

Korta rapporter – *Short communications*

Successful nesting of Red-backed Shrike *Lanius collurio* near a military airport

Lyckad häckning av törnskata nära en militär flygplats

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On 29 May 2014, near the 31st Air Base in Krzesiny in the city of Poznań, Poland (52°20'27.7"N, 16°56'18.0"E) we observed a foraging male Red-backed Shrike *Lanius collurio*. We first noticed the bird perching for prey, sitting on the fencing of this military airport. We started a search for nests and the first one was found on 30 May. Further search revealed the presence of more individuals: two females and two males showing territorial behaviour. This is probably the first observation of Red-backed Shrike near a military airport, where the daily level of noise, due to the presence of F-16 Fighting Falcons, often exceeds 100 dB (Figure 1). Shrikes do not often nest close to urban areas (Titeux et al. 2007). Red-backed Shrikes usually nest in open habitats of rural landscapes (mostly meadows and pastures), with shrubs of hawthorn (*Cra-*

taegus), blackthorn (*Prunus spinosa*), almond willow (*Salix triandra*), and dog-rose (*Rosa canina*) (Tryjanowski et al. 2000, Svensson et al. 2009). Vegetation of this type is found near the military airport in Poznań Krzesiny (Figure 2).

During the breeding season in 2014, a total of three pairs of the species were found within the highest noise zone, where F-16 Fighting Falcons take off and land (Dobkiewicz 2008, Akustix 2011). The first nest (N1) was found in a dog-rose shrub, ca. 21 m from an inhabited detached house and 950 m from the runway. The second pair (N2) also nested in a dog-rose shrub, near a field road, ca. 87 m from inhabited houses and ca. 1030 m from the runway. The third nest (N3) was in a



Figure 1. Fighter aircraft F-16 Fighting Falcon take off with noise levels above 100 dB.

Ljudnivån är över 100 dB när F-16 Falcon startar.



Figure 2. Male Red-backed Shrike *Lanius collurio* on a meadow near the runway of the military airport Poznań Krzesiny.

Hane av törnskata på en äng nära banan på flygplatsen.



Figure 3. Nests distribution of Red-backed Shrike at the military airfield near Poznań-Krzesin.
Törnskatbonas placering vid flygplatsen.

hawthorn shrub, 110 m from an inhabited house and 750 m from the runway (Figure 3). The nests were located ca. 200 m apart: 215 m between N1 and N2, 202 m between N2 and N3, and 238 m between N1 and N3 (Figure 3). All the pairs bred successfully, but as early as in early August the adult and young birds left this area. This is not a typical behaviour of post-breeding dispersal in case of individuals breeding in rural landscape (Kuźniak & Tryjanowski 2003) and may suggest that the birds were affected by the noise. However, this needs further observation and objective confirmation. So far, a negative effect of noise on nesting birds has been described in relation to roads with heavy traffic (Halfwerk et al. 2011, Więcek et al. 2014). Noise caused by aircraft in a military airport does not fluctuate like that caused by road traffic. It is short-lasting and the effect on birds may therefore be different (Dobkiewicz 2008).

We suppose that the reasons why the Red-backed Shrikes nested within the airport were the presence of favourable breeding and foraging sites and the only sporadic human penetration of the vegetation behind the fence (Morelli 2013). Moreover, in some cases Red-backed Shrike selects areas close to urbanized places with good opportunities for nesting and foraging. Further research is needed in the study area, e.g. to determine if Red-backed Shrikes will return there in successive years.

References

- Akustix, L.B. 2011. *Monitoring okresowy hałasu lotniczego wokół lotniska wojskowego*
Poznań - Krzesiny - punkt P1. Poznań.
Dobkiewicz, G. 2008. *Strefa ograniczonego użytkowania*.
Wielkopolski Urząd Wojewódzki w

- Poznanii.
Halfwerk, W., Holleman, L.J.M., Lessells, C.M., & Slabbe-
koorn, H. 2011. Negative impact of
traffic noise on avian reproductive success. *Journal of App-
lied Ecology* 48: 210–219.
Kuźniak, S. & Tryjanowski, P. 2003. Gąsior. Wydawnic-
two Klubu Przyrodników.
Świebodzin.
Luniak, M., Kozłowski, P. Nowicki, W. & Plit, J. 2001. *Ptaki*
Warszawy. Wydawnictwo
PAN.
Ptaszyk, J. 2003. *Ptaki Poznania - stan jakościowy i*
ilościowy oraz jego zmiany w latach
1850 - 2000. Wydawnictwo Naukowe UAM.
Svensson, L., Mullarney, K., Zetterstrom, D. & Grant, P.
2009. *Collins Bird Guide*. London: Harper Collins Pub-
lisher Ltd.
Titeux, N., Dufrene M., Radoux J., Hirzel, A.H., & De-
fourny, P. 2007. Fitness-related parameters improve pres-
ence-only distribution modelling for conservation practice:
The case of the red-backed shrike. *Biological Conserva-
tion* 138: 207–223.
Tryjanowski, P. Kuźniak, S. & Diehl, B. 2000. Does breed-
ing performance of Red-backed
Shrike *Lanius collurio* depend on nest site selection? *Or-
nis Fennica* 77: 137–141.
Więcek, J., Kucharczyk, M., Polak, M. & Kucharczyk, K.
2014. Influence of road traffic on
woodland birds – an experiment with using of nestboxes.
Sylvan 158 (8): 630–640.
Morelli, F. 2013. Are the nesting probabilities of the red-
backed shrike related to proximity
to roads? *Nature Conservation* 5: 1–11.

Sammanfattning

Tre par törnskata häckade framgångsrikt nära ba-
norna vid den militära flygplatsen i Poznań i Po-
len. Det fanns lämplig biotop vid flygplatsen. Men
starkt ljud, till exempel vid hårt trafikerade vägar,
har i en del studier förmodats påverka fågellivet ne-
gativt. I detta fall häckade törnskatorna så nära som
750 meter från startbanorna där ljudnivån översteg
100 dB när planen av typ F-16 startade. Det finns
dock en skillnad mellan den aktuella störningen
och trafikbuller. Flygplan stör endast korta stunder
medan trafik stör under lång tid, och fåglarnas re-
aktioner kan vara olika i förhållande till vilken typ
av störning det är.

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Swedish Lesser White-fronted Geese *Anser erythropus* in the Baltic States

Svenska fjällgäss i de baltiska staterna

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The Lesser White-fronted Goose *Anser erythropus* is a globally threatened species (www.iucnredlist.org), listed as Critically Endangered in Sweden (www.artfakta.se). The species' only breeding population in the European Union is found in Sweden, a population that numbered about 45 birds in the spring of 2014 (Niklas Liljebäck in litt.). As the Lesser White-fronted Goose is included in Annex I of the Bird Directive, Sweden is under an obligation to take actions to ensure survival and reproduction of the species in its area of distribution (www.ec.europa.eu).

Lesser White-fronted Geese breeding in Sweden in the 20th century belonged to two different populations: those in northernmost Lapland belonged to the North Fennoscandian population, the others to the Scandinavian population (Kampe-Persson 2009). There were marked differences in migration routes between these populations (Rosenius 1937, Kampe-Persson 2009).

A reinforcement project was launched in Sweden in 1976 when the Scandinavian population faced the risk of becoming extinct (von Essen 1982). Captive-bred Lesser White-fronted Goose goslings were released with Barnacle Geese *Branta leucopsis* as foster parents in a traditional breeding area in Swedish Lapland, where the species reportedly had become extinct, though it still existed in other parts of the population's breeding range (Andersson & Holmqvist 2010). A total of 348 birds were released during the years 1981–1999 (Andersson & Larsson 2006). By the help of the foster parents a migration route to wintering quarters in The Netherlands was established (von Essen 1999).

Due to doubts about the genetic purity of the captive stock no birds were released during the years 2000–2009. Meanwhile, a new captive stock was built up, based on wild-caught birds from Russia (Blomqvist 2014). Though releases without foster parents had been a complete failure in a Finnish project (Markkola et al. 1999), that method was used when releases resumed in 2010. The reason to choose this method was to avoid hybridization between released birds and Barnacle Geese. The idea was that the released birds should join experienced Lesser White-front Geese and follow them

to wintering quarters in The Netherlands. If that did not work the released birds would probably end up wintering together with White-fronted Geese *Anser albifrons* somewhere in north-western Europe. In such case, there would be a high probability that several of the males would join the White-fronted Geese when they in spring left for their breeding grounds in Russia.

Before forming pair bonds for the first time many male geese make exploration trips, often taking them to alternative sites for staging, breeding, moulting and/or wintering. Some of these trips result in natal dispersal (see e.g. Nilsson & Persson 2001). Other surviving males usually return to their point of origin. For a Lesser White-fronted Goose wintering in one of the established wintering quarters in The Netherlands, the logical alternative to choose when making an exploration trip would be to follow White-fronted Geese when they leave for their Russian breeding grounds. During their pre-nuptial migration most White-fronted Geese make stop-over in the Baltic States. From there the male can continue to follow the Greater White-fronted Geese, join Lesser White-fronted Geese from the North Fennoscandian population or return to Sweden. The first-mentioned alternative exposes the bird to a higher mortality risk due to hunting.

To be able to adopt the best method for releasing captive-bred Lesser White-fronted Geese in Sweden, it is of importance to get information about individuals following White-fronted Geese during their pre-nuptial migration. As all Lesser White-fronted Geese released in Sweden are marked with coloured leg-bands, re-sightings could be obtained from the Baltic States, providing the birds make stop-over in those countries. However, are goose flocks staging in the Baltic States checked in such a way that Lesser White-fronted Geese fitted with coloured leg-bands are found and identified?

Monitoring

The Nemunas River delta in south-western Lithuania is an important staging area in spring, with up to 200,000–250,000 geese at the same time, the

vast majority of them White-fronted Geese (Julius Morkūnas in litt.). That Lesser White-fronted Geese from the North Fennoscandian population were staging in this area was discovered on 18 April 2007, when a male fitted with a satellite transmitter landed there (Kaartinen et al. 2009). For that reason, volunteers have checked staging goose flocks in accessible parts of the Nemunas River delta for the occurrence of Lesser White-fronted Geese since 2011 (Julius Morkūnas in litt.).

In the springs 2011–2014, two, three, three and eight sightings, respectively, of Lesser White-fronted Geese were reported from the Nemunas River delta (www.birdlife.lt). Most of these observations were of single birds but a flock of 15 was seen on 24 April 2012. In 2014, four males from the Swedish project were seen. All four had been released as first calendar-year birds, one in the breeding area at Svaipa in 2012, the other three at the moulting site in Hudiksvall in 2013.

During studies of staging geese in Latvia, the author has checked as many flocks as possible since 2008, especially in the spring of 2013 when a total of 33 staging areas were visited. Based on this field-work the number of staging Lesser White-fronted Geese in Latvia in the springs 2008–2014 was estimated to range 1–5 individuals (Kampe-Persson 2014). In the springs 2011–2014, the species was observed three times; one adult 18 April 2013 at Lake Zebrus and one adult 24 and 26 April 2014 at Svētes lower reaches.

In Estonia, Lesser White-fronted Geese from the North Fennoscandian population have been monitored every spring since 1999 (Toming 2014). Of 48 observations in the springs 2011–2014, none of them before 19 April, one was of a single bird, seven of two birds and the others of 3–29 birds (www.estbirding.ee, www.piskulka.net). No marked bird of Swedish origin has been re-sighted during monitoring work in Estonia (Toming 2014, Seppo Ekelund pers. comm.). Four re-sightings of Swedish-marked birds were obtained during monitoring of Barnacle Geese in western Estonia however (Leito 1994, Tolvanen et al. 2004). Other individuals passed the Baltic States unnoticed but were later on shot in Russia (Jan-Eric Hägerroth pers. comm.).

Conclusions

The Lesser White-fronted Goose is hard to spot and count, also by experienced observers today, when occurring in flocks of the White-fronted Goose (for references, see Kampe-Persson 2008). To monitor

staging North Fennoscandian Lesser White-fronted Geese in Estonia is feasible (Toming 2014) but to find all Lesser White-fronted Geese staging in the Baltic States is unrealistic. Occurrence pattern in Estonia of North Fennoscandian birds can be used as a guideline to determine the origin of unmarked individuals and birds where the legs were not seen. Single Lesser White-fronted Geese found in Lithuania and Latvia, especially when seen before 19 April, most likely originate from the Scandinavian population. Thus, the minimum number of Scandinavian birds observed in the Baltic States in the years 2011–2014 was one, two, four and eight individuals, respectively. These numbers might give a somewhat skewed picture of the true occurrence in the Baltic States, however, due to the fact that only a few of the more than 100 staging areas for White-fronted Goose in the Baltic States were checked for the occurrence of Lesser White-fronted Geese.

In the Nemunas River delta, the White-fronted Geese start to arrive in mid March, numbers peak in the first half of April and the last birds leave during the second week of May (Julius Morkūnas in litt.). With the exception of a later departure among the last birds the pattern is the same in Latvia as in Lithuania (Kampe-Persson 2014). So, it is plausible to assume that the White-fronted Geese staging in these two countries mostly are made up of different groups. It is much harder to look for Lesser White-fronted Geese in Latvia than in Lithuania however, as the White-fronted Geese are staging all over the country. Despite observational difficulties it would be desirable if at least the main flocks of White-fronted Geese in Latvia could be checked for the occurrence of Lesser White-fronted Geese. If such monitoring could be realized in Latvia, at the same time as the monitoring in Lithuania was maintained on at least the same level as earlier, the basic prerequisites of obtaining re-sightings of Swedish-marked Lesser White-fronted Geese staging in the Baltic States would be fulfilled.

References

- Andersson, Å. & Holmqvist, N. 2010. The Swedish population of Lesser White-fronted Goose *Anser erythropus* – supplemented or re-introduced? *Ornis Svecica* 20: 202–206.
- Andersson, Å. & Larsson, T. 2006. Reintroduction of Lesser White-fronted Goose *Anser erythropus* in Swedish Lapland. Pp. 635–636 in *Waterbirds around the world* (Boere, G., Galbraith, C. & Stroud, D., eds.). The Stationary Office, Edinburgh.
- Blomqvist, L. 2014. Lesser white-fronted geese. *Nordens Ark Annual Report* 2013: 16–17. Nordens Ark Foundation, Hunnebostrand.

- Essen, L. von 1982. Ett försök att återinplantera fjällgäsen i den skandinaviska fjällkedjan. Pp. 109–110 in *De svenska gässen* (Svensson, S., ed.). Vår Fågelvärld, Supplement No. 9. Sveriges Ornitologiska Förening, Stockholm.
- Essen, L. von. 1999. The Swedish reintroduction project of Lesser White-fronted Geese. Pp. 53–55 in *Fennoscandian Lesser White-fronted Goose conservation project. Annual report 1998* (Tolvanen, P., Øien, I.J. & Ruokolainen, K., eds.). WWF Finland Report 10 & Norwegian Ornithological Society, NOF Rapportserie Report No. 1-1999, Helsinki & Klæbu.
- Kaartinen, R., Castreén, K. & Tolvanen, P. 2009. Spring stage site of Fennoscandian Lesser White-fronted Geese revealed in the Nemunas delta, Lithuania. Pp. 16–17 in *Conservation of Lesser White-fronted Goose on the European migration route. Final report of the EU LIFE-Nature project 2005–2009* (Tolvanen, P., Øien, I.J. & Ruokolainen, K., eds.). WWF Finland Report 27 & Norwegian Ornithological Society, NOF Rapportserie Report No. 1-2009, Helsinki & Trondheim.
- Kampe-Persson, H. 2008. Historical occurrence of the Lesser White-fronted Goose *Anser erythropus* in the Atlantic flyway. *Ornis Svecica* 18: 69–81.
- Kampe-Persson, H. 2009. Vart flyttade de svenska fjällgässen? *Fåglar i Västerbotten* 34: 29–43.
- Kampe-Persson, H. 2014. Where, when and how many geese stage in Latvia? *Goose Bulletin* 19: 11–13.
- Leito, A. 1994. P. 46 in *Birds of Estonia*. (Leibak, E., Lilleleht, V. & Veromann, H., eds.). Estonian Academy Publishers, Tallinn.
- Markkola, J., Timonen, S. & Nieminen, P. 1999. The Finnish breeding and restocking project of the Lesser White-fronted Goose: results and the current situation in 1998. Pp. 47–50 in *Fennoscandian Lesser White-fronted Goose conservation project. Annual report 1998* (Tolvanen, P., Øien, I.J. & Ruokolainen, K., eds.). WWF Finland Report 10 & Norwegian Ornithological Society, NOF Rapportserie Report No. 1-1999, Helsinki & Klæbu.
- Nilsson, L. & Persson, H. 2001. Natal and breeding dispersal in the Baltic Greylag Goose *Anser anser*. *Wildfowl* 52: 21–30.
- Rosenius, P. 1937. *Sveriges fåglar och fågelbon*. Vol. 4. Gleerups, Lund.
- Tolvanen, P., Toming, M. & Pynnönen, J. 2004. Monitoring of Lesser White-fronted Geese in western Estonia in 2001–2003. Pp. 9–13 in *Fennoscandian Lesser White-fronted Goose conservation project. Report 2001–2003* (Aarvak, T. & Timonen, S., eds.). WWF Finland Report 20 & Norwegian Ornithological Society, NOF Rapportserie Report No 1-2004, Helsinki & Trondheim.
- Toming, M. 2014. Monitoring of Lesser White-fronted Geese in Estonia – Finnish-Estonian united efforts. P. 15 in *WWF:n kiljuhanhityöryhmä 30 vuotta*. 20 pp. WWF, Helsinki.
- dad gås. Förhoppningen var att de utsläppta gässen skulle slå följe med äldre erfarna fjällgäss och följa dem till övervintrings kvarteren i Nederländerna. Om detta misslyckades fanns risk att de utsläppta gässen skulle tillbringa vintern någon annanstans samt att en del hanar skulle följa med bläsgäss, då dessa lämnade vinterkvartern för att flytta till sina häckningsområden i Ryssland. För att förbättra utsläppsmetoderna är det av stort intresse att veta vilka hanar som följer med bläsgäss. Ifall rastande bläsgäsflockar noggrant kontrollerades med avseende på ingående fjällgäss skulle sådana uppgifter kunna erhållas från Baltikum.
- I Nemunasdeltat i Litauen, där antalet samtidigt rastande gäss, framförallt bläsgäss, om våren uppgår till 200.000–250.000, har frivilliga genomspanat flockarna efter fjällgäss årligen sedan 2011. 2014 hittades fyra märkta fjällgäshanar utsläppta som 1K-fåglar i Sverige, en i häckningsområdet 2012 och tre på ruggningslokalen i Hudiksvall 2013. Baserat på eget fältarbete har antalet rastande fjällgäss i Lettland under våren 2008–2014 uppskattats till 1–5 individer. I Estland har rastande norska fjällgäss studerats sedan 1999 utan att någon svenskmärkt fågel setts. Av totalt 48 observationer våren 2011–2014, ingen före den 19 april, var det endast en som gällde en ensam fågel.
- Om fjällgäss sedda ensamma i Litauen och Lettland inte var norska, utgjorde antalet observerade fjällgäss av troligt svenskt ursprung 1, 2, 4 respektive 8 under våren 2011–2014. Detta är dock minimiantal, ty det var endast bläsgäsflockar på ett fåtal av de mer än 100 rastområden som finns i dessa båda länder som genomspanades. Då bläsgässen som rastar i Litauen och Lettland till största delen utgörs av olika fåglar, skulle det vara önskvärt om även bläsgäsflockarna på de viktigaste rastlokaler i Lettland årligen kunde genomspanas efter fjällgäss. Om sådana fältkontroller kunde genomföras i Lettland, samtidigt som fältarbetet bibehölls på åtminstone samma nivå som tidigare i Litauen, skulle förutsättningarna för att erhålla observationer av rastande svenskmärkta fjällgäss i Baltikum vara uppfyllda.

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Sammanfattning

När man efter ett uppehåll på tio år återigen började sätta ut fjällgäss i Sverige år 2010 gjordes detta utan fosterföräldrar. Denna metod valdes för att undvika att hanar skulle bilda par med vitkin-

Spring staging of Eiders *Somateria mollissima* in some Swedish east coast archipelagos and at Gotland 2009 and 2010

Vårrastande ejdrar Somateria mollissima i några svenska ostkustskärgårdarna samt vid Gotland 2009 och 2010

LEIF NILSSON

The Eider *Somateria mollissima* is a common breeding species in the Baltic. In 2008, Ottosson et al. (2012) estimated that the breeding population of Eiders in the archipelagos of the four Swedish counties of Kalmar, Östergötland, Södermanland and Stockholm was in the order of 103 000 pairs, whereas the breeding population around Gotland was about 6000 pairs. The distribution of breeding Eiders in several regions is well known from extensive surveys (cf. Gezelius 2012, Sveriges Ornitologiska Förening 2009). On the other hand, the distribution of staging Eiders in early spring has not been studied on a regional level before.

During 2009–2011, extensive offshore surveys were undertaken in the Baltic (Nilsson 2012, Skov et al. 2011). The main target species was the Long-tailed Duck *Clangula hyemalis*. For various reasons some areas (the east coast archipelagos from Gävle–Kråkelund in 2009 and eastern Gotland in 2010) were surveyed during the time for the spring migration of the Eider (which is still winter for the Long-tailed Ducks, leaving the Baltic in May). In this short contribution I present the results from these surveys for the Eider to give first snapshots of the distribution of the species along the Baltic coast of Sweden during the migration period.

Material and methods

During three days in early spring 2009 (25 March 2 and 3 April) the main parts of the archipelagos and offshore waters of the Swedish mainland coast from Gävle in the north to Kråkelund in Kalmar county in the south were covered by aerial surveys along fixed transects with a distance of 4 km between survey lines (Figure 1). There were no counts in a part of the Uppland coast (Väddö) due to military training not allowing aerial survey. Moreover the surveys of the vast Stockholm archipelago were concentrated to the central and outer parts due to the distribution of the main target species. The east coast of Gotland was surveyed on 14 April 2010, also with 4 km between the transects.

For the surveys a twin-engined CESSNA-337

Skymaster was used flying at an altitude of about 70 m and at a speed of about 100 knots. Two observers were employed recording all birds within a sector of 200 m on each side of the aircraft. The survey belt is thus 320 m wide due to a blind angel just below the aircraft. Navigation was between fixed waypoints using the GPS of the aircraft, a separate GPS being used to track the actual flight. For further information on methods see Nilsson (2012).

Results and discussion

During the surveys in the mainland archipelagos in spring 2009, a total of 12 567 Eiders were counted in the main belt of the surveyed transects (Table 1). Taking the coverage into consideration this compares to an estimated total for the areas surveyed of 158 000 Eiders (Correction factor 12.5; see Nilsson 2012). Of these birds, 90 000 were estimated for the Stockholm archipelago but the actual number was certainly higher as the innermost parts of the archipelago were not covered by the surveys (Figure 1). In the other counties the coverage was nearly complete.

Table 1. Number of Eiders *Somateria mollissima* counted along the survey lines in the archipelagos of the different counties together with estimated totals for the surveyed areas.

Antal inräknade ejdrar längs inventeringslinjerna i skärgårdarna i de olika länen tillsammans med uppskattat antal för de inventerade områdena.

County <i>Län</i>	Counted <i>Räknat</i>	Estimated <i>Skattat</i>
N Kalmar	932	12000
Östergötland	1978	25000
Södermanland	1839	23000
Stockholm	7189	90000
Uppsala	629	8000
Total <i>Summa</i>	12567	158000

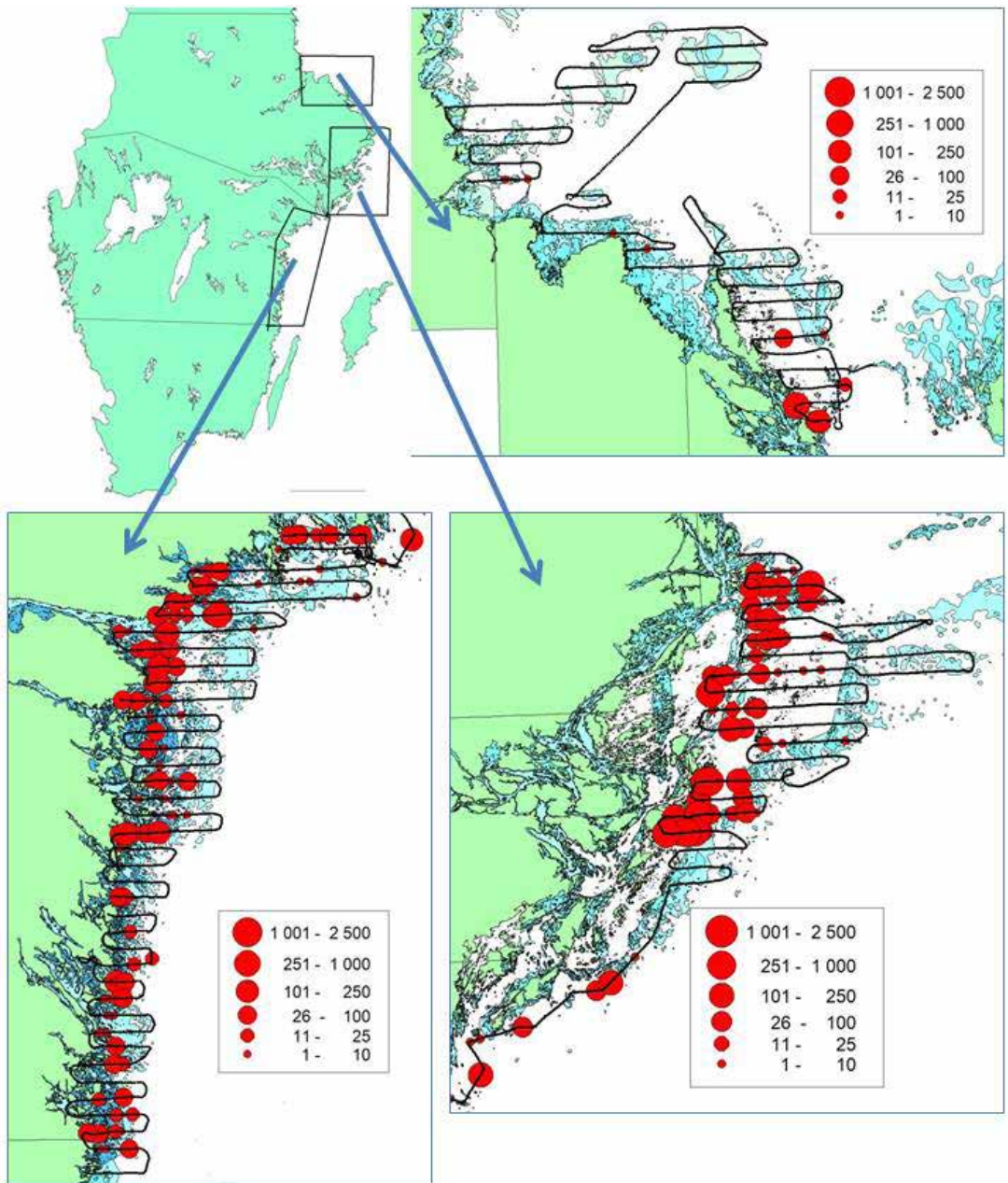


Figure 1. The distribution of staging Eiders *Somateria mollissima* in three east coast archipelagos in the spring of 2009. The dotted black lines show the actual flight paths during the surveys.
 Utbredning av rastande ejdrar i tre östkustskärgårdar våren 2009. De prickade linjerna anger flygrutterna.

The Eider was distributed all along the coast from Kråkelund in the archipelago of Kalmar County (southern limit of the study area) to the coasts of Uppsala County. On the other hand almost no Eiders were found in the northernmost area surveyed, the Gävle Bight. In the Stockholm archipelago the Eiders were found in the central part of the archipelago, very few in the outer parts. In the other archipelagos that are not so wide, the Eiders were concentrated to the parts quite close to but outside the larger islands.

The distribution of staging Eiders in the Stockholm archipelago during the present spring survey was different from the distribution of breeding Eiders according to a survey of the same areas in 2000–2005 (Sveriges ornitologiska Förening 2009). The largest concentrations of breeding Eiders were found in the outer parts of the archipelago, whereas we found few staging birds in this part. The larger staging flocks were recorded close to the larger islands in the central part of the archipelago. The reasons for this pattern are not

known. It is however important to bear in mind that just one survey is just a snapshot of the distribution of the Eider that can be affected by several factors.

East of Gotland a total of 4705 Eiders were counted in the main belt during the survey in mid-April 2010. This compares to an estimated total of about 60 000 Eiders. In addition to these Eiders a number of Eiders use the western coast of Gotland bringing the total for the island even higher. This estimate should be compared with an estimate of 6000 breeding pairs on Gotland (Ottosson et al. 2012). It is apparent that a large proportion of the Eiders at Gotland were on migration further north, most probably to the important breeding areas in the Finnish archipelago.

It is well-known that there is a massive migration of Eiders in spring along the Swedish Baltic coast with large numbers passing along the mainland coast through the Kalmarsund. Radar studies (Alerstam et al. 1974) shows that there is a massive migration also east of Öland, probably aiming more directly to areas on the east coast of the Baltic. The staging of large numbers of Eiders on the coast of Gotland is fully in line with this picture.

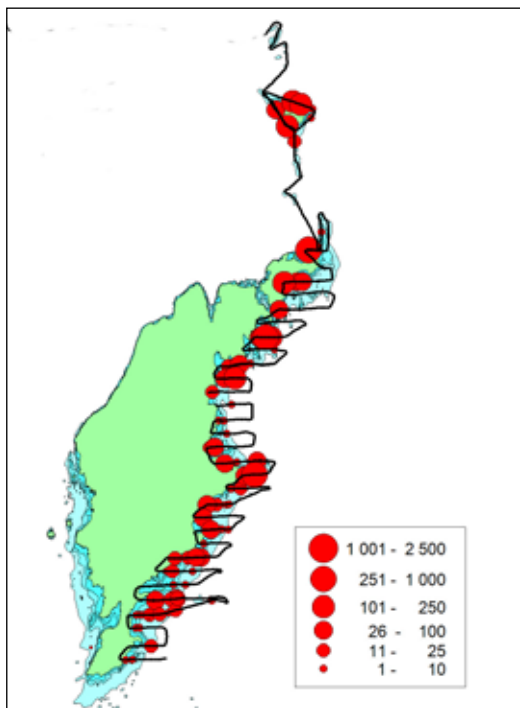


Figure 2. The distribution of staging Eiders *Somateria mollissima* along the east coast of Gotland on 14 April 2010. The dotted black lines show the actual flight paths during the surveys.

Utbredning av rastande ejdrar längs Gotlands ostkust 14 april 2010. De prickade linjerna anger flygrutterna.

Acknowledgements

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References

- Alerstam, T., Bauer, C.-A. & Roos, G. 1974. Spring migration of Eiders *Somateria mollissima* in southern Scandinavia. *Ibis* 116: 194–210.
- Gezelius, L. 2012. *Kustfåglar i Östergötland – inventeringar 2007 och 2010*. Länsstyrelsen i Östergötland Rapport 2012:7.
- Nilsson, L. 2012. Distribution and numbers of wintering sea ducks in Swedish offshore waters. *Ornis Svecica* 22: 39–60.
- Ottosson, U., Ottvall, R., Elmberg, J., Green, M., Gustafsson, E., Haas, F., Holmqvist, N., Lundström, Å., Nilsson, L., Svensson, M., Svensson, S. & Tjernberg, M. 2012. *Fåglarna i Sverige – antal och förekomst*. SOF, Halmstad.
- Skov, H., Heinänen, S., Zydels, R., Bellebaum, J., Bzoma, S., Dagys, M., Durinck, J., Garthe, S., Grishanov, G., Hario, M., Kiebusch, J.J., Kue, J., Kuresoo, A., Larsson, K., Luigujoe, L., Meissner, W., Nehls, H.W., Petersen, I.K., Roos, M.M., Pihl, S., Sonntag, N., Stock, A., Stipniece, A. & Wahl, J. 2011. *Waterbird Populations and Pressures in the Baltic Sea*. Tema Nord 2011:550.
- Sveriges Ornitologiska Förening. 2009. *Kustfågelbeståndets utveckling i Stockholms läns skärgård*.

Sammanfattning

Under 2009–2011 genomfördes omfattande flyginventeringar av sjöfågel i de svenska farvattnen för att kartlägga förekomsten av övervintrande sjöfåglar, med stark tonvikt på att kartlägga förekomsten av alfågel. Inventeringarna genomfördes på uppdrag av Naturvårdsverket och hade också som syfte att utarbeta metoder för utsjönventeringar av sjöfåglar. Inom ramen för undersökningarna genomfördes några inventeringar under ejderns flyttperiod: ostkustskärgårdarna (Figur 1) 25 mars – 3 april 2009 samt öster om Gotland (Figur 2) 14 april 2010. Eftersom regionala inventeringar av rastande ejdrar i de yttre havsområdena saknas ges här en kort presentation av resultaten från inventeringarna. Eftersom områdena bara inventerats vid ett tillfälle måste man beakta att de endast ger en ögonblicksbild av ejderförekomsten under våren i de aktuella områdena.

Ejdrarnas utbredning längs kusterna presenteras i kartor (Figur 1 och 2). När det gäller skärgårdarna visar ejdrarna en koncentration till zonen utanför

de större öarna (observera att de inre delarna av Stockholms skärgård inte inventerats). Däremot saknas i stort sett ejdrar i den yttre delen av Stockholms skärgård, där man har en betydande koncentration av häckande ejdrar. Vid Gotland förekom ejdrar i flockar längs hela ostkusten samt vid Gotiska Sandön.

I skärgårdsområdena räknades 12 500 ejdrar, vilket motsvarar 158 000 när man kompenserar för inventeringarnas täckningsgrad (Tabell 1). 90 000 av de beräknade ejdrarna återfanns i Stockholms skärgård, där ytterligare ett betydande antal torde ha funnits i de icke-inventerade delarna. Utanför Gotland räknades 4705 ejdrar, vilket motsvarar ett skattat antal på ca 60 000, vilket är vida mer än den häckande populationen på ca 6000 par. Ett betydande antal ejdrar på flyttning mot Finland torde rastat vid Gotland.

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