2 (158)	74.4 (109)
Falsterbo (SE)		75.7 (12)	77.0 (12)	77.6 (83)	77.1 (332)	77.3 (443)	77.2 (530)	77.0 (447)	76.4 (229)	76.0 (145)	75.1 (32)	74.0 (8)
Ottenby (SE)	77.0 (2)	77.0 (5)	76.8 (5)	77.1 (16)	77.4 (91)	77.5 (127)	77.1 (114)	77.0 (243)	76.6 (84)	76.1 (60)	75.7 (22)	73.9 (18)
Fjäderägg (SE)					77.2 (61)	76.3 (67)	76.4 (49)	76.6 (29)	75.9 (50)	75.9 (21)	76.2 (12)	
Lågskär (FI)				77.8 (4)	76.5 (14)	77.2 (29)	78.0 (3)	78.0 (5)	76.0 (23)	75.8 (12)	75.9 (8)	
Rönnskär (FI)					77.1 (19)	77.4 (42)	77.1 (26)	77.4 (17)	76.5 (4)	77.1 (7)	76.3 (4)	79.0 (5)
Tankar (FI)						78.2 (66)	78.0 (40)	77.2 (23)	76.4 (45)	76.6 (31)	77.1 (18)	

Note: At Lista wing lengths are given for every 0.5 mm, while the other bird observatories only deal with 1 mm measurements.
Notis: På Lista anges vinglängd för varje halv millimeter, medan övriga fågelstationer endast mäter hela milimetrar.

Table 3. Proportions of "short-winged" Blackcaps during five-year periods at Lista, Falsterbo, Ottenby and Stora Fjäderägg.
Proportioner av "kortvingade" svarthättor under femårsperioder vid Lista, Falsterbo, Ottenby och Stora Fjäderägg.

Location	1982–1986		1987–1991		1992–1996		1997–2001		2002–2006		Total	
	Ratio	%	Ratio	%	Ratio	%	Ratio	%	Ratio	%	Ratio	%
Lista					54/562	9.6	81/852	9.5	49[1]/434[1]	11.3[1]	184/1848	10.0
Falsterbo	10[2]/156[2]	6.4[2]	20/559	3.6	15/508	3.0	13/491	2.6	10/559	1.8	68/2273	3.0
Ottenby			6[3]/109[3]	5.5[3]	13/257	5.1	10/292	3.4	7/230	3.0	36/888	4.1
Fjäderägg					8/111	7.2	11/90	12.2	7/79	8.9	26/280	9.3

[1]No wing lengths at Lista were given for 2005–2006, so these numbers only includes birds ringed 2002–2004.
[2]Data set starts from 1983.
[3]Data set starts from 1989.
[1]Inga vinglängder angivna från Lista 2005–2006, så dessa värden inkluderar endast fåglar ringmärkta 2002–2004.
[2]Data börjar från 1983.
[3]Data börjar från 1989.

Discussion

Reversed migration is commonly found in birds (Alerstam 1982). However, this is probably mostly seen in migrating birds facing an ecological barrier, and takes the form of short distance movements in the reversed direction in order for the birds to find suitable areas for replenishing fat scores before continuing in the normal migration direction. This is supported by the fact that lean individuals perform reversed migration at a higher frequency than fat birds (Kortekaas 1998). In our study species, the Blackcap, as many as 24% of individuals ringed at Falsterbo bird observatory in autumn moved in northerly directions (Kortekaas 1998). We found that the proportion of Blackcaps moving longer distances northwards in autumn (17%) is exceptionally high compared to European Robin *Erithacus rubecula*, Garden Warbler *Sylvia borin*, Lesser Whitethroat *Sylvia curruca* and Common Whitethroat *Sylvia communis* where 0–7% of within autumn recoveries are found north of the ringing sites in Sweden (Bengtsson 2008). Recoveries in Sweden of Blackcaps ringed further south in Europe support the notion that some of these movements are consistent over long distances. For instance, the young male ringed in the Czech Republic and found in November in northern Sweden, 1826 km to the north, is remarkable and represents an individual that clearly has migrated north during several consecutive flight stages (Figure 1).

Differences in median dates for long- and short-winged Blackcaps caught at several bird observatories have, to our knowledge, not been examined earlier and it revealed some interesting facts. The large time difference between the two Blackcap groups strongly suggests that different populations of Blackcaps are involved. Earlier median dates at Falsterbo compared to Ottenby could be explained by the latter bird observatory's generally more easterly recruiting area for birds; birds which in general also migrate later in the season. Median dates at Lista were the latest of all. The Norwegian coast has a mild climate, which may be an explanation for the observed late migration, but it is probably also due to a higher proportion of southern Blackcaps in that sample.

The average Blackcap wing lengths for ten-day periods corroborated the results from the median date analyses, as there was a clear drop in average wing length towards late autumn. This was most obvious at Lista, Ottenby and Falsterbo bird observatoreis. From this data, it seems clear that there is an influx of short-winged individuals to Scandinavia starting by late September (although a Blackcap ringed in Continental Europe was caught at Lista already on 14 September). An interesting curiosity is that two of the three smallest Blackcaps ringed at Ottenby (69–70 mm) were captured in December. The observatories further north (with limited number of trapped birds) showed small or no decrease in average wing lengths during autumn. Maybe the influx of Continental European Blackcaps is not as evident at these locations. Stora Fjäderägg, Lågskär and Tankar observatories may also be affected by closing the season already at the end of October, hence not detecting any late arriving Blackcaps. An analysis of wing length data during autumn in Garden Warblers and European Robins trapped at Ottenby Bird Observatory showed no difference in median dates between large and small individuals (Bengtsson 2008).

If Blackcaps with a northward migration had become more frequent in recent years, a higher proportion of short-winged individuals should be expected in a temporal analysis. We could not detect such a trend in our material, but the period of available wing length data was limited and the number of birds for this analysis restricted. The proportions of short-winged Blackcaps at the bird observatories are clearly lower than the proportion of northward movements based on recoveries. This is probably a result of an overlap in size between Continental and North European Blackcaps and that we could have included also those with wing length 74 mm in the short-winged group. We are aware of the fact that some Blackcaps breeding in northern Europe have wings shorter than 74 mm, but these were assumed few enough to be neglected. The number of Continental Blackcaps included in the long-winged group is most certainly larger, but this has no impact on the general result. It is noteworthy that the frequency of short-winged Blackcaps seems to be higher at Lista than in southern Sweden, indicating that Blackcaps winter more often along the Norwegian coast than in Sweden. Considering the main migration direction (northwest) for Central European populations of Blackcaps wintering in Britain, it is easy to see that southwest Norway is closer to this route. Just a slight drift from south or southwest wind would bring these birds north of their planned journey, and as they search for land they will end up in Norway. Reports from Lista and Utsira verify that influx of Blackcaps happens at such weather conditions (Jan Erik Røer *pers. comm.*). Why the frequency of short-winged Blackcaps was higher at Stora Fjäderägg than at Falsterbo and Ottenby is difficult to explain. Differences in measuring tech-

niques between places might be part of the explanation. This is emphasized by the fact that the average wing length of first-year Blackcaps are shorter at Stora Fjäderägg and Lågskär (which have a higher proportion of short-winged Blackcaps) compared to Falsterbo, Ottenby, Rönnskär and Tankar. Since there is a major change of personnel almost every season at some bird observatories, this may also alter wing length measurements over time.

The reason for this fairly new migration strategy is still unknown. As in Great Britain, many Blackcaps spending the winter in Sweden stay close to feeding tables eating apples, tallow and bread (Fransson & Stolt 1994). If available, berries are a popular food resource, as demonstrated by studies on wintering Blackcaps elsewhere (Jordano & Herrera 1981). Maybe feeding tables and planted berry bushes have created the needed platform for this strategy to be genetically expressed at a higher ratio, an interpretation suggested by Terrill & Berthold (1990). Since the increase of wintering Blackcaps in Britain has been of such a magnitude, it can be determined that this trait has become favourable. The mechanisms for how new migration patterns originate are still under some debate. Busse (1992) argued that Blackcaps reach Britain and Ireland by reversed migration followed by reorientation. This hypothesis could be supported by the fact that some Blackcaps ringed in Scandinavia have been recorded wintering in the British Isles (Langslow 1979). Helbig (1991 and 1994) suggested a frequency shift within range of pre-existing genetic variation, due to new circumstances leading to increased survival rate and higher breeding success for birds spending the winter in northwest Europe. Fransson & Stolt (1993) pointed out that birds from areas west of the migratory divide at 12–15°E primarily seem to move towards N or NE, while individuals with easterly origin turn up in northwesterly direction. This supports the reversed migration interpretation.

An interesting question is whether the Blackcaps wintering in Scandinavia benefit from advantages such as described for the ones wintering in Great Britain. It is still a shorter distance of migration from southern Germany to southern Sweden, but when it comes to higher latitudes the distance between wintering areas and breeding grounds might even be longer than between breeding grounds and the Mediterranean region, which is the species' main normal wintering area. The winter climate is also harsher in Scandinavia compared to Britain, and the number of feeding tables lower. Maybe these circumstances prohibit the subpopulation using this wintering strategy from such a notable increase as observed in Great Britain. This is supported by more records of Blackcaps moving into Norway (which have a milder winter climate compared to the rest of Scandinavia) than to Sweden (Table 3). The prolonged time of daylight in spring and adaptation to cold climate, however, certainly affect northerly wintering Blackcaps as much as British ones. The fact that the phenomenon continues to exist indicates that it is at least not strongly selected against.

Fransson & Stolt (1994) argued that a higher number of birdwatchers, as well as a general positive trend in European Blackcap populations, probably would result in an increase of winter records. Our results, which are not affected by the activity of birdwatchers, clearly show that Blackcaps from Continental Europe do migrate into Scandinavia for the winter, supported by the fact that birds moving northwards have been found staying at least until December. This habit was first discovered in the 1960s and it is obvious that the phenomenon continues to exist. Our results do not indicate an increase of Blackcaps showing northward migration in autumn, at least not from the 1970s to present and probably not as much as in Great Britain.

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Sammanfattning

Svarthättan *Sylvia atricapilla* är en av Europas mest spridda sångare med utbredning över i stort sett hela subkontinenten, samt med isolerade populationer på exempelvis Kanarieöarna och Kap Verde (Clarke 2006, Cramp & Perrins 1994). Övervintringen sker huvudsakligen i Medelhavsområdet samt i Afrika, både norr och söder om Sahara. Fåglar som häckar i södra Sverige övervintrar till stor del i Medelhavsområdet, medan nordliga svarthättor främst tillbringar vintern i östra Afrika (Fransson & Hall-Karlsson 2008). Svarthättor i centrala och södra Europa flyttar kortare distanser till Medelhavsområdet.

Under 1960-talet började svarthättor i allt större omfattning övervintra i Storbritannien (Leach 1981, Moreau 1972, Terrill & Berthold 1990). Så småningom framkom det att ett flertal av dessa härrörde från centrala Europa, och att engelska svarthättor fortfarande främst flyttar till södra Spanien under vintern (Langslow 1979). På senare tid har vinterfynden av svarthätta ökat även i Sverige och således verkar denna ornitologiska trend ha spridit sig även till oss (Fransson & Stolt 1994). Flera studier visar en påfallande stor andel nordflyttande svarthättor under hösten (Busse 1992, Fourage 1981, Fransson & Stolt 1993).

Svarthättans flyttningsbeteende är starkt genetiskt betingat (Berthold & Querner 1981, Terrill & Berthold 1989) och den kraftiga ökningen av individer som flyttar norrut och övervintrar på nordliga breddgrader indikerar att detta blivit evolutionärt fördelaktigt. Kortare flyttning, talrika fågelbord med säker födotillgång, tidigare häckningscykel som utlöses av snabb förändring i mängden dagsljus på våren, samt bättre anpassning mot väderbakslag har nämnts som troliga förklaringar (Terrill & Berthold 1990).

Centraleuropeiska svarthättor har generellt kortare vingar än nordeuropeiska, sannolikt ett resultat av att deras flyttning är mindre omfattande. Vinglängder samlades därför in från sju nordiska fågelstationer (Tankar, Rönnskär och Lågskär i Finland, Lista i Norge samt Ottenby, Falsterbo och Stora Fjäderägg i Sverige, Figur 1). Syftet var att klarlägga hur vanligt det är med kortvingade (<74 mm), sannolikt centraleuropeiska, svarthättor och när i tiden dessa dyker upp. I Ringmärkningscentralens arkiv har svarthättor som ringmärkts och återfunnits un-

der samma höstflyttning valts ut för att undersöka förekomsten av fåglar som flyttat norrut.

Studien visar att svarthättor regelbundet förekommer i Skandinavien under vintern och att detta tycks vara resultatet av en nordgående rörelse under hösten (Figur 1 och 2). I det svenska materialet återfanns så många som 17% av svarthättorna norr om en öst-västlig axel. Detta är en remarkabelt hög andel, men trots det finns inga tydliga bevis på att ökningen av övervintrande svarthättor är lika dramatisk som i Storbritannien. Det visade sig finnas en starkt signifikant skillnad mellan lång- och kortvingade svarthättors mediandatum vid de undersökta fågelstationerna, där de kortvingade individerna passerade 16–31 dagar senare än de långvingade. Samma mönster framkom när medelvinglängd beräknades för höstens tio-dagars-perioder. Lista, Ottenby och Falsterbo (stationerna med störst material) visade alla en markant minskning i medelvinglängden sent på säsongen (Figur 3). Andelen kortvingade svarthättor var tydligt större vid Lista jämfört med Falsterbo och Ottenby, vilket antyder att inflödet av centraleuropeiska svarthättor är större i Norge än i Sverige. Vinterklimatet längs Norges kust lämpar sig troligen bättre för övervintring. Det verkar hur som helst uppenbart att även Sverige berörs av ett inflöde av sydliga (centraleuropeiska) svarthättor från slutet av september